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ECONOMICS

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(This paper also appears as CAGE Discussion Paper No: 426)

June 2020 No: 1272

(original paper June 2019)

Warwick Economics Research Papers

ISSN 2059-4283 (online)

ISSN 0083-7350 (print)

Pre-Colonial Warfare and Long-Run Development in India*

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June 1, 2020

Abstract

We analyze the relationship between pre-colonial warfare and long-run development patterns in India. We construct a new geocoded database of historical interstate conflicts on the Indian subcontinent, from which we compute measures of local exposure to pre-colonial warfare. We document a positive and significant relationship between pre-colonial conflict exposure and local economic development across India today. This result is robust to numerous checks, including controls for geographic endowments, initial state capacity, colonial-era institutions, ethnic and religious fractionalization, and colonial and post-colonial conflict, and an instrumental variables strategy that exploits variation in pre-colonial conflict exposure driven by cost distance to the Khyber Pass. Drawing on rich archival and secondary data, we show that districts that were more exposed to pre-colonial conflict experienced greater local pre-colonial and colonial-era state-making, and less political violence and higher infrastructure investments in the long term. We argue that reductions in local levels of violence and greater investments in physical capital were at least in part a function of more powerful local government institutions.

Keywords: Warfare, Economic Development, State Capacity, Public Goods, India, History

JEL codes: N45, O11, P48, H11

*We thank Jeanet Bentzen, Pietro Biroli, Traviss Cassidy, Latika Chaudhary, Giorgio Chiovelli, Jeremiah Dittmar, Shashwat Dhar, Edgar Franco Vivanco, Bishnupriya Gupta, Mai Hassan, Namrata Kala, Mark Koyama, Alexander Lee, Alexander Persaud, Priya Satia, Yuri Zhukov, and audiences at the Aix-Marseille School of Economics, London Business School, National University of Singapore, New Economic School, Sorbonne, University of Bonn, University of Bristol, University of Chicago, University of East Anglia, University of Gothenburg, University of Laval, UC Louvain, University of Michigan, UQAM, University of St. Gallen, University of York, and several conferences for helpful comments; Latika Chaudhary, Saumitra Jha, Alexander Lee, and Rinchan Mirza for generous data-sharing; and Justin Huang and Eric Payerle for excellent research help.

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1 Introduction

According to a well-known literature, governments undertook institutional reforms in order to enhance their military prowess in the face of interstate competition (Mann, 1984; Brewer, 1989; Tilly, 1992; Gennaioli and Voth, 2015). In time, more powerful government institutions may have helped promote long-run economic development through the greater provision of domestic security and other basic public goods (Besley and Persson, 2011; Morris, 2014). Much of this literature, however, centers on the historical experience of Western Europe.

In this study, we recast the "military competition" framework to provide a novel explanation of local development patterns across India today. For hundreds of years prior to European colonial rule, rival states competed for political dominance on the Indian subcontinent (Roy, 1994; Gommans, 1999; de la Garza, 2016). We construct a new geocoded database of historical interstate conflicts in this context. To proxy for local exposure to pre-colonial interstate military competition, we compute a benchmark measure in which a district's exposure is increasing in its physical proximity to pre-colonial conflicts between the years 1000 and 1757. Consistent with the logic described above, our empirical analysis reveals a positive and significant relationship between pre-colonial conflict exposure and local economic development. This result sheds new light on the historical roots of Indian development patterns.

To test the robustness of this relationship, we perform numerous checks. First, we restrict our analysis to within-state variation by including state fixed effects, to show that time-invariant features specific to Indian states do not drive our results. Second, we control for a wide range of local geographic features, including climate, terrain ruggedness, soil suitability, disease environments, and waterway access. Third, we perform an instrumental variables analysis that exploits variation in pre-colonial conflict exposure driven by cost distance to the Khyber Pass, the main historical route of invaders from Central Asia into India. Fourth, we show that pre-colonial conflict exposure significantly predicts local development levels today above and beyond the role of colonial-era institutions such as direct British rule and non-landlord revenue systems. We show that this relationship continues to hold after controlling for initial state capacity levels, ethnic and religious fractionalization, and colonial-era and post-colonial conflict exposure. Fifth, we demonstrate that our main results are robust to alternative ways of operationalizing local exposure to pre-colonial interstate military competition that take into account faraway conflicts by exploiting information about the pre-colonial states that participated in them.

We next analyze the channels through which pre-colonial warfare may have influenced long-run development patterns in India. We argue that reductions in local levels of violence and greater investments in physical capital were functions – at least in part – of more powerful local government institutions. Drawing on rich data from both archival and secondary sources, we show evidence for a significant relationship between local exposure to pre-colonial conflict and diverse measures of pre-colonial and colonial-era state-making, as well as long-term reductions in political violence. Furthermore, we show that pre-colonial conflict exposure significantly predicts larger investments in physical capital (i.e., irrigation infrastructure) in the long term.

Our study provides new evidence that the "military competition" framework applies outside Western Europe, at least in India. A recent literature has explored the relationship between interstate military competition and long-run state capacity in India (Roy, 2013; Gupta, Ma and Roy, 2016; Foa, 2016). We go further in several ways. First, we analyze the long-run implications of historical warfare in India for *economic* development. Here, we view local state capacity as a means through which pre-colonial conflict exposure may have influenced local development patterns, and not simply as an end in and of itself. In this respect, our theoretical framework and empirical analysis go beyond classic arguments such as those by Tilly (1992), which primarily focus on the relationship between warfare and state-making. Second, we construct a new geocoded database of historical interstate conflicts on the Indian subcontinent. Third, we compile a rich array of new data to evaluate pre-colonial and colonial outcomes. Thus, the scope of our analysis is significantly wider than the previous literature.

Of equal importance, our study casts new light on the deep roots of Indian development patterns. The vast majority of the literature analyzes the role of British colonialism (Banerjee and Iyer, 2005; Iyer, 2010; Bharadwaj and Mirza, 2017; Castelló-Climent, Chaudhary and Mukhopadhyay, 2017; Chaudhary et al., 2018; Lee, 2018). Our empirical analysis evaluates the importance of colonial factors in several ways. Yet it highlights the role of pre-colonial events in India, which the literature tends to overlook. Namely, our argument that pre-colonial conflict exposure promoted local pre-colonial and colonial-era state-making, and less political violence and higher investments in physical infrastructure in the long term, provides a novel explanation for local development patterns in India.

There is a growing literature about the significance of pre-colonial factors such as state capacity for long-run development (Gennaioli and Rainer, 2007; Michalopoulos and Papaioannou, 2013; Dell, Lane and Querubin, 2018). Among these papers, ours is one of the first to systematically analyze the long-run development consequences of pre-colonial history in India. Furthermore, unlike much of the literature, we focus on the long-run consequences of pre-colonial warfare, rather than pre-colonial levels of state capacity – which, according to our argument, was actually an outcome of prior military conflict. We show evidence in support of this view. In this manner, our study extends the literature by shedding new light on the historical roots of state capacity in the developing world.

Finally, there is a growing body of quantitatively-oriented research on pre-colonial India (Jha, 2013; Gaikwad, 2014; Iyer, Shrivastava and Ticku, 2017), to which our study brings the role of pre-colonial interstate military competition and warfare on long-run development patterns. We provide new insights about the pre-colonial military roots of current economic differences across India.

We organize this study as follows. In the next section, we develop our theoretical framework. Section 3 contains the historical background, and Section 4 a description of the data. In Section 5, we present the empirical strategy and main results, and in Section 6 the tests for robustness. In Section 7, we analyze potential channels. We provide concluding remarks about how our study helps clarify the conditions under which war "makes" states and promotes economic development in Section 8.

2 Theoretical Framework

We now develop a simple theoretical framework to explain how pre-colonial events in India may influence contemporary economic outcomes. First, we characterize the "military competition" framework in general terms. Second, we apply this framework to the Indian context. Our argument produces a set of predictions which will guide our empirical analysis.

2.1 General Argument

Interstate warfare is a common explanation for long-run state-making. We characterize the general logic of this argument as follows (Besley and Persson, 2011, 58-9). Protection from foreign attack is a public good typically provided by the government. To improve the government's ability to fend off foreign attacks, individuals may demand new investments in defense, and be willing to pay more in taxes to fund it. In this manner, the threat of foreign attack may drive higher tax revenue, along with a more robust public administration to help organize the government's fiscal and military efforts.[1] If there are recurring threats, then institutional reforms may continue in ratchet-like steps (Rasler and Thompson, 2005, 491-3). Once the government has decided to overcome the high fixed costs of increasing its defense capacity, then it should be inexpensive at the margin to maintain its enhanced activity levels. Thus, more powerful government institutions may stay in place even after foreign threats dissipate.

[1]This logic should hold so long as large financial resources matter to battlefield success (Gennaioli and Voth, 2015). As we will describe in Section 3, money played a key role in interstate military competition in the context of pre-colonial India.

In time, a more powerful government may help promote long-run economic development via at least two channels. The first channel is the greater provision of domestic security. A more powerful government should be better at maintaining domestic law and order (Morris, 2014, 3-26). If there is a reduction in levels of internal violence, then individuals will be more willing to make growth-enhancing investments (North, 1981, 24-6). The second channel is the provision of other public goods that depend on a less violent domestic environment (Dincecco, 2017, 11-13). For example, a more powerful government may provide agricultural infrastructure such as irrigation that improves crop yields.

Given that warfare can destroy physical and human capital, greater interstate military competition may actually reduce the long-run prospects for economic development. Here, it makes sense to distinguish between the short-run and long-run economic implications of interstate military competition. Namely, while warfare may be destructive over the short run, the economic benefits that may derive from competition-related institutional reforms – as characterized in the two channels above – may eventually outweigh such destruction over the long run.[2]

2.2 Application to India

As described in Section 1, the "military competition" framework centers on the historical experience of Western Europe. Yet there is also reason to think that this general logic may apply in India. As in early modern Europe, political fragmentation, instability, and interstate military competition were recurrent features of the landscape of pre-colonial India (Tilly, 1992, 45, de la Garza, 2016, 12). Similarly, large fiscal resources played an important role in military success in both contexts (Gennaioli and Voth, 2015; Roy, 1994). Finally, population density was high enough in both early modern Europe and pre-colonial India to make territorial conquest through battle a worthwhile endeavor (Herbst, 2000, 13-16). Thus, the logic by which greater levels of interstate military competition may have promoted local institutional reforms should have held within pre-colonial India. We will provide further historical evidence in support of the above claims in Section 3.

Local institutional reforms made in response to interstate military competition in pre-colonial India may have endured across the colonial and post-colonial eras, as new regimes took advantage of traditional institutional structures, rather than trying to build new ones from scratch. Between the mid-eighteenth century and the mid-nineteenth century, the British East India Company became the dominant political power on the Indian subcontinent (Dutt, 1950, 1-2; Gommans, 1999, 120). However, the total influx of British settlers to India was relatively small (Iyer, 2010, 697). Thus,

[2] According to Centeno and Enriquez (2016, 124), even the short-run destruction of warfare may bring economic benefits, to the extent that it reduces reliance on outdated technology and reallocates public spending toward infrastructure investments.

British colonialists had incentives to establish indirect forms of rule, under which traditional local leaders retained ample control over internal governance matters – particularly in zones with well-developed pre-colonial institutions (James, 1997, 326-33; Gerring et al., 2011, 380-7; Hariri, 2012, 473-4). Lange (2004, 909) writes that "the minimal colonial state created local conditions in both the directly and indirectly ruled areas of colonial India that were quite similar to those in indirectly ruled Africa." Princely states (i.e., "Native" states) ruled by hereditary kings spanned 45 percent of British India (Iyer, 2010, 694), while colonial dependence on "customary" (i.e., traditional) courts was 60 percent (Lange, 2004, 909).

By relying on existing local institutions, the British could reduce overall governance costs. We may therefore expect local pre-colonial institutions to have endured into the colonial era. For example, the British East India Company was able to quickly extract sizeable tributes following its victories in the Third and Fourth British-Mysore Wars in the late eighteenth century (Roy, 2011, 65-6). This example speaks to the fiscal strength of the pre-colonial Mysore Kingdom, as well as to colonial Britain's practice of exploiting traditional local institutions for their benefit. Similarly, to increase revenue collection following defeat in the Third British-Mysore War, the Mysore ruler Tipu Sultan replaced traditional tax farmers with non-local bureaucrats. This reform became an important feature of later British colonial governance (Stein, 1985, 406, Roy, 2011, 75). Nonetheless, our empirical analysis will control for colonial institutions such as direct British rule (Iyer, 2010) and non-landlord revenue systems (Banerjee and Iyer, 2005).

In 1947, India became independent of British rule. A single federal government characterizes post-colonial India. Still, the traditional strength of local governance structures could influence the local effectiveness of national-level institutions, particularly given the decentralized nature of India's federal government, as well as India's vast geographic scale. In this manner, pre-colonial institutional structures could continue to influence long-run local development outcomes into the modern era.

2.3 Empirical Predictions

When applied to the Indian context, therefore, the "military competition" framework produces several predictions. The main "reduced-form" prediction is that there should be a positive and significant relationship between pre-colonial conflict exposure and current economic development levels in India. The logic is as follows. If a given zone in India experienced more pre-colonial warfare, then we would expect more powerful local government institutions to have emerged there, which in turn would have helped promote local long-run economic development.

Our argument produces three further predictions that reflect the channels through which the main prediction may have operated. The first such prediction is that greater pre-colonial conflict exposure should be associated with pre-colonial and colonial-era state-making. A related prediction is that there should be a negative and significant relationship between pre-colonial conflict exposure and (eventual) political violence levels. A final prediction is that there should be a positive and significant relationship between pre-colonial conflict exposure and subsequent investments in physical capital such as irrigation infrastructure that depend on a less violent domestic environment.

We will rely on these four predictions to guide our empirical analysis.

3 Historical Background

Our theoretical framework predicts that, if a given zone in India experienced more pre-colonial warfare, then we would expect more powerful local bureaucratic and fiscal institutions to have emerged there, which in turn would have helped promote local economic development over the long run. We now provide historical evidence regarding the relationship between interstate military competition and institutional development in pre-colonial India in support of this framework.

There were numerous independent states on the Indian subcontinent circa 1000, the start year of our analysis (Nag, 2007, 28), and political fragmentation was an enduring feature (de la Garza, 2016, 12).[3] By the early sixteenth century, major rival states included the Delhi Sultanate, the Rajput states, the Deccan Sultanates, and the Vijayanagar Empire (Roy, 1994, 57).

Each of these pre-colonial states was capable of mobilizing a large military (Roy, 1994, 57-70). Sultan Alauddin Khilji of Delhi reportedly had 475,000 cavalry troops, and the Vijayanagar Empire a million-person army. There is also evidence of institutional development in response to external threats. Under King Krishna Devaraya, for example, the Vijayanagar Empire introduced new weaponry and cavalry, and expanded state control by establishing new military garrisons.

Between 1526 and 1707, the Mughal Empire was among the most powerful states on the Indian subcontinent (Richards, 1995, 1, 6-9; de la Garza, 2016, 1). This Empire was established by Babur, who after several attempts defeated the Afghan state led by Ibrahim Lodi in 1526. The next year, Babur's relatively small army defeated a large Rajput confederacy of 80,000 cavalry troops and 500 war elephants, helping establish Mughal political control over northern India.

According to Nath (2018, 245), "The Mughals fought their enemies ceaselessly...war was a con-

[3]We take 1000 as the start year for synchronicity with the case of Western Europe, which provides the backdrop for our analysis. There, the turn of the first millennium marked the approximate onset of political fragmentation after the demise of the Carolingian Empire (Strayer, 1970, 15). It was in this context that the logic of interstate military competition became relevant.

stant preoccupation of the Mughal Empire." The Mughal Empire reached new heights under Akbar, who ruled from 1556 to 1605 (Richards, 1995, 12-28). During his long reign, Akbar conquered numerous rival kings and local strongmen, enabling the Mughals to further solidify their political control over the northern and western parts of India.

The Mughals committed significant fiscal resources to war-making (de la Garza, 2016, 1; Nath, 2018, 253-5). Describing the 1596 state budget, for example, Richards (1995, 75) writes that "by far the greater part of this budget was devoted to supporting a massive military establishment." More than 80 percent of total state expenditure was granted to Mughal military officials called *mansabdars*, while another 9 percent was devoted to the central military establishment (Richards, 1995, 75-6). By contrast, annual spending on the Mughal imperial household was less than 5 percent.

To help manage Mughal military affairs, Akbar implemented new bureaucratic and fiscal structures (Richards, 1995, 58-9; de la Garza, 2016, 6). Under the institutional innovation of the *mansabdari-jagirdari* system, Akbar granted land to military officials in order to extract surplus agricultural output (Nath, 2018, 253-5). Data available for the late 1680s indicate that the top 6 percent of military officials (roughly 450 persons) were in possession of more than 60 percent of total tax revenue, indicating a high degree of bureaucratic and fiscal centralization under a small military elite (Qaisar, 1998, 255-6). A large portion of these funds were spent on the military.

Furthermore, Mughal government officials developed a "pyramid" treasury system that linked the central treasury with those in provincial capitals and other towns (Richards, 1995, 69-71). Akbar exploited this bureaucratic innovation to quickly move funds during conflicts. Richards (1995, 70) writes that the "swift dispatch of treasure gave his armies the means and morale for victory."

The *zabt* land tax revenue system was another Mughal institutional innovation (Richards, 1995, 187-90). In the late sixteenth century, the state began to overhaul the land tax revenue system, increasing bureaucratic centralization and introducing better agricultural data. By enabling the state bureaucracy to deal directly with individual farmers, the *zabt* system helped reduce the traditional tax power of local landowners called *zamindars*. The *zabt* system further improved the ability of the Mughal state to extract agricultural output and finance the military. Moreover, the system may have incentivized farmers to shift production to high-value cash crops, thereby promoting rural economic development.

The Mughal Empire fell into decline at the start of the eighteenth century (Richards, 1995, 253-81). Drawing on the various institutional legacies that the Mughals left behind, indigenous kingdoms including the Maratha, Mysore, and Travancore began to compete for political control with the British East India Company (Roy, 1994, 37-50; Roy, 2011, 95-102). In this context, states undertook major institutional reforms (Stein, 1985, 391; Roy, 1994, 37-50; Ramusack, 2003, 12; Roy, 2011). In Travancore, for example, King Marthanda Varma established a “warrior state” during the 1730s and 1740s, characterized by a larger bureaucracy and a more centralized tax system capable of extracting greater revenue (Foa, 2016, 93-4). Describing this system, Foa (2016, 94) writes that the “flow of revenues to the center allowed the state to build a highly centralized military force, as well as to invest large sums on the construction of fortifications, temples, and palaces.” In 1741, the Travancore military defeated the Dutch East India Company (Foa, 2016, 94).

Victory at the Battle of Plassey in 1757 helped establish the British East India Company as a major political entity on the Indian subcontinent (Dutt, 1950, 1-2; de la Garza, 2016, 12). Over the next century, the East India Company systematically defeated its rivals in India, including indigenous states such as the Marathas, Mysores, and Sikhs, along with foreign powers such as the Dutch and French (Dutt, 1950, 1-2; Gommans, 1999, 120).

