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 patrilocal exogamy, and have been transmitted across space by migrants originally from areas with high conflict exposure. Our results shed new light on the deep roots of gender norms in the developing world, and provide a novel answer to India's "missing women" problem.

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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 (Gottlieb et al., 2024; 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 21 million unwanted girls and 63 million missing women 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 exceptionally high in India 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.

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, 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 helped produce cultural norms favoring males and male offspring at the expense of females.

To evaluate the importance of exposure to pre-colonial conflict, we rely primarily on geocoded conflict data extending back to the year 1000 from Dincecco et al. (2022), who themselves draw on data in Jaques (2007) as well as 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 these male-favoring gender

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

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 determinants 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 do not confound our results. Similarly, our results are robust to controlling for geographic characteristics such as climate, terrain ruggedness, soil suitability for rice and wheat cultivation, plough-positive agriculture environments, clay and loam soil textures, disease environments, access to waterways, and resource deposits. Our results continue to hold, moreover, after controlling for initial levels of state capacity, initial gender norms, suitability for nomadic pastoralism, British direct rule, non-landlord colonial revenue systems, colonial investments in railways and canals, the Partition of 1947, inter-ethnic and religious relations, exposure to conflict after 1757, and distances to major urban centers as well as to Asian Highway 1. Additionally, they hold when limiting our sample to the Hindu population. Furthermore, we show that our results remain robust to dropping major pre-colonial combatants such as the Mongols or Mughals, extending the conflict data back to antiquity, using alternative measures of exposure to pre-colonial conflict that incorporate battles fought far away from the home locations of the participating troops, and restricting the conflict data to battles involving the Marathas or to civil conflicts. The results are also robust to using alternative sources of conflict data constructed from Brecke (1999) or WikiData. No single present-day state drives our results.

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 overland path into India for combatants from outside South 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 construction. The use of placebo instruments, different control-treatment comparison groups, and an alternative instrument that directly measures exposure to overland combatants from outside South 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 has a significant positive correlation with male-biased folkloric traditions in India. Similarly, employing historical data on the gender identity of Hindu temple gods, we document a significant 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, indicating that patrilocal exogamy is more prevalent. 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. Taking an "epidemiological" approach (Fernández, 2011), moreover, 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. Finally, we show that the relationship between pre-colonial conflict exposure and childhood sex ratios is the strongest for higher birth orders not preceded by a son – exactly the points where the literature (Bhalotra and Cochrane, 2010; Jayachandran, 2017) suggests that sex-selective abortion should be the most prevalent.

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). We document 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 between historical conflict exposure and 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. This is consistent with the concept of static mismatch in Nunn (2022).

As part of our analysis, 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 to the role of 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. A prominent explanation links current gender norms to the historical physical demands of plough use in agriculture (Alesina, Giuliano and Nunn, 2013; Boserup, 1970). While our paper also highlights the role of men's physical advantage in the transmission and endurance of male-favoring gender norms, we focus on the importance of this attribute for pre-modern warfare.

In this manner, we contribute to the expanding literature evaluating the impacts of historical events on women's roles in society. This includes the timing of the Neolithic Revolution in agriculture (Ashraf and Galor, 2011; Diamond, 2005; Hansen, Jensen and Skovsgaard, 2012), the Cotton Revolution in China (Xue, 2023), the convict colonization of Australia (Baranov, De Haas and Grosjean, 2023; Grosjean and Khattar, 2019), female employment in frontier parts of the United States (Bazzi et al., 2023), and mass ethnic deportations under Stalin (Miho, Jarotschkin and Zhuravskaya, 2023). Our paper, by contrast, emphasizes the importance of interstate military rivalry and warfare to the transmission and endurance of gender norms.

A nascent literature analyzes the long-run relationships between historical conflict and male-favoring gender outcomes today. One strand of this literature links historical violence with male-favoring social outcomes, including working papers by Sng, Xue and Zhong (2018) on communal violence in China during the Qing era (1644-1911), and Ramos-Toro (2019) on cross-national civil conflict since 1816 and within-Mexico conflict since 1500. Taking a different perspective, another strand relates high male mortality rates during historical conflicts to long-run improvements in female economic, political, and social outcomes. Cases under study include the War of the Triple Alliance (1864-70) by Alix-Garcia et al. (2022), World War I by Gay (2023), and the Khmer Rouge genocide (1975-9) by Gaikwad, Lin and Zucker (2023).[2]

We advance this nascent 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 baseline data extend much further back in time, to the dawn of the second millennium (and, for robustness, back to antiquity). Third, our empirical analysis spans the pre-colonial, colonial, and post-independence eras. Fourth, we show new evidence that a shortage of men due to deaths in battle need not counteract male-favoring gender outcomes. Here, we view patrilocal exogamy as a response to male scarcity.[3]

[2]A related body of work examines the links between violent conflict and female economic, political, and social outcomes over the short or medium terms. See Acemoglu, Autor and Lyle (2004) and Goldin and Olivetti (2013) for World War II, Guarnieri and Tur-Prats (2023) for civil conflicts globally since 1989, Tripp (2015) for 1990s Africa, Berry (2018) for 1990s Bosnia and Rwanda, and Mavisakalyan and Minasyan (2023) for the ongoing Armenia-Azerbaijan War.

[3]This result echoes Eliseeva (2024), who documents the impact of male Soviet deaths in World War II on

A related literature in international relations documents a robust relationship between sex or gender inequality and interstate war and civil conflict (Cohen and Karim, 2022). To explain this phenomenon, this literature highlights the strategic leveraging of sex or gender (Barnhart et al., 2020; Ellerby, 2017) as well as structural factors (Hudson, Bowen and Nielsen, 2020; Sjoberg, 2013; Webster, Chen and Beardsley, 2019). Our paper, by contrast, evaluates the implications of historical conflict exposure on male-favoring gender inequality. We account for the potential for reverse causation in several ways, including an instrumental variables approach that exploits proximity to the Khyber Pass.

Finally, our study contributes to our understanding of the spatial variation in missing women across India. Common explanations concern differences in agricultural practices (Bardhan, 1974; Carranza, 2014; Kishor, 1993; Rosenzweig and Schultz, 1982), patrilineal and patrilocal kinship systems (Clark, 2000; Dyson and Moore, 1983; Miller, 1981), religion (Jayachandran, 2015; Visaria, 2015), caste (Borker et al., 2022; Chakraborty and Kim, 2010; Gupta, 2014), and inheritance rights (Bhalotra, Brulé and Roy, 2020). Relative to this literature, we focus on the deep determinants of male-biased sex ratios in India, 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 in India and common explanations for this phenomenon. Section 3 explains the pre-colonial military context in India. Section 4 develops our conceptual framework. Section 5 characterizes our empirical methodology and data. Section 6 reviews the main results, while Section 7 recounts several robustness checks. Section 8 describes the instrumental variables analysis. Sections 9 and 10 analyze potential mechanisms. We conclude by evaluating the generality of the relationship between conflict and gender norms, with reference to the historical experience of Western Europe.

2 Missing Women

2.1 Overview

India's population is disproportionately male. In 2011, the total population in India was just 48.5 percent female, compared with 49.7 percent globally and 50.9 percent in the OECD.[4] This male bias is present at birth. 1,095 boys were born for every 1000 girls in

conservative gender norms.

[4]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).

India in 2011, compared with 1,072 globally and 1,050 in the OECD.[5] Male bias continues throughout the life cycle in India, with girls, adolescent females, and adult women experiencing disproportionately higher mortality due to causes such as cardiovascular disease and injury (Anderson and Ray, 2010).

Sen (1990) famously compared sex ratios in Europe and North America to those in countries like India, arguing that 100 million women were "missing" globally. His concern, however, was not new. Census administrators remarked on the male bias in India's population as early as 1881 (Fenske, Gupta and Neumann, 2022). Nevertheless, the availability of sex-selective abortion in areas with a preference for sons 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. 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 of female children aged 4 and under is a measure of both sex-selective abortion and underinvestment in girls. This percentage 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, and thus the percentage was higher, at 49.1 percent and 48.6 percent, respectively.

Across religions, the share of female children aged 4 and under in 2011 was lower for Sikhs (45.5) and Hindus (47.9) than for Muslims (48.6) or for Christians (49.0), reflecting a greater female deficit among Sikhs and Hindus. The female deficit, moreover, is higher for upper-caste populations. 46.8 percent of births reported to "general" (i.e. upper) caste mothers were female, while this percentage was 47.6 percent for the lower castes, according to the 2015-16 Indian Demographic and Health Survey (DHS).[6] Most of these patterns by region, religion, and caste were already present in the earliest colonial censuses (Fenske, Gupta and Neumann, 2022). These differences in the percentage of the population that is female across India produce the variation in our main outcome variable that our empirical analysis will exploit.

2.2 Common Explanations

What accounts for the overall pattern of male bias in India, as well as the observed variation by region, religion, and caste? The proximate answers are sex-selective abortion and reduced investments in the health and nutrition of women and girls – practices

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

[6]https://dhsprogram.com/

stemming from a preference for sons (Jayachandran, 2015), and reflecting gender inequality and neglect (Sen, 1990, 2003). For this reason, our empirical analysis will use the percentage of the population that is female as our main measure of male-favoring gender norms. We now discuss several common explanations for the variation in son preference across India, foreshadowing how we will empirically evaluate them.

2.2.1 Agricultural Practices

One explanation for the variation in son preference across regions concerns differences in the roles of women in agriculture. Rice cultivation is relatively intensive in tasks typically performed by women, such as hoeing, weeding, and planting. Women may thus have more economic value in rice-growing than wheat-growing regions, where they participate less in cultivation (Bardhan, 1974; Kishor, 1993; Rosenzweig and Schultz, 1982). Suitability for wheat cultivation, however, does not robustly predict the female population share within India historically (Fenske, Gupta and Neumann, 2022). Our empirical analysis will control for a district's suitability for rice and wheat cultivation.

A related view highlights the role of the plow, which requires significant physical strength to operate. If men specialized in agriculture in areas that were suitable for the plough, while women specialized in domestic work, then this may have produced male-favoring gender norms (Alesina, Giuliano and Nunn, 2013; Boserup, 1970). In India, however, the use of the plough was widespread. Both rice and wheat are plough-positive crops. By including fixed effects for present-day states and union territories, our empirical analysis will show that exposure to pre-colonial conflict predicts differences in sex ratios today even within plough-suitable areas. In addition, we will control for plough-positive and plough-negative agricultural environments.

A third explanation ascribes differences in demand for gender-related agricultural labor to differences in clay versus loam soil textures (Carranza, 2014). Deep tillage is not possible in clay soil environments. This soil texture is relatively intensive in tasks typically performed by women including transplanting, fertilizing, and weeding. In loam soil environments, deep tillage requires less female labor, which may reduce the economic value of women. Our empirical analysis will control for a district's clay and loam shares.

