Conflict and Gender Norms

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Abstract

We study the relationship between exposure to historical conflict involving heavy weaponry and male-favoring gender norms. We argue that the physical nature of such conflict produced cultural norms favoring males and male offspring. We focus on spatial variation in gender norms across India, a dynamic developing economy in which gender inequality persists. We show robust evidence that areas with high exposure to pre-colonial conflict are significantly more likely to exhibit male-favoring gender norms as measured by male-biased sex ratios and crimes against women. We document how conflict-related gender norms have been transmitted over time via male-favoring folkloric traditions, the gender identity of temple gods, and male-biased marriage practices, and have been transmitted across space by migrants originally from areas with high conflict exposure.

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1 Introduction

Male-favoring gender inequality is widespread in the developing world, whether in education, life expectancy, personal autonomy, or attitudes toward working women (Duflo, 2012; Jayachandran, 2015). And yet, even at similar levels of development, sizeable differences exist in gender-related outcomes (Heath and Jayachandran, 2017). Male-favoring gender norms provide one explanation for such differences (Jayachandran, 2021).[1] But where do male-favoring gender norms come from?

To address the deep determinants of gender norms, we focus on India, a context in which gender inequality remains acute. There are approximately 63 million missing women and 21 million unwanted girls in India (Government of India, 2018). A preference for sons helps explain this phenomenon (Das Gupta et al., 2003; Miller, 1981). The share of male births is abnormally high due to sex-selective abortions and prenatal investments (Arnold, Kishor and Roy, 2002; Bharadwaj and Lakdawala, 2013). Importantly, there is significant spatial variation in gender norms across India. Regions in the north and west display more male-biased sex ratios than regions in the east and south (Agnihotri, 1996; Visaria and Visaria, 1983).

Existing explanations for male-favoring gender norms are not sufficient to explain this spatial variation across India. One common view highlights differences in the cultivation of rice versus wheat. Rice cultivation requires greater participation by women, which may improve their economic status (Bardhan, 1974; Kishor, 1993; Rosenzweig and Schultz, 1982). However, suitability for rice cultivation does not robustly predict the female population share across India historically (Fenske, Gupta and Neumann, 2022). A related view concerns historical agricultural practices (Alesina, Giuliano and Nunn, 2013; Boserup, 1970). If men specialized in agriculture in areas that were suitable for the plough, which requires significant physical strength to operate, whereas women specialized in domestic work, then this may have produced male-favoring gender norms. In India, however, the use of the plough was widespread. Both rice and wheat are plough-positive crops. Even within the most plough-suitable regions, we still observe spatial variation in the extent of missing women.

To improve our understanding of the deep roots of male-favoring gender norms in India, we highlight the role of exposure to historical conflict. Interstate military competition and warfare was prevalent in India for hundreds of years prior to British imperial rule. Extending an insight by the anthropologist Marvin Harris, we argue that, in areas with high exposure to pre-colonial military conflict, which involved heavy weaponry,

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[1] We think of norms as “shared understandings about actions that are obligatory, permitted, or forbidden” (Ostrom, 2000, 143-4).

men may have had a physical advantage due to their significant upper and lower body strength (Harris, 1974). This meant that victory in battle, including the benefits that would accrue to the winning side, was relatively more likely when men rather than women took up arms. In turn, this may have produced cultural norms favoring males and male offspring at the expense of females.

To evaluate the importance of exposure to pre-colonial conflict, we rely on geocoded conflict data extending back to 1000CE from Dincecco et al. (2022), who themselves draw on data found in Jaques (2007) as well as in Clodfelter (2002) and Naravane (1997). Our baseline measure calculates the extent of a (modern) district's exposure to pre-colonial conflict from 1000 to 1757, the year of a key victory by the British East India Company at Plassey and thus the beginning of British rule in India. We combine this measure of historical conflict exposure with district-level data on the sex ratio, individual-level data on the probability that a birth is female, and district-level panel data on crimes against women. We show a positive and statistically significant relationship between exposure to pre-colonial conflict and male-favoring gender outcomes. This relationship holds across age categories, and is not restricted to upper-caste elites. A one standard deviation increase in historical conflict exposure predicts a reduction in the share of the population today that is female by 0.15 standard deviations. These results provide a new perspective on the deep roots of male-favoring gender norms in India.

We subject the main results to a wide variety of robustness checks. By including (present-day) state fixed effects, we show that time-invariant state-specific characteristics (e.g. the north-south divide in missing women) do not confound our results. Similarly, our results are robust to controlling for geographic characteristics such as climate, terrain ruggedness, soil suitability, clay soils, disease environments, access to waterways, and resource deposits. Our results continue to hold, moreover, after controlling for initial levels of state capacity, plough-positive agriculture, British direct rule, non-landlord colonial revenue systems, colonial investments in railways and canals, inter-ethnic and religious relations, post-1757 exposure to conflict, and distances to major urban centers as well as to Asian Highway 1. They also hold when limiting our sample to the Hindu population. In addition, we show that our results remain robust to alternative measures of exposure to pre-colonial conflict that incorporate battles fought far away from the home locations of the participating troops. Similarly, the results are robust to using alternative sources of conflict data constructed from Brecke (1999) or WikiData.

As a final robustness check, we instrument for exposure to pre-colonial conflict with a cost-distance measure of proximity to the Khyber Pass, the main historical path into

India for combatants from Central Asia. We show evidence that exposure to new commercial and cultural phenomena due to trade via the Khyber Pass does not confound the instrumental variables analysis, nor does the timing of colonial-era railway connections. The use of placebo instruments, different control-treatment comparison groups, and an alternative instrument that directly measures exposure to combatants from Central Asia further validates the IV results.

We then analyze potential mechanisms. We provide several types of evidence that greater exposure to pre-colonial conflict involving heavy weaponry promoted the transmission of male-favoring gender norms historically. Drawing on both qualitative and quantitative data, we show that exposure to pre-colonial conflict is positively correlated with male-biased folkloric motifs in India. Similarly, employing historical data on the gender identity of Hindu temple gods, we document a negative correlation between pre-colonial conflict exposure and temples dedicated to female deities. We next show that areas with greater exposure to pre-colonial conflict have significantly lower marriage rates of daughters in the villages of their birth. Additionally, we document the endurance of male-favoring gender norms across intermediate points in time, utilizing sex ratio data from the colonial era in 1931 as well as between 1961 and 2001. Finally, taking an "epidemiological" approach (Fernández, 2011), we show evidence consistent with the notion that male-favoring gender norms linked to pre-colonial conflict exposure are portable, and are still today transmitted across space by migrants no longer living in the original zones of historical conflict.

Beyond its impact on gender norms, historical exposure to military conflict is a well-known explanation for state-making and economic development (Besley and Persson, 2011; Morris, 2014; Tilly, 1992). The impact of economic development on male-favoring gender norms, however, is unclear ex ante. As agricultural societies start to industrialize, there may continue to be a positive relationship between exposure to pre-colonial conflict and male-favoring gender norms, since women tend to participate less in the labor force (Goldin, 1995). At higher development levels, this relationship may turn insignificant, as women become more active in the labor force (e.g. due to better access to education), and male-favoring gender norms begin to disappear (Goldin, 1995; Mammen and Paxson, 2000).

We show a positive and statistically significant relationship between exposure to pre-colonial conflict and the living standards of women today in India as measured by literacy, body mass index, and weight. However, we do not find that economic development levels or early state capacity mediate the relationship running from historical conflict exposure to male-favoring gender norms. These results suggest that the process of economic development, while improving the living standards of women, has not yet diminished male-favoring gender norms associated with greater historical exposure to conflict.

Finally, we cast doubt on the explanatory power of other potential alternative mechanisms, including responses to male scarcity from historical battle deaths such as matrilineal descent, male dominance in agriculture, and polygyny. We also provide evidence running counter to the cultural diffusion of male-favoring gender norms from one combatant group to another, as well as conflict exposure during the colonial or post-independence eras.

1.1 Contribution

Our study provides a new perspective on the deep roots of male-favoring gender norms, which remain prevalent across many parts of the world today. As described above, the hypothesis in Boserup (1970) and Alesina, Giuliano and Nunn (2013) relates gender norms to the historical physical demands of plough use in agriculture. In a similar manner, our paper highlights the role of men's physical advantage in the transmission and endurance of male-favoring gender norms. However, we focus on the importance of this physical attribute for pre-colonial warfare rather than for plough agriculture.

In addition, we contribute to a related literature that evaluates the impacts of other historical developments on women's role in society. Diamond (2005), Ashraf and Galor (2011), and Hansen, Jensen and Skovsgaard (2012) focus on the timing of the Neolithic Revolution in agriculture. Xue (2023) shows that, by advantaging female participation in the labor force, the Cotton Revolution in China promoted more gender-equal norms. Grosjean and Khattar (2019) find that a female deficit among the convict population in Australia led to more conservative gender norms. Bazzi et al. (2023) identify low female labor force participation in the frontier parts of the United States where sex ratios were initially male-biased. Analyzing mass ethnic deportations under Stalin, Miho, Jarotschkin and Zhuravskaya (2023) document the horizontal diffusion of gender norms via imitation and learning. Our paper, by contrast, emphasizes the importance of interstate military rivalry and warfare to the transmission and endurance of gender norms.

Most closely related to our paper, there is a nascent literature about the long-run relationship between violent conflict and male-favoring gender outcomes. Sng, Xue and Zhong (2018) show that counties in China that experienced communal violence during the Qing era (1644-1911) have more male-biased sex ratios today. In cross-national and ethnic-level tests employing data on civil conflict since 1816, as well as a within-Mexico analysis using conflict data since 1500, Ramos-Toro (2019) finds that the share of years of conflict predicts higher male-favoring gender outcomes. Taking a different perspective, Alix-Garcia et al. (2022) show that female-biased sex ratios in the aftermath of the War of the Triple Alliance (1864-70) improved long-run economic, educational, and social outcomes for women. Similarly, Gay (2023) finds greater female labor force participation in France over the long run resulting from high male mortality rates during World War I.[2] Gaikwad, Lin and Zucker (2023) document higher female political representation due to the Khmer Rouge genocide (1975-9).

We advance this literature in several ways. First, we study the context of a large and rapidly developing country – India – in which gender inequality persists despite recent economic growth. Second, our data extends much further back in time, to the dawn of the second millennium, while our empirical analysis spans the pre-colonial, colonial, and post-independence eras. Third, we show evidence that a potential shortage of men due to deaths in pre-colonial battle need not counteract male-favoring gender norms.

Finally, our study improves our understanding of the spatial variation in missing women across India. As described above, differences in the cultivation of rice versus wheat is one potential explanation for this (Bardhan, 1974; Kishor, 1993; Rosenzweig and Schultz, 1982). Another potential explanation concerns differences in patrilineal and patrilocal kinship systems, which can disadvantage women (Clark, 2000; Dyson and Moore, 1983; Miller, 1981). More recently, Carranza (2014) highlights the role of differences in soil textures, which impact the demand for gender-related agricultural labor, while Bhalotra, Brulé and Roy (2020) evaluate state-level reforms starting in the 1970s that equalized inheritance rights. Relative to this literature, we focus on the deep determinants of male-biased sex ratios, with an emphasis on the transmission and endurance of conflict-related gender norms.

1.2 Outline

We organize this study as follows. Section 2 provides background information about missing women and historical military conflict in India. Section 3 develops our conceptual framework. Section 4 characterizes our empirical methodology and data. Section 5 reviews the main results, while Section 6 recounts several robustness checks. Section 7 describes the instrumental variables analysis. Sections 8 and 9 analyze potential mechanisms. We conclude in Section 10 by evaluating the generality of the relationship between conflict and gender norms, with reference to the historical experience of

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[2] In related work, Acemoglu, Autor and Lyle (2004), Goldin and Olivetti (2013), and Webster, Chen and Beardsley (2019) provide evidence that major wars in the twentieth century improved female labor force participation and female empowerment in subsequent decades. Baranov, De Haas and Grosjean (2023) show a positive impact of hegemonic masculinity norms in Australia on voluntary participation in World War I, while Guarnieri and Tur-Prats (2023) find that male-dominant participants perpetrate greater sexual violence in civil conflicts globally since 1989.

Western Europe.

2 Background

2.1 Missing Women

India's population is disproportionately male. In 2011, the country's total population was just 48.5 percent female, compared with 49.7 percent in the world as a whole and 50.9 percent in the OECD.[3] This male bias appears at birth. 1,095 boys were born for every 1000 girls in India in 2011, compared with 1,072 in the world as a whole and 1,050 in the OECD.[4] Male bias continues throughout the life cycle, with girls, adolescent females, and adult women experiencing disproportionately greater mortality due to causes such as cardiovascular disease and injury (Anderson and Ray, 2010).

While Sen (1990) compared the sex ratio in Europe and North America to those in countries such as India to argue that 100 million women were "missing" globally, his concern was not new. Census administrators, for example, remarked on the male bias in India's population as early as 1881 (Fenske, Gupta and Neumann, 2022). The availability of sex-selective abortion in regions with son preference, however, has aggravated this imbalance since the 1980s (Bhalotra, Clots-Figueras and Iyer, 2021; Bhalotra and Cochrane, 2010).

The female deficit varies within India by region, religion, and caste. Take the percentage of the population aged 4 and under that is female, which is a measure of both sex-selective abortion and underinvestment in girls. Across regions, sex ratios skew more male in the north than in the south, particularly in the northwest (Agnihotri, 1996; Visaria and Visaria, 1983). The percentage female aged 4 and under was 45.6 percent in the northwestern state of Haryana and 46.1 percent in neighboring Punjab according to the 2011 census. In the southern states of Kerala and Tamil Nadu, by contrast, the deficit of girls was lower, at 49.1 percent and 48.6 percent, respectively. Across religions, the female deficit was greater in 2011 among Sikhs (45.5 percent) and Hindus (47.9 percent) than among Muslims (48.6 percent) or Christians (49.0 percent). In addition, missing girls are more likely among upper-caste populations. 46.8 percent of births reported to "general" (i.e. upper) caste mothers were female, while this percentage among the lower castes was 47.6 percent, according to the 2015-16 Indian Demographic and Health Survey.[5] Most, but not all, of these patterns by region, religion, and caste were already

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[3] The 2011 census data are available at `https://censusindia.gov.in/`. The world and OECD data are from the World Development Indicators (`https://data.worldbank.org/indicator/SP.POP.TOTL.FE.ZS`).

[4] These data are from the World Development Indicators (`https://data.worldbank.org/indicator/SP.POP.BRTH.MF/`).

[5] `https://dhsprogram.com/`

present in the earliest colonial censuses (Fenske, Gupta and Neumann, 2022). These differences within India produce the variation in our main outcome variable (i.e. the percentage of the population that is female) that our empirical analysis will exploit.

What accounts for the overall pattern of male bias, as well as the observed variation by region, religion, and caste, in India? The proximate answers are sex-selective abortion and reduced investment in the health and nutrition of women and girls – practices ultimately stemming from a preference for sons (Jayachandran, 2015).

Two prominent explanations of the variation in son preference across India are the differences in the importance of women in agriculture and in marriage norms. Women may have more economic value in rice-growing regions than in wheat-growing regions, where they participate less in cultivation (Bardhan, 1974; Kishor, 1993; Rosenzweig and Schultz, 1982). In our empirical analysis, we will account for this possibility by controlling for a district's suitability for wheat and rice cultivation. Marriage norms requiring women to marry outside their place of birth may indicate that the parental family values girls less (Clark, 2000; Dyson and Moore, 1983; Miller, 1981). We will account for this possibility in our empirical analysis by including fixed effects for present-day states and union territories, showing that exposure to pre-colonial conflict even within states with relatively uniform marriage practices predicts differences in sex ratios today.

Explanations of the variation in son preference in terms of religion highlight the importance of sons in Hindu rites (Jayachandran, 2015; Visaria, 2015). Our empirical analysis will account for differences in religion by controlling for population shares by religion, as well as by considering sex ratios among Hindus as an outcome variable.

Hypergamy is an explanation for male-biased sex ratios in the upper castes (Borker et al., 2022). While lower-caste women were allowed to marry up in terms of caste, upper-caste women were prevented from marrying down. Among the upper castes, the traditional importance of marriage promoted son preference (Chakraborty and Kim, 2010). Reflecting the scarcity of women, the share of never-married men was higher for this social group (Gupta, 2014). We will show in our empirical analysis that our main results are not driven solely by the upper-caste population.

2.2 Pre-Colonial Military Rivalry

At the beginning of the second millennium, several independent states made up the political geography of the Indian subcontinent (Nag, 2007).[6] Political fragmentation and military competition were lasting features of pre-colonial India's landscape (de la Garza, 2016). By the start of the 1500s, the major rivals in India were the Deccan Sultanates, the Delhi Sultanate, the Rajput states, and the Vijayanagar Empire, each of which could mo-

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[6] The historical account in this subsection draws on Dincecco et al. (2022).

bilize a large army (Roy, 1994). For example, the Delhi Sultanate may have had upwards of 475,000 cavalrymen. We observe institutional innovations due to military competition between states. To strengthen the state's territorial dominance, for example, the Vijayanagar Empire built new military garrisons.

From at least the fourteenth century onward, peasant men in India combined agricultural work with military service (Gordon, 1998). These men could be skilled in the use of heavy weaponry such as recurve bows, swords, muskets, or artillery (Gordon, 1998; Kolff, 1990; Richards, 2004). In times of conflict, both Hindu and Muslim rulers relied on a militarized peasantry (Gordon, 1998; Kolff, 1990). Peasant military mobilization was widespread, and not confined to specific castes (Richards, 2004).

The Mughal Empire became the most powerful state on the Indian subcontinent beginning in the sixteenth century (de la Garza, 2016; Markovits, 2004; Richards, 1995). This empire was founded by Babur, who led his troops from Afghanistan into India via the Khyber Pass. In 1526, Babur was victorious over the Delhi Sultanate at the Battle of Panipat. Following this, Babur defeated the Rajput confederacy, enabling the Mughals to establish control over northern India.

Nath (2018, 245) writes that "war was a constant preoccupation of the Mughal Empire." During the decades-long reign (1556-1605) of Akbar, the Mughals defeated many military rivals, allowing them to further cement their dominance in northern and western India. Mughal cavalrymen made use of recurve bows and curved metal swords, while infantrymen relied on heavy matchlocks that were too unwieldy for horseback (Gordon, 1998). To support their war-making, the Mughals undertook major administrative and fiscal innovations (de la Garza, 2016; Richards, 1995).

By the early 1700s, the Mughal Empire began to decline (Richards, 1995). Newly important states such as the Maratha, Mysore, and Travancore, as well as European imperial powers (e.g. the British East India Company), started to compete for political control (Roy, 2011, 1994). To best their military rivals, states made institutional innovations (Foa, 2016).

Beginning with its key victory at the Battle of Plassey in 1757, the British East India Company became an important political power in India (de la Garza, 2016; Dutt, 1950). During the next century, the British East India Company was able to defeat military rivals including the Maratha, Mysore, and Sikh states, as well as the Dutch East India Company and the French East India Company (Dutt, 1950; Gommans, 1999). In turn, Britain became the dominant political power on the Indian subcontinent until India's independence in 1947.

3 Conceptual Framework

3.1 Male-Favoring Gender Norms

A half century ago, the anthropologist Marvin Harris recognized that "primitive" conflict between individuals or hunter-gatherer groups may have impacted male-favoring gender norms, arguing that men's general advantage in height, weight, strength, and speed benefited them in battles involving heavy weaponry (Harris, 1974, 77-9). We extend Harris' insight to historical military battles between rival states. As described in Section 2.2, pre-colonial warfare in India involved heavy weapons such as recurve bows, steel swords, matchlocks, and muskets. Following this logic, victory in battle, including the enhanced security and material resources that the winning side would benefit from, was more likely when men took up weapons rather than women. In the face of recurrent conflict, this may have produced cultural norms that favored males and male offspring.

