

Regime change, Religious Identity and Human Capital formation: Evidence from colonial India

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Abstract

When a ruler is deposed, how do members of the same ethnic group fare? In this context, we study whether the religion of the final ruler in an Indian district before colonisation affects the literacy of the subjects of his religion under British colonisation? We find (i) The Muslim (Hindu) literacy in an Indian district under the British is lower where the final ruler was Muslim (Hindu). (ii) This negative effect on literacy lasts only if there is a significant presence of the other religious communities in the region. (iii) The employment under the British of the two religious communities does not follow this pattern. These results are consistent with the interpretation that removal of the native ruler by the British causes resentment in the subjects belonging to his religious community and they refuse to accept the education system under the new regime. But this affects long term literacy outcomes only in the presence of competition from the other religious group.

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1 Introduction

When a ruler is deposed, how do members of the same ethnic group fare? On the one hand, the group might have acquired an economic leg-up under the ruler and continue to prosper, as a result, even after the ruler is deposed. On the other hand, the loss of political power or the hit to the groups sense of identity might have a negative impact on their prospects. The aim of this paper is to examine empirically the impact of such regime changes.

We study this question in India where the British, during the process of colonisation, start deposing rulers in different regions. These rulers belonged to different religions, particularly Hinduism and Islam. At the same time, Hindus and Muslims lived together under these rulers. It is in this context, we ask the following question: how does the religion of the final ruler before colonisation affect the literacy of religious groups in British India?

We consider that region in modern India, Pakistan and Bangladesh which was under the Mughal Empire in 1707, a grand Muslim empire which controlled most of India for almost two centuries¹, to maintain long run institutional stability. The disintegration of Mughal empire which began after the death of Emperor Aurangzeb in 1707 provides the necessary variation in the religion of the final ruler prior to the beginning of the colonisation process by the British in 1757. We constructed a novel data set combining the final religion of the ruler using Imperial Gazetteer of India (Hunter, 1908), with the literacy outcomes of the two communities at the district level using census data for the years 1881, 1911 and 1921.

We first estimate a simple OLS regression with year fixed effects to estimate the effect of religion of the final ruler on the literacy of the religious groups because we believe that the choice of British to conquer certain regions is not driven by the religion of the kings nor the literacy of the subgroups. Further, we control for local demographic variables like population shares of different religions, population shares of different castes and average

¹(Stein, 2010) on page 159, describes Mughal Empire is the following way: "The realm so defined and governed was a vast territory of some 750,000 square miles, ranging from the frontier with Central Asia in northern Afghanistan to the northern uplands of the Deccan plateau, and from the Indus basin on the west to the Assamese highlands in the east."

household size; local geographic factors like coastal dummy, major census city, altitude, latitude, and longitude; local measures of development include urbanisation, occupation classes (industry, agriculture etc.) and port city. As a further robustness check, we perform an instrumental variable analysis that exploits variation in the religion of the final ruler driven by a measure of distance and transportation costs for the pre-industrial era (Ozak, 2018), to the birth place of Shivaji (a rebel king who became a symbol of Hindu Rebellion (Vartak, 1999)).

We find that Muslim literacy in 1881, 1911 & 1921 is lower (both OLS and IV) in districts where the final ruler before British conquest was Muslim and Hindu literacy is lower (both OLS and IV) in regions where the final ruler was Hindu. This result is in sharp contrast to the results found by (Chaudhary & Rubin, 2016), that in Princely states of India which never experienced similar regime change and were indirectly ruled by the British, Muslim-ruled states had lower Hindu literacy but had no significant impact on Muslim literacy.

These results are robust even if we take the difference in literacy rates of the two religious communities as the dependant variable, control for measures of agricultural income, exclude districts with extremely small population of the a particular community and excluding districts where the final ruler was neither Hindu nor Muslim. We also test the randomness of the birthplace of Shivaji, to signal the validity of our instrument.

These results are consistent with the hypothesis espoused by many historians, particularly with respect to Islamic religion and it's followers, in case of both India and the Middle East which argues that when Islamic rulers and hegemony was replaced by the western colonisers and civilisation, Islamic world became resentful and reluctant to adopt the new world order (see, (Lewis, 2003), (Aziz, 1967)). However, modern research in behavioral economics has shown that though resentment can lead to retaliatory vendettas and subjects can behave in a way that is counter to immediate self-interest, allowing for cooling off periods, however, reduces resentment (See (Bolle, Tan, & Zizzo, 2014); (Persson, 2018))². Thus, it remains

²Anderlini et al (2009) is an important exception. We discuss it later in greater detail

unclear as to why and how does resentment caused among the subjects due to removal of it's religiously legitimate king creates this long term effect on literacy?

Investigating further, we find that the negative effect of the religion of the final ruler on literacy of it's subjects lasts only if there is a significant presence of the other community in the district. Thus, we think that inter-religious competition for economic opportunities under the British are crucial in determining whether the initial resentment caused by the British removal of native ruler leads to a long term effect on literacy or not. This hypothesis, is also consistent with the historical accounts which argue that political and economic competition in British India was organised along religious lines (Chandra, 1984) and also with the field of economics of conflict which shows theoretically as well as empirically that conflict and competition in a society is often influenced by pre-existing ethnic divisions in the society³.

It is possible that this effect on literacy is not driven by resentment but by strategic discrimination/kleptocracy (Acemoglu, Verdier, & Robinson, 2004) on part of the British who might want to avoid giving jobs opportunities to the just replaced ruling class in fear of rebellion and distrust for them. However, this would mean that we should see a similar pattern in job holdings under the British Government. But using Civil lists of employment records, we construct employment rate of different religious communities at the district level and do not see the pattern that we see for literacy rates i.e. Muslim (Hindu) employment rates are not lower in regions where the final ruler was Muslim (Hindu). Moreover (Chaudhary & Rubin, 2011) shows that British were not discriminating against the Muslims, in terms of provision of educational infrastructure, where Muslim kings had been ruling for a longer period of time.

We also show that results are not driven by border districts thus ruling out arguments related to conflict affecting human capital formation (see, (Foa, 2016)) and strengthening the arguments for identity playing a role as it is likely that the religious subjects living at the core of the states identified more closely with the ruler and thus reacted more sharply

³ (see (Esteban, Mayoral, & Ray, 2012) for an excellent summary)

to his removal than subjects at the periphery of the states. Also, we show that variable called “under instruction” found in 1881 census data is not predicted by religion of the final ruler thus ruling out arguments that resentment became part of the social memory and thus affected behavior even in the long run (see, (Anderlini, Gerardi, & Lagunoff, 2010))⁴.

We see our paper as providing first evidence that regime changes can adversely affect the religious group of the deposed ruler. And though providing evidence for the exact mechanism is beyond the scope of this paper, the set of results are internally consistent with the resentment plus inter-religious competition hypothesis. Thus, we give some quantitative evidence supporting the hypothesis espoused by many historians like (Lewis, 2003), (Aziz, 1967). However, we also show that their hypothesis is incomplete and resentment can affect long term outcomes only when there is at least one other underlying factor that causes the initial reaction to affect long term outcomes which possibly, in the case of India is inter-religious competition.

Our paper contributes to the literature that studies the political economy of regime change (Acemoglu & Robinson, 2000) , (Acemoglu & Robinson, 2001), (Acemoglu, Johnson, & Robinson, 2002), (Huillery, 2011), (Haggard & Kaufman, 2012), (Avery, 2020). (Acemoglu & Robinson, 2000) argues that groups whose political power is eroded can prove to be barriers to economic development. We contribute to this literature by showing that regime changes can adversely affect human capital formation among religious group of the deposed off ruler, because of the common religious identity.

We also contribute to the field of economics of religion⁵ (Becker & Woessmann, 2009), (Chaudhary & Rubin, 2011), (Jha, 2013), (Carvalho, 2013), (Chaudhary & Rubin, 2016),

⁴Since, we do not have district level pre-colonisation literacy data, we cannot rule out an unlikely but plausible scenario that Muslim literacy was always lower in kingdoms ruled by Muslim kings and Hindu literacy was always used by Hindu kings. However, using census level literacy data for Princely States in Colonial India which still had native rulers of different religion (Chaudhary & Rubin, 2016) show that Muslim (Hindu) literacy was **not** lower in Muslim (Hindu) king ruled states. Thus it is highly unlikely that this was the case before colonisation period in states that were now under direct control of the British. Moreover, in the next section we discuss state of education in pre-colonial India using anthropological surveys that argue that literacy levels were extremely low in Bengal, prior to British taking up the initiative to educate the masses.

⁵See, (S. Iyer, 2016) for a review

(Binzel & Carvalho, 2017), (Saleh, 2018), (Fruehwirth, Iyer, & Zhang, 2019), (Bazzi, Koehler-Derrick, & Marx, 2019), (Becker & Pascali, 2019) and (Saleh & Tirole, 2019). The paper that is most closely related to our work is (Chaudhary & Rubin, 2016) which, as discussed above, studies the effect of religion of the ruler on literacy rates of religious groups in Princely states under indirect rule of the British in India. We contribute to this literature by providing evidence consistent with the hypothesis that religion is an important marker of an individual identity to the extent that replacing the native ruler of one’s religious identity in India affected the literacy choices of their subjects at the expense of their own long term welfare. We also provide evidence consistent with the notion that inter-religious competition under the British in India affected long-term *distribution* of human capital between religious groups.

Another strand of literature that we contribute to is the research on reasons and consequences of decline in political power of Islam and its long term effects on Muslim community in both the Middle East and India. (Kuran, 2011) and (Kuran & Singh, 2013), study Islamic law and argue that both in India and the Middle east, Islamic law and it’s interpretation was detrimental for economic development of the Muslim community. (Lewis, 2003) and (Chaney, 2015) discuss how a technological decline in military power led to a decline in Islamic empires. Our work is closely related to the arguments made by (Aziz, 1967) and (Lewis, 2003) that it was the resentment in the Islamic world on being removed from power that made the followers reluctant to accept the new world order and accept modern education. Importantly, we provide quantitative evidence of a negative effect on human capital formation under colonial rule due to belonging to the religious group that held political power and show that this effect was not just limited to followers of Islam but to other religious groups as well, particularly Hindus in India.

The rest of the paper is structured as follows. The next section discusses the historical background. Section 3 provides the data sources used in the empirical analysis. Section 4 provides the main results, robustness checks and tests on exclusion restriction. Section 5 provides evidence on the resentment plus inter-religious hypothesis, including discussion on

doctrine of lapse. We also discuss and provide evidence ruling out other possible mechanisms in this section. Finally, 6 provides a summary of the results and provide concluding remarks.