2.2.2 Religion

Religious explanations for the variation in son preference 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 only as the outcome variable.

2.2.3 Caste

Hypergamy is an explanation for male-biased sex ratios for upper-caste populations (Borker et al., 2022). While lower-caste women were allowed to "marry up," upper-caste women were prevented from "marrying down." For the upper castes, the traditional importance of marriage promoted a preference for sons (Chakraborty and Kim, 2010). Reflecting the scarcity of women, the share of never-married men was higher for the upper castes (Gupta, 2014). Our empirical analysis will show, however, that upper-caste populations do not drive our results.

3 Pre-Colonial Military Context

3.1 Geopolitical Rivalry

At the beginning of the second millennium, several independent states made up the political geography of the Indian subcontinent (Nag, 2007).[7] 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 mobilize a large army (Roy, 1994*b*). For example, the Delhi Sultanate may have had upwards of 475,000 cavalrymen (Roy, 1994*b*, 57).

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). Nath (2018, 245) writes that "war was a constant preoccupation of the Mughal Empire." During Akbar's decades-long reign (1556-1605), 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 including the British East India Company, started to compete for political control (Roy, 2011, 1994*b*). 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 ri-

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

vals 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.

3.2 Military Labor Market

The peasantry in pre-colonial India balanced agricultural and non-agricultural work including military service (Gordon, 1998; Kolff, 2013; Richards, 2004). Given the uncertainty of pre-modern agricultural production, risk diversification was a primary motivator (Kolff, 2013). An ability to wield arms, moreover, helped protect peasants from hostile neighbors, bandits, roving soldiers, and armed merchants (Kolff, 2013; Oldenburg, 1992; Richards, 2004). Peasant men were often skilled in the use of heavy weaponry such as recurve bows, swords, muskets, and artillery (Gordon, 1998; Kolff, 1990; Richards, 2004).

Given the dearth of large standing militaries, both Hindu and Muslim rulers relied on the peasantry to mobilize armed forces in pre-colonial India (Gordon, 1998; Kolff, 1990, 2013). This mobilization practice was widespread, and was not limited to the Kshatriyas or specific warrior castes (Gommans, 2002; Richards, 2004). Kolff (2013, 257) characterizes this military labor market as "the inexhaustible manpower of Hindustan."

Soldiering provided an opportunity for upward social mobility due to the potential for land grants following victory in battle (Kolff, 2013; Roy, 2013). The social status of the Baluchi in the northwest, for example, improved over time from "travel guards, then town-based fighters, regional and imperial professional soldiers, landowners cum policemen, and finally village managers in British-ruled India" (Kolff, 2013, 250).

Since military service was undertaken primarily to supplement agriculture, peasant soldiers were reluctant to serve far from home, and were thus not very mobile (Kolff, 2013, 250-3; Richards, 2004, 396). The prevalence of peasant soldiers, combined with limited geographic mobility, suggests that pre-colonial battles were more likely to be waged by locals.

The nature of soldiering in India began to change with the military and political emergence of the British East India Company in the mid-eighteenth century (Kolff, 2013; Richards, 2004). The British East India Company attempted to demilitarize the countryside and broaden geographically-segmented military labor markets.

3.3 Women in War

Women were frequently part of the "spoils" of war in pre-colonial India. They were among the slaves captured in combat or raids (Barua, 2005; Gommans, 2002; Singh, 2019). Village girls were taken as concubines by soldiers and members of the lower aristocracy (Bano, 2004). Chandra (2007, 132) argues that fear of capture during conquest was a motivation for *purdah*, the segregation and veiling of women. In addition, women were strategically deployed via marriage to secure alliances between rulers (Irfan, 2017; Kolff, 1990; Singh, 2019; Sreenivasan, 2002).

Women in pre-colonial India were victims of wartime violence including sexual violence. At the extreme, this involved the practices of *sati* and *jauhar*. *Sati* was the immolation of a widow after the death of her husband in battle, while *jauhar* was the immolation, typically of many women at once, in the face of defeat. The upper castes were the main adherents of such practices. This was particularly true for the Rajputs, the warrior caste in northern India. A recurrent theme in the Rajput myth of a warrior who dies in battle is that his wife becomes a *sati* (Harlan, 2003). Texts describing Rajput warfare note several cases of *jauhar* (Irfan, 2017; Kolff, 1990; Sreenivasan, 2002).

4 Conceptual Framework

4.1 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 3, pre-colonial warfare in India involved the peasantry fighting with 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 favoring males and male offspring.

Male-favoring gender norms may have thus 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 need to re-learn what prior generations already knew (Nunn, 2022). If society had 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 purported wartime benefits of male-favoring gender norms.

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 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, however (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*, and established a legal marriage age for women, but the monitoring of the latter was weak. Overall, then, traditional gender norms favoring 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 local autonomy in certain policy areas, the impacts of legal reforms concerning female education and inheritance rights have varied 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 5 to 9. Our baseline analysis starts in the year 1000. We do this partly for symmetry with Dincecco et al. (2022), and partly due to concerns about the coverage and quality of the conflict data as we go back into antiquity. We will discuss the conflict data in detail in Section 5. This sample choice is not meant to imply, however, that male-favoring gender norms had not yet developed in India prior to the second millennium. The ancient Hindu epics the Ramayana and the Mahabharata, as well as other ancient texts such as the Manusmriti, were patriarchal in nature (Bhattacharji, 1990, 2002; Goldman, 2018; Roy, 1994*a*). For robustness, we will re-run our main analysis with the available conflict data starting in antiquity. Similarly, we will control for proxies for "initial" gender norms at the start of our baseline period.

4.2 Alternative Mechanisms

4.2.1 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.

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). 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.

In an agricultural society, women may participate in farming (e.g. Sinha, 1965). As the economy industrializes, income levels rise. According to a common view, women may in turn drop out of the labor force at a higher rate than men, due to a stigma for working women or an emphasis on rearing 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).

This view suggests that the impact of economic development on male-favoring gender norms depends on where a country is in the development process. We may expect to continue to observe a positive relationship between high exposure to historical conflict and male-favoring gender norms during industrialization, since 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.

Dincecco et al. (2022) document a positive relationship between exposure to historical conflict and local economic development today in India. They argue that conflict-exposed areas experienced greater pre-colonial and colonial-era state-making, followed by long-run reductions in political violence and higher long-run investments in physical and human capital. Female labor force participation, however, remains low in India. Fletcher, Pande and Moore (2019) argue that several factors, including the persistence of male-favoring gender norms, help explain this phenomenon. Taken together, this evidence suggests static mismatch (Nunn, 2022) – the process of economic development in India, while ongoing, is not yet "far enough along" to eliminate male-favoring gender norms associated with greater historical conflict exposure.

We will empirically evaluate the relationship between exposure to pre-colonial conflict and female living standards today as well as labor force participation in Section 10. In addition, we will analyze the impact of economic development and early state capacity on the persistence of male-favoring gender norms.

4.2.2 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, 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. In turn, this may have produced more equal (or even female-favoring) gender norms. The biological role of women in producing future male soldiers may have operated in the same direction.

We will assess potential responses to male scarcity including matrilineal descent, male dominance in agriculture, and polygyny in Section 10.

4.2.3 Cultural Diffusion

The diffusion of male-favoring gender norms from one combatant group to another is an alternative potential mechanism. The ancient Hindu epics the Ramayana and the Mahabharata indicate that male-favoring gender norms were long-standing within India. Nevertheless, our empirical analysis in Section 10 will investigate the explanatory power of this type of mechanism.

4.2.4 Colonial- and Post-Independence Conflict

Conflict exposure during the colonial era or post-independence era, in addition to 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 10.

5 Empirical Methodology and Data

5.1 Empirical Strategy

Our baseline sample consists of districts in present-day India.[8] The district is the smallest unit for which most data on gender outcomes, potential mechanisms, and control

[8]The design of the empirical methodology and analysis in Sections 5 to 8 builds off Dincecco et al. (2022).

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:

$$Y_d = \beta ConflictExposure_d + \lambda PopDensity_d + \mu_s + X_d' \phi + \epsilon_d. \tag{1}$$

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 these variables in Section 5.2.

$PopDensity_d$ 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 analysis, the choice of which is for symmetry with Dincecco et al. (2022).[9] It is subject to data availability when the outcome variable is historical. 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 1000, the year in which our analysis starts (Table A.2).

μ_s 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 general 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. We thus show that the main results remain robust if we drop the state fixed effects (Table 2), or if we use exogenous $3^{\circ} \times 3^{\circ}$ grid-cell fixed effects instead (Table A.3).[10]

We include several geographic controls in X_d. Mild climates and good soils may in-

[9] 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).

[10] 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.

duce 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.[11]

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

5.2 Data

5.2.1 Conflict

We take our main historical conflict data from Dincecco et al. (2022), who themselves draw 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 need to show consensus on the main details such as the date, approximate location, major participants, and outcome.

[11]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).

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.[12] 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 at Waihand near Peshawar. To proxy for this conflict location, therefore, the coordinates of Peshawar are designated (34° 1' 0" N, 71° 35' 0" 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, we include additional conflict types such as sieges (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 entire Indian subcontinent. Still, the quality of his conflict coverage may vary over space and time. We address this possibility both methodologically in our regression framework and by drawing on alternative conflict data.

Methodologically, our use of fixed effects by states (e.g. in 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 serve a similar purpose (Table A.3). Alternatively, we drop individual states one by one (Figure A.3). In addition, we control for initial state capacity (Table A.24), 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 requires 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

[12] By "Indian subcontinent, " we refer to the present-day country of India plus Bangladesh, Bhutan, Burma, Nepal, Pakistan, and Sri Lanka. 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).

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.[13] We construct conflict data using WikiData in the spirit of Kitamura (2021).[14]

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, our use of land battles in the baseline – the most common conflict type in our sample – 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).

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.[15] 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 recompute our conflict measure including all available battle data in Jaques (2007) start-

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

[14] 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 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.

[15] 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.

ing in antiquity (Table A.13).[16] Given concerns about the coverage and quality of the conflict data as we go back into antiquity, we use this alternative starting point for robustness only.

We end our data coverage in 1757 in the baseline for two reasons. First, 1757 marks the year of a key victory by the British East India Company at Plassey, and so can be taken as a plausible starting date for the beginning of British rule in India (see Section 3). Second, the nature of soldiering began to change due to the military and political emergence of the British East India Company. For robustness, we use 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 (Table A.14). In addition, we evaluate the roles of conflict exposure during the colonial and post-independence eras. For further robustness, we use an alternative radius of 5,000 km (Table A.15), and drop 155 districts for which our baseline conflict exposure measure takes a value of zero (Table A.16). The main results continue to hold across each of these robustness checks.