Overall, this historical evidence links interstate military competition and recurrent warfare in pre-colonial India to bureaucratic and fiscal development and state capacity improvements. As we have explained in Subsection 2.2, there is reason to think that local pre-colonial institutional reforms made in response to interstate military competition endured across the colonial and post-colonial eras. Through the (eventual) greater provision of domestic security and physical infrastructure, such institutions could promote long-run economic development at the local level in India.

4 Data

4.1 Historical Conflict

4.1.1 Data Construction

According to the theoretical framework in Section 2, higher local levels of interstate military competition helped incentivize local institutional reforms in pre-colonial India. To proxy for local interstate military competition in this context, we use geocoded data on historical conflicts. The logic here is that there was a meaningful link between the actual prevalence of local conflict and local levels of interstate military competition in pre-colonial India.

We view local exposure to conflicts as the most straightforward way to measure the local extent of interstate military competition in the pre-colonial context. We acknowledge, however, that this approach may overlook conflicts that were fought at a large distance from a pre-colonial state's political center, but nonetheless prompted institutional reforms there. In Section 6, we will describe and test a set of alternative ways of operationalizing local interstate military competition that take into account faraway conflicts by exploiting information about the pre-colonial states that participated in them.

To construct our historical conflict database, we primarily rely on the book by Jaques (2007), the goal of which is to document as many historical conflicts as possible (Jaques, 2007, xi). For inclusion, a conflict must have been written down and cross-referenced with a minimum of two independent sources (Jaques, 2007, xiii). Although this selection criteria will tend to exclude historical conflicts known only through oral history, this potential shortcoming appears to be more severe in pre-colonial Africa than in other world regions (Jaques, 2007, xi).

The conflict information in Jaques' book is organized alphabetically by individual conflict names. For each individual conflict, Jaques provides a paragraph-length description, including the type (e.g., land battle), date, approximate duration (e.g., single-day), approximate location, and major participants. For example, the first conflict in our database, named "Peshawar," took place on November 27, 1001 as part of the Muslim conquest of Northern India. Here, Mahmud of Ghazni defeated Raja Jaipal of Punjab and his coalition of Hindu princes just outside the city of Peshawar. To proxy for the location of this conflict, we assign the geographical coordinates of Peshawar (34° 1' 0" N, 71° 35' 0" E).

Our database includes all individual conflicts – for example, land battles, sieges, and naval battles – on the Indian subcontinent between 1000 and 2010, as recorded by Jaques. For our benchmark measure of local exposure to pre-colonial conflicts (to be described in Subsection 4.1.2), we focus on land battles, since they were by far the most common pre-colonial conflict type, and because they typically took place in the countryside, thereby reducing the likelihood that physical capital would be destroyed. For robustness, we control for local exposure to: (1) pre-colonial sieges; and (2) all pre-colonial conflict types in the Appendix (see Table A.3). The main results do not change in either case, and there is no significant relationship between pre-colonial siege exposure and current development.

By "Indian subcontinent," we mean that we include conflict events that took place in the modern-day nation of India plus the border nations of Bangladesh, Bhutan, Myanmar, Nepal, Pakistan, and Sri Lanka. We exclude China, since historically the Himalayas limited interactions between China and India. There were few if any historical interstate conflicts anywhere near China's border with India (Dincecco and Wang, 2018, 345). In the Appendix, we restrict our benchmark conflict exposure measure to conflict events that took place within modern India only (Table A.3). The main results remain unchanged. Appendix Figure A.1 maps the locations of the conflicts in our sample, while Appendix Figure A.2 breaks them down by historical sub-period. We show that the main results are robust if we restrict the conflict data to the sub-period of 1500 to 1757 in the Appendix (see Table A.4).

To verify the breadth of our historical conflict coverage, we constructed alternative conflict data according to similar procedures from two other independently-produced books, Clodfelter (2002) and Naravane (1997). Clodfelter is a well-regarded source on historical conflicts, and covers the globe from 1500 onward. Here, a key advantage of Jaques is that his conflict coverage extends much further back in time. Nonetheless, the pre-colonial conflict coverage between 1500 and 1757 is similar for Jaques and Clodfelter, providing support for the use of Jaques as our baseline source. Naravane's book focuses on battles in medieval India. While his coverage does expand on Jaques, it lacks details on individual conflicts.[4] Regardless, in the Appendix, we add the non-overlapping pre-colonial data from Clodfelter and Naravane to our benchmark conflict exposure measure (Table A.5). The main results remain significant.[5]

Although we systematically check the breadth of our conflict coverage, there may still be measurement error. First, the available data do not enable us to systematically account for potential differences in the intensity of pre-colonial conflicts. However, our primary focus on *interstate* conflicts – and in particular land battles as our benchmark measure – helps ensure that we are making "apples-to-apples" comparisons between conflict events. Furthermore, interstate conflicts are exactly the sort of conflict that the literature (e.g., Besley and Persson, 2011) indicates should matter most for political and economic development. Nonetheless, in the Appendix, we show that the main results remain robust if we include all pre-colonial conflict types as recorded by Jaques (Table A.3).

Second, the quality and coverage of the historical conflict data may potentially vary by geographic zone. Our focus on interstate conflicts as described above helps reduce this potential source of bias, since we are confident that Jaques (along with Clodfelter and Naravane) includes the most important pre-colonial conflicts that historians have written about. Our regression analysis accounts for potential differences in historical data quality and coverage across space in several ways, including: (1) the use of fixed effects for Indian states (Table 1) or for grid cells (Appendix Table A.6); (2) controls for initial state capacity (Appendix Table A.23); and (3) and the exclusion of individual states (Appendix Figure A.6) or colonial provinces (Appendix Figure A.7) from our main specification one at a time.

[4] We rely on Appendix B of Naravane's book, which only lists the year, name, victor, and opponent of each medieval battle. To identify conflict locations, we supplemented this information with online research.

[5] Brecke (1999) is another potential alternative source for historical conflict data. Relative to Jaques, however, there are two main shortcomings of this work: (1) his data do not start until 1400; and (2) similar to Naravane, he does not provide specific information about conflict locations.

4.1.2 Benchmark Measure

As described in the previous subsection, we use geocoded historical conflict data to proxy for local levels of interstate military competition in pre-colonial India, which may have influenced the likelihood of local institutional reforms. To compute our benchmark measure of local exposure to individual conflicts, we define the conflict exposure of Indian district i as:

$$\sum_{c \in \mathcal{C}} (1 + \gamma distance_{i,c})^{-1}. \tag{1}$$

We measure $distance_{i,c}$ from the centroid of district i to the location of conflict c. The nearer a district is to a particular conflict, the more exposed that district is. A conflict occurring at the district centroid receives a full weight of one; this weight declines as distance increases. The parameter γ controls the speed at which this decay occurs.[6] To reduce the measure's sensitivity to any single conflict, we add one to $distance_{i,c}$ before taking the inverse.[7]

Our benchmark conflict exposure measure includes pre-colonial land battles between 1000 and 1757 with a cutoff distance of 250 kilometers, beyond which we assume that conflict exposure is zero. Thus, pre-colonial conflict exposure to conflict c will only take a positive value for district i if this conflict falls within a 250 kilometers radius from the centroid of this district. In the Appendix, we use an alternative cutoff distance of 5,000 kilometers (Table A.7). Similarly, we use a variable end-date cutoff that allows us to also include exposure to conflicts that took place after 1757 but prior to British conquest of a district, for cases in which Banerjee and Iyer (2005) have coded the date of conquest as taking place after 1757 (Table A.8).[8] The coefficient estimates are very similar in magnitude and significance to the main estimates across both checks .[9]

Figure 1 maps pre-colonial conflict exposure across Indian districts.[10] This figure suggests that there were four main geographic zones of pre-colonial conflict: (1) the far north in the vicinity of the state of Punjab; (2) the western coast in the vicinity of Maharashtra; (3) the far east in the vicinity of West Bengal; and (4) the lower southeast in the vicinity of Tamil Nadu.

[6] In our baseline analysis, we set γ equal to 1, but show that alternative levels of γ give similar results (not shown to save space).

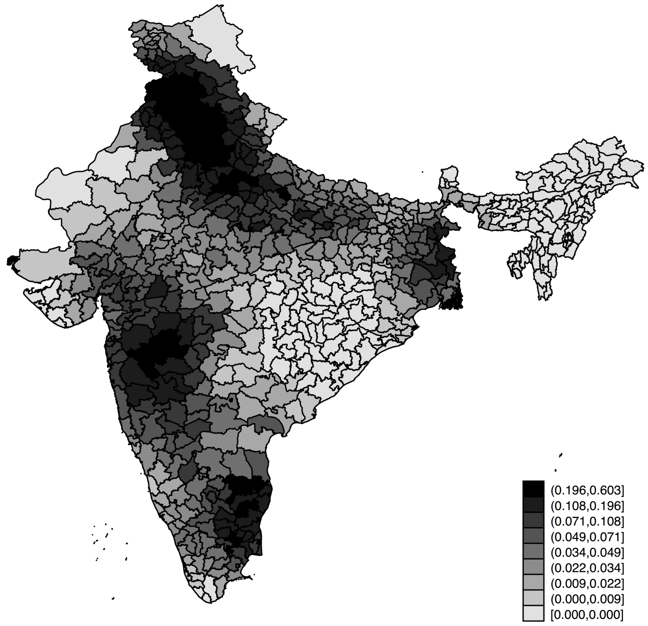
[7] If we did not add one to this measure, then a district in which a conflict took place very nearby would receive a very large conflict exposure value, regardless of its proximity to any other conflicts.

[8] Specifically, this measure includes conflicts from 1000 to the (potentially post-1757) year of British annexation, which differs by district.

[9] For further robustness, we exclude 155 districts for which our benchmark conflict exposure measures takes a value of zero. The main results continue to hold (not shown to save space).

[10] Similarly, Appendix Figure A.3 maps the residualized conflict exposure measure after controlling for log population density.

Figure 1: Pre-Colonial Conflict Exposure by Indian Districts



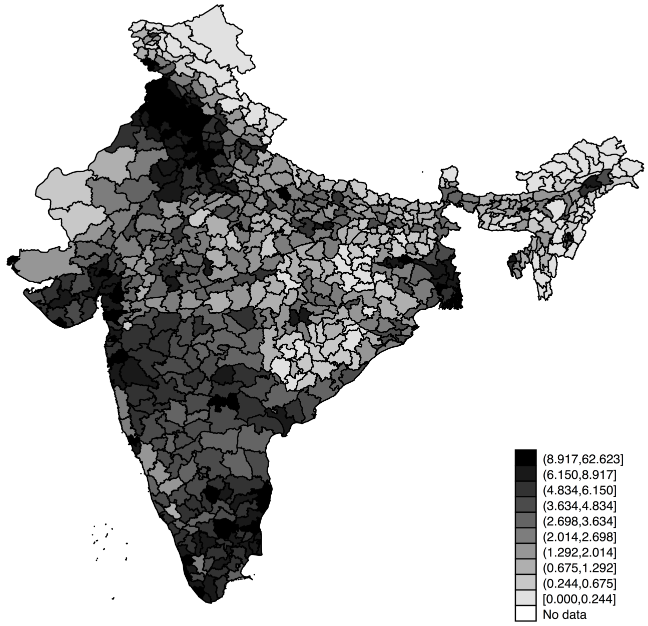
Notes. This figure shows pre-colonial conflict exposure to land battles between 1000-1757 with a cutoff distance of 250 kilometers by district in India. Districts are shaded by decile: districts in the top decile receive the darkest shade.

4.2 Economic Development

To proxy for contemporary levels of development in India, we use nighttime luminosity data. Luminosity is a common measure of local economic activity in relatively poor regions (e.g., Henderson, Storeygard and Weil, 2012; Michalopoulos and Papaioannou, 2013; Min, 2015, 51-73). We take these data from the Operational Linescan System of the Defense Meteorological Satellite Program of the US Air Force. Satellite images are taken between 20:30 and 22:00 local time, and are averaged over the year. These are reported in integer values from 0 to 63 for pixels at a 30-second (roughly one square kilometer) resolution. We compute average luminosity across all square kilometer cells within each district for every year between 1992 and 2010, and then take the district averages over the entire 1992-2010 period. In the Appendix, we show the main results if we restrict the luminosity data to each year from 1992 to 2010 (Figure A.8). The coefficients are always significant, with only a small decline in magnitude over time.

Figure 2 maps average luminosity by district in India. This figure suggests that economic development levels tend to be highest in the vicinity of the four main geographic zones of pre-colonial conflict as described in the previous subsection. Appendix Figure A.4 indicates similar spatial patterns for residualized luminosity after controlling for log population density. Thus, high luminosity levels do not simply depend on dense populations. Still, to account for this possibility, our regres-

Figure 2: Luminosity by Indian Districts



Notes. This figure shows average luminosity between 1992-2010 by district in India. Districts are shaded by decile: districts in the top decile receive the darkest shade.

sion analysis will generally control for log population density.

Taken together, Figures 1 and 2 highlight the spatial correlation between pre-colonial conflict exposure and local economic development today. To further test the strength of this relationship, Appendix Figure A.5 plots pre-colonial conflict exposure against luminosity. There is a strong positive correlation between the two measures.

District-level GDP per capita data exist for India, but they have been constructed by a private company, and differ from official sources such as the National Sample Surveys in their rankings of districts on economic development outcomes. They are thus not widely used in the empirical literature (Castelló-Climent, Chaudhary and Mukhopadhyay, 2017, 5). Nonetheless, we use them as an alternative development outcome in the Appendix (see Table A.9). The main results are similar.

5 Pre-Colonial Warfare and Economic Development

5.1 Empirical Strategy

To analyze the relationship between pre-colonial conflict exposure and local development outcomes across India, we estimate the following OLS specification:

$$Y_{i,j} = \beta ConflictExposure_{i,j} + \lambda PopDensity_{i,j} + \mu_j + X'_{i,j}\phi + \epsilon_{i,j}, \tag{2}$$

where i indexes districts and j indexes states in peninsular India.

We take the district as our main unit of analysis because it is the unit for which the most comprehensive data on outcomes, potential channels, and controls are available. District borders, however, are potentially outcomes of pre-colonial conflict exposure. In the Appendix, we show that the main results are robust if we take grid cells as the unit of analysis rather than districts (Table A.10).

$Y_{i,j}$ measures local economic development levels in terms of luminosity. Following Michalopoulos and Papaioannou (2013), we take the natural logarithm, adding a small number such that $Y_{i,j} \equiv \ln(0.01 + Luminosity_{i,j})$. This log transformation reduces the range of the mean and variance of $Y_{i,j}$, and allows us to make use of all observations. In the Appendix, we show that the main results remain robust, however, if we: (1) take $\ln(1 + Luminosity_{i,j})$ rather than $\ln(0.01 + Luminosity_{i,j})$; (2) keep $Y_{i,j}$ in its original linear form; or (3) take the inverse hyperbolic sine function (Table A.11).

$ConflictExposure_{i,j}$ measures pre-colonial conflict exposure, our variable of interest. We always report the original coefficient estimate β and the standardized beta coefficient.

$PopDensity_{i,j}$ controls for log population density in the most recent year available prior to the year in which the dependent variable is measured.[11] As noted in Subsection 4.2, local luminosity levels in India do not simply reflect population density. Still, we follow the guidance in Michalopoulos and Papaioannou (2018, 391) and include log population density as a control. This approach allows us to interpret our results in terms of local differences in per capita living standards, without the imposition of any prior restrictions on the luminosity-population elasticity.[12] We thus believe that the inclusion of log population density as a control outweighs the potential cost in terms of post-treatment bias, given that dense populations may in part be outcomes of pre-colonial conflict exposure. In the Appendix, however, we show that the main results continue to hold if we exclude log population density (Table A.12). Similarly, they remain robust if we control for historical log population density in 1000, the start year of our analysis (Appendix Table A.13). In both cases, the coefficient estimates are larger than the main estimates, which suggests that we are taking a conservative approach by including log population density.

μ_j is the fixed effect for each of the 36 federal states (more precisely, 29 states and 7 union territories). Modern state borders may in part be outcomes of pre-colonial conflict exposure. Thus, including state fixed effects in our regression analysis may induce post-treatment bias. In our view,

[11] For the main regression analysis, this year is 1990. When the dependent variable is historical (e.g., 1881), then this year is subject to data availability. The 1990 population data are taken from the Center for International Earth Science Information Network (CIESIN) (`http://sedac.ciesin.columbia.edu/gpw`), and the historical population data from Klein Goldewijk et al. (2010).

[12] Furthermore, this approach enables us to directly test for potential non-linearities in log population density, which we do by including the quadratic and cubic terms as a robustness check. The main results continue to hold (not shown to save space).

however, their inclusion outweighs this potential cost, since fixed effects help control for state-level institutional and cultural features, along with potential measurement error in the quality and coverage of the conflict data across space. Nonetheless, the main results remain robust if we exclude the state fixed effects from the regression analysis (see column 1 of Table 1 ahead). Furthermore, in the Appendix we show that the main results continue to hold if we use "exogenous" grid cell fixed effects rather than state fixed effects (Table A.6).

Local geography may influence patterns of both pre-colonial conflict and economic development alike. Geographic zones with mild climates and high quality soils may promote human settlements and economic development (Ashraf and Galor, 2011). Settlements may reduce the cost of collective military action and incite violent conflict (Besley and Reynal-Querol, 2014). Similarly, populated and developed zones may make for attractive targets for attackers (Glaeser and Shapiro, 2002). To account for the possibility that certain zones engender recurring conflict due to favorable geography, the vector $X_{i,j}$ controls for a wide range of local geographic features, including latitude, longitude, altitude, ruggedness, precipitation, land quality, dry rice suitability, wet rice suitability, wheat suitability, and malaria risk.[13]

Finally, $\epsilon_{i,j}$ is the error term.

Our main regression analysis reports robust standard errors and p-values. In the Appendix, we report the p-values obtained according to three alternative treatments of standard errors as robustness checks. Table A.14 reports standard errors that allow for general forms of spatial autocorrelation of the error term (Conley, 1999) for six different cutoff distances between 250 and 1,500 kilometers.[14] Table A.15 reports (1) standard errors robust to clustering at the state level and (2) tests of β using the wild cluster bootstrap at the state level (Cameron, Gelbach and Miller, 2008) based on 9,999 replications. The main results remain significant for both Conley spatial standard errors and cluster-robust standard errors, and just miss statistical significance for the wild cluster bootstrap procedure.[15]

[13]We compute latitude and longitude by identifying district centroids using a polygon file of district boundaries from `gadm.org`. The data for altitude, precipitation, dry rice suitability, wet rice suitability, and wheat suitability are taken from the Food and Agriculture Organization's Global Agro-Ecological Zones (FAO-GAEZ) (`http://www.fao.org/nr/gaez/en/`). They are originally available as raster data. We compute district-level measures by averaging over raster points within each district. Similarly, we compute ruggedness according to the raster data made available by Nunn and Puga (2012). We take raster data on land quality from Ramankutty et al. (2002). We take the raster index for the stability of malaria transmission from Kiszewski et al. (2004).

[14]Here we make use of the statistical package *acreg* in Colella et al. (2019).

[15]To further account for the possibility that spatial correlation leads to standard errors that are too small (Kelly, 2019), we generate artificial spatially-correlated noise placebo variables to replace our variable of interest, reallocating conflict exposure randomly across districts within a state (without replacement). The Moran's I statistic for the full specification with state fixed effects and controls is 0.044, indicating spatial autocorrelation in the regression residuals (Appendix Table A.15). However, the placebo variables nearly always fail to produce treatment effects as large as those of our main coefficient estimates (Appendix Figure A.9).

