Son Preference, Voting Behavior, and India's Missing Women*

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Abstract

The severe anti-female bias in natality and child mortality that gives rise to India's missing women has been widely documented and various explanations ranging from agricultural labor demand to dowries have been offered in the literature. In general, the low demand for girls has been interpreted as a rational response to economic constraints as well as son preference. In this paper, we argue that cultural factors significantly influence anti-female bias in India, both directly through preferences and by altering the economic constraints faced by households. We find that religious denomination, caste and the vote share of certain religious parties, our proxies for culture, are significantly correlated with anti-female bias in natality and mortality. Specifically, the electoral success of certain religious parties is negatively correlated with female-male birth and child sex ratios. Moreover, the main channel through which this relationship exists is via the high-caste Hindu population. Our results, which are robust to a variety of specifications and controls, contribute to the literature that shows the importance of culture in economic decision making.

JEL Codes: J11, J16, O12
Keywords: Female Disadvantage, Mortality, Son Preference, Cultural Transmission, India

1 Introduction

The observation that certain regions in South and East Asia exhibit both sex ratios at birth and child survival rates that are highly skewed towards boys is certainly not new. In fact, over a decade ago Amartya Sen calculated that a staggering 100 million females are missing in the region (Sen 1992), and countless articles before and since then have created an often heated debate about the causes and consequences and even the number of these missing women. In this article we examine sex ratios

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in India at birth and for all surviving children under five. We claim that cultural factors are key determinants of the anti-female bias observed in India. This claim is supported by our empirical results. Controlling for household expenditure and other economic variables, we find that religious denomination, caste and the vote share of certain religious parties, our proxies for culture, are correlated with sex-ratios.

Although the concept of culture is generally diffuse and may depend on the circumstances in which it is invoked, we rely on a deliberately narrow definition of culture. Following Guiso et al. (2006) and Fernández (2007*a*), we understand culture as sets of beliefs and values that differ systematically between groups of people and that, moreover, persist with little change over time. Faced with the same observable constraints, utility-maximizing individuals with different cultures may thus behave differently and changes in behavior in response to changes in the environment may be slow to materialize.

Economists have traditionally been loath to attribute differences in observed behavior to unobservable cultural factors and have been successful at endogenizing both beliefs (Muth 1961) and preferences (Stigler & Becker 1977).[1] This notwithstanding, recent theoretical efforts such as Akerlof & Kranton (2000)'s work on identity as well as a growing body of empirical evidence stress the role of preferences and beliefs in economic decision making. Cultural factors have been shown to influence Mediterranean trading networks in the Middle Ages (Greif 1994), differences in economic growth worldwide (Barro & McCleary 2002) and within regions in Europe (Tabellini 2007), absenteeism and shirking at different branches of an Italian bank (Ichino & Maggi 2000), the age at which children move out of their parent's home (Giuliano 2006) and labor mobility in the American Midwest (Munshi & Wilson 2007).

Moreover, Bisin & Verdier (1998, 2000*b*) link socialization and education of children by their parents to the intergenerational propagation of cultural attitudes. Examining female fertility and labor force participation decisions of second-generation US immigrants, respectively, Fernández & Fogli (2006) and Fernández (2007*b*) provide empirical evidence for the persistence of behavior across generations. Alesina & Fuchs-Schündeln (2005), likewise, find that while differences in origin can explain different preferences for redistribution between East and West Germans these differences have persisted after the re-unification of the two countries even among people who have moved across the old border. Self-selection into a particular social environment (Bisin & Verdier 2000*a*) or the choice of marriage partners Fernández et al. (2004) may aid the transmission of beliefs and preferences in this process.

Apart from the social and moral implications, India's missing women are interesting, we believe, as a further example of the role of culture in economic decision making. Two stylized facts describe the situation. First, despite widespread improvements in access to health care and nutrition, the relative number of girls under five has actually fallen over the last ten years from 955 for every 1000 boys in 1991 to 930 in 2001.[2] Secondly, sex-ratios exhibit stark inter-regional heterogeneity. Compared to an approximate reference US female-male ratio at birth of 0.95, 2001 state-level rates vary from 0.78 and 0.79 in Haryana and Punjab, respectively, to 1.00 and 0.99 in Arunachal Pradesh and Mizoram.[3] The map in figure 1 reveals a striking geographic pattern with the lowest number of girls born in the

[1] For a detailed summary of the role of culture in economics see Guiso et al. (2006).

[2] See Table 1.

[3] Figures for all Indian states are found in Table 2. The international comparison is provided in Table 3.

North-western parts of India.

A wide range of explanations have been offered for the lack of girls. Drew et al. (1986) and Oster (2005), for example, point to findings from the medical literature which suggest that women infected with the Hepatitis B virus tend to give birth to fewer girls than healthy women, with the latter attributing up to 20% of India's missing girls to the virus. Given the prevalence and distribution of Hepatitis B in India (Pulliyel 2006) we believe that Oster (2005) may overestimate the importance of this natural cause for sex determination.[4] The absence of comprehensive of data, however, make it difficult to provide better estimates.

Economic arguments focus on the cost and benefit of raising boys and girls. Three main factors making girls more expensive and thus less attractive to parents have been identified: dowry, the low economic value of girls for parents and agricultural labor demand. Although illegal, there is sufficient anecdotal evidence to conclude that dowry payments are not only still demanded but that they often represent a severe financial burden for the household of the bride (Greenberg 2003). Moreover, despite the lack of recent detailed studies on dowry in India, anecdotal evidence suggests that demands have risen over the last decade or so.[5] Amounts in the order of Rs. 1m (US$ 21,834)[6] for upper middle class marriages are not uncommon and even low-income men, such as teachers or clerks, can command as much as Rs. 300,000 (US$ 6,550).[7] Compared to a median monthly per capita and overall household expenditure of Rs. 140 and Rs. 843, respectively, (US$ 3.05 and US$ 18.40), such amounts are staggering and may provide sufficient incentives to prefer boys.[8]

Since women traditionally become part of their husband's extended family and are not expected to contribute to the financial support of their parents in old age, having sons has a positive effect on the expected standard of living of parents. Rosenzweig & Schultz (1982) show that boys in India receive a larger share of family resources and have a greater propensity to survive because they are expected to be more economically productive as adults than girls. This effect is less severe in regions where people practice village-level endogamy, that is where marriages tend to take place within a village, and daughters remain physically close to their parents (Agnihotri 1996, Kishor 1993, Dyson & Moore 1983). A similar point is made by Lahiri & Self (2004, 2005) who observe that endogamous practices in southern India and even more so among the Muslim community can explain at least part of the differential sex-ratios.

Bardhan (1974, 1988) links the relatively low female birth and survival rates in the northwest of India to agricultural practice. He observes that farmers in the regions with the lowest sex-ratios grow mainly wheat and other cereals while the

[4]The argument rests on two observations. First, the Hepatitis B prevalence used by Oster (2005) (4.33%) considerably exceeds the estimates obtained from a meta-analysis for non-tribal women (1.5%-2.1%) (Pulliyel 2006). Moreover, the particularly high infection rates associated with both tribal populations (19.7%) and particular states (Tamil Nadu, 4.4% and Karnataka, 4.5%) are at odds with the relatively high sex-ratios among those populations. Ebenstein (2007) makes a similar argument for China. A more general critique of Oster (2005)'s thesis and her reply can be found in the exchange in the Population and Development Review (Das Gupta 2005, Oster 2006, Das Gupta 2006).

[5]Rao (1993) examines dowry payments in six Indian villages prior to 1983. While he finds evidence for a rise in dowry payments, the size and age of his sample make it difficult to generalize his analysis to the 1990s.

[6]An exchange rate of Rs. 45.80/US$ is used for all currency conversions.

[7]Source: Sunday Times of India, Mumbai Edition, December 11, 2005.

[8]Consumer Expenditure Schedule, NSSO, 1999-2000

dominant crop in the southern parts of India tends to be rice. If growing wheat is more male labor intensive than growing rice, perhaps due to the tasks involved, agricultural cultivation patterns could explain differential son preference across India. If, however, the division of the majority of agricultural tasks is determined more by conventions than actual physical requirements, differential labor demand may be the outcome of different cultural traditions in North and South India.

In any case, economic development with rising incomes and increasing mechanization of agriculture may be expected to reduce economic constraints against raising daughters and lead to an increase in the relative number of girls over time. After all, richer parents do not have to rely solely on their sons for their survival in old age and – unless the income elasticities of dowry payments and wedding expenses exceed one – the relative cost of girls should therefore fall even if nominal payments have risen. In addition, increasing female labor force participation may give daughters the resources to contribute to the financial support of their parents. The mechanization of agriculture at the same time reduces the demand for physical strength and should lead to a reduction in the anti-female bias in agricultural labor demand. The fact that sex-ratios have been falling as aggregate income has been rising seems thus at first inconsistent with a purely economic view of missing women.

The availability of sex-selective abortion, however, complicates the picture (Sen 2003). If the cost of aborting a daughter is lower than the cost of raising a girl, a slight increase in income may allow parents the choice to abort their daughter without, however, giving them the financial means to raise her. Although sex-selective abortions, like dowry demands, are illegal, (anecdotal) evidence suggests that they are well within the means of middle-class parents.[9] A price range from Rs. 5,000 (US$ 109) to Rs. 20,000 (US$ 437) for illegal sex-selective abortions reported by the Indian news media[10] is consistent with the finding of several studies that legal early abortions are available for between Rs. 500 and Rs. 1,000 and late abortions average between Rs. 2,000 and Rs. 3,000 per case (see Table 5). The relationship between average income and sex-ratios is then unlikely to be linear and may include significant threshold effects. Declining sex ratio may thus be compatible with a purely economic explanation.