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. Given the prevalence of peasant soldiers with limited geographic mobility (see Section 3), moreover, this approach is consistent with the geopolitical context in pre-colonial India in which battles were more likely to be fought by locals. Nevertheless, it 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 area. 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

[16] The earliest recorded battle on the Indian subcontinent was the Siege of Aornos involving Alexander the Great in 327 BCE.

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.17).

5.2.2 Gender

A sex ratio in which males outnumber females is a key proxy for gender inequality and neglect (Sen, 1990, 2003), and stems from a preference for sons (Jayachandran, 2015). 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 higher ratio of men to women in a given district (Table A.18).

To supplement our main gender-related outcome, we use two additional measures that proxy for gender inequality. The first is an indicator for whether a birth recorded in a woman's self-reported birth history is female. 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 use 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 other measure captures the prevalence of crimes against women. The National Crimes Bureau provides data on the number of reported incidents of crimes against women between 2001 and 2012.[18] Seven specific crimes are reported: rape, kidnapping

[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-

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

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.

5.2.3 Other Data

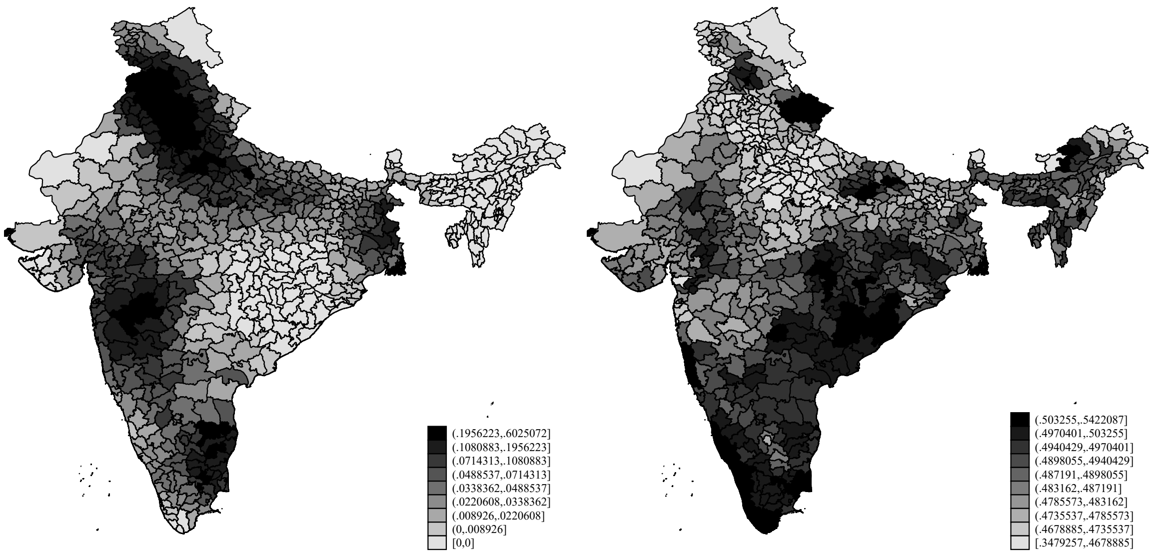
In addition to our main measures of conflict and gender, we make use of several other sources of data. We have already described the geographic variables that we include as our baseline controls in Section 5.1. We explain other data sources below as we first make use of them.

5.3 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.

2012

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



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

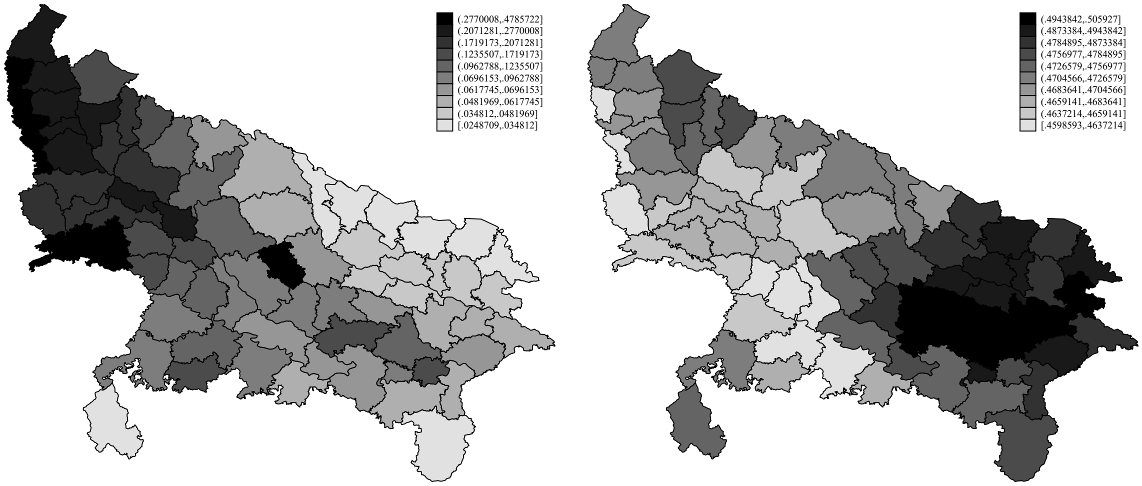
Notes. Panel (a) shows pre-colonial conflict exposure to land battles between 1000-1757 by district in India, while Panel (b) shows the percentage of the population that is female in 2011. Districts are shaded by decile, where districts in the top decile receive the darkest shade.

In Panel (a) of Figure 1, we map our baseline measure of exposure to pre-colonial 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 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. 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 (Sen, 2003). 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 show that our results will not only depend on cross-regional variation, 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.

Figure 3 plots 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 2: Pre-Colonial Conflict Exposure and Percent Female in 2011: Uttar Pradesh

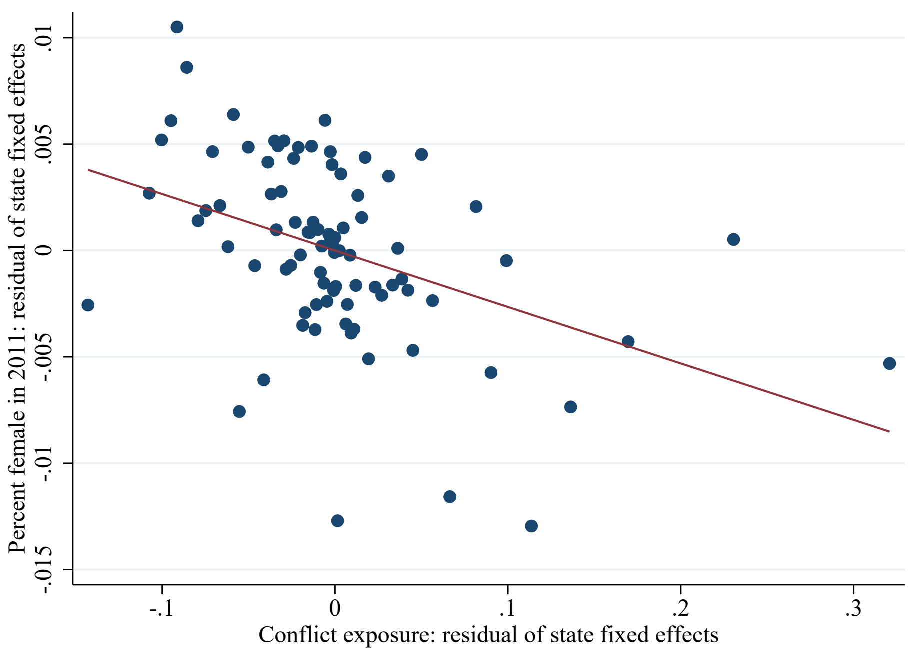


(a) Conflict exposure

(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.

Figure 3: Conflict Exposure and Percent Female



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.

6 Main Results

6.1 Female Population Share

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 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.

The magnitude of the coefficient estimate in Column 3 is sizable. To illustrate, take the district of Harda, located in central India. Harda ranks at the 50th percentile of pre-colonial conflict exposure, and ranks 397th out of 657 districts in the female population share, at 0.48. If, counterfactually, Harda's conflict exposure rose to the 75th percentile, then it would rank 409th in percent female – a decrease of 12 places.

Alternatively, the coefficient estimate in Column 3 indicates that a one standard deviation increase in pre-colonial conflict exposure predicts a 0.15 standard deviation reduction in a district's female population share. This magnitude is comparable in size to the 0.11 standard deviation increase in the child sex ratio that Carranza (2014) reports for rural Indian districts in response to a one standard deviation increase in clay soil textures, and to the 0.20 standard deviation increase in the sex ratio that Alesina, Giuliano and Nunn (2018) report across countries in response to a one standard deviation increase in traditional plough use.

6.2 Age Categories

To assess which segments of the population drive our findings, Table 3 examines female population shares 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 percent 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).

6.3 Female Births

Table 4 concentrates on differential survival to birth, generally driven by sex-selective abortion and investment in fetal health (Bharadwaj and Lakdawala, 2013), by evaluating

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.

Table 3: Pre-Colonial Conflict Exposure and the Percent 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.

the sex of births recorded in the DHS births recode.

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

$$Female_{id} = \beta ConflictExposure_d + \lambda PopDensity_d + \mu_s + X_d'\phi + Q_{id}'\lambda + \epsilon_d. \qquad (3)$$

Table 4: 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.

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 4 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 the 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.

6.4 Caste

In Table 5, we break down the findings in the DHS birth recodes sample by the social groups of respondents. Other Backwards Class (OBC) respondents drive the relationship between pre-colonial conflict exposure and male-biased sex ratios. OBC is a government term employed to categorize castes that are educationally or socially "backward" and that comprises between 35 and 41 percent of India's population (**??**). We do not find robust relationships for Scheduled Caste (SC), Scheduled Tribe (ST), or non-

Table 5: 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.

OBC, SC, or ST respondents. This suggests that historical conflict exposure predicts male-favoring gender norms across a large segment of the population, and not solely for the upper-caste population. It is consistent with the widespread reliance by rulers in pre-colonial India on the peasant military labor market (see Section 3).

6.5 Crimes Against Women

Table 6 employs crimes against women as the outcome variable. We again make a minor modification to Equation (1), using OLS to estimate:

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

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.

Table 6: Pre-Colonial Conflict Exposure and Crimes against Women

	(1) Violence index	(2) Violence index	(3) Violence index	(4) Violence index
Pre-colonial conflict exposure	0.950***	1.182***	0.736**	0.309
	(0.268)	(0.339)	(0.332)	(0.294)
IHS murder per 100 000				0.412***
				(0.039)
N	7,054	7,054	7,054	7,054
Year FE	Yes	Yes	Yes	Yes
State FE	No	Yes	Yes	Yes
Controls	No	No	Geographic	Geographic
Standardized β	0.104	0.129	0.0804	0.0337
LHS mean	0	0	0	0
RHS s.d.	0.109	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.