Table 1: Pre-Colonial Conflict and Economic Development: Main Results

Dependent variable:	Ln(0.01+Luminosity)		
	(1)	(2)	(3)
Pre-colonial conflict exposure	3.713***	1.601***	1.465***
	(0.305)	(0.380)	(0.370)
	[0.000]	[0.000]	[0.000]
Population density	Yes	Yes	Yes
State FE	No	Yes	Yes
Geographic controls	No	No	Yes
Standardized beta coefficient	0.240	0.104	0.095
R^2	0.598	0.829	0.849
Observations	660	660	660

Notes. Estimation method is OLS. Unit of analysis is district. Dependent variable is $\ln(0.01 + Luminosity)$ averaged between 1992-2010. Variable of interest is pre-colonial conflict exposure to land battles between 1000-1757 with a cutoff distance of 250 kilometers. Geographic controls include latitude, longitude, altitude, ruggedness, precipitation, land quality, dry rice suitability, wet rice suitability, wheat suitability, and malaria risk. Population density is $\ln(PopulationDensity)$ in 1990. Robust standard errors in parentheses, followed by p-values in brackets. ***, **, and * indicate statistical significance at 1%, 5%, and 10% level.

Appendix Tables A.1 and A.2 display the summary statistics for the variables in our regression analysis.

5.2 Main Results

Table 1 shows the main results for the relationship between pre-colonial conflict exposure and current economic development across Indian districts. In column 1, we report the result for the bivariate correlation after controlling for log population density. The (unstandardized) coefficient estimate for $ConflictExposure_{i,j}$ is 3.713, and is significant at the 1 percent level. Column 2 adds state fixed effects. The coefficient estimate falls to 1.601, but remains significant. In column 3, we add the controls for local geography. The coefficient estimate is similar in size and significance to the previous specification.[16]

Overall, the Table 1 results support the main "reduced-form" prediction of our theoretical framework. Namely, there is a positive and significant relationship between local exposure to pre-colonial conflicts and levels of economic development in India today. The coefficient estimate in column 3 indicates that a one standard deviation increase in pre-colonial conflict exposure predicts a 0.10 standard-deviation increase in current luminosity levels. This magnitude is similar in size to the effect of pre-colonial political centralization on current luminosity levels in Africa found by Michalopoulos and Papaioannou (2013, 130), who report a standardized beta coefficient of 0.12. It is also

[16]Local geographic features may influence long-run development patterns in non-linear ways. To help account for this possibility, we include the quadratic term for each such control. The main results remain robust (not shown to save space).

broadly similar in magnitude to the finding by Banerjee and Iyer (2005, 1203) in their study of the relationship between districts in British India under a non-landlord revenue system and post-colonial agricultural productivity, for which one can compute a standardized beta coefficient of 0.14.

6 Robustness

In this section, we report our main robustness checks. First, we perform an instrumental variables analysis that exploits variation in pre-colonial conflict exposure driven by the cost distance to the Khyber Pass, the principal historical route of Central Asian invaders into India. Second, we show robustness to additional control variables, including: (1) initial state capacity; (2) additional geographic features; (3) colonial institutions; (4) ethnic and religious fractionalization; and (5) post-1757 conflict. Third, we show robustness to alternative ways of operationalizing local exposure to pre-colonial interstate military competition that take into account faraway conflicts by exploiting information about the pre-colonial states that participated in them.

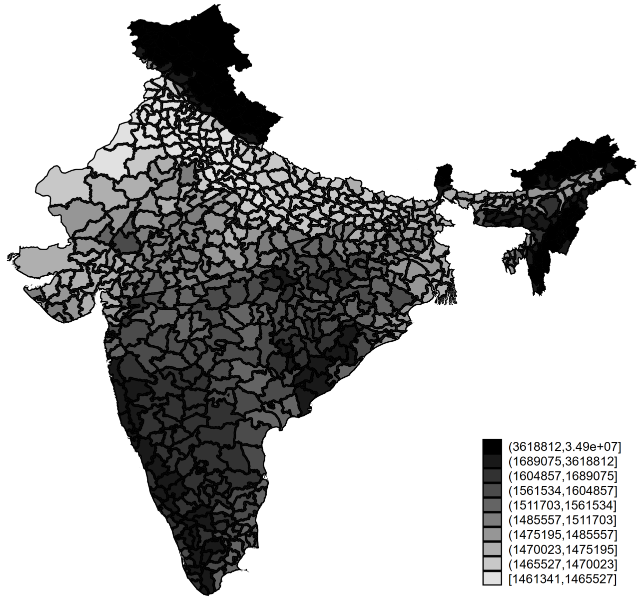
6.1 Instrumental Variables

6.1.1 Historical Information

To instrument for pre-colonial conflict exposure, we construct a measure of each district's proximity to the Khyber Pass. The South Asian subcontinent is naturally protected from invasion by several mountain ranges, including the Himalayas, Hindu Kush, Spin Ghar, and Arakans. Historically, the Khyber Pass was the main route for invaders coming from Central Asia to India (Docherty, 2008). Thus, proximity to the Khyber Pass can be treated as a forcing variable that affects a district's exposure to pre-colonial conflict.

Numerous invaders from Central Asia have either come through the Khyber Pass or have sought to control it (Docherty, 2008). Mahmud of Ghazni, ruler of the Ghaznavid Empire, appears as a participant in the first conflict on our database (see Subsection 4.1). Mahmud's invasions of India began in 1001, including clashes with the Shahi Kingdom, along with the trading centers of Multan and Bathinda. Muhammad of Ghor, Sultan of the Ghurid Empire, invaded Multan in 1175. His former slave, Qutb al-Din Aibak, was the first of the Delhi Sultans. Following the death of Genghis Khan, the Delhi Sultinate faced repeated raids from the Chagatai Khanate. Babur's victory at Panipat in 1526 marked the establishment of the Mughal Empire. The Persian ruler Nadir Shah made several attacks on the Mughal Empire, notably entering Delhi in 1739. The Durrani ruler Ahmad Shah Durrani attacked the Mughals repeatedly between 1748 and 1767, via the Khyber Pass. After the fall of the Mughal Empire, Indian rulers such as Ranjit Singh sought to control the Khyber Pass

Figure 3: Cost Distance from Khyber Pass by Indian Districts



Notes. This figure shows the average cost distance of each district in India from the Khyber Pass, where we assume that the cost of crossing a grid cell is proportional to its squared ruggedness. Districts are shaded by decile: districts in the top decile receive the darkest shade.

to defend against invasions from Afghanistan.

6.1.2 IV Construction

The proximity of each district in India to the Khyber Pass in terms of simple geodesic distance does not accurately measure how difficult it was to reach it. Despite their proximity to the Khyber Pass, mountainous states such as Jammu and Kashmir, Himachal Pradesh, and Uttaranchal were less accessible to invaders than the flatter regions of Punjab, Haryana, and Uttar Pradesh. Similarly, the Aravalli Mountains were a natural barrier in eastern Rajasthan. We therefore base our measure of proximity on a cost-distance formula.

We construct our measure of cost distance using raster data on ruggedness (Özak, 2010). We define the ruggedness of a cell as the average difference in absolute elevation between that cell and its eight neighbors (Nunn and Puga, 2012). We assume that the cost of crossing a cell is proportionate to the square of its ruggedness. We compute the least-cost path and associated cost of travel between each grid cell in India and the Khyber Pass. Our benchmark cost-distance measure to the Khyber Pass averages over all cells in each district. Figure 3 maps these values.

As distance from the Khyber Pass increases, the relationship between our cost-distance measure and pre-colonial conflict exposure becomes nonlinear, driven by conflicts such as the Carnatic Wars that were unrelated to invasions from Central Asia. Hence, we compute the Khyber proximity instrument as a dummy for whether a district is in the set of 50 districts that are closest to the Khyber Pass in terms of cost distance. We operationalize our instrument in this way since proximity to the Khyber Pass should in theory decrease the cost of a treated district's exposure to threats of invasion from Central Asia. This cost decrease is for reasons external to the district itself – namely, the specific geography of the territory that lies between it and the Khyber Pass. Appendix Figure A.10 plots this measure, while Appendix Figure A.11 shows that most pre-colonial land battles fought by invaders from Central Asia actually took place within the region that our instrument would predict. There is a positive and significant relationship between the Khyber proximity instrument and current economic development across Indian districts (Appendix Table A.16).

Ahead, we perform a variety of robustness checks for our instrument, which we briefly foreshadow here. First, we show robustness to possible violations of the exclusion restriction by (1) controlling for measures of historical trade and (2) reporting placebo results that consider cost-distance proximity to other points of entry into South Asia that invaders did not historically rely on. Second, we use several alternative measures of the cost of crossing a grid cell: linear ruggedness, squared slope, linear slope, and a Human Mobility Index. Third, we replace our cutoff of the closest 50 districts with a cutoff of the closest d districts, where $d \in \{30, 31, ..., 80\}$. Finally, we account for the federally administered tribal areas (FATA) of Pakistan, which may inflate the IV results.

6.1.3 IV Results

Table 2 reports the first-stage and instrumental variables results for the same three specifications as in Table 1. Our first-stage results suggest that being proximate to the Khyber Pass increases exposure to conflict by 0.08 to 0.21 units. These magnitudes are roughly comparable to the standard deviation of our conflict exposure variable of 0.10. The Kleibergen-Paap F-statistics are larger than 10, indicating instrument strength and a relatively low propensity for bias at the second stage. The second-stage coefficient estimates suggest that a one-unit change in conflict exposure increases luminosity by between 3.5 and 4.9 units. The former estimate is comparable to the first column of the main results from Table 1, corresponding to a standardized effect size of slightly more than 0.20.

Our IV estimates diminish less than our OLS estimates once we add state fixed effects and the geographic controls. In columns 2 and 3, they are slightly more than twice as large as their OLS counterparts. One potential explanation for this difference is downward bias due to omitted variables in the OLS analysis. Weaker pre-colonial states or those with less capacity for later state-making may have been located closer to the Khyber Pass. Another possibility concerns potential differences between compliers and the full sample. Districts exposed to pre-colonial conflict due

Table 2: Pre-Colonial Conflict and Economic Development: Instrumental Variables

Panel A: First Stage			
Dependent variable:	Pre-Colonial Conflict Exposure		
	(1)	(2)	(3)
Cost distance to Kyhber Pass	0.206***	0.097***	0.080***
	(0.018)	(0.025)	(0.024)
	[0.000]	[0.000]	[0.001]
Population density	Yes	Yes	Yes
State FE	No	Yes	Yes
Geographic controls	No	No	Yes
R^2	0.429	0.649	0.669
Observations	660	660	660
Panel B: Second Stage			
Dependent variable:	Ln(0.01+Luminosity)		
	(1)	(2)	(3)
Pre-colonial conflict exposure	4.930***	4.626***	3.482**
	(0.609)	(1.291)	(1.389)
	[0.000]	[0.000]	[0.012]
Population density	Yes	Yes	Yes
State FE	No	Yes	Yes
Geographic controls	No	No	Yes
Anderson-Rubin p-value	0.000	0.000	0.012
Kleibergen-Paap Wald rk F-statistic	131.275	14.444	10.693
Observations	660	660	660

Notes. Estimation method is 2SLS. Unit of analysis is district. In Panel A (first stage), dependent variable is pre-colonial conflict exposure to land battles between 1000-1757 with a cutoff distance of 250 kilometers, while variable of interest is cost distance to Khyber Pass (computed as squared ruggedness). In Panel B (second stage), dependent variable is $\ln(0.01 + Luminosity)$ averaged between 1992-2010, while variable of interest is pre-colonial conflict exposure between 1000-1757 with a cutoff distance of 250 kilometers, as instrumented by cost distance to Khyber Pass. Geographic controls for both first and second stages include latitude, longitude, altitude, ruggedness, precipitation, land quality, dry rice suitability, wet rice suitability, wheat suitability, and malaria risk. Population density is $\ln(PopulationDensity)$ in 1750 for first stage, and in 1990 for second stage. Robust standard errors in parentheses, followed by p-values in brackets. ***, **, and * indicate statistical significance at 1%, 5%, and 10% level.

to invasion from Central Asia may have had a stronger state-making response than districts exposed to other pre-colonial conflicts. A third possibility is measurement error. The list of conflicts in Jaques (2007) may be incomplete, identification of conflict locations may be inexact, and the inverse distance-weighting approach may only approximate the true mapping of conflicts into district-level exposure. A fourth possibility is violations of the exclusion restriction, which we turn to next.

6.1.4 Exclusion Restriction

One potential objection to our IV strategy is that the Khyber Pass introduced South Asia to phenomena beyond conflict exposure that may have been relevant to both pre-colonial state-making and later economic development. Trade was the most notable such potential factor. In the main IV analysis, we control for local geographic features that may have influenced historical trade patterns. Similarly, we use state fixed effects to help account for modern differences in trade policy across state governments. To further account for the role of trade, we now perform two types of robustness tests.

Controls for Historical Trade

The first robustness check controls for historical trade in several ways. First, we code a district as having access to a historical trade route if it was intersected by a major trade route or had a major port according to the historical map in Raychaudhuri (1982, 334). Second, we code a dummy equal to one for districts containing Silk Road sites in India according to UNESCO.[17] Third, we code a dummy equal to one for districts with a major medieval port according to Jha (2013). Appendix Table A.17 indicates that the IV results are robust to all three trade controls. Appendix Table A.18 shows that these results also hold for cost-distance constructions of the trade controls.

Placebo Points of Entry

The second robustness check uses alternative points of entry into South Asia that invaders did not historically rely on as placebos. The placebo points of entry are Surat, Kodungallur, Goa, Calicut, and Bombay. For each of them, we compute an analogous cost-distance measure as used to compute cost distance from the Khyber Pass. We then code a placebo "instrument" equal to one for the 50 districts closest to each entry point in cost-distance terms. Appendix Table A.19 shows that these cost distances generally fail to predict conflict exposure. In the IV specifications, the placebo points of entry cannot generally be used to infer a positive effect of conflict exposure on modern economic development. The exception is Bombay, with a weak first stage F-statistic of less than four.

6.1.5 Additional IV Robustness

Alternative Cost Distance

In addition, we show that the specific construction of our instrument does not drive our IV results. Rather than relying on the squared ruggedness of a grid cell as a measure of the cost of crossing

[17] Available at: `https://whc.unesco.org/en/tentativelists/5492/`.

that cell, we try four alternatives. They are: linear slope; squared slope; linear ruggedness; and a human mobility index (HMI). The final measure is based on the speed that a military infantry unit can maintain while walking over different terrain types (Özak, 2018). For the first three of these alternatives, we use the same "closest 50 districts" cutoff as in our baseline. For the HMI cost measure, we expand this cutoff to the closest 100 districts. The HMI assigns a relatively low cost of accessing the mountainous regions of Jammu and Kashmir from the Khyber Pass, even compared to the Punjab and western Uttar Pradesh, and so does not become a robust predictor of conflict exposure unless a larger proximity cutoff is used. Appendix Table A.20 shows that these alternative measures of computing cost distance give results similar to the main IV results.

Alternative Cutoff Values

We also show that using a specific cutoff value of 50 districts does not drive the main IV results. Appendix Figure A.12 depicts how the coefficient estimate and 95 percent confidence interval on our main conflict exposure measure changes as we vary this cutoff value between 30 and 80. As the figure makes clear, the coefficient estimates are relatively stable throughout the range of cutoff values, and are statistically significant at the 5 percent level for the range of cutoffs from 36 through 57.

FATA Region of Pakistan

Another potential objection is that excluding the federally administered tribal areas (FATA) of Pakistan inflates our IV results, since this region is near the Khyber Pass and experienced pre-colonial conflicts (Appendix Figure A.1), yet remains underdeveloped today. First, the main OLS results are robust to the inclusion of districts in Bangladesh and Pakistan, the two other main components of the British Raj apart from modern-day India (Appendix Table A.21). Second, Appendix Table A.22 indicates that the IV results continue to hold if we include Bangladesh and Pakistan. Thus, our IV results do not depend on the FATA region.

6.2 Additional Control Variables

6.2.1 Initial Conditions

To account for the possibility that certain zones engender recurring conflict due to favorable geography and/or other initial conditions, we have taken several actions. First, we have restricted our analysis to within-state variation by including state fixed effects. Second, we have controlled for a range of local geographic features. Third, we have performed an instrumental variables analysis.

To further test for this possibility, we now perform two additional types of robustness checks.

Initial State Capacity

In Appendix Table A.23, we control for initial state capacity by district in multiple ways. First, we georeference and count the number of Indian settlements during the Neolithic and Chalcolithic Ages, respectively, according to Nag (2007, 4, 6). Second, we georeference and count the number of important Indian cultural sites between 300-700 CE and the eighth through twelfth centuries from Schwartzberg (1978, 28, 34). Third, we control for the natural logarithm of (one plus) the total urban population in the year 1000 according to Chandler (1987). Finally, we georeference and count the presence of a major Indian state between the tenth through eleventh or eleventh through twelfth centuries based on Nag (2007, 28, 30), or in 1525 based on Joppen (1907). The coefficient estimates for $ConflictExposure_{i,j}$ remain robust.[18]

Additional Geographic Controls

In Appendix Table A.24, we repeat the main analysis after taking into account several additional local geographic controls beyond those included in the baseline specification (i.e., latitude, longitude, altitude, ruggedness, precipitation, land quality, dry rice suitability, wet rice suitability, wheat suitability, and malaria risk). They include the natural logarithm of (one plus) the distance to nearest coast, the natural logarithm of (one plus) the distance to nearest foreign border, river presence, irrigation potential, rainfall variation, and the natural logarithm of (one plus) the distance to the nearest resource deposits (i.e., diamonds, gems, gold, petroleum).[19] Columns 1 to 6 add each additional geographic control independently, while column 7 adds all them together. The coefficient estimate for $ConflictExposure_{i,j}$ remains significant across each specification.[20]

6.2.2 Colonial Institutions

As described in Section 1, one strand of the literature highlights the colonial origins of contemporary economic development in India. Drawing on this literature, we control for the potential role of

[18]As another way to control for past development, we include a measure of colonial real wages between 1873-1906 at the nearest market according to data from Fenske and Kala (2017). The main results continue to hold (not shown to save space).

[19]We compute the natural logarithm of (one plus) distance from each district to the coast. We compute each district's distance from the border as the minimum of its distances from Bangladesh, Bhutan, Burma, China, Nepal, and Pakistan. As with distance from the coast, we then take the natural logarithm of one plus this distance. We report a "river" dummy that captures whether a district is intersected by one of the major rivers as reported in the Natural Earth Data (`https://www.naturalearthdata.com/`). The main results continue to hold (not shown to save space). We compute each district's irrigation potential using data from Bentzen, Kaarsen and Wingender (2017). To account for the prevalence of drought, we control for the mean and coefficient of variation of rainfall as reported by Matsuura and Willmott (2009). Using data from Tollefsen, Strand and Buhaug (2012), we control for the natural logarithm of (one plus) distances from the district centroid to deposits of diamonds, gems, gold, and petroleum.

[20]Additionally, we compute distance to a presidency city as the minimum of the distance from a district's centroid to Bombay, Calcutta, or Madras. As an alternative, we compute the minimum of this value and distance from Delhi. The main results are robust (not shown to save space).

colonial institutions in two ways. First, following Iyer (2010), we include a dummy variable for direct British rule. Second, following Banerjee and Iyer (2005), we control for the proportion of each district in British India that was under a non-landlord revenue system.