More suggestive of a cultural explanation is the fact that the shortage of women for marriage does not seem to have led to a general rise in their value and bargaining power both before and after marriage. A simple equilibrium argument would predict that the lack of women for marriage in the areas with the lowest sex-ratios would have have been followed by a fall in dowries which, in turn, would induce parents to raise more girls. This does not seem to have happened, however. Rather, the severe lack of women in certain regions of India seems to have resulted in increased trade in "brides" between states, forced prostitution and sexual abuse of women

[9]The Indian government legalized abortion under the Medical Termination of Pregnancy (MTP) Act, 1971 (amended in 2002). This law gives Indian women the right to terminate an unintended pregnancy by a registered medical practitioner in a hospital established or maintained by the government or a place approved for the purpose of this act by the government. Pregnancies can be terminated for three reasons: as a health measure when there is danger to the life or risk to physical or mental health of the women; on humanitarian grounds (such as when pregnancy arises from a sex crime like rape); and where there is a substantial risk that the child, if born, would suffer from deformities and diseases. The Pre-Conception and Pre-Natal Diagnostic Techniques (Prohibition of Sex Selection) Act and Rules 1994 (as amended up to 2003) (PCPNDT Act) mandates that sex selection by any person, by any means, before or after conception, is prohibited.

[10]Sources: Daily Mail, online edition, July 4, 2006; Times of India, online edition, August 17, 2006.

and children.[11] Such development does not fit easily into a simple bargaining model of gender relations (Park & Cho 1995, Samuelson 1985, Davies & Zhang 1997, Goodkind 1996): either dowries have not fallen locally or this development has not translated into higher sex-ratios. Anti-female discrimination combined with low female social status is consistent, however, with equilibrium in a model where parents exhibit son preference as Edlund (1999) shows. Nevertheless, anecdotal evidence and stylized facts are far from conclusive and more careful data analysis is required to link sex-ratios to cultural factors.

The following section discusses briefly the cultural and historical aspects of anti-female bias and establishes a link between conservative culture, son preference and voting behavior. Since attitudes are difficult if not impossible to extract from census data, we argue that religion, caste and voting behavior may be used as a proxy. Section 3 describes the data sources and empirical strategy. The discussion of our results is found in section 4 and 5 provides concluding remarks.

2 Conservative culture, son preference and voting behavior

2.1 Conservative culture and son preference

The origin of female infanticide and neglect leading to artificially low sex-ratios can be traced back at least to kinship-based pre-state level societies. In that context, anti-female bias has been interpreted as a rational response of those societies to environmental and technological constraints in the context of differences in physical characteristics and sexual productivity between men and women. It is generally seen as part of a system where women join the kinship group of their husbands (patrilocality) and aspire to marry men of a higher social stratum (hypergyny). Divale & Harris (1976), for example, suggest that the need for population control and military power in resource-scarce environments may lead to female infanticide. Dickeman (1979*a*,*b*), on the other hand, claims that imbalances in the sex-ratios are mainly caused by hypergyny, which she views as a strategy to maximize reproductive success.

Both explanations are criticized by Hawkes (1981) who points out that low sex-ratios cannot be an equilibrium in either model. Rather she sees the potential threat that outsiders (sons-in-law) may pose to the resources of a kinship group as the driving force behind patrilocality and the resulting lower value of girls. Since this threat increases in the wealth and status of a kin group, anti-female bias may be associated more with high rather than low status groups. The correlation between low sex-ratios, infanticide and high-caste status in India, found by Miller (1981), Oldenburg (1992) and Tambiah (1973), support Hawkes (1981)'s argument. In areas where environment and production technology keep men away from their village or camp for considerable periods of time, in contrast, kinship groups would not be willing to give up their female labor force and matrilocal arrangements would evolve. The emergence of state organization, division of labor and rule-enforcing institutions is likely to reduce these incentives to control the sex of offspring.

Even though female infanticide most likely developed as a rational response to the environment and available production technologies, its practice has persisted in many areas even centuries after the disappearance of the causing conditions. Hy-

[11] BBC World News, 5 April 2006.

pergyny combined with dowries, group identity and religious sanctioning appear instrumental in this context. Both Islam and Christianity explicitly prohibit female infanticide and sex selective abortions while Hinduism and Buddhism exhibit a more ambivalent attitude. Although early religious Hindu scriptures condemn infanticide, later post-Vedic texts assume that children are not living souls until the age of two, thereby removing one hurdle to sex selection, and require a son to perform the funerary rites for his parents (Hudson & den Boer 2004). Buddhism, likewise, appears to condone infanticide until children reach the age of one (Kristof & WuDunn 1994, Li 1991).

Botticini & Siow (2003) suggest that the payment of dowries in India is linked to the pressure for women to marry men of a higher social stratum. This pressure is part of a traaditional system of asymmetric gender realations in which household and caste identity as well as the importance of maintaining an honorable family reputation affect women differently than men. Although women join the household of their husbands, the damage that their marriage into a family of lower social status can do to their parents' social identity by violating the social boundaries of their class is considerable and parents generally attempt to find husbands of at least equal status. Sons bringing wives of lower status into the family – within limits – have no detrimental effect on their kin group's identity. This leads to hypergyny and the payment of dowry in order to avoid the cost of a threat to identity. In addition, the loss of face associated with a canceled wedding, that is with a rejected daughter, may make households embedded in such a traditional cultural setting susceptible to dowry blackmail.[12]

This pressure for women to marry up has two consequences. A large number of low-status parents compete for a relatively small number of higher status husbands, with dowries acting as a price to balance supply and demand. High-status parents, in contrast, can gain financially from raising a son while finding an acceptable husband for a daughter may be difficult. As a result, both high- and low-status parents prefer sons – albeit for very different reasons. A residual of low-status men may remain unmarried or pay a bride price in order to obtain a wife (Hudson & den Boer 2004). In some cases dowries can be interpreted as an investment into a wealthy husband and may therefore be paid voluntarily; in most instances, however, the material payoff to hypergyny is likely to be outweighed by the dowries demanded.[13]

The threat that women pose to household identity and reputation extends beyond the marriage market. At the center of this lies a definition of female moral integrity that views with outright hostility any contact between women and unrelated men and a type of spillover in which the actions of a particular family member affect the honor of the entire family. This is both the consequence of a traditional female ideal which values modesty and shamefulness above all and an issue of control. Unsupervised contact between men and women of different households signals a lack of control of the household over its female members. In that sense, women requiring permission to leave the house, even if granted, is a sign of control well exercised (Derne 1994).

This has two economic consequences. Since female employment involves contact between men and women that can under most circumstances not be controlled and supervised by male household members, female wage rates are unlikely to affect

[12] A girl that has been linked to a particular man through an engagement or in any other way is seen as less desirable and therefore less likely to find a husband in the future.

[13] If dowries are purely an investment in a wealthy husband, their payment would be voluntary and should not be lead to female infanticide.

employment by women in traditional households. Rosenzweig & Schultz (1982) use the female labor force participation rate rather than female wages in their analysis of child survival in rural India for this reason. If the work of female household members can be organized in a way that does not represent a potential threat to the family honor, say by mutual supervision of female household members, women are more likely to be economically valuable. Communal agricultural work, for example, may be one of those instances. Moreover, in a society where informal transactions are key to economic success, a loss of honor due to the behavior of a female family member may well have serious material consequences on top of bringing shame to the family. While this is certainly true for wives, it also holds for daughters. Girls are therefore much more of a risk to family honor and identity than sons to whom the strict moral code does not generally apply.

Within India, this type of family structure and value system is by no means universal. Rather it should be seen as a high-caste ideal associated with *conservative* Aryan (Hindu) ideology. Southern Indian Dravidian cultural norms as well as family organization in non-Hindu religions and even lower caste Hindu ideals and practices are likely to be different (Derne 1994). Parents who have adopted Western ideas about the role of women in society at least to some extent are similarly unlikely to view daughters as a threat to their identity and honor. In addition, more modern ideas of courtship and dating, which would violate the honor of a conservative family, are less amenable to dowry demands although, of course, there are exceptions. What this implies, however, is that one may expect lower sex-ratios in families that have adopted more closely the traditional high-caste family values described above, either because of the financial implications or due to the underlying value system, and less anti-female discrimination in groups that have not. The north-south divide in sex-ratios widely accepted in the literature could thus be an outcome of cultural differences.

Unfortunately, parental preferences and the process of cultural determination of the costs and benefits of girls relative to boys are impossible to observe directly in published data. We therefore use three different variables as a proxy for culture in our analysis: religion, caste and voting behavior.[14] Both religion and caste have been used previously in empirical work to model exogenous cultural factors (Rosenzweig & Schultz 1982, Kishor 1993, Lahiri & Self 2004, 2005, Murthi et al. 1995) and a link between Hinduism and anti-female bias has generally been established. The connection between caste and sex-ratios is supported by the arguments of Derne (1994), Hudson & den Boer (2004) and Hawkes (1981), but the empirical evidence appears to be mixed and discrimination against scheduled (low) castes in any case makes treating it as a purely cultural variable problematic. Table 4 shows that birth and child sex-ratios are lower in districts with a higher proportion of Hindus, Sikhs and households that don't belong to scheduled castes or tribes. Our third proxy links cultural attitudes to voting behavior. In particular, we assume that a traditional cultural mind-set which leads to both higher costs of raising girls and a possible anti-female bias in preferences also makes voting for particular religious parties more likely. Using the vote shares of religious parties can therefore go beyond the differentiation of households according to religious lines and capture our "conservative culture" aspect. Moreover, it allows us to investigate in more detail the role of caste and caste-specific anti-female bias.

[14]Since culture is not directly observable, we cannot estimate an instrumental variable regression and, therefore, refer to our cultural variables as proxies rather than instruments.

