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Missing Women and India's Religious Demography

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Abstract

The authors use recent data from the 2006 National Family Health Survey of India to explore the relationship between religion and demographic behavior. They find that fertility and mortality vary not only between religious groups, but also across caste groups. These groups also differ with respect to socio-economic status. The central finding of this paper is that despite their socio-economic disadvantages, Muslims have higher fertility than their Hindu counterparts and also exhibit lower levels of infant mortality (particularly female infant mortality). This effect is robust to the inclusion of controls for non-religious factors such as socio-economic status and area of residence. This result has important policy implications because it suggests that India's problem of "missing women" may be concentrated in particular groups. The authors conclude that religion and caste play a key role in determining the demographic characteristics of India.

This paper—a product of the Poverty and Inequality Team, Development Research Group—is part of a larger effort in the department to understand the relations between religion and demography. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The author may be contacted at pflewitt@worldbank.org.

Missing Women and India's Religious Demography*

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1 Introduction

Two features of India's demography have recently received a great deal of attention. The first is gender bias - the small number of females compared to males (Visaria, 1971; Dyson and Moore, 1983; Sen, 1992, 2001; Kishor, 1993; Das Gupta, 2005). According to the 2001 Census, India has 933 females for every 1000 males, which implies that as many as 35–37 million women in India may be "missing" (Drèze and Sen, 1996; Klasen, 1994; Agnihotri, 2000; Sen, 2003; Oster, 2005).[1] The second feature is that demographic variables in India vary sharply by religious group. Fertility and the population growth rate for example, are higher among Muslims than Hindus (Basu 1997; Jeffery and Jeffery 1997; Iyer 2002; Dharmalingam and Morgan, 2004).[2]

In the literature on Indian demography, both these issues have received enormous attention, but they have typically been studied independently of each other. The adverse sex

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[1]The estimate of the number of missing women is based on comparisons with Europe and North America which have 1050 females per 1000 males.

[2]An often-cited figure from the National Family Health Survey conducted in 1998-99, shows that the Total Fertility Rate (TFR) for Hindus and Muslims was 2.8 and 3.6 respectively.

ratio is mainly discussed in the context of the preference that many South and East Asian families have for sons over daughters ('son preference') and related issues that concern the marriage market, fertility, and dowry (Edlund, 1999; Bhat and Zavier, 2003; Sen, 2001; Rao, 1993; Bloch and Rao, 2002; Botticini and Siow, 2003; Das Gupta, 2005; Jacoby and Mansuri, 2006). The demographic differences between Hindus and Muslims, on the other hand, have usually been discussed in terms of the number of children in Muslim families and the higher population growth rates of this community. However, the debate often overlooked the fact that infant mortality among Muslims (at 59 per 1000) is much lower than that among Hindus (at 77 per 1000) as documented in Borooah and Iyer (2005a). Similarly child mortality, which is 83 per 1000 for Muslims, is substantially lower than child mortality among Hindus, at 107 per 1000 (IIPS and ORC Macro International, 2000). The survival advantage of Muslim children despite the higher fertility of their mothers is particularly puzzling in light of the fact that Muslims in India are typically poorer than Hindus as highlighted by the Sachar Committee Report (Government of India, 2006). Even a cursory glance at these facts and figures suggests that religious differentials in infant mortality need to be examined more closely.

In this paper, we link these two separately-studied demographic realities into a comparative analysis of infant mortality across religious and caste groups, using data from the newly released National Family Health Survey of 2005-06. To do so, we first divide our population into three subgroups: non-Dalit Hindus (also known as upper-caste Hindus), Dalit Hindus (also known as lower-caste Hindus), and Muslims. Our preliminary comparative analysis finds that with respect to observable socio-economic characteristics, Muslims are similar to Hindu Dalits in that they have lower levels of education, are poorer than non-Dalit Hindus. They also have more children, are less likely to experience the death of a child (particularly a girl), have higher female-male sex ratios among children alive as well as among children ever-born, are less likely to use contraception, and have preferences for a greater number of girls as well as boys. The next step of our analysis is to estimate survival probabilities for children and control for a number of important socio-economic, geographic and demographic variables. Our findings confirm that Muslim infant and child mortality is considerably *lower* than that for the Hindus, even after accounting for the wide range of socio-economic characteristics available to us. The effect is particularly strong for girls. Female infant mortality rates are lower in Muslim families than in Hindu families even with the inclusion of numerous controls for household and community characteristics. The final

step of our analysis involves a series of robustness checks. We find that our results are upheld. Although we cannot rule out *all* possible alternative rationales, or the possibility that socio-economic status may be insufficiently captured by our controls, these results lend support to the conjecture that religion might play a direct role in explaining the differences in gender differences in mortality between the Hindus and Muslims of India.

This paper proceeds as follows: Section 2 discusses the role of religion in Indian demography and establishes our conjecture; Section 3 conducts a comparative analysis of non-Dalit Hindus, Dalit Hindus and Muslims. Section 4 concludes.

2 The Role of Religion in Indian Demography

The idea that religion can shape demographic behavior is not new, particularly in the context of South Asia. Most of the existing literature on religion and demography however, focuses on fertility alone. Two main theories have dominated the discussion of religious differences in Indian fertility rates. The 'characteristics hypothesis' proposes that the relative poverty and lower education levels of Muslims drive fertility and mortality patterns that are different than those observed among Hindus (Iyer, 2002). In contrast to this, the 'particularized theology hypothesis' - or the 'pure religion effect' argues that the intellectual content of religion affects fertility directly. Proponents of this hypothesis point out that religious injunctions in favor of multiple wives, large numbers of children, and a ban on the use of contraception and abortion may encourage higher fertility among Muslims. Such arguments however, have also been made for Hindus. The Mysore Population Study conducted in 1961, for example, concluded that Hindu religious traditions in Indian society favored having many offspring (United Nations, 1961).

We believe that the focus on fertility, to the exclusion of other demographic variables such as mortality and the sex-composition of off-spring, is incomplete. For the remainder of this section, we document the differences in beliefs and norms between Hindus and Muslims that may impact their perceived benefits of sons versus daughters.

In Islam, the institutional requirements of the religion are specified in the Sharia or Islamic law which is derived from two main sources – the Koran and the Sunnah, and also the writings of the medieval theologian Al Ghazzali, often cited by Muslim clerics, who

summarized Sunni and Shia positions on demography-related issues such as marriage and birth control (Al Ghazzali, 1909).[3] In the case of Hinduism we consider religious texts such as Vedas, and Upanishads (Radhakrishnan, 1923); epic poems such as the Ramayana and Mahabharata (Deshpande, 1978); social commentaries such as Kautilya's Arthasastra (Shamasastry, 1951); and verse-poems in praise of Hindu goddesses such as the Lalita-sahasranama and the Sri-sukta (Suryanaraya Murthy, 2000) in the context of Indian demography (see Iyer, 2002 for a more detailed discussion of this literature).