2 Historical Background and Conceptual Framework

2.1 Background

We do our analysis on districts of colonial India which were part of erstwhile Mughal Empire in 1707 and also under the direct rule of the British. British conquered these regions from native kings and administered them directly. We choose the areas which were under Mughal Empire until 1707 so that any long-term institutional effect of empire is consistent over all regions.

Mughal Empire was founded in 1526 and reached its peak in 17th century when it extended over most of the Indian sub-continent and parts of Afghanistan. At it's peak, the empire territory included over four million square kilometres area (Turchin, Adams, & Hall, 2006). Figure 1 gives the extent of Mughal Empire at different time periods in History. Mughal Empire's identity of being Islamic in nature is widely discussed by researchers (Dale, 2009).

Mughal empire starts disintegrating rapidly after the death of its emperor Aurangzeb in 1707. It's dissolution is followed by the emergence of small successive states ruled by Hindu and Muslim kings. Figure 2 shows the religions of different rulers across India. There were many rebellions in many parts of India but Maratha rebellion beginning in the south-west region of the empire became the most successful one (Sen, 2010). The origin of this rebellion can be traced back to Shivaji who was born in Hill fort of Junnar in 1630. Shivaji led the Maratha rebellion and captured Mughal territories in South west India. His successors expanded the Maratha territory to other parts of India and Shivaji became a symbol of not just Maratha but Hindu Identity (Vartak, 1999). The political revival of Hindus in 18th century was prominent factor in Indian history. The Hindu identity of the rulers became

prominent while establishing the political supremacy on the ruin of the Mughal Empire (Majumdar, Datta, & Raychaudhuri, 1958).

Meanwhile, the East India Company which had humble beginnings as a trading company chartered in 1600, amassed great profits and an army and started annexing Indian territory, starting from Bengal, in 1757 with the Battle of Plassey (Metcalf & Metcalf, 2006). East India Company conquered many kingdoms and deposed the kings and established themselves as supreme power in India. The Marathas suffered a fatal blow and lost almost all territory to the British with the defeat in the Third Anglo-Maratha War in 1818 (Naravane, 2006). The British annexation continued till 1857 which was the year of the Indian mutiny or the First war of Independence, after which the Company rule ended and her Majesty's government took direct control over the territories in India and no further annexation was done (L. Iyer, 2010).

British depended heavily on native support for this expansion and consolidation of their rule. The company's three armies (located in Bengal, Bombay [Mumbai], and Madras [Chennai]), in 1857 had only 43,000 British to 228,000 native troops (Wolpert, 2019)⁶. However, as discussed before the support of the native subjects was very different depending upon how closely the natives identified with the king because of religious identity shared by them. But, this lack of support did not hurt the British much because they were always able to find local support from some faction of the Indian society (Hay, 1992). On the other hand, the communities which did not embrace western education had adverse long term outcomes.

Many historians in India, have attributed the lack of modernisation among Muslims to the resentment they felt towards the British at being replaced as the ruling class and thus their refusal to accept practices like modern education brought forth by the British (Aziz, 1967), (Khan, 1989), (Masselos, 1996). (Aziz, 1967) notes

“When Muslim hegemony was gone and real power lay with the British, the Muslims would not, could not, forget that they had once ruled over the land. Their reaction was

⁶After the mutiny, there was a major reorganization of the army and by 1867 the ratio turned to a safer mix of 65,000 British to 140,000 Indian soldiers.

bitter and truculent (page: 76).”

The attitudes of Muslims towards western education and English language and its impact on the community is again summarised by (Aziz, 1967) in the following paragraph.

“The Muslims did not take to the English language, and thus denied themselves opportunities of material as well as intellectual progress. Material, because Government jobs were open only to English-knowing persons; intellectual, because the entire corpus of Western knowledge and learning was shut out from them (page: 130).”

Again, many other historians have made similar claims. (Masselos, 1996) in his book on Indian nationalism notes how many historians claimed that Muslims were indeed full of resentment and nostalgia of their past glories.

“ It was argued that psychologically they (Muslims) had not recovered from their loss of power when they were supplanted as rulers of the subcontinent by the British and that they lived in the past, in a nostalgic world of former glories (page: 119).”

Similarly, we find instances where historians have talked about resentment in the Hindu community against the British, although such a narrative is not as popular as the one about Muslim resentment. However, if one goes through works by some very prominent Indian historians we do find arguments discussing how Hindu Identity was crucial to the kingdoms emerging from the ashes of the Mughal empire and how the Hindu subjects in these kingdoms when annexed by the British were not inclined to take up western education which was linked to christian missionaries (Majumdar, 1951). ***Cite some quotations***

A major event in British policy which triggered anger and rebellion among the Hindus was the advent of doctrine of lapse (G. Gupta, 2008). The doctrine which stated that “a state whose ruler died without a direct male heir was forfeit to the company” deprived Hindu kings of their traditional rights and thus was deeply resented by them. Major rebellions related to the Great revolt of 1857 can be traced to Hindu rulers and their subjects bitterly opposing

this particular British policy. One example is of the son of Bajji Rao II, the last Maratha Peshwa (Prime minister and de facto ruler), Nana Sahib (1820-1859) who was deprived of his titles and rights that he inherited from his late father, , as a result of Dalhousies Doctrine of Lapse.⁷ Hindu resentment can also be epitomized by the almost legendary status attained by story of Lakshmi Bai, the Rani, or Queen, of Jhansi. The Rani of Jhansi had her adopted son denied the right to replace her late husband (David, 2002). As the events of 1857 unfolded, the Rani led her troops and fought like a noble warrior and was dubbed as India's Joan of Arc⁸.

2.2 Framework

As discussed before, we discussed why we think that resentment is only one part of the mechanism that explains the distribution of human capital formation among different religious groups in India. Another, crucial aspect of the mechanism is the presence of a significant proportion of another religious community in the region. In this sub-section we discuss why conceptually the presence of a rival religious community affects long-term human capital formation of the religious group whose ruler got removed.

Seeing the proportion of overwhelming native presence in the East India company's army⁹, it is clear that native support was important for it to expand and consolidate it's rule in India. Consider a scenario, where the British colonises a region after removing the native ruler where two communities simultaneously co-exist. One community shares the religious identity with the deposed off ruler, however the other one does not. If the community of the deposed off ruler feels aggrieved and refused to cooperate with the British, the new rulers naturally became allies with the community who had no connection with the disposed of ruler. Thus, the rival religious community that was ready to co-operate with the British

⁷H. Read. India and its people: ancient and modern, with a view of the Sepoy mutiny: embracing an account of the conquests in India by the English, their policy and its results: the Moral Religious, and Political Condition of the People: their Superstitions, rites, and customs. Columbus: J. & H. Miller, 1858:72.

⁸<https://www.historyextra.com/period/victorian/manikarnika-who-was-rani-lakshmibai-how-did-she-die-hero-queen-jhansi-lakshmi-bai-east-india-company-bollywood/>

⁹(Wolpert, 2019)

to begin with, took the advantage of the British rule and western education, skewing human capital accumulation towards this community¹⁰ and made it very difficult for the rival community to catch up.

Now consider a scenario, where the British colonises a region after removing the native ruler where there is no meaningful presence of the rival religious community i.e. the community which does not share religious identity with the deposed off ruler. In the absence of such a community, it is rational for both the British and the local community to co-operate and co-exist, once the initial resentment cools off. Taken together, this framework predicts that resentment leads to long term adverse affects on the religious community of the deposed off ruler only in the presence of inter-religious competition for British jobs and education opportunities. Our results, discussed later in detail, provide evidence in line with the predictions of this framework. Here, we discuss the historical evidence which points towards the presence of inter-religious competition in the colonial India.

Historians who have studied modern India argue that inter-religious competition was a crucial feature of political and economic life under the British in India. In his book *Communalism in modern India*, (Chandra, 1984) studies the beginning and growth of political communalism in India and argues that British policy which organised electoral and economic competition along religious lines was instrumental in it becoming a potent force that ultimately led to the partition of the nation. Even British civil servants observed the competition for resources between the two communities during their time spent in the region. Sir William Hunter (1840-1900), a contemporary member of the Indian Civil Service as well as an imperial historian, noted in his book¹¹ that Muslim community has been “deprived of access to positions in government service by a rival Hindu community” (Masselos, 1996) page:120.

Finally, in this section we discuss the state of education in India prior to the 1881 census which is the first all India level study on the state of education in India and which we also

¹⁰See (as noted by many historians. See (Belmekki, 2017))

¹¹*The Indian Musalmans (1871)*

use in our paper. Unfortunately, there is no literacy or economic development data (as per the best of our knowledge) available at the religious community level prior to 1757 and hence we cannot provide a census level pre-treatment analysis on the state of literacy among the two major religious community in the region. We try to make up for it by (i) using an instrument (ii) Contrasting our results to studies on literacy of religious groups in Princely States under the indirect rule of the British¹². (iii) Providing evidence using anthropological surveys that were carried out by some British researchers in some parts of India in the early nineteenth century. This is discussed in the sub-section below.

2.3 State of Education in the early nineteenth century

The British first annexed and consolidated their rule in the eastern part of India. Consequently, the earliest anthropological surveys were carried out in that region¹³. The earliest anthropological survey was done by Francis Buchanan. The surveys were again recompiled by Martin Montgomery¹⁴ which we used to study the state of education discussed below. Also, we use the the so called Adam's report, a report prepared by a Scottish Missionary on the state of vernacular education in Bengal and Bihar, by the orders of Lord William Bentinck (Governor-general of India: 1828-1835)¹⁵.

Buchanan surveys were conducted between the years 1807-1814, and Adam's report was prepared between 1835-1838. Before we present the basic findings of these surveys, it must be noted that all these findings should be taken with precaution. Adam himself doubts the scientific validity of Buchanan's survey. Here we quote one of his objections.

“ Dr. Francis Buchanan surveyed and reported on the Bengal districts of Rangpur, Dinajpur, and Purniya. He had in some instances opportunities of inspecting the original

¹²(Chaudhary & Rubin, 2016)

¹³Francis Buchanan also covered southern India in his surveys, comprising regions of Mysore, Canara and Malabar but these regions are either not included in our sample because they were not part of the Mughal Empire or they remained a Princely state.

¹⁴(Martin, 1838)

¹⁵<https://livewarwick-my.sharepoint.com/personal/u1564970@warwick.ac.uk/Documents/project/202/adamsreports>
1e = eS06Wo&cid = 516e19b9 - 96d0 - 455f - a85c - f950107470ff

returns of 1801, and satisfied himself of their fallacy ; and his own estimates of the population of these three districts, founded on such data as the number of ploughs, the consumption of rice, &c., are greatly in excess of the preceding, in one instance about double, in another treble, and in a third nearly septuple (page: 16)."