2.2 Conservative culture and voting behavior

Associating particular political parties with low sex-ratios is without doubt controversial and one has to point out, therefore, that our argument does *not* imply that the parties in question actively discriminate against women or are in any way directly responsible for sex-selection. Furthermore, this should not be misconstrued as a statement about all religious parties without qualification. Nonetheless, we believe that there exists a link between anti-female bias and an ideological proximity to the *Sangh Parivar* (SP), literally a "family organization" of political parties, social institutions and paramilitary forces affiliated with the Hindu nationalist *Rashtriya Swayamsevak Sangh* (RSS). This link was made amongst others by Sen (2003) who observed a geographic coincidence of low sex-ratios and popularity of religious parties in the north and west of India.

Founded in 1925, in part as a Hindu response to the Muslim Khalifat movement, the RSS has historically relied on Brahmin ideology and ethics, focusing on a revival of Sanskritized Hindu culture and Hindi as the main linguistic expression of this culture. Muslims and other minority religions are viewed as dangerous to the dominant culture. Despite its early association mainly with higher castes, the RSS and its sister organizations have managed to extend their base in Northern India to the scheduled as well as the dominant Hindu peasant castes. They are less successful in Southern India, where the predominance of local languages and Dravidian culture, makes their message less appealing. (Jaffrelot 2005*b*,*c*)

The role of women in the Sangh Parivar is complex. On an abstract level, the body of a woman represents the Hindu motherland that is in danger of being violated by Muslim invaders as well as the purity of Hindu tradition unsullied by contact with Western ideas (Banerjee 2003). On a more physical level, Bacchetta (2004) observes that women are often described in their role as mothers and sisters and therefore as asexual beings in the official RSS propaganda. By denying their sexuality and describing them purely in terms of their relationship to men – mothers and sisters, not wives – women are essentially devoid of independent desires and personality. This is reflected in the official line on married life disseminated through seminars and literature for RSS members. Girls are supposed to acquiesce to the parental selection of a groom and self-choice is strongly discouraged (Sarkar 1989). The tradition of the docile, defenseless wife is stressed. Rather than stand up for themselves, women are supposed to obey and support their husbands and blame themselves for any marital difficulties (Sarkar 1989, Banerjee 2003). Male behavior, including infidelity, on the other hand, is often excused by pointing to biological differences both in the RSS (Banerjee 2003) and in society more generally (Pintchman 2004). These ideas and behavior tend to diminish the value and status of women in the social, religious, as well as economic spheres in India.

Although the political parties associated with the RSS are in many ways trying to appeal to a broad electorate, we believe that they are more attractive to people who subscribe to the political and social ideas of the RSS. The nationally-operating Bharatiya Janata Party (BJP), for example, is successful outside the RSS strongholds in Northern India, in part due to its alliances with local parties.[15] This notwhithstanding, Jaffrelot (2005*a*) shows that the social composition of voters for RSS-linked parties is skewed towards high-castes, both in the number of voters for the BJP and its local allies, even though this bias appears to be small: the BJP, for example, received 30% of the high-caste and 16% of the scheduled (low) caste vote in 1999. We therefore expect a link between high-castes, voting for a religious

[15]For a list of the relevant parties, please see Table 7.

Hindu party and low sex-ratios.[16]

Voting behavior is certainly not determined solely by cultural attitudes; and the electoral success of the BJP and its allies in the 1990s can to a large extent be attributed to disillusionment with the performance of the Congress Party led government. Time-series of election results are thus probably not good indicators of changes in cultural attitudes. Inter-regional differences in voting behavior, while reflecting local political and economic particularities, on the other hand, may be more indicative of underlying cultural differences. To be sure, not everyone who votes for a religious party is conservative in our sense, but conservative people are more likely to vote for religious (nationalist) parties *ceteris paribus*.

3 The data and empirical strategy

3.1 The data

The data used in the empirical analysis is compiled from three sources. Since we are interested in voting behavior which is not observable at the level of individual households we are restricted to using data collected at the district level, the highest level of disaggregation at which we can match election results, socio-economic variables and sex-ratios. Including all Indian states and union territories[17], we obtain data for 569 districts. With two exceptions, all dependent and explanatory variables are from the 2001 Census of India, which is originally available at the district level.[18]

District-level measures of income and wealth are calculated from the 55th round of the Consumer Expenditure Schedule of the National Sample Survey Organization, administered during 1999 and 2000. In particular we use the natural logarithm of the median per capita household expenditure in a district to capture the purchasing power in a particular district.[19]

Voting behavior is obtained from electoral data for State Legislative Assemblies published by the Election Commission of India. State Legislative Assemblies are directly elected bodies set up to carry out the administration of the government in India's states and union territories. The choice of elections for state-level institutions instead of national elections does not imply that we view these as more appropriate proxies for cultural traditions. Rather, national parliamentary constituencies are larger than state assembly constituencies and often straddle districts, making it difficult to match election results to district-level socio-economic data. Since each district has between 1 and 37 representatives in the State Legislative Assembly and consists of the same number of assembly constituencies aggregation of election results is much easier.

Since it can be argued that past elections, through the composition of state and local assemblies, affect unobservables such as access to health services or vaccination programs, we use post-2001 election results in this analysis. Using election data from the election year immediately following 2001 in each state we first constructed a mapping of assembly constituencies into districts using various constituency de-

[16] A similar claim could potentially be made for the Shiromani Akali Dal, an exclusively Sikh party, as Sikhs have been associated with low sex-ratios. Since its electoral success is almost perfectly correlated with the share of the Sikh population in a district ($\rho = 0.97$), however, we cannot empirically test this contention.

[17] Administrative units that do not have state status.

[18] A description of the explanatory variables can be found in Table 8.

[19] Alternative measures of expenditure and their effect on the results are described in section 4.4.

limitation orders as well as listings of constituencies included in each district from Bose & Singh (1988*a*,*b*,*c*, 2000*a*,*b*). Religious parties were identified from the list of parties registered with the Election Commission of India using their political manifestos, often posted on the internet, news media and political alliances. A list of religious parties representing nationalistic Hindu, Sikh and Muslim groups can be found in Table 7.

3.2 Empirical strategy

The parameters estimated are obtained from a log linear regression model for the ratio of girls to boys both at birth and between ages zero to five. While the latter specification has been used extensively in the literature on female disadvantage, birth and child ratios measure slightly different aspects of gender preferences. Abstracting from natural medical causes for a low sex ratio, it can be argued that birth numbers are a more direct measure of sex preferences since survival rates are affected by differential susceptibility to post-natal and childhood diseases and the quality of the health care system. An opposite argument may be made equally convincingly: since the majority of Indian households do not have access to pre-natal sex-selection technology, neglect after birth and unequal access to health care may make the number of surviving children more representative of the desired ratio.[20] As we cannot claim to be able to determine which specification is more appropriate, we estimate and report the results of both specifications. Estimation is by Ordinary Least Squares.

We estimate the following equation to examine the relationship between religion, caste, voting behavior and sex-ratios.

$$y_j = \alpha + \beta_1 HighCastes_j + \beta_2 HinduVotes_j + \beta_3 Muslims_j + \beta_4 Christians_j + \beta_5 Sikhs_j + \beta_6 Buddhists_j + \beta_7 Jains_j + \sum_{i=1}^{I} \delta_i X_{ij} + \epsilon_j \quad (1)$$

The dependent variable, y_j, is the natural logarithm of the female-male birth or child (age zero to five years) ratio of district j. $HighCastes_j$ is the share of high-caste population in district j. Since the Census of India does not provide detailed information on sub-castes, our high-caste measure is the share of population that does not belong to a scheduled caste or a scheduled tribe. Our voting measure, $HinduVotes_j$, is the share of votes won by the BJP and its allies in district j.

Rather than include the share of population that is Hindu, we include the shares of population that are Muslim, Christian, Sikh, Buddhist and Jain to control for the religious composition of district j. The proportion of Hindus has been omitted for two reasons. First, with around 76% of the population, Hindus represent the majority of Indians and are therefore a convenient base for comparison. Moreover, since religious classification in the survey is exhaustive, the relative size of the different religious communities is necessarily highly correlated. Examining the correlation between the relative sizes of the different religions in a district, one finds that the correlations between the share of Hindus and any other religion far exceed all other correlations. In other words, the expansion of a non-Hindu religious group most likely leads to a reduction in the proportion of Hindus. With the share of Hindus in a particular district omitted from the regression equation, the coefficients

[20] Journalistic evidence about mobile ultrasound units touring the countryside, operated by enterprising individuals, suggests that sex determination at least is becoming more widely available.

of the other religious groups can then be interpreted as approximately representing differences in sex-ratios compared to the average Hindu population. The emphasis here is on "approximately" as the correlations are not perfect. Care has to be taken, however, in interpreting the coefficients. Since the independent variable is the proportion of people in a given district identifying with a particular religion, the coefficients do not determine sex-ratio differentials between religious communities, as is the case with binary independent variables. Rather they have to be interpreted as the percentage change in the sex-ratio related to an increase in the demographic representation of a particular religious group.

The vector X_{ij} consists of several important economic and political control variables. The coefficient δ_i represents the correlation between control i and sex-ratios in district j, where I is the number of controls included in X_{ij}. Our economic controls include the shares of males and females who are literate, work, are cultivators and agricultural laborers and reside in the urban sector in district j. We also include the median household expenditure of district j to capture a potential relationship between income or wealth and sex-ratios. Our political controls include the shares of male and female voters in district j. A description of the dependent and explanatory variables can be found in Table 8.