A close and comparative reading of the above texts suggests that the costs and benefits of sons compared to daughters may be different within Islam compared to Hinduism. While both religions encourage marriage, the nature of the contract differs. An Islamic marriage or the nikah, is defined not really as a sacrament, but more as a civil contract (Azim, 1997).[4] Parents and guardians exercise control over the selection of marriage partners, and a dower or 'bride price' is paid to the bride or her guardian (Youssef, 1978, p.78). The Koran recognizes the possibility of divorce and encourages remarriage of divorced or widowed women (Qureshi, 1980: 564; Youssef, 1978: 88, Coulson and Hinchcliffe, 1978: 37-38). In the context of India, this is important for Muslim families as the investments in daughters are frequently recoverable after marriage.

As in Islam, Hinduism also encourages all Hindus to enter married life.[5] The marriage of a daughter for Hindus is described as *kanyadaan* – this can be translated as the 'donation' of a daughter. Such a donation is believed to benefit Hindu families both socially and religiously (Niraula and Morgan, 1996). Once married, women cease to be members of their natal home, and are generally not permitted to remarry in the event of divorce or widowhood. Hindu marriages are often accompanied by the giving and taking of significant dowries, i.e. payments from the family of the bride to the groom (Edlund, 1999; Bhat and Zavier, 2003; Rao, 1993; Bloch and Rao, 2002; Botticini and Siow, 2003). Women do not have property rights over these dowries and they are not returned to her or her family in the event of divorce or widowhood.

[3]The *Sunnah* are the interpretations of the words of Mohammad and their application to various situations.

[4]For a Muslim marriage to be legally valid, it needs to meet four conditions: proposal by one party; acceptance by the other; the presence of a sufficient number of witnesses (two in Sunni law); and a formal expression of both the proposal and the acceptance at the same meeting (Azim 1997).

[5]For example Shakuntala, a princess from Hindu mythology tells Dushyanta her beloved that 'when a husband and wife are carrying on smoothly, then only pleasure, prosperity and piety are possible' (Deshpande, 1978: 91).

Such distinctions between the 'contractual' versus the 'donational' notion of marriage in Islam compared to Hinduism have implications for the relative costs and benefits of having sons and daughters. From a purely economic perspective, the net benefit of having daughters may be more 'costly' for Hindu than for Muslim parents in India. Investments in daughters are also not recoverable.

The preference for sons over daughters is also emphasized by other areas of Hindu ritual and philosophy. For example, securing a good 'rebirth' is believed to be directly related to whether the eldest son of a deceased individual lights the funeral pyre. This sentiment is echoed in many writings: 'At the end of the (*Sraddha*) death ceremony the performer asks, "Let me, O fathers, have a hero for a son!"' (Radhakrishnan, 1927, pp. 59-60). Additionally, sons are believed to be a vital source of security in old-age. Daughters are generally considered to 'belong' to the family that they marry into, and so cannot be viewed as a source of support to her natal family.

It must be emphasized that son-preference has also been documented in Islamic society. Islamic law is patriarchal and patrilineal. Sons are given twice as large an inheritance as daughters are and a man's testimony in court is worth twice that of a woman (Coulson and Hinchcliffe, 1978). Women in Islamic societies have typically been restricted to a lifestyle that guaranteed preservation of family honor and prestige and had limited opportunities to participate in labor markets (Coulson and Hinchcliffe, 1978: 38; Obermeyer, 1992). We simply argue that son-preference may less unequivocal as it is with Hindus. More recently, some sociological evidence has also emphasized this. For example, in his study of 378 Muslim women and men in Mangalore, Azim found that over two-third of respondents in his sample did not prefer sons, over daughters (Azim, 1997, p. 187); moreover, a large proportion of those who did were from poor and illiterate households (Azim, 1997: 189). Other nationally representative data from the National Family Health Surveys of India also show that about one-third of Muslims do not prefer sons over daughters (Kishor, 1993). [6]

The relative importance of sons and daughters may stem not only from theology, but also from the differential socio-economic circumstances of Hindus and Muslims (Iyer, 2002;

[6] An early example of the recognition of the contrast in gender norms comes from Maulana Ashraf Ali Thanavi who wrote a compendium of useful knowledge for women. He condemned the practice of blessing a woman by wishing her husband, brother, or children long life, or wishing for her many sons and grandsons (Minault 1998, p. 62). He argued that this was not suficiently Islamic because to view women blessed in terms of their relation to men and sons devalues their relationship to God, and hence goes against the tenet that all are equal in his sight.

Dharmalingam and Morgan, 2004). For example, in India today, it seems important to have educated sons, but in order to get daughters married, it is equally important to have educated daughters. If the average levels of education among Muslim men are for example lower than among Hindu men, then there may be lower educational investments also required of Muslim women (Borooah and Iyer, 2005b). A related issue is land ownership – there may be a greater desire on the part of Hindus to have sons in order to keep land within the patrilineal family line. It is documented that land ownership among Muslims is less than among Hindus (Shariff, 1999). In summary, for reasons that stem both from theological considerations, and from the socio-economic characteristics of religious groups, there may be important differences between Hindus and Muslims in their fertility and mortality of sons compared to daughters. We next turn to a formal investigation of the socio-economic determinants of fertility and mortality differences between Hindus and Muslims.

3 Fertility, Mortality and Religion in India

India today has a total population of just over 1.1 billion people. Census data shows that Hindus form over 80 percent of India's population, while Muslims form approximately 15 percent. Muslims are the most significant 'minority' population and consist of approximately 150 million people. Our description of contemporary India uses data from the newly released 2005-06 National Family Health Survey (NFHS-3).[7] The NFHS interviewed a total of 123,385 women in 29 states of India. The survey is based on a sample of households that is representative at the state as well as national level. The religious composition of the households is consistent with the findings of the Indian Census (2001): 82 percent of households are Hindu, 13 percent are Muslim, 3 percent are Christian, 2 percent are Sikh, and the remainder are other religions. Among Hindus, the caste composition of our population also mirrors the census. 44% of Hindu respondents reported that they belonged to a "Scheduled Caste" or a "Scheduled Tribe" (henceforth referred to as Dalits), and 44% of

[7]The first NFHS survey was conducted in 1992-93, and the second in 1998-99. All three surveys were conducted in conjunction with the Ministry of Health and Family Welfare (MOHFW),Government of India. Funding for the survey was provided by the United States Agency for International Development (USAID), the United Kingdom Department for International Development (DFID), the Bill and Melinda Gates Foundation, UNICEF, UNFPA, and the government of India. Technical assistance was provided by Macro International Maryland, USA.

the Hindu population was higher caste or non-Dalit.[8]

We restrict our sample by including only those households that are Hindu and Muslim, and in which at least one female respondent had borne children. This leaves us with a sample of a total of 81,021 women. Panel A of Table 1 presents additional summary statistics for the female sample.