Male-favoring gender norms may have thus emerged and endured due to their relative benefits in areas with high levels of exposure to pre-colonial military conflict. By mimicking prior customs, new generations did not have to re-learn what prior generations already knew (Nunn, 2022). If society had already developed a preference for sons in a competitive geopolitical environment, then each successive generation could take such norms as important. This could occur whether or not each new generation was actually aware of the wartime benefits of male-favoring gender norms. In addition, simple path dependence may have been in play. As Harris (1974, 87) writes: "The fiercer the males, the greater the amount of warfare, the more such males are needed."

Traditional gender norms that favor males may endure even after the economy has begun to develop and security has improved. By their very nature, cultural beliefs can be persistent. Relying on traditional rules of thumb reduces the cost of decision-making in scenarios in which obtaining the relevant information is costly (Boyd and Richerson, 1985). Parents, moreover, may pass on cultural beliefs to their children, reinforcing a tendency toward the status quo (Bisin and Verdier, 2001; Fernández, 2013; Fernández, Fogli and Olivetti, 2004). In addition, traditional cultural beliefs may impact the designs of economic, legal, political, or educational institutions, which may then be difficult to change. Similarly, cultural beliefs may influence both the choice and implementation of public policy.

In India, Britain became the dominant political power by the mid-nineteenth century. The total number of British settlers was small (Iyer, 2010). While British law was formally adopted across India, there was still a reliance on traditional legal systems (Lange, 2004; Roy and Swamy, 2019). The colonial government abolished the practice of sati (i.e. widow self-immolation), and established a legal marriage age for women. The monitoring of the latter, however, was weak. Overall, then, traditional gender norms that favored males may have endured across the colonial era.

India became independent in 1947, and the founders of the national government implemented a federal structure. Given the government's decentralized nature, as well as continued local autonomy in certain policy areas, the impacts of national-level legal reforms concerning female education and inheritance rights differed across space (Bhalotra, Brulé and Roy, 2020; Roy, 2015). Male-favoring gender norms may thus have continued to endure even into the present.

We will use this conceptual framework to guide our empirical analysis in Sections 4 to 8. Drawing on folkloric motifs, the gender identity of Hindu temple gods, and marriage practices, we will provide evidence that greater exposure to pre-colonial conflict involving heavy weaponry promoted the transmission of male-favoring gender norms historically. In addition, we will show evidence regarding the endurance of male-favoring gender norms across intermediate points in time, along with epidemiological evidence that male-favoring gender norms are still today transmitted across space.

3.2 Alternative Mechanisms

3.2.1 Economic Development and State Capacity

Recurrent exposure to military conflict is a prominent explanation for long-run state-making and economic development (e.g. Besley and Persson, 2011; Tilly, 1992). In response to external attack threats, states may make administrative and fiscal innovations that improve their ability to organize and fund their military efforts. In an environment in which such threats recur, there may be a ratchet effect, whereby stronger state institutions remain in place once the fixed costs of establishing them has been overcome, since at the margin it should be relatively inexpensive to sustain them.

Over time, a government with higher state capacity may foster economic development (e.g. Dincecco, 2017; Morris, 2014). A more powerful state should be better able to ensure domestic law and order, meaning that individuals should be more willing to undertake growth-improving business investments. In addition, higher state capacity should enable the government to provide other public goods that support economic development (e.g. agricultural infrastructure, schooling efforts).[7]

In an agricultural society, women may participate in farming (e.g. Boserup, 1970;

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[7] While military conflict may destroy capital in the short run, the economic benefits stemming from institutional innovations and higher state capacity may outweigh them, at least in the long run. Centeno and Enriquez (2016, 124) argue that, to the extent that the short-run destruction of conflict reduces society's reliance on old technology in favor of new infrastructure investments, this too may benefit economic development.

Sinha, 1965). As the economy industrializes, however, income levels rise. In turn, women may drop out of the labor force at a higher rate than men, due to a stigma for working women or an emphasis on rearing young children (Goldin, 1995). As the economy continues to develop, women may once more play a greater role in the labor force, due to better access to education and a comparative advantage in service sector employment, as well a reduction in fertility rates and less-intensive household chores (Goldin, 1995; Mammen and Paxson, 2000).

Overall, this pattern suggests that the impact of economic development on male-favoring gender norms may depend on where a country is in the development process. At lower levels of economic development, we may expect to continue to observe a positive relationship between high exposure to historical conflict and male-favoring gender norms, since here women tend to participate less in the labor force than in an agricultural society. Yet at higher development levels, this relationship may turn insignificant, as women become more active in the labor force, and male-favoring gender norms begin to vanish, even if slowly.

Our empirical analysis in Section 9 will evaluate the relationship between exposure to pre-colonial conflict and female living standards today. In addition, we will analyze the impact of economic development or early state capacity on the persistence of male-favoring gender norms. While we will provide evidence that exposure to pre-colonial conflict predicts higher living standards, we will also show that development levels do not mediate the relationship between conflict exposure and gender norms.

3.2.2 Male Scarcity

The risk of death in battle may have induced a shortage of men in areas in which exposure to pre-colonial conflict was high. The impact of such a shortage on male-favoring gender norms is not clear ex ante. On one hand, a greater scarcity of males may have only strengthened norms favoring males and male offspring, either by making the relative physical advantage of men in battle more salient historically, or by reducing the supply of men due to conflict deaths. Traditionally, marriage played a more important role in South Asia than in Western Europe (Gupta, 2014), which may have enhanced the aversion to the birth of daughters in regions of male scarcity. On the other hand, due to this shortage of men, there may have been greater demand for women to perform traditional male activities, including in agriculture and commerce, as well as in combat itself. If so, then this may have counteracted male-favoring gender norms, and may have even produced more equal (or female-favoring) gender norms.[8]

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[8] Alix-Garcia et al. (2022) provide evidence in support of this with respect to Paraguay's participation in the War of the Triple Alliance in Paraguay. In a different context, Teso (2018) shows evidence for this

We will assess potential responses to male scarcity including male-biased marriage practices, matrilineal descent, male dominance in agriculture, and polygyny in Sections 8 and 9.

3.2.3 Cultural Diffusion

The diffusion of male-favoring gender norms from one combatant group to another is another potential mechanism. Combatants from Central Asia, for example, may have imparted a patriarchal "way of life" that may account for male-favoring gender norms in parts of India. Our empirical analysis in Section 9 will investigate the explanatory power of this type of mechanism.

3.2.4 Colonial- and Post-Independence Conflict

Conflict exposure during the colonial era or post-independence era, in addition to such exposure during the pre-colonial era, may have impacted the persistence of male-favoring gender norms in India. We will evaluate this possibility in Section 9.

4 Empirical Methodology and Data

4.1 Empirical Strategy

Our baseline sample consists of districts in present-day India.[9] The district is the smallest unit for which most data on gender outcomes, potential mechanisms, and control variables are available. Depending on the available data, we perform additional tests at the level of the colonial district or the individual. Since the territorial borders of districts may be endogenous to pre-colonial conflict exposure, we show additional results using exogenous $1^\circ \times 1^\circ$ grid cell units and sub-district units known as tehsils when data availability permit (Table A.1).

We begin by evaluating the extent to which pre-colonial conflict exposure predicts present-day gender outcomes. We use ordinary least squares (OLS) to estimate the following specification:

$$Y_d = \beta ConflictExposure_d + \lambda PopDensity_d + \mu_s + X_d'\phi + \epsilon_d. \quad (1)$$

In Equation (1), d indexes districts and s indexes states in present-day India. Y_d measures a district-level outcome such as the percentage of the population that is female, while $ConflictExposure_d$ measures our main explanatory variable. We discuss the data sources and construction methods for both types of variables in Section 4.2.

$PopDensity_d$ measures the natural logarithm of population density in a year prior to the year in which we measure the outcome variable. This year is 1990 for the main anal-

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regarding the transatlantic slave trade, which predominantly enslaved males.

[9] The design of the empirical methodology and analysis in Sections 4 to 7 hews to Dincecco et al. (2022).

ysis.[10] It is subject to data availability when the outcome variable is historical. Dense populations may be endogenous to levels of pre-colonial conflict exposure. In our view, the benefit of controlling for population density outweighs the potential cost of post-treatment bias. We show, however, that the main results are robust if we drop log population density (Table A.2). In addition, the main results continue to hold if we instead control for log population density in the year 1000, the year in which our analysis starts (Table A.2).

μ_j is a vector of fixed effects for present-day states and union territories. India has 28 states and 8 union territories. We exclude two union territories outside peninsular India (i.e. Andaman and Nicobar Islands, Lakshadweep). The resulting 34 fixed effects help control for cultural, institutional, and infrastructural features that vary at the state level, including the north-south divide in missing women, as well as differences in the coverage and quality of the historical conflict data across space. We recognize, however, that the territorial borders of states may be endogenous to levels of pre-colonial conflict exposure. Thus, we show that the main results remain robust if we drop the state fixed effects (Column 1 of Table 2), or if we employ exogenous $3^\circ \times 3^\circ$ grid-cell fixed effects (Table A.3).[11]

We include several geographic controls in X_d. Favorable geography may promote recurrent conflict as well as fiscal and economic development as follows. Mild climates and good soils may induce settlement, which in turn may reduce the costs of collective action and enable military offensives. In addition, more populated areas may make for attractive targets for plundering. Finally, agriculturally productive areas may facilitate state formation and revenue collection. To help account for the role of geography, the vector X_d includes latitude, longitude, altitude, ruggedness, precipitation, land quality, suitability for dryland rice, suitability for wetland rice, suitability for wheat, and malaria risk.[12]

ϵ_d is the error term. In the main analysis, we use robust (i.e. Huber-White) stan-

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[10] The specific choice of 1990 is for symmetry with Dincecco et al. (2022). There, controlling for log population density in 1990 was key as the main outcome variable was luminosity measured between 1992 and 2010. We take the 1990 population data from the Center for International Earth Science Information Network (`http://sedac.ciesin.columbia.edu/gpw`), and the historical population data from Klein Goldewijk et al. (2010).

[11] We use $3^\circ \times 3^\circ$ as it is the smallest integer cell size that leads to a greater number of cell fixed effects (i.e. 46) than state fixed effects in our baseline specification.

[12] To calculate latitude and longitude, we identify district centroids using the polygon file of district boundaries from `gadm.org`. We take the data for altitude, precipitation, and crop suitability from FAO-GAEZ (`http://www.fao.org/nr/gaez/en/`). Here, we calculate measures at the district level by averaging over raster points within each district. We calculate ruggedness according to the raster data in Nunn and Puga (2012). The raster data on land quality are from Ramankutty et al. (2002). The raster data on malaria risk is the stability of malaria transmission index from Kiszewski et al. (2004).

dard errors. For robustness, we report standard errors or p-values of three alternative types. First, we show standard errors allowing for spatial autocorrelation in the error term (Conley, 1999) for cutoffs between 250 and 1,500 km (Table A.4). Second, we show standard errors when clustering at a higher level of aggregation (i.e. at the state level) (Table A.5). Third, we show p-values for tests of β employing the wild cluster bootstrap at the state level (Cameron, Gelbach and Miller, 2008), based on 9,999 replications (Table A.5). The main results remain statistically significant across all three procedures.

In addition, we generate artificial spatially-correlated placebo variables to replace $ConflictExposure_d$, our main explanatory variable, and reallocate historical conflict exposure randomly across districts within each state (without replacement). The placebo variables never produce treatment effects as large in magnitude as the main coefficient estimates (Figure A.1). Finally, we include polynomial terms for latitude and longitude as another alternative to account for potential spatial correlation (Table A.6). These exercises help alleviate concerns about spatial correlation in analyses of long-run persistence (Kelly, 2019).

4.2 Data

4.2.1 Conflict

We take our main historical conflict data from Dincecco et al. (2022), who themselves rely primarily on the encyclopedia of battles by Jaques (2007). This work has short descriptions of more than 8,000 battles (i.e. violent clashes between organized combatant forces), organized alphabetically. To be included, a conflict needs to have been written down and cross-referenced with independent sources, which themselves need to show consensus on the main details such as the date, approximate location, major participants, and outcome.

Dincecco et al. (2022) geolocate all battles in Jaques, including land battles, sieges, and naval battles, that took place on the Indian subcontinent between the years 1000 and 2010.[13] For geolocation, the coordinates of the nearest known settlement are assigned to the stated conflict location. For example, “Waihand,” an early battle in this database, took place on December 31, 1008. Mahmud of Ghazni was victorious over the Hindu Prince Anandpal in combat at Waihand near Peshawar. To proxy for this conflict location, therefore, the coordinates of Peshawar are designated (34° 1’ 0” N, 71° 35’ 0”

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[13] By “Indian subcontinent, ” we refer to the present-day country of India plus Bangladesh, Bhutan, Burma, Nepal, Pakistan, and Sri Lanka. We start our analysis in 1000CE for symmetry with Dincecco et al. (2022). There, taking 1000CE as the start year was key for synchronicity with the case of western Europe, which provided the backdrop for comparison. The main results remain robust if we limit the conflict sample to historical battles that occurred within the territorial borders of present-day India only (Table A.8).

E).

We employ land battles to calculate our baseline measure of conflict exposure, which we describe below. Land battles were the most common conflict type in our context and time period. For robustness, however, we include additional conflict types such as sieges and naval battles (Table A.7). The main results are largely unchanged. Figure A.2 plots the locations of all sample conflicts from Jaques by century.

A key virtue of Jaques is that he produces clear, standardized descriptions of battles spanning the whole Indian subcontinent. Still, the quality of his conflict coverage may vary over space and time. We address this possibility in two main ways – both methodologically in our regression framework and by drawing on alternative conflict data.

Methodologically, our use of fixed effects by states (e.g. in Columns 2 and 3 of Table 2) controls for time-invariant features that may impact data quality in a specific locale. Fixed effects for $3^\circ \times 3^\circ$ grid cells (Table A.3) serve a similar purpose. Alternatively, we drop individual states (Figure A.3) one by one. In addition, we control for initial state capacity (Table A.19), which may have influenced the chance that a historical conflict was written down. The main results are robust to these alternatives.

With respect to alternative conflict data, Dincecco et al. (2022) rely on two additional encyclopedias, Clodfelter (2002) and Naravane (1997). Jaques is preferred to Clodfelter not only because Jaques provides standardized battle descriptions, but also because his conflict coverage begins hundreds of years farther back in time – the Clodfelter data do not start until 1500. Nevertheless, the conflict coverage between 1500 and 1757 is similar across both Jaques and Clodfelter. Naravane's focus is medieval India. This coverage is broader than Jaques, but lacks systematic details, which require additional research to supplement. Still, for robustness, we add non-overlapping conflicts from Clodfelter and Naravane to the main conflict data from Jaques (Table A.9). The main results remain statistically significant.

Additionally, we show that the main results are robust to the use of two alternative sources for conflict data – the set of conflicts reported in Brecke (1999) (Table A.10), or the set of battles reported in WikiData (Table A.11). The Brecke data do not start until 1400, and Brecke only provides information at the level of wars, rather than individual battles. The conflict details in Brecke, moreover, can be vague, making geolocating more difficult.[14] We construct conflict data using WikiData in the spirit of Kitamura (2021).[15]

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[14] Here, our data construction effort builds on Dincecco, Fenske and Onorato (2019). We code a single "main" location corresponding to each entry in Brecke.

[15] Obtaining the WikiData data from `https://www.wikidata.org/wiki/Wikidata:Database_download`, we start with 14,022 entries that are instances of battles, of which 8,947 observations contain non-missing data on battle years. We are able to assign latitude and longitude coordinates to 6,103 of these

The available data do not allow us to systematically account for differences in conflict intensity by measuring, for example, battle deaths. We address this in two ways. First, in addition to being the most common conflict type, our use of land battles in the baseline helps guarantee that we are making apples-to-apples comparisons across conflicts. Second, Dincecco et al. (2022) were able to code approximate conflict durations (i.e. single-day, single-year, multi-year), which we exploit as a rough proxy for conflict intensity (Table A.12). We do not find evidence, however, that more intense conflict has greater explanatory power in our data.

Following the approach in Dincecco et al. (2022), our baseline measure of exposure to pre-colonial conflict is:

$$ConflictExposure_d = \sum_{c \in \mathcal{C}} (1 + distance_{d,c})^{-1}. \tag{2}$$

Here, $distance_{d,c}$ measures the distance from the centroid of district d to the location of conflict c. We only include conflicts within set $\mathcal{C}$ (e.g. conflicts within 250 km of a district's centroid). Adding one to $distance_{d,c}$ reduces the measure's sensitivity to any specific conflict.[16] The logic of this measure is straightforward: the nearer a district was to a specific conflict, the greater its exposure to it. Conflicts that took place exactly at a district's centroid receive a weight of one. As the distances of conflicts from this centroid grow, they receive lower weights. A key strength of this approach is that it is not dependent on any (present-day, anachronistic) cutoff at a district's territorial borders.

In the baseline, our conflict exposure measure includes all land battles that took place between the years 1000 and 1757 within a radius of 250 km. For robustness, we employ an alternative radius of 5,000 km (Table A.13). We also use for robustness a variable end date cutoff that adds exposure to conflicts that occurred after 1757, but still prior to British annexation, for districts in which the year of annexation was after 1757 according to Banerjee and Iyer (2005) (Table A.14). In addition, we drop 155 districts for which our baseline conflict exposure measure takes a value of zero (Table A.15). The main results remain robust.

In our view, the baseline measure in Equation (2) is the most straightforward way to evaluate the extent of a district's exposure to pre-colonial conflict. We acknowledge,

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battles by using either the coordinates recorded in the Wikidata entry itself, or the coordinates recorded in the separate Wikidata entry for the place listed by name as the battle's location. 1,848 battles in this geocoded subset took place between 1000 and 1757. Of these, 32 were within 250 kilometers of a district centroid in our data.

[16] If we did not include this scalar, then a district where a single battle took place just next to the centroid would receive a very large value, even if this district was not proximate to any other conflicts.

however, that this approach may overlook conflicts that took place far away from the district from which participating troops originated, but that nevertheless impacted gender norms in the originating district. To account for this possibility, we introduce several alternative ways of calculating a district's exposure to pre-colonial conflict that incorporate faraway battles. Here, our approach is to use information from Dincecco et al. (2022) about the major state participants in such conflicts, including the locations of their capitals.

We employ four alternative measures of this sort. The first alternative computes the number of battles on the Indian subcontinent in which a pre-colonial state was a participant, and assigns these conflicts to the district that was the home of the state's capital, irrespective of where the conflicts actually took place. The second alternative continues to employ Equation (2) to compute pre-colonial conflict exposure, but replaces the battle locations with the locations of the capitals of the participating states. Following the approach in König et al. (2017), the third alternative calculates the convex hull of conflicts for each state participant according to the coordinates of each battle in which a participant took part. Here, we count all districts that intersected a convex hull as being impacted by a conflict, whether due directly to battle or indirectly due to troops on the march from one battlefield to another. The fourth alternative calculates the convex hulls for each cluster of battles (i.e. "wars") following the categorizations in Jaques (e.g. "Mughal Conquest of Northern India").

Dincecco et al. (2022) demonstrate that the four alternative measures of conflict exposure are significantly correlated with both each other and the baseline measure. These correlations suggest that the results of our analysis are not dependent on any single method for operationalizing conflict exposure. Still, for robustness, we exploit these alternatives below (Table A.16).

4.2.2 Gender

A sex ratio in which males outnumber females is a key proxy for gender inequality and neglect (Sen, 1990, 2003). As our main outcome variable, we thus employ the percentage of the population that is female, taking data on sex from the 2011 Indian Census. We use the percent female rather than the sex ratio as our main outcome because the ratio of men to women can be sensitive to outliers. For robustness, however, we show that greater conflict exposure predicts a greater ratio of men to women in a given district (Table A.17).