While Equation 1 allows us to estimate the relationship between religion, caste, voting behavior and sex-ratios, it does not reflect the link between conservative high caste ideals and voting behavior outlined in section 2. If it is only high caste individuals who are responsive to the conservative (*high-caste*) message of RSS-affiliated parties and low caste votes are influenced by other considerations, making the connectione between conservative culture and sex selection requires the inclusion of an interaction term between vote shares and the size of the high-caste population ((equation 2).

$$\begin{aligned} y_j = \alpha &+ \beta_1 HighCastes_j + \beta_2 HinduVotes_j + \beta_3 HighCastes_j * HinduVotes_j \\ &+ \beta_4 Muslims_j + \beta_5 Christians_j + \beta_6 Sikhs_j + \beta_7 Buddhists_j + \beta_8 Jains_j \\ &+ \sum_{i=1}^{I} \delta_i X_{ij} + \epsilon_j \end{aligned} \tag{2}$$

If the relationship between conservative culture, son preference and voting behavior works through the mechanism described above, we expect the coefficient β_3 to be negative and statistically significant.

3.3 The economic determinants of voting behavior

Two arguments against using vote shares as a proxy for culture can be made. First, economic factors are likely to play a significant role in voting behavior rendering it useless for our purpose. While we do not deny that voting is related to the economic status of the electorate, we believe that in this case the correlation is weak. The first piece of evidence are the 1998 election manifestos of the BJP and its main secular rival (Indian National Congress) which appear similar with respect to their economic program, both focusing on economic development and poverty alleviation. Statistical evidence also supports our contention: regressing the vote share of the religious parties on average household expenditure, male labor force participation and the share of male agricultural labor indicates that the link between voting

and exogenous economic variables is weak (see Table 9).[21] The extremely low R^2 indicates that these variables cannot explain more than 5% of the vote shares. In light of this result, we use the vote shares directly rather than the residuals from this regression in our main analysis.

According to the second argument, individuals who discriminate against daughters for non-cultural reasons may vote for the BJP and its allies if these parties have a more positive attitude towards sex selection and may therefore facilitate the abortion of girls. Vote shares would thus not be indicative of cultural preferences but rather of non-cultural factors. While it is difficult to counter such an argument, as we have pointed out above, we have no evidence that the BJP does in any way actively encourage sex selection. To the contrary, the amendments to the Pre-Natal Diagnostic Techniques (PNDT) Act & Rules made during BJP-led administrations (1996-2004) seem to have strengthened rather than weakened the prohibition of pre-natal sex determination and selection. Unless we find evidence to the contrary, we are therefore skeptical about the validity of the argument. In any case, since we include controls for economic factors in all regressions, any argument that dismisses our voting measure as a proxy for culture on the basis of its economic determinants must identify economic factors that we do *not* include in our model in order to be convincing.

4 Results and discussion

4.1 Religion and caste

Tables 10 and 11 present coefficient estimates and robust standard errors from estimating Equations 1 (columns 3 and 4) and 2 (columns 5 and 6) for birth and child sex-ratios respectively. Even at first glance, it is apparent that our proxies for culture have at least some influence on sex-ratios in India. The religious makeup of a particular district, for example, has a statistically significant effect in all model specifications.

In particular, we cannot reject the hypothesis that a higher proportion of Muslim families leads to less skewed sex-ratios despite the popular stereotypes about Muslims and their attitude towards women. Compared to Hindus, Muslims appear to perform less sex-selective abortions and do not discriminate as much against girls – at least with respect to their survival chances. This may be related to the fact that unlike all other religions in India, Muslims do not pay dowries. Instead, the bride receives a "bride price" from the family of the groom. Moreover, according to Hussain & Billtes (2000), 22% of marriages between Muslims are consanguineous, with first cousins being the preferred marriage partners. Almost one quarter of Muslim girls therefore remain part of their parents' extended family and can most likely help their parents in old age. Daughters are thus, if anything, less expensive. Since Muslims today operate in the same institutional and geographic environment as Hindus, the difference in marriage arrangements is likely to by the outcome of different cultural arrangements. Cousin marriage, for example, is not commonly practiced by any of the other major religious communities.

An increase in the proportion of Christians reduces anti-female bias both at and

[21] All economic variables related to females were excluded due to their endogeneity: if culture affects female work participation as well as voting behavior, we may observe a statistically significant relationship between female work participation and voting behavior that would be explained by culture rather than by the economic value of women.

after birth. The share of Buddhists has no statistically significant effect. Both an increase in the Sikh and the Jain population lead to a reduction of the number of girls relative to boys born and in the age group between zero and five years. The magnitude of the effect for Jains in the base model is particularly striking as it seems at odds with their aversion to killing even animals.

The low sex-ratios for Sikhs is surprising and expected at the same time. While the official religious doctrine stresses gender equality and explicitly discourages dowry payments, there is ample anecdotal and systematic evidence that at least part of the Sikh community does not follow this particular aspect of religious teaching. In a detailed study of the Jat community in Northern India to which most Sikhs belong, Das Gupta (1987) points out the rigid and crass asymmetries between men and women. At the time of the study, the parents of women were expected to give gifts to their daughter and their in-laws as long as they are alive in addition to any dowry paid. They receive nothing in exchange. This one-way transfer of resources can be so extreme that they would be expected to pay even for the food they consume at their daughter's new home. Women can also not inherit property and are generally excluded from participation in the public, civil and religious spheres.

Looking at caste, our second proxy for culture, we find that an increase in the proportion of the high-caste population in a district is negatively correlated with sex-ratios. This correlation is statistically and economically significant in all model specification. Unfortunately, due to data limitations we are unable to assign households into a particular caste. "High-caste" therefore refers to all households that do *not* belong to the lowest caste category (scheduled caste) or to the tribal population. Although technically incorrect, North India's peasant castes are included in our high-caste category. It should be noted that the caste differences are smaller for children under the age of five than for birth ratios, a finding consistent with naturally different mortality rates for boys and girls (U.S. Census Bureau 2004).

Caste differences in sex-ratios can arise for many reasons. They are certainly consistent with the cultural explanation we outlined in the previous sections. Alternatively, economic constraints are likely to differ by caste. Labor and credit market discrimination against scheduled castes as well as affirmative action do not affect high-castes. Land holdings may also be caste-dependent. This notwithstanding, the caste differential persists when economic variables such as expenditure and the proportion of cultivators or education and the share of urban population in a district are included. While not being conclusive we would argue that this supports our hypothesis of an anti-female cultural bias that is particular to high-caste communities.

4.2 Voting behavior

The case for cultural factors in anti-female bias is strengthened by our results for vote shares. We find a significant and large negative correlation between sex-ratios and the vote share of the BJP and its allies (columns 3 and 4 in Tables 10 and 11). Quite clearly, the larger the electoral support of these parties, the lower are sex-ratios. The presence of the vote shares does not significantly change the coefficients of the included economic variables, making it unlikely – as we argued above in Section 3.3 – that they pick up the variation associated with at least the observable economic variables. In particular, the negative correlation between the share of male cultivators, that is men working on their own land, is not significantly reduced by the inclusion of voting behavior. Agricultural labor demand – like other observable economic variables – while clearly affecting sex-ratios, does not appear

to contaminate our results regarding voting behavior. Moreover, the inclusion of election results does not weaken the negative effect of the proportion of high-castes on sex-ratios.

Interacting the vote share of Hindu religious parties with the proportion of the high-caste population in a district allows us to identify the main channel through which the relationship between traditional culture and sex-ratios exists. As columns 5 and 6 of Tables 10 and 11 show, the inclusion of the interaction term reduces the effect of both the proportion of high-caste Hindus and of the vote shares, the latter now being insignificant. This suggests two things. First, the conservative culture we identify as part of the anti-female bias is expressed primarily in *high-caste* voting behavior. Scheduled castes and tribes who vote for the Hindu party do not seem to be part of this cultural environment and do not practice sex selection to the extent that their high-caste co-voters do. Once the high-caste component of voting behavior is isolated through the interaction term, election results by themselves are no longer useful predictors for anti-female bias.

Second, the decline in the coefficient of the high-caste population together with the significant interaction effect indicates that the anti-female bias associated with high-castes is particularly strong for supporters of Hindu religious parties. Again, this suggests that the intersection of a particular high-caste cultural element and conservative culture is instrumental in the observed discrimination against girls. Vote shares in this context capture the traditional or conservative aspect of culture which would otherwise not be detectable in the data.

Since an argument can be made that election alliances in India are often more than the outcome of political expedience than ideological commonalities we re-estimate our model using only the BJP vote share. As Table 12 shows, the estimation results and our discussion of the cultural aspect of anti-female bias are robust with respect to the alternate voting measure. The correlation between sex-ratios and election results are therefore not caused by the political bargaining process in India. In all subsequent estimations we use this alternate voting measure as a robustness check.[22]

Looking closer at the geographic distribution of both the sex-ratios (Table 2) and election results (Table 6) one notices a distinct separation of India into two parts with low sex-ratios as well as the electoral success of religious Hindu parties being concentrated in the North and West of the country. In fact, this divide appears to be along roughly the same lines as Lahiri & Self (2004, 2005)'s village endogamy versus exogamy distinction. This, then, poses the question whether the statistical link between son preference and the success of RSS-linked parties is caused by a cultural tradition particular to the Northwest of India or whether other unobservable variables underly both phenomena.

In order to check the validity of our results, we divide India into five regions along state lines.[23] The division is somewhat arbitrary, but follows loosely the language division between the Hindi-speaking North and West and the Southern and Eastern states where local languages predominate. The exception is Maharashtra which is included in the Western region even though it has its own local language.

[22]These results are presented in columns (3), (4), (7) and (8) in Tables 13-15.