While $ConflictExposure_d$ only varies cross-sectionally, we include fixed effects for years η_t and cluster by district, as we observe crimes each year between 2001 and 2012. 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 such crimes. Column 4 controls for the murder rate per 100,000 women from the National Crimes Bureau, which we use to proxy for overall crime levels. The main result continues to hold.

In Table A.19, 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 significant.[19]

[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.

7 Robustness

7.1 Additional Geography

Table A.20 controls for additional geographic features that may impact exposure to precolonial 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] Table A.21 drops all districts that are coastal. The main results remain robust in both cases.

In Table A.22, we control for plough-positive and plough-negative agricultural environments.[21] The main results continue to hold. Consistent with the hypothesis in Boserup (1970) and Alesina, Giuliano and Nunn (2013), in the stringent specification (Column 3) plough-positive environments predict a significant reduction in the share of a district's population that is female, while plough-negative environments predict a significant increase.

Given the importance that Carranza (2014) ascribes to the distinction between clay and loam for the demand for gender-related agricultural labor in India, Table A.23 shows the results controlling for the shares of a district that are clay or loam.[22] The main results are robust.

7.2 Initial State Capacity

Initial levels of state capacity may impact the likelihood that a state was able to record historical conflicts, along with its ability to wage war, as well as prevailing cultural norms. In Table A.24, we proxy for initial state capacity across districts as follows. Columns 1 and 2 of the top row employ maps from Nag (2007) to control for the number of settlements during the Neolithic and Chalcolithic Ages. In Columns 3 and 4 of this row, we

[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.

[21] 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.

[22] We obtain the clay and loam shares from the FAO Harmonized World Soil Database v2.0.

control for major Indian cultural sites between 300-700, or the eighth through twelfth centuries, respectively, according to maps from Schwartzberg (1978). Column 1 of the bottom row controls for the log of (one plus) total urban populations in 1000 using cities recorded in Chandler (1987). Columns 2 to 4 of this row 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 from Joppen (1907). The main results are robust across all specifications.

7.3 Initial Gender Norms

Data on initial gender norms at the start of our sample period in 1000 are difficult to come by. Controlling for initial state capacity may help account for the prevailing cultural norms at the time (Table A.24). To further address this, in Table A.25, we take two approaches to proxy for initial gender norms. The first exploits historical data on the gender identity of Hindu temple gods. Temples were dedicated to male gods, male gods and their female consorts, or female gods. Relying on Schwartzberg (1978, 34a), we code the presence of female temples during the eighth through twelfth centuries. The main results are robust to controlling for this variable (Column 1). The second approach makes use of data from Jakiela and Ozier (2022) to code whether the language spoken by a respondent in the DHS data marks grammatical gender. Given that this variable concerns modern languages, and we cannot pinpoint the degree to which a language has evolved over time, we view this approach as suggestive in nature. The results from Table 4 continue to hold after controlling for this variable (Column 2).

7.4 Pre-Colonial Combatants

In Table A.26, we evaluate whether any particular set of pre-colonial combatants drives our results. To help account for warring pastoralist groups such as the Mongols, Column 1 controls for suitability for nomadic pastoralism according to Beck and Sieber (2010). Column 2 drops battles involving any Asian combatants from outside South Asia, while Column 3 drops battles involving the Mughals, the major power in India during the 1500s and 1600s. Column 4 drops battles that Jaques (2007) labels as part of a Muslim conquest. Finally, Column 5 includes only battles involving the Marathas, a major eighteenth-century power that arose indigenously in India. The main results remain robust, indicating first that no single pre-colonial combatant drives them, and second that they are not driven solely by combatants from outside South Asia.

7.5 British Imperialism

A prominent literature emphasizes the role of British imperialism in Indian development patterns (e.g. Banerjee and Iyer, 2005). In Table A.27, 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.

In addition to India, Pakistan and Bangladesh formed parts of the British Raj in South Asia. To add these entities to our sample, we turn to the DHS births recodes first used in Table 4, appending the data from the 2017-18 DHS data for Bangladesh and Pakistan. Table A.28 indicates that the main results for this expanded sample remain robust.

7.6 Partition of 1947

The Partition of 1947 divided British India into an independent India and Pakistan, sparking major population transfers across the newly demarcated borders as well as ethnic and religious violence. We account for partitioning as follows. Table A.29 drops districts in border states, as these were the most directly impacted by the Partition.[26] The main results continue to hold. Table A.30 controls for migration flows related to the Partition, normalized by population, according to Bharadwaj and Mirza (2019).[27] The main results are robust.

7.7 Ethnic and Religious Features

The importance of sons in Hindu religious rites may account for differences in son preference across India. In Table A.32, 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, a religious group with male-biased rites.

In Table A.31, we account for inter-ethnic and religious relations in India. To account for historical areas of ethnic tolerance, Column 1 of the top row controls for districts

[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] In particular, we drop Assam, Gujarat, Jammu and Kashmir, Meghalaya, Mizoram, Punjab, Rajasthan, Tripura, and West Bengal.

[27] These data are not available for Jammu and Kashmir or Sikkim.

that had major medieval ports using Jha (2013). In Column 2 of this row, 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 the middle row, Column 1 controls for the current level of religious polarization, while Columns 2 and 3 control for current linguistic and religious fractionalization levels. In Columns 1 and 2 of the bottom row, we control for the current shares of Scheduled Castes and Scheduled Tribes, respectively.[28] Column 3 of this row controls for 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.

7.8 Alternative Conflict Measures and Data

We have already described several robustness checks involving the conflict measures and data in Section 5.2.1, such as including other conflict types (Table A.7), including all available battles starting in antiquity (Table A.13), and including battles after 1757 but still prior to British annexation (Table A.14). For further robustness, we now describe several additional tests.

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 area, we produce four alternative measures of pre-colonial conflict exposure that incorporate faraway conflicts (see Section 5.2.1). Table A.17 repeats our analysis using these alternative variables.[29] 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. This is consistent with the geopolitical context in pre-colonial India, in which battles

[28] 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.

[29] These measures have different scales from each other as well as from our baseline variable. We thus report standardized coefficients.

were more likely to be fought by locals, given the prevalence of peasant soldiers with limited geographic mobility (see Section 3).

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.

7.9 Reverse Causation

Male-favoring gender norms may have impacted historical conflict patterns rather than vice versa.[30] Dropping battles involving major pre-colonial combatants, particularly those from outside South Asia who may have transmitted male-favoring gender norms, should help account for the possibility of reverse causation due to territorial conquests (Table A.26). To further address this, Table A.33 restricts the sample to civil battles – another way to exclude conflicts involving territorial conquests.[31] The main results continue to hold. As additional ways to address the potential for reverse causation, we will employ an instrumental variables approach in Section 8, and will control for genetic distance in Section 10.3.

7.10 Additional Robustness

We have already dropped individual states one at a time for robustness (Figure A.3). In Figure A.4, we drop each century one by one. The coefficient estimates remain negative. No single century drives the main results. This suggests that the gunpowder revolution, which began in India in the early sixteenth century (Richards, 1995), did not significantly alter the relationship between exposure to pre-colonial conflict and male-favoring gender norms.

In our baseline estimation, we take districts as the unit of observation. Our use of census data prevents us from conducting the analysis which takes the percentage of the population that is female as the outcome (Table 2) at a finer level. We can, however, re-estimate the results for the probability that a child is female (Table 4), 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 are robust to this recoding (Table A.1).

Column 1 of Table A.34 controls for the distance from district centroids to the major

[30] The anthropologist Marvin Harris, for example, writes: "The fiercer the males, the greater the amount of warfare, the more such males are needed" (Harris, 1974, 87).

[31] We code a battle as "civil" if an actor was the political subject of the enemy actor immediately prior to battle.

urban centers of Bagaluru, Mumbai, 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.

Table A.35 controls for whether Asian Highway 1, a major land route, intersects a district. The main results are robust.

8 Instrumental Variables

8.1 Khyber Proximity IV

Section 7 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 is also the possibility of reverse causation, whereby male-favoring gender norms impacted historical conflict patterns. To further address such concerns, we use an instrumental variables approach that exploits variation in pre-colonial conflict exposure due to military offensives originating outside South Asia.

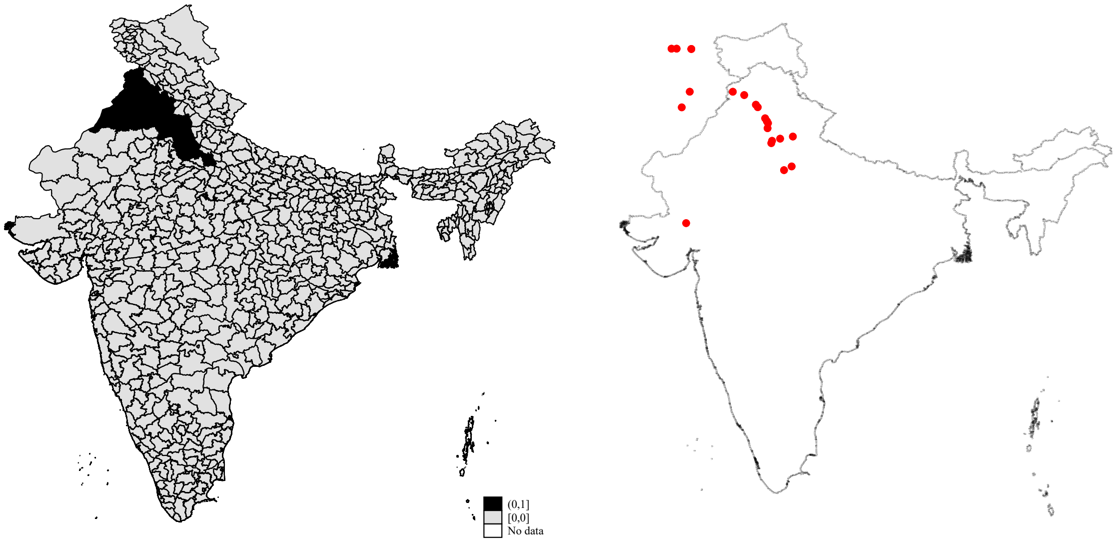
Historically, several mountain ranges have helped protect the Indian subcontinent from external combatants. The Khyber Pass was the main route taken by these combatants into India (Docherty, 2008). To instrument for exposure to pre-colonial conflict, therefore, we employ a measure of proximity to the Khyber Pass. To calculate the proximity measure, we use a cost-distance formula. Areas with rugged mountain terrain such as Jammu and Kashmir or Himachal Pradesh were more difficult for armed forces to reach than flatter areas such as Punjab or 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 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.[32] Our analysis, moreover, will control for

[32]Pakistan geographically separates present-day India from the Khyber Pass. In particular, no district in

Figure 4: Khyber Proximity and Battles Involving Overland Combatants



(a) Khyber Proximity (b) Battles with Overland Combatants

Notes. Panel (a) shows the Khyber proximity instrument, while Panel (b) shows the land battles involving a party with a capital within Asia but outside South Asia.

the geographic features of a district including its own ruggedness.