The basis of our analysis is a comparison between the demographic and socio-economic differences between three subgroups of India's population: the Dalits, Muslims, and Hindus. Since these categories are conceptually overlapping, we define three mutually exlusive categories: non-Dalit Hindus; Muslims; and Dalit Hindus.[9]

We begin with a comparison of socio-economic variables for the three groups in our sample. The first three columns of Table 2 explore differences between non-Dalit Hindus and Muslims, and the next three columns explore differences between non-Dalit and Dalit Hindus. Note that in nearly all respects, non-Dalit Hindus appear richer than Muslims and their Dalit counterparts. They also have higher rates of schooling, lower fertility, higher ownership of farmland and a lower chance of falling below the poverty line. In other words, Muslims and Dalits both appear to be socio-economically disadvantaged relative to upper-caste Hindus. The differences are statistically significant. Where Hindu Dalits and Muslims diverge from each other significantly is in the rates of female labor-force participation. Muslim women work less than their non-Dalit Hindu counterparts, while Dalit Hindus work more. The differences are also visible in other indicators of female labor force participation rates. Muslim women (Dalit women) are less (more) likely to be self-employed, and less (more) likely to work away from home. These differences are again statistically significant.

While Muslims are similar to Dalit Hindus on a range of socio-economic characteristics,

[8] The term 'Dalit' translates as 'the downtrodden', and refers specifically to India's Scheduled Castes and Sceduled Tribes - these are those castes and tribes recognised by the Indian Constitution as deserving special recognition in respect of education, job reservation in employment, and political representation.

[9] While Dalits are also found among Muslims in India (Sachar Committee Report, 2006), we restrict our attention to the Hindu Dalits. This is for two reasons. First, while 30% of Hindus are Dalits, the proportion of Muslims reporting Dalit-status is approximately 2–5% (Sachar Committee Report, 2006). Second, among Hindus, the criteria for being a Dalit are widely recognized. As mentioned in the footnote above, the Indian government maintains official lists of "scheduled castes" and "scheduled tribes". Such benchmarks do not yet exist among other groups, making the categorization of particular houses in a survey somewhat subjective. In our sample, only 452 Muslim women reported themselves as Dalits. We included this group in our Muslim sample, but excluded them from the Dalit sample.

they appear to be quite similar to upper-caste Hindus in that they are less likely to experience the death of a child (particularly a girl), have higher female-male sex ratios among children alive as well as among children ever-born, are less likely to use contraception and have preferences for greater number of girls as well as boys, as evidenced by the greater numbers of girls and boys that they regard as "ideal".[10,11] In all these cases, the differences are statistically significant. Age-specific fertility also confirms that Muslim women bear larger numbers of children at earlier ages than women from other religious groups (Figure 1).

3.1 Fertility Differences

To explore the often-cited fact about higher Muslim fertility, we construct from the female sample the total number of children the woman has had (those born alive as well as those who have died, but excluding miscarriages and stillborns). We first examine the determinants of fertility on the entire sample of women, and then restrict the sample to women over the ages of 30 and 40. Estimation on the restricted sample permits us to examine the relationships for women who have most likely completed their child-bearing.

We control for a variety of other individual, family and regional characteristics. First, we control for a woman's age because of the well-known fact that children born to mothers at very young or very old ages are more likely to die in infancy than children born to mothers in prime childbearing ages. A second set of controls includes variables on whether a woman (the child's mother) and her husband (the child's father) had completed primary school. We also include a dummy variable indicating whether they had never attended school. Third, we control for economic status using a wealth index. This index has been developed and tested in a large number of countries and has been shown to be consistent

[10]Sex-ratios are measured at the level of the cluster/village rather than at the level of a woman. Since a sex-ratio is defined as the number of females relative to the number of males, it can only be constructed for a woman who has had at least one male birth. When aggregating at the level of the village or cluster (which was the NFHS primary sampling unit) however, this problem is alleviated, since it is an average of female and male deaths for a broad group of women.

[11]The low female-male ratio at birth may be attributed to the fact that the practice of sex selective abortion is higher among upper-caste Hindus. This group has been shown to engage in this practice more than other groups (Arnold, Kishor and Roy, 2002). However, since the NFHS data do not contain information on the prevalence and practice of abortion, this is one aspect that we are not able to investigate comprehensively. However, we do acknowledge, readily, the importance of these practices for the subject of this research.

with expenditure and income measures (Rustein, 1999; Filmer and Pritchett, 2001).[12] We also include a control for whether the family resides in a rural area. Rural areas in India typically have significantly higher rates of infant mortality than urban areas. We finally add dummy variables for states and the region in which an individual resides. This is intended to capture state- or region-fixed effects.

The results of the fertility regression are presented in Table 3. As expected, and based on the summary statistics seen in Table 2, the coefficients for *Muslim* and *Hindu Non-Dalit* take opposite signs: Muslims have more children, and Hindu Non-Dalits have fewer children than the omitted group (Dalits) and these differences remain statistically significant even when all the control variables are included. Muslims have about 1 child more than Dalits and Non-Dalits have about 0.3 fewer children than Dalits. We interepret this as evidence that Muslim fertility is higher than Hindu fertility overall. Additionally, most measures of socio-economic status have the expected negative sign in the fertility regressions. The household wealth index as well as parental age and education are all associated with decreased fertility. As widely seen in the empirical literature, maternal attributes have a stronger effect on fertility than paternal attributes.

In results not shown here, we examine the robustness of the relationship between religion and fertility by employing additional socio-economic and demographic variables such as the use of contraception (traditional as well as modern), duration of the use of contraception, exposure to mass media and nutritional indicators. Inclusion of these additional explanatory variables had little to no effect on the two variables *Muslim* and *Hindu Non-Dalit* that are central to our interest in this paper.

[12]The wealth index is constructed by combining information on 33 household assets and housing characteristics such as ownership of consumer items, type of dwelling, source of water, and availability of electricity into a single wealth index. These 33 assets are as follows: household electrification, type of windows, drinking water source, type of toilet facility, type of flooring, material of exterior walls, type of roofing, cooking fuel, house ownership, number of household members per sleeping room, ownership of a bank account, ownership of a mattress, a pressure cooker, a chair, a cot/bed, a table, an electric fan, a radio/transmitter, a black and white television, a color television, a sewing machine, a mobile phone, another other telephone, a computer, a refrigerator, a watch or clock, a bicycle, a motorcycle or scooter, an animal-drawn cart, a car, a water-pump, a thresher, and a tractor. Each household asset is assigned a weight (factor score) that is generated through principal components analysis. The resulting asset scores are standardized in relation to a normal household and is then assigned a score for each asset, and scores were summed for each household; individuals are ranked according to the score of the household in which they reside.

3.2 Infant Mortality Differences

We now turn to religious differences in mortality risks. Our main specification relies on the child sample, which includes all children ever born to women in the female sample described above. The information was gathered from birth-histories and includes children who are alive as well as those who died, and also includes children living within the household as well as those who do not reside in the household any more. As child-death is a censored variable and since the risk of death appears not to be limited to any particular age group, our empirical analysis of the determinants of mortality is based on the Cox Proportional Hazard model:

$$\lambda_i(t) = \lambda_0(t) \exp^{g(M_i^p)+\beta X_i}, \tag{1}$$

where the dependent variable is the mortality hazard, or rather, the risk of death for a particular child i. $\lambda_0(t)$ is the baseline hazard, M_i^p is the dummy variable that indicates whether the child's parents are Muslim, g is a general function and X_i is a vector of observable characteristics that may affect a child's mortality risk. This model is a semi-parametric model in the sense that it does not impose any functional form on the baseline specification.