[23]The Northern region includes Jammu and Kashmir, Himachal Pradesh, Punjab, Haryana, Uttar Pradesh, Uttaranchal, Delhi, Rajasthan, Madhya Pradesh and Chattisgarh; the Western region includes Gujarat, Maharashtra, and Goa; the Southern region consists of Andhra Pradesh, Karnataka, Kerala, Tamil Nadu, and Pondicherry; the Eastern region includes Bihar, Jharkhand, West Bengal and Orissa; the Northeastern region consists of Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim and Tripura.

We chose this division for two reasons. First, Maharashtra appears similar to the other Northwestern states: sex-ratios are below average and the electoral success of the Shiv Sena, a Maharashtran Hindu nationalist party, links it politically to the region.[24] Moreover, in contrast to Southern traditions, family structures tend to be patrilocal. Secondly, by making sure that the states with below-average sex-ratios are contained in the same regions, we maximize the probability that inter-regional differences in behavior are picked up by the regional control variable. In other words, we are defining the regions in a way that maximizes the strength of the robustness check.

Table 13 summarizes the results for the sex-ratios at birth and the relative number of girls between ages zero and five. Both regional controls and political variables are included.[25] As expected, the controls for the regions with below-average sex-ratios (North and West) are significant a the 1% level and large. The region effect for the East is significant and negative but smaller in magnitude. Southern India and the Northeastern region have similar sex-ratios.

Inclusion of the regional controls does not affect the negative correlation between high-castes and sex-ratios. Furthermore, as long as the vote shares of the BJP and its allies are considered, the link between high-caste, voting and anti-female bias is essentially unchanged. Looking only at the Hindu vote without allied parties, the coefficients for the election results are now positive and statistically significant. The interaction with the size of high-caste population still has a significant negative effect on sex-ratios. This suggests that the region controls pick up at least some of the variation in voting behavior and is broadly in accordance with our finding that election results alone may fail to capture the conservative high-caste element of culture involved in anti-female discrimination. The interaction term, in contrast, picking up conservative high-caste culture, is not affected by the inclusion of region controls. Even within regions voting appears a to be a powerful proxy for cultural attitudes.

4.3 Household expenditure

Although the main focus of this paper is the role of culture in anti-female bias in India, the relationship between household per capita expenditure and sex-ratios is worth pointing out. Previous work on sex-ratios in India has focused mainly on poverty measures (Murthi et al. 1995), as expenditure data has not been available at the district level. These authors have found that higher levels of poverty are associated with lower levels of female disadvantage in child survival. Our results are similar in that we observe a statistically significant negative effect of median household per capita expenditure in all our model specifications. In other words, a higher median expenditure per household member in a given district leads to less girls being born and surviving until the age of five.[26]

Since median expenditure values cannot account for differences in expenditure distributions across districts, we re-estimate the model using expenditure quartiles (Table 14). This shows that the negative effect of household resource availability is concentrated at the lowest expenditure quartile. The coefficients of all higher quartiles are insignificant. This is interesting for two reasons. First, it appears that a relaxation in the resource constraint of low expenditure households does not

[24] For a map of sex-ratios, see figure 1.

[25] The omitted region is the Northeast.

[26] Since expenditure is a function both of income and the net asset position of households (wealth), it is likely to capture the resources available to its members better than income variables.

reduce anti-female bias. The reason for this may be that – at low levels of resource availability – an increase in expenditure reflecting higher income or assets makes sex-selective abortions affordable without giving households the financial means to raise girls. Alternatively, provided that scheduled caste and tribe households are concentrated at the low end of the expenditure spectrum, districts with lower expenditure at the 5% quartile may have a higher share of low-caste households whereas districts with higher expenditure at this quartile may have a higher share of high-caste households. The negative relationship between sex-ratios and expenditure levels at that quartile may thus reflect a higher proportion of high-caste families, even though we control for the caste composition of districts. It is thus not entirely clear how rising incomes at the low end of the income distribution will affect sex-ratios.

The second observation, however, cautions against relying on rising wealth and income to reduce anti-female bias: no other expenditure quartile is significantly and positively correlated with sex-ratios. Either economic factors biasing parents against girls do not decline with rising expenditure even for rich households or non-economic factors play an important role in influencing their decisions. No matter which of these explanations is true, our finding suggests that economic development alone may not be able to alleviate the imbalances in sex-ratios in the future or the potential social upheaval generations of unmarried young men may cause.

4.4 An alternative explanation?

It has been suggested that low sex-ratios are part of a marriage market equilibrium in which older men marry younger women. If population growth is high enough, the cohort of brides may be significantly larger than that of their husbands and sex selection may be employed to avoid a pool of unmarried women. The age gap between men and women may itself be the outcome of a process in which the quality of men and women becomes observable at different stages in their lives and matching is assortative. Falling population growth will then reduce anti-female bias and – in equilibrium – lead to an equalization of the number of boys and girls born.

We test this theory by including district level population growth figures into our model (Table 15).[27] The results show that whereas relative birth rates are not affected by the inclusion of population growth the sex-ratio of children under five declines statistically significantly with higher population growth. The magnitude of this effect, however, is negligible. More importantly, for sex-ratios at birth, our conclusion regarding the importance of cultural aspects in pre-natal sex selection is robust with respect to the population growth argument. The results for the child sex-ratio resemble those with regional controls: the link between high-castes, voting behavior and anti-female bias remains robust.

5 Conclusions

The aim of this paper has been to show that cultural aspects are instrumental in shaping preferences over sons and daughters and can explain at least part of the low sex-ratios observed in certain parts of India. It thus places our paper into the growing literature on culture and norms in economic decision making. This

[27] We use data from the Census of India, 1991, to calculate district-level population growth rates between 1991 and 2001. By matching the districts in 2001 to those in 1991, we have data for 441 districts, since several districts split into two or more smaller geographical ones during the decade.

is not to say that purely economic factors do not play a part. Rather we believe our results to augment the existing literature on the economic causes of anti-female bias. Our argument makes a link between traditional high-caste Hindu culture, voting behavior and low sex-ratios. While we base our hypothesis mainly on findings from the sociological literature, our empirical analysis provides robust evidence of a significant correlation between caste, the vote share of Hindu religious parties and the number of girls relative to boys born in Indian districts.

Alternative explanations for this link are examined. In particular we investigate whether economic variables are good predictors for voting behavior, making the link between election results and anti-female bias essentially a purely economic one. Our finding that the *observable* economic characteristics of a district are poor predictors of vote shares – while not being entirely conclusive due to potentially unobservable economic variables – certainly strengthens our argument for a link between traditional culture and voting behavior and we see little reason not to use voting as a proxy for cultural attitudes.

Bearing this in mind, we base our conclusion that cultural aspects of anti-female bias are significant and important on three observations. First, the religious composition of a district affects its sex-ratio. In particular, the larger the proportion of Hindus, Sikhs and Jains, the lower the number of daughters relative to boys. More Muslims and Christians, on the other hand, lead to higher sex-ratios. Second, the higher the proportion of high-caste Hindus, the lower the sex-ratios. Since we argue that anti-female bias can be traced to high-caste Hindu values, this negative correlation supports our cultural explanation. Third, Hindu religious parties are particularly successful in districts with low sex-ratios. Interacting vote shares with the proportion of high-castes makes this relationship more specific. The vote share of the religious parties by itself is no longer significant. The interaction term, in contrast, is negatively correlated with the sex-ratios. In other words, the combination of high-caste households and voting for Hindu religious parties leads to significant anti-female bias in districts. This finding is robust with respect to changes in the model specification.

If low sex-ratios are indeed the outcome of traditional Hindu upper-caste values, economic growth alone cannot correct the gender imbalance evident in parts of India. On the contrary, the wider availability of pre-natal sex selection in a more affluent society may in fact worsen the situation. The negative correlation between per capita household expenditure and sex-ratios we find may thus be due to sex-selective abortions as argued by Sen (2003). Although in the long run, pressure to reach an equilibrium in the marriage market may lead to more balanced sex-ratios and perhaps a change in cultural attitudes, anecdotal evidence suggests that in the short and medium run there is considerable stickiness in behavior. A faster solution may involve changing cultural norms and the framework in which men and women interact. This is not a trivial task and may itself take a considerable amount of time. Strict enforcement of existing laws against sex selection and dowry as well as giving parents economic incentives to have daughters may have to provide a short-term band-aid until long-run social engineering projects bear fruit.