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 overland combatants from elsewhere in 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 these overland combatants.

8.2 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

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.

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.

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.

8.3 IV Robustness

8.3.1 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.[33]

Table A.36 shows that there are no statistically significant correlations between the Khyber proximity instrument and the three measures of pre-colonial trade access. This further suggests that historical trade does not confound our analysis. Still, in Table A.37, we include the three measures of pre-colonial trade access as controls. In Table A.38, we repeat this analysis for cost-distance calculations of the historical trade controls. The IV results continue to hold across both cases.

8.3.2 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.39 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.

8.3.3 Alternative Instrument

In the baseline IV, we exploit variation in exposure to pre-colonial conflict due to ease of access for overland combatants. Alternatively, we compute an instrument that uses exposure to overland combatants directly. Leveraging the set of battles depicted in Panel (b) of Figure 4, we re-calculate pre-colonial conflict exposure using Equation (2). While

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

the benefit of this approach is that it provides a direct measure of exposure to pre-colonial conflicts involving external participants, the cost is that it accounts less for the potential endogeneity of the conflict locations. Table A.41 reports the results using this alternative. The second-stage estimates closely resemble the baseline OLS coefficients.

8.3.4 Comparison Group

Districts near the Khyber Pass may differ from those far away from it. To better compare like with like districts, Figure A.5 shows the results of limiting the sample to the nearest 75 districts by cost distance, the nearest 76 districts, and so forth. We choose 75 as the minimum as it provides a comparison group half as large as the "treated" group of the 50 most Khyber-proximate districts. The coefficient estimates become stable once the sample includes roughly 125 districts, and become consistently significant once the sample includes roughly 150 districts.

8.3.5 Additional IV Robustness

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, could have impacted gender norms. Table A.40 controls for the year of the first colonial railway connection in a district.[34] The IV results continue to hold.

To evaluate the role that historical sacks of Delhi play in the IV results, Table A.42 drops the Delhi district. The IV estimates are largely unchanged.

9 Mechanisms

In Sections 6 through 8, 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 4, 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 relationship between exposure to pre-colonial conflict and male-biased folkloric traditions. 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 patrilocal exogamy. We next document the endurance of male-favoring gender norms across intermediate points in time. Taking an epidemiological approach, we then show evidence consistent with the notion that male-favoring gender norms are portable, and are still

[34] 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.

today transmitted across space by migrants no longer living in the original zones of historical conflict. Finally, splitting our sample by birth order and the sex composition of prior births, we demonstrate that the relationship between conflict exposure and childhood sex ratios is the strongest for higher birth orders not preceded by a son.

9.1 Male-Biased Folkloric Traditions

9.1.1 Qualitative Evidence

We begin our investigation into historical folkloric traditions 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 the 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 invokes a brother who laments his sister'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 southern parts of India speaks less negatively of women.

9.1.2 Quantitative Evidence

The evidence above provides qualitative 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.[35] 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.[36] 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.

9.2 Hindu Temple Gods

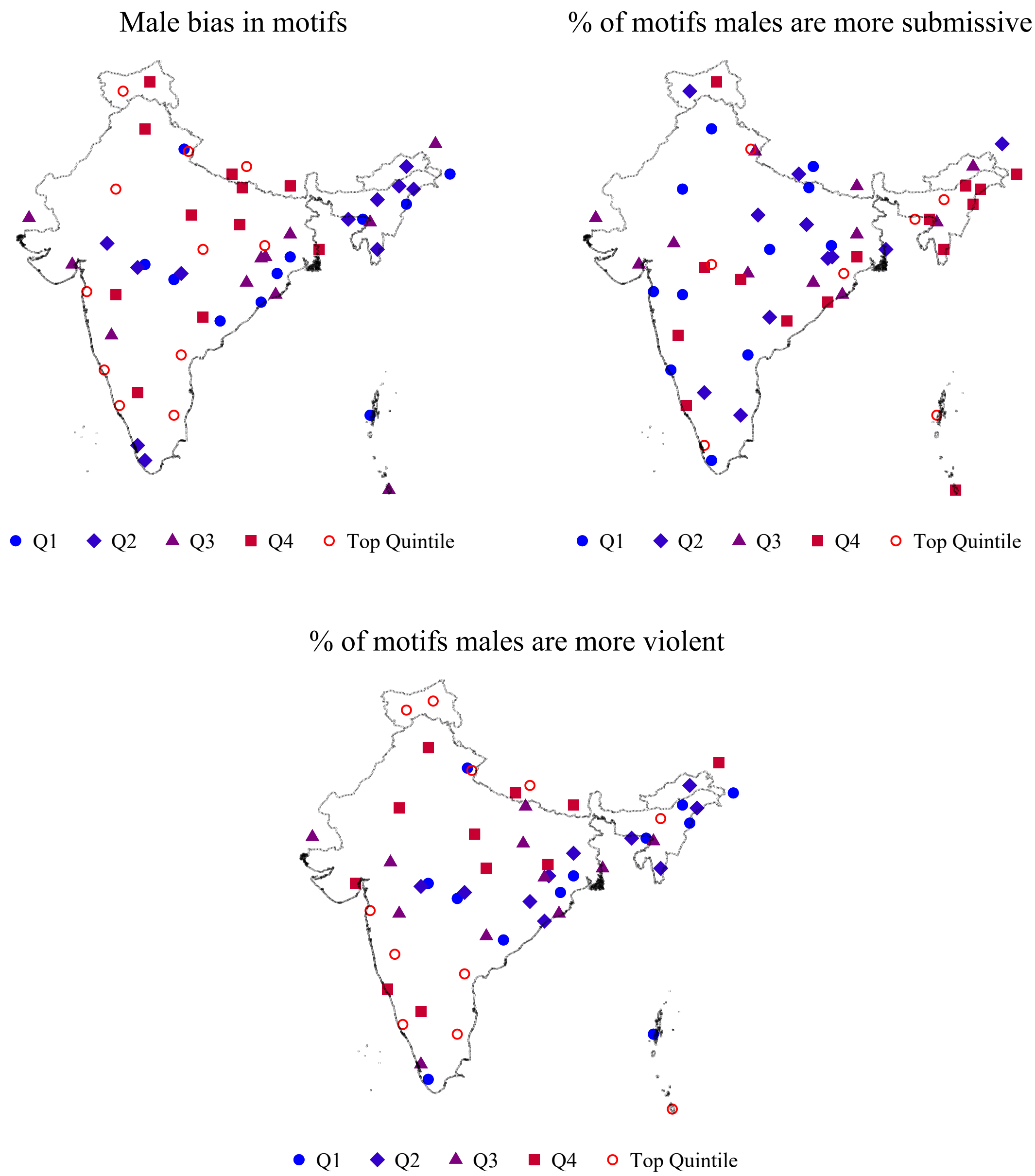
To further evaluate the relationship between exposure to pre-colonial conflict and the transmission of male-favoring gender norms, we exploit historical data on the gender identity of gods at Hindu temples, which were dedicated to male gods, male gods and their female consorts, or female gods. Relying on Schwartzberg (1978, 47), we code the presence of male or female temples during the Mughal period (1526-1707).[37] 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-

[35] 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.

[36] Michalopoulos and Xue (2021) define a motif as an episode or image present in the narratives of an ethnolinguistic community.

[37] We have undertaken additional research indicating that nearly all these temples have survived to today.

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



Notes. Quintiles computed within the societies depicted.

cant correlation between exposure to pre-colonial conflict (through 1526) and temples dedicated to female deities. In Table A.43, we show that these results are robust to controlling for the initial presence of female temples circa the start of our sample period.[38]

[38]We take data on female temples present in the eighth through twelfth centuries from Schwartzberg (1978, 34a).

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.

9.3 Patrilocal Exogamy

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 historically, or by reducing the supply of men due to death in battle. Specifically, a norm requiring women to marry outside their place of birth (i.e. patrilocal exogamy) may indicate that parents value girls less than boys (Clark, 2000; Dyson and Moore, 1983; Miller, 1981).

To evaluate this, we employ the 2005 wave of the India Human Development Survey. Households were asked if it is customary for a daughter to marry in the village of her

Table 10: Patrilocal Exogamy

	(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.

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.[39]

9.4 Endurance over Time

The above evidence on folkloric traditions, 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.

[39]A related practice is the payment of dowry. If dowry were to impact historical conflict patterns, then it could confound our results. If the payment of dowry were to increase due to exposure to historical conflict, then it could reinforce patrilocal exogamy as a mechanism. While dowry data are limited, we are able to show two types of evidence suggesting that dowry is neither a confounder nor a reinforcing mechanism. First, the 2005 wave of the India Human Development Survey asks whether cash is typically given as a gift at the time of a daughter's wedding, and if so how much. Using the same specification as in Table 10, we show that cash is significantly less likely to be given at a daughter's marriage in areas with greater exposure to pre-colonial conflict, and that the relationship between this gift amount and pre-colonial conflict is negative and insignificant (Table A.44). Second, the 1999 wave of the Additional Rural Incomes Survey/Rural Economic and Demographic Survey (ARID-REDS) asks explicitly about dowry paid in rupees. We make this variable an outcome, using the same specification as in Equation (1), augmented to also control for child birth year, and taking married daughters as the unit of analysis. There is a negative and insignificant relationship between dowry paid and exposure to pre-colonial conflict (Table (A.45). Were dowry to be either a confounder or a reinforcing mechanism, however, then we would expect it to correlate positively and significantly with pre-colonial conflict exposure.

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.

Fenske, Gupta and Neumann (2022) have digitized colonial census data on the sex ratio in 1931 at the (colonial) district level.[40] Table 11 shows estimates of Equation (1) taking the percent female in 1931 as the outcome.[41] 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.

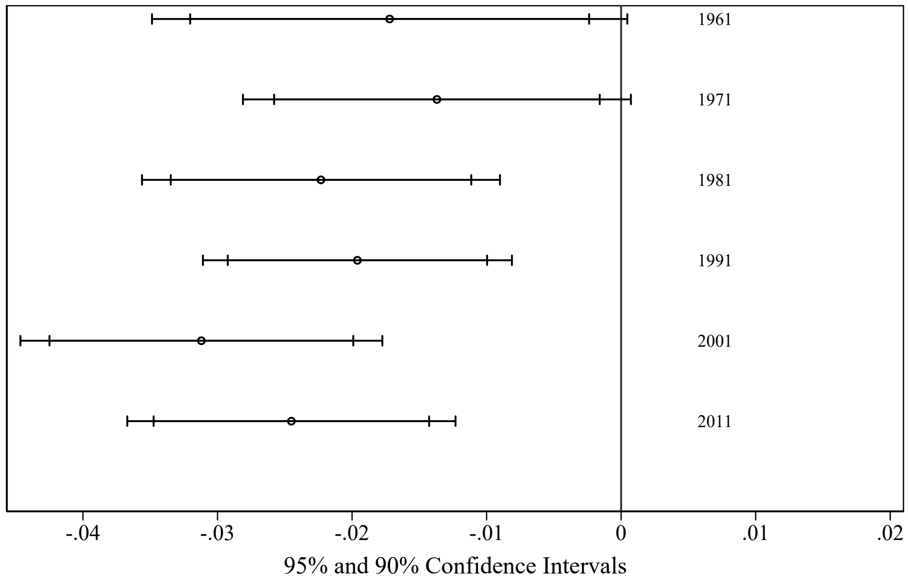
Figure 6 repeats this analysis using data on the percentage of each district's population that was female in each census year from 1961 to 2001.[42] The correlation between exposure to pre-colonial conflict and the percentage of the population that was female is statistically significant at the 10 percent level in all years, and significant at the 5 percent level from 1981 onward. This pattern further suggests that male-favoring gender norms have endured over time, 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).