Appendix Table A.25 presents the results. To establish a baseline coefficient value, we first rerun the main specification for the sub-sample for which the direct rule variable is available in column 1. The coefficient estimate for $ConflictExposure_{i,j}$ is 1.263, and is significant at the 1 percent level. We then add the direct rule measure as a control in column 2. The coefficient estimate for $ConflictExposure_{i,j}$ is very similar in size and significance to the previous specification.[21] In columns 3 and 4, we repeat this exercise for the non-landlord control. Once more, the coefficient estimates for $ConflictExposure_{i,j}$ are positive and significant.

Overall, these tests suggest that pre-colonial history – and in particular conflict exposure – significantly predicts current local development in India above and beyond the role of colonial institutions.

6.2.3 Fractionalization

Another strand of the literature emphasizes the role of inter-ethnic and religious relations in India. In Appendix Table A.26, we control for such factors in multiple ways. Column 1 includes a dummy variable for districts that had major medieval ports, which according to Jha (2013) were traditionally zones of ethnic tolerance. Alternatively, we account for the duration of medieval Muslim rule in each district in column 2, taking data from Jha (2013). Column 3 controls for the current share of each district that is Muslim, while column 4 controls for current religious polarization levels.[22] In the next two columns, we account for current local linguistic and religious fractionalization levels, respectively.[23] Finally, in column 7 we control for whether a district is intersected by the Ganges River, which according to Hindu sacred geography is linked with the presence of upper castes (Jha, 2013, 815). The coefficient estimates for $ConflictExposure_{i,j}$ remain positive and significant across all seven specifications. These robustness checks imply that inter-ethnic and religious relations do not confound our main results.

[21] For robustness, we re-ran this specification after hand-coding the direct rule variable for the missing 30-odd observations. The coefficient estimate for $ConflictExposure_{i,j}$ remains very similar to the main result in column 3 of Table 1 (not shown to save space).

[22] We take the religion share data from the Indian Census (`https://censusindia.gov.in/`), and compute polarization levels according to the method in Montalvo and Reynal-Querol (2005).

[23] We compute fractionalization levels according to Omid's Peoples of South Asia Database (`https://legacy.joshuaproject.net/data-sources.php`).

6.2.4 Post-1757 Conflict

To account for the potential role of post-1757 conflict exposure, we compute our benchmark measure of conflict exposure for the colonial and post-colonial eras. Here, we divide British colonial rule into two distinct sub-periods, 1758-1839 and 1840-1946, with the cutoff marked by the emergence of British military and political dominance over the Indian subcontinent in the 1840s (Clodfelter, 2002, 244-50).[24]

Appendix Table A.27 includes controls for colonial conflict exposure between 1758 and 1839 (column 1) and between 1840 and 1946 (column 2), and post-colonial conflict exposure between 1947 and 2010 (column 3). In column 4, we include all three controls together. The coefficient estimates for $ConflictExposure_{i,j}$ are always significant, with values between 1.461 and 1.492. These results suggest that local exposure to colonial and post-colonial conflicts do not diminish the predictive importance of pre-colonial conflict exposure. Colonial conflict exposure between 1840 and 1946 predicts significantly *lower* local development levels in India today, although the magnitude of this coefficient estimate is less than half the size of the main estimate. Nonetheless, this result suggests that the nature of post-1840 colonial warfare was different from pre-colonial warfare.

6.3 Alternative Measures of Conflict Exposure

As described in Subsection 4.1.2, we view the benchmark conflict exposure measure as the most straightforward way to measure the local extent of interstate military competition. Still, our benchmark measure may overlook conflicts that were fought at a large distance from a pre-colonial state's political center, but nonetheless prompted institutional reforms there. To address this possibility, we produce a set of alternative conflict exposure measures. Here, we code each major state participant in our pre-colonial conflict database, and identify its capital city.

In our first alternative measure, we calculate the number of conflicts in which each pre-colonial state participated, and assign these conflicts to the district in which the state was headquartered. In this manner, conflicts are counted for the districts that headquartered each pre-colonial state that participated in them, regardless of how far away they were actually fought.

As a second way to include a pre-colonial state's participation in faraway conflicts, we compute conflict exposure using Equation 1, but replace the locations of the conflicts with those of the capitals of the pre-colonial states that participated in them. For a conflict with three actors, for example, this measure treats the conflict as if it is three events.

[24] Alternatively, we may identify 1857 as the cutoff year for the two sub-periods of British colonial rule. This year marked the start of the Sepoy Mutiny (1857-9), along with rule by the British Crown (versus the East India Company). All the results described in Appendix Table A.27 remain similar in terms of sign and significance for this alternative cutoff (not shown to save space).

As another way to apportion pre-colonial conflicts across state participants, we mimic König et al. (2017) and compute the convex hull for each participant according to the geographical coordinates of the conflicts that participant took part in. We treat all districts that intersect this convex hull as affected by a conflict, whether directly in battle or by troops on the march between battlefield locations. For each affected district, we calculate the number of conflicts. To illustrate this approach, Appendix Figure A.13 plots the convex hull for pre-colonial conflicts involving the seventeenth-century Mughal ruler Shah Jahan.

As a final way to include a pre-colonial state's participation in faraway conflicts, regardless of conflict location, we compute the convex hull for each broad cluster of conflicts as categorized by Jaques (e.g., "Later Mughal-Maratha Wars"). We treat all districts that intersect this convex hull as affected by this group of conflicts. Next, we compute the number of conflicts for each affected district.

The five conflict exposure measures described above (i.e., the benchmark measure plus the four alternatives) are highly correlated, suggesting that our empirical results are not contingent upon the choice of any specific measure. Still, in Appendix Table A.28, we re-run the regression analysis for these alternative measures of pre-colonial conflict exposure. Our main results remain robust.

7 Channels

The results in Sections 5 and 6 provide support for the main "reduced-form" prediction of our argument, namely that the relationship between pre-colonial conflict exposure and current economic development levels in India is positive and significant. Drawing on our theoretical framework from Section 2, we now analyze the different channels through which pre-colonial warfare may have influenced long-run development.

To review, we have argued that reductions in local levels of violence and greater investments in physical capital were at least in part functions of more powerful local government institutions. In line with this argument, our framework produces three predictions that reflect the channels through which the main "reduced-form" result may have operated. First, greater pre-colonial conflict exposure should be associated with pre-colonial and colonial-era state-making. Second, there should be a negative and significant relationship between pre-colonial conflict exposure and (eventual) political violence levels. Finally, there should be a positive and significant relationship between pre-colonial conflict exposure and subsequent investments in physical capital such as irrigation infrastructure that depend on a less violent domestic environment. In this section, we evaluate each channel one at a time.

7.1 Pre-Colonial and Colonial-Era State-Making

We begin the channels analysis by testing the link from pre-colonial conflict exposure to early state-making efforts.

We measure pre-colonial state-making outcomes in two ways. The first is the number of important Mughal sites reported by Schwartzberg (1978). In particular, we georeference plate VI.A.4, "Religious and Cultural Sites of the Mughal Period, 1526-1707" and count the number of sites within each modern district. These sites include a range of public works such as bridges, forts, and palaces. To the extent that public works depend on the state's ability to extract resources from local populations, this variable proxies for pre-colonial state capacity, even if imperfect, given the general lack of available data. Second, we use maps of the Mughal Empire digitized by Jha (2013) to identify districts incorporated by the rulers Babur, Akbar, and Aurangzeb, respectively. Following others in the literature (e.g., Bockstette, Chanda and Putterman, 2002; Heldring, 2018) we interpret the longevity of pre-colonial state history as a measure of early state strength.

In Table 3, we regress our measures of pre-colonial state-making on pre-colonial conflict exposure. Column 1 indicates that there is a positive and significant relationship between pre-colonial conflict exposure and important Mughal sites including public works. Columns 2 to 4 take the longevity of state history as the outcome variable, which we operationalize in terms of districts incorporated into the Mughal Empire by Babur, Akbar, and Aurangzeb. There is a positive and significant relationship between pre-colonial conflict exposure and early state capacity under both Babur and Akbar (the relationship for Aurangzeb remains positive, but not statistically significant).

To complement the above analysis, we construct colonial fiscal data for the late nineteenth century according to Baness (1881), a secondary archival source. This book contains information on the land tax revenue, physical size, and population for several hundred historical Indian administrative units under direct or indirect British rule. Here, indirect rule refers to major Princely states.[25] To match historical states to modern districts, we rely on the information on provincial and state names in Baness' book.[26] To supplement the late nineteenth-century fiscal data, we rely on the 1931 land tax revenue data for districts in British India from Lee (2018).

Table 4 regresses our measures of colonial fiscal development on pre-colonial conflict exposure. In columns 1 to 6, we take the available land tax revenue in 1881 as our dependent variable.

[25]Following Iyer (2010, 695), we focus on Princely states that received British ceremonial gun salutes. We identify gun salute status in the late nineteenth century according to the main text of Chakrabarti (1896).

[26]We compute conflict exposure here in terms of the distance from the capital city as recorded by Baness or approximate centroid (if capital city information was not available) of each historical state to each conflict location, and then match them to modern districts.

Table 3: Pre-Colonial Conflict and Pre-Colonial-Era State-Making

Dependent variable:	Important Mughal Sites	State History		
		Babur	Akbar	Aurangzeb
	(1)	(2)	(3)	(4)
Pre-colonial conflict exposure (benchmark)	0.954*			
	(0.497)			
	[0.056]			
Pre-colonial conflict exposure (1000-1526)		0.513**		
		(0.229)		
		[0.025]		
Pre-colonial conflict exposure (1000-1556)			0.723***	
			(0.262)	
			[0.006]	
Pre-colonial conflict exposure (1000-1658)				-0.080
				(0.173)
				[0.642]
Population density	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes
Geographic controls	Yes	Yes	Yes	Yes
Standardized beta coefficient	0.199	0.041	0.068	-0.012
R^2	0.122	0.768	0.715	0.718
Observations	659	659	659	659

Notes. Estimation method is OLS. Unit of analysis is district. Dependent variable in column 1 is number of important Mughal-era sites including public works. Dependent variables in columns 2-4 are state longevity in terms of districts incorporated into the Mughal Empire by Babur (1526-30), Akbar (1556-1605), and Aurangzeb (1658-1707). Variable of interest is pre-colonial conflict exposure to land battles with a cutoff distance of 250 kilometers. It spans 1000-1757 in column 1, 1000-1526 in column 2, 1000-1556 in column 3, and 1000-1658 in column 4. Geographic controls include latitude, longitude, altitude, ruggedness, precipitation, land quality, dry rice suitability, wet rice suitability, wheat suitability, and malaria risk. Population density is $\ln(PopulationDensity)$ in 1500. Robust standard errors in parentheses, followed by p-values in brackets. ***, **, and * indicate statistical significance at 1%, 5%, and 10% level.

We scale these data in two different ways, by area and by persons. Furthermore, we divide them up by British direct rule or indirect rule (i.e., Princely states). There is a positive and significant relationship between pre-colonial conflict exposure and colonial fiscal outcomes, particularly for districts that were under direct British rule. In columns 7 and 8, we take the available land tax revenue for districts in British India in 1931 (scaled by area and by persons) as the outcome variables. The coefficient estimates for $ConflictExposure_{i,j}$ remain positive, but do not attain statistical significance. Given that the number of sample districts for which fiscal data are available differs between 1881 and 1931, we use caution in interpreting the differences between these results. Nevertheless, when taken together, they suggest that districts that experienced greater pre-colonial conflict exposure were "early movers" in the development of colonial fiscal capacity, but that historical fiscal differences between them later diminished. We view these results as broadly in line with Lee (2018), who highlights the importance of colonial differences in local fiscal capacity in explaining long-run development in India. Relative to Lee, our results suggest that pre-colonial conflict exposure was a significant determinant of (early) colonial fiscal levels.

Table 4: Pre-Colonial Conflict and Colonial Fiscal Development

Dependent variable:	1881						1931	
	All		British India		Princely State		British India	
	Ln(Tax/Area)	Ln(Tax/Person)	Ln(Tax/Area)	Ln(Tax/Person)	Ln(Tax/Area)	Ln(Tax/Person)	Ln(Tax/Acre)	Ln(Tax/Person)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Pre-colonial conflict exposure	2.246***	1.245***	2.208***	1.157***	6.386*	1.612	1.310	0.835
	(0.550)	(0.382)	(0.516)	(0.354)	(3.524)	(2.228)	(0.911)	(0.705)
	[0.000]	[0.001]	[0.000]	[0.001]	[0.076]	[0.473]	[0.153]	[0.238]
Population density	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Geographic controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Standardized beta coefficient	0.256	0.173	0.281	0.227	0.496	0.210	0.135	0.098
R^2	0.468	0.518	0.596	0.545	0.606	0.408	0.731	0.696
Observations	270	274	200	200	70	74	145	144

Notes. Estimation method is OLS. Unit of analysis is district. Dependent variables are as follows. $ln(Tax/Area), 1881$ and $ln(Tax/Person), 1881$ measures land revenue in 1,000 rupees per square kilometer or per capita, in 1881 for districts under direct British rule and/or indirect rule (i.e., major Princely states). $ln(Tax/Acre, 1931)$ and $ln(Tax/Person, 1931)$ measures average land revenue in rupees per acre or per capita, in 1931 for districts in British India. Variable of interest is pre-colonial conflict exposure to land battles between 1000-1757 with a cutoff distance of 250 kilometers. Geographic controls include latitude, longitude, altitude, ruggedness, precipitation, land quality, dry rice suitability, wet rice suitability, wheat suitability, and malaria risk. Population density is $\ln(PopulationDensity)$ in 1850 in columns 1 to 6 and 1930 in columns 7 and 8. Robust standard errors in parentheses, followed by p-values in brackets. ***, **, and * indicate statistical significance at 1%, 5%, and 10% level.

Table 5: Pre-Colonial Conflict versus Colonial and Post-Colonial Conflict

Dependent variable:	Colonial Conflict Exposure 1758-1839		Colonial Conflict Exposure 1840-1946		Post-Colonial Conflict Exposure 1947-2010	
	Land Battles	All Conflicts	Land Battles	All Conflicts	Land Battles	All Conflicts
	(1)	(2)	(3)	(4)	(5)	(6)
Pre-colonial conflict exposure	0.170***	0.441***	0.040	0.316	-0.025***	-0.030***
	(0.036)	(0.090)	(0.039)	(0.302)	(0.005)	(0.007)
	[0.000]	[0.000]	[0.308]	[0.295]	[0.000]	[0.000]
Population density	Yes	Yes	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes	Yes	Yes
Geographic controls	Yes	Yes	Yes	Yes	Yes	Yes
Standardized beta coefficient	0.350	0.429	0.044	0.206	-0.129	-0.107
R^2	0.568	0.571	0.740	0.562	0.816	0.874
Observations	660	660	660	660	660	660

Notes. Estimation method is OLS. Unit of analysis is district. Dependent variable is colonial conflict exposure to land battles between 1758-1839 with a cutoff distance of 250 kilometers in column 1 and to all conflict types in column 2. Similarly, it is colonial conflict exposure between 1840-1946 in columns 3-4 and post-colonial conflict exposure between 1947-2010 in columns 5-6. Variable of interest is pre-colonial conflict exposure to land battles between 1000-1757 with a cutoff distance of 250 kilometers. Geographic controls include latitude, longitude, altitude, ruggedness, precipitation, land quality, dry rice suitability, wet rice suitability, wheat suitability, and malaria risk. Population density is $\ln(PopulationDensity)$ in 1990. Robust standard errors in parentheses, followed by p-values in brackets. ***, **, and * indicate statistical significance at 1%, 5%, and 10% level.

Overall, we view this evidence as consistent with the first prediction described above, namely that pre-colonial conflict exposure played a significant role in pre-colonial and colonial-era state-making.

7.2 Political Violence

In line with our theoretical framework, we continue the channels analysis by testing the relationship between pre-colonial conflict exposure and (eventual) political violence levels.

In Table 5, we regress local exposure to colonial and post-colonial conflicts on pre-colonial conflict exposure. There is a positive and significant relationship between pre-colonial and colonial conflict exposure between 1758 and 1839, indicating that districts that experienced greater pre-colonial conflict exposure continued to experience conflict during the first sub-period of British colonial rule. This relationship, however, is not significant for the second sub-period of British colonial rule between 1840 and 1946, and turns negative and significant for the post-colonial era. Districts that experience more pre-colonial conflict exposure, therefore, experienced significantly less conflict between 1947 and 2010.

We take two other measures of political violence as outcome variables in Table 6. Column 1 regresses the number of fatalities per district between 2015 and 2018 according to the ACLED Project on pre-colonial conflict exposure.[27] Here, we find a negative and significant relationship between

[27]Available at: `https://www.acleddata.com/`.

Table 6: Pre-Colonial Conflict and Post-Colonial Political Violence

Dependent variable:	Political Violence	Maoist Control	Fractionalization	
			Linguistic	Religious
	(1)	(2)	(3)	(4)
Pre-colonial conflict exposure	-0.241**	-0.381**	-0.209*	0.080
	(0.102)	(0.163)	(0.113)	(0.071)
	[0.019]	[0.020]	[0.065]	[0.260]
Population density	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes
Geographic controls	Yes	Yes	Yes	Yes
Standardized beta coefficient	-0.119	-0.129	-0.073	0.048
R^2	0.408	0.281	0.570	0.557
Observations	660	395	660	660

Notes. Estimation method is OLS. Unit of analysis is district. Dependent variable in column 1 is *Fatalities*, defined as fatalities per district between 2015-18 (in hundreds). Dependent variable in column 2 is *MaoistControl*, a dummy variable that equals 1 for Maoist control in 2003. Dependent variable in column 3 is *LinguisticFractionalization*, defined as 1 minus the Herfindahl index of language population shares in 2001. Dependent variable in column 4 is *ReligiousFractionalization*, defined as 1 minus the Herfindahl index of religion population shares in 2001. Variable of interest is pre-colonial conflict exposure to land battles between 1000-1757 with a cutoff distance of 250 kilometers. Geographic controls include latitude, longitude, altitude, ruggedness, precipitation, land quality, dry rice suitability, wet rice suitability, wheat suitability, and malaria risk. Population density is $\ln(PopulationDensity)$ in 1990. Robust standard errors in parentheses, followed by p-values in brackets. ***, **, and * indicate statistical significance at 1%, 5%, and 10% level.

pre-colonial conflict exposure and contemporary political violence in terms of fatalities. Column 2 regresses local Maoist control in 2003 according to Mukherjee (2017) on pre-colonial conflict exposure. In 2006, Prime Minister Manmohan Singh called the Maoist insurgency "India's most important internal security threat" (Mukherjee, 2017, 5). We show that pre-colonial conflict exposure predicts a significantly lower likelihood of local control by Maoist insurgents.