Our working sample includes 218,769 children who are born to 79,118 Hindu and Muslim mothers in the NFHS-3. Of the 218,769 children who were included in our sample, 25,784 (10.4 percent of the total) had died. The children's ages range from 0–37.[13] For children who died, the average age at death was 20 months.

The set of control variables is very similar to what was used in the female-sample. We also include some additional controls: a dummy indicating whether the child is female, his/her birth order, a dummy indicating whether the child born just previously was female, indicators for whether any meat, dairy or plant-protein was consumed in the 24 hours prior to the survey, and cluster-level averages of vaccination rates for measles, polio, BCG and DPT.[14] Cluster-level averages of female labor force participation rates and female self-employment rates were also included. The subset of observations that has information on

[13] For those children who had died, the age variable was coded as age-at-death.

[14] It is important to note that the average immunization rates will only serve as a rough proxy for health-care services in the cluster. Immunization rates could have changed considerably in many areas (though not in the aggregate for the country) before or after the death of some of the children in the sample. In future work, we will control for immunization levels by year of birth.

all these observations gives us a final sample of 195,080 children.

The results from the basic Cox-Hazard model (in the form of exponentiated coefficients) are presented in Table 4. Six models are estimated, starting with the simplest version, with no control variables.[15] Since the model is non-linear, the coefficients of the variables *Muslim*, *Hindu Non-Dalit*, *Female*, *MuslimXFemale* and *Hindu Non-Dalit X Female* do not provide a measure of the relative risk of belonging to these groups. We calculate these separately and present them in the top columns of Table 4 under the heading "Total Effects".[16] Note that the coefficients that are of most interest to us – *Muslim* and *Hindu Non-Dalit* – take a negative sign and are statistically significant at the 1 percent level in all models, indicating that individuals in both these groups face lower mortality risks than Dalit Hindus.

It is also noteworthy that the coefficient for the dummy variable *Female* is positive and significant at the 1 percent level in all six models, confirming that there is a strong female disadvantage in survival probabilities in India. Interestingly the interaction term *Female X Muslim* is negative and significant at the 1 percent level in all models, indicating that the survival disadvantage is mitigated somewhat among Muslim girls. The coefficient for *Hindu Non-Dalit X Female* is negative in the first two models (columns 1 and 2), but then loses significance (columns 3 to 6). This important result suggests that while caste differences are largely explained by differences in socio-economic characteristics, the same cannot be said of religious differences. The robustness of the interaction *Female X Muslim* is indicative that something specific to "being of the Muslim community" and not captured by survey variables is partially explaining differences in mortality rates between boys and girls.[17] We interpret this robust finding as supporting evidence for a religion-based theory of the documented group differences in demographic variables.

A close look at the estimates for the state-dummy variables provides some additional intersting insights about the variation of mortality risks by state and region. The omitted

[15] STATA 10. The basic unit of time is one year.

[16] STATA 10 calculates these total effects using the command "lincom". The total effect for the variable *Muslim X Female* for example, is calculated by multiplying 'the relative risk of the main effect of Muslim==1' × 'the relative risk of the main effect of Female=1' × 'the relative risk of the interaction term (Muslim, Female)=(1,1)).

[17] First, we interact the variable *Female* with additional controls (mother's and father's educational attainment, wealth, rural-urban residence, and age at marriage) and then test whether the double interaction terms *Muslim X Female* continued to have explanatory power. Second, we separate the sample of Hindus and Muslims and perform the same tests. Both sets of results confirm that while these variables may have considerable explanatory power, the differences between groups remain significant.

state in the analysis is Jammu and Kashmir, a state where 56% of the population reports that it is Muslim. Relative to this state, mortality is lower (and statistically significant) in the neighboring mountainous state of Himachal Pradesh and Uttaranchal. Mortality is also lower in the south. The states of Goa and Kerala in particular display significantly lower risks of mortality. This is entirely expected based on the well-documented progress by these states in the area of human-development (Dreze and Sen, 2001). The mortality risks are higher than the baseline (and statistically significant) in some states in the North and North-East. These include Delhi, Uttar Pradesh, Bihar, Arunachal Pradesh, Tripura, Assam and Jharkhand. Mortality is also higher (and statistically significant) in Orissa, Chhatisgarh and Madhya Pradesh. All other states display no statistically significant mortality risks. There is no evidence that the size of the Muslim population explains these effects.

In a separate analysis that is not shown here, we also explore the regional patterns of mortality. Among our group of explanatory variables, we include interactions of the variable *Muslim* with dummy variables corresponding to different regions. Results indicate that the interaction, and the overall effect of region, is most significant in the states of the North West (Jammu and Kashmir, Himachal Pradesh, Uttaranchal, Haryana, Punjab, Delhi, Rajasthan and Uttar Pradesh). The regional effect is infact insignificant in the South (Goa, Karnataka, Kerala and Tamil Nadu) as well as the North-East (Sikkim, Arunachal pradesh, Nagaland, Manipur, Mizoram , Tripura, Meghalaya, Assam, West Bengal and Jharkhand). In other regions, the Muslim effect as well as the regional effect remain significant, but less so than in the Northwestern states.

3.3 Robustness Checks

In order further to investigate the robustness of our findings, we examine the question from two different but complementary angles. First, we construct two mortality measures defined at the level of the mother: (1) The fraction of ever-born boys who have died, and (2) The fraction of ever-born girls who have died. In our regressions, we use the same set of control variables as the one used in the regressions of the determinants of fertility (see Table 3). The results of the mortality regressions are presented in Table 5. We see that the coefficient *Muslim* is negative and statistically significant in all eight columns, indicating that Muslim women are less likely than Hindus to experience the loss of a child, even when we control for their poorer socio-economic status and location (columns 3–5 and then 8–10 include state

fixed effects). The coefficient for *Hindu Non-Dalit* was negative and significant in the case without control variables (columns 1 and 2) but the variable lost significance once other controls and fixed effects were included, indicating that they were statistically speaking no different from their Dalit counterparts once we include measures of socio-economic status. The Muslim effect however was robust and significant, suggesting that the effect may not be driven by socio-economic status, at least to the same extent as the Dalits.

As an additional robustness check, we perform a similar analysis using village-level data.[18] Our sample now consists of the 3644 villages in the NFHS-3, and our left-hand side variable of interest will be average fertility of women in a village (defined as the total number of children divided by the number of women who were interviewed in a village). The dependent variables are as follows: the fraction of ever-born boys who had died before the age of 5 and the fraction of ever-born girls who had died before the age of 5. The set of our control variables is similar to that in the previous section, except that they are constructed as village-level averages. We control for the fraction of a village's population that is Muslim, as well as upper-caste Hindus. We also control for the average female age, age at marriage, primary school completion and the fraction of the population that has never attended school. Similar variables for men – average age, fraction of men who completed primary school and fraction of men who never attended school – are also included as controls. We also include a set of control variables that focus on wealth. Measures of average landholdings, the average household wealth index and the fraction of households that are rural, are included in this group of control variables. Finally, we also include a set of community level averages for vaccination rates for measles, polio, DPT and BCG, nutritional intakes and female labor force participation rates.