[40] We do not use the earlier census waves, because of the incomplete coverage and lower data quality in earlier years (Fenske, Gupta and Neumann, 2022).

[41] 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.

[42] The source for 1961-2001 is Vanneman and Barnes (2000), while the source for 2001 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.

9.5 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 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 4. 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 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 4 using this alternative measure of conflict exposure.[43] The results are similar in sign and slightly larger in magni-

[43]Since conflict exposure now varies by language rather than district, we cluster standard errors by lan-

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.

tude than the results in Table 4, 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 similar 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.[44]

9.6 Fertility and Birth Order

The literature suggests that sex selection in India is rare for first births (Bhalotra and Cochrane, 2010; Jayachandran, 2017). Due to the desire to have at least one son, sex-selective abortion occurs at higher birth orders if a family has not yet produced a son. Declining fertility increases this incentive for sex selection for the second and third births.

In Table 13, we find no evidence for a significant relationship between pre-colonial conflict exposure and the probability that a birth in the DHS data is female for first births

guage.

[44] This is consistent with evidence on sex selection favoring male offspring by South Asian immigrants to England, Canada, and the USA (**???**).

Table 13: Fertility and Birth Order

	(1) Female	(2) Female	(3) Female	(4) Female
Pre-colonial conflict exposure	0.004	0.017	-0.072***	-0.096**
	(0.016)	(0.024)	(0.025)	(0.042)
N	443,174	184,311	171,135	58,386
State FE	Yes	Yes	Yes	Yes
Controls	Individual and geographic	Individual and geographic	Individual and geographic	Individual and geographic
Parity	First births	After one boy	After one girl	After two girls

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.

(Column 1), or for second births where the first child was a boy (Column 2). By contrast, we demonstrate that this relationship is particularly strong for second births where the first child was female (Column 3), as well as for third births where the first two children were female (Column 4). These are exactly the points where the literature suggests that sex-selective abortion should be the most prevalent.

10 Alternative Mechanisms

Drawing on our conceptual framework in Section 4, 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.

10.1 Economic Development and State Capacity

Recurrent exposure to military conflict can foster long-run economic development via war-induced state-making. In Table 14, we employ three individual-level measures of the living standards of women – literacy, body mass index (BMI), and weight – as outcomes.[45] We find that women living in districts that experienced higher levels of expo-

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

Table 14: 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.

sure to pre-colonial conflict are significantly more literate and weigh more.[46]

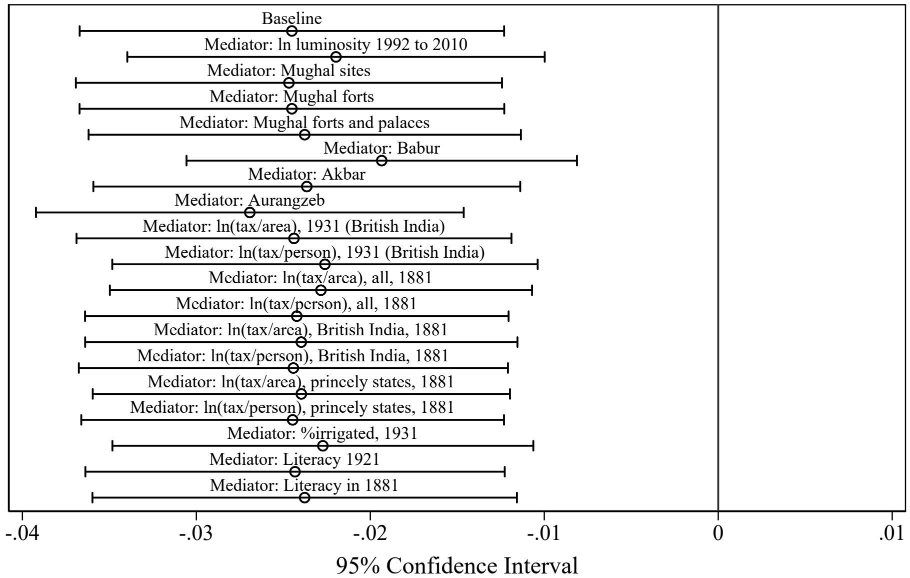
To assess whether economic development or state-making mediate the relationship between exposure to pre-colonial conflict and male-favoring gender norms, Figure 7 shows estimates of Equation (1) in which we control for measures of these intermediate channels. All estimates correspond to Column 3 of Table 2, and so include fixed effects and controls. The mediators are luminosity, our main proxy for local development levels, as well as a variety of measures of early state capacity, including 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, namely 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.[47]

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.

[46]This is in line with Dincecco et al. (2022), who document a positive relationship between exposure to historical conflict and local economic development today.

[47]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.

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 in India, while raising the living standards of women, has not yet eliminated male-favoring gender norms associated with greater historical conflict exposure.

To explain further, we draw on the concept of static mismatch in Nunn (2022). The persistence of the son preference norm may be indicative of a mismatch between economic development and a cultural norm. 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 participation in the labor force in a developed economy, however, such gender norms are less suited. Yet cultural beliefs tend to persist over time (see Section 4.1), producing a mismatch. Consistent with this, we do not find a statistically significant relationship between exposure to pre-colonial conflict and female labor force participation (Table A.46).[48]

10.2 Male Scarcity

Death in battle may have induced a shortage of men in areas in which exposure to pre-colonial conflict was high. One potential outcome of historical male scarcity is the emergence of matrilineal descent. Inheritance through the female line is often thought

[48] The female labor force participation data are from the 2015-16 Indian Demographic and Health Survey.

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 in India. 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.

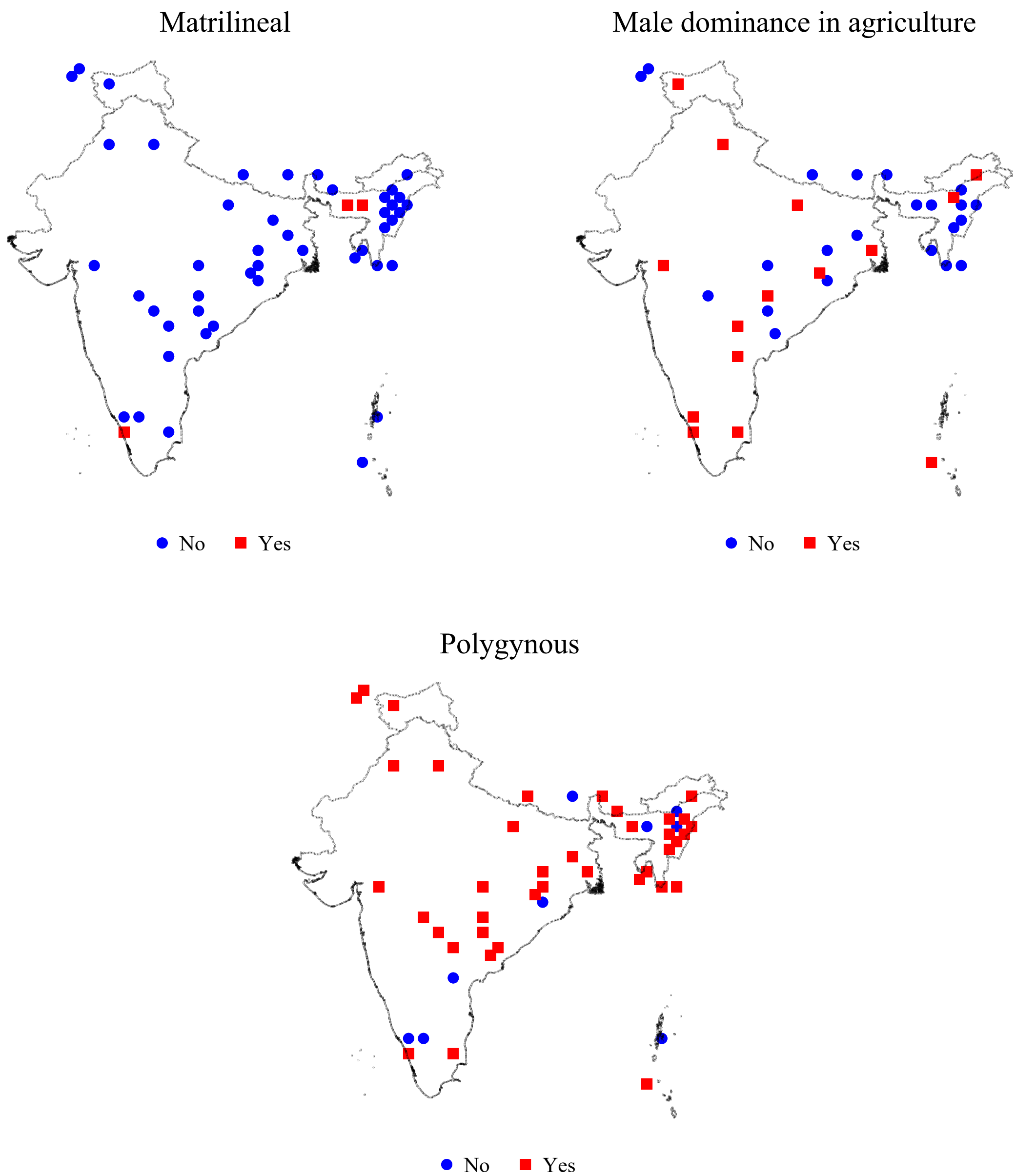
To provide systematic evidence on the potential alternative roles of historical male scarcity, we focus on three intermediate outcomes – matrilineal descent, male dominance in agriculture, and polygyny. To measure them, we use the societies recorded in the *Ethnographic Atlas* by Murdock (1967).[49] 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 15, 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).[50] 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.

[49]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.

[50]We assign a society the geographic characteristics of the district that it falls inside according to the latitude and longitude coordinates in Murdock (1967). Since Murdock (1967) provides latitude and longitude coordinates rounded to the nearest integer, we keep all societies within 1 decimal degree of present-day India.