Overall, we view the above results as consistent with the second prediction described above, that previous conflict exposure may pave the way for domestic peace in the long term (Morris, 2014, 3-26).[28]

Finally, in columns 3 and 4 of Table 6, we regress linguistic and religious fractionalization in 2001 on pre-colonial conflict exposure. Pre-colonial conflict predicts significantly less linguistic fractionalization today (there is no statistically significant relationship for religious fractionalization). This result suggests that a reduction in linguistic heterogeneity – via the homogenizing effects of historical conquest, for example – may be one long-run outcome of pre-colonial warfare, part and

[28]According to our theoretical framework, we would not expect to observe the anti-persistence of conflict until a dominant political entity (e.g., the post-1840 British colonial government) was able to establish a widespread monopoly over violence across India. In the meantime, however, we would expect warfare to persist so long as there was ongoing interstate military competition in India. During the pre-colonial era, in fact, we find evidence for conflict persistence from one century to the next (results not shown to save space).

Table 7: Pre-Colonial Conflict and Irrigation Infrastructure

Dependent variable:	%Irrigated					
	1931			1956-87		
	(1)	(2)	(3)	(4)	(5)	(6)
Pre-colonial conflict exposure	41.630***	24.368**	21.275**	79.578***	32.442**	37.413**
	(9.751)	(11.445)	(10.357)	(16.702)	(15.057)	(15.758)
	[0.000]	[0.034]	[0.041]	[0.000]	[0.032]	[0.018]
Population density	Yes	Yes	Yes	Yes	Yes	Yes
State FE	No	Yes	Yes	No	Yes	Yes
Geographic controls	No	No	Yes	No	No	Yes
Standardized beta coefficient	0.380	0.222	0.194	0.368	0.150	0.173
R^2	0.166	0.302	0.391	0.334	0.582	0.611
Observations	257	257	257	271	271	271

Notes. Estimation method is OLS. Unit of analysis is district. Dependent variables are as follows. $\%Irrigated$ measures the proportion of area sown with canal irrigation in 1931 (columns 1-3) and the proportion of gross cropped area that is irrigated averaged between 1956-87 (columns 4-6). Variable of interest is pre-colonial conflict exposure to land battles between 1000-1757 with a cutoff distance of 250 kilometers. Geographic controls include latitude, longitude, altitude, ruggedness, precipitation, land quality, dry rice suitability, wet rice suitability, wheat suitability, and malaria risk. Population density is $\ln(PopulationDensity)$ in 1900 in columns 1-3 and in 1950 in columns 4-6. Robust standard errors in parentheses, followed by p-values in brackets. ***, **, and * indicate statistical significance at 1%, 5%, and 10% level.

parcel with more powerful local government institutions, that helps explain the anti-persistence of conflict in India which we observe.

7.3 Irrigation Infrastructure

We conclude the channels analysis by testing the relationship between pre-colonial conflict exposure and the subsequent provision of other public goods that depend on a less violent domestic environment, and in particular those that promote investments in physical capital such as irrigation infrastructure.

We take colonial-era data on irrigation infrastructure at the district level in 1931 from Bharadwaj and Mirza (2017). We rely on irrigation data for post-colonial India from Banerjee and Iyer (2005), who provide district-level data across more than 10 major Indian states. Following Banerjee and Iyer, we average these data between 1956 and 1987.

Table 7 indicates that there is a positive and significant relationship between pre-colonial conflict exposure and the proportion of agricultural land within a district that is irrigated across both the late colonial era (columns 1-3) and the post-colonial one (columns 4-6). We view these results as consistent with our theoretical framework, namely that those districts that were more exposed to pre-colonial conflict – and hence may have developed more powerful local government institutions, and have eventually provided greater domestic security – may have been better placed to make local investments in physical capital.

7.4 Section Summary

The results in this section suggest that the positive relationship between pre-colonial conflict exposure and current economic development in India runs through the following channels: (1) pre-colonial and colonial-era state-making; (2) greater domestic security in the long term; (3) greater colonial and post-colonial investments in physical capital (i.e., irrigation infrastructure). In line with our argument, we view reductions in local levels of violence and greater investments in physical capital as functions – at least in part – of more powerful local government institutions.

8 Conclusion

We have analyzed the role of pre-colonial history – and in particular the role of interstate warfare – in long-run development outcomes across India. We have argued that, if a given district in India experienced more pre-colonial warfare, then more powerful local government institutions were likely to emerge there, which in turn helped promote local long-run economic development through the greater provision of domestic security and other basic public goods.

To evaluate the predictions of this argument, we have exploited a new geocoded database of historical interstate conflicts on the Indian subcontinent. We have shown evidence for a positive, significant, and robust relationship between pre-colonial conflict exposure and local economic development in India today. Consistent with our theoretical framework, we have found that local pre-colonial and colonial-era state-making, and less political violence and higher investments in physical infrastructure in the long term, help explain this relationship. Our study thus casts new light on the deep roots of Indian development patterns.

Our study shows that the "military competition" framework applies beyond the paradigmatic case of Western Europe. This parallel between Western Europe and India makes sense, given that two key historical factors in the European context – namely, enduring political fragmentation and interstate military competition – were also important features of the pre-colonial Indian landscape. In Imperial China, by contrast, there was political centralization and mass rebellion was frequent. This dynamic altered the consequences of violent conflict for institutional reforms (Dincecco and Wang, 2018). Furthermore, unlike in pre-colonial Africa, historical population density in pre-colonial India was high enough – as in Western Europe – to make territorial acquisition through warfare worthwhile (Herbst, 2000, 13-16). Low population density meant that a traditional goal of African warfare was to capture slaves (Herbst, 2000, 20), weakening the relationship between warfare and state-making. There is no significant correlation between warfare and state centralization in the context of pre-colonial Africa (Osafo-Kwaako and Robinson, 2013). Moreover, the correlation between pre-colonial conflict levels and long-run development outcomes in Africa is negative (Besley and Reynal-Querol, 2014; Dincecco, Fenske and Onorato, 2019). Thus, our study helps clarify the conditions under which war "makes" states and promotes economic development are most likely to hold.

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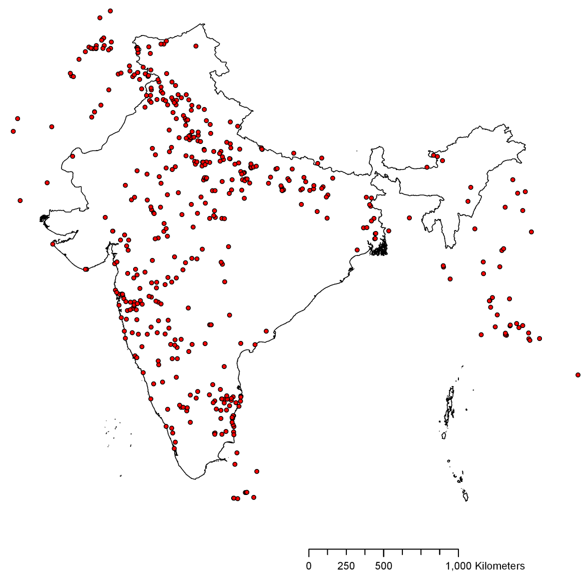
Online Appendix for

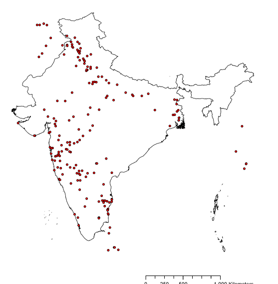
Pre-Colonial Warfare and Long-Run Development in India

Figure A.1: Conflict Locations, 1000-2010

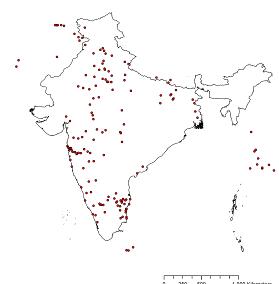


Notes. This figure shows the location of each recorded military conflict on the Indian subcontinent between 1000-2010.

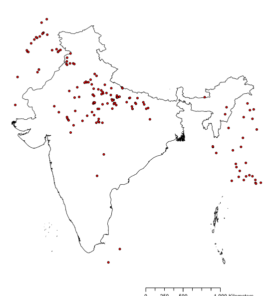
Figure A.2: Conflict Locations by Sub-Period



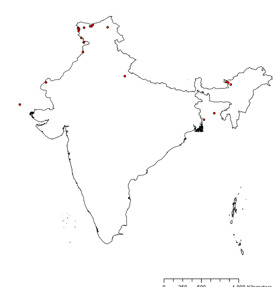
(a) 1000-1757



(b) 1758-1839



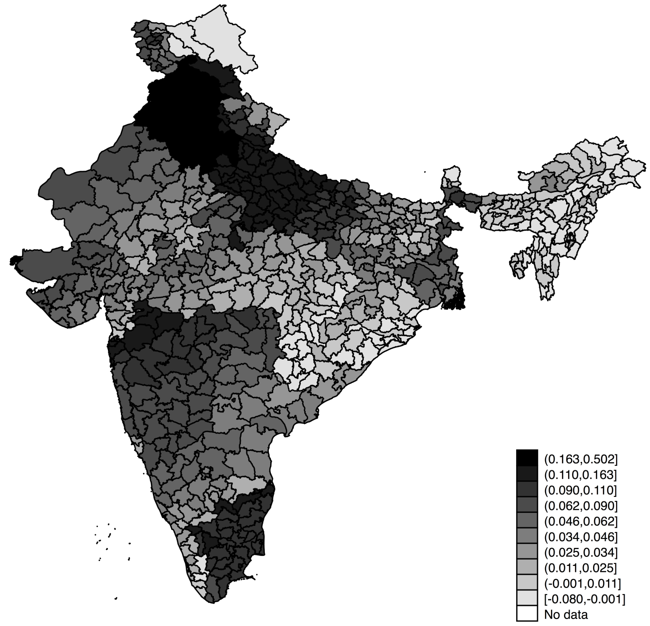
(c) 1840-1946



(d) 1947-2010

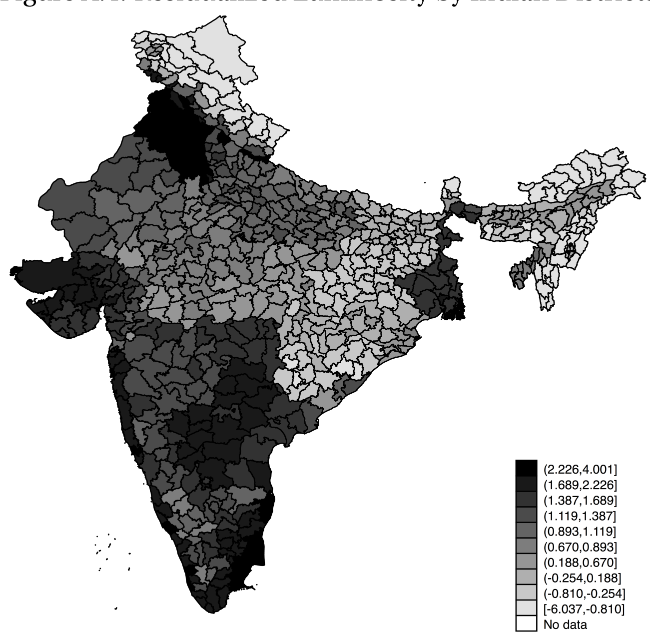
Notes. This figure shows the location of each recorded military conflict on the Indian subcontinent between 1000-2010 by four sub-periods: (a) pre-colonial (1000-1757); (b) colonial (1758-1839); (c) colonial (1840-1946); and (d) post-colonial (1947-2010).

Figure A.3: Residualized Pre-Colonial Conflict Exposure by Indian Districts



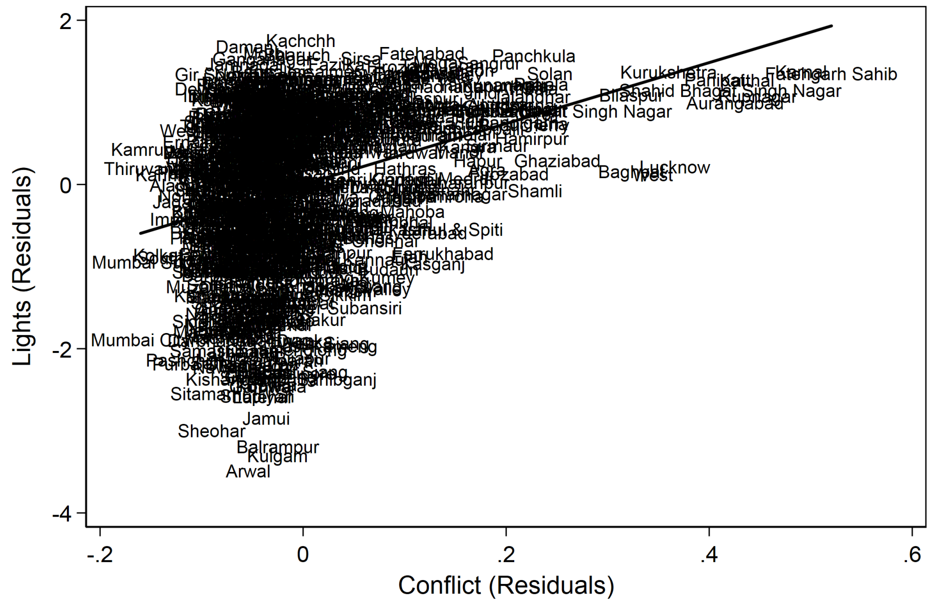
Notes. This figure shows residualized pre-colonial conflict exposure to land battles between 1000-1757 with a cutoff distance of 250 kilometers by district in India after controlling for $\ln(PopulationDensity)$ in 1990. Districts are shaded by quintile, whereby districts in the top quintile receive the darkest shade.

Figure A.4: Residualized Luminosity by Indian Districts



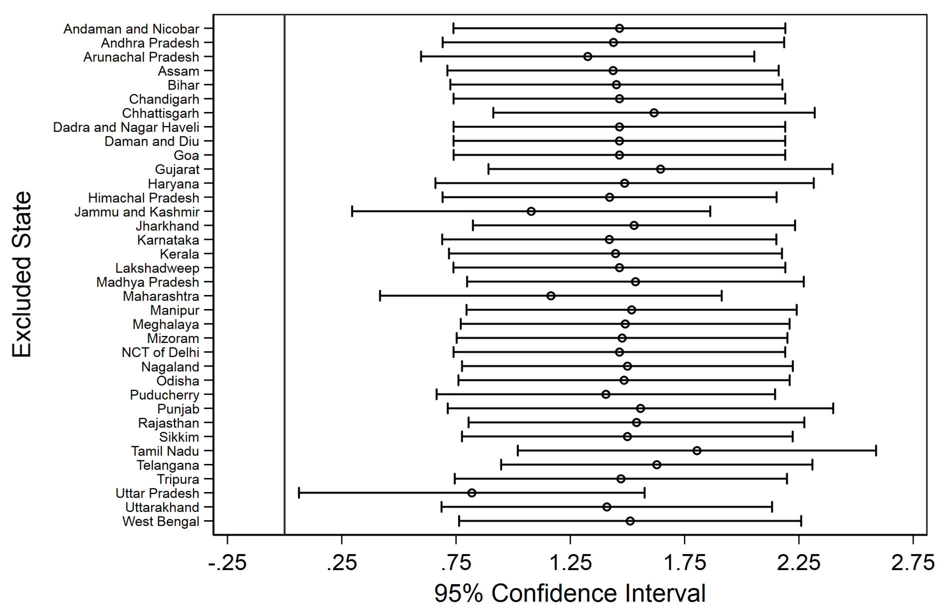
Notes. This figure shows residualized average luminosity between 1992-2010 by district in India after controlling for $\ln(PopulationDensity)$ in 1990. Districts are shaded by quintile, whereby districts in the top quintile receive the darkest shade.

Figure A.5: Pre-Colonial Conflict Exposure and Luminosity by Indian Districts (Residualized)



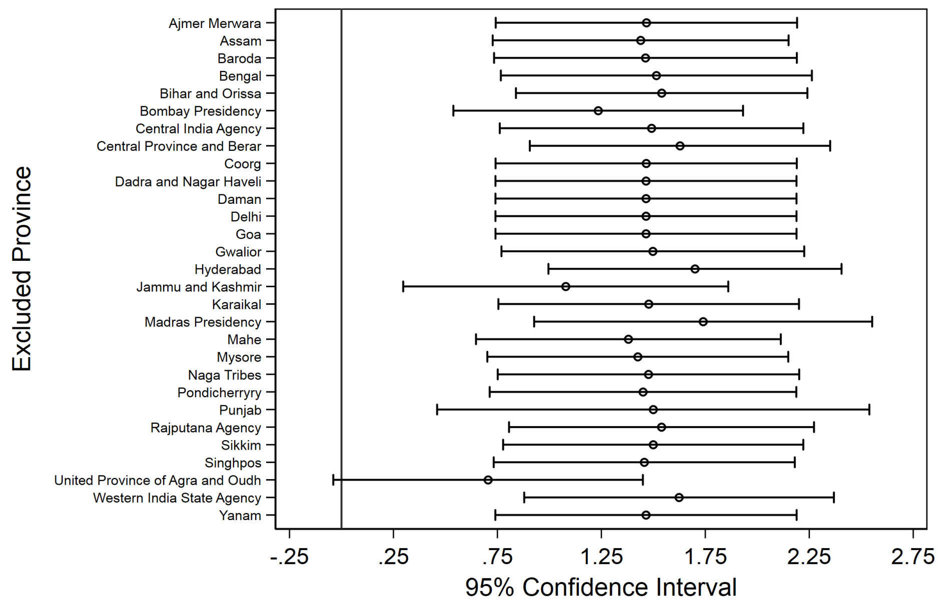
Notes. This figure plots residualized pre-colonial conflict exposure to land battles between 1000-1757 with a cutoff distance of 250 kilometers against residualized average luminosity between 1992-2010 by district in India. Both variables are residualized by controlling for $\ln(PopulationDensity)$ in 1990.

Figure A.6: Pre-Colonial Conflict and Economic Development: Exclude States One by One



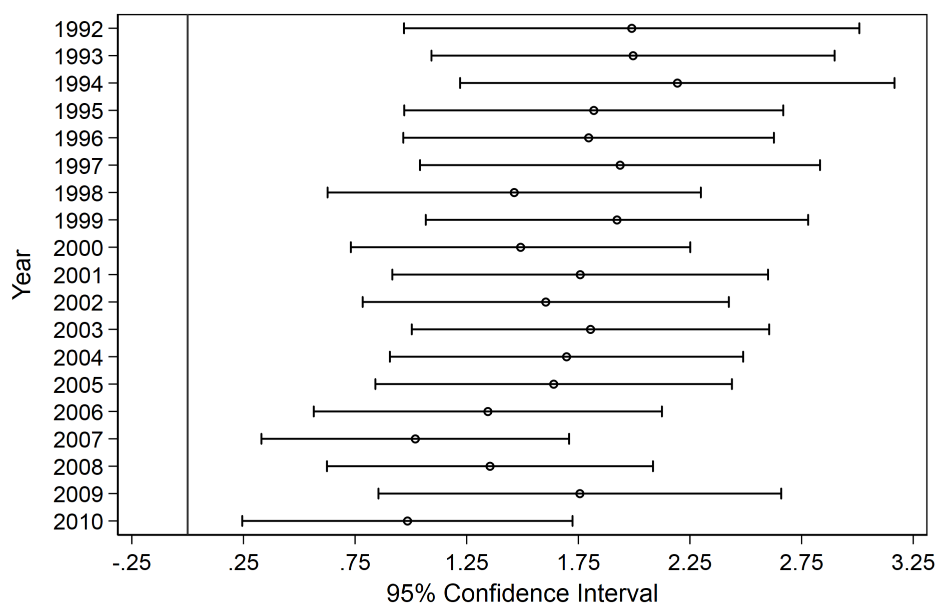
Notes. Each hollow dot represents the point estimate for the regression model in column 3 of Table 1 when we exclude each state or union territory one by one. Horizontal bars indicate 95% confidence intervals.