The results for male mortality are presented in columns 4–6 of Table 6 and the results for female mortality are presented in columns 5–9. Note that the coefficient for *Muslim population* is not significant in the male mortality regressions, and is negative and significant in the female mortality regression that includes fixed effects (column 9). On the contrary, the coefficient for *Hindu Non-Dalit Population* is negative and significant in the male mortality regressions without controls (column 4) and positive and significant in the female mortality regression with controls (column 8). We interpret this as evidence that Muslim girls exhibit lower mortality rates than the Dalits, but upper-caste Hindu girls display higher mortality

[18] Ideally, we would like to have performed the analysis at the level of a district, but this was not possible with the NFHS-3 dataset. District information was not included in the public release of the data.

rates than the Dalits. Muslim boys however, do not display any significant difference in mortality rates compared to the Dalits. Upper-caste Hindus however, diplay lower mortality rates in this group, although this appears to be explained by their socio-economic characteristics.

This set of findings is consistent with the results from the child sample. Overall, all the results confirm that Muslims experience lower levels of female mortality. The difference between Hindus and Muslims is not attributable to differences in education, landholdings, wealth, rural-urban residence or state of residence. While Dalits may also display lower levels of female mortality, the Muslim effect appears to be stronger than the Dalit effect.

New research from immigrant communities in North America corroborates our finding on the distinctive demographic characteristics of certain religious groups. Recent work by Almond, Elund, and Milligan (2009), who study sex-ratios among immigrant communities in Canada, finds relatively normal sex-ratios in the Muslim and Christian community, but highly skewed sex-ratios among other religious groups.

We once again acknowledge that we can not rule out the possibility that unobserved variations in socio-economic status may indeed be driving these results. However, unless more national data become available, we must seriously consider the possibility that religion may indeed be a driver of preferences for males and females in India. The survival advantage of Muslim girls – as confirmed by our results from the child sample, woman sample and village sample – suggest that India's "missing women" problem may be concentrated in certain religious groups. This has major policy-implications for it suggests that the status of women within particular caste- and religious-groups deserves greater analysis and attention from academics as well as policy-makers.

4 Conclusion

In this paper, we use recent data from the 2006 National Family Health Survey to explore the relationship between religion and demographic outcomes in India. We find that fertility and demographic behavior vary not only across religious groups, but also across caste groups. A comparison of socio-economic variables suggests that Muslims are similar to Dalit (lower-caste) Hindus in that they are poorer and have more children, but unusually also exhibit

lower infant mortality rates. Our econometric analysis confirms that these differences persist even when we control for socio-economic dcharacteristics, community characteristics and location. Results from samples at the level of individual children, adult females and entire villages all suggest that total infant mortality, and in particular, female infant mortality is lower among Muslims than Hindus. This is an important result for it suggests that India's "missing women" may be most concentrated in particular caste and religious groups and may not be a general problem in the Indian population. The results of this paper also suggest that the tendency to focus merely on differences in fertility between religious groups may be simplistic. While we can not rule out the possibility that unobserved aspects of socio-economic status may be driving our results, we highlight the possibility that religion and religious customs may have a direct effect on how daughters are valued in their families. We believe that there is much scope for further research on the interations between religion, fertility, gender and mortality in India.

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Tables and Figures: Empirical Section

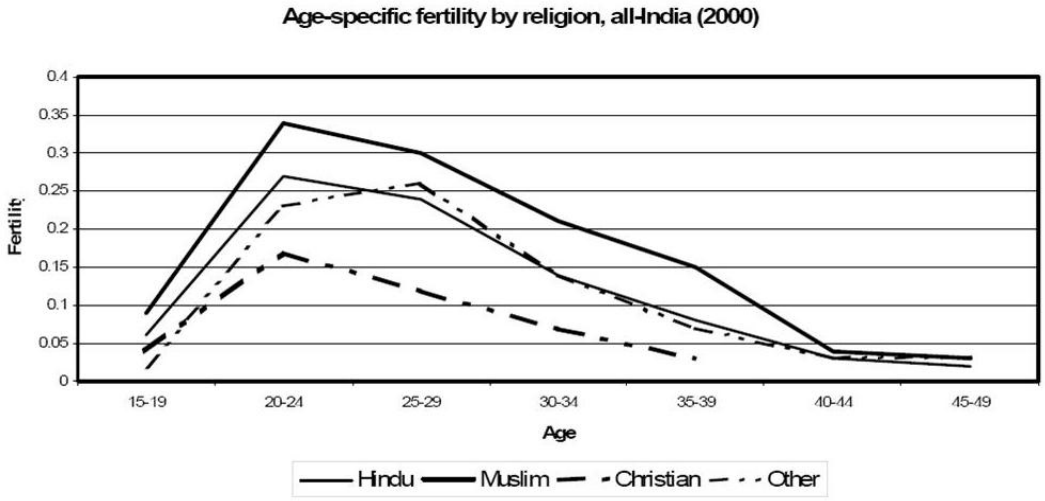

Figure 1: Age-specific fertility rates for women of all religious groups.

Table 1: Summary statistics for variables used in regressions

Variable	Mean	Std. Dev.	N
Panel (A): Female Sample			
Percent of ever-born boys died before age 5	3.484	11.229	79118
Percent of ever-born girls died before age 5	2.997	10.271	79118
Muslim	0.131	0.338	79118
Hindu Non-Dalit	0.564	0.496	79118
Total number of children	3.034	1.789	79118
Woman's age	32.883	8.068	79118
Woman's age at marriage	17.828	3.801	79118
Woman never attended school	0.401	0.49	79118
Woman completed primary school	0.444	0.497	79118
Husband's age	38.58	9.142	79118
Husband never attended school	0.221	0.415	79118
Land (in acres)	4.706	20.811	79118
Wealth index	0.002	0.1	79118
Rural	0.562	0.496	79118
Panel (B): Child Sample			
Muslim	0.155	0.362	218769
Female	0.479	0.5	218769
Muslim × Female	0.075	0.264	218769
Hindu Non-Dalit	0.524	0.499	218769
Hindu Non-Dalit × Female	0.249	0.433	218769
Birth order	2.531	1.669	218769
Previous sibling female	0.319	0.466	218769
Total number of siblings	3.062	2.117	218769
Mother's age	34.931	7.723	218769
Mother's age at marriage	17.08	3.469	218769
Mother never attended school	0.514	0.5	218769
Mother completed primary school	0.326	0.469	218769
Father's age	40.646	8.856	218769
Father never attended school	0.281	0.449	218769
Land (acres)	3.415	17.733	218769
Wealth index	-0.016	0.097	218769
Rural	0.618	0.486	218769
AteMeat	0.026	0.16	218769
AtePlantProtein	0.03	0.171	218769
AteDairy	0.019	0.136	218769
Hemelevel	116.099	17.669	218769
Average measles vaccinations	0.547	0.262	218769
Average BCG vaccinations	0.795	0.234	218769
Average polio vaccinations	0.885	0.152	218769
Average DPT vaccinations	0.761	0.245	218769
Average female LFP	0.376	0.237	218769
Average female self-employed	0.069	0.104	218769
Panel (C): Cluster-level data			
Fraction of boys died before age 1	0.087	0.072	3646
Fraction of girls died before age 1	0.077	0.073	3646
Muslim population	0.123	0.26	3628
Dalit population	0.313	0.312	3628
Average female age	37.311	2.291	3628