To supplement our main gender-related outcome, we use two additional measures. The first is an indicator for whether a particular birth recorded in a woman's self-reported birth history is female. We use this measure in order to focus on the sex ratio at birth.

While sex ratios in the general population can vary due to multiple factors, including selective migration and sex-biased survival rates after childhood, the sex of children at birth will vary across districts primarily due to sex-selective abortion and to sex-biased investments in fetal health. Here, we employ the births recodes of the 2015-16 Indian Demographic and Health Survey. These data consist of the full birth histories of a nationally representative sample of women aged 15 to 45.[17]

The second additional measure captures the prevalence of crimes against women. The National Crimes Bureau provides data on the number of reported incidents of specific crimes against women between 2001 and 2012.[18] Seven specific crimes are reported: rape, kidnapping and abduction, dowry deaths, assaults on women with intent to outrage her modesty, insults to the modesty of women, cruelty by the husband or his relatives, and the importation of girls. To convert these into rates per 100,000 women, we take population data from the 2001 Indian Census. Since the resulting rates display skewness, we transform these rates using the inverse hyperbolic sine function. To convert these multiple transformed rates into a single measure of crimes against women, we construct an Anderson (2008) index.

4.2.3 Other Data

In addition to our main measures of conflict and gender, we make use of several other sources of data. We have already described the geographic variables that we include as our baseline controls in Section 4.1. We explain other data sources below as we first make use of them.

4.3 Summary Statistics and Spatial Patterns

Table 1 reports the summary statistics for the main variables in our analysis. Dropping the Andaman and Nicobar Islands as well as Lakshadweep, as described above, leaves us with a sample of 657 districts. While the typical district has a population that is 49 percent female, with a standard deviation of 1.6 percent, some districts have female shares that are less than 40 percent. Our measure of exposure to pre-colonial conflict is unitless, and has a mean of 0.07 and a standard deviation of 0.096.

In Panel (a) of Figure 1, we map our baseline measure of exposure to pre-colonial

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[17] The Demographic and Health Surveys are conventionally employed in the study of son preference, including in India (Jayachandran and Kuziemko, 2011; Jayachandran and Pande, 2017). Still, these data are self-reported. If women in districts with high exposure to pre-colonial conflict were more likely to selectively omit female births from their reports, then this selective reporting could produce results resembling those that we report. We would continue, however, to interpret this as a measure of male-biased gender norms. In any case, our results are quantitatively similar to those using census data, suggesting that bias due to self-reporting is small.

[18] `https://data.gov.in/resource/district-wise-crimes-committed-against-women-during-2001-2012`

Table 1: Summary Statistics

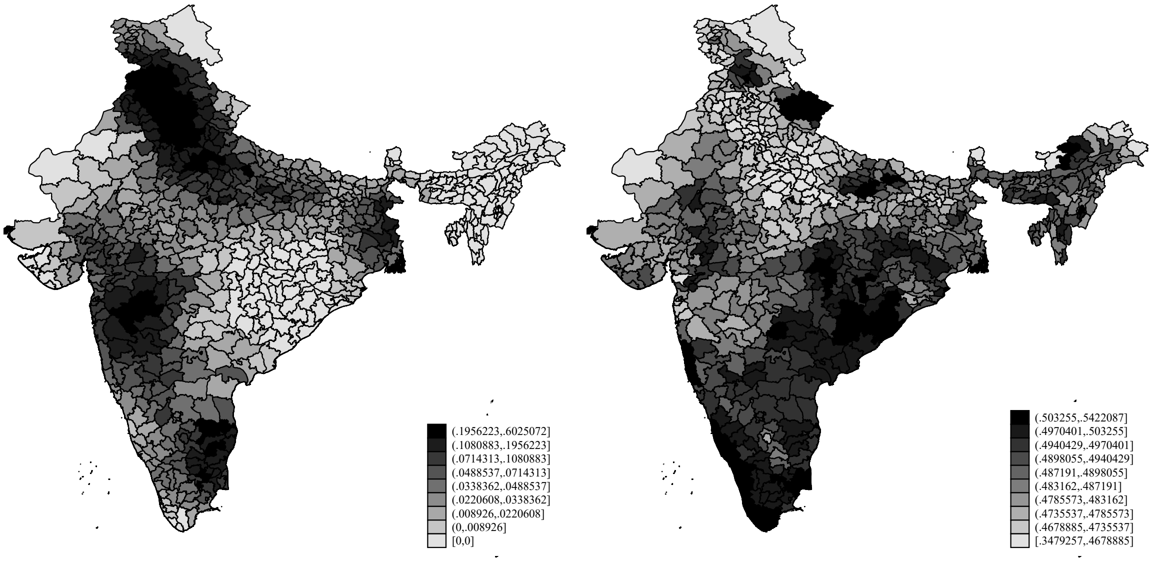
	(1) Mean	(2) s.d.	(3) Min	(4) Max	(5) N
Percent female in 2011	0.49	0.016	0.35	0.54	657
Pre-colonial conflict exposure	0.070	0.096	0	0.60	657
Latitude	23.5	5.65	8.31	34.5	657
Longitude	81.0	6.30	69.5	96.8	657
Altitude	465	688	4	4,915	657
Ruggedness	96,809	158,147	774	851,960	657
Precipitation	1,364	695	200	4,487	657
Land quality	0.45	0.29	0	0.97	657
Dryland rice suitability	628	589	0	1,723	657
Wetland rice suitability	1,438	797	0	2,827	657
Wheat suitability	630	572	0	2,915	657
Malaria risk	0.11	0.34	0	2.81	657

conflict by district. We observe four main conflict zones, spanning the north in the vicinity of the Punjab, the west in the vicinity of Maharashtra, the far east in the vicinity of West Bengal, and the southeast in the vicinity of Tamil Nadu. In Panel (b), we plot the percentage of the population that is female. The observed patterns correspond with the remark in Sen (2003) – states in the north and west tend to have more male-biased sex ratios, while states in the east and south tend toward gender-equal sex ratios. As our argument would predict, there is a negative correlation between the extent of pre-colonial conflict exposure and the degree of skewness of male-female sex ratios in several parts of India.

To help establish that our results will not only depend on cross-regional comparisons, Figure 2 centers on Uttar Pradesh. This is India's most populated state, with more than 70 districts. We observe marked correlations between exposure to pre-colonial conflict and male-biased sex ratios within this state.

In Figure 3, we plot the relationship between conflict exposure and the percentage of the population that is female. This is a binned scatter plot net of state fixed effects in which the data have been aggregated to 100 bins. As expected, there is a negative correlation: districts in India that experienced greater exposure to pre-colonial conflict have more male-biased sex ratios.

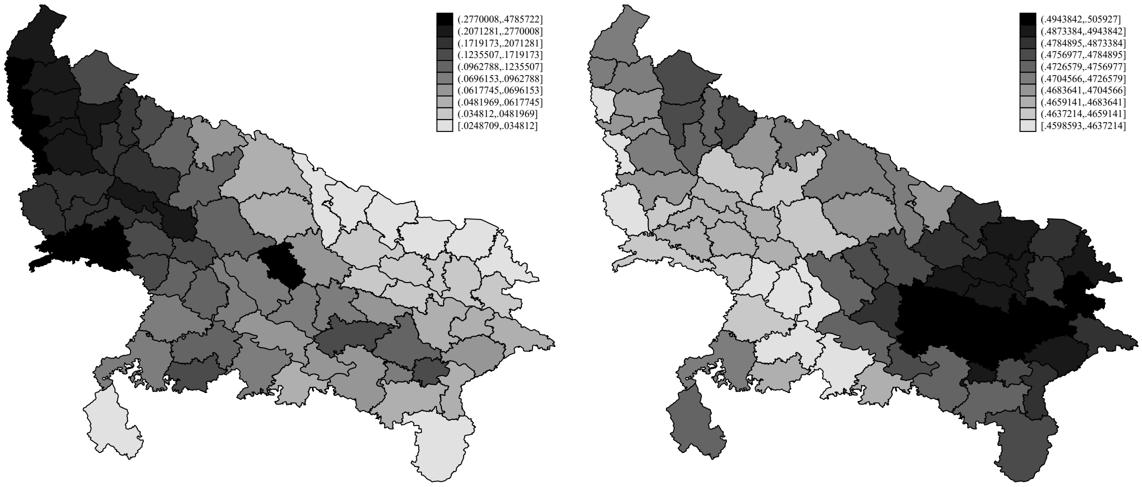
Figure 1: Pre-Colonial Conflict Exposure and Percent Female in 2011: India



(a) Conflict exposure (b) Percent female in 2011

Notes. Panel (a) shows pre-colonial conflict exposure to land battles between 1000-1757 by district in India, while Panel (b) shows the percentage of the population that is female in 2011. Districts are shaded by decile, where districts in the top decile receive the darkest shade.

Figure 2: Pre-Colonial Conflict Exposure and Percent Female in 2011: Uttar Pradesh



(a) Conflict exposure (b) Percent female in 2011

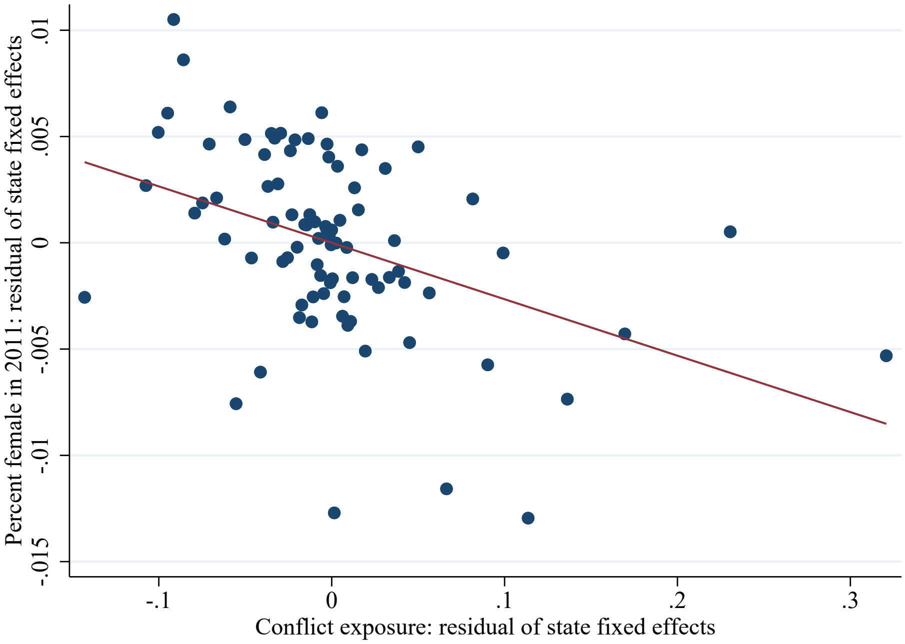
Notes. Panel (a) shows pre-colonial conflict exposure to land battles between 1000-1757 by district in Uttar Pradesh, while Panel (b) shows the percentage of the population that is female in 2011. Districts are shaded by decile, where districts in the top decile receive the darkest shade.

5 Main Results

5.1 Sex Ratios

In Table 2, we show the results for the relationship between pre-colonial conflict exposure and the percentage of the population that is female in India. In Column 1, we

Figure 3: Conflict Exposure and Percent Female: Binned Scatter Plot



Notes. This figure plots the percentage of the population that is female in 2011 against pre-colonial conflict exposure in India. Both variables are residualized by controlling for state fixed effects. This is a binned scatter plot with data aggregated to 100 bins.

control for log population density. The coefficient estimate for $ConflictExposure_d$ is -0.053, statistically significant at the 1 percent level. In Column 2, we add state fixed effects. The coefficient estimate falls in magnitude to -0.029, but remains significant. In Column 3, we add the geographic controls. The coefficient estimate continues to be significant, and the magnitude remains similar at -0.025. This coefficient, translated into standardized effect sizes, indicates that a one standard deviation increase in exposure to pre-colonial conflict exposure predicts a 0.15 standard deviation reduction in the share of a district's population that is female.

5.2 Female Births

In Table 3, we instead evaluate the sex of births recorded in the DHS births recode. Whereas our results in Table 2 could capture variation in a district's sex ratio due to multiple factors, including differential survival of adult women or differential migration by sex, Table 3 concentrates more narrowly on differential survival to birth, generally driven by sex-selective abortion and investment in fetal health (Bharadwaj and Lakdawala, 2013).

Our estimation approach is modified slightly from Equation (1). We now use OLS to

Table 2: Pre-Colonial Conflict Exposure and Percent Female in 2011: OLS Estimates

	(1) Percent female in 2011	(2) Percent female in 2011	(3) Percent female in 2011
Pre-colonial conflict exposure	-0.053***	-0.029***	-0.025***
	(0.007)	(0.007)	(0.006)
N	657	657	657
State FE	No	Yes	Yes
Controls	No	No	Yes
Standardized β	-0.321	-0.176	-0.149
LHS mean	0.486	0.486	0.486
RHS s.d.	0.0964	0.0964	0.0964

Notes: ***Significant at 1%, **Significant at 5%, *Significant at 10%. All specifications include a constant and the natural log of population density in 1990. Controls are latitude, longitude, altitude, ruggedness, precipitation, land quality, suitability for dryland rice, suitability for wetland rice, suitability for wheat, and malaria risk. Robust standard errors in parentheses.

estimate:

$$Female_{id} = \beta ConflictExposure_d + \lambda PopDensity_d + \mu_s + X'_d\phi + Q'_{id}\lambda + \epsilon_d. \qquad (3)$$

In Equation (3), $Female_{id}$ is a dummy for whether birth i from district d is female. While the other terms in the regression are unchanged, we add a vector of individual controls Q_{id}. These include both the mother's and child's years of birth. Since the variable $ConflictExposure_d$ only varies by district, we continue to cluster standard errors at this level.

The results in Table 3 show that there is a robust negative relationship between pre-colonial conflict exposure and the probability that a child is female. In the specification that includes state fixed effects and all controls in Column 3, the coefficient estimate of -0.021 is similar to – and directly comparable to – the coefficient of -0.25 in Table 2. Translated into standardized effect sizes, this means that a one standard deviation increase in conflict exposure predicts a one-tenth of a standard deviation reduction in the probability a birth is female.

Table 3: Pre-Colonial Conflict Exposure and Female Children in DHS Births Recodes

	(1) Female	(2) Female	(3) Female
Pre-colonial conflict exposure	-0.065***	-0.032***	-0.021**
	(0.007)	(0.009)	(0.010)
N	1,220,798	1,220,798	1,220,798
State FE	No	Yes	Yes
Controls	Individual	Individual	Individual and geographic
LHS mean	0.475	0.475	0.475
RHS s.d.	0.102	0.102	0.102

Notes: ***Significant at 1%, **Significant at 5%, *Significant at 10%. All specifications include a constant and the natural log of population density in 1990. Individual controls are years of birth of both the mother and child. Geographic controls are latitude, longitude, altitude, ruggedness, precipitation, land quality, suitability for dryland rice, suitability for wetland rice, suitability for wheat, and malaria risk. Standard errors clustered by district in parentheses.

5.3 Crimes Against Women

Table 4 employs crimes against women as the outcome variable. We again make a minor modification to Equation (1), using OLS to estimate:

$$Crime_{td} = \beta ConflictExposure_d + \lambda PopDensity_d + \mu_s + X_d'\phi + \eta_t + \epsilon_{dt}. \tag{4}$$

In Equation (4), the outcome variable is $Crime_{td}$ – a measure of crimes against women in district d in year t. Our principal measure is an Anderson (2008) index of the inverse hyperbolic sines of the rates per 100,000 women of the seven types of crime in our data. While $ConflictExposure_d$ only varies cross-sectionally, because we observe crimes each year between 2001 and 2012, we include fixed effects for years η_t and cluster by district. All other variables are as in Equation (1).

We observe a robust positive relationship between pre-colonial conflict exposure and crimes against women. The result in Column 3 indicates that a one standard deviation increase in exposure to pre-colonial conflict exposure predicts a 0.129 standard deviation increase in crimes against women. In Table A.18, we instead use the results by type of crime. Crimes of dowry deaths and cruelty by husbands or relatives, kidnapping and abduction, and rape all contribute meaningfully to this result, though the coefficient estimates for kidnapping/abduction and rape are only sometimes statistically

Table 4: Pre-Colonial Conflict Exposure and Crimes against Women

	(1) Violence index	(2) Violence index	(3) Violence index
Pre-colonial conflict exposure	0.950*** (0.268)	1.182*** (0.339)	0.736** (0.332)
N	7,054	7,054	7,054
Year FE	Yes	Yes	Yes
State FE	No	Yes	Yes
Controls	No	No	Geographic
Standardized β	0.104	0.129	0.0804
LHS mean	0	0	0
RHS s.d.	0.109	0.109	0.109

Notes: ***Significant at 1%, **Significant at 5%, *Significant at 10%. All specifications include a constant and the natural log of population density in 1990. Controls are latitude, longitude, altitude, ruggedness, precipitation, land quality, suitability for dryland rice, suitability for wetland rice, suitability for wheat, and malaria risk. All specifications also include year fixed effects. Standard errors clustered by district in parentheses.

significant.[19]

5.4 Age Categories and Caste

To assess which segments of the population drive our findings, Table 5 examines our main results by age category. We estimate Equation (1) for each of the four age categories enumerated in the census: 0-9, 10-19, 20-39, and 40 and above. Exposure to pre-colonial conflict predicts a significantly lower share female across all four age categories. Male-biased sex ratios in childhood suggest that our results are not driven solely by the migration of men, while male-biased sex ratios at older ages may be indicative of excess female mortality during post-reproductive years, in which the intra-household bargaining power of women falls (Calvi, 2020) or women receive worse healthcare (Anderson and Ray, 2010).

In Table 6, we return to our DHS birth recodes sample, and break down the findings by the social groups of respondents. Other Backwards Class (OBC) respondents drive the relationship between pre-colonial conflict exposure and male-based sex ratios. OBC is a government term employed to categorize castes that are educationally or socially

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[19] There may be a concern about underreporting of crime against women. If so, we should expect underreporting to be higher in areas where there exists gender bias against women. Our results would thus be underestimating the magnitude of crimes against women in zones with greater exposure to pre-colonial conflict.

Table 5: Pre-Colonial Conflict Exposure and the Percentage Female by Age

	(1) Percent female 2011: age 0-9	(2) Percent female 2011: age 10-19	(3) Percent female 2011: age 20-39	(4) Percent female 2011: age 40+
Pre-colonial conflict exposure	-0.023***	-0.037***	-0.024**	-0.015**
	(0.005)	(0.007)	(0.010)	(0.007)
N	657	657	657	657
State FE	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes

Notes: ***Significant at 1%, **Significant at 5%, *Significant at 10%. All specifications include a constant and the natural log of population density in 1990. Controls are latitude, longitude, altitude, ruggedness, precipitation, land quality, suitability for dryland rice, suitability for wetland rice, suitability for wheat, and malaria risk. Robust standard errors in parentheses.

"backward." We do not, however, find robust relationships for Scheduled Caste (SC), Scheduled Tribe (ST), or non-OBC, SC, or ST respondents. This suggests that historical conflict exposure predicts male-favoring gender norms in the poorer majority of the population, and not solely for the upper-caste population.