Another instance where Adam casts doubt over the data on indigenous schools due to the fact that they seem to be based on second hand information is the following

"In the district of Dinajpur, Dr. Buchanan found only 16, and in that of Purniya not less than 119, a difference between two neighbouring districts in which some mistake may be suspected. The estimates of the number in other districts, besides those reported on by Dr. Buchanan, are not the results of personal inquiries, and less dependence is, therefore, to be placed on them. I (page: 26)."

And though Adam's report is a comprehensive report collecting information from various sources and provides suggestions in great detail on how to improve the state of vernacular education in the region, he himself notes down that his own report is also a collection of information from second hand sources

"I have not introduced into this report any statement of facts resting on my observation and authority, but have merely attempted to bring into a methodised form the information previously existing in detached portions respecting the state of education. The details, therefore, which follow must be regarded as the results of the observations of others, and as depending upon their authority, and all that I have done is to connect them with each other and present them in consecutive order. (page: 15)."

However, the importance of these surveys cannot be taken away particularly because both of them provide priceless information (even if partial) on the state of education in the early nineteenth century and the condition of indigenous schools in the region. Moreover, both surveys seem to agree that the state of education among the masses was in a bad situation and

both religious communities seemed to be in the pitfalls of ignorance and illiteracy. (Martin, 1838) discusses the state of education in district of Rangpur in these words (Page 499)

“The education of youth in human knowledge is still more neglected than in Dinajpoor , and there is no such thing as a public school of any kind . In place of having Pathsals , where a master (Guru) is employed to instruct any children that may apply , in reading and writing the vulgar language , and in keeping accounts , parents either instruct their own children , or hire a teacher (Guru) , who , in addition to the miserable pittance and food that he receives from his master , is allowed to teach four or five children of the neighbourhood , by which his situation is rendered somewhat more tolerable”

Talking about even “educated” people of the two communities in the district headquarters of Purniya, the report states that (Page 133)

“Indeed the little attention , that is paid to the education of the natives , who are to administer the Muhammedan law , which in criminal causes is that adopted by the company ’ s government , is in this district truly deplorable , and I doubt much , if one such man born here is tolerably well versed in the subject , nor so well informed nor liberally educated as the common attornies in a country town in England.”

“To judge from the number of Brahmans , who profess to teach their sciences , learning in this district ought to be con sidered as much more flourishing than either in Dinajpoor or Ronggopoor ; for in the course of my inquiries I heard of no less than 79 Pandits , who obtain the title of Adhyapak . Several doubts , however , may be entertained concerning the extent to which these persons diffuse knowledge . ”

It is worth noting that 79 teachers are considered to be ‘much more flourishing’, indicating even worse condition in other districts that have been surveyed. However, in the survey conducted in Kamrup district of Assam, we found some evidence indicating heterogeneity from early stages in the education level of Muslims in different regions. In district of Rangpur,

which was never part of the core Muslim empire¹⁶, Muslims seem to be better educated (page 503).

“On the whole , how ever , the Muhammedans seem rather better educated than in Dinajpooor , and seem to be more fitted for the business of the courts than the Hindus ”

Finally, we present the summary statistics from tables prepared in these reports. It should be noted that education level for both communities appear to be abysmally low. Hence, it seems that the education among the masses only picked up once the British altered it’s mass education policy after the Wood’s despatch (1854)¹⁷.

3 Data

Erstwhile Mughal Empire which covered most of the parts of India is the obvious case to test the identity and resentment effect on the human capital accumulation of different religious groups. The Mughal empire which was Muslim ruled till the death of Aurangzeb in 1707 saw many Hindu kings gaining Mughal territory in the Maratha rebellion originated by the hindu king Shivaji in Central India. British later conquered the hindu and muslim kings and established colonial rule. The religious identity of the subjects in kingdom played the important role when new education system was put in place by the Britishers. We started with the historical Atlas of Mughal period by Schwartzberg (1978) and superimposed it with the British ruled India in 1881, 1911 and 1921 using the Indian census maps by Singh and Banthia (2004) to get the inclusion criteria of districts ¹⁸. We collate district level GIS centroid from the Donaldson (2018) and mapping of colonial era district boundary from census Atlas (Singh & Banthia, 2004)¹⁹. The district wise information of the Mughal empire is then extracted from Indian Census of 1881, 1911 and 1921. The census data of Indian

¹⁶(Lorenzen, 1978)

¹⁷<https://babel.hathitrust.org/cgi/pt?id=hvd.32044105337398&view=plaintextseq=655q1=bengal20language>

¹⁸We used matching of Mughal Empire and Census boundaries using spatial overlay technique.

¹⁹Using the colonial census Atlas and Fenske (?) we traced the 1881, 1911, and 1921 modern district boundaries from the Database of Global Administrative Areas (GADM) to colonial district

districts covers most of the Indian Mughal Empire comprising of province of Assam, Bengal, Bihar & Orissa, Bombay, Central province, Madras, Punjab and United province²⁰. The data on literacy, social indicators, occupation, geography and development are also extracted from colonial census.

For the census of 1911, 1921 we use the aggregate literacy numbers reported in the Census volumes. Enumerators consider the person literate when he or she can read or write in any language. To remaining consistent with the definition of literacy, for 1881 census we remove those who were under “under instruction” or still learning to read and write. The disaggregated literacy rate of Hindu and Muslims is used in the empirical analysis²¹. Religion and dynasty of last ruler, year of annexation by British is from the Imperial Gazette (Hunter, 1908). Imperial Gazette is a twenty-six volume historical reference document. It lists the administrative provinces/districts/towns names in India and provides their socio-economic statistics. Every district commentary has history subsection which is used to determine the variables manually. To minimize the measurement error, the details of last ruler annexed by the British has been cross checked by the historical source (Majumdar, 1951).

Figure 2 shows the districts in 1911 marked by religion of last ruler. The data for religion of last ruler in colonial India districts as per 1911 census are presented in Table 1. The British annexed nearly half of the districts whose rulers was of Muslim religion and around 57 districts having Hindu rulers, which provides the variation in the empirical analysis. Most of the other religion (or districts where final ruler is uncertain because of complex political climate) is later dropped for robustness tests.

However, there might be some other reasons where British might allocate more public funds on education as a conscious policy decision. Chaudhary and Rubin (2011) states that British adopted policy to increase the enrolment rates and literacy of Muslims. As a part of this policy Muslims were eligible for scholarship and reduced tuitions fees in the Muslim majority districts (Cotton, 1898). This suggests to use the more precise variable in the

²⁰We exclude Bombay, Calcutta and Madras cities as they are different from large rural district of India

²¹ Age and gender based specific literacy numbers are available to test for robustness of results

research going forward ²². We follow the list of cities provided by the census of India to tag if the district consists of Census city. Medieval ports which acted as major Muslim trade route are very important due to strong labour complementary imposing significant effect on the returns of human capital accumulation. We include the list of major medieval port city from (Jha, 2013) in our empirical analysis.

The summary of the variables in the data is presented in the Table 2 for 1911 data and Table 3 for 1921 data. The descriptive statistics in Table 2 and Table 3 reveal that the average literacy of Hindus and Muslims is similar with large heterogeneity in the districts. The Hindu-Muslim literacy gap in the districts varies from -16% to 21% (1911 data). This shows the quantum of inter religion education outcome difference in the districts of colonial India. The average share of Muslims was 25% in districts against 70% of Hindus. This indicate that Muslims are not just small minority but constituted the sizable fraction of Indian population. Many controls are included in table from previous described sources. Indian society was divided in caste-based groups and its ramifications were immense in the educational outcome of caste groups. We include share of Brahman and lower caste in our analysis to control for this fragmentation. The year of annexation by British ranges from 1757 denoting Battle of Plassey and as late annexation after 114 years. We also include the years of Muslim rule to control the effect of the Muslim religious institution as described by the Chaudhary and Rubin (2011) and Jha (2013).

4 Results

The main regression equations that we estimate are given below. As discussed before, we want to estimate the effect of religion of the final ruler on literacy of his subjects under the British rule. For that in this section, first we estimate these equations using OLS regressions with many district level controls. Further, to alleviate concerns about omitted variable bias,

²²District gazetteer, the colonial reference books has the data on public education spending by rural district boards. Going forward we will try to use this data by digitizing the source

we use an instrument variable, then finally we test the robustness of our OLS estimates and the validity of our instrument.

$$\mathbf{Muslim\ LIT}_{it} = \alpha_1 + \beta_1 \mathbf{Religion\ of\ Last\ Ruler}_i + \gamma_1 X_{it} + \epsilon_{it} \quad (1)$$

$$\mathbf{Hindu\ LIT}_{it} = \alpha_2 + \beta_2 \mathbf{Religion\ of\ Last\ Ruler}_i + \gamma_2 X_{it} + \mu_{it} \quad (2)$$

where Muslim LIT and Hindu LIT is the Muslim and Hindu literacy respectively. X is the set of various control variables in the district i in time t . These include demographic controls like population shares of different religions, population shares of different castes, average household size. Then we have as set of geographic controls: coastal dummy, major census city in colonial India, altitude, latitude, and longitude. And finally a set of economic controls which include occupation classes (industry, agriculture etc.), port city and urbanization.

The first column of Table 4 shows that there is negative relationship between the Muslim literacy and religion of last ruler being Muslim in 1881. This difference in Muslim literacy being statistically significant is of non-trivial order, even without any controls. In column 2 of Table 4, we add geographic controls. Geographical controls like latitude and longitude are helpful in controlling the vast Mughal empire and its historical expansion into the southern boundaries. The magnitude of the coefficient of interest becomes larger after adding geographic controls. In column 3 and 4, we present results for the years 1911 and 1921, adding demographic and economic controls.

Presence of large Muslim population has been discussed in the literature as the precursor of low Muslim literacy (Chaudhary & Rubin, 2011). Large Muslim population might be associated with the strong sorting of Muslims in poorer districts. To overcome this bias, we also add the occupation, caste, geographical and income of districts control to test of the robustness of the identity variable. We also control for the city effect in district i.e. whether district comprises of major colonial city. Column 4 of Table 4 shows that the religion identity effect is still negative and statistically significant. The Muslim literacy decreases

by 1.94 percentage point and is of non-trivial order when compared to the mean Muslim literacy of the time. The Muslims in the districts which were ruled by Muslim ruler has 25 % less literacy rate than mean Muslim literacy rate in colonial India.