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Table 1: Summary statistics for variables used in regressions

Variable	Mean	Std. Dev.	N
Average female age at marriage	17.288	2.043	3628
Average female education	2.683	0.959	3628
Average male education	3.079	0.736	3628
Rural population	0.570	0.495	3628
Average land(in acres)	2.492	4.622	3628
Average wealth index scores	-0.257	83.431	3628
Average of meat	0.015	0.038	3628
Average of plant protein	0.016	0.036	3628
Average of dairy	0.01	0.029	3628
Average of hemoglobin level	117.049	7.627	3628
Average of current female LFP	0.376	0.236	3644
Average of female self-employment	0.071	0.103	3644

Table 1: Summary statistics for variables used in the regressions.

Table 2: Differences between Hindus, Muslims and Dalits

	Non Dalit Hindus	Muslims	Diff (std. err.)	Non-Dalit Hindus	Dalits	Diff (std. err.)
Demographic Profile						
Number of children born	2.9	3.65	-0.76*** (-0.02)	2.9	3.38	-0.47*** (-0.015)
Fraction of ever-born boys who died	0.036	0.039	-0.0026* (-0.0014)	0.037	0.048	-0.012*** (-0.001)
Fraction of ever-born girls who died	0.032	0.033	-0.0012 (-0.0012)	0.032	0.042	-0.0100*** (-0.00096)
Sex-ratio of children alive	980.8	1053.4	72.56*** (20.12)	981.5	1033.8	52.29*** (15.06)
Sex-ratio of children ever-born	972.7	1029.8	57.05*** (18.72)	972.7 (14.1)	1007.6	32.49***
Sterilized	0.44	0.26	0.18*** (-0.0058)	0.44	0.39	0.048*** (-0.0043)
Female contraceptive use	0.62	0.45	0.17*** (-0.0058)	0.62	0.51	0.11*** (-0.0043)
"Ideal" number of girls	1.02	1.22	-0.20*** (-0.0054)	1.02	1.24	-0.22*** (-0.0045)
"Ideal" number of boys	1.31	1.6	-0.28*** (-0.0067)	1.31	1.58	-0.26*** (-0.0052)
Ideal sex-ratio	0.85	0.84	0.0095** (-0.0041)	0.85	0.86	-0.0080** (-0.0031)
Age at first marriage	18.2	17.1	1.12*** (-0.04)	18.1	17.3	0.81*** (-0.03)
Socioeconomic Status						
Female completion of primary school	0.52	0.34	0.18*** (-0.0052)	0.51	0.32	0.19*** (-0.0038)
Female completion of secondary school	0.12	0.032	0.084*** (-0.0032)	0.12	0.03	0.086*** (-0.0022)
Male completion of primary school	0.69	0.48	0.21*** (-0.0049)	0.69	0.5	0.20*** (-0.0037)
Male completion of secondary school	0.21	0.085	0.12*** (-0.0041)	0.21	0.093	0.12*** (-0.0029)
Land (acres)	4.9	4.84	0.051 (-0.22)	4.9	3.99	0.91*** (-0.16)
Household below poverty line	0.53	0.57	-0.045*** (-0.016)	0.53	0.57	-0.046*** (-0.012)
Women currently working	0.35	0.24	0.11*** (-0.0049)	0.35	0.46	-0.12*** (-0.0038)
Women self-employed	0.072	0.04	0.032***	0.072	0.08	-0.0085***

Continued on next page

Table 2: Differences between Hindus, Muslims and Dalits

	Non Dalit Hindus	Muslims	Diff (std. err.)	Non-Dalit Hindus	Dalits	Diff (std. err.)
			(-0.0026)			(-0.0021)
Women working away from home	0.31	0.16	0.15*** (-0.0047)	0.31	0.46	-0.15*** (-0.0037)
Nutrition and Health Inputs						
Eat Meat	0.026	0.055	-0.029*** (-0.0019)	0.024	0.036	-0.011*** (-0.0014)
Eat Plant protein	0.037	0.035	0.0024 (-0.0021)	0.037	0.037	-0.00044 (-0.0016)
Eat Dairy	0.019	0.04	-0.022*** (-0.0016)	0.018	0.026	-0.0084*** (-0.0012)
Women's hemoglobin level	117	116.2	0.89*** (-0.19)	117	114.9	2.09*** (-0.15)
Vaccinated against measles	0.62	0.46	0.16*** (-0.0063)	0.62	0.5	0.12*** (-0.005)
Vaccinated against BCG	0.83	0.68	0.16*** (-0.0051)	0.83	0.72	0.11*** (-0.0042)
Vaccinated against polio	0.92	0.86	0.059*** (-0.0038)	0.92	0.85	0.066*** (-0.0032)
Vaccinated against DPT	0.81	0.63	0.17*** (-0.0054)	0.81	0.69	0.11*** (-0.0043)

Table 2: Notes: (i) Individual data are based on a total sample of 51217 Hindu women and 9269 Muslim women who are married and have had at least one male birth prior to the survey; (ii) The sex-ratio is defined per cluster as the (number of females)/(number of males) $\times$ 1000 and is calculated as an average over clusters; (iii) Standard errors in parentheses: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 3: Fertility Regressions (female sample), Dependent Variable: Number of children born

	All Women			Age≥30	Age≥40
	(1)	(2)	(3)	(4)	(5)
Muslim	0.344***	0.448***	0.539***	0.780***	0.971***
	(0.110)	(0.110)	(0.0585)	(0.0884)	(0.127)
Hindu Non-Dalit	-0.530***	-0.280***	-0.216***	-0.285***	-0.325***
	(0.0433)	(0.0720)	(0.0269)	(0.0361)	(0.0483)
Mother's age		0.124***	0.114***	0.0824***	0.0766***
		(0.00852)	(0.00642)	(0.00398)	(0.00539)
Mother's age at marriage		-0.116***	-0.114***	-0.106***	-0.106***
		(0.00669)	(0.00453)	(0.00486)	(0.00472)
Mother never attended school		0.367***	0.231***	0.235***	0.212***
		(0.0733)	(0.0319)	(0.0385)	(0.0436)
Mother completed primary school		-0.121***	-0.113***	-0.226***	-0.340***
		(0.0306)	(0.0222)	(0.0305)	(0.0464)
Father's age		-0.0153***	-0.00217	-0.00624**	-0.0137***
		(0.00432)	(0.00229)	(0.00290)	(0.00353)
Father never attended school		0.0934**	0.124***	0.133***	0.133**
		(0.0408)	(0.0262)	(0.0359)	(0.0566)
Land (in acres)		-0.00178***	-0.00194***	-0.000826	-0.00239**
		(0.000383)	(0.000627)	(0.000586)	(0.00105)
Wealth index		-3.328***	-3.471***	-4.107***	-4.420***
		(0.405)	(0.303)	(0.367)	(0.403)
Rural population		-0.0319	-0.0261	-0.00946	-0.0238
		(0.0458)	(0.0401)	(0.0480)	(0.0626)
Constant	3.288***	1.628***	1.288***	2.447***	2.957***
	(0.110)	(0.142)	(0.211)	(0.166)	(0.217)
State Fixed-Effects	No	No	Yes	Yes	Yes
Observations	79118	79118	79118	49342	19518
Adjusted R-squared	0.034	0.420	0.463	0.414	0.380