6 Robustness

6.1 Initial State Capacity

Initial levels of state capacity may impact a state's ability to defeat military rivals, as well as to make administrative and fiscal innovations. In addition, they may influence the chance that a historical conflict was recorded. In Table A.19, we proxy for initial state capacity across districts as follows. Columns 1 and 2 of Panel (a) employ maps from Nag (2007) to control for the number of settlements during the Neolithic and Chalcolithic Ages. In Columns 3 and 4 of Panel (a), we control for major Indian cultural sites between 300-700 CE, or the eighth through twelfth centuries, respectively, according to maps from Schwartzberg (1978). Column 1 of Panel (b) controls for the log of (one plus) total urban populations in 1000 CE using cities recorded in Chandler (1987). Columns 2 to 4 of Panel (b) control for the presence of a major state between the tenth through eleventh centuries, or eleventh through twelfth centuries, from Nag (2007), or in 1525 CE from Joppen (1907). The main results are robust across all specifications.

Table 6: DHS Births Recodes Results by Caste

	(1) Female	(2) Female	(3) Female
General caste			
Pre-colonial conflict exposure	-0.077***	-0.027*	-0.017
	(0.010)	(0.016)	(0.018)
N	224,754	224,754	224,754
Scheduled caste			
Pre-colonial conflict exposure	-0.041***	0.003	0.013
	(0.009)	(0.013)	(0.014)
N	229,478	229,478	229,478
Scheduled tribe			
Pre-colonial conflict exposure	-0.022	-0.008	0.013
	(0.031)	(0.043)	(0.044)
N	230,284	230,284	230,284
Other backward caste			
Pre-colonial conflict exposure	-0.073***	-0.053***	-0.048***
	(0.010)	(0.012)	(0.014)
N	480,450	480,450	480,450
State FE	No	Yes	Yes
Controls	Individual	Individual	Individual and geographic

Notes: ***Significant at 1%, **Significant at 5%, *Significant at 10%. All specifications include a constant and the natural log of population density in 1990. Individual controls are years of birth of both the mother and child. Geographic controls are latitude, longitude, altitude, ruggedness, precipitation, land quality, suitability for dryland rice, suitability for wetland rice, suitability for wheat, and malaria risk. Standard errors clustered by district in parentheses.

6.2 Additional Geography

Table A.20 controls for additional geographic features beyond what is in the baseline that may impact exposure to pre-colonial conflict or gender norms. They are the log of (one plus) the distance to the nearest coast, river presence, irrigation potential, rainfall variation, the log of (one plus) the distance to the nearest resource deposits (diamonds, gems, gold, petroleum), and the percentage of forested area.[20] Similarly, given the importance that Carranza (2014) ascribes to the distinction between clay and loam for the

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[20] We calculate the log of (one plus) distance from each district to the coast. We employ Natural Earth Data (`https://www.naturalearthdata.com/`) to produce a river dummy that indicates whether a district is intersected by a major river. We use data from Bentzen, Kaarsen and Wingender (2017) to calculate each district's irrigation potential. We control for the mean and coefficient of variation in rainfall from Matsuura and Willmott (2009). We employ data from Tollefsen, Strand and Buhaug (2012) to control for the log of (one plus) distances from the district centroid to deposits of diamonds, gems, gold, and petroleum. We use data from the India Institute of Forest Management (2015) to calculate the percentage of forested area.

demand for gender-related agricultural labor in India, Table A.21 shows the results controlling for the share of a district that is clay.[21] Finally, in Table A.22, we control for plough-positive and plough-negative agricultural environments (Alesina, Giuliano and Nunn, 2013; Boserup, 1970).[22] The main results remain robust across all three tables.

6.3 British Imperialism

A prominent literature emphasizes the role of British imperialism in Indian development patterns (e.g. Banerjee and Iyer, 2005). In Table A.23, we control for imperial institutions as follows. Column 1 employs a dummy for direct rule by the British using data from Iyer (2010), while Column 2 controls for the share of a district in British India with a non-landlord revenue system.[23] Column 3 controls for the year of the first railway connection under British rule in a district from Fenske, Kala and Wei (2023).[24] To assess whether agricultural investments by the British in the "canal colonies" impact our results, Column 4 drops all districts in the historical Punjab region.[25] The main results continue to hold across each of these robustness checks.

6.4 Ethnic Relations

In Table A.24, we account for inter-ethnic and religious relations in India. To account for historical areas of ethnic tolerance, Column 1 of Panel (a) controls for districts that had major medieval ports using Jha (2013). In Column 2, we control for the length of medieval Muslim rule in a district, also from Jha (2013). Column 3 controls for the current share of Muslims in a district. In Panel (b), Column 1 controls for the current level of religious polarization, while the Columns 2 and 3 control for current linguistic and religious fractionalization levels. In Columns 1 and 2 of Panel (c), we control for the current shares of Scheduled Castes and Scheduled Tribes, respectively.[26] Column 3 controls for

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[21] We obtain the clay share from the FAO Digital Soil Map of the World.

[22] Following Alesina, Giuliano and Nunn (2013), we compute the share of a district that the FAO-GAEZ data code as suitable for each of the following crops: wheat, barley, rye, foxtail millet, pearl millet, and sorghum. We also compute the share of a district that is suitable for any of these six crops. We compute the "relative" suitability of each crop as the ratio of the area suitable for that crop to the area suitable for any crop. To compute a measure of the plough-positive environment, we average over the relative suitabilities for wheat, barley, and rye. Similarly, we average over the relative suitabilities for foxtail millet, pearl millet, and sorghum to compute a measure of the plough-negative environment.

[23] Data on non-landlord revenue systems are only available for 271 districts, most of which were under direct rule. We recode any missing observations as zeros, and include a dummy variable for missing data.

[24] Colonial railway data are only available until 1934. We recode any missing observations as zeros, and include a dummy variable for missing years.

[25] This corresponds to districts in Punjab, Chandigarh, Delhi, Haryana, and Himachal Pradesh.

[26] We employ data from the 2011 Indian Census for the religious, Scheduled Castes, and Scheduled Tribes variables. We follow the method in Montalvo and Reynal-Querol (2005) to calculate religious polarization levels, and use Omid's Peoples of South Asia Database (`https://legacy.joshuaproject.net/data-sources.php`) to calculate fractionalization levels.

whether the Ganges River intersects a district, as this river is correlated with a higher share of upper castes due to Hindu sacred geography (Jha, 2013). The main results remain robust.

6.5 Hindu Sex Ratios

The importance of sons in Hindu religious rites may account for differences in son preference across India. In Table A.25, we show that our results hold for the Hindu population only. We limit the sample to districts in which the population is at least 10 percent Hindu. In Columns 1 to 3, the outcome is the share of the Hindu population aged 0-9 that is female. In Columns 4 to 6, it is the share of the Hindu population of all ages that is female. The main results are robust, indicating that historical conflict exposure helps explain differences in male-biased sex ratios even within the Hindu population.

6.6 Major Urban Centers

Column 1 of Table A.26 controls for the distance from district centroids to the major urban centers of Bangalore, Bombay, Chennai, Delhi, and Kolkata, while Column 2 controls for distance to a British presidency city, which we calculate as the minimum of the distance to either Bombay, Calcutta, or Madras. The main results remain robust.

6.7 Asian Highway 1

Table A.27 controls for whether Asian Highway 1, a major land route, intersects a district. The main results are robust.

6.8 Alternative Conflict Measures

Since our baseline measure of exposure to pre-colonial conflict may overlook conflicts that took place far away from the district from which participating troops came, but nevertheless impacted gender norms in that district, we produce four alternative measures of pre-colonial conflict exposure that incorporate faraway conflicts (see Section 4.2.1). Table A.16 repeats our analysis using these alternative variables. Since these measures have different scales from each other as well as from our baseline variable, we report standardized coefficients. For two of the alternative measures – treating capitals as battle locations and forming convex hulls around battles by the broader war in which they were a part of (e.g. Wars of the Delhi Sultanate) – the main results continue to hold. For the two other alternative measures – assigning conflicts to the district that housed a participant's capital and convex hulls formed around the locations in an actor's full set of battles – our coefficient estimates remain negative, but are smaller in standardized magnitude and are not statistically significant at conventional levels. Overall, these results provide evidence that, while our results do not hinge on any single measure of conflict exposure, they are driven more by where conflicts took place than they are by proximity to the capitals of the states that participated in these conflicts.

6.9 Alternative Conflict Data

In Table A.9, we add non-overlapping conflicts from Clodfelter (2002) and Naravane (1997) to the main conflict data from Jaques (2007), and re-run the main specifications. In Table A.10, we replace the main conflict data with the available data from Brecke (1999). Similarly, Table A.11 uses the battle data from WikiData in place of the main conflict data. The main results are robust to these alternative data sources.

6.10 Unit of Observation

In our baseline estimation, we take districts as the unit of observation. Our use of census data prevents us from conducting the analysis in Table 2 at a finer level. We can, however, re-estimate the results in Table 3 assigning each child's birth the conflict exposure and geographic characteristics of either the "exogenous" $1^\circ \times 1^\circ$ grid cell or the sub-district (i.e. tehsil) into which they fall. The results in Table A.1 are robust to this recoding.

7 Instrumental Variables

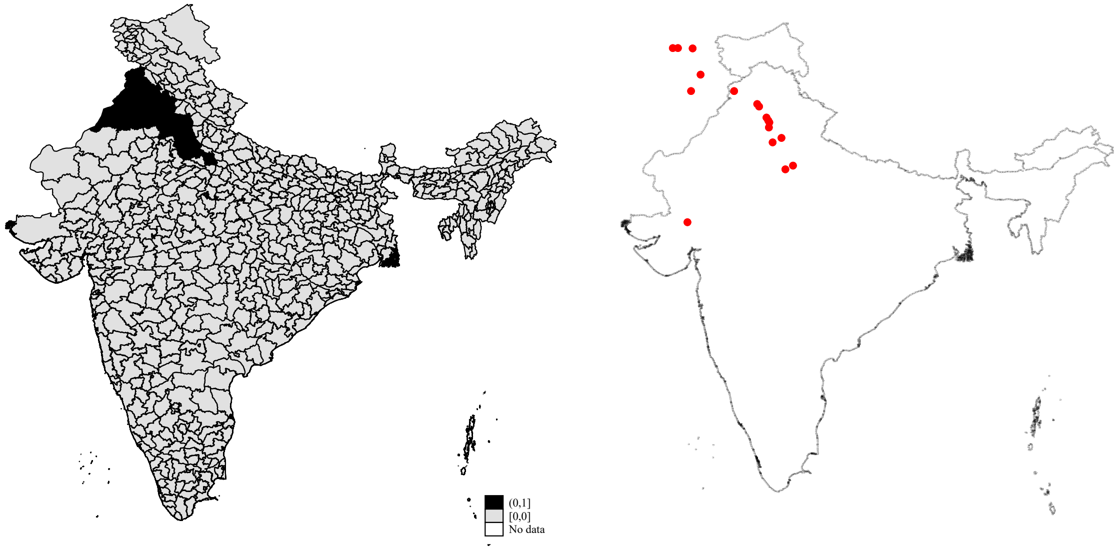
7.1 Khyber Proximity IV

Section 6 has shown that the relationship between exposure to pre-colonial conflict and male-favoring gender norms in India is robust to many additional controls and specifications. However, it is still possible that omitted variables correlated with both historical conflict exposure and male-favoring gender norms influence this result. There also remains the possibility of reverse causation, whereby male-favoring gender norms impacted historical conflict patterns. To further address such concerns, we further validate our OLS estimates using an instrumental variables approach that exploits variation in pre-colonial conflict exposure due to military offensives originating outside South Asia.

Historically, several mountain ranges have helped protect the Indian subcontinent from combatants from Central Asia. The Khyber Pass was the main route taken by these combatants into India (Docherty, 2008). To instrument for exposure to pre-colonial conflict, therefore, we employ a measure of proximity to the Khyber Pass. To calculate the proximity measure, we use a cost-distance formula. Areas with rugged mountain terrain (e.g. Jammu and Kashmir, Himachal Pradesh) were more difficult for armed forces to reach than flatter areas (e.g. Punjab, Uttar Pradesh). For this reason, it does not make sense to employ a geodesic distance measure here.

To construct the cost-distance measure, we take raster data on terrain ruggedness from Nunn and Puga (2012), defined as the mean difference in absolute elevation between a grid cell and its neighbors. Following Özak (2010), we assume that the cost of

Figure 4: Khyber Proximity and Battles Involving Combatants from Central Asia



(a) Khyber Proximity (b) Battles with Combatants from Central Asia

Notes. Panel (a) shows the Khyber proximity instrument, while Panel (b) shows the battles involving a party from Central Asia.

traversing a grid cell is proportional to the square of its ruggedness value. We then calculate the least-cost travel route between each grid cell in India and the Khyber Pass. While this measure of travel costs is unitless, the choice of units does not affect relative travel costs or least-cost paths. We then take the average travel cost along the least-cost path across all cells in a district. Importantly, the value of the cost-distance measure for a district is driven more by the character of the terrain that exists between this district and the Khyber Pass than it is by the characteristics of the district itself.[27]

The Khyber proximity instrument is a dummy equal to one for the 50 districts nearest to the Khyber Pass in terms of cost distance, and equal to zero otherwise. This cutoff makes sense because, as a district's distance from the Khyber Pass goes up, the relationship between the cost-distance measure and exposure to pre-colonial conflict is nonlinear, due to unrelated conflicts such as the Carnatic Wars in southern India. Panel (a) of Figure 4 plots this instrument. In Panel (b), we plot the location of each military conflict in our data fought by combatants from Central Asia on the Indian subcontinent. Consistent with the logic of our approach, we observe an overlap between the Khyber proximity instrument and the conflict locations of the combatants from Central Asia.

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[27] Pakistan geographically separates present-day India from the Khyber Pass. In particular, no district in India is within 200 km of the Pass as the crow flies. Thus, the cost of traversing a district itself is only a small part of the cost of reaching the district from the Khyber Pass.

7.2 IV Main Results

In Table 7, we show the instrumental variables results. Panel (a) reports the second-stage results. We confirm the negative relationship between exposure to pre-colonial conflict and the percentage of the population that is female. Our coefficient estimate in Column 3 is 58 percent larger than the corresponding estimate in Table 2, consistent with attenuation bias in the OLS results due to measurement error in historical conflict exposure.

Panel (b) reports our first-stage estimates. There is a positive and statistically significant relationship between the Khyber proximity instrument and exposure to pre-colonial conflict. In Column 3, proximity to the Khyber Pass increases conflict exposure by 0.08 units, which is similar in size to the standard deviation of the conflict exposure variable. The Kleibergen-Paap F-statistics exceed 10, suggesting that the Khyber proximity instrument is not weak.

In Panel (c), we show that there is a robust negative reduced-form relationship between the Khyber proximity instrument and the percentage of the population that is female.

7.3 IV Robustness

7.3.1 Trade

In addition to higher exposure to pre-colonial conflict, the Khyber Pass may have introduced proximate districts in India to new commercial and cultural phenomena via trade that impacted male-favoring gender norms. The analysis above controls for a variety of geographic features that may have mattered for historic trade patterns, as well as state fixed effects that control for differences in trade policy between present-day sub-national governments.

For robustness, we account for historical trade access in several additional ways. Relying on the map in Raychaudhuri (1982, 334), we determine whether a major historical trade route intersected a district, or whether it contained a major port in the 1600s. Alternatively, we employ data from Jha (2013) to code whether a district contained a major medieval port. Finally, drawing on UNESCO data, we determine whether there was a Silk Road site in a district.[28]

Table A.28 shows that there are no statistically significant correlations between the Khyber proximity instrument and any of the three measures of pre-colonial trade access. This further suggests that historical trade does not confound our analysis. Still, in Table A.29, we include the three measures of pre-colonial trade access as controls. In

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[28] See `https://whc.unesco.org/en/tentativelists/5492/`.

Table 7: Instrumental Variables Results

	(1)	(2)	(3)
Panel A: Second Stage			
	Percent female in 2011	Percent female in 2011	Percent female in 2011
Pre-colonial conflict exposure	-0.093***	-0.088***	-0.039*
	(0.010)	(0.025)	(0.020)
KPF	130.7	14.42	10.87
Panel B: First Stage			
	Pre-colonial conflict exposure	Pre-colonial conflict exposure	Pre-colonial conflict exposure
Khyber proximity	0.203***	0.094***	0.080***
	(0.018)	(0.024)	(0.023)
Panel C: Reduced Form			
	Percent female in 2011	Percent female in 2011	Percent female in 2011
Khyber proximity	-0.019***	-0.008***	-0.003**
	(0.001)	(0.001)	(0.001)
N	657	657	657
State FE	No	Yes	Yes
Controls	No	No	Yes

Notes: ***Significant at 1%, **Significant at 5%, *Significant at 10%. All specifications include a constant and the natural log of population density in 1990. Controls are latitude, longitude, altitude, ruggedness, precipitation, land quality, suitability for dryland rice, suitability for wetland rice, suitability for wheat, and malaria risk. Robust standard errors in parentheses. KPF denotes the Kleibergen-Paap F-statistic.

Table A.30, we repeat this analysis for cost-distance calculations of the historical trade controls. The IV results continue to hold across both cases.

7.3.2 Placebos

Additionally, we calculate placebo instruments for proximity to several points of entry into the Indian subcontinent that land-based forces did not traditionally rely on. They are Surat in western India, and Bombay, Calicut, Goa, and Kodungallur in southwest India. Table A.31 indicates that there are no statistically significant positive relationships between the instruments for proximity to the placebo entry points and exposure to pre-colonial conflict. The Kleibergen-Paap F-statistics are always less than 10. Furthermore, the placebo instruments do not show statistically significant second-stage relationships. The reduced-form relationship is only significant in the case of Bombay.

7.3.3 Railways

Fear of attack by Russia via the Khyber Pass may have impacted British efforts to construct railways in this vicinity. Greater transportation access, in turn, that could have impacted gender norms. Table A.32 controls for the year of the first colonial railway connection in a district.[29] The IV results continue to hold.

7.3.4 Alternative Instrument

Our baseline IV approach leverages variation in exposure to pre-colonial conflict due to ease of access for combatants from Central Asia. Alternatively, we produce an instrument that uses exposure to combatants from Central Asia more directly. Exploiting only the set of battles depicted in Panel (b) of Figure 4, namely those involving combatants from Central Asia, we re-compute pre-colonial conflict exposure using Equation 2. While this alternative instrument provides a more direct measure of exposure to pre-colonial conflicts with external participants, it does less to account for the potential endogeneity of where these combatants chose to fight. Table A.33 reports the results using this alternative. The second-stage estimates closely resemble our baseline OLS coefficients.

7.3.5 Comparison Group

Comparing districts near the Khyber Pass with districts far away may mean that we are not comparing like with like. We thus show in Figure A.4 the results of limiting the sample. In particular, we show the results of limiting the sample to the nearest 75 districts by cost distance, the nearest 76 districts, and so forth. We select 75 as the minimum as it gives us a comparison group half as large as the "treated" group of the 50 most Khyber-proximate districts. Once our sample includes roughly 125 districts, our coefficient estimates become stable, and once the sample includes roughly 150 districts, the estimates consistently become statistically significant.

8 Mechanisms

In Sections 5 through 7, we have provided evidence that there is a robust positive relationship running from exposure to pre-colonial conflict to male-favoring gender norms in India. Relying on our conceptual framework in Section 3, we now investigate the mechanisms underpinning the main results.

We provide several types of evidence that greater exposure to pre-colonial conflict involving heavy weaponry promoted the transmission of male-favoring gender norms historically. Drawing on both qualitative and quantitative data, we evaluate the relation-

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[29] We code this variable using the 1934 edition of *History of Indian Railways, Constructed and in Progress.* For districts not connected by 1934, we code the year of connection as zero and include a dummy for missing data as an additional control.

ship between exposure to pre-colonial conflict and male-biased folkloric motifs. Similarly, we employ historical data on the gender identity of Hindu temple gods. We then analyze the relationship between exposure to pre-colonial conflict and male-biased marriage practices. We next document the endurance of male-favoring gender norms across intermediate points in time. Finally, taking an epidemiological approach, we show evidence consistent with the notion that male-favoring gender norms are portable, and are still today transmitted across space by migrants no longer living in the original zones of historical conflict.