The first column of Table 5 report similar effect with Hindu literacy in the year 1881. Hindus in the districts who were ruled by the Hindu king have significantly lower literacy rate than other districts. Column 4 of table 5 shows similar negative effect on the religious identity of the final ruler in the year 1911 and 1921, with geographic, demographic and economic controls but with a smaller coefficient. We see this lower negative effect for Hindus as compared to Muslims in line with the hypothesis that within group fragmentation affects contests over group-specific public goods (Dasgupta & Neogi, 2018). This is true for the Hindu Identity which is usually considered to be much more fragmented than Muslims due to presence of caste and other lineage related associations²³. And even though we control for fraction of caste shares, our Y variable is not available at the caste level. Moreover, the lineage associations of different dynasties within a religious group remain. One of these famous lineage associations and inter-Hindu rivalry is the Maratha-Rajput rivalry (K. S. Gupta, 1970). We discuss why this matters in greater detail in our next section where try to overcome these issues using instrumental variable analysis. There we see the effect on Hindu literacy getting stronger for those regions where religious association with the disposed off rulers (the Marathas) is stronger because of lineage associations.

4.1 Instrumental variable results exploiting the concentric diffusion of Maratha (Hindu) Empire

This section uses an instrument variable strategy to overcome possible omitted variable bias that might affect the coefficients of our OLS regressions, for example the lineage and clan associations among the Hindus in different regions of India. As discussed before, after the disintegration of the Mughal Empire several small kingdoms arose in different parts of India

²³(Sharma, 1970)

but Maratha rebellion became the most successful one (Sen, 2010). One of the the rival Hindu powers in India who traditionally had cordial relations with the Mughals, the Rajputs also suffered defeats at the hands of the Marathas and were subject to taxation (K. S. Gupta, 1970). Since we have hypothesised that religion of the final ruler affects literacy because of the association the subjects have with it's disposed off ruler, it predicts that Hindus who associate themselves with Maratha identity will show more hostility towards British when there ruler is removed. Since Marathas originated in a particular geographic region of India, we exploit this region based associations to identify the effect of the 'Maratha Hindu' identity.

The origin of rebellion by Hindu king can be traced back to Shivaji who was born on 1630 in Junnar. Shivaji as a ruler occupies a distinguished place in history of India . "The Maratha nation he build up defied the Mughal empire during and after Aurangzeb's reign and remained dominant power in India during the 18th century . The Maratha power also competed with the English for supremacy in India till it was finally crushed in the time of Lord Hastings" says (Majumdar et al., 1958). The main reason for circular dispersion of Hindu territory around Junnar have been the travel cost of army and nature of territorial expansion where concentric pattern invasion is optimal for the conqueror whose defence lines are on the circumference and area is expanded radially in subsequent territory invasion. We took the geographic pattern of dispersion from Junnar as the variation in the religion of the ruler characteristic. We construct this measure that exploits variation in the new measures of distance and transportation costs for the pre-industrial era (Ozak, 2018). We thus use this time-distance measure of districts from Junnar as an instrument for religion of last ruler in Colonial India.

The first column of the table 6 reports the first stage measure of our instrument. We see, that our instrument is a strongly correlated with religion of the final over. We also present the F statistics of the instrument in the first stage shown in column 1, giving evidence that time-distance from Junnar is the good instrument of the religion of the last ruler. Column 2 shows the second stage results stating the effect of the removal of Muslim king by British

on the literacy of Muslims. The effect is negative and significant at 10% in IV specification. In fact the effect of religion of the final ruler is higher indicative of possible local lineage associations or possible selection bias. The subjects even though belonging to the same religion as the ruler, but living further away from the core of the kingdom might feel less connected with the king. This can be a possible reason for our higher IV estimate. The issue of selection bias can arise because, historical literature discusses that when the British realised the issue of poor education outcome in Muslims, they implemented various policies to improve the Muslim literacy rates. British targeted Muslim dominated districts to increase the literacy rate of Muslims by means of scholarship and other incentives to increase school enrolment of Muslims (Cotton, 1898).

Table 7 present IV results on Hindu literacy. Hindu literacy is again lower in areas where Hindu king was the final ruler. The IV estimates of effect of the religion of the final ruler is higher for Hindus than for Muslims. We think this is the case because of Muslim kings were more ‘local’ than Hindu kings. This is because after disintegration of the Mughal empire, the local Muslim nobels who became the dominant power in their region probably enjoyed local support and when British removed them, the local Muslim population in almost all regions, chose not to cooperate with the new regime. On the other hand, the Marathas who became the most dominant group in the 18th century and expanded outwards from their geographic origins in south-west India. Thus, though Hindus, Marathas were still considered occupiers by Hindus in many regions away from their heartland, for example the Rajput areas and kings of the north. This causes our IV estimates to be higher for Hindu literacy as the resentment would be much higher in places close to Junnar where Marathas originated.

We also check that the place of origin of the Maratha rebellion is not systematically correlated with oppression under the Mughal rule, thus making it more likely to have a rebellion or lower literacy to begin with by using the Hindu temple destruction data as per (Ticku, Shrivastava, & Iyer, 2018). This paper argues that economic downturns can create conditions for mass uprisings that threaten an authoritarian ruler and these rulers have an

incentive to destroy the religious sites of the majority community to prevent them to use them as co-ordination sites for a rebellion against the state. They provide empirical evidence documenting a positive relationship between weather fluctuations and the destruction of Hindu temples under Muslim rule. Thus, if Junnar is indeed random then the distance from Junnar should be uncorrelated with the temple destruction in different districts of India. We find that indeed temple destruction in the district is uncorrelated with distance of birth place of Shivaji in the data. See table 15. Moreover, the results in this table also imply that remaining (non-desecrated) temples are uncorrelated with time-distance from Junnar. Thus given that temples were often places of learning in ancient times, we see this result as evidence that education centres of the medieval times were also uncorrelated with our instrument, giving some evidence for the exclusion restriction.

4.2 Robustness

As a first robustness check for our OLS specification, we wanted to rule out across district geographic and economic effects on literacy. Although we control for many of these factors, there is still a possibility that some variable for example land quality in a region was affecting literacy rates among the masses. However, if we assume that these variables should affect different religious groups alike, then the literacy gap between the two groups should not be affected by these factors.

Thus we run the literacy gap specification above in table 10 i.e. Hindu literacy - Muslim literacy on a dummy of religion of the last ruler (Muslim =1, in column 1 and 2) and found the similar results as to the main specification. The literacy gap is positive and significant in the places where last ruler conquered by the colonial powers was of Muslim religion as shown in Table 10 with inclusion of controls and robustness tests. The Hindu-Muslim literacy gap is smaller by 7 percentage points when compared with the sample average.

We also test whether the results are robust to excluding the category when annexed ruler is of “other” religion. So we exclude those regions where the final ruler cannot be

classified into Hindu or Muslim. Table 13 and Table 14 presents such results. Then, we tested whether the results are not just driven by districts where the share in population of a particular religion is very small. This is because a very small community which were earlier the ruling class might be ‘directly’ affected when removed from power and maybe imprisoned or exiled when removed from power thus affecting long term human capital formation. We test for the robustness of the results after removing the districts which have share of Muslim population less than 1 to 4 percent. The identity and resentment effect is also robust to the exclusion of such districts in Table 11 and Table 12. As a further robustness check, rather than using occupation classes as an economic control, we use measures of real income constructed by (Donaldson, 2018). This measure is only available for regions which had railroad connectivity it reduces our already small sample by more than 15% and also leads to biased sample collection. Nonetheless, it gives a good robustness check to make sure than it is not income, combined with relative sub-population of the religious groups which is causing the literacy rate to vary across regions. Table 25 shows our results are robust to this measure as well.

5 Mechanisms

In this section, we interpret the main results of our paper and provide evidence for the interpretation rendered. As discussed before, our explanation is that resentment felt by the religious subjects due to removal of the religiously legitimate ruler made them unwilling to co-operate with the British immediately and if there was of a rival community in the region then they coordinated with the British immediately, thus creating a long term effect on human capital distribution for the two religious communities in British India.

To study this mechanism we study the difference in the literacy rates of the religious community within the region where the final ruler belonged to the same religion but the presence of the other religious communities varies. We do this for the years 1911 and 1921

as this the period which is at least 50 years after the annexation process stopped thus giving enough time for the possible.

We find strong evidence for that indeed presence of the rival religious communities affects long term human capital formation of religious groups in regions where the final ruler was the same, particularly for the Hindu Community. In column 2 of table 26 we add the interaction term between religion of the final ruler (if final ruler was Hindu, dummy = 1) and proportion of non-hindu population in the region. After adding the interaction term, the dummy for final ruler being Hindu loses significance, and the interaction term is negatively associated with Hindu literacy. This indicates that Hindu literacy was lower only in areas where the final ruler was Hindu and there was a significant presence of non-hindu population. Figure 4 shows the relation between literacy and the interaction term after controlling for our geographic, demographic and economic controls.

For Muslims, the results are not as strong. Column 1 of table 26 shows the results after adding the interaction term between religion of the final ruler (if final ruler was Muslim, dummy = 1) and proportion of non-muslim population in the region. Although the interaction term is negatively associated with literacy, as for the Hindu population but the effect is not significant. We think that this is the case because the effect of rival community on literacy is not linear. This non-linear effect can be seen if we plot the co-efficient of our main regression with increasing the threshold of rival communities population for both communities (see, figure 5 and 6).

It seems that presence of a rival community increases the negative effect of resentment on literacy in the long run up to a certain threshold level of the population and then ceases to matter. Thus given that Hindu is the majority religious group in most regions in India, the non-hindu population doesn't cross this threshold level (which seems to be around 40%) and thus linearity captures the result²⁴. On the other hand, the minority Muslim group is often dominated by non-muslim populations even in regions where the final ruler was Muslim

²⁴Although the results should be interpreted cautiously as there are very few regions where the final ruler was Hindu and yet there was a very high presence of Muslim community.

and this clustering at above the threshold population cannot be captured well in a linear specification as used above.

5.1 Other Possible Mechanisms

There are other possible mechanisms as well, that can explain our main results. However, these mechanisms are inconsistent with other empirical regularities that we find in the data. Here we discuss them in some detail.

Perhaps the most likely other reason that could lead to a negative effect of religion of the final ruler on literacy rates under the British is strategic use of the famous divide and rule policy followed by the British (Rahman & Kahn, n.d.). (Acemoglu et al., 2004) and (Wang & Alder, 2017) show how ‘kleptocracy’ might be useful for authoritarian ruler to maintain control over the citizens. It is very much possible that British did it strategically and discriminated against the community of the native ruler and favored the other community and treated them as allies. However, this policy would imply that the employment patterns of the two communities will also follow a pattern similar to literacy i.e. Muslim (Hindu) community should have less employment under the British where the final ruler was Muslim (Hindu).