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



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

10.3 Cultural Diffusion

Another potential mechanism concerns the diffusion of male-favoring gender norms from one combatant group to another. If, for example, combatants from outside South Asia imparted patriarchal social structures (e.g. Joseph, 2018, 180-1), then this process could account for the existence of male-favoring gender norms. Recall that the main

Table 15: 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.

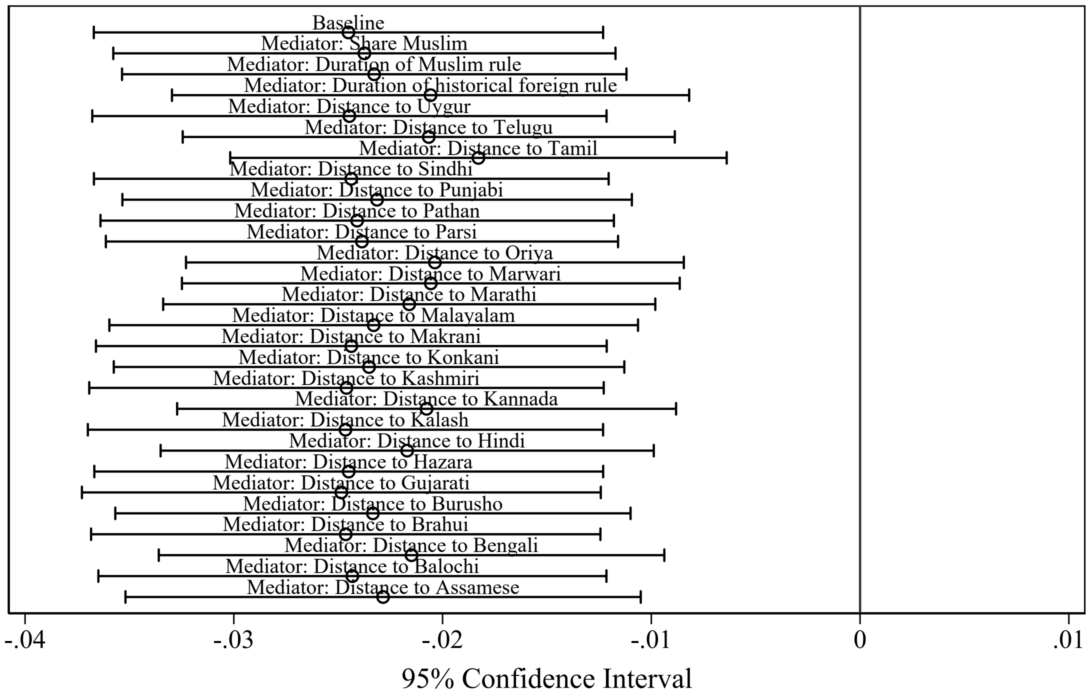
results are robust to dropping any Asian combatants from outside South Asia, indicating that these combatants do not drive them (Table A.26).

To further 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.[51] 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 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, 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.47 that

[51] 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 9: Alternative Mechanism: Cultural Diffusion



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

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 A.48 recomputes our baseline measure of conflict exposure after dropping any conflicts involving European powers. The results remain largely unchanged.

10.4 Colonial- and Post-Independence Conflict

Conflict exposure during the colonial or post-independence eras, in addition to conflict exposure during the pre-colonial era, may have also impacted male-favoring gender norms. To assess this possibility, Table 16 controls for conflict exposure during these two eras. 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. Post-independence conflicts include battles in the three Indo-Pakistan Wars, the Sino-Indian War, the Bangladesh War of Independence, and the Kargil War.

The positive and statistically significant relationship between pre-colonial conflict exposure and present-day sex ratios continues to hold even after controlling for conflict

Table 16: 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.

during the colonial and post-independence eras. Conditional on state fixed effects, the coefficient estimates are similar in size to the main results in Table 2. While exposure to colonial-era and post-independence conflict also predicts male-biased sex ratios, this relationship is less robust. This is consistent with the argument that the nature of soldiering in India began to change with the military and political emergence of the British East India Company (see Section 3). Thus, we would not expect more recent conflict exposure to be as strong a predictor of male-favoring gender norms as pre-colonial conflict exposure.

11 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 female population share and crimes against women. Our 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 traditions, the gender identity of Hindu temple gods, and patrilocal exogamy. 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. We demonstrate that our results are the strongest exactly where we would expect sex-selective abortion to be the most prevalent – at higher birth orders not preceded by a son.

How general might the relationship between exposure to historical 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). In the words of Machiavelli (1998, 58): "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. . . ." Unlike India, however, Western Europe today has relatively equal gender norms.

Yet more equal gender norms are a relatively recent phenomenon in Western Europe. Traditional patriarchy characterized much of pre-modern Europe (Wiesner, 2008). Gender equality improved in Western Europe over the last one hundred years, particularly during the second half of the twentieth century (Doepke, Tertilt and Voena, 2012). Western Europe, moreover, is not the world's most gender-equal region on every dimension. For example, the female labor force participation rate in the European Union (52 percent) is lower than in Sub-Saharan Africa (61 percent).[52] This is even more noteworthy when we recognize that Western Europe has a large GDP per capita, implying that it should be on the right part of the U-shaped curve (Jayachandran, 2021), where we would expect female labor force participation to be high.

[52] This is for the share of the female population at least 15 years old in the labor force in 2022. See https://data.worldbank.org/indicator/SL.TLF.CACT.FE.ZS.

Nevertheless, analysis of the recent evolution toward gender equality in Western Europe may help shed light on the scope conditions governing the relationship between historical conflict exposure and male-favoring gender norms. Twentieth-century wars in Europe involved unprecedented mass mobilizations (Onorato, Scheve and Stasavage, 2014) as well as modern military technologies. In addition, the economic landscape was primarily industrial. We might expect such differences to impact the nature of the relationship between conflict exposure and gender norms.

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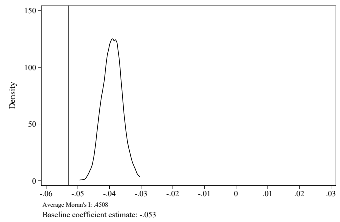
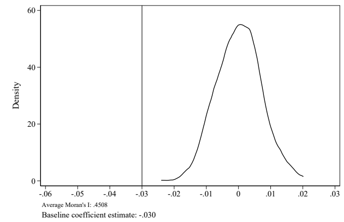
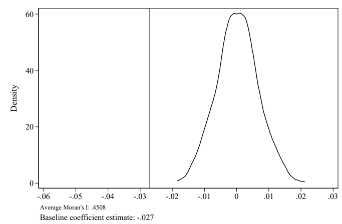
Figure A.1: Artificial Spatially-Correlated Noise Placebo Variables



(a) Column 1, Table 2



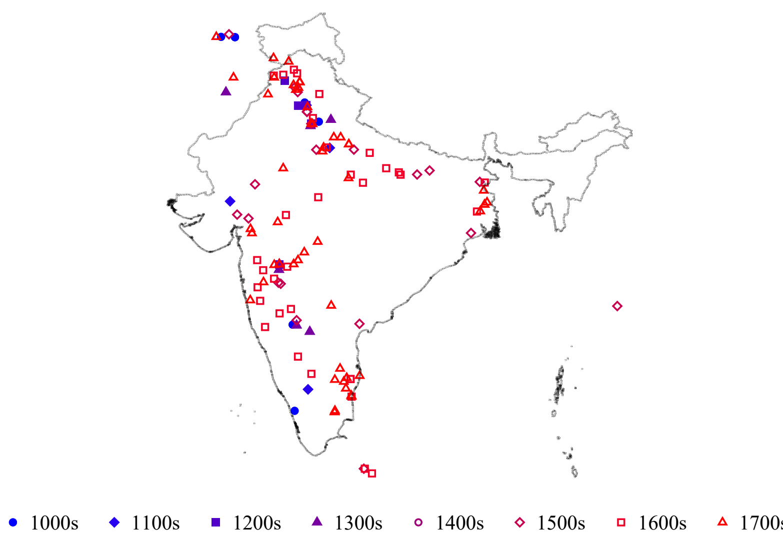
(b) Column 2, Table 2



(c) Column 3, Table 2

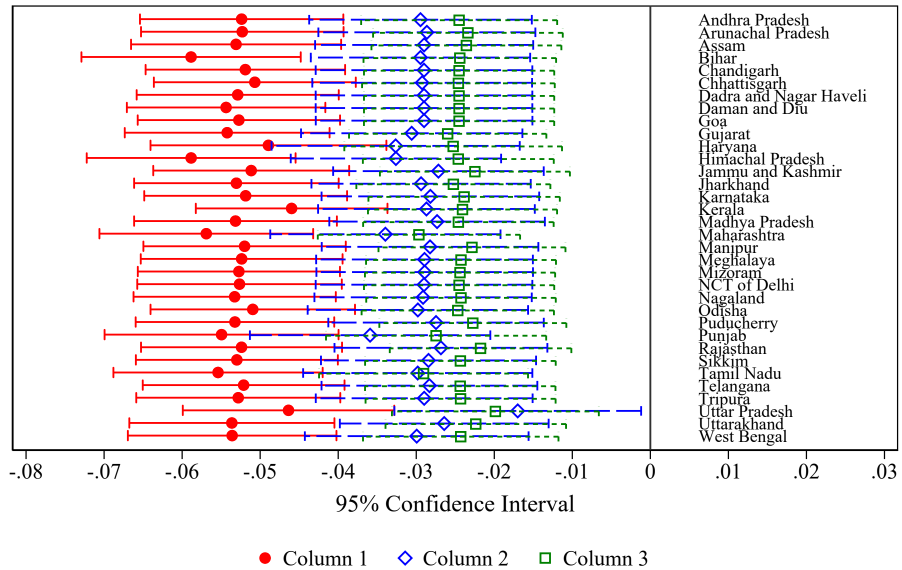
Notes. This figure shows the results of tests that generate artificial spatially-correlated noise placebo variables to replace our variable of interest, reallocating conflict exposure randomly across districts within a state (without replacement), for each of the regression models in Table 2.