8.1 Male-Biased Folkloric Motifs

8.1.1 Qualitative Evidence

We begin our investigation into historical folkloric motifs by reviewing qualitative evidence on traditional proverbs and folk songs in the northern and northwestern parts of India. These were zones of relatively high exposure to pre-colonial conflict (see Figure 1). In the Punjab, for example, there is a folk verse describing the historical practice of female infanticide:

> *Eat "gur" and spin the cotton roll*
> *Go to heaven and send your brother.* (Bedi, 1969, 170)

Similarly, a northern Indian folk wedding song includes this verse:

> *Had I known then that it was a girl in my womb, I would have killed the fetus*
> *by drinking a concoction made of the hottest chilies*
> *and would have saved myself so much misery* (Srivastava, 1991, 297)

While this folkloric evidence indicates sorrow at female births, it suggests joy at the births of male children. In Uttar Pradesh, for example, happy songs, rituals, feasts, and gift-giving traditionally accompany a son's birth (Tewari, 1988, 257). Women honor new daughter-in-laws with this folk song:

> *May you bathe in milk and be blessed with sons.* (Tewari, 1988, 265)

Similarly, this folk song lauds the new mother of a boy:

> *She gave birth to a male child – that's why she is sitting on the bed; she is giving*
> *orders to everyone in the house.*
> *If she had given birth to a female child, she would be sitting on the doorsill;*
> *she would have fallen from everyone's eyes.* (Tewari, 1977, 34)

Tewari (1988, 260) explains how, on the birth of a male child, the midwife traditionally expects a reward of cash or gifts, and the family invites relatives and neighbors to celebrate, while for a female birth, there is traditionally little or no celebration.

Another folk birth song from northern India depicts relief at the unanticipated birth of a son (Srivastava, 1991, 274-5). In it, a pregnant woman nearing term asks her mother-in-law which room she should clean for use during delivery. Her sister-in-law interjects, telling the pregnant woman that she does not deserve a room, and should give birth in the barn, since they think that she will have a daughter. The woman unexpectedly gives birth to a boy, and her sister-in-law celebrates by dancing exuberantly.

Srivastava (1991, 275) further explains that, while in northern India it is traditionally uncommon to sing a birth song for female children, this may happen if a female birth occurs after there are already many male children. In such cases, the birth songs intended for boys are sung, since there are no dedicated folk songs for female children.

The folkloric evidence suggests that male bias impacts females into adulthood in the northern and northwestern parts of India. A Punjabi proverb indicates that the father of a daughter, regardless of his social status, must submit to his in-laws in order to make a successful marriage match:

> *The father like a king never bowed his head.*
> *But for his daughter's sake.* (Bedi, 1969, 170-1)

Similarly, a folk song from northern India laments a wife's poor treatment at the home where she must live with her husband and in-laws:

> *Gold melts at the goldsmith's.*
> *Sister burns away at her in-laws.*
> *Iron smelts at the ironsmith's.*
> *Sister wastes away at her in-laws.* (Jassal, 2012, 3)

The above examples from India's northern and northwestern parts contrast with folklore in the eastern and southwestern parts of India, which were zones of relatively low exposure to pre-colonial conflict. For example, a folk song by the Oriya ethnic group, centered in present-day Odisha, says that "a woman always needs to be protected and adorned" (Mishra, 1969, 219). Similarly, a folk wedding song from Coorg, part of present-day Karnataka, depicts a groom's appreciation for his bride:

> *A useless heap when I've no wife.*
> *And all my toil is toil in vain*
> *Unless a child the house contain.* (Gover, 1871, 129)

This suggests that folklore from the eastern and southwestern parts of India speaks less negatively of women.

8.1.2 Quantitative Evidence

The above investigation into folkloric motifs above provides support for the relationship between historical conflict exposure and the transmission of male-favoring gender norms. To complement this, we now take a quantitative approach, allowing us to address potential selection bias in the qualitative evidence and identify systematic folkloric patterns.

We rely on data from Michalopoulos and Xue (2021), which are available for 52 historical societies in India.[30] Drawing on the catalog by Berezkin (2015), Michalopoulos and Xue compute the percentage of folkloric motifs that depict males and females in different ways, such as intelligent, naive, or sexual. From this, Michalopoulos and Xue calculate an overall measure of male bias that incorporates the share of folkloric motifs in which males are depicted as more active, more violent, less at home, or less submissive.

Figure 5 maps this index of male bias in folklore in India. We observe spatial clusters of male-biased folkloric motifs in the northwestern regions near the Khyber Pass, the western Gangetic plains, and along the western coast. These were all areas of relatively high exposure to pre-colonial conflict (see Figure 1).

In Table 8, we show estimates of Equation (1) after taking male-biased folklore as the outcome. Here, our sample is at the level of societies in Michalopoulos and Xue (2021). We construct an indicator for male bias in folkloric motifs equal to one if Michalopoulos and Xue's measure of male bias is above the median. We assign to each society the geographic characteristics of the district it falls inside (or closest to it) according to the latitude and longitude coordinates provided by Michalopoulos and Xue. Given the small sample size, we have enough degrees of freedom to include either the geographic controls or the (present-day, anachronistic) state fixed effects, but not both together. We find that historical conflict exposure significantly predicts the establishment of male-biased folkloric motifs.

8.2 Hindu Temple Gods

To further evaluate the relationship between exposure to pre-colonial conflict and the transmission of male-favoring gender norms, we exploit historical data on the gender

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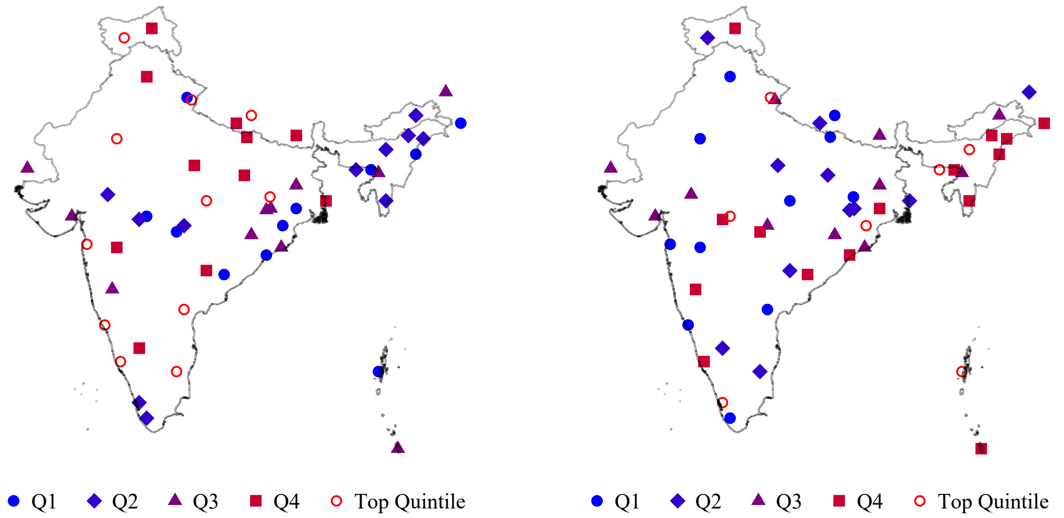
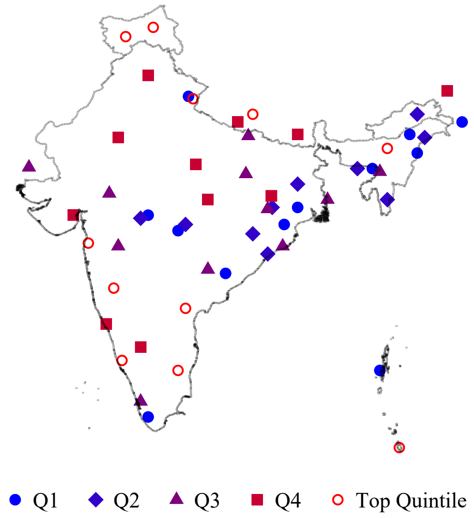
[30] Michalopoulos and Xue treat each society as a point when providing latitude and longitude coordinates. Thus, historical societies that were present both within India and just beyond its modern borders may be categorized as being outside India. For this reason, we keep all societies with coordinates within 1 decimal degree of present-day India.

Figure 5: Maps of Male Bias in Folklore in Michalopoulos and Xue (2021)


Male bias in motifs

% of motifs males are more submissive

% of motifs males are more violent



Notes. Quintiles computed within the societies depicted.

identity of Hindu temple gods. Temples are dedicated to male gods only, male gods and their female consorts, or female gods only. Relying on Schwartzberg (1978, 47), we code the presence of male or female temples during the Mughal period (1526-1707). Table 9 shows that, controlling for population density in 1500, (present-day, anachronistic) state fixed effects, and geographic controls, there is a negative and statistically signifi-

Table 8: Male Bias in Folklore

	(1) Male bias in motifs above median	(2) Male bias in motifs above median	(3) Male bias in motifs above median
Pre-colonial conflict exposure	1.602***	1.278*	1.052**
	(0.491)	(0.725)	(0.463)
N	52	52	52
State FE	No	Yes	No
Controls	No	No	Yes

Notes: ***Significant at 1%, **Significant at 5%, *Significant at 10%. All specifications include a constant and the natural log of population density in 1990. Controls are latitude, longitude, altitude, ruggedness, precipitation, land quality, suitability for dryland rice, suitability for wetland rice, suitability for wheat, and malaria risk. Robust standard errors in parentheses.

Table 9: Female Temples during the Mughal Era

	(1) Female temple	(2) Female temple	(3) Female temple
Conflict exposure to 1526	-0.089*	-0.201*	-0.303**
	(0.053)	(0.106)	(0.154)
N	657	657	657
State FE	No	Yes	Yes
Controls	No	No	Yes

***Significant at 1%, **Significant at 5%, *Significant at 10%. All specifications include a constant. Controls are latitude, longitude, altitude, ruggedness, precipitation, land quality, suitability for dryland rice, suitability for wetland rice, suitability for wheat, and malaria risk. All specifications also control for log population density in 1500. Robust standard errors in parentheses.

cant correlation between exposure to pre-colonial conflict (through 1526) and temples dedicated to female deities. In Table A.34, we show that these results survive controlling for the “initial” presence of female temples around near the time of the start of the conflict data in the year 1000.[31]

8.3 Marriage Practices

Greater exposure to pre-colonial conflict may have disadvantaged women in marriage, whether by making the relative physical advantage of men in conflict more salient his-

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[31] In particular, we take data on female temples present in the eighth through twelfth centuries from Schwartzberg (1978, 34a).

Table 10: Marriage Practices

	(1) Daughter marries in natal village	(2) Daughter marries in natal village	(3) Daughter marries in natal village
Pre-colonial conflict exposure	-0.750***	-0.484***	-0.442***
	(0.156)	(0.169)	(0.151)
N	41,213	41,213	41,213
State FE	No	Yes	Yes
Controls	No	No	Yes

***Significant at 1%, **Significant at 5%, *Significant at 10%. All specifications include a constant and the natural log of population density in 1990. Controls are latitude, longitude, altitude, ruggedness, precipitation, land quality, suitability for dryland rice, suitability for wetland rice, suitability for wheat, and malaria risk. Standard errors clustered by district in parentheses.

torically, or by reducing the supply of men due to death in battle.[32] To evaluate this, we employ the 2005 wave of the India Human Development Survey. Households were asked if it is usual for a daughter to marry in the village of her birth. Our specification is as in Equation (1), where we take the household as the unit of analysis. Table 10 indicates that districts with higher exposure to pre-colonial conflict experience significantly lower marriage rates of daughters in the villages in which they were born. That is, we find that patrilocal exogamy increases in response to historical conflict exposure.

8.4 Endurance over Time

The above evidence on folkloric motifs, Hindu temple gods, and marriage practices helps us trace the historical relationship between conflict exposure and the transmission of male-favoring gender norms. We now provide additional evidence for the endurance of male-favoring gender norms across intermediate points in time.

Fenske, Gupta and Neumann (2022) have digitized colonial census data on the sex ratio in 1931 at the (colonial) district level. Table 11 shows estimates of Equation (1) taking the colonial sex ratio as the outcome.[33] Exposure to pre-colonial conflict predicts a significant reduction in the share of a colonial district's population that was female in 1931. This result suggests that male-favoring gender norms were present in India during the colonial era.

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[32] We will assess other potential responses to conflict-related male scarcity in Section 9.

[33] To compute population density for the colonial era, we employ the areas and populations in Volume 1 of the Imperial Tables of the 1931 Census. These values are not reported separately for princely states in the Bombay presidency. Thus, we assign the population density of the Bombay States and Agencies taken together.

Table 11: Pre-Colonial Conflict Exposure and Percent Female in 1931

	(1) Percent female	(2) Percent female	(3) Percent female
Conflict exposure	-0.032***	-0.018**	-0.018**
	(0.008)	(0.007)	(0.007)
N	367	361	361
Province FE	No	Yes	Yes
Controls	No	No	Yes

Notes: ***Significant at 1%, **Significant at 5%, *Significant at 10%. All specifications include a constant and the natural log of population density in 1931. Controls are latitude, longitude, altitude, ruggedness, precipitation, land quality, suitability for dryland rice, suitability for wetland rice, suitability for wheat, and malaria risk. Robust standard errors in parentheses.

Figure 6 repeats this analysis using data on the percentage of each district's population that was female in each census year from 1961 to 2001.[34] The correlation between exposure to pre-colonial conflict and the percentage of the population that was female is statistically significant at the 10 percent level in all years, and significant at the 5 percent level from 1981 onward. This pattern suggests that male-favoring gender norms have endured over time from the colonial era to the present, even though the economy has grown over the past several decades. One explanation for the rising coefficient values is India's recent fertility decline, which has increased the incentive for sex-selective abortion among families who desire at least one son (Bhat and Zavier, 1999; Jayachandran, 2017).

8.5 Epidemiological Approach

Individuals whose ancestors experienced greater exposure to pre-colonial conflict, but who no longer live in the impacted areas, may still display male-favoring gender norms, even in comparison to other individuals in the same location. This "epidemiological" approach of comparing migrants to non-migrants is common in the economics literature on the role of culture in decision-making (Atkin, 2016; Fernández, 2011; Gay, 2023; Nunn and Wantchekon, 2011).

Table 12 shows evidence of this portability of norms in our data. We start with the DHS births recode sample from Table 3. To compute a measure of ancestral conflict exposure, we use the DHS data on the mother tongues of individuals. The major languages of India typically reflect ancestry in specific regions. Examples include Punjabi speakers

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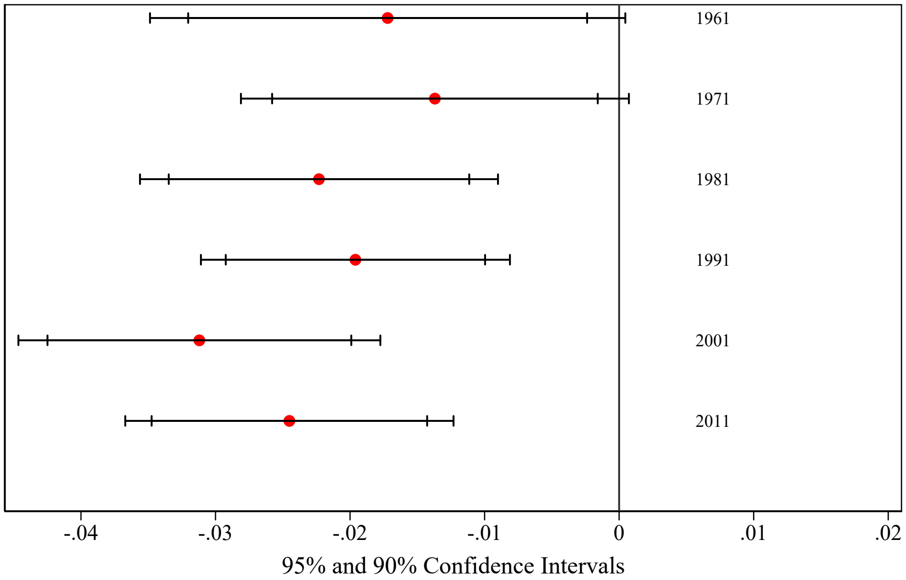
[34] The source for 1961-2001 is Vanneman and Barnes (2000), while the source for 2011 is Devinfo 3.0.

Figure 6: Conflict Exposure and Percent Female, 1961-2001



Notes. This figure plots estimates of β from Equation (1), with all controls and fixed effects.

with ancestry in the Punjab, and Malayalam speakers with ancestry in Kerala. We average our measure of exposure to pre-colonial conflict over all births for a given mother tongue. This measure assigns the same level of conflict exposure to all members of each language group, regardless of whether they still reside in the area that historically was that language's region of ancestry.

In Column 1 of Table 12, we replicate Column 1 of Table 3 using this alternative measure of conflict exposure.[35] The results are similar in sign and slightly larger in magnitude than the results in Table 3, providing support for the notion that ancestral exposure to historical conflict predicts a more male-biased sex ratio.

We next add two alternative sets of fixed effects. Column 2 adds district fixed effects, while Column 3 adds survey cluster fixed effects. Survey clusters approximate villages in rural areas and neighborhoods in urban areas. Both sets of fixed effects absorb our baseline geographic controls. District fixed effects hold constant a district's level of historical conflict exposure, thereby basing our comparisons of two individuals – differing in ancestral conflict exposure – living in the same district. Cluster fixed effects further narrow this comparison to two individuals living in the same village or neighborhood.

The results in Columns 2 and 3 remain statistically significant, with magnitudes simi-

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[35] Since conflict exposure now varies by language rather than district, we cluster standard errors by language.

Table 12: Epidemiological Approach

	(1) Female	(2) Female	(3) Female
Conflict exposure by language	-0.107***	-0.073***	-0.082*
	(0.013)	(0.021)	(0.040)
N	1,124,125	1,124,125	1,124,055
Fixed Effects	No	District	Cluster
Controls	Individual	Individual	Individual

Notes: ***Significant at 1%, **Significant at 5%, *Significant at 10%. All specifications include a constant. Column (1) includes the natural log of population density in 1990. Individual controls are year of birth of the mother and child. Standard errors clustered by mother tongue in parentheses.

lar to that in Column 1. These results suggest that male-favoring gender norms originating from exposure to pre-colonial conflict are portable, and are still today transmitted across space by migrants who no longer live in the original areas of historical conflict.

9 Alternative Mechanisms

Drawing on our conceptual framework in Section 3, we now evaluate several potential alternative mechanisms, including economic development and early state capacity, responses to male scarcity from historical battle deaths, the cultural diffusion of male-favoring gender norms, and conflict exposure during the colonial or post-independence eras.

9.1 Economic Development and State Capacity

Recurrent exposure to military conflict can foster long-run economic development via war-induced state-making. In Table 13, we employ three individual-level measures of the living standards of women – literacy, body mass index (BMI), and weight – as outcomes.[36] We find that women living in districts that experienced higher levels of exposure to pre-colonial conflict are significantly more literate and heavier.

To assess whether economic development or state-making mediate the relationship between exposure to pre-colonial conflict and male-favoring gender norms, Figure 7 shows estimates of Equation (1) in which we control for measures of these intermediate channels. All estimates correspond to Column 3 of Table 2, and so include controls and fixed effects. The mediators are luminosity, our main proxy for local development levels, as well as a variety of measures of early state capacity. These measures include

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[36] We take these data from the 2015-16 Indian Demographic and Health Survey.