Figure A.7: Pre-Colonial Conflict and Economic Development: Exclude Colonial Provinces



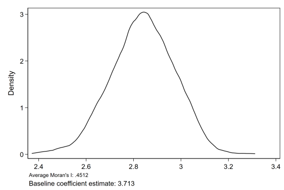
Notes. Each hollow dot represents the point estimate for the regression model in column 3 of Table 1 when we exclude each colonial province one by one. Horizontal bars indicate 95% confidence intervals.

Figure A.8: Pre-Colonial Conflict and Economic Development: 95% Confidence Intervals

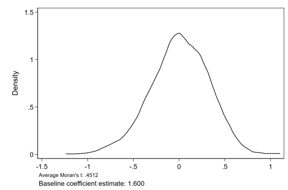


Notes. Each hollow dot represents the point estimate for the regression model in column 3 of Table 1 when the dependent variable is $\ln(0.01 + Luminosity)$ for each year between 1992-2010. Horizontal bars indicate 95% confidence intervals.

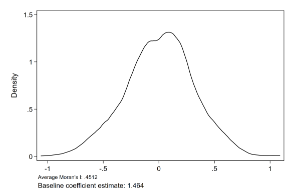
Figure A.9: Artificial Spatially-Correlated Noise Placebo Variables



(a) Column 1, Table 1



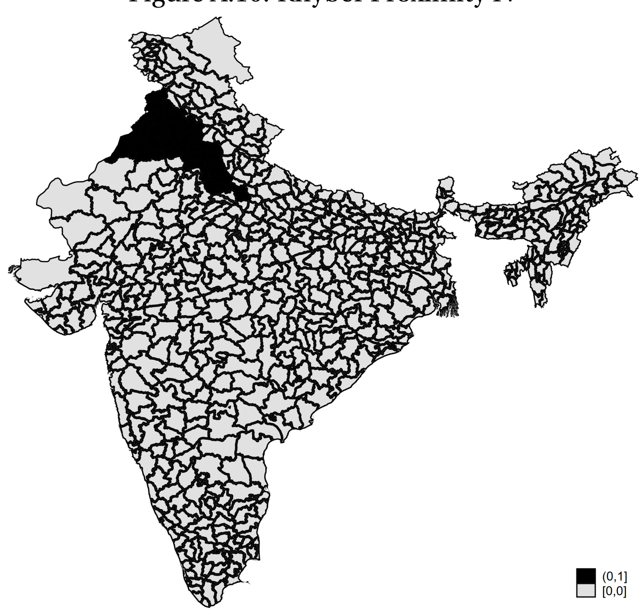
(b) Column 2, Table 1



(c) Column 3, Table 1

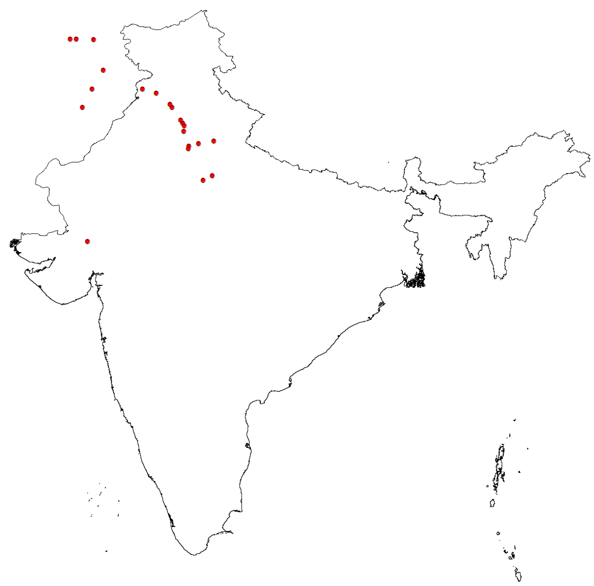
Notes. This figure shows the results of tests that generate artificial spatially-correlated noise placebo variables to replace our variable of interest, reallocating conflict exposure randomly across districts within a state (without replacement) for each of the regression models in Table 1.

Figure A.10: Khyber Proximity IV



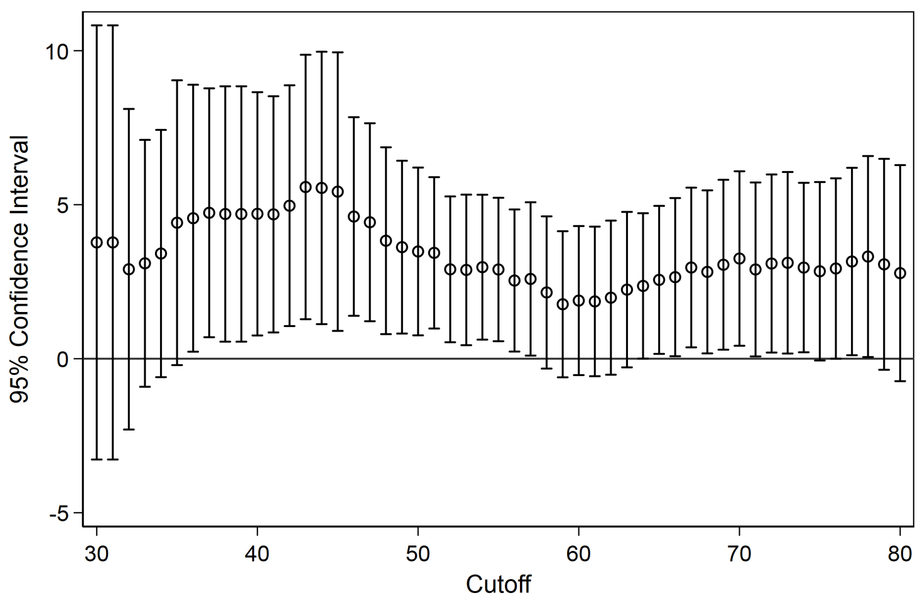
Notes. This figure shows the values of the Khyber Proximity instrument by district in India.

Figure A.11: Locations of Conflicts Fought By Invaders from Central Asia, 1000-1757



Notes. This figure shows the location of each recorded military conflict fought by invaders from Central Asia on the Indian subcontinent between 1000-1757.

Figure A.12: Sensitivity of IV Results to Alternative Cutoffs



Notes. Each hollow dot represents the point estimate for the regression model in column 3 of Table 2 for different cutoff values used to define the instrument. Horizontal bars indicate 95% confidence intervals.

Figure A.13: Convex Hull Example: Pre-Colonial Land Battles Involving Shah Jahan

Notes. This figure shows the convex hull for all pre-colonial land battles involving the seventeenth-century Mughal ruler Shah Jahan. Dots indicate specific battle locations. The triangle indicates the convex hull enveloping these battles. Shaded districts are those that intersect the convex hull.

Table A.1: Summary Statistics: Main Analysis

	Mean	Std Dev	Min	Max	N
ln(0.01+luminosity)	0.68	1.49	−4.61	4.14	664
Pre-colonial conflict exposure, 1000-1757	0.07	0.10	0.00	0.60	666
Colonial conflict exposure, 1758-1839	0.04	0.05	0.00	0.31	666
Colonial conflict exposure, 1840-1946	0.05	0.09	0.00	0.54	666
Post-colonial conflict exposure, 1947-2010	0.01	0.02	0.00	0.15	666
Khyber proximity	0.08	0.26	0.00	1.00	660
ln(Population density), 1990	5.47	1.15	−1.44	10.61	665
Latitude	23.38	5.72	7.53	34.53	666
Longitude	81.12	6.39	69.47	96.83	666
Altitude	471.46	702.10	−200.73	4914.91	665
Ruggedness	98518.33	161662.39	0.00	851959.50	666
Precipitation	1370.74	698.71	200.22	4486.95	665
Land quality	0.45	0.29	0.00	0.97	662
Dry rice suitability	629.84	589.89	0.00	1722.67	665
Wet rice suitability	1439.98	797.25	0.00	2826.93	665
Wheat suitability	628.43	574.14	0.00	2914.67	665
Malaria risk	0.10	0.34	0.00	2.81	664
Linguistic fractionalization, 2001	0.46	0.27	0.01	4.21	666
Religious fractionalization, 2001	0.26	0.16	0.01	0.72	666
Political violence, 2015-18 (hundreds of fatalities)	0.06	0.19	0.00	2.32	666
Maoist control, 2003	0.09	0.29	0.00	1.00	395
ln(Tax/Area), 1881 (All)	−1.31	1.09	−4.84	1.17	274
ln(Tax/Area), 1881 (British India)	−1.46	1.08	−4.84	1.17	201
ln(Tax/Area), 1881 (Princely states)	−0.88	0.99	−3.05	1.06	73
ln(Tax/Person), 1881 (All)	0.30	0.91	−2.90	2.83	279
ln(Tax/Person), 1881 (British India)	−0.07	0.72	−2.90	1.86	201
ln(Tax/Person), 1881 (Princely states)	1.26	0.59	−0.21	2.83	78
ln(Tax/Area), 1931 (British India)	−0.41	0.93	−4.20	1.39	145
ln(Tax/Person), 1931 (British India)	0.32	0.81	−3.09	2.07	144
% Irrigated, 1931	4.76	9.54	0.00	60.99	257
% Irrigated, 1956-87	24.16	20.18	0.04	99.92	271

Notes. See text for variable descriptions and data sources.

Table A.2: Summary Statistics: Appendix Analysis

	Mean	Std Dev	Min	Max	N
Pre-colonial conflict exposure (all)	0.11	0.15	0.00	1.03	666
Pre-colonial conflict exposure (sieges)	0.04	0.07	0.00	0.98	666
Pre-colonial conflict exposure (single-day)	0.06	0.08	0.00	0.55	666
Pre-colonial conflict exposure (multi-day)	0.01	0.02	0.00	0.43	666
Pre-colonial conflict exposure (internal)	0.07	0.10	0.00	0.60	666
Pre-colonial conflict exposure (5,000 km cutoff)	0.21	0.10	0.06	0.71	666
Pre-colonial conflict exposure (1500-1757)	0.05	0.07	0.00	0.53	666
Pre-colonial conflict exposure (plus Clodfelter)	0.07	0.10	0.00	0.60	666
Pre-colonial conflict exposure (plus Clodfelter and Narvane)	0.07	0.10	0.00	0.63	666
Pre-colonial conflict exposure (running end-date)	0.13	0.14	0.00	0.73	377
Pre-colonial conflict exposure (plus Bangladesh and Pakistan)	0.06	0.09	0.00	0.60	763
Pre-colonial conflict exposure (# conflicts in district of state capital)	0.34	2.48	0.00	49.00	666
Pre-colonial conflict exposure (by location of participant capitals)	0.14	0.29	0.00	4.20	666
Pre-colonial conflict exposure (# conflicts in convex hull, by participant)	33.85	27.16	0.00	83.00	666
Pre-colonial conflict exposure (# conflicts in convex hull, by group)	19.22	16.27	0.00	49.00	666
Ln(GDP per capita)	9.65	0.53	7.30	12.16	512
Ln(1+Luminosity)	0.67	1.54	−6.39	4.14	661
Luminosity (levels)	4.27	6.47	0.00	62.62	664
Luminosity (IHS)	1.66	0.99	0.00	4.83	664
Historical trade route	0.22	0.42	0.00	1.00	666
Silk Road site	0.02	0.12	0.00	1.00	666
Medieval trade port	0.07	0.25	0.00	1.00	666
Surat proximity (placebo)	0.08	0.26	0.00	1.00	663
Kodungallur proximity (placebo)	0.08	0.26	0.00	1.00	663
Goa proximity (placebo)	0.08	0.26	0.00	1.00	663
Calicut proximity (placebo)	0.08	0.26	0.00	1.00	663
Bombay proximity (placebo)	0.08	0.26	0.00	1.00	663
Khyber proximity (linear slope)	0.08	0.26	0.00	1.00	663
Khyber proximity (squared slope)	0.08	0.26	0.00	1.00	663
Khyber proximity (linear ruggedness)	0.08	0.26	0.00	1.00	663
Khyber proximity (HMI)	0.15	0.36	0.00	1.00	663
Neolithic settlements	0.36	1.54	0.00	20.00	666
Chalcolithic settlments	0.29	1.38	0.00	19.00	666
Cultural sites (300-700 CE)	0.16	0.48	0.00	4.00	666
Cultural sites (8th-12th centuries)	0.66	1.23	0.00	10.00	666
Ln(1+Urban population in 1000)	0.08	0.96	0.00	11.51	666
Ln(1+Distance to coast)	11.12	4.24	0.00	14.04	666
Ln(1+Distance to border)	10.53	4.62	0.00	14.44	666
River dummy	0.58	0.49	0.00	1.00	666
Irrigation potential	0.20	0.33	0.00	1.00	657
Rainfall variation	0.23	0.07	0.10	0.53	666
Ln(1+Distance to petroleum)	5.49	0.77	1.78	6.69	666
Ln(1+Distance to diamonds; primary)	6.68	0.59	2.59	7.53	666
Ln(1+Distance to diamonds; secondary)	7.25	0.68	4.50	8.00	666
Ln(1+Distance to gems)	4.96	0.88	1.63	7.04	666
Ln(1+Distance to gold; placer)	6.31	0.71	3.54	7.17	666
Ln(1+Distance to gold; vein)	6.14	0.73	2.79	7.20	666
Ln(1+Distance to gold; surface)	6.75	0.61	3.34	7.39	666
Direct rule (colonial)	0.64	0.48	0.00	1.00	638
%Non-landlord (colonial)	50.81	42.68	0.00	100.00	166
Duration of Muslim rule	363.78	236.27	0.00	995.00	666
Muslim share	0.13	0.17	0.00	0.99	666
Religious polarization	0.47	0.26	0.02	0.99	666
Ganges River	0.08	0.27	0.00	1.00	666

Notes. See text for variable descriptions and data sources.

Table A.3: Pre-Colonial Conflict and Economic Development: Conflict Types

Dependent variable:	Ln(0.01+Luminosity)			
	(1)	(2)	(3)	(4)
Pre-colonial conflict exposure (baseline)	1.573*** (0.374) [0.000]			
Pre-colonial conflict exposure (sieges)	-0.328 (0.289) [0.257]			
Pre-colonial conflict exposure (single-day)		1.326*** (0.438) [0.003]		
Pre-colonial conflict exposure (multi-day)		2.208*** (0.454) [0.000]		
Pre-colonial conflict exposure (internal)			1.481*** (0.368) [0.000]	
Pre-colonial conflict exposure (all)				0.681*** (0.250) [0.007]
Population density	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes
Geographic controls	Yes	Yes	Yes	Yes
Standardized beta coefficient	0.102	0.074	0.096	0.066
R^2	0.849	0.849	0.849	0.847
Observations	660	660	660	660

Notes. Estimation method is OLS. Unit of analysis is district. Dependent variable is $\ln(0.01 + Luminosity)$ averaged between 1992-2010. Variable of interest is pre-colonial conflict exposure between 1000-1757 with a cutoff distance of 250 kilometers. "Baseline" restricts the conflict sample to land battles, while "siege" restricts it to sieges. "Single-day" and "multi-day" restrict this sample to land battles which lasted up to one day or multiple days. "Internal" restricts this sample to land battles internal to India. "All" includes the following conflict types: land battles, sieges, naval battles, and other conflict events (e.g., mutiny), whether single- or multi-day. Geographic controls include latitude, longitude, altitude, ruggedness, precipitation, land quality, dry rice suitability, wet rice suitability, wheat suitability, and malaria risk. Population density is $\ln(PopulationDensity)$ in 1990. Robust standard errors in parentheses, followed by p-values in brackets. ***, **, and * indicate statistical significance at 1%, 5%, and 10% level.

Table A.4: Pre-Colonial Conflict and Economic Development: 1500-1757 Conflict Sample

Dependent variable:	Ln(0.01+Luminosity)		
	(1)	(2)	(3)
Pre-colonial conflict exposure (1500-1757)	4.469***	1.722***	1.429***
	(0.443)	(0.528)	(0.474)
	[0.000]	[0.001]	[0.003]
Population density	Yes	Yes	Yes
State FE	No	Yes	Yes
Geographic controls	No	No	Yes
Standardized beta coefficient	0.222	0.085	0.071
R^2	0.590	0.828	0.847
Observations	660	660	660

Notes. Estimation method is OLS. Unit of analysis is district. Dependent variable is $\ln(0.01 + Luminosity)$ averaged between 1992-2010. Variable of interest is pre-colonial conflict exposure to land battles between 1500-1757 with a cutoff distance of 250 kilometers. Geographic controls include latitude, longitude, altitude, ruggedness, precipitation, land quality, dry rice suitability, wet rice suitability, wheat suitability, and malaria risk. Population density is $\ln(PopulationDensity)$ in 1990. Robust standard errors in parentheses, followed by p-values in brackets. ***, **, and * indicate statistical significance at 1%, 5%, and 10% level.

Table A.5: Pre-Colonial Conflict and Economic Development: Alternative Conflict Data

Dependent variable:	Ln(0.01+Luminosity)	
	(1)	(2)
Pre-colonial conflict exposure (plus Clodfelter)	1.483***	
	(0.369)	
	[0.000]	
Pre-colonial conflict exposure (plus Clodfelter and Narvane)		1.227***
		(0.357)
		[0.001]
Population density	Yes	Yes
State FE	Yes	Yes
Geographic controls	Yes	Yes
Standardized beta coefficient	0.096	0.082
R^2	0.849	0.848
Observations	660	660

Notes. Estimation method is OLS. Unit of analysis is district. Dependent variable is $\ln(0.01 + Luminosity)$ averaged between 1992-2010. Variable of interest is pre-colonial conflict exposure to land battles between 1000-1757 with a cutoff distance of 250 kilometers. Column 1 adds any conflicts from Clodfelter (2002) that do not already appear in the baseline conflict database (i.e., Jaques, 2007), while column 2 adds non-overlapping conflicts from both Clodfelter (2002) and Narvane (1996). Geographic controls include latitude, longitude, altitude, ruggedness, precipitation, land quality, dry rice suitability, wet rice suitability, wheat suitability, and malaria risk. Population density is $\ln(PopulationDensity)$ in 1990. Robust standard errors in parentheses, followed by p-values in brackets. ***, **, and * indicate statistical significance at 1%, 5%, and 10% level.

Table A.6: Pre-Colonial Conflict and Economic Development: Grid Cell Fixed Effects

Dependent variable:	Ln(0.01+Luminosity)		
	(1)	(2)	(3)
Pre-colonial conflict exposure	3.713***	1.875***	1.871***
	(0.305)	(0.524)	(0.390)
	[0.000]	[0.000]	[0.000]
Population density	Yes	Yes	Yes
Grid cell FE	No	Yes	Yes
Geographic controls	No	No	Yes
Standardized beta coefficient	0.240	0.121	0.121
R^2	0.598	0.777	0.814
Observations	660	660	660

Notes. Estimation method is OLS. Unit of analysis is district. Grid cell fixed effects are 4° latitude × 4° longitude. Dependent variable is $\ln(0.01 + Luminosity)$ averaged between 1992-2010. Variable of interest is pre-colonial conflict exposure to land battles between 1000-1757 with a cutoff distance of 250 kilometers. Geographic controls include latitude, longitude, altitude, ruggedness, precipitation, land quality, dry rice suitability, wet rice suitability, wheat suitability, and malaria risk. Population density is $\ln(PopulationDensity)$ in 1990. Robust standard errors in parentheses, followed by p-values in brackets. ***, **, and * indicate statistical significance at 1%, 5%, and 10% level.