Table 3: Number of children per woman, inclusive of any who died. Standard errors in parentheses: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 4: Cox Proportional Hazard Model (child sample)

	(1)	(2)	(3)	(4)	(5)	(6)
Total Effects:						
Female	0.430***	0.339***	0.359***	0.357***	0.364***	0.360***
	(0.105)	(0.105)	(0.105)	(0.105)	(0.105)	(0.105)
Muslim	-0.351***	-0.558***	-0.375***	-0.372***	-0.372***	-0.366***
	(0.0694)	(0.0704)	(0.0696)	(0.0697)	(0.0709)	(0.0724)
Hindu Non-Dalit	-0.472***	-0.312***	-0.144***	-0.144***	-0.149***	-0.178***
	(0.0479)	(0.0470)	(0.0466)	(0.0467)	(0.0470	(0.0477)
Muslim X Female	-0.180***	-0.482***	-0.271***	-0.268***	-0.264***	-0.254***
	(0.0693)	(0.0705)	(0.0704)	(0.0705)	(0.0713)	(0.0730)
Non-Dalit Hindu X Female	-0.301***	-0.236***	-0.0409	-0.0401	-0.0417	-0.0662
	(0.0477)	(0.0469)	(0.0474)	(0.0474)	(0.0476)	(0.0481)
Coefficients:						
Muslim	-0.458***	-0.707***	-0.513***	-0.509***	-0.511***	-0.499***
	(0.0720)	(0.0730)	(0.0728)	(0.0729)	(0.0739)	(0.0754)
Female	0.171***	0.0757	0.104**	0.103**	0.107**	0.112**
	(0.0462)	(0.0466)	(0.0466)	(0.0466)	(0.0466)	(0.0467)
Muslim X Female	0.107	0.149	0.138	0.137	0.139	0.133
	(0.0946)	(0.0952)	(0.0947)	(0.0947)	(0.0947)	(0.0947)
Hindu Non-Dalit	-0.625***	-0.426***	-0.261***	-0.260***	-0.266***	-0.293***
	(0.0503)	(0.0502)	(0.0504)	(0.0505)	(0.0507)	(0.0510)
Hindu Non-Dalit X Female	0.153**	0.114*	0.117*	0.116*	0.117*	0.115*
	(0.0651)	(0.0652)	(0.0651)	(0.0651)	(0.0651)	(0.0650)
Birth order		0.138***	0.143***	0.143***	0.143***	0.143***
		(0.00905)	(0.00916)	(0.00916)	(0.00917)	(0.00921)
Previous sibling female		-0.00499	0.00357	0.00274	0.00570	0.00510
		(0.0315)	(0.0314)	(0.0314)	(0.0314)	(0.0314)
Total number of siblings		0.171***	0.0811***	0.0811***	0.0735***	0.0649***
		(0.00888)	(0.0102)	(0.0102)	(0.0105)	(0.0107)
Mother's age			0.0227***	0.0228***	0.0227***	0.0215***
			(0.00473)	(0.00474)	(0.00473)	(0.00471)
Mother's age at marriage			-0.0284***	-0.0284***	-0.0285***	-0.0265***
			(0.00604)	(0.00607)	(0.00608)	(0.00619)
Mother never attended school			0.192***	0.192***	0.171***	0.149***
			(0.0509)	(0.0509)	(0.0510)	(0.0517)
Mother completed primary school			-0.244***	-0.244***	-0.243***	-0.259***
			(0.0714)	(0.0714)	(0.0713)	(0.0715)
Father's age			0.000984	0.000917	0.00211	0.00400
			(0.00365)	(0.00366)	(0.00367)	(0.00377)
Father never attended school			0.105***	0.105***	0.103***	0.116***
			(0.0363)	(0.0363)	(0.0364)	(0.0368)
Land (acres)			-0.00104	-0.00103	-0.00113	-0.00148
			(0.00108)	(0.00108)	(0.00108)	(0.00108)
Wealth index			-3.621***	-3.591***	-3.501***	-3.065***
			(0.285)	(0.286)	(0.290)	(0.308)
Rural			-0.0523	-0.0508	-0.0615	-0.0762
			(0.0443)	(0.0444)	(0.0457)	(0.0468)
Ate Meat				-0.290*	-0.279	-0.263
				(0.173)	(0.173)	(0.173)
Ate Plant Protein				0.0861	0.0792	0.0578
				(0.128)	(0.129)	(0.128)

Continued on next page

Table 4: Cox Proportional Hazard Model (child sample)

	(1)	(2)	(3)	(4)	(5)	(6)
Ate Dairy				0.0981	0.125	0.118
				(0.178)	(0.178)	(0.177)
Hemelevel				-0.00155*	-0.00152	-0.000893
				(0.000925)	(0.000926)	(0.000954)
Average measles vaccinations					-0.435***	-0.282**
					(0.110)	(0.114)
Average BCG vaccinations					0.0919	0.158
					(0.157)	(0.163)
Average polio vaccinations					0.160	-0.0404
					(0.127)	(0.136)
Average DPT vaccinations					0.0702	0.0599
					(0.151)	(0.156)
Average female LFP					-0.00575	0.194**
					(0.0756)	(0.0871)
Average female self-employed					0.0659	0.267
					(0.151)	(0.165)
State Dummies	No	No	No	No	No	Yes
N	195080	195080	195080	195080	195080	195080
Chi-squared	286.7	1977.8	2449.8	2471.8	2502.2	2912.8

Table 4: Cox Proportional Hazard Model. Standard errors in parentheses: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 5: Mortality Regressions (female sample), Dependent Variable: Fraction of woman's children who died