We test this hypothesis using the list of employees available in the Quarterly Indian Civil List (October 1871). We use names of the employees to classify them into different religious communities and create a district level employment rate of different communities. As in clear from table 21 and 23, we don’t see a negative effect on employment of a particular community in an Indian district because of religion of a final ruler. On the other hand, Muslims seem to be employed more in districts where the final ruler was Muslim. This is in line with the British policy to promote Muslims in areas where they were lagging behind as discussed in (Chaudhary & Rubin, 2011) and (Cotton, 1898). Moreover, controlling for this employment data doesn’t alter the signs or affect significance level of the coefficients of our main results in 1881 data (see table 24 and 22). Thus, even if British were using divide

and rule policy and creating kleptocracy using pre-existing ethnic divisions in the society, we don't find any evidence supporting the hypothesis that this was done based on religion of the final ruler.

Another possible reason for a negative effect on literacy of a religious community due to the removal of final ruler of it's religion is that religious institutions of the religion of the ruler were stronger in the region where that community ruled for a longer period of time as argued by (Chaudhary & Rubin, 2011), in particular for Islamic institutions. Thus, in these regions the religious community neglected western education provided by state schools and thus lagged behind in literacy.

We control for this effect in two ways. First of all, we control for the year of annexation in our main regression. Since, a later date of year of annexation implies more time under the religiously inclined ruler, we think this as a proxy for strength of religious institutions. It is clear from table 16 and 17, that the religion of the final ruler remains negative and significant, even after including years of annexation.

Secondly, we use years of Muslim rule since the medieval period conquer of India by Islamic rulers as a proxy for the strength of religious institutions in the region created using (Jha, 2013). It must be noted here that this proxy measure can also be associated with the strength of the bond between the ruler and the subjects of his religion as one would expect that more years of Muslim rule created a stronger bond between the Muslim community and the ruling elite. Thus it is not clear whether it's association with literacy rates represent strength of Muslim institutions (Chaudhary & Rubin, 2011) or the resentment effect discussed by (Aziz, 1967). Moreover, this measure is mechanically heavily correlated with the main variable of interest i.e. religion of the final ruler as if the final ruler is Muslim in a district then it is likely that years of Muslim rule increase there.

Nonetheless, we run our main OLS regressions, controlling for years of Muslim rule. We present these results in table 18 and 19. As it is clear from the table, the inclusion of years of muslim rule causes the coefficient associated with the religion of final ruler on literacy to fall,

yet it remains negative and significant. We consider that is as evidence that even if religious institutions in the region did play a role, still resentment because of the removal of the final ruler by the British has at least some independent effect on human capital formation as captured by the negative and significant sign of the coefficient of interest. Moreover, table 19 shows that Muslim years of rule has no effect on Hindu literacy along expected lines.

Another possible reason, for the negative effect of pre-colonial religious association between kings and its subjects on human capital formation is due to presence of high level of conflict in pre-colonial India particularly after the death of Mughal Emperor Aurangzeb in 1707 (Foa, 2016). The newly formed smaller states were involved in constant armed struggles during this time and thus the border regions in these areas might be particularly adversely affected. This adverse effect on literacy can be along religious lines if Hindu ruler states fighting Muslim ruler states, were inflicting more losses to the people of other communities in warfare.

To test this we divide our sample into border districts and non-border districts and see the effect of region of final ruler on human capital formation. Table 20, provides the results. It is clear from the table that though boundary districts in themselves have a negative effect on literacy in line with (Foa, 2016), the interaction between the religion of final ruler and border district is actually positive and even significant in case the ruler of Muslim. It is also clear from the table that all the negative effect of religion of the final ruler on literacy of the subjects is coming from non-border districts. Hence, it is unlikely that the effect is coming from conflict but more likely from religious identity bonding that subjects in the core of these kingdoms have formed with their kings, thus rejecting the new western education offered by the British even at the cost of their own self-interest.

We discussed earlier that experimental research in behavioral economics has pointed out though anger and resentment can lead to non-cooperative behavior counter to self-interest, cooling off period reduces resentment (Bolle et al., 2014), (Persson, 2018). However, theoretical research like (Anderlini et al., 2010) argues that certain events in history can

become part of the social memory of the people and this can create and perpetuate endless destructive conflicts. In case of India and British colonisation, it means that the removal of the native ruler can become part of the social memory of his religious community and they can feel resentment and oppose co-operation even in long run.

If true, this would imply that resentment in itself can have long-term effects on human capital formation by British annexation becoming a bitter social memory in the eyes of some natives. To test for this, we see whether the “under instruction” population by religion in the 1881 census, is associated with religion of the final ruler. If resentment due to removal of the final ruler had become a social memory then the “under instruction” students of a particular religious community should also be negatively correlated with religion of the final ruler. However, we don’t find any significant correlation between “under instruction” students by religion in 1881 and final religion of the ruler (see table ??), thus showing that it is unlikely that resentment became a social memory leading to destructive non-cooperative behavior in the long run.

Finally, we discuss the evidence which points out further that British removal of the native ruler indeed played a crucial role in creating resentment among the natives by studying the distribution of educational outcomes in Princely states of India. As discussed by (L. Iyer, 2010), India was controlled by the British either directly i.e. first, under the command of the Governor-general under the East India Company and then under the command of viceroy of India who was answerable to the British Parliament or Indirectly, native rulers administering the local population and paying taxes to the British for protection.

In our paper, we study only British India because it is only here that there exists a ‘final’ ruler before the British annexation. Princely states continued to be ruled by local kings and princes and they belonged to different religions. Thus, studying the impact of religion of the ruler of literacy of the subjects in these regions provides a quasi-experiment as to what would have happened even in directly ruled British India if the native ruler was not removed and those states were also ruled indirectly.

(Chaudhary & Rubin, 2016) studies the effect of religion of the ruler on literacy rates of Hindu and Muslims in these Princely states. They find that Muslim ruler had no impact on Muslim literacy, however had a negative and significant impact on Hindu literacy. This is in line with the intuitive notion that Muslim kings perhaps neglected literacy of Hindu subjects or Hindus found education much less valuable as less opportunities were available to them in an administration governed by Muslims. Perhaps more importantly for the argument in this paper, these results indicate that the negative effect of religion of the final ruler on the human capital formation rate of it's religious subjects is not because Muslims were already behind under Muslim kings, even before annexation took place and similarly, Hindus were always behind under Hindu kings even before they were annexed. But rather, removal of the native ruler did play a role in this change in fortune for the two communities and as other results point out, it was resentment along with inter-religious competition that explains distribution of human capital in the two major religious communities. ~~We reproduce the table of the main result from (Chaudhary & Rubin, 2016) in the appendix.~~

6 Concluding Remarks

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Figures



Figure 1: Muslim Empire boundaries in 1707

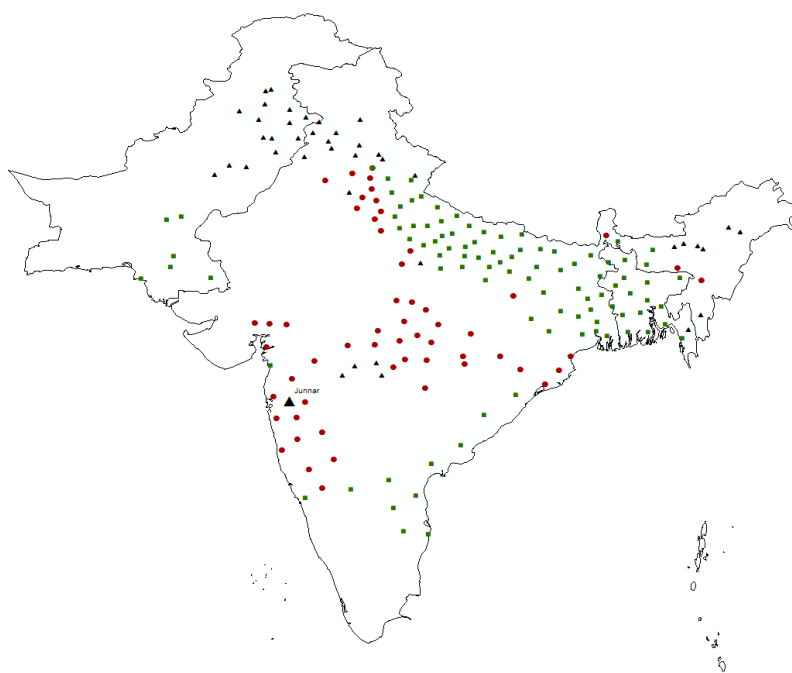


Figure 2: Religion of final ruler removed by British (1757-1857). Green(squares) - Muslim, Red (circles) - Hindu, Black (triangles) - Others

Tables

Table 1: Province-wise distribution of religion of last ruler in Districts (1911)

Province	Hindu	Muslim	Other	Total
Assam	2	3	7	12
Bengal	1	25	1	27
Bihar & Orissa	6	15	0	21
Cental Provinces	18	0	4	22
Madras	0	11	0	11
Punjab	4	0	24	28
United Provinces	9	35	4	48
bombay	16	8	0	24
Total	56	97	40	193

Note: This table lists the districts of British India defined by 1911 Indian Census which were part of Mughal empire (1707) and ruled directly (excluding princely states). Punjab province has majority of Sikh rulers who were deposed by British. Assam had neo-Tai and confluence of Tribal, Hindu and Buddhist religion which are tagged as others in table.

Table 2: Descriptive statistics of the Colonial India districts (1911)

	N	Mean	StdDev	Min	Max
Muslim Literacy	180	0.06	0.04	0.01	0.19
Hindu Literacy	190	0.07	0.05	0.02	0.23
Literacy gap	180	0.01	0.07	-0.16	0.21
% Hindu	190	0.69	0.28	0.04	0.99
% Muslim	180	0.25	0.27	0.00	0.91
% Christian	193	0.01	0.02	0.00	0.13
% Sikhs	193	0.01	0.05	0.00	0.40
% Tribes	193	0.06	0.15	0.00	0.95
% Others	193	0.01	0.05	0.00	0.66
% Brahman Caste	193	0.05	0.04	0.00	0.24
% Low Castes	193	0.16	0.08	0.00	0.38
% Rural	193	0.91	0.08	0.39	1.00
Urbanisation	193	0.09	0.08	0.00	0.61
Agriculture accp. %	193	0.71	0.12	0.37	0.97
Industry occup. %	193	0.12	0.07	0.00	0.34
Commerce occup. %	193	0.07	0.03	0.00	0.23
Profession occup. %	193	0.02	0.01	0.00	0.04
Normal rainfall	193	49.30	31.85	3.52	259.00
Latitude	193	24.80	4.42	13.06	33.57
Longitude	193	80.94	6.22	67.00	94.65
Total Area(sq km)	193	3651.66	2131.92	101.00	13888.00
Average Household size	193	4.82	0.47	3.63	6.22
Total population size	193	1037117.34	663909.74	39320.00	4526422.00
Real Income	162	23127416.55	17570861.55	254076.05	1.23e+08
Year annexed by British	193	1809.51	32.45	1757.00	1871.00
Years of muslim rule	193	109.51	32.45	57.00	171.00
Distance from Junnar	193	1157.31	474.65	76.64	2292.32

Note: This table lists the districts of British India defined by 1911 Indian Census which were part of Mughal empire (1707) and ruled directly (excluding princely states).