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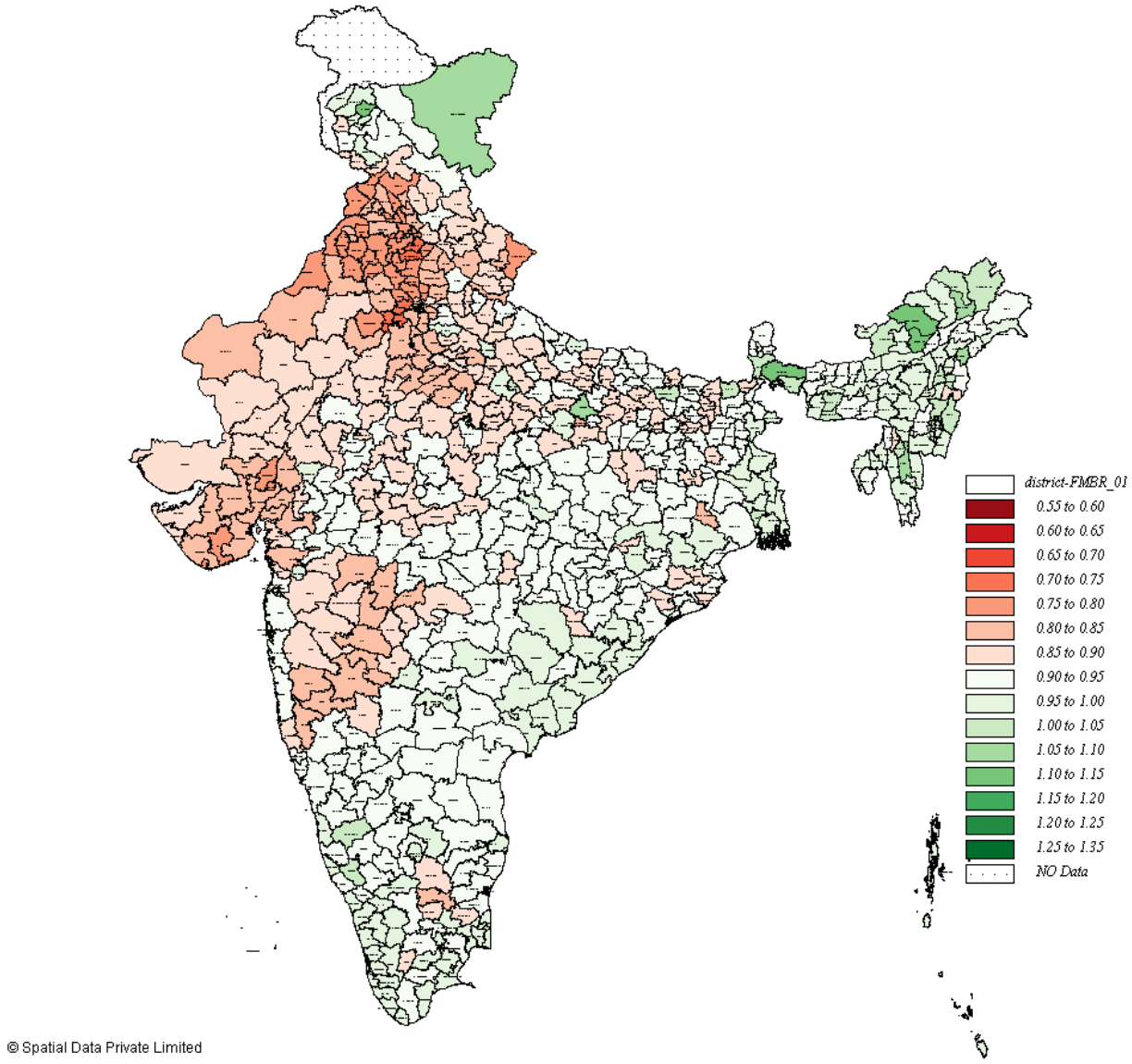

Figure 1: Female-Male Birth Ratios: Indian Districts, 2001

Table 1: Females per 1000 Males Among Children Aged 0-5 Years: India, 1961-2001

Year	Gender Ratio		
	Total	Rural	Urban
1961	992	997	966
1971	979	983	960
1981	978	979	973
1991	955	959	943
2001	930	941	909

Source: Census of India, 2001.

Table 2: Females per 1000 Males at Birth and Among Children Aged 0-5 Years: Indian States, 2001

State/Union Territory	Region	Birth Ratio			Child Ratio		
		All India	Rural	Urban	All India	Rural	Urban
Andhra Pradesh	South	964	967	958	951	946	968
Andhra Pradesh	South	951	946	968	964	967	958
Arunachal Pradesh	Northeast	997	991	1022	975	971	994
Assam	Northeast	948	945	982	970	973	949
Bihar	East	917	917	917	956	959	933
Chattisgarh	North	928	931	913	972	983	939
Delhi	North	852	828	855	870	854	871
Goa	West	921	948	895	936	949	924
Gujarat	West	834	848	802	879	911	840
Haryana	North	786	785	790	816	821	806
Himachal Pradesh	North	845	844	854	888	892	844
Jharkhand	East	907	912	880	972	983	935
Jammu & Kashmir	North	951	949	966	932	954	870
Karnataka	South	936	931	948	947	950	942
Kerala	South	969	971	962	961	963	957
Maharashtra	West	877	871	889	913	914	912
Manipur	Northeast	973	967	995	960	957	967
Meghalaya	Northeast	958	957	965	975	977	965
Mizoram	Northeast	994	978	1014	975	979	971
Madhya Pradesh	North	903	906	888	935	945	911
Nagaland	Northeast	984	988	963	978	986	945
Orissa	East	928	925	953	958	962	938
Pondicherry	South	989	984	992	972	970	973
Punjab	North	787	786	791	795	793	797
Rajasthan	North	864	869	841	911	918	892
Sikkim	Northeast	937	933	982	951	955	906
Tamil Nadu	South	935	919	960	948	937	960
Tripura	Northeast	973	975	960	966	969	953
Uttar Pradesh	North	901	899	914	925	936	890
Uttaranchal	North	853	852	857	904	916	870
West Bengal	East	976	968	1007	963	968	954
India		905	906	904	934	941	911

Source: Census of India, 2001.

Table 3: Females per 1000 Male Births: International Comparison

Country	Gender Ratio
All Europe	945
United Kingdom	946
Germany	944
France	952
Italy	945
Spain	942
North America	956
USA	952
Canada	963
Mexico	966
India	905

Source: Data for European countries is from the World Health Organization (WHO), 1950-1999; Data for North America and Mexico is from WHO, 1958-1997; Data for India is from the Census of India, 2001.

Table 4: Females per 1000 Males At Birth and Among Children Aged 0-5 Years: Religion and Caste

Social Group	Mean	Birth Ratio	Child Ratio
Religion			
Hindu	0.75	903	931
Muslim	0.12	981	980
Christian	0.06	982	973
Sikh	0.02	786	792
Caste			
SC and ST	0.31	955	977
Non-SC and Non-ST	0.69	902	924

Source: Census of India, 2001. The mean (column 2) represents the average proportion of the social group in Indian districts in 2001. The birth and child sex-ratios are calculated for districts where the proportion of the social group is over 75% of the population. SC and ST represent Scheduled Castes and Scheduled Tribes, respectively.

Table 5: The Cost of Abortion (in Rupees) in India

State	Sector	Duration of Pregnancy		Study
		Under 12 Weeks	Over 20 Weeks	
Kerala	Private	1,266	5,000	M. Ramanathan et al. (2003)
	Public	Free	Free	
Haryana	Private	300	3,000	S. Barge et al. (2003)
	Public	9	80	
Madhya Pradesh	Private	389	1583	A. George (2003)
	Public	209	775	
Uttar Pradesh, Maharashtra, Gujarat, Tamil Nadu	Private	394	649	Center for Operations Research and Training (1997)
	Public	135	534	
Uttar Pradesh, Rajasthan	Private	700	800	Parivar Seva Sanstha (2002)
	Public	200	500	

Table 6: Electoral Votes for Religious Parties: Indian States, post-2001

State/Union Territory	Region	Share of Votes Won By			
		BJP	BJP Allies	SAD	MUL
Andhra Pradesh	3.26	0.01	0.00	0.00	
Arunachal Pradesh	9.73	0.00	0.00	0.00	
Assam	9.42	0.04	0.00	0.00	
Bihar	11.02	10.18	0.00	0.00	
Chattisgarh	38.75	0.20	0.00	0.00	
Delhi	34.03	1.48	0.02	0.00	
Goa	26.16	15.16	0.00	0.00	
Gujarat	43.75	0.05	0.00	0.00	
Haryana	10.07	28.74	0.00	0.00	
Himachal Pradesh	40.56	0.14	0.00	0.00	
Jharkhand	26.01	3.55	0.00	0.00	
Jammu & Kashmir	8.71	0.00	0.00	0.00	
Karnataka	21.41	13.32	0.00	0.00	
Kerala	5.44	0.43	0.00	6.07	
Maharashtra	14.83	17.23	0.00	0.00	
Manipur	10.56	10.04	0.00	0.00	
Meghalaya	3.03	0.00	0.00	0.00	
Mizoram	3.67	0.37	0.00	0.00	
Madhya Pradesh	39.11	0.41	0.00	0.00	
Nagaland	0.00	0.00	0.00	0.00	
Orissa	21.25	25.91	0.00	0.00	
Pondicherry	3.11	0.00	0.00	0.00	
Punjab	6.76	0.04	42.41	0.00	
Rajasthan	32.90	0.87	0.00	0.00	
Sikkim	0.00	0.00	0.00	0.00	
Tamil Nadu	1.98	0.01	0.00	0.00	
Tripura	6.29	0.00	0.00	0.00	
Uttar Pradesh	31.44	0.55	0.00	0.00	
Uttaranchal	40.83	0.00	0.00	0.00	
West Bengal	7.41	0.10	0.00	0.04	

Source: Electoral Votes in State Legislative Assemblies, Election Commission of India, post-2001.

Table 7: Religious Political Parties in India

Party Type	**Abbreviation**	**Party Name**	**States**
Hindu Party			
National	BJP	Bharatiya Janata Party	
Allies of Hindu Party			
State	BJD	Biju Janata Dal	Orissa
State	INLD	Indian National Lok Dal	Haryana
State	JD(U)	Janata Dal (United)	Bihar, Jharkhand, Karnataka, Nagaland
State	MAG	Maharashtrawadi Gomantak Party	Goa
State	SAP	Samata Party	Bihar, Uttar Pradesh, Orissa
State	SHS	Shiv Sena	Maharashtra
Sikh Party			
State	SAD	Shiromani Akali Dal	Punjab
Muslim Party			
State	MUL	Muslim League	Kerala

Source: Statistical Reports of Assembly Elections, Election Commission of India.