	Boys					Girls				
	All mothers			Age≥30	Age≥40	All mothers			Age≥30	Age≥40
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Muslim	-0.758**	-0.986***	-1.045***	-1.491***	-1.898***	-0.586*	-0.863***	-1.086***	-1.286***	-1.516***
	(0.365)	(0.240)	(0.227)	(0.281)	(0.377)	(0.338)	(0.205)	(0.197)	(0.264)	(0.393)
Hindu Non-Dalit	-1.166***	0.00612	-0.171	-0.201	-0.463	-0.916***	0.245*	-0.0565	0.0199	0.0654
	(0.210)	(0.158)	(0.145)	(0.184)	(0.305)	(0.207)	(0.139)	(0.100)	(0.105)	(0.166)
Total Children		1.130***	1.145***	1.163***	1.019***		1.120***	1.098***	1.094***	1.055***
		(0.0676)	(0.0622)	(0.0627)	(0.0693)		(0.0703)	(0.0565)	(0.0678)	(0.0699)
Woman's age		-0.0204	-0.0246*	0.0308*	0.0437		-0.0473***	-0.0557***	-0.00307	0.0257
		(0.0135)	(0.0127)	(0.0169)	(0.0336)		(0.0143)	(0.0131)	(0.0170)	(0.0330)
Woman's age at marriage		-0.0237*	0.000853	0.000619	0.00818		-0.00182	0.0228*	0.0269*	0.00974
		(0.0128)	(0.0116)	(0.0130)	(0.0204)		(0.0150)	(0.0117)	(0.0135)	(0.0231)
Woman never attended school		0.457***	0.391***	0.516***	0.381		0.540***	0.369***	0.506***	0.265
		(0.126)	(0.132)	(0.143)	(0.268)		(0.116)	(0.125)	(0.149)	(0.315)
Woman completed primary school		-0.196	-0.196*	0.0540	-0.190		-0.321**	-0.323**	-0.143	0.0183
		(0.119)	(0.113)	(0.147)	(0.205)		(0.131)	(0.134)	(0.151)	(0.212)
Husband's age		-0.0157	-0.0131	-0.00659	0.00839		0.000259	0.0125	0.0102	-0.00000417
		(0.0110)	(0.0114)	(0.0163)	(0.0236)		(0.0133)	(0.00985)	(0.0110)	(0.0194)
Husband never attended school		0.175	0.177	0.147	-0.165		0.510***	0.527***	0.384**	0.459*
		(0.125)	(0.132)	(0.131)	(0.249)		(0.135)	(0.133)	(0.163)	(0.238)
Land (in acres)		0.00549**	0.00418*	0.00327	-0.00131		0.00650***	0.00451*	0.00802**	-0.00466
		(0.00241)	(0.00230)	(0.00249)	(0.00675)		(0.00221)	(0.00227)	(0.00346)	(0.00516)
Wealth index		-7.354***	-5.680***	-6.353***	-10.96***		-5.585***	-4.633***	-5.393***	-7.930***
		(0.810)	(0.728)	(0.844)	(1.270)		(0.624)	(0.658)	(0.775)	(1.256)
Rural		-0.177	-0.0107	-0.0757	-0.207		-0.0855	0.0341	-0.0685	-0.0822
		(0.127)	(0.136)	(0.157)	(0.264)		(0.115)	(0.115)	(0.111)	(0.173)
Constant	4.241***	1.835***	1.007**	-1.313**	-1.134	3.591***	0.995**	0.422	-1.796***	-1.681
	(0.368)	(0.379)	(0.384)	(0.477)	(1.383)	(0.368)	(0.388)	(0.374)	(0.471)	(1.363)
Observations	79118	79118	79118	49342	19518	79118	79118	79118	49342	19518
Adjusted R-squared	0.002	0.047	0.050	0.071	0.076	0.002	0.054	0.057	0.079	0.086

Table 5: Notes:(i) Standard errors in parentheses: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 6: Cluster-level mortality regressions (village sample)

	Fraction of Boys Died			Fraction of Girls Died		
	(1)	(2)	(3)	(4)	(5)	(6)
Muslim population	-0.00719	-0.00519	-0.00362	-0.00635	-0.00502	-0.00556*
	(0.00552)	(0.00318)	(0.00324)	(0.00614)	(0.00319)	(0.00322)
Hindu Non-Dalit population	-0.00913**	0.00144	0.000537	-0.00450	0.00503*	0.00114
	(0.00354)	(0.00235)	(0.00212)	(0.00360)	(0.00270)	(0.00211)
Average female age		0.000199	0.000172		0.0000599	0.0000116
		(0.000119)	(0.000113)		(0.000116)	(0.000112)
Average female age at marriage		-0.000514*	-0.000307		-0.000230	0.0000772
		(0.000279)	(0.000261)		(0.000237)	(0.000259)
Average female education		-0.0135***	-0.0119***		-0.0108***	-0.00779***
		(0.00187)	(0.00184)		(0.00221)	(0.00183)
Average male education		0.000496	0.000180		-0.00182	-0.00176
		(0.00229)	(0.00204)		(0.00290)	(0.00202)
Rural population		-0.00170	0.00149		0.00264	0.00575**
		(0.00248)	(0.00233)		(0.00295)	(0.00231)
Average land (in acres)		0.0000233	0.0000229		0.0000659	0.0000560
		(0.0000850)	(0.0000642)		(0.0000641)	(0.0000638)
Average wealth index scores		-0.0000970***	-0.0000811***		-0.0000782***	-0.0000637***
		(0.0000140)	(0.0000134)		(0.0000126)	(0.0000133)
Average of meat		-0.0287	0.0142		-0.0812***	-0.00396
		(0.0176)	(0.0206)		(0.0149)	(0.0205)
Average of plant protein		-0.0145	-0.0163		-0.0242	-0.0296*
		(0.0152)	(0.0179)		(0.0189)	(0.0178)
Average of dairy		-0.0595**	-0.0430*		-0.0228	0.00292
		(0.0227)	(0.0228)		(0.0237)	(0.0226)
Average of hemoglobin level		-0.000639***	-0.000539***		-0.000719***	-0.000568***
		(0.000164)	(0.000147)		(0.000164)	(0.000146)
Average of measles vaccinations		-0.00463	-0.000318		0.000182	0.00416
		(0.00530)	(0.00533)		(0.00487)	(0.00529)
Average of BCG vaccinations		-0.0151	-0.00282		-0.0186	-0.00678
		(0.0115)	(0.00952)		(0.0115)	(0.00946)
Average of polio vaccinations		0.0322**	0.0200**		0.0370***	0.0116
		(0.0126)	(0.00827)		(0.0128)	(0.00822)
Average of DPT vaccinations		-0.0159*	-0.0127		-0.0287***	-0.0186**
		(0.00835)	(0.00949)		(0.00935)	(0.00943)
Average female LFP		0.000960	0.00657		-0.00298	0.00778
		(0.00654)	(0.00476)		(0.00607)	(0.00473)
Average female self-employment		0.00112	-0.00559		0.0162	0.0114
		(0.0112)	(0.00943)		(0.0118)	(0.00938)
Constant	0.0766***	0.185***	0.158***	0.0656***	0.189***	0.155***
	(0.00546)	(0.0195)	(0.0187)	(0.00572)	(0.0208)	(0.0186)
State Fixed Effects	No	No	Yes	No	No	Yes
N	3644	3637	3637	3644	3637	3637
R-squared	0.00487	0.202	0.236	0.00152	0.201	0.250

Table 6: Regressions based on 3644 clusters. Standard errors in parentheses: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.