Table 13: Pre-Colonial Conflict Exposure and Female Living Standards

	(1) Literate	(2) ln BMI	(3) ln weight in kg
Pre-colonial conflict exposure	0.166***	0.065***	0.056***
	(0.055)	(0.014)	(0.017)
N	646,589	639,503	639,700
State FE	Yes	Yes	Yes
Controls	Individual and geographic	Individual and geographic	Individual and geographic

Notes: ***Significant at 1%, **Significant at 5%, *Significant at 10%. All specifications include a constant and the natural log of population density in 1990. Individual controls are year of birth and year of birth squared. Geographic controls are latitude, longitude, altitude, ruggedness, precipitation, land quality, suitability for dryland rice, suitability for wetland rice, suitability for wheat, and malaria risk. Standard errors clustered by district in parentheses.

the number of important Mughal sites, and dummies for whether a district was part of the Mughal Empire under Babur, Akbar, and Aurangzeb. Furthermore, they include several variables that were originally recorded at a different level of aggregation, such as colonial districts or colonial princely states. These measures are the colonial-era literacy rate in 1881 and 1921, the extent of colonial-era canal irrigation in 1931, and colonial-era land tax revenue scaled by area or persons in 1881 and 1931.[37]

We find that neither economic development levels nor early state capacity mediate the relationship between exposure to pre-colonial conflict and male-favoring gender norms. The coefficient estimates for $ConflictExposure_d$ remain positive and statistically significant, with magnitudes similar in size to the main results.

In our conceptual framework, we have argued that the impact of economic development on male-favoring gender norms may depend on where a country is in the development process. Our results suggest that the process of economic development, while raising the living standards of women, has not yet eliminated male-favoring gender norms associated with greater historical conflict exposure in India. To shed further light on this, we draw on the concept of static mismatch in Nunn (2022). Male-favoring gender norms may have emerged historically due to their purported benefits in areas experiencing higher levels of conflict exposure. Given the importance of female partici-

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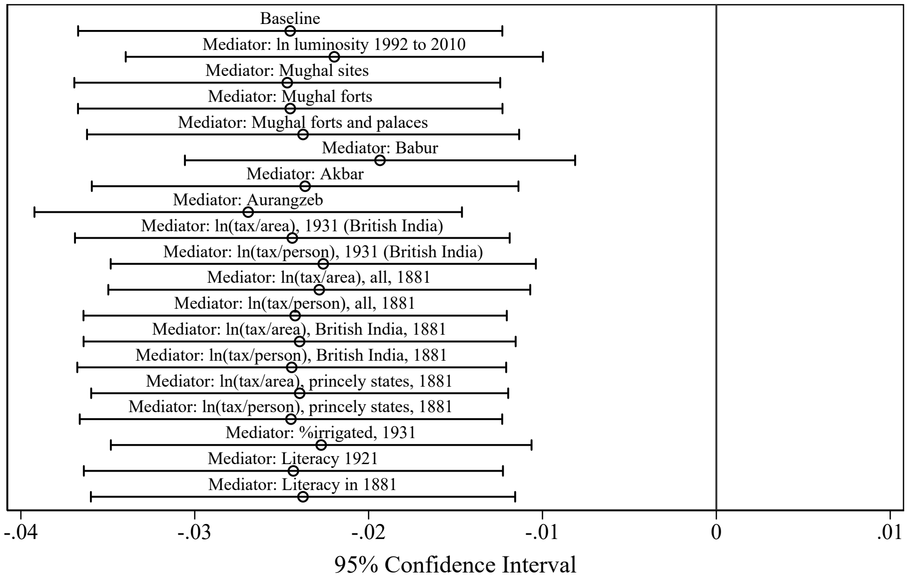
[37] To map the colonial variables into present-day districts, we take an area-weighted average of the historic districts or states that intersect each modern district. In some cases, these variables are missing. We recode them as zero when missing, and include a dummy control for whether the variable is missing. For additional details about the sources and construction of these data, see Dincecco et al. (2022).

Figure 7: Alternative Mechanisms: Economic Development and State-Making



Notes. This figure plots estimates of β from Equation (1), with all controls and fixed effects.

pation in the labor force in a developed economy, however, such gender norms are less suited. Yet, for a variety of reasons, cultural beliefs tend to persist over time (see Section 3.1), producing a potential mismatch.

9.2 Male Scarcity

Death in battle may have induced a shortage of men in areas in which exposure to pre-colonial conflict was high. We have analyzed how this shortage may have affected marriage practices that were disadvantageous to women in Section 8.3.

Another potential outcome of historical male scarcity could be the emergence of matrilineal descent. Inheritance through the female line is often thought to benefit women by providing them with larger support systems and reduced control by spouses (Gneezy, Leonard and List, 2009; Lowes, 2022). However, matrilineal descent is rare in India. This runs against the hypothesis that a battle-related shortage of men counteracted male-favoring gender norms.

Nevertheless, there are two well-known examples of matrilineal descent. The first is the Khasi tribe, located primarily in Meghalaya in the easternmost region of India (Brulé and Gaikwad, 2021). This was not an area that experienced high exposure to pre-colonial conflict (see Figure 1). The second example is the matrilineal societies of Kerala, located in India's southwest. This area did not experience high exposure to pre-colonial conflict, either.

To provide systematic evidence on the potential alternative roles of historical male scarcity, we focus on three intermediate outcomes – matrilineal descent, male dominance in agriculture, and polygyny. To measure them, we use the societies recorded in the *Ethnographic Atlas* by Murdock (1967).[38] Figure 8 maps all three variables. The spatial patterns do not suggest that these responses to male scarcity were more prevalent in areas of higher exposure to pre-colonial conflict.

In Table 14, we estimate Equation (1) after taking matrilineal descent, male dominance in agriculture, and polygyny as outcomes. Our sample is at the level of societies in India as recorded in Murdock (1967).[39] We assign a society the geographic characteristics of the district that it falls inside according to the latitude and longitude coordinates in Murdock. Due to small sample size, we have enough degrees of freedom to include the geographic controls or the (present-day, anachronistic) state fixed effects, but not both. We do not find evidence that, by reducing the supply of men due to battle deaths, exposure to pre-colonial conflict significantly shaped gender norms in India by inducing a shift toward towards matrilineal descent, decreasing male dominance in agriculture, or by raising the prevalence of polygamy. We view this lack of evidence as providing further support for our main argument linking exposure to pre-colonial conflict to male-favoring gender norms.

9.3 Cultural Diffusion

Another potential mechanism concerns the diffusion of male-favoring gender norms from one combatant group to another. If, for example, combatants from Central Asia imparted a patriarchal "way of life," then this process could account for the existence of male-favoring gender norms. To address this possibility, we compute the duration of historical rule by social groups who were originally from outside of South Asia in each district using the maps of historical states from the GEACRON project.[40] We also take genetic distance as a measure of shared ancestry. Here, we compute the genetic distance between each district and each of the Central or South Asian populations for which

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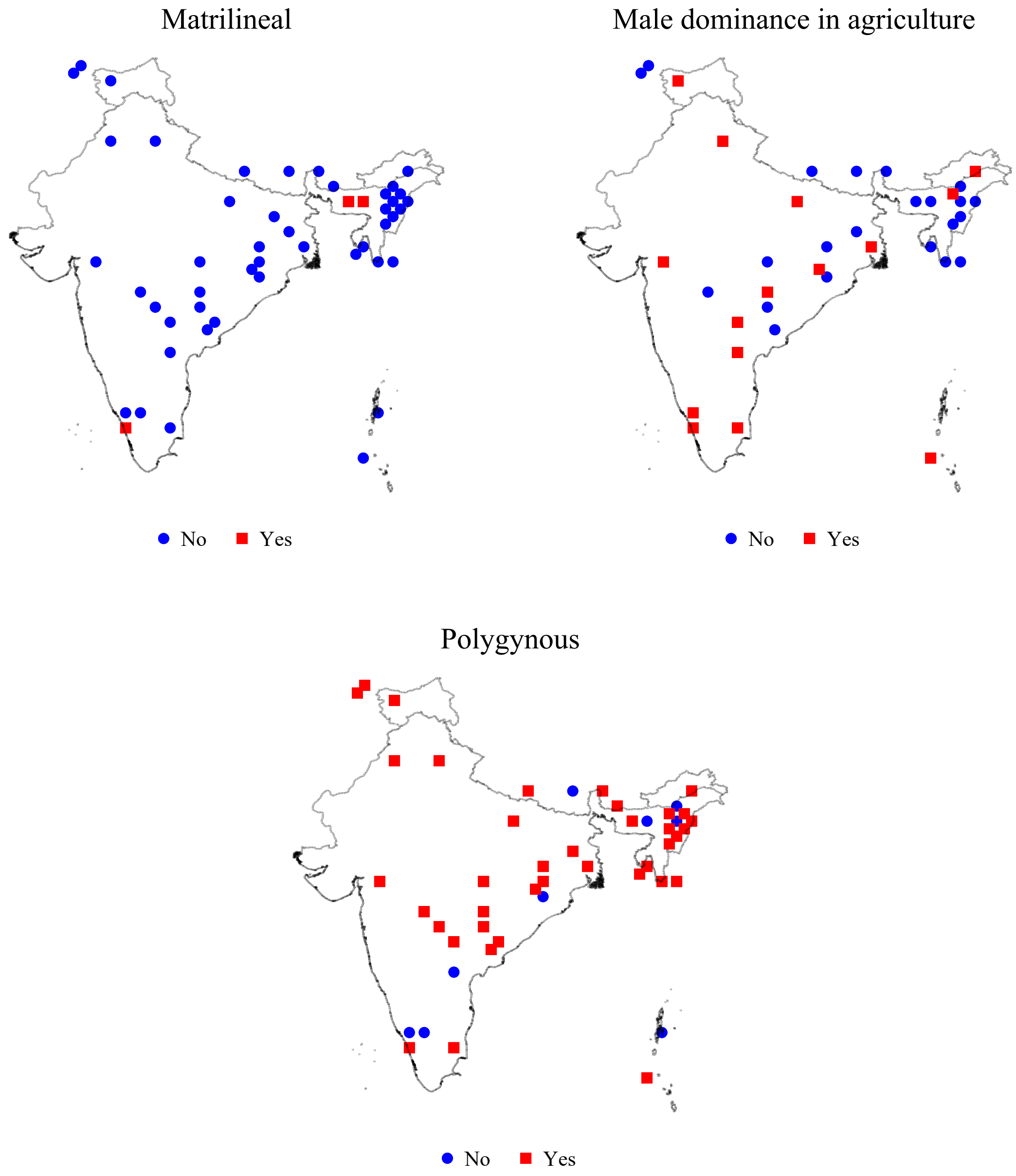
[38] We code matrilineal as a dummy equal to one if Variable 43 "Descent: Major Type" is non-missing and takes the value of matrilineal. We code male dominance in agriculture as a dummy equal to one if Variable 54 "Sex Differences: Agriculture" is non-missing; if agriculture is not absent or unimportant; and if Variable 54 takes a value of "males appreciably more" or "males only." We code polygyny as a dummy equal to one if Variable 9 "Marital Composition: Monogamy and Polygamy," is non-missing and takes any of the following values: independent nuclear, polygyny; preferentially sororal, same dwelling; preferentially sororal, separate dwellings; non-sororal, separate dwellings, or; non-sororal, same dwelling.

[39] Murdock (1967) provides latitude and longitude coordinates rounded to the nearest integer. We thus keep all societies within 1 decimal degree of present-day India.

[40] See `http://geacron.com/home-en/`. We obtain these maps every 50 years between 3000 BCE and 1850 CE, counting the duration of historical rule by polities with rulers originally from outside South Asia as the number of maps (i.e. time periods) in which a district was mapped as under the control of a power whose rulers originally came from outside South Asia.

Figure 8: Maps of Male Scarcity Characteristics in Murdock (1967)


Matrilineal

Male dominance in agriculture

Polygynous

Notes. Coordinates from Murdock (1967) displaced by 0.5 degrees of latitude and longitude if two societies overlap.

Pemberton, DeGiorgio and Rosenberg (2013) provide genetic data. Following Fenske and Kala (2021), we compute genetic distance as the expected F_{st} coefficient between a given population group and a randomly selected individual from a given district.

In Figure 9, we perform an exercise similar to that in Figure 7, and treat years of historical Muslim rule, a district's Muslim share, the duration of historical foreign rule,

Table 14: Alternative Mechanism: Male Scarcity

	(1)	(2)	(3)
	Polygynous	Polygynous	Polygynous
Pre-colonial conflict exposure	1.263	-2.943	0.997
	(0.899)	(5.367)	(1.317)
N	46	46	46
	Matrilineal	Matrilineal	Matrilineal
Pre-colonial conflict exposure	-0.918	-0.202	-0.556
	(0.562)	(0.362)	(0.573)
N	47	47	47
	Male dominance in agriculture	Male dominance in agriculture	Male dominance in agriculture
Pre-colonial conflict exposure	3.754***	3.729	2.953
	(1.195)	(11.182)	(1.873)
N	36	36	36
State FE	No	Yes	No
Controls	No	No	Yes

Notes: ***Significant at 1%, **Significant at 5%, *Significant at 10%. All specifications include a constant and the natural log of population density in 1990. Controls are latitude, longitude, altitude, ruggedness, precipitation, land quality, suitability for dryland rice, suitability for wetland rice, suitability for wheat, and malaria risk. Robust standard errors in parentheses.

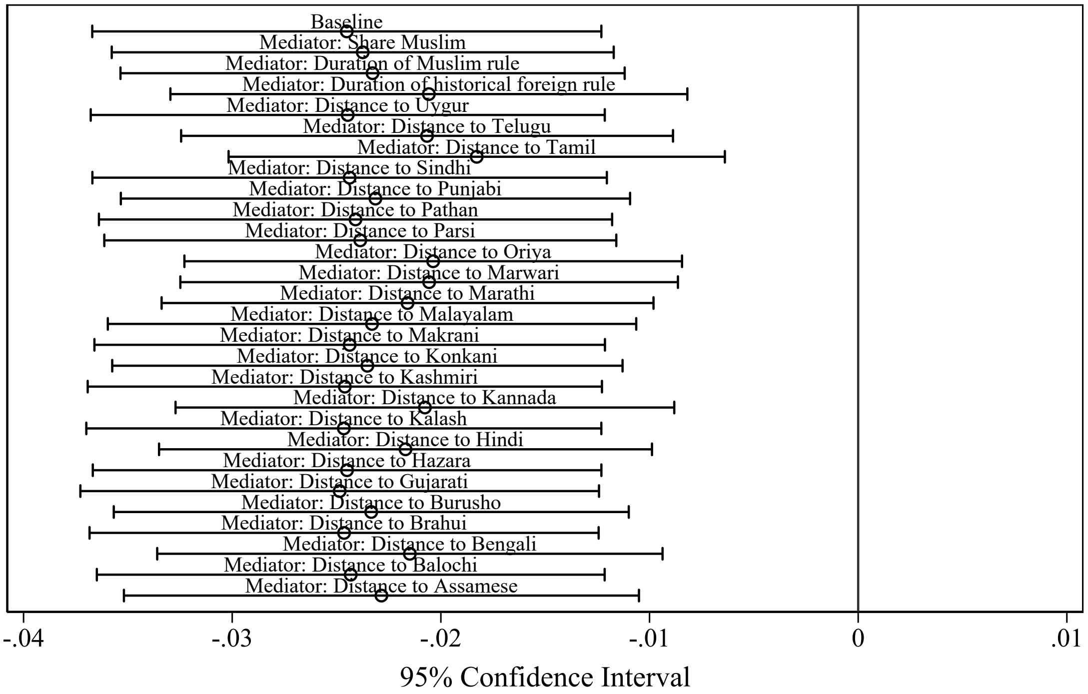
and the measures of genetic distance as potential mediators. Including these variables as controls does not explain away our main results. Similarly, we show in Table A.36 that controlling for population shares by language and religion does not impact our findings.

The above exercise already incorporates European combatants. As an additional way to test whether male-favoring gender norms diffused from Europeans to India, Table 15 recomputes our baseline measure of conflict exposure after dropping any conflicts involving European powers. The results remain largely unchanged.

9.4 Colonial- and Post-Independence Conflict

Conflict exposure during the colonial era or post-independence era, in addition to such exposure during the pre-colonial era, may have impacted male-favoring gender norms. To assess this possibility, Table A.35 controls for conflict exposure during these two eras. Here, we divide British imperial rule into two sub-periods (1758-1839 and 1840-1946), with the midpoint marked by the emergence of British political dominance in the mid-nineteenth century. The positive and statistically significant relationship between exposure to pre-colonial conflict and present-day sex ratios continues to hold even after controlling for conflict during the colonial and post-independence eras. Conditional on state fixed effects, the coefficient estimates are similar in size to the main results in

Figure 9: Alternative Mechanism: Cultural Diffusion



Notes. This figure plots estimates of β from Equation (1), with all controls and fixed effects.

Table 15: Drop Conflicts Involving Europeans

	(1) Percent female in 2011	(2) Percent female in 2011	(3) Percent female in 2011
Conflict exposure without Europeans	-0.062***	-0.029***	-0.027***
	(0.007)	(0.008)	(0.007)
N	657	657	657
State FE	No	Yes	Yes
Controls	No	No	Yes

Notes: ***Significant at 1%, **Significant at 5%, *Significant at 10%. All specifications include a constant and the natural log of population density in 1990. Controls are latitude, longitude, altitude, ruggedness, precipitation, land quality, suitability for dryland rice, suitability for wetland rice, suitability for wheat, and malaria risk. Robust standard errors in parentheses.

Table 2. While exposure to colonial-era and post-independence conflict also predicts

more male-biased sex ratios in the present, this is only robust across specifications for conflict exposure during the late colonial period.

10 Conclusion

In this paper, we have analyzed the relationship between exposure to pre-colonial conflict and male-favoring gender norms in the context of India, a dynamic economy in which gender inequality remains acute. We have argued that, in areas with high historical exposure to military conflict, which involved heavy weaponry, men may have had a physical advantage in violence over women, meaning that victory in battle was relatively more likely when men took up arms. In turn, this may have produced cultural norms that favored males and male offspring.

To evaluate this argument, we have combined data on exposure to pre-colonial conflict with data on gender-related outcomes, including the sex ratio and crimes against women. Our empirical analysis has shown evidence that historical differences in conflict exposure across India significantly impact the skewness of the sex ratio in favor of males, as well as reduce the probability of having female children and increase crimes against women. This improves our understanding of the deep roots of gender norms in the developing world, and provides a novel answer to the puzzle regarding the spatial variation in India's missing women.

In support of our argument, we have provided evidence that conflict exposure promoted the transmission of male-favoring gender norms in India historically in terms of male-biased folkloric motifs, the gender identity of Hindu temple gods, and male-biased marriage practices. Moreover, we have shown evidence for the endurance of male-favoring gender norms across intermediate historical points in time, as well as epidemiological evidence consistent with the notion that such norms are portable, and are still today transmitted across space by migrants no longer living in the original zones of historical conflict.

How general might the relationship between exposure to pre-modern conflict and male-favoring gender norms be? In Western Europe, as in India, interstate military competition and warfare was common (Scheidel, 2019; Tilly, 1992), as was an emphasis on male glory via victory in battle (Hoffman, 2015). Machiavelli (1998 [1532], 58), for example, wrote: "Thus, a prince should have no other object, nor any other thought, not take anything else as his art but that of war and its orders and discipline; for that is the only art which is of concern to one who commands." Unlike India, however, Western Europe today has what appear to be relatively equal gender norms. Gender equality improved in Western Europe over the last one hundred years (e.g. the introduction of women's suffrage), particularly during the second half of the twentieth century. However, Western

Europe is not the world's most gender-equal region on every dimension. For example, the female labor force participation rate in the European Union was 52 percent in 2022, which is lower than in Sub-Saharan Africa, where it was 61 percent.[41] This is even more noteworthy when we recognize that Western Europe has a large GDP per capita, implying that it should be on the very right part of the U-shape curve (Jayachandran, 2021), where we would expect female labor force participation to be high. Turning back to India, this further suggests that continued economic development might not be enough to make male-favoring gender norms disappear.