^a : Census document does not report the Literacy rate of Muslims in certain cities where there is negligible Muslim population. We do robustness checks excluding such sample completely.

^b : Donaldson() only reports the Income of districts where the agriculture data is available

^c Years of Muslim rule is from the establishment of Muslim dynasty in India till the Annexation by British powers

Table 3: Descriptive statistics of the Colonial India districts (1921)

	N	Mean	StdDev	Min	Max
Muslim Literacy	187	0.07	0.05	0.01	0.24
Hindu Literacy	193	0.07	0.05	0.02	0.23
Literacy gap	187	0.01	0.07	-0.17	0.20
% Hindu	193	0.68	0.28	0.05	0.99
% Muslim	187	0.26	0.27	0.00	0.91
% Christian	196	0.01	0.03	0.00	0.28
% Sikhs	196	0.01	0.05	0.00	0.42
% Tribes	196	0.05	0.14	0.00	0.91
% Others	196	0.01	0.05	0.00	0.69
% Brahman Caste	196	0.05	0.04	0.00	0.24
% Low Castes	196	0.14	0.08	0.00	0.35
% Rural	196	0.90	0.10	0.32	1.00
Urbanisation	196	0.10	0.10	0.00	0.68
Agriculture accp. %	196	0.72	0.13	0.28	1.18
Industry occup. %	196	0.11	0.06	0.00	0.31
Commerce occup. %	196	0.07	0.03	0.01	0.22
Profession occup. %	196	0.01	0.01	0.00	0.03
Normal rainfall	196	48.83	31.85	3.52	259.00
Latitude	194	24.83	4.43	13.06	33.57
Longitude	194	80.90	6.23	67.00	94.65
Total Area(sq km)	196	3597.77	2091.25	101.00	13636.00
Average Household size	196	4.76	0.47	3.56	6.02
Total population size	196	1028236.71	683605.51	45327.00	4837730.00
Real Income	162	21791731.36	15808155.27	248381.41	1.08e+08
Year annexed by British	194	1809.70	32.47	1757.00	1871.00
Years of Muslim rule	194	109.70	32.47	57.00	171.00
Distance from Junnar	194	1158.28	473.61	76.64	2292.32

Note: This table lists the districts of British India defined by 1911 Indian Census which were part of Mughal empire (1707) and ruled directly (excluding princely states).

^a : Census document does not report the Literacy rate of Muslims in certain cities where there is negligible Muslim population. We do robustness checks excluding such sample completely.

^b : Donaldson() only reports the Income of districts where the agriculture data is available

^c Years of Muslim rule is from the establishment of Muslim dynasty in India till the Annexation by British powers

Table 4: Association between Religion of last Ruler and Muslim literacy in Colonial India

	Muslim Literacy			
	(1)	(2)	(3)	(4)
Muslim ruler	-0.0150*** (0.00520)	-0.0205*** (0.00468)	-0.0228*** (0.00719)	-0.0194** (0.00789)
Geographic controls	NO	YES	YES	YES
Demographic controls	NO	NO	YES	YES
Economic controls	NO	NO	NO	YES
Year FE	YES	YES	YES	YES
Observations	549	547	365	365

Notes: Significance levels at * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Standard errors in parentheses corrected for district-level clustering. The Muslim ruler dummy (Hindu ruler Dummy) is assigned as one when the religion of last ruler whose territory British annexed is Muslim (Muslim). Demographic controls include population shares of different religions, population shares of different castes, average household size. Geographic controls: coastal dummy, major census city in colonial India, altitude, latitude, and longitude. Economic controls which include occupation classes (industry, agriculture etc.), port city and urbanization.

Table 5: Association between Religion of last Ruler and Hindu literacy in Colonial India

	Hindu Literacy			
	(1)	(2)	(3)	(4)
Hindu ruler	-0.0253*** (0.00501)	-0.0152*** (0.00416)	-0.00978* (0.00508)	-0.0106** (0.00498)
Geographic controls	NO	YES	YES	YES
Demographic controls	NO	NO	YES	YES
Economic controls	NO	NO	NO	YES
Year FE	YES	YES	YES	YES
Observations	565	563	365	365

Notes: Significance levels at * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Standard errors in parentheses corrected for district-level clustering. The Muslim ruler dummy (Hindu ruler Dummy) is assigned as one when the religion of last ruler whose territory British annexed is Muslim (Muslim). Demographic controls include population shares of different religions, population shares of different castes, average household size. Geographic controls: coastal dummy, major census city in colonial India, altitude, latitude, and longitude. Economic controls which include occupation classes (industry, agriculture etc.), port city and urbanization.

Table 6: IV results for Muslim literacy

	Muslim Literacy	
	(1)	(2)
Least Cost	0.0362*** (0.00627)	
Muslim ruler		-0.0307* (0.0176)
Geographic controls	YES	YES
Demographic controls	YES	YES
Economic controls	YES	YES
Year FE	YES	YES
N	365	365
Kleibergen-Paap Wald F statistics	33.4	

Notes: Significance levels at * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Standard errors in parentheses corrected for district-level clustering. The Muslim ruler dummy (Hindu ruler Dummy) is assigned as one when the religion of last ruler whose territory British annexed is Muslim (Muslim). Demographic controls include population shares of different religions, population shares of different castes, average household size. Geographic controls: coastal dummy, major census city in colonial India, altitude, latitude, and longitude. Economic controls which include occupation classes (industry, agriculture etc.), port city and urbanization.

Table 7: IV results for Hindu literacy

	Hindu Literacy	
	(1)	(2)
Least Cost	-0.0348*** (0.00654)	
Hindu ruler		-0.0607*** (0.0161)
Geographic controls	YES	YES
Demographic controls	YES	YES
Economic controls	YES	YES
Year FE	YES	YES
N	365	365
Kleibergen-Paap Wald F statistics	28.3	

Notes: Significance levels at * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Standard errors in parentheses corrected for district-level clustering. The Muslim ruler dummy (Hindu ruler Dummy) is assigned as one when the religion of last ruler whose territory British annexed is Muslim (Muslim). Demographic controls include population shares of different religions, population shares of different castes, average household size. Geographic controls: coastal dummy, major census city in colonial India, altitude, latitude, and longitude. Economic controls which include occupation classes (industry, agriculture etc.), port city and urbanization.

Table 8: IV results for Muslim literacy

	Muslim Literacy	
	(1)	(2)
Distance from Junnar	0.000741*** (0.000180)	
Muslim ruler		-0.0691*** (0.0240)
Geographic controls	YES	YES
Demographic controls	YES	YES
Economic controls	YES	YES
Year FE	YES	YES
N	365	365
Kleibergen-Paap Wald F statistics	17.0	

Notes: Significance levels at * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Standard errors in parentheses corrected for district-level clustering. The Muslim ruler dummy (Hindu ruler Dummy) is assigned as one when the religion of last ruler whose territory British annexed is Muslim (Muslim). Demographic controls include population shares of different religions, population shares of different castes, average household size. Geographic controls: coastal dummy, major census city in colonial India, altitude, latitude, and longitude. Economic controls which include occupation classes (industry, agriculture etc.), port city and urbanization.

Table 9: IV results for Hindu literacy

	Hindu Literacy	
	(1)	(2)
Hindu ruler		-0.0493*** (0.0150)
Distance from Junnar	-0.000957*** (0.000167)	
Geographic controls	YES	YES
Demographic controls	YES	YES
Economic controls	YES	YES
Year FE	YES	YES
N	365	365
Kleibergen-Paap Wald F statistics	32.9	

Notes: Significance levels at * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Standard errors in parentheses corrected for district-level clustering. The Muslim ruler dummy (Hindu ruler Dummy) is assigned as one when the religion of last ruler whose territory British annexed is Muslim (Muslim). Demographic controls include population shares of different religions, population shares of different castes, average household size. Geographic controls: coastal dummy, major census city in colonial India, altitude, latitude, and longitude. Economic controls which include occupation classes (industry, agriculture etc.), port city and urbanization.

Table 10: Literacy gap

	Literacy gap(Hindu-Muslim)			
	(1)	(2)	(3)	(4)
Muslim ruler	0.0120 (0.00884)	0.0175** (0.00758)		
Hindu ruler			-0.0579*** (0.00738)	-0.0251*** (0.00741)
Geographic controls	NO	YES	NO	YES
Demographic controls	NO	YES	NO	YES
Economic controls	NO	YES	NO	YES
Year FE	YES	YES	YES	YES
Observations	549	365	549	365

Notes: Significance levels at * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Standard errors in parentheses corrected for district-level clustering. The Muslim ruler dummy (Hindu ruler Dummy) is assigned as one when the religion of last ruler whose territory British annexed is Muslim (Muslim). Demographic controls include population shares of different religions, population shares of different castes, average household size. Geographic controls: coastal dummy, major census city in colonial India, altitude, latitude, and longitude. Economic controls which include occupation classes (industry, agriculture etc.), port city and urbanization.

Table 11: Muslim literacy: Excluding district with low muslim population share (1)<1%, (2)<2%, (3)<3%, and (4)<4%

	Muslim Literacy			
	(1)	(2)	(3)	(4)
Muslim ruler	-0.0166** (0.00697)	-0.0117* (0.00627)	-0.0132** (0.00611)	-0.0138** (0.00690)
Geographic controls	YES	YES	YES	YES
Demographic controls	YES	YES	YES	YES
Economic controls	YES	YES	YES	YES
Year FE	YES	YES	YES	YES
Observations	356	341	339	320

Notes: Significance levels at * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Standard errors in parentheses corrected for district-level clustering. The Muslim ruler dummy (Hindu ruler Dummy) is assigned as one when the religion of last ruler whose territory British annexed is Muslim (Muslim). Demographic controls include population shares of different religions, population shares of different castes, average household size. Geographic controls: coastal dummy, major census city in colonial India, altitude, latitude, and longitude. Economic controls which include occupation classes (industry, agriculture etc.), port city and urbanization.