Table 8: Description of Dependent & Explanatory Variables

Variable	**Description**
Dependent	
Female-Male Birth Ratio	Natural logarithm of the female-male birth ratio
Female-Male Child Ratio	Natural logarithm of the female-male ratio among 0 to 5 year olds
Explanatory	
High Castes	Proportion of non-Scheduled-Caste and non-Scheduled-Tribe population
Hindu Votes	Share of votes won by BJP and BJP Allies – BJD, INL, JD(U), MAG, SAP and SHS
Hindu Votes (Alternate)	Share of votes won by BJP
Muslims	Proportion of Muslims
Christians	Proportion of Christians
Sikhs	Proportion of Sikhs
Buddhists	Proportion of Buddhists
Jains	Proportion of Jains
Male Voters	Proportion of male voters
Female Voters	Proportion of female voters
Literate Males	Proportion of literate adult males
Literate Females	Proportion of literate adult females
Male Workers	Proportion of adult male workers
Female Workers	Proportion of adult female workers
Male Cultivators	Proportion of adult male cultivators
Female Cultivators	Proportion of adult female cultivators
Male Agr Laborers	Proportion of adult male agricultural laborers
Female Agr Laborers	Proportion of adult female agricultural laborers
Expenditure	Natural log of median monthly per capita household expenditure
Expenditure 5	Natural log of 5th percentile of monthly per capita household expenditure
Expenditure 25	Natural log of 25th percentile of monthly per capita household expenditure
Expenditure 50	Natural log of 50th percentile of monthly per capita household expenditure
Expenditure 75	Natural log of 75th percentile of monthly per capita household expenditure
Expenditure 95	Natural log of 95th percentile of monthly per capita household expenditure
Urban	Proportion of population living in urban areas
Population Growth	Population growth rate between 1991 and 2001
North	1 if district is in Jammu and Kashmir, Himachal Pradesh, Punjab, Haryana, Uttar Pradesh, Uttaranchal, Delhi, Rajasthan, Madhya Pradesh, or Chattisgarh; 0 otherwise
West	1 if district is in Gujarat, Maharshtra, or Goa; 0 otherwise
South	1 if district is in Andhra Pradesh, Karnataka, Kerala, Tamil Nadu, or Pondicherry; 0 otherwise
East	1 if district is in Bihar, Jharkhand, West Bengal, or Orissa; 0 otherwise
Northeast	1 if district is in Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim, or Tripura; 0 otherwise

Workers include both main and marginal workers. Main workers are those who worked 6 months or more during the year. Marginal workers are those who worked less than 6 months during the year. Cultivators include individuals who are engaged in cultivation of land owned, held from the Government, or held from private persons or institutions for payment in money, kind or share. Agricultural laborers are those who work on another person's land for wages in money or kind or share.

Table 9: OLS Regression Results: Vote Shares and Economic Variables, Indian Districts, 2001

Variable	Dependent Variable			
	Hindu and Allies Votes		Hindu Votes	
	Coefficient	Standard Error	Coefficient	Standard Error
	(1)	(2)	(3)	(4)
Expenditure	0.0248	0.0203	0.0245	0.0180
Male Workers	-0.3730	0.1688**	-0.3339	0.1569**
Male Cultivators	0.1492	0.0532***	0.1789	0.0488***
Male Agr Laborers	0.0556	0.0678	-0.0884	0.0619
Constant	0.2625	0.1300**	0.2086	0.1178*
Observations	567		567	
R Squared	0.0254		0.0498	

Source: Census of India, 2001 and Election Commission of India, post-2001. Robust standard errors are reported in columns (2) and (4). *** Significant at 1%, ** significant at 5%, * significant at 10%.

Table 10: OLS Regression Results: Female-Male Birth Ratio, Indian Districts, 2001

Variable	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error
	(1)	(2)	(3)	(4)	(5)	(6)
High Castes	-0.0962	(0.0196)***	-0.1144	(0.0187)***	-0.0742	(0.0258)***
Hindu Votes			-0.1181	(0.0189)***	-0.0082	(0.0440)
Hindu Votes * High Castes					-0.1591	(0.0620)**
Muslims	0.1008	(0.0234)***	0.0841	(0.0210)***	0.0793	(0.0205)***
Christians	0.0590	(0.0203)***	0.0250	(0.0204)	0.0395	(0.0212)*
Sikhs	-0.2510	(0.0258)***	-0.2763	(0.0238)***	-0.2752	(0.0238)***
Buddhists	0.0420	(0.0321)	0.0150	(0.0322)	0.0280	(0.0329)
Jains	-1.4813	(0.4234)***	-0.5088	(0.5092)	-0.4265	(0.5251)
Male Voters	-0.0710	(0.0452)	-0.0719	(0.0426)*	-0.0775	(0.0429)*
Female Voters	0.0602	(0.0401)	0.0343	(0.0407)	0.0436	(0.0410)
Literate Males	-0.1666	(0.0796)**	-0.0877	(0.0793)	-0.0853	(0.0787)
Literate Females	0.1101	(0.0655)*	0.0729	(0.0646)	0.0700	(0.0639)
Male Workers	0.2278	(0.0899)**	0.2163	(0.0840)**	0.2198	(0.0839)***
Female Workers	0.0023	(0.0362)	0.0024	(0.0340)	-0.0087	(0.0345)
Male Cultivators	-0.0689	(0.0358)*	-0.0372	(0.0345)	-0.0364	(0.0345)
Female Cultivators	-0.0558	(0.0291)*	-0.0677	(0.0263)**	-0.0579	(0.0263)**
Male Agricultural Laborers	-0.1057	(0.0493)**	-0.1335	(0.0492)***	-0.1284	(0.0497)**
Female Agricultural Laborers	0.0220	(0.0293)	0.0333	(0.0271)	0.0353	(0.0267)
Expenditure	-0.0391	(0.0087)***	-0.0361	(0.0081)***	-0.0351	(0.0080)***
Urban	0.0141	(0.0344)	0.0078	(0.0363)	0.0137	(0.0369)
Constant	0.1577	(0.0543)***	0.1707	(0.0518)***	0.1303	(0.0535)**
Observations	567		567		567	
R Squared	0.4656		0.5142		0.5196	

Source: Census of India, 2001 and Election Commission of India, post-2001. Robust standard errors are reported in columns (2), (4) and (6). *** Significant at 1%, ** significant at 5%, * significant at 10%.

Table 11: OLS Regression Results: Female-Male Child Ratio, Indian Districts, 2001

Variable	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error
	(1)	(2)	(3)	(4)	(5)	(6)
High Castes	-0.0609	(0.0125)***	-0.0711	(0.0126)***	-0.0441	(0.0176)**
Hindu Votes			-0.0660	(0.0129)***	0.0078	(0.0290)
Hindu Votes * High Castes					-0.1069	(0.0439)**
Muslims	0.0821	(0.0146)***	0.0727	(0.0140)***	0.0695	(0.0138)***
Christians	0.0397	(0.0132)***	0.0207	(0.0130)	0.0304	(0.0143)**
Sikhs	-0.2263	(0.0195)***	-0.2404	(0.0186)***	-0.2397	(0.0188)***
Buddhists	0.0247	(0.0202)	0.0096	(0.0203)	0.0184	(0.0205)
Jains	-0.7722	(0.3217)**	-0.2289	(0.4024)	-0.1736	(0.4200)
Male Voters	0.0407	(0.0292)	0.0402	(0.0284)	0.0365	(0.0284)
Female Voters	-0.0577	(0.0254)**	-0.0722	(0.0255)***	-0.0660	(0.0253)***
Literate Males	-0.1409	(0.0483)***	-0.0968	(0.0482)**	-0.0953	(0.0487)*
Literate Females	0.0912	(0.0418)**	0.0705	(0.0413)*	0.0686	(0.0413)*
Male Workers	0.1493	(0.0535)***	0.1428	(0.0508)***	0.1452	(0.0507)***
Female Workers	0.0403	(0.0246)	0.0404	(0.0238)*	0.0329	(0.0244)
Male Cultivators	-0.0636	(0.0231)***	-0.0459	(0.0227)**	-0.0454	(0.0226)**
Female Cultivators	-0.0146	(0.0211)	-0.0213	(0.0195)	-0.0147	(0.0197)
Male Agricultural Laborers	-0.0914	(0.0316)***	-0.1069	(0.0307)***	-0.1035	(0.0308)***
Female Agricultural Laborers	0.0564	(0.0200)***	0.0628	(0.0188)***	0.0641	(0.0186)***
Expenditure	-0.0397	(0.0057)***	-0.0379	(0.0054)***	-0.0373	(0.0053)***
Urban	-0.0114	(0.0157)	-0.0149	(0.0162)	-0.0109	(0.0163)
Constant	0.1571	(0.0299)***	0.1643	(0.0291)***	0.1372	(0.0317)***
Observations	567		567		567	
R Squared	0.6017		0.6259		0.6299	

Source: Census of India, 2001 and Election Commission of India, post-2001. Robust standard errors are reported in columns (2), (4) and (6). *** Significant at 1%, ** significant at 5%, * significant at 10%.