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[41] This is for the share of the female population at least 15 years old in the labor force. See `https://data.worldbank.org/indicator/SL.TLF.CACT.FE.ZS`.

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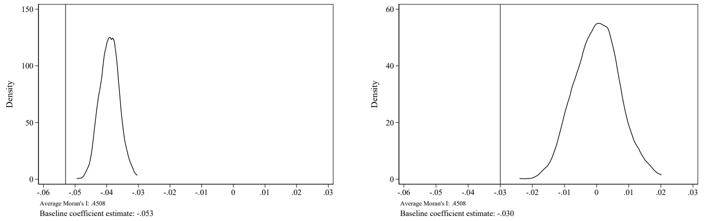
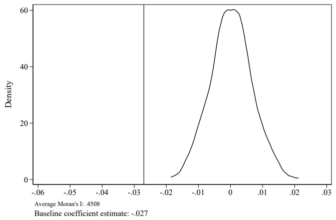
Online Appendix

A.1 Appendix Figures

Figure A.1: Artificial Spatially-Correlated Noise Placebo Variables



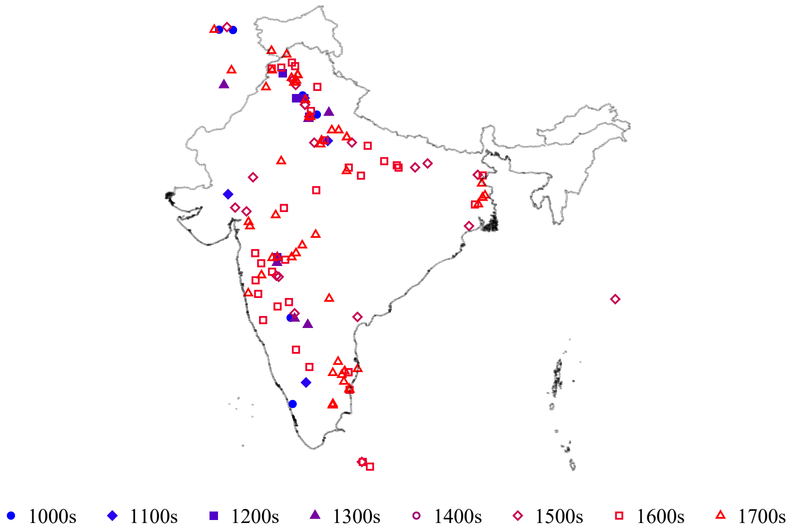
(a) Column 1, Table 2 (b) Column 2, Table 2



(c) Column 3, Table 2

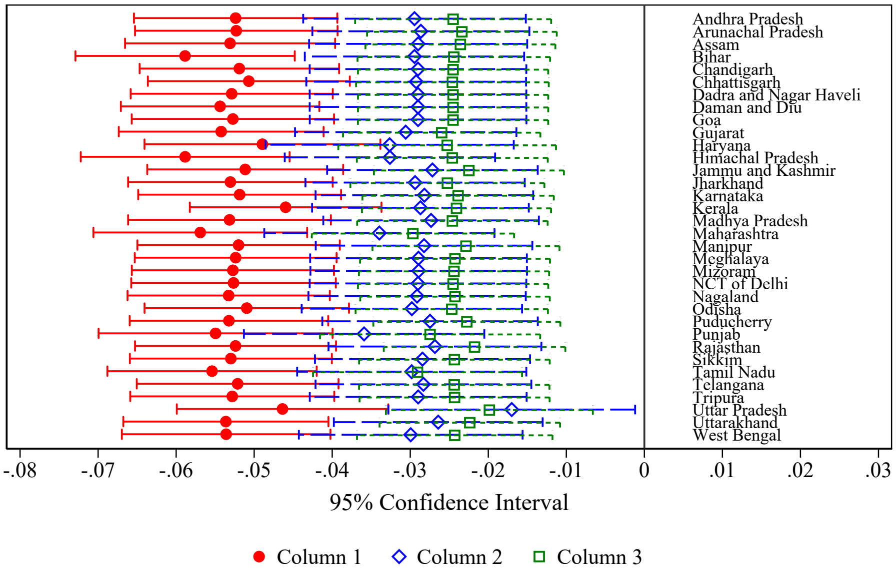
Notes. This figure shows the results of tests that generate artificial spatially-correlated noise placebo variables to replace our variable of interest, reallocating conflict exposure randomly across districts within a state (without replacement), for each of the regression models in Table 2.

Figure A.2: Pre-Colonial Land Battles by Century



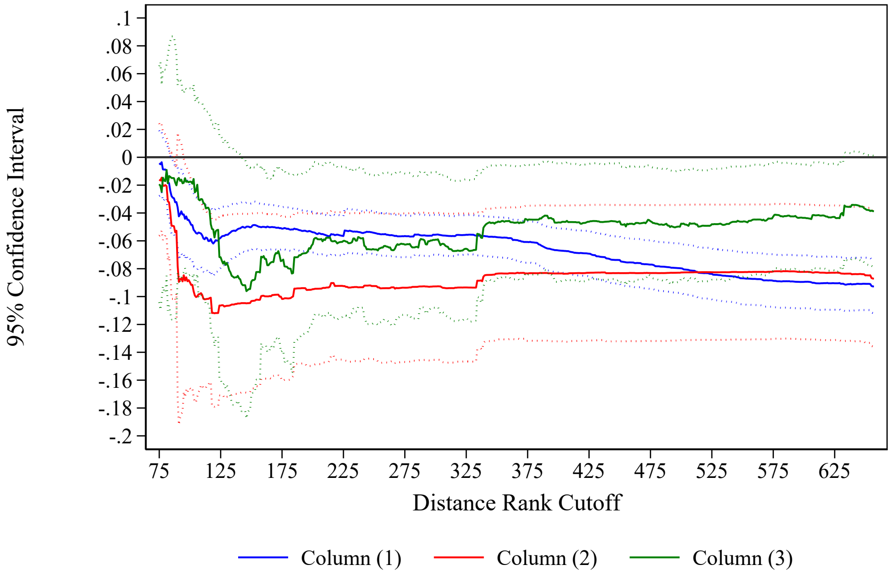
Notes. This map shows land battles in South Asia between 1000 and 1757 in Jaques (2007) by the century of the start date.

Figure A.3: Drop States One at a Time



Notes. This figure shows the results of re-estimating (1) dropping each state or union territory in turn. Columns correspond to the specifications in Table 2.

Figure A.4: Limit Sample by Cost Distance from the Khyber Pass



Notes. This figure shows the results of re-estimating the results in Table 7 but restricting the sample to only the x districts closest to the Khyber Pass by cost distance. x is the value on the x axis. Coefficient estimates are solid lines and 95 percent confidence intervals are dotted.

A.2 Appendix Tables

Table A.1: Birth-Level Results by Cell and Tehsil

Panel A: By Cell	(1) Female	(2) Female	(3) Female
Pre-colonial conflict exposure	-0.067*** (0.008)	-0.032*** (0.009)	-0.021** (0.010)
N	1,134,611	1,134,611	1,134,611
State FE	No	Yes	Yes
Controls	Individual	Individual	Individual and geographic

Panel B: By Tehsil	(1) Female	(2) Female	(3) Female
Pre-colonial conflict exposure	-0.065*** (0.007)	-0.032*** (0.008)	-0.021** (0.009)
N	1,220,798	1,220,798	1,220,798
State FE	No	Yes	Yes
Controls	Individual	Individual	Individual and geographic

***Significant at 1%, **Significant at 5%, *Significant at 10%. All specifications include a constant and the natural log of population density in 1990. Individual controls are years of birth of both the mother and child. Geographic controls are latitude, longitude, altitude, ruggedness, precipitation, land quality, suitability for dryland rice, suitability for wetland rice, suitability for wheat, and malaria risk. Standard errors in parentheses, clustered in Panel (a) by cell and in Panel (b) by tehsil.

Table A.2: Population Density as a Control

Panel A: Exclude Population Density

	(1) Percent female in 2011	(2) Percent female in 2011	(3) Percent female in 2011
Pre-colonial conflict exposure	-0.048***	-0.027***	-0.027***
	(0.006)	(0.007)	(0.006)
N	657	657	657
State FE	No	Yes	Yes
Controls	No	No	Yes

Panel B: Control for Population Density in 1000AD

	(1) Percent female in 2011	(2) Percent female in 2011	(3) Percent female in 2011
Pre-colonial conflict exposure	-0.053***	-0.030***	-0.026***
	(0.006)	(0.007)	(0.006)
N	657	657	657
State FE	No	Yes	Yes
Controls	No	No	Yes

***Significant at 1%, **Significant at 5%, *Significant at 10%. All specifications include a constant. Controls are latitude, longitude, altitude, ruggedness, precipitation, land quality, suitability for dryland rice, suitability for wetland rice, suitability for wheat, and malaria risk. Panel (b) includes the natural log of population density in 1000AD as a control. Robust standard errors in parentheses.

Table A.3: Include $3^\circ \times 3^\circ$ Cell Fixed Effects

	(1) Percent female in 2011	(2) Percent female in 2011
Pre-colonial conflict exposure	-0.017*	-0.021**
	(0.010)	(0.009)
N	657	657
Cell FE	Yes	Yes
Controls	No	Yes

Notes: ***Significant at 1%, **Significant at 5%, *Significant at 10%. All specifications include a constant and the natural log of population density in 1990. Controls are latitude, longitude, altitude, ruggedness, precipitation, land quality, suitability for dryland rice, suitability for wetland rice, suitability for wheat, and malaria risk. Robust standard errors in parentheses.

Table A.4: Conley (1999) Standard Errors

	(1) Percent female in 2011	(2) Percent female in 2011	(3) Percent female in 2011
Pre-colonial conflict exposure	-0.053***	-0.029**	-0.025***
250 km	(0.013)	(0.012)	(0.009)
500 km	(0.014)	(0.012)	(0.006)
750 km	(0.013)	(0.012)	(0.006)
1000 km	(0.011)	(0.011)	(0.006)
1250 km	(0.008)	(0.009)	(0.005)
1500 km	(0.007)	(0.008)	(0.005)
N	657	657	657
State FE	No	Yes	Yes
Controls	No	No	Yes

***Significant at 1%, **Significant at 5%, *Significant at 10%. Significance is for a cutoff of 250 km. All specifications include a constant and the natural log of population density in 1990. Controls are latitude, longitude, altitude, ruggedness, precipitation, land quality, suitability for dryland rice, suitability for wetland rice, suitability for wheat, and malaria risk. Conley (1999) standard errors in parentheses using various distance cutoffs, following Colella et al. (2019).

Table A.5: Standard Errors Clustered by State

	(1) Percent female in 2011	(2) Percent female in 2011	(3) Percent female in 2011
Pre-colonial conflict exposure	-0.053***	-0.029**	-0.025***
	(0.013)	(0.013)	(0.008)
N	657	657	657
State FE	No	Yes	Yes
Controls	No	No	Yes
WCB p	0.0194	0.0564	0.00770

***Significant at 1%, **Significant at 5%, *Significant at 10%. Significance is for state-level clustering. All specifications include a constant and the natural log of population density in 1990. Controls are latitude, longitude, altitude, ruggedness, precipitation, land quality, suitability for dryland rice, suitability for wetland rice, suitability for wheat, and malaria risk. Standard errors in parentheses clustered by state. WCB p-value refers to a wild cluster bootstrap (Cameron, Gelbach and Miller, 2008) clustered by state with 9,999 repetitions.

Table A.6: Control for a Polynomial in Latitude and Longitude

	(1) Percent female in 2011	(2) Percent female in 2011	(3) Percent female in 2011
Pre-colonial conflict exposure	-0.024***	-0.019***	-0.023***
	(0.006)	(0.007)	(0.006)
N	657	657	657
State FE	No	Yes	Yes
Controls	No	No	Yes

Notes: ***Significant at 1%, **Significant at 5%, *Significant at 10%. All specifications include a constant and the natural log of population density in 1990. Controls are latitude, longitude, altitude, ruggedness, precipitation, land quality, suitability for dryland rice, suitability for wetland rice, suitability for wheat, and malaria risk. Robust standard errors in parentheses. All specifications further control for latitude, longitude, the interaction of latitude and longitude, latitude squared, and longitude squared.

Table A.7: Include All Conflict Types

	(1) Percent female in 2011	(2) Percent female in 2011	(3) Percent female in 2011
Pre-colonial conflict exposure	-0.024***	-0.019***	-0.023***
	(0.006)	(0.007)	(0.006)
N	657	657	657
State FE	No	Yes	Yes
Controls	No	No	Yes

Notes: ***Significant at 1%, **Significant at 5%, *Significant at 10%. All specifications include a constant and the natural log of population density in 1990. Controls are latitude, longitude, altitude, ruggedness, precipitation, land quality, suitability for dryland rice, suitability for wetland rice, suitability for wheat, and malaria risk. Robust standard errors in parentheses.

Table A.8: Include Only Conflicts Within India

	(1) Percent female in 2011	(2) Percent female in 2011	(3) Percent female in 2011
Conflict exposure (India only)	-0.053***	-0.029***	-0.024***
	(0.007)	(0.007)	(0.006)
N	657	657	657
State FE	No	Yes	Yes
Controls	No	No	Yes

Notes: ***Significant at 1%, **Significant at 5%, *Significant at 10%. All specifications include a constant and the natural log of population density in 1990. Controls are latitude, longitude, altitude, ruggedness, precipitation, land quality, suitability for dryland rice, suitability for wetland rice, suitability for wheat, and malaria risk. Robust standard errors in parentheses.

Table A.9: Include Conflicts from Clodfelter (2002) and Naravane (1997)

Panel A: with Clodfelter (2002)

	(1) Percent female in 2011	(2) Percent female in 2011	(3) Percent female in 2011
With Clodfelter	-0.052*** (0.007)	-0.029*** (0.007)	-0.025*** (0.006)
N	657	657	657
State FE	No	Yes	Yes
Controls	No	No	Yes

Panel B: with Clodfelter (2002) and Naravane (1997)

	(1) Percent female in 2011	(2) Percent female in 2011	(3) Percent female in 2011
With Clodfelter and Navarane	-0.051*** (0.006)	-0.025*** (0.007)	-0.021*** (0.006)
N	657	657	657
State FE	No	Yes	Yes
Controls	No	No	Yes

***Significant at 1%, **Significant at 5%, *Significant at 10%. All specifications include a constant. Controls are latitude, longitude, altitude, ruggedness, precipitation, land quality, suitability for dryland rice, suitability for wetland rice, suitability for wheat, and malaria risk. Robust standard errors in parentheses.

Table A.10: Exposure to Conflicts in Brecke

	(1) Percent female in 2011	(2) Percent female in 2011	(3) Percent female in 2011
Exposure to Brecke conflicts	-0.065***	-0.061***	-0.045***
	(0.017)	(0.014)	(0.012)
N	657	657	657
State FE	No	Yes	Yes
Controls	No	No	Yes

Notes: ***Significant at 1%, **Significant at 5%, *Significant at 10%. All specifications include a constant and the natural log of population density in 1990. Controls are latitude, longitude, altitude, ruggedness, precipitation, land quality, suitability for dryland rice, suitability for wetland rice, suitability for wheat, and malaria risk. Robust standard errors in parentheses.

Table A.11: Exposure to Battles in Wikidata

	(1) Percent female in 2011	(2) Percent female in 2011	(3) Percent female in 2011
Exposure to Wikidata battles	-0.245***	-0.115***	-0.106***
	(0.040)	(0.035)	(0.039)
N	657	657	657
State FE	No	Yes	Yes
Controls	No	No	Yes

Notes: ***Significant at 1%, **Significant at 5%, *Significant at 10%. All specifications include a constant and the natural log of population density in 1990. Controls are latitude, longitude, altitude, ruggedness, precipitation, land quality, suitability for dryland rice, suitability for wetland rice, suitability for wheat, and malaria risk. Robust standard errors in parentheses.

Table A.12: Control for Exposure to Multi-Day and Multi-Year Conflicts

	(1) Percent female in 2011	(2) Percent female in 2011	(3) Percent female in 2011
Pre-colonial conflict exposure	-0.070***	-0.026***	-0.021***
	(0.008)	(0.008)	(0.007)
Multi-day exposure	0.010	0.000	-0.004
	(0.015)	(0.011)	(0.008)
Multi-year exposure	0.390***	-0.082	-0.051
	(0.091)	(0.079)	(0.071)
N	657	657	657
State FE	No	Yes	Yes
Controls	No	No	Yes

Notes: ***Significant at 1%, **Significant at 5%, *Significant at 10%. All specifications include a constant and the natural log of population density in 1990. Controls are latitude, longitude, altitude, ruggedness, precipitation, land quality, suitability for dryland rice, suitability for wetland rice, suitability for wheat, and malaria risk. Robust standard errors in parentheses.

Table A.13: Exposure to Conflicts Up to 5,000 km Away

	(1) Percent female in 2011	(2) Percent female in 2011	(3) Percent female in 2011
Conflict exposure up to 5000 km	-0.055***	-0.032***	-0.024***
	(0.006)	(0.008)	(0.007)
N	657	657	657
State FE	No	Yes	Yes
Controls	No	No	Yes

Notes: ***Significant at 1%, **Significant at 5%, *Significant at 10%. All specifications include a constant and the natural log of population density in 1990. Controls are latitude, longitude, altitude, ruggedness, precipitation, land quality, suitability for dryland rice, suitability for wetland rice, suitability for wheat, and malaria risk. Robust standard errors in parentheses.

Table A.14: Exposure to Conflicts Up to British Annexation

	(1) Percent female in 2011	(2) Percent female in 2011	(3) Percent female in 2011
Land exposure: before annexation	-0.037***	-0.024***	-0.014***
	(0.004)	(0.005)	(0.004)
N	377	377	377
State FE	No	Yes	Yes
Controls	No	No	Yes

Notes: ***Significant at 1%, **Significant at 5%, *Significant at 10%. All specifications include a constant and the natural log of population density in 1990. Controls are latitude, longitude, altitude, ruggedness, precipitation, land quality, suitability for dryland rice, suitability for wetland rice, suitability for wheat, and malaria risk. Robust standard errors in parentheses.

Table A.15: Include Only Districts with Positive Conflict Exposure

	(1) Percent female in 2011	(2) Percent female in 2011	(3) Percent female in 2011
Pre-colonial conflict exposure	-0.053***	-0.029***	-0.025***
	(0.007)	(0.007)	(0.006)
N	657	657	657
State FE	No	Yes	Yes
Controls	No	No	Yes

Notes: ***Significant at 1%, **Significant at 5%, *Significant at 10%. All specifications include a constant and the natural log of population density in 1990. Controls are latitude, longitude, altitude, ruggedness, precipitation, land quality, suitability for dryland rice, suitability for wetland rice, suitability for wheat, and malaria risk. Robust standard errors in parentheses.

Table A.16: Alternative Conflict Exposure Measures: Standardized Coefficients

	(1) Percent female in 2011	(2) Percent female in 2011	(3) Percent female in 2011	(4) Percent female in 2011
Exposure: by capital	-0.031			
	(0.020)			
Exposure: capital as battle location		-0.156***		
		(0.038)		
Exposure: convex hull by actor			-0.086	
			(0.062)	
Exposure: convex hull by title				-0.171***
				(0.050)
N	657	657	657	657
State FE	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes

Notes: ***Significant at 1%, **Significant at 5%, *Significant at 10%. All specifications include a constant and the natural log of population density in 1990. Controls are latitude, longitude, altitude, ruggedness, precipitation, land quality, suitability for dryland rice, suitability for wetland rice, suitability for wheat, and malaria risk. Robust standard errors in parentheses. All outcome variables and exposure measures have been standardized to $N(0,1)$.