Table 12: Hindu literacy: Excluding district with low hindu population share (1)<1%, (2)<2%, (3)<3%, and (4)<4%

	Hindu Literacy			
	(1)	(2)	(3)	(4)
Hindu ruler	-0.0106** (0.00498)	-0.0106** (0.00498)	-0.0106** (0.00498)	-0.0106** (0.00494)
Geographic controls	YES	YES	YES	YES
Demographic controls	YES	YES	YES	YES
Economic controls	YES	YES	YES	YES
Year FE	YES	YES	YES	YES
N	365	365	365	364

Notes: Significance levels at * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Standard errors in parentheses corrected for district-level clustering. The Muslim ruler dummy (Hindu ruler Dummy) is assigned as one when the religion of last ruler whose territory British annexed is Muslim (Muslim). Demographic controls include population shares of different religions, population shares of different castes, average household size. Geographic controls: coastal dummy, major census city in colonial India, altitude, latitude, and longitude. Economic controls which include occupation classes (industry, agriculture etc.), port city and urbanization.

Table 13: Muslim Literacy: Excluding religions 1)Gurkhas 2)Mixed/Tribal 3)Neo-Hindu/Tai 4)Sikhs 5)Uncertain

	Muslim Literacy				
	(1)	(2)	(3)	(4)	(5)
Muslim ruler	-0.0138* (0.00729)	-0.0195** (0.00809)	-0.0216*** (0.00824)	-0.0181** (0.00875)	-0.0213*** (0.00805)
Geographic controls	YES	YES	YES	YES	YES
Demographic controls	YES	YES	YES	YES	YES
Economic controls	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES
N	359	361	358	318	357

Notes: Significance levels at * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Standard errors in parentheses corrected for district-level clustering. The Muslim ruler dummy (Hindu ruler Dummy) is assigned as one when the religion of last ruler whose territory British annexed is Muslim (Muslim). Demographic controls include population shares of different religions, population shares of different castes, average household size. Geographic controls: coastal dummy, major census city in colonial India, altitude, latitude, and longitude. Economic controls which include occupation classes (industry, agriculture etc.), port city and urbanization.

Table 14: Hindu Literacy: Excluding religions 1)Gurkhas 2)Mixed/Tribal 3)Neo-Hindu/Tai 4)Sikhs 5)Uncertain

	Hindu Literacy				
	(1)	(2)	(3)	(4)	(5)
Hindu ruler	-0.0105** (0.00496)	-0.0105** (0.00501)	-0.0106** (0.00503)	-0.00786* (0.00472)	-0.0129** (0.00515)
Geographic controls	YES	YES	YES	YES	YES
Demographic controls	YES	YES	YES	YES	YES
Economic controls	YES	YES	YES	YES	YES
Income control	YES	YES	YES	YES	YES
Year FE	359	361	358	318	357

Notes: Significance levels at * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Standard errors in parentheses corrected for district-level clustering. The Muslim ruler dummy (Hindu ruler Dummy) is assigned as one when the religion of last ruler whose territory British annexed is Muslim (Muslim). Demographic controls include population shares of different religions, population shares of different castes, average household size. Geographic controls: coastal dummy, major census city in colonial India, altitude, latitude, and longitude. Economic controls which include occupation classes (industry, agriculture etc.), port city and urbanization.

Table 15: Randomness of instrument: (1) Desecrated temples (IV:distance) and (2) Desecrated temples (IV: least cost time)

	Number of desecrated temples	
	(1)	(2)
Distance from Junnar	0.0000279 (0.000248)	
Least Cost		-0.00131 (0.00692)
Geographic controls	YES	YES
Demographic controls	YES	YES
Economic controls	YES	YES
Income control	YES	YES
Year FE	365	365

Notes: Significance levels at * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Standard errors in parentheses corrected for district-level clustering. The Muslim ruler dummy (Hindu ruler Dummy) is assigned as one when the religion of last ruler whose territory British annexed is Muslim (Muslim). Demographic controls include population shares of different religions, population shares of different castes, average household size. Geographic controls: coastal dummy, major census city in colonial India, altitude, latitude, and longitude. Economic controls which include occupation classes (industry, agriculture etc.), port city and urbanization.

Table 16: OLS: Muslim literacy : Years since annexation

	Muslim literacy			
	(1)	(2)	(3)	(4)
Muslim ruler	-0.0248*** (0.00577)	-0.0278*** (0.00483)	-0.0243*** (0.00727)	-0.0212*** (0.00793)
Geographic controls	NO	YES	YES	YES
Demographic controls	NO	NO	YES	YES
Economic controls	NO	NO	NO	YES
Year FE	YES	YES	YES	YES
N	547	547	365	365

Notes: Significance levels at * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Standard errors in parentheses corrected for district-level clustering. The Muslim ruler dummy (Hindu ruler Dummy) is assigned as one when the religion of last ruler whose territory British annexed is Muslim (Muslim). Demographic controls include population shares of different religions, population shares of different castes, average household size. Geographic controls: coastal dummy, major census city in colonial India, altitude, latitude, and longitude. Economic controls which include occupation classes (industry, agriculture etc.), port city and urbanization.

Table 17: OLS: Hindu literacy : Years since annexation

	Hindu literacy			
	(1)	(2)	(3)	(4)
Hindu ruler	-0.0267*** (0.00572)	-0.0134*** (0.00438)	-0.00965* (0.00518)	-0.0102** (0.00502)
Geographic controls	NO	YES	YES	YES
Demographic controls	NO	NO	YES	YES
Economic controls	NO	NO	NO	YES
Year FE	YES	YES	YES	YES
N	563	563	365	365

Notes: Significance levels at * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Standard errors in parentheses corrected for district-level clustering. The Muslim ruler dummy (Hindu ruler Dummy) is assigned as one when the religion of last ruler whose territory British annexed is Muslim (Muslim). Demographic controls include population shares of different religions, population shares of different castes, average household size. Geographic controls: coastal dummy, major census city in colonial India, altitude, latitude, and longitude. Economic controls which include occupation classes (industry, agriculture etc.), port city and urbanization.

Table 18: Length of muslim rule : Muslim literacy

	Muslim literacy			
	(1)	(2)	(3)	(4)
Muslim ruler	-0.0144*** (0.00523)	-0.0179*** (0.00604)	-0.0175** (0.00871)	-0.0152* (0.00879)
Years of muslim rule	-0.00897*** (0.00120)	-0.00714*** (0.00203)	-0.00666** (0.00309)	-0.00680** (0.00283)
Geographic controls	NO	YES	YES	YES
Demographic controls	NO	NO	YES	YES
Economic controls	NO	NO	NO	YES
Year FE	YES	YES	YES	YES
N	547	547	365	365

Notes: Significance levels at * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Standard errors in parentheses corrected for district-level clustering. The Muslim ruler dummy (Hindu ruler Dummy) is assigned as one when the religion of last ruler whose territory British annexed is Muslim (Muslim). Demographic controls include population shares of different religions, population shares of different castes, average household size. Geographic controls: coastal dummy, major census city in colonial India, altitude, latitude, and longitude. Economic controls which include occupation classes (industry, agriculture etc.), port city and urbanization.

Table 19: Length of muslim rule : Hindu litearcy

	Hindu literacy			
	(1)	(2)	(3)	(4)
Hindu ruler	-0.0161*** (0.00608)	-0.0164** (0.00816)	-0.0118** (0.00495)	-0.0105** (0.00493)
Years of muslim rule	0.00576*** (0.00187)	0.000785 (0.00396)	-0.00222 (0.00220)	-0.000394 (0.00234)
Geographic controls	NO	YES	YES	YES
Demographic controls	NO	NO	YES	YES
Economic controls	NO	NO	NO	YES
Income control	YES	YES	YES	YES
Year FE	563	182	365	365

Notes: Significance levels at * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Standard errors in parentheses corrected for district-level clustering. The Muslim ruler dummy (Hindu ruler Dummy) is assigned as one when the religion of last ruler whose territory British annexed is Muslim (Muslim). Demographic controls include population shares of different religions, population shares of different castes, average household size. Geographic controls: coastal dummy, major census city in colonial India, altitude, latitude, and longitude. Economic controls which include occupation classes (industry, agriculture etc.), port city and urbanization.

Table 20: OLS Border district

	Muslim literacy	
	(1)	(2)
Muslim ruler	-0.0322** (0.0125)	
Hindu ruler		-0.0237*** (0.00708)
boundary	-0.0279*** (0.00944)	-0.0133*** (0.00480)
cross	0.0325** (0.0128)	
crossH		0.0112 (0.00762)
Geographic controls	YES	YES
Demographic controls	YES	YES
Economic controls	YES	YES
Year FE	YES	YES
N	357	357

Notes: Significance levels at * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Standard errors in parentheses corrected for district-level clustering. The Muslim ruler dummy (Hindu ruler Dummy) is assigned as one when the religion of last ruler whose territory British annexed is Muslim (Muslim). Demographic controls include population shares of different religions, population shares of different castes, average household size. Geographic controls: coastal dummy, major census city in colonial India, altitude, latitude, and longitude. Economic controls which include occupation classes (industry, agriculture etc.), port city and urbanization.

Table 21: OLS Muslim employment (1881)

	Muslim Employment	
	(1)	(2)
Muslim ruler	0.0236 (0.0201)	0.0534*** (0.0188)
Demographic (population)	NO	YES
Geographic controls	NO	YES
N	173	172

Notes: Significance levels at * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Standard errors in parentheses corrected for district-level clustering. The Muslim ruler dummy (Hindu ruler Dummy) is assigned as one when the religion of last ruler whose territory British annexed is Muslim (Muslim). Demographic controls include population shares of different religions, population shares of different castes, average household size. Geographic controls: coastal dummy, major census city in colonial India, altitude, latitude, and longitude. Economic controls which include occupation classes (industry, agriculture etc.), port city and urbanization.

Table 22: OLS Muslim literacy with employment as control (1881)

	Muslim literacy	
	(1)	(2)
Muslim ruler	-0.00632* (0.00330)	-0.00865** (0.00409)
muslimemp		-0.0294** (0.0137)
hinduemp		-0.0312** (0.0143)
Demographic (population)	NO	YES
Geographic controls	NO	YES
N	182	171

Notes: Significance levels at * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Standard errors in parentheses corrected for district-level clustering. The Muslim ruler dummy (Hindu ruler Dummy) is assigned as one when the religion of last ruler whose territory British annexed is Muslim (Muslim). Demographic controls include population shares of different religions, population shares of different castes, average household size. Geographic controls: coastal dummy, major census city in colonial India, altitude, latitude, and longitude. Economic controls which include occupation classes (industry, agriculture etc.), port city and urbanization.