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



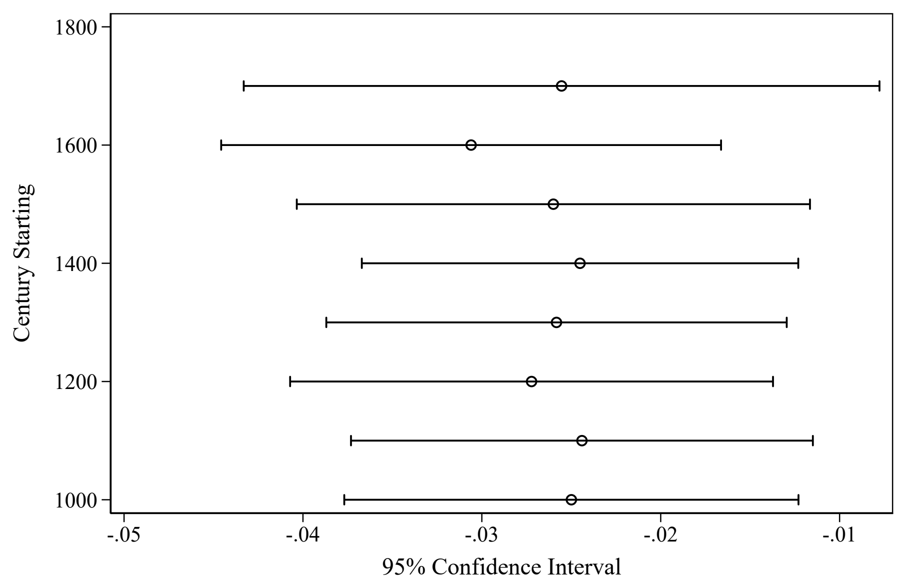
Notes. This map shows land battles in South Asia between 1000 and 1757 in Jaques (2007) by the century of the start date.

Figure A.3: Drop States One at a Time



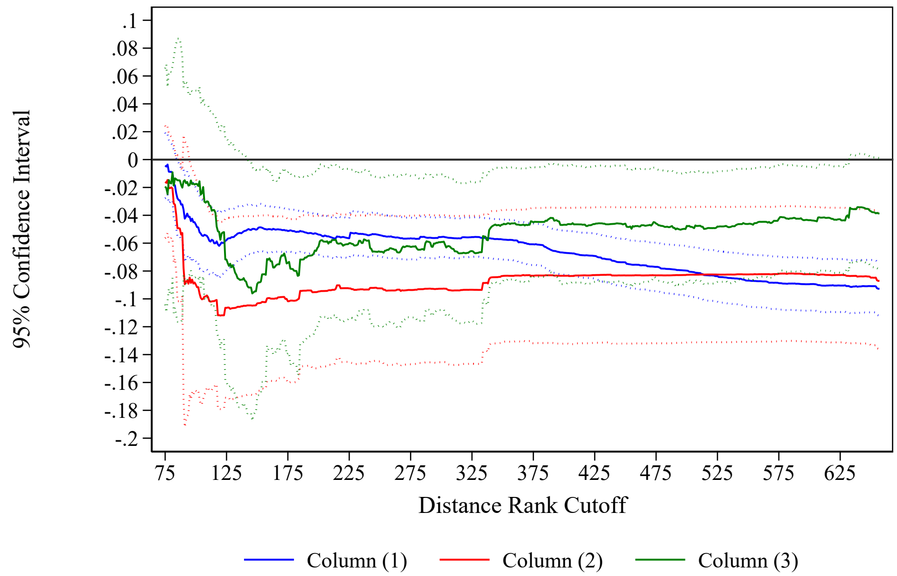
Notes. This figure shows the results of re-estimating (1) dropping each state or union territory in turn. Columns correspond to the specifications in Table 2.

Figure A.4: Drop Centuries One at a Time



Notes. This figure shows the results of re-estimating (1) dropping each century in turn. The specification corresponds to Column 3 in Table 2.

Figure A.5: 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.

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

Panel A: By Cell			
	(1)	(2)	(3)
	Female	Female	Female
Pre-colonial conflict exposure	-0.067***	-0.032***	-0.021**
	(0.008)	(0.009)	(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)	(2)	(3)
	Female	Female	Female
Pre-colonial conflict exposure	-0.065***	-0.032***	-0.021**
	(0.007)	(0.008)	(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)	(2)	(3)
	Percent female in 2011	Percent female in 2011	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 1000			
	(1)	(2)	(3)
	Percent female in 2011	Percent female in 2011	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 the year 1000 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***	-0.029***	-0.025***
	(0.007)	(0.007)	(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***	-0.025***	-0.021***
	(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.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 Including before 1000 CE

	(1) Percent female in 2011	(2) Percent female in 2011	(3) Percent female in 2011
Exposure including before 1000ad	-0.046***	-0.029***	-0.023***
	(0.007)	(0.006)	(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.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: 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.16: 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	-0.044***	-0.024***	-0.017***
	(0.007)	(0.007)	(0.006)
N	505	505	505
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.17: 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.18: 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.19: 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.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: Drop Coastal Districts

	(1) Percent female in 2011	(2) Percent female in 2011	(3) Percent female in 2011
Pre-colonial conflict exposure	-0.050***	-0.032***	-0.028***
	(0.006)	(0.007)	(0.006)
N	582	582	582
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.22: Control for Plough-Positive and -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 Clay and Loam Shares

	(1) Percent female in 2011	(2) Percent female in 2011	(3) Percent female in 2011
Pre-colonial conflict exposure	-0.030***	-0.027***	-0.025***
	(0.006)	(0.007)	(0.006)
Share loam in hwsd2	0.008***	0.002	-0.002
	(0.002)	(0.002)	(0.002)
Share clay in hwsd2	0.016***	0.005***	0.000
	(0.002)	(0.002)	(0.002)
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 shares of the district that are clay or loam.

Table A.24: Control for Initial State Capacity

	(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
	(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.25: Control for Initial Gender Norms

	(1) Percent female in 2011	(2) Female
Pre-colonial conflict exposure	-0.025***	-0.018*
	(0.006)	(0.010)
8th-12th Century Female Temples	0.001	
	(0.001)	
Gendered language		-0.004
		(0.004)
N	657	1,124,125
State FE	Yes	Yes
Controls	Yes	Individual and geographic

***Significant at 1%, **Significant at 5%, *Significant at 10%. Standard errors in parentheses. In Column (1) the sample, controls and clustering are as in Table 2, Column (3). In Column (1) the sample, controls and clustering are as in Table 4, Column (3).

Table A.26: Control for Pre-Colonial Combatants

	(1) Percent female in 2011	(2) Percent female in 2011	(3) Percent female in 2011	(4) Percent female in 2011	(5) Percent female in 2011
Pre-colonial conflict exposure	-0.023***				
	(0.006)				
Pasture suitability	0.008*				
	(0.004)				
Exposure without non-south Asians		-0.025***			
		(0.009)			
Exposure without mughal conflicts			-0.038***		
			(0.010)		
Exposure without Muslim conquest				-0.023***	
				(0.006)	
Exposure to maratha conflicts					-0.041***
					(0.011)
N	657	657	657	657	657
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. taskJames, please change to “Pastoral,” “non-South,” “Mughal,” and “Maratha” in the do-file.

Table A.27: 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.28: Include Pakistan and Bangladesh

	(1) Female	(2) Female	(3) Female
Pre-colonial conflict exposure	-0.067***	-0.031***	-0.020**
	(0.007)	(0.009)	(0.009)
N	1,319,051	1,319,051	1,319,051
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. 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: Drop Districts in Partition Border States

	(1) Percent female in 2011	(2) Percent female in 2011	(3) Percent female in 2011
Pre-colonial conflict exposure	-0.055***	-0.034***	-0.021***
	(0.008)	(0.008)	(0.007)
N	474	474	474
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.30: Control for Partition Migration Flows

	(1) Percent female in 2011	(2) Percent female in 2011	(3) Percent female in 2011
Pre-colonial conflict exposure	-0.045***	-0.026***	-0.023***
	(0.007)	(0.007)	(0.006)
Inflows	-0.091**	-0.063***	-0.068***
	(0.040)	(0.023)	(0.019)
N	631	631	631
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.31: Control for Ethnic and Religious Relations

	(1) Percent female in 2011	(2) Percent female in 2011	(3) Percent female in 2011
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
State FE	Yes	Yes	Yes
Controls	Yes	Yes	Yes

	(1) Percent female in 2011	(2) Percent female in 2011	(3) Percent female in 2011
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
State FE	Yes	Yes	Yes
Controls	Yes	Yes	Yes

	(1) Percent female in 2011	(2) Percent female in 2011	(3) Percent female in 2011
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.32: 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.33: Restrict Sample to Civil Battles

	(1) Percent female in 2011	(2) Percent female in 2011	(3) Percent female in 2011
Exposure to civil conflicts	-0.059***	-0.022***	-0.018***
	(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.34: Control for Major Urban Centers

Panel A: Control for Distance to Bagaluru, Mumbai, Chennai, Delhi, and Kolkata			
	(1)	(2)	(3)
	Percent female in 2011	Percent female in 2011	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)	(2)	(3)
	Percent female in 2011	Percent female in 2011	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.35: 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.36: 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.37: 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.38: 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.39: 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.40: 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.41: Exposure to Overland Conflict 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	-0.072***	-0.043***	-0.041***
	(0.008)	(0.009)	(0.009)
KPF	446.2	313.3	269.2
Panel B: First Stage			
	Pre-colonial conflict exposure	Pre-colonial conflict exposure	Pre-colonial conflict exposure
Exposure to overland conflict	1.920***	1.608***	1.629***
	(0.091)	(0.088)	(0.096)
Panel C: Reduced Form			
	Percent female in 2011	Percent female in 2011	Percent female in 2011
Exposure to overland conflict	-0.139***	-0.069***	-0.067***
	(0.017)	(0.016)	(0.016)
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.42: Instrumental Variables: Drop Delhi

	(1) Percent female in 2011	(2) Percent female in 2011	(3) Percent female in 2011
Pre-colonial conflict exposure	-0.094***	-0.088***	-0.039*
	(0.010)	(0.025)	(0.020)
N	656	656	656
State FE	No	Yes	Yes
Controls	No	No	Yes
KPF	126.9	14.44	10.88

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.43: 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.44: Dowry: Evidence from the India Human Development Survey

	(1) Cash given at daughter's wedding	(2) Cash gift: amount	(3) Cash gift: IHS amount
Pre-colonial conflict exposure	-0.809**	387.271	-3.095
	(0.365)	(22,019.144)	(2.478)
N	40,912	33,949	33,949
State FE	Yes	Yes	Yes
Controls	Yes	Yes	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.

Table A.45: Dowry: Evidence from ARIS-REDS

	(1) Dowry paid	(2) ln 1+dowry paid	(3) IHS dowry paid
Pre-colonial conflict exposure	-6,576.857	-1.379	-1.465
	(11,565.428)	(2.746)	(2.913)
N	3,664	3,664	3,664
Sample	Girls	Girls	Girls
State FE	Yes	Yes	Yes
Controls	Yes	Yes	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. Individual controls are child birth year.

Table A.46: Female Labor Force Participation

	(1) Not working	(2) Not working	(3) Not working
Pre-colonial conflict exposure	0.015	0.009	0.016
	(0.009)	(0.011)	(0.012)
N	114,549	114,549	114,549
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. 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.47: 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***	-0.029***	-0.024***
	(0.006)	(0.006)	(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.

Table A.48: 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*** (0.007)	-0.029*** (0.008)	-0.027*** (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.