Table A.17: Sex Ratio as Outcome

	(1) Male to Female Sex Ratio	(2) Male to Female Sex Ratio	(3) Male to Female Sex Ratio
Pre-colonial conflict exposure	0.226***	0.124***	0.106***
	(0.029)	(0.031)	(0.027)
N	657	657	657
State FE	No	Yes	Yes
Controls	No	No	Yes

Notes: ***Significant at 1%, **Significant at 5%, *Significant at 10%. All specifications include a constant and the natural log of population density in 1990. Controls are latitude, longitude, altitude, ruggedness, precipitation, land quality, suitability for dryland rice, suitability for wetland rice, suitability for wheat, and malaria risk. Robust standard errors in parentheses.

Table A.18: Pre-Colonial Conflict Exposure and Crimes Against Women: By Type

	(1)	(2)	(3)
IHS rape			
Pre-colonial conflict exposure	0.343	0.577**	0.520*
	(0.262)	(0.273)	(0.277)
IHS kidnapping and abduction			
Pre-colonial conflict exposure	1.252***	0.643**	0.238
	(0.290)	(0.316)	(0.318)
IHS dowry deaths			
Pre-colonial conflict exposure	0.483**	1.035***	1.046***
	(0.235)	(0.230)	(0.223)
IHS assault with intent to outrage her modesty			
Pre-colonial conflict exposure	-0.027	0.195	-0.313
	(0.340)	(0.295)	(0.308)
IHS insult to modesty of women			
Pre-colonial conflict exposure	1.359***	0.559	0.363
	(0.338)	(0.393)	(0.402)
IHS cruelty by husband or his relatives			
Pre-colonial conflict exposure	0.859**	1.998***	1.465***
	(0.340)	(0.378)	(0.366)
IHS importation of girls			
Pre-colonial conflict exposure	-0.057***	-0.012	-0.027**
	(0.017)	(0.011)	(0.013)
Year FE	Yes	Yes	Yes
State FE	No	Yes	Yes
Controls	No	No	Yes

Notes: ***Significant at 1%, **Significant at 5%, *Significant at 10%. All specifications include a constant and the natural log of population density in 1990. Controls are latitude, longitude, altitude, ruggedness, precipitation, land quality, suitability for dryland rice, suitability for wetland rice, suitability for wheat, and malaria risk. All specifications also include year fixed effects. Standard errors clustered by district in parentheses.

Table A.19: Control for Early State Capacity

Panel A:

	(1) Percent female in 2011	(2) Percent female in 2011	(3) Percent female in 2011	(4) Percent female in 2011
Pre-colonial conflict exposure	-0.025***	-0.025***	-0.024***	-0.025***
	(0.006)	(0.006)	(0.006)	(0.006)
N	657	657	657	657
Additional Control	Neolithic Sites	Chalcolithic Sites	Sites 300 to 700AD	Sites 8th to 12th Centuries
State FE	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes

Panel B:

	(1) Percent female in 2011	(2) Percent female in 2011	(3) Percent female in 2011	(4) Percent female in 2011
Pre-colonial conflict exposure	-0.025***	-0.014**	-0.023***	-0.021***
	(0.006)	(0.007)	(0.006)	(0.006)
N	657	657	657	657
Additional Control	Urban Population in 1000AD	10th or 11th Century State	11th or 12th Century State	State in 1525
State FE	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes

***Significant at 1%, **Significant at 5%, *Significant at 10%. All specifications include a constant. Controls are latitude, longitude, altitude, ruggedness, precipitation, land quality, suitability for dryland rice, suitability for wetland rice, suitability for wheat, and malaria risk. Robust standard errors in parentheses.

Table A.20: Additional Geographic Controls

	(1) Percent female in 2011	(2) Percent female in 2011	(3) Percent female in 2011
Pre-colonial conflict exposure	-0.016***	-0.018***	-0.018***
	(0.006)	(0.006)	(0.006)
N	649	649	649
State FE	No	Yes	Yes
Controls	No	No	Yes

Notes: ***Significant at 1%, **Significant at 5%, *Significant at 10%. All specifications include a constant and the natural log of population density in 1990. Controls are latitude, longitude, altitude, ruggedness, precipitation, land quality, suitability for dryland rice, suitability for wetland rice, suitability for wheat, and malaria risk. Robust standard errors in parentheses. All columns additionally control for the log of (one plus) the distance to the nearest coast, river presence, irrigation potential, rainfall variation, the log of (one plus) the distance to the nearest resource deposits (diamonds, gems, gold, petroleum), and the percentage of forested area.

Table A.21: Control for Clay Share

	(1) Percent female in 2011	(2) Percent female in 2011	(3) Percent female in 2011
Pre-colonial conflict exposure	-0.053***	-0.028***	-0.024***
	(0.007)	(0.007)	(0.006)
N	657	657	657
State FE	No	Yes	Yes
Controls	No	No	Yes

Notes: ***Significant at 1%, **Significant at 5%, *Significant at 10%. All specifications include a constant and the natural log of population density in 1990. Controls are latitude, longitude, altitude, ruggedness, precipitation, land quality, suitability for dryland rice, suitability for wetland rice, suitability for wheat, and malaria risk. Robust standard errors in parentheses. All columns also control for the share of the district that is clay.

Table A.22: Control for Positive and Plough Negative Crop Suitability

	(1) Percent female in 2011	(2) Percent female in 2011	(3) Percent female in 2011
Pre-colonial conflict exposure	-0.030***	-0.027***	-0.024***
	(0.005)	(0.007)	(0.006)
Plough positive environment	-0.002	-0.002	-0.006*
	(0.002)	(0.003)	(0.003)
Plough negative environment	0.021***	0.025***	0.032***
	(0.002)	(0.003)	(0.007)
N	657	657	657
State FE	No	Yes	Yes
Controls	No	No	Yes

Notes: ***Significant at 1%, **Significant at 5%, *Significant at 10%. All specifications include a constant and the natural log of population density in 1990. Controls are latitude, longitude, altitude, ruggedness, precipitation, land quality, suitability for dryland rice, suitability for wetland rice, suitability for wheat, and malaria risk. Robust standard errors in parentheses. .

Table A.23: Control for British Colonialism

	(1) Percent female in 2011	(2) Percent female in 2011	(3) Percent female in 2011	(4) Percent female in 2011
Pre-colonial conflict exposure	-0.022***	-0.024***	-0.022***	-0.030***
	(0.006)	(0.006)	(0.006)	(0.009)
N	634	657	657	601
Specification	Control for Direct Rule	Control for Share non-Landlord	Control for Year of First Railroad	Drop historic Punjab
State FE	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes

Notes: ***Significant at 1%, **Significant at 5%, *Significant at 10%. All specifications include a constant and the natural log of population density in 1990. Controls are latitude, longitude, altitude, ruggedness, precipitation, land quality, suitability for dryland rice, suitability for wetland rice, suitability for wheat, and malaria risk. Robust standard errors in parentheses.

Table A.24: Control for Ethnic Relations

	(1) Percent female 2011: all religions all ages	(2) Percent female 2011: all religions all ages	(3) Percent female 2011: all religions all ages
Pre-colonial conflict exposure	-0.027***	-0.026***	-0.027***
	(0.006)	(0.006)	(0.006)
N	657	657	657
Specification	Control for medieval port	Control for years of Muslim rule	Control for share Muslim
Pre-colonial conflict exposure	-0.027***	-0.026***	-0.027***
	(0.006)	(0.006)	(0.006)
N	657	657	657
Specification	Control for religious polarization	Control for ethnic fractionalization	Control for religious fractionalization
Pre-colonial conflict exposure	-0.027***	-0.028***	-0.025***
	(0.006)	(0.006)	(0.006)
N	657	657	657
Specification	Control for share scheduled caste	Control for share scheduled tribe	Control for Ganges
State FE	Yes	Yes	Yes
Controls	Yes	Yes	Yes

Notes: ***Significant at 1%, **Significant at 5%, *Significant at 10%. All specifications include a constant and the natural log of population density in 1990. Controls are latitude, longitude, altitude, ruggedness, precipitation, land quality, suitability for dryland rice, suitability for wetland rice, suitability for wheat, and malaria risk. Robust standard errors in parentheses.

Table A.25: Percent Female Among Hindus

	(1) Percent female 2011: Hindu 0-9	(2) Percent female 2011: Hindu 0-9	(3) Percent female 2011: Hindu 0-9	(4) Percent female 2011: Hindu religions all ages	(5) Percent female 2011: Hindu religions all ages	(6) Percent female 2011: Hindu religions all ages
Pre-colonial conflict exposure	-0.077***	-0.038***	-0.027***	-0.067***	-0.032***	-0.023**
	(0.006)	(0.007)	(0.006)	(0.011)	(0.011)	(0.011)
N	615	615	615	615	615	615
State FE	No	Yes	Yes	No	Yes	Yes
Controls	No	No	Yes	No	No	Yes

Notes: ***Significant at 1%, **Significant at 5%, *Significant at 10%. All specifications include a constant and the natural log of population density in 1990. Controls are latitude, longitude, altitude, ruggedness, precipitation, land quality, suitability for dryland rice, suitability for wetland rice, suitability for wheat, and malaria risk. Robust standard errors in parentheses.

Table A.26: Control for Major Urban Centers

Panel A: Control for Distance to Bangalore, Bombay, Chennai, Delhi, and Kolkata

	(1) Percent female in 2011	(2) Percent female in 2011	(3) Percent female in 2011
Pre-colonial conflict exposure	-0.025***	-0.013*	-0.020***
	(0.006)	(0.007)	(0.006)
N	657	657	657
State FE	No	Yes	Yes
Controls	No	No	Yes

Panel B: Control for Distance to nearest British Presidency city

	(1) Percent female in 2011	(2) Percent female in 2011	(3) Percent female in 2011
Pre-colonial conflict exposure	-0.029***	-0.027***	-0.025***
	(0.006)	(0.007)	(0.006)
N	657	657	657
State FE	No	Yes	Yes
Controls	No	No	Yes

***Significant at 1%, **Significant at 5%, *Significant at 10%. All specifications include a constant. Controls are latitude, longitude, altitude, ruggedness, precipitation, land quality, suitability for dryland rice, suitability for wetland rice, suitability for wheat, and malaria risk. Robust standard errors in parentheses.

Table A.27: Control for Asian Highway 1

	(1) Percent female in 2011	(2) Percent female in 2011	(3) Percent female in 2011
Pre-colonial conflict exposure	-0.047***	-0.028***	-0.022***
	(0.007)	(0.007)	(0.006)
N	657	657	657
State FE	No	Yes	Yes
Controls	No	No	Yes

Notes: ***Significant at 1%, **Significant at 5%, *Significant at 10%. All specifications include a constant and the natural log of population density in 1990. Controls are latitude, longitude, altitude, ruggedness, precipitation, land quality, suitability for dryland rice, suitability for wetland rice, suitability for wheat, and malaria risk. Robust standard errors in parentheses.

Table A.28: Balance: Khyber Proximity and Historical Trade

	(1) Seventeenth century trade route	(2) UNESCO silk road site	(3) Medieval port
Khyber proximity	0.047	-0.019	-0.006
	(0.104)	(0.021)	(0.019)
N	657	657	657
State FE	Yes	Yes	Yes
Controls	Yes	Yes	Yes

Notes: ***Significant at 1%, **Significant at 5%, *Significant at 10%. All specifications include a constant and the natural log of population density in 1990. Controls are latitude, longitude, altitude, ruggedness, precipitation, land quality, suitability for dryland rice, suitability for wetland rice, suitability for wheat, and malaria risk. Robust standard errors in parentheses.

Table A.29: Instrumental Variables: Control for Historical Trade

	(1) Percent female in 2011	(2) Percent female in 2011	(3) Percent female in 2011
Pre-colonial conflict exposure	-0.038*	-0.040*	-0.039*
	(0.021)	(0.020)	(0.020)
Seventeenth century trade route	-0.001		
	(0.001)		
UNESCO silk road site		-0.005	
		(0.003)	
Medieval port			-0.002
			(0.002)
N	657	657	657
State FE	Yes	Yes	Yes
Controls	Yes	Yes	Yes
KPF	10.54	10.74	10.83

Notes: ***Significant at 1%, **Significant at 5%, *Significant at 10%. All specifications include a constant and the natural log of population density in 1990. Controls are latitude, longitude, altitude, ruggedness, precipitation, land quality, suitability for dryland rice, suitability for wetland rice, suitability for wheat, and malaria risk. Robust standard errors in parentheses. The excluded instrument is a dummy for Khyber proximity. KPF denotes the Kleibergen-Paap F-statistic.

Table A.30: Instrumental Variables: Control for Historical Trade (Cost Distance)

	(1) Percent female in 2011	(2) Percent female in 2011	(3) Percent female in 2011
Pre-colonial conflict exposure	-0.037*	-0.038*	-0.037*
	(0.020)	(0.020)	(0.020)
Cost distance: trade route	0.002		
	(0.003)		
Cost distance: silk road		0.002	
		(0.002)	
Cost distance: port			0.002
			(0.003)
N	657	657	657
State FE	Yes	Yes	Yes
Controls	Yes	Yes	Yes
KPF	10.49	10.56	10.49

Notes: ***Significant at 1%, **Significant at 5%, *Significant at 10%. All specifications include a constant and the natural log of population density in 1990. Controls are latitude, longitude, altitude, ruggedness, precipitation, land quality, suitability for dryland rice, suitability for wetland rice, suitability for wheat, and malaria risk. Robust standard errors in parentheses. The excluded instrument is a dummy for Khyber proximity. KPF denotes the Kleibergen-Paap F-statistic. Cost distances normalized to be N(0,1).

Table A.31: Instrumental Variables: Placebo Locations

	(1)	(2)	(3)	(4)	(5)
Panel A: Second Stage	Percent female in 2011	Percent female in 2011	Percent female in 2011	Percent female in 2011	Percent female in 2011
Conflict exposure	-0.001	-0.980	0.311	2.878	0.027
	(0.058)	(5.108)	(0.271)	(42.549)	(0.048)
KPF	2.348	0.0321	1.510	0.00438	3.496
Panel B: First Stage	Conflict exposure	Conflict exposure	Conflict exposure	Conflict exposure	Conflict exposure
Placebo Instrument	-0.038	-0.002	0.012	0.001	-0.045*
	(0.024)	(0.012)	(0.010)	(0.012)	(0.023)
Panel C: Reduced Form	Percent female in 2011	Percent female in 2011	Percent female in 2011	Percent female in 2011	Percent female in 2011
Placebo Instrument	0.000	0.002	0.004***	0.002	-0.001
	(0.002)	(0.002)	(0.001)	(0.002)	(0.002)
Observations	657	657	657	657	657
Placebo	Surat	Kodung	Goa	Calicut	Bombay
State FE	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes

Notes: ***Significant at 1%, **Significant at 5%, *Significant at 10%. All specifications include a constant and the natural log of population density in 1990. Controls are latitude, longitude, altitude, ruggedness, precipitation, land quality, suitability for dryland rice, suitability for wetland rice, suitability for wheat, and malaria risk. Robust standard errors in parentheses. The excluded instrument is a dummy for Khyber proximity. KPF denotes the Kleibergen-Paap F-statistic.

Table A.32: Instrumental Variables: Control for Year of First Railway

	(1) Percent female in 2011	(2) Percent female in 2011	(3) Percent female in 2011
Pre-colonial conflict exposure	-0.092***	-0.086***	-0.042**
	(0.009)	(0.023)	(0.019)
N	657	657	657
State FE	No	Yes	Yes
Controls	No	No	Yes
KPF	126.8	13.73	10.52

Notes: ***Significant at 1%, **Significant at 5%, *Significant at 10%. All specifications include a constant and the natural log of population density in 1990. Controls are latitude, longitude, altitude, ruggedness, precipitation, land quality, suitability for dryland rice, suitability for wetland rice, suitability for wheat, and malaria risk. Robust standard errors in parentheses. The excluded instrument is a dummy for Khyber proximity. KPF denotes the Kleibergen-Paap F-statistic.

Table A.33: Exposure to Central Asian Conflicts as Instrument

	(1)	(2)	(3)
Panel A: Second Stage			
	Percent female in 2011	Percent female in 2011	Percent female in 2011
Pre-colonial conflict exposure	-0.074***	-0.045***	-0.044***
	(0.008)	(0.009)	(0.009)
KPF	207.3	107.2	94.50
Panel B: First Stage			
	Pre-colonial conflict exposure	Pre-colonial conflict exposure	Pre-colonial conflict exposure
Exposure to central Asian conflicts	2.478***	1.980***	1.959***
	(0.172)	(0.186)	(0.194)
Panel C: Reduced Form			
	Percent female in 2011	Percent female in 2011	Percent female in 2011
Exposure to central Asian conflicts	-0.183***	-0.090***	-0.086***
	(0.028)	(0.023)	(0.021)
N	657	657	657
State FE	No	Yes	Yes
Controls	No	No	Yes

Notes: ***Significant at 1%, **Significant at 5%, *Significant at 10%. All specifications include a constant and the natural log of population density in 1990. Controls are latitude, longitude, altitude, ruggedness, precipitation, land quality, suitability for dryland rice, suitability for wetland rice, suitability for wheat, and malaria risk. Robust standard errors in parentheses. KPF denotes the Kleibergen-Paap F-statistic.

Table A.34: Female Temples Controlling for Older Female Temples

	(1) Female temple	(2) Female temple	(3) Female temple
Conflict exposure to 1526	-0.107*	-0.225**	-0.323**
	(0.064)	(0.104)	(0.145)
N	657	657	657
State FE	No	Yes	Yes
Controls	No	No	Yes

***Significant at 1%, **Significant at 5%, *Significant at 10%. All specifications include a constant. Controls are latitude, longitude, altitude, ruggedness, precipitation, land quality, suitability for dryland rice, suitability for wetland rice, suitability for wheat, and malaria risk. All specifications also control for log population density in 1500. In addition, all specifications control for female temples between the 8th and 12th centuries. Robust standard errors in parentheses.

Table A.35: Control for Colonial- and Post-Independence Conflicts

	(1) Percent female in 2011	(2) Percent female in 2011	(3) Percent female in 2011
Pre-colonial conflict exposure	-0.027***	-0.023***	-0.024***
	(0.007)	(0.008)	(0.007)
Colonial conflict exposure (1758-1839)	-0.037**	-0.026**	-0.016
	(0.015)	(0.011)	(0.010)
Colonial conflict exposure (1840-1946)	-0.055***	-0.030***	-0.025***
	(0.006)	(0.008)	(0.008)
Post-colonial conflict exposure (1947-2010)	-0.181***	-0.095	-0.133
	(0.033)	(0.155)	(0.100)
N	657	657	657
State FE	No	Yes	Yes
Controls	No	No	Yes

Notes: ***Significant at 1%, **Significant at 5%, *Significant at 10%. All specifications include a constant and the natural log of population density in 1990. Controls are latitude, longitude, altitude, ruggedness, precipitation, land quality, suitability for dryland rice, suitability for wetland rice, suitability for wheat, and malaria risk. Robust standard errors in parentheses.

Table A.36: Control for Language and Religion

	(1) Percent female in 2011	(2) Percent female in 2011	(3) Percent female in 2011
Pre-colonial conflict exposure	-0.039*** (0.006)	-0.029*** (0.006)	-0.024*** (0.006)
N	657	657	657
State FE	No	Yes	Yes
Controls	No	No	Yes

Notes: ***Significant at 1%, **Significant at 5%, *Significant at 10%. All specifications include a constant and the natural log of population density in 1990. Controls are latitude, longitude, altitude, ruggedness, precipitation, land quality, suitability for dryland rice, suitability for wetland rice, suitability for wheat, and malaria risk. Robust standard errors in parentheses. All specifications also control for population shares by language and religion.