Table 23: OLS Hindu employment (1881)

	Hindu Employment	
	(1)	(2)
Hindu ruler	0.0298 (0.0276)	0.0419 (0.0345)
Demographic (population)	NO	NO
Geographic controls	NO	YES
N	173	172

Notes: Significance levels at * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Standard errors in parentheses corrected for district-level clustering. The Muslim ruler dummy (Hindu ruler Dummy) is assigned as one when the religion of last ruler whose territory British annexed is Muslim (Muslim). Demographic controls include population shares of different religions, population shares of different castes, average household size. Geographic controls: coastal dummy, major census city in colonial India, altitude, latitude, and longitude. Economic controls which include occupation classes (industry, agriculture etc.), port city and urbanization.

Table 24: OLS Hindu literacy with employment as control (1881)

	Hindu Literacy	
	(1)	(2)
Hindu ruler	-0.0195** (0.00836)	-0.0156*** (0.00493)
hinduemp	-0.0347 (0.0227)	-0.0460 (0.0479)
muslimemp	-0.0263 (0.0290)	-0.0823* (0.0428)
Demographic (population)	NO	NO
Geographic controls	NO	YES
N	171	171

Notes: Significance levels at * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Standard errors in parentheses corrected for district-level clustering. The Muslim ruler dummy (Hindu ruler Dummy) is assigned as one when the religion of last ruler whose territory British annexed is Muslim (Muslim). Demographic controls include population shares of different religions, population shares of different castes, average household size. Geographic controls: coastal dummy, major census city in colonial India, altitude, latitude, and longitude. Economic controls which include occupation classes (industry, agriculture etc.), port city and urbanization.

Table 25: Robustness of OLS with income as a control (1881)

	Muslim Literacy	Hindu Literacy
	(1)	(2)
Muslim ruler	-0.0168 (0.0106)	
Hindu ruler		-0.0130** (0.00544)
Geographic controls	YES	YES
Demographic controls	YES	YES
Economic controls	YES	YES
Year FE	YES	YES
Income control	YES	YES
N	315	315

Notes: Significance levels at * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Standard errors in parentheses corrected for district-level clustering. The Muslim ruler dummy (Hindu ruler Dummy) is assigned as one when the religion of last ruler whose territory British annexed is Muslim (Muslim). Demographic controls include population shares of different religions, population shares of different castes, average household size. Geographic controls: coastal dummy, major census city in colonial India, altitude, latitude, and longitude. Economic controls which include occupation classes (industry, agriculture etc.), port city and urbanization.

Table 26: Mechanism: Hindu literacy and competition

	Muslim Literacy	Hindu Literacy
	(1)	(2)
Muslim ruler	-0.00487 (0.0145)	
Hindu ruler		0.00502 (0.00593)
nonmuslim	0.0950*** (0.0222)	
MRulerInt	-0.0179 (0.0183)	
nonhindu		0.149*** (0.0150)
HRulerInt		-0.0801*** (0.0224)
Demographic controls	YES	YES
Geographic controls	YES	YES
Year FE	YES	YES
Observations	365	375

Notes: Significance levels at * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Standard errors in parentheses corrected for district-level clustering. The Muslim ruler dummy (Hindu ruler Dummy) is assigned as one when the religion of last ruler whose territory British annexed is Muslim (Muslim). Demographic controls include population shares of different religions, population shares of different castes, average household size. Geographic controls: coastal dummy, major census city in colonial India, altitude, latitude, and longitude. Economic controls which include occupation classes (industry, agriculture etc.), port city and urbanization.

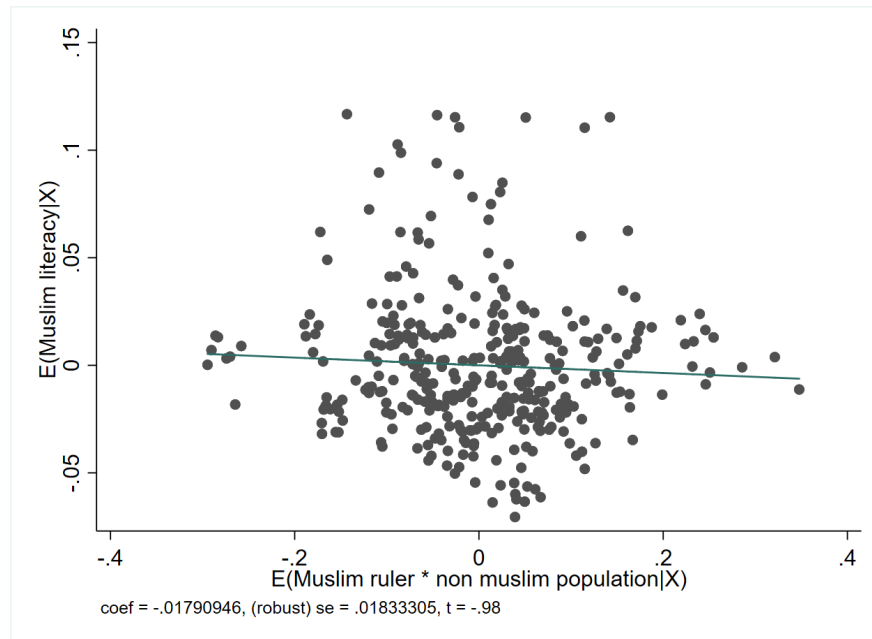


Figure 3: Muslim literacy and religious competition

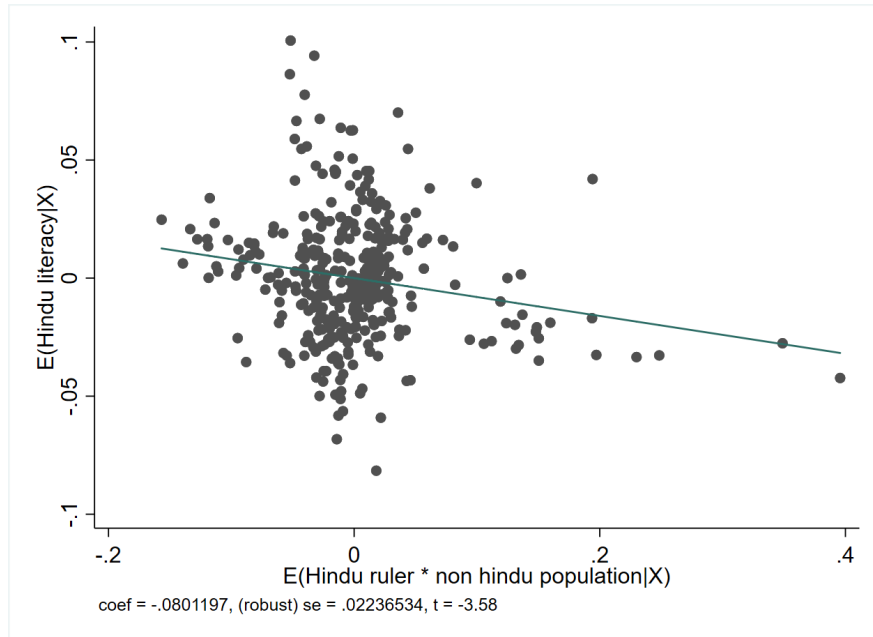


Figure 4: Hindu literacy and religious competition

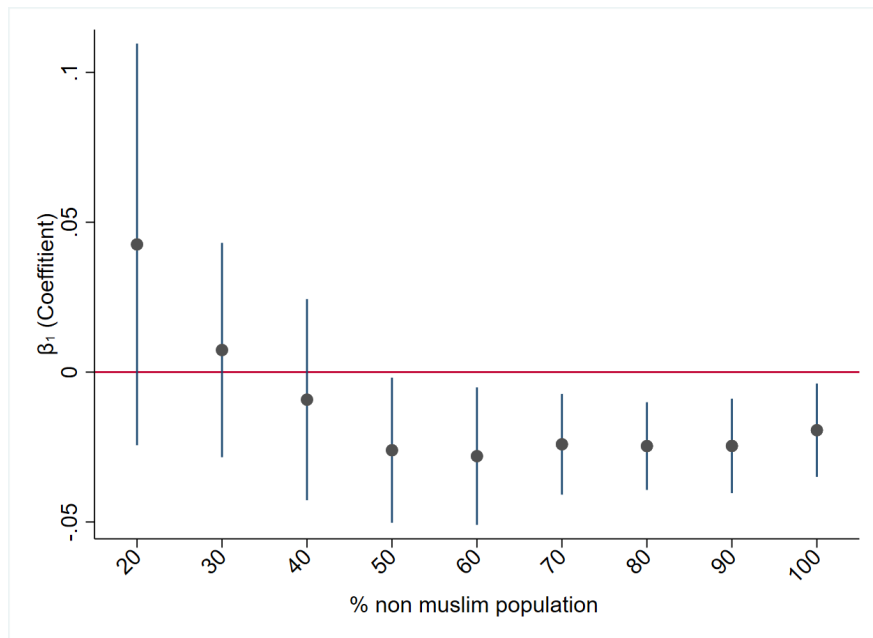


Figure 5: Coefficient plot: Muslim literacy and competition

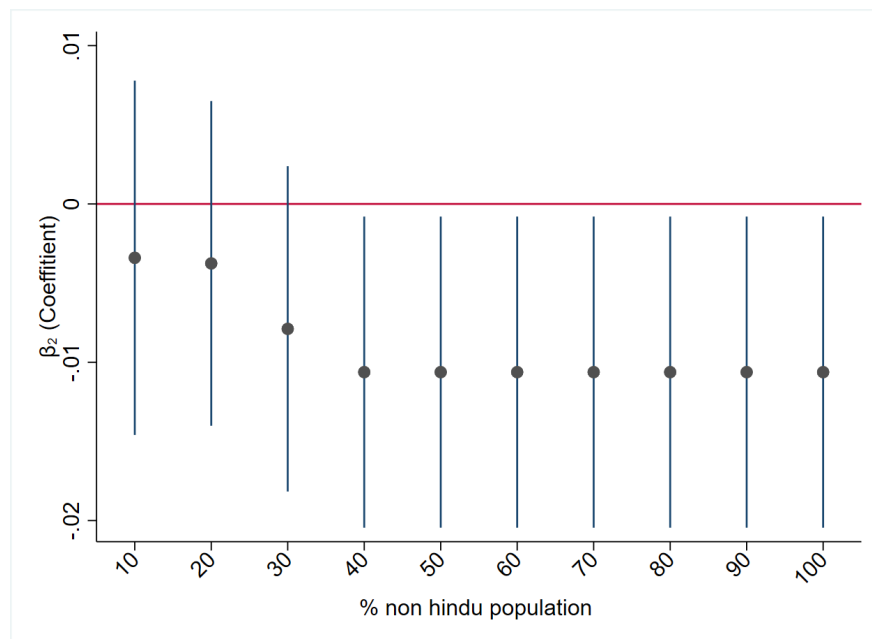


Figure 6: Coefficient Plot: Hindu literacy and competition