Table A.7: Pre-Colonial Conflict and Economic Development: Alternative Cutoff Distance

Dependent variable:	Ln(0.01+Luminosity)		
	(1)	(2)	(3)
Pre-colonial conflict exposure (5,000 km cutoff)	4.080***	1.536***	1.378***
	(0.315)	(0.404)	(0.395)
	[0.000]	[0.000]	[0.001]
Population density	Yes	Yes	Yes
State FE	No	Yes	Yes
Geographic controls	No	No	Yes
Standardized beta coefficient	0.278	0.105	0.094
R^2	0.615	0.828	0.848
Observations	660	660	660

Notes. Estimation method is OLS. Unit of analysis is district. Dependent variable is $\ln(0.01 + Luminosity)$ averaged between 1992-2010. Variable of interest is pre-colonial conflict exposure to land battles between 1000-1757 with a cutoff distance of 5,000 kilometers. Geographic controls include latitude, longitude, altitude, ruggedness, precipitation, land quality, dry rice suitability, wet rice suitability, wheat suitability, and malaria risk. Population density is $\ln(PopulationDensity)$ in 1990. Robust standard errors in parentheses, followed by p-values in brackets. ***, **, and * indicate statistical significance at 1%, 5%, and 10% level.

Table A.8: Pre-Colonial Conflict and Economic Development: Running End-Date Cutoff

Dependent variable:	Ln(0.01+Luminosity)		
	(1)	(2)	(3)
Pre-colonial conflict exposure (running end-date)	3.289***	1.247***	1.081***
	(0.245)	(0.265)	(0.310)
	[0.000]	[0.000]	[0.001]
Population density	Yes	Yes	Yes
State FE	No	Yes	Yes
Geographic controls	No	No	Yes
Standardized beta coefficient	0.392	0.149	0.129
R^2	0.480	0.814	0.825
Observations	377	377	377

Notes. Estimation method is OLS. Unit of analysis is district. Dependent variable is $\ln(0.01 + Luminosity)$ averaged between 1992-2010. Variable of interest is pre-colonial conflict exposure to land battles between 1000-1757 with variable end-date cutoff that includes exposure to conflicts that took place after 1757 but prior to British conquest of a district. Geographic controls include latitude, longitude, altitude, ruggedness, precipitation, land quality, dry rice suitability, wet rice suitability, wheat suitability, and malaria risk. Population density is $\ln(PopulationDensity)$ in 1990. Robust standard errors in parentheses, followed by p-values in brackets. ***, **, and * indicate statistical significance at 1%, 5%, and 10% level.

Table A.9: Pre-Colonial Conflict and Economic Development: GDP Outcome

Dependent variable:	Ln(GDP per Capita)		
	(1)	(2)	(3)
Pre-colonial conflict exposure	1.782***	0.536**	0.448*
	(0.300)	(0.255)	(0.230)
	[0.000]	[0.036]	[0.052]
Population density	Yes	Yes	Yes
State FE	No	Yes	Yes
Geographic controls	No	No	Yes
Standardized beta coefficient	0.339	0.102	0.085
R^2	0.111	0.687	0.732
Observations	512	512	512

Notes. Estimation method is OLS. Unit of analysis is district. Dependent variable is $\ln(GDPperCapita)$ averaged between 1999-2007. Variable of interest is pre-colonial conflict exposure to land battles between 1000-1757 with a cutoff distance of 250 kilometers. Geographic controls include latitude, longitude, altitude, ruggedness, precipitation, land quality, dry rice suitability, wet rice suitability, wheat suitability, and malaria risk. Population density is $\ln(PopulationDensity)$ in 1990. Robust standard errors in parentheses, followed by p-values in brackets. ***, **, and * indicate statistical significance at 1%, 5%, and 10% level.

Table A.10: Pre-Colonial Conflict and Economic Development: Unit of Analysis: Grid Cell

Dependent variable:	Ln(0.01+Luminosity)		
	(1)	(2)	(3)
Pre-colonial conflict exposure	2.617***	1.634***	1.749***
	(0.563)	(0.552)	(0.521)
	[0.000]	[0.003]	[0.001]
Population density	Yes	Yes	Yes
State FE	No	Yes	Yes
Geographic controls	No	No	Yes
Standardized beta coefficient	0.128	0.080	0.086
R^2	0.700	0.877	0.900
Observations	276	276	276

Notes. Estimation method is OLS. Unit of analysis is grid cell (1° latitude $\times$ 1° longitude). Dependent variable is $\ln(0.01 + Luminosity)$ averaged between 1992-2010. Variable of interest is pre-colonial conflict exposure to land battles between 1000-1757 with a cutoff distance of 250 kilometers. Geographic controls include latitude, longitude, altitude, ruggedness, precipitation, land quality, dry rice suitability, wet rice suitability, wheat suitability, and malaria risk. Population density is $\ln(PopulationDensity)$ in 1990. Robust standard errors in parentheses, followed by p-values in brackets. ***, **, and * indicate statistical significance at 1%, 5%, and 10% level.

Table A.11: Pre-Colonial Conflict and Economic Development: Alternative Specifications of Dependent Variable

Dependent variable:	Ln(1+Luminosity)			Luminosity (levels)			Luminosity (IHS)		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Pre-colonial conflict exposure	3.625***	1.495***	1.313***	20.060***	10.725**	12.582***	3.595***	1.777***	1.791***
	(0.322)	(0.409)	(0.394)	(3.494)	(4.258)	(3.793)	(0.261)	(0.295)	(0.286)
	[0.000]	[0.000]	[0.001]	[0.000]	[0.012]	[0.001]	[0.000]	[0.000]	[0.000]
Population density	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State FE	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Geographic controls	No	No	Yes	No	No	Yes	No	No	Yes
Standardized beta coefficient	0.228	0.094	0.082	0.298	0.159	0.187	0.350	0.173	0.174
R^2	0.580	0.818	0.838	0.389	0.657	0.728	0.534	0.811	0.839
Observations	657	657	657	660	660	660	660	660	660

Notes. Estimation method is OLS. Unit of analysis is district. Dependent variable is $\ln(1 + Luminosity)$ in columns 1-3, *Luminosity* (levels) in columns 4-6, and *Luminosity* (inverse hyperbolic sine function) in columns 7-9. All dependent variables are averaged between 1992-2010. Variable of interest is pre-colonial conflict exposure to land battles between 1000-1757 with a cutoff distance of 250 kilometers. Geographic controls include latitude, longitude, altitude, ruggedness, precipitation, land quality, dry rice suitability, wet rice suitability, wheat suitability, and malaria risk. Population density is $\ln(PopulationDensity)$ in 1990. Robust standard errors in parentheses, followed by p-values in brackets. ***, **, and * indicate statistical significance at 1%, 5%, and 10% level.

Table A.12: Pre-Colonial Conflict and Economic Development: No Population Density Control

Dependent variable:	Ln(0.01+Luminosity)		
	(1)	(2)	(3)
Pre-colonial conflict exposure	7.104***	4.248***	2.815***
	(0.514)	(0.615)	(0.475)
	[0.000]	[0.000]	[0.000]
Population density	No	No	No
State FE	No	Yes	Yes
Geographic controls	No	No	Yes
Standardized beta coefficient	0.459	0.275	0.182
R^2	0.211	0.627	0.736
Observations	660	660	660

Notes. Estimation method is OLS. Unit of analysis is district. Dependent variable is $\ln(0.01 + Luminosity)$ averaged between 1992-2010. Variable of interest is pre-colonial conflict exposure to land battles between 1000-1757 with a cutoff distance of 250 kilometers. Geographic controls include latitude, longitude, altitude, ruggedness, precipitation, land quality, dry rice suitability, wet rice suitability, wheat suitability, and malaria risk. Robust standard errors in parentheses, followed by p-values in brackets. ***, **, and * indicate statistical significance at 1%, 5%, and 10% level.

Table A.13: Pre-Colonial Conflict and Economic Development: Historical Population Density Control

Dependent variable:	Ln(0.01+Luminosity)		
	(1)	(2)	(3)
Pre-colonial conflict exposure	4.812***	3.348***	2.544***
	(0.409)	(0.596)	(0.491)
	[0.000]	[0.000]	[0.000]
Population density	Yes	Yes	Yes
State FE	No	Yes	Yes
Geographic controls	No	No	Yes
Standardized beta coefficient	0.311	0.216	0.164
R^2	0.384	0.659	0.740
Observations	661	661	661

Notes. Estimation method is OLS. Unit of analysis is district. Dependent variable is $\ln(0.01 + Luminosity)$ averaged between 1992-2010. Variable of interest is pre-colonial conflict exposure to land battles between 1000-1757 with a cutoff distance of 250 kilometers. Geographic controls include latitude, longitude, altitude, ruggedness, precipitation, land quality, dry rice suitability, wet rice suitability, wheat suitability, and malaria risk. Population density is $\ln(PopulationDensity)$ in 1000. Robust standard errors in parentheses, followed by p-values in brackets. ***, **, and * indicate statistical significance at 1%, 5%, and 10% level.

Table A.14: Pre-Colonial Conflict and Economic Development: Conley Spatial Standard Errors

Dependent variable:	Ln(0.01+Luminosity)					
	(1)	(2)	(3)	(4)	(5)	(6)
Pre-colonial conflict exposure	1.465***	1.465**	1.465***	1.465***	1.465***	1.465***
	(0.527)	(0.587)	(0.542)	(0.543)	(0.317)	(0.412)
	[0.005]	[0.013]	[0.007]	[0.007]	[0.000]	[0.000]
Cutoff distance (km)	250	500	750	1000	1250	1500
Population density	Yes	Yes	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes	Yes	Yes
Geographic controls	Yes	Yes	Yes	Yes	Yes	Yes
Standardized beta coefficient	0.095	0.095	0.095	0.095	0.095	0.095
R^2	0.849	0.849	0.849	0.849	0.849	0.849
Observations	660	660	660	660	660	660

Notes. Estimation method is OLS. Unit of analysis is district. Dependent variable is $\ln(0.01 + Luminosity)$ averaged between 1992-2010. Variable of interest is pre-colonial conflict exposure to land battles between 1000-1757 with a cutoff distance of 250 kilometers. Geographic controls include latitude, longitude, altitude, ruggedness, precipitation, land quality, dry rice suitability, wet rice suitability, wheat suitability, and malaria risk. Population density is $\ln(PopulationDensity)$ in 1990. We report spatial standard errors that allow for general forms of spatial autocorrelation of the error term (Conley, 1999) for six different cutoff distances between 250 and 1,500 kilometers.

Table A.15: Pre-Colonial Conflict and Economic Development: Alternative Standard Errors

Dependent variable:	Ln(0.01+Luminosity)		
	(1)	(2)	(3)
Pre-colonial conflict exposure	3.713	1.601	1.465
Population density	Yes	Yes	Yes
State FE	No	Yes	Yes
Geographic controls	No	No	No
Standardized beta coefficient	0.240	0.104	0.095
State clustered p-value	0.012	0.038	0.034
Wild clustered bootstrap p-value	0.007	0.139	0.129
Moran's I statistic	0.508	0.070	0.044
R^2	0.598	0.829	0.849
Observations	660	660	660

Notes. Estimation method is OLS. Unit of analysis is district. Dependent variable is $\ln(0.01 + Luminosity)$ averaged between 1992-2010. Variable of interest is pre-colonial conflict exposure to land battles between 1000-1757 with a cutoff distance of 250 kilometers. Geographic controls include latitude, longitude, altitude, ruggedness, precipitation, land quality, dry rice suitability, wet rice suitability, wheat suitability, and malaria risk. Population density is $\ln(PopulationDensity)$ in 1990. We report the p-values for the coefficient estimates of the variable of interest for robust standard errors clustered by state and the wild cluster bootstrap procedure. The p-values for the wild cluster bootstrap procedure use 9,999 replications. Additionally, we report the Moran's I statistics.

Table A.16: Pre-Colonial Conflict and Economic Development: IV: Reduced Form

Dependent variable:	Ln(0.01+Luminosity)		
	(1)	(2)	(3)
Cost distance to Kyhber Pass	1.006***	0.435***	0.277**
	(0.094)	(0.090)	(0.114)
	[0.000]	[0.000]	[0.015]
Population density	Yes	Yes	Yes
State FE	No	Yes	Yes
Geographic controls	No	No	Yes
Standardized beta coefficient	0.179	0.077	0.049
R^2	0.578	0.827	0.846
Observations	660	660	660

Notes. Estimation method is OLS. Unit of analysis is district. Dependent variable is $\ln(0.01 + Luminosity)$ averaged between 1992-2010. Variable of interest is cost distance to Khyber Pass. Geographic controls include latitude, longitude, altitude, ruggedness, precipitation, land quality, dry rice suitability, wet rice suitability, wheat suitability, and malaria risk. Population density is $\ln(PopulationDensity)$ in 1990. Robust standard errors in parentheses, followed by p-values in brackets. ***, **, and * indicate statistical significance at 1%, 5%, and 10% level.

Table A.17: Pre-Colonial Conflict and Economic Development: IV: Trade Controls

Panel A: First Stage

Dependent variable:	Pre-Colonial Conflict Exposure		
	(1)	(2)	(3)
Cost distance to Kyhber Pass	0.078***	0.080***	0.080***
	(0.024)	(0.024)	(0.024)
	[0.001]	[0.001]	[0.001]
Historical trade route	Yes	No	No
Silk Road site	No	Yes	No
Medieval trade port	No	No	Yes
Population density	Yes	Yes	Yes
State FE	Yes	Yes	Yes
Geographic controls	Yes	Yes	Yes
R^2	0.685	0.670	0.673
Observations	660	660	660

Panel B: Second Stage

Dependent variable:	Ln(0.01+Luminosity)		
	(1)	(2)	(3)
Pre-colonial conflict exposure	3.534**	3.465**	3.483**
	(1.412)	(1.388)	(1.392)
	[0.012]	[0.013]	[0.012]
Historical trade route	Yes	No	No
Silk Road site	No	Yes	No
Medieval trade port	No	No	Yes
Population density	Yes	Yes	Yes
State FE	Yes	Yes	Yes
Geographic controls	Yes	Yes	Yes
Anderson-Rubin p-value	0.012	0.012	0.012
Kleibergen-Paap Wald rk F-statistic	10.376	10.572	10.654
Observations	660	660	660

Notes. Estimation method is 2SLS. Unit of analysis is district. In Panel A (first stage), dependent variable is pre-colonial conflict exposure to land battles between 1000-1757 with a cutoff distance of 250 kilometers, while variable of interest is cost distance to Khyber Pass. In Panel B (second stage), dependent variable is $\ln(0.01 + Luminosity)$ averaged between 1992-2010, while variable of interest is pre-colonial conflict exposure between 1000-1757 with a cutoff distance of 250 kilometers, as instrumented by cost distance to Khyber Pass. $HistoricalTradeRoute$ is a dummy variable that equals 1 for the presence of a major historical trade route or major port according to UNESCO. $SilkRoad$ is a dummy variable that equals 1 for the presence of a Silk Road site. $MedievalPort$ is a dummy variable that equals 1 for the presence of a major medieval port according to Jha (2013). Geographic controls include latitude, longitude, altitude, ruggedness, precipitation, land quality, dry rice suitability, wet rice suitability, wheat suitability, and malaria risk. All previous controls are for both first and second stages. Population density is $\ln(PopulationDensity)$ in 1750 for first stage, and in 1990 for second stage. Robust standard errors in parentheses, followed by p-values in brackets. ***, **, and * indicate statistical significance at 1%, 5%, and 10% level.

Table A.18: Pre-Colonial Conflict and Economic Development: IV: Trade Controls (Cost Distance)

	Panel A: First Stage		
Dependent variable:	Pre-Colonial Conflict Exposure		
	(1)	(2)	(3)
Cost distance to Kyhber Pass	0.079***	0.079***	0.079***
	(0.024)	(0.024)	(0.024)
	[0.001]	[0.001]	[0.001]
Historical trade route (cost distance)	Yes	No	No
Silk Road site (cost distance)	No	Yes	No
Medieval trade port (cost distance)	No	No	Yes
Population density	Yes	Yes	Yes
State FE	Yes	Yes	Yes
Geographic controls	Yes	Yes	Yes
R^2	0.672	0.672	0.672
Observations	660	660	660
	Panel B: Second Stage		
Dependent variable:	Ln(0.01+Luminosity)		
	(1)	(2)	(3)
Pre-colonial conflict exposure	3.413**	3.451**	3.411**
	(1.393)	(1.396)	(1.393)
	[0.014]	[0.013]	[0.014]
Historical trade route (cost distance)	Yes	No	No
Silk Road site (cost distance)	No	Yes	No
Medieval trade port (cost distance)	No	No	Yes
Population density	Yes	Yes	Yes
State FE	Yes	Yes	Yes
Geographic controls	Yes	Yes	Yes
Anderson-Rubin p-value	0.014	0.013	0.014
Kleibergen-Paap Wald rk F-statistic	10.377	10.439	10.379
Observations	660	660	660

Notes. Estimation method is 2SLS. Unit of analysis is district. In Panel A (first stage), dependent variable is pre-colonial conflict exposure to land battles between 1000-1757 with a cutoff distance of 250 kilometers, while variable of interest is cost distance to Khyber Pass. In Panel B (second stage), dependent variable is $\ln(0.01 + Luminosity)$ averaged between 1992-2010, while variable of interest is pre-colonial conflict exposure between 1000-1757 with a cutoff distance of 250 kilometers, as instrumented by cost distance to Khyber Pass. $HistoricalTradeRoute$ is cost distance to the nearest major historical trade route or major port according to UNESCO. $SilkRoad$ is cost distance to nearest Silk Road site. $MedievalPort$ is cost distance to nearest major medieval port according to Jha (2013). Geographic controls include latitude, longitude, altitude, ruggedness, precipitation, land quality, dry rice suitability, wet rice suitability, wheat suitability, and malaria risk. All previous controls are for both first and second stages. Population density is $\ln(PopulationDensity)$ in 1750 for first stage, and in 1990 for second stage. Robust standard errors in parentheses, followed by p-values in brackets. ***, **, and * indicate statistical significance at 1%, 5%, and 10% level.

Table A.19: Pre-Colonial Conflict and Economic Development: IV: Placebo Entry Points

	(1)	(2)	(3)	(4)	(5)
Panel A: First Stage					
Dependent variable:	Pre-Colonial Conflict Exposure				
Cost distance to placebo entry point	-0.041*	-0.002	0.007	-0.000	-0.047**
	(0.025)	(0.013)	(0.010)	(0.013)	(0.024)
	[0.097]	[0.853]	[0.462]	[1.000]	[0.049]
Placebo entry point	Surat	Kodungallur	Goa	Calicut	Bombay
Population density	Yes	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes	Yes
Geographic controls	Yes	Yes	Yes	Yes	Yes
R^2	0.656	0.651	0.651	0.651	0.657
Observations	660	660	660	660	660
Panel B: Second Stage					
Dependent variable:	Ln(0.01+Luminosity)				
	(1)	(2)	(3)	(4)	(5)
Pre-colonial conflict exposure	7.315	34.071	-18.723	-113.599	7.994*
	(5.554)	(173.545)	(15.519)	(1925.976)	(4.715)
	[0.188]	[0.844]	[0.228]	[0.953]	[0.090]
Population density	Yes	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes	Yes
Geographic controls	Yes	Yes	Yes	Yes	Yes
Anderson-Rubin p-value	0.073	0.287	0.002	0.294	0.018
Kleibergen-Paap Wald rk F-statistic	2.380	0.036	1.523	0.003	3.508
Observations	660	660	660	660	660

Notes. Estimation method is 2SLS. Unit of analysis is district. In Panel A (first stage), dependent variable is pre-colonial conflict exposure to land battles between 1000-1757 with a cutoff distance of 250 kilometers, while variable of interest is cost distance to placebo entry point (i.e., Surat, Kodungallur, Goa, Calicut, and Bombay). In Panel B (second stage), dependent variable is $\ln(0.01 + Luminosity)$ averaged between 1992-2010, while variable of interest is pre-colonial conflict exposure between 1000-1757 with a cutoff distance of 250 kilometers, as instrumented by cost distance to placebo entry point. Geographic controls for both first and second stages include latitude, longitude, altitude, ruggedness, precipitation, land quality, dry rice suitability, wet rice suitability, wheat suitability, and malaria risk. Population density is $\ln(PopulationDensity)$ in 1750 for first stage, and in 1990 for second stage. Robust standard errors in parentheses, followed by p-values in brackets. ***, **, and * indicate statistical significance at 1%, 5%, and 10% level.

Table A.20: Pre-Colonial Conflict and Economic Development: IV: Alternative Cost Distance

	Panel A: First Stage			
Dependent variable:	Pre-Colonial Conflict Exposure			
	(1)	(2)	(3)	(4)
Cost distance to Khyber Pass (alternative)	0.089***	0.053**	0.106***	0.080***
	(0.022)	(0.022)	(0.022)	(0.023)
	[0.000]	[0.015]	[0.000]	[0.000]
Alternative cost distance	Linear slope	Squared slope	Linear ruggedness	HMI
Population density	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes
Geographic controls	Yes	Yes	Yes	Yes
R^2	0.668	0.661	0.678	0.667
Observations	660	660	660	660
	Panel B: Second Stage			
Dependent variable:	Ln(0.01+Luminosity)			
	(1)	(2)	(3)	(4)
Pre-colonial conflict exposure	5.232***	3.106*	5.042***	6.208***
	(1.668)	(1.872)	(1.284)	(1.750)
	[0.002]	[0.097]	[0.000]	[0.000]
Population density	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes
Geographic controls	Yes	Yes	Yes	Yes
Anderson-Rubin p-value	0.001	0.114	0.000	0.000
Kleibergen-Paap Wald rk F-statistic	14.646	5.415	20.938	10.483
Observations	660	660	660	660

Notes. Estimation method is 2SLS. Unit of analysis is district. In Panel A (first stage), dependent variable is pre-colonial conflict exposure to land battles between 1000-1757 with a cutoff distance of 250 kilometers, while variable of interest is alternative cost distance to Khyber Pass. In Panel B (second stage), dependent variable is $\ln(0.01 + Luminosity)$ averaged between 1992-2010, while variable of interest is pre-colonial conflict exposure between 1000-1757 with a cutoff distance of 250 kilometers, as instrumented by alternative cost distance to Khyber Pass. In column 1, alternative cost distance is computed as linear slope. In column 2, it is computed as squared slope. In column 3, it is computed as linear ruggedness. In column 4, it is computed based on human mobility index (HMI) according to Özak (2010, 2018). Geographic controls for both first and second stages include latitude, longitude, altitude, ruggedness, precipitation, land quality, dry rice suitability, wet rice suitability, wheat suitability, and malaria risk. Population density is $\ln(PopulationDensity)$ in 1750 for first stage, and in 1990 for second stage. Robust standard errors in parentheses, followed by p-values in brackets. ***, **, and * indicate statistical significance at 1%, 5%, and 10% level.

Table A.21: Pre-Colonial Conflict and Economic Development: Include Bangladesh and Pakistan

Dependent variable:	Ln(0.01+Luminosity)		
	(1)	(2)	(3)
Pre-colonial conflict exposure	4.383***	1.616***	1.449***
	(0.316)	(0.384)	(0.377)
	[0.000]	[0.000]	[0.000]
Population density	Yes	Yes	Yes
State FE	No	Yes	Yes
Geographic controls	No	No	Yes
Standardized beta coefficient	0.275	0.101	0.091
R^2	0.550	0.824	0.841
Observations	757	757	757

Notes. Estimation method is OLS. Unit of analysis is district (in India plus Bangladesh and Pakistan). Dependent variable is $\ln(0.01 + Luminosity)$ averaged between 1992-2010. Variable of interest is pre-colonial conflict exposure to land battles between 1000-1757 with a cutoff distance of 250 kilometers. Geographic controls include latitude, longitude, altitude, ruggedness, precipitation, land quality, dry rice suitability, wet rice suitability, wheat suitability, and malaria risk. Population density is $\ln(PopulationDensity)$ in 1990. Robust standard errors in parentheses, followed by p-values in brackets. ***, **, and * indicate statistical significance at 1%, 5%, and 10% level.

Table A.22: Pre-Colonial Conflict and Economic Development: IV: Include Bangladesh and Pakistan

	Panel A: First Stage		
Dependent variable:	Pre-Colonial Conflict Exposure		
	(1)	(2)	(3)
Cost distance to Kyhber Pass	0.180***	0.078***	0.061**
	(0.020)	(0.026)	(0.024)
	[0.000]	[0.002]	[0.012]
Population density	Yes	Yes	Yes
State FE	No	Yes	Yes
Geographic controls	No	No	Yes
R^2	0.327	0.648	0.671
Observations	757	757	757
	Panel B: Second Stage		
Dependent variable:	Ln(0.01+Luminosity)		
	(1)	(2)	(3)
Pre-colonial conflict exposure	6.972***	5.926***	5.305***
	(0.895)	(1.903)	(1.998)
	[0.000]	[0.002]	[0.008]
Population density	Yes	Yes	Yes
State FE	No	Yes	Yes
Geographic controls	No	No	Yes
Anderson-Rubin p-value	0.000	0.000	0.000
Kleibergen-Paap Wald rk F-statistic	80.354	8.344	5.814
Observations	757	757	757

Notes. Estimation method is 2SLS. Unit of analysis is district (in India plus Bangladesh and Pakistan). In Panel A (first stage), dependent variable is pre-colonial conflict exposure to land battles between 1000-1757 with a cutoff distance of 250 kilometers, while variable of interest is cost distance to Khyber Pass (computed as squared ruggedness). In Panel B (second stage), dependent variable is $\ln(0.01 + Luminosity)$ averaged between 1992-2010, while variable of interest is pre-colonial conflict exposure between 1000-1757 with a cutoff distance of 250 kilometers, as instrumented by cost distance to Khyber Pass. Geographic controls for both first and second stages include latitude, longitude, altitude, ruggedness, precipitation, land quality, dry rice suitability, wet rice suitability, wheat suitability, and malaria risk. Population density is $\ln(PopulationDensity)$ in 1750 for first stage, and in 1990 for second stage. Robust standard errors in parentheses, followed by p-values in brackets. ***, **, and * indicate statistical significance at 1%, 5%, and 10% level.

Table A.23: Pre-Colonial Conflict and Economic Development: Initial State Capacity Controls

Dependent variable:	Ln(0.01+Luminosity)							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Pre-colonial conflict exposure	1.480***	1.458***	1.406***	1.464***	1.467***	1.531***	1.402***	1.497***
	(0.371)	(0.369)	(0.379)	(0.370)	(0.370)	(0.419)	(0.368)	(0.380)
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Neolithic settlements	Yes	No	No	No	No	No	No	No
Chalcolithic settlments	No	Yes	No	No	No	No	No	No
Cultural sites (300-700 CE)	No	No	Yes	No	No	No	No	No
Cultural sites (8th-12th centuries)	No	No	No	Yes	No	No	No	No
Ln(1+Urban population in 1000)	No	No	No	No	Yes	No	No	No
Major Indian states (10th-11th centuries)	No	No	No	No	No	Yes	No	No
Major Indian states (11th-12th centuries)	No	No	No	No	No	No	Yes	No
Major Indian states (in 1525)	No	No	No	No	No	No	No	Yes
Population density	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Geographic controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Standardized beta coefficient	0.096	0.094	0.091	0.095	0.095	0.099	0.091	0.097
R^2	0.849	0.849	0.849	0.849	0.849	0.851	0.852	0.852
Observations	660	660	660	660	660	660	660	660

Notes. Estimation method is OLS. Unit of analysis is district. Dependent variable is $\ln(0.01 + Luminosity)$ averaged between 1992-2010. Variable of interest is pre-colonial conflict exposure to land battles between 1000-1757 with a cutoff distance of 250 kilometers. *Neolithic* and *Chalcolithic* control for the number of Neolithic and Chalcolithic settlements. *CulturalSite* controls for the number of cultural sites between 300-700 CE and the eighth-twelfth centuries. *UrbanPop* controls for the natural logarithm of (one plus) the total urban population in 1000 CE. *MajorState* controls for the presence of a major Indian state between the tenth-eleventh centuries, eleventh-twelfth centuries, or in 1525. Geographic controls include latitude, longitude, altitude, ruggedness, precipitation, land quality, dry rice suitability, wet rice suitability, wheat suitability, and malaria risk. Population density is $\ln(PopulationDensity)$ in 1990. Robust standard errors in parentheses, followed by p-values in brackets. ***, **, and * indicate statistical significance at 1%, 5%, and 10% level.

Table A.24: Pre-Colonial Conflict and Economic Development: Additional Geographic Features

Dependent variable:	Ln(0.01+Luminosity)						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Pre-colonial conflict exposure	1.400***	1.262***	1.451***	1.435***	1.464***	1.115***	0.693*
	(0.367)	(0.365)	(0.380)	(0.381)	(0.365)	(0.361)	(0.382)
	[0.000]	[0.001]	[0.000]	[0.000]	[0.000]	[0.002]	[0.070]
Ln(1+Distance to coast)	Yes	No	No	No	No	No	Yes
Ln(1+Distance to border)	No	Yes	No	No	No	No	Yes
River dummy	No	No	Yes	No	No	No	Yes
Irrigation potential	No	No	No	Yes	No	No	Yes
Rainfall variation	No	No	No	No	Yes	No	Yes
Ln(1+Distance to resource deposit)	No	No	No	No	No	Yes	Yes
Population density	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Geographic controls (benchmark)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Standardized beta coefficient	0.051	0.072	0.004	0.027	0.042	-0.032	0.071
R^2	0.849	0.851	0.849	0.847	0.849	0.856	0.858
Observations	660	660	660	652	660	660	652

Notes. Estimation method is OLS. Unit of analysis is district. Dependent variable is $\ln(0.01 + Luminosity)$ averaged between 1992-2010. Variable of interest is pre-colonial conflict exposure to land battles between 1000-1757 with a cutoff distance of 250 kilometers. Baseline geographic controls include latitude, longitude, altitude, ruggedness, precipitation, land quality, dry rice suitability, wet rice suitability, wheat suitability, and malaria risk. Additional geographic controls include natural logarithm of (one plus) distance to coast, natural logarithm of (one plus) distance to border, river presence, irrigation potential, rainfall variation, and natural logarithm of (one plus) distance to resource deposits (i.e., diamonds, gems, gold, petroleum). Population density is $\ln(PopulationDensity)$ in 1990. Robust standard errors in parentheses, followed by p-values in brackets. ***, **, and * indicate statistical significance at 1%, 5%, and 10% level.

Table A.25: Pre-Colonial Conflict and Economic Development: Colonial Controls

Dependent variable:	Ln(0.01+Luminosity)			
	(1)	(2)	(3)	(4)
Pre-colonial conflict exposure	1.263***	1.265***	0.922**	0.951**
	(0.377)	(0.379)	(0.406)	(0.417)
	[0.001]	[0.001]	[0.025]	[0.024]
Direct rule		-0.085		
		(0.071)		
		[0.230]		
%Non-landlord				-0.052
				(0.111)
				[0.640]
Population density	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes
Geographic controls	Yes	Yes	Yes	Yes
Standardized beta coefficient	0.091	0.091	0.102	0.105
R^2	0.817	0.817	0.856	0.856
Observations	634	634	166	166

Notes. Estimation method is OLS. Unit of analysis is district. Dependent variable is $\ln(0.01 + Luminosity)$ averaged between 1992-2010. Variable of interest is pre-colonial conflict exposure to land battles between 1000-1757 with a cutoff distance of 250 kilometers. $DirectRule$ is a dummy variable that equals 1 for direct British rule. $\%NonLandlord$ measures the proportion of a district under a non-landlord revenue system in British India. Geographic controls include latitude, longitude, altitude, ruggedness, precipitation, land quality, dry rice suitability, wet rice suitability, wheat suitability, and malaria risk. Population density is $\ln(PopulationDensity)$ in 1990. Robust standard errors in parentheses, followed by p-values in brackets. ***, **, and * indicate statistical significance at 1%, 5%, and 10% level.

Table A.26: Pre-Colonial Conflict and Economic Development: Fractionalization Controls

Dependent variable:	Ln(0.01+Luminosity)						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Pre-colonial conflict exposure	1.455***	1.479***	1.338***	1.457***	1.437***	1.462***	1.434***
	(0.373)	(0.363)	(0.355)	(0.371)	(0.369)	(0.371)	(0.366)
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Medieval port	-0.032						
	(0.089)						
	[0.721]						
Duration of Muslim rule		-0.000					
		(0.000)					
		[0.836]					
Muslim share			-1.187***				
			(0.236)				
			[0.000]				
Religious polarization				0.039			
				(0.141)			
				[0.781]			
Linguistic fractionalization					-0.134		
					(0.138)		
					[0.332]		
Religious fractionalization						0.038	
						(0.257)	
						[0.883]	
Ganges River							0.083
							(0.096)
							[0.388]
Population density	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Geographic controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Standardized beta coefficient	0.094	0.096	0.087	0.094	0.093	0.095	0.093
R^2	0.849	0.849	0.856	0.849	0.849	0.849	0.849
Observations	660	660	660	660	660	660	660

Notes. Estimation method is OLS. Unit of analysis is district. Dependent variable is $\ln(0.01 + Luminosity)$ averaged between 1992-2010. Variable of interest is pre-colonial conflict exposure to land battles between 1000-1757 with a cutoff distance of 250 kilometers. *MedievalPort* is a dummy variable that equals 1 for the presence of a major medieval port. *MuslimRule* measures the duration of medieval Muslim rule. *ShareMuslim* measures the current share of a district that is Muslim. *ReligiousPolarization* measures current religious polarization levels. *LinguisticFractionalization* is 1 minus the Herfindahl index of language population shares in 2001. *ReligiousFractionalization* is 1 minus the Herfindahl index of religion population shares in 2001. *GangesRiver* is a dummy variable that equals 1 if a district is intersected by the Ganges River. Geographic controls include latitude, longitude, altitude, ruggedness, precipitation, land quality, dry rice suitability, wet rice suitability, wheat suitability, and malaria risk. Population density is $\ln(PopulationDensity)$ in 1990. Robust standard errors in parentheses, followed by p-values in brackets. ***, **, and * indicate statistical significance at 1%, 5%, and 10% level.

Table A.27: Pre-Colonial Conflict and Economic Development: Post-1757 Conflict Controls

Dependent variable:	Ln(0.01+Luminosity)			
	(1)	(2)	(3)	(4)
Pre-colonial conflict exposure	1.483***	1.492***	1.461***	1.489***
	(0.393)	(0.375)	(0.389)	(0.418)
	[0.000]	[0.000]	[0.000]	[0.000]
Colonial conflict exposure (1758-1839)	-0.109			0.005
	(0.735)			(0.742)
	[0.882]			[0.995]
Colonial conflict exposure (1840-1946)		-0.679*		-0.679*
		(0.406)		(0.408)
		[0.095]		[0.097]
Post-colonial conflict exposure (1947-2010)			-0.136	-0.055
			(3.139)	(3.151)
			[0.965]	[0.986]
Population density	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes
Geographic controls	Yes	Yes	Yes	Yes
Standardized beta coefficient	0.096	0.096	0.094	0.096
R^2	0.849	0.849	0.849	0.849
Observations	660	660	660	660

Notes. Estimation method is OLS. Unit of analysis is district. Dependent variable is $\ln(0.01 + Luminosity)$ averaged between 1992-2010. All conflict exposure variables measure conflict exposure to land battles with a cutoff distance of 250 kilometers. Variable of interest is pre-colonial conflict exposure between 1000-1757. The first colonial conflict exposure variable spans 1758-1839, while the second spans 1840-1946. The post-colonial conflict exposure variable spans 1947-2010. Geographic controls include latitude, longitude, altitude, ruggedness, precipitation, land quality, dry rice suitability, wet rice suitability, wheat suitability, and malaria risk. Population density is $\ln(PopulationDensity)$ in 1990. Robust standard errors in parentheses, followed by p-values in brackets. ***, **, and * indicate statistical significance at 1%, 5%, and 10% level.

Table A.28: Pre-Colonial Conflict and Economic Development: Alternative Exposure Measures

Dependent variable:	Ln(0.01+Luminosity)			
	(1)	(2)	(3)	(4)
Pre-colonial conflict exposure (# conflicts in district of state capital)	0.014^{*} (0.008) [0.094]			
Pre-colonial conflict exposure (Benchmark measure, by location of participant capitals)		0.424^{***} (0.126) [0.001]		
Pre-colonial conflict exposure (# conflicts in convex hull, by participant)			0.005^{***} (0.002) [0.006]	
Pre-colonial conflict exposure (# conflicts in convex hull, by conflict group)				0.011^{***} (0.003) [0.000]
Population density	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes
Geographic controls	Yes	Yes	Yes	Yes
Standardized beta coefficient	0.023	0.081	0.099	0.115
R^2	0.846	0.848	0.847	0.848
Observations	660	660	660	660

Notes. Estimation method is OLS. Unit of analysis is district. Dependent variable is $\ln(0.01 + Luminosity)$ averaged between 1992-2010. Variable of interest is one of four alternative measures of pre-colonial conflict exposure. In the first alternative, we count the number of conflicts for each pre-colonial state, and assign these conflicts to the district that houses the state's capital. In the second alternative, we compute conflict exposure again using Equation 1, replacing the locations of conflicts with those of the capitals of the pre-colonial states that participated in them. In the third alternative, we compute the convex hull for each participant according to the geographical coordinates of the conflicts in which that participant took part, treating all districts that intersect this convex hull as affected by a conflict. For each district, we count the number of conflicts by which they are so treated. In the fourth alternative, we compute the convex hull for each broad group of conflicts (e.g., "Later Mughal-Maratha Wars") as classified by Jaques (2007). For further details of the construction of these variables, see Subsection **??**. Geographic controls include latitude, longitude, altitude, ruggedness, precipitation, land quality, dry rice suitability, wet rice suitability, wheat suitability, and malaria risk. Population density is $\ln(PopulationDensity)$ in 1990. Robust standard errors in parentheses, followed by p-values in brackets. ***, **, and * indicate statistical significance at 1%, 5%, and 10% level.