Table 12: OLS Regression Results With Alternate Voting Measures: Female-Male Birth and Child Ratios, Indian Districts, 2001

Variable	Birth Ratio		Birth Ratio		Child Ratio		Child Ratio	
	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
High Castes	-0.1046	(0.0194)***	-0.0742	(0.0262)***	-0.0635	(0.0129)***	-0.0413	(0.0184)**
Hindu Votes (Alternate)	-0.0573	(0.0203)***	0.0422	(0.0535)	-0.0176	(0.0138)	0.0550	(0.0368)
Hindu Votes (Alternate) * High Castes			-0.1414	(0.0741)*			-0.1032	(0.0540)*
Muslims	0.0966	(0.0225)***	0.0933	(0.0223)***	0.0808	(0.0147)***	0.0784	(0.0146)***
Christians	0.0415	(0.0210)**	0.0576	(0.0233)**	0.0343	(0.0142)**	0.0460	(0.0166)***
Sikhs	-0.2628	(0.0255)***	-0.2605	(0.0257)***	-0.2299	(0.0197)***	-0.2282	(0.0200)***
Buddhists	0.0247	(0.0328)	0.0315	(0.0335)	0.0194	(0.0209)	0.0244	(0.0213)
Jains	-1.0566	(0.4635)**	-1.0325	(0.4652)**	-0.6419	(0.3511)*	-0.6243	(0.3543)*
Male Voters	-0.0633	(0.0441)	-0.0652	(0.0443)	0.0431	(0.0290)	0.0417	(0.0290)
Female Voters	0.0416	(0.0413)	0.0489	(0.0418)	-0.0634	(0.0254)**	-0.0581	(0.0253)**
Literate Males	-0.1549	(0.0786)**	-0.1440	(0.0792)*	-0.1373	(0.0479)***	-0.1294	(0.0492)***
Literate Females	0.1065	(0.0648)	0.0928	(0.0655)	0.0902	(0.0417)**	0.0802	(0.0425)*
Male Workers	0.2234	(0.0877)**	0.2301	(0.0875)***	0.1479	(0.0531)***	0.1528	(0.0532)***
Female Workers	0.0073	(0.0352)	-0.0021	(0.0355)	0.0418	(0.0242)*	0.0350	(0.0247)
Male Cultivators	-0.0565	(0.0350)	-0.0587	(0.0348)*	-0.0598	(0.0228)***	-0.0615	(0.0227)***
Female Cultivators	-0.0580	(0.0277)**	-0.0519	(0.0274)*	-0.0153	(0.0206)	-0.0108	(0.0205)
Male Agricultural Laborers	-0.1212	(0.0501)**	-0.1201	(0.0502)**	-0.0961	(0.0314)***	-0.0953	(0.0313)***
Female Agricultural Laborers	0.0276	(0.0283)	0.0296	(0.0279)	0.0581	(0.0196)***	0.0596	(0.0194)***
Expenditure	-0.0373	(0.0087)***	-0.0369	(0.0088)***	-0.0391	(0.0058)***	-0.0388	(0.0058)***
Urban	0.0143	(0.0353)	0.0186	(0.0357)	-0.0113	(0.0159)	-0.0082	(0.0160)
Constant	0.1651	(0.0535)***	0.1332	(0.0562)**	0.1593	(0.0298)***	0.1361	(0.0331)***
Observations	567		567		567		567	
R Squared	0.4758		0.4792		0.6033		0.6061	

Source: Census of India, 2001 and Election Commission of India, post-2001. Robust standard errors are reported in columns (2), (4), (6) and (8). *** Significant at 1%, ** significant at 5%, * significant at 10%.

Table 13: OLS Regression Results With Regional Dummies: Female-Male Birth and Child Ratios, Indian Districts, 2001

Variable	Birth Ratio		Birth Ratio		Child Ratio		Child Ratio	
	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
High Castes	-0.0864	(0.0258)***	-0.0881	(0.0260)***	-0.0512	(0.0168)***	-0.0489	(0.0174)***
Hindu Votes	0.0321	(0.0414)			0.0386	(0.0249)		
Hindu Votes * High Castes	-0.1260	(0.0562)**			-0.0888	(0.0388)**		
Hindu Votes (Alternate)			0.0899	(0.0471)*			0.0952	(0.0308)***
Hindu Votes (Alternate) * High Castes			-0.1244	(0.0627)**			-0.0978	(0.0452)**
Muslims	0.0996	(0.0212)***	0.1094	(0.0228)***	0.0845	(0.0135)***	0.0912	(0.0143)***
Christians	-0.0070	(0.0236)	-0.0009	(0.0245)	-0.0046	(0.0157)	0.0023	(0.0168)
Sikhs	-0.2192	(0.0230)***	-0.1962	(0.0244)***	-0.1985	(0.0182)***	-0.1793	(0.0191)***
Buddhists	0.0482	(0.0427)	0.0576	(0.0447)	0.0303	(0.0271)	0.0400	(0.0292)
Jains	-0.0127	(0.4484)	-0.3288	(0.4088)	0.1120	(0.3852)	-0.1613	(0.3447)
Male Voters	-0.0792	(0.0414)*	-0.0738	(0.0414)*	0.0317	(0.0294)	0.0304	(0.0295)
Female Voters	0.0121	(0.0405)	0.0119	(0.0410)	-0.0858	(0.0269)***	-0.0804	(0.0268)***
Literate Males	-0.0049	(0.0743)	-0.0009	(0.0752)	-0.0371	(0.0497)	-0.0267	(0.0510)
Literate Females	0.0334	(0.0642)	0.0209	(0.0657)	0.0419	(0.0432)	0.0283	(0.0444)
Male Workers	0.1028	(0.0898)	0.0867	(0.0909)	0.0577	(0.0518)	0.0445	(0.0526)
Female Workers	-0.0064	(0.0352)	-0.0123	(0.0355)	0.0362	(0.0240)	0.0303	(0.0240)
Male Cultivators	0.0060	(0.0344)	-0.0021	(0.0346)	-0.0097	(0.0227)	-0.0138	(0.0226)
Female Cultivators	-0.0398	(0.0246)	-0.0321	(0.0245)	-0.0025	(0.0180)	0.0024	(0.0183)
Male Agricultural Laborers	-0.0114	(0.0614)	0.0293	(0.0586)	-0.0257	(0.0361)	0.0046	(0.0365)
Female Agricultural Laborers	-0.0016	(0.0306)	-0.0185	(0.0303)	0.0388	(0.0204)*	0.0265	(0.0209)
Expenditure	-0.0230	(0.0091)**	-0.0230	(0.0092)**	-0.0272	(0.0056)***	-0.0268	(0.0056)***
Urban	0.0316	(0.0367)	0.0370	(0.0350)	0.0024	(0.0154)	0.0060	(0.0147)
North	-0.0543	(0.0132)***	-0.0657	(0.0136)***	-0.0402	(0.0077)***	-0.0497	(0.0082)***
South	-0.0003	(0.0143)	0.0017	(0.0144)	-0.0007	(0.0071)	0.0001	(0.0073)
East	-0.0276	(0.0127)**	-0.0360	(0.0129)***	-0.0167	(0.0068)**	-0.0219	(0.0069)***
West	-0.0708	(0.0142)***	-0.0847	(0.0138)***	-0.0480	(0.0085)***	-0.0579	(0.0082)***
Constant	0.1064	(0.0576)*	0.1061	(0.0590)*	0.1137	(0.0334)***	0.1067	(0.0344)***
Observations	567		567		567		567	
R Squared	0.5649		0.5567		0.6659		0.6667	

Source: Census of India, 2001 and Election Commission of India, post-2001. Robust standard errors are reported in columns (2), (4), (6) and (8). *** Significant at 1%, ** significant at 5%, * significant at 10%.

Table 14: OLS Regression Results With Expenditure Distribution Measures: Female-Male Birth and Child Ratios, Indian Districts, 2001

Variable	Birth Ratio		Birth Ratio		Child Ratio		Child Ratio	
	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
High Castes	-0.0571	(0.0245)**	-0.0570	(0.0246)**	-0.0362	(0.0178)**	-0.0339	(0.0181)*
Hindu Votes	0.0197	(0.0409)			0.0182	(0.0274)		
Hindu Votes * High Castes	-0.1934	(0.0581)***			-0.1196	(0.0427)***		
Hindu Votes (Alternate)			0.0799	(0.0508)			0.0692	(0.0351)*
Hindu Votes (Alternate) * High Castes			-0.1880	(0.0708)***			-0.1203	(0.0526)**
Muslims	0.0837	(0.0211)***	0.0958	(0.0229)***	0.0712	(0.0144)***	0.0789	(0.0154)***
Christians	0.0436	(0.0218)**	0.0632	(0.0232)***	0.0329	(0.0149)**	0.0487	(0.0166)***
Sikhs	-0.2629	(0.0240)***	-0.2482	(0.0259)***	-0.2348	(0.0190)***	-0.2235	(0.0203)***
Buddhists	0.0234	(0.0293)	0.0254	(0.0299)	0.0164	(0.0188)	0.0213	(0.0195)
Jains	-0.2178	(0.5441)	-0.8307	(0.4809)*	-0.0997	(0.4339)	-0.5520	(0.3693)
Male Voters	-0.0825	(0.0426)*	-0.0698	(0.0440)	0.0353	(0.0280)	0.0407	(0.0286)
Female Voters	0.0433	(0.0405)	0.0481	(0.0412)	-0.0664	(0.0251)***	-0.0590	(0.0251)**
Literate Males	-0.1107	(0.0811)	-0.1649	(0.0800)**	-0.1063	(0.0513)**	-0.1396	(0.0508)***
Literate Females	0.0969	(0.0654)	0.1148	(0.0655)*	0.0796	(0.0440)*	0.0901	(0.0444)**
Male Workers	0.2154	(0.0825)***	0.2305	(0.0864)***	0.1405	(0.0512)***	0.1512	(0.0537)***
Female Workers	-0.0003	(0.0339)	0.0042	(0.0355)	0.0367	(0.0244)	0.0377	(0.0250)
Male Cultivators	-0.0305	(0.0337)	-0.0556	(0.0343)	-0.0428	(0.0228)*	-0.0605	(0.0229)***
Female Cultivators	-0.0612	(0.0258)**	-0.0558	(0.0270)**	-0.0155	(0.0196)	-0.0120	(0.0205)
Male Agricultural Laborers	-0.1471	(0.0490)***	-0.1430	(0.0497)***	-0.1103	(0.0311)***	-0.1050	(0.0317)***
Female Agricultural Laborers	0.0416	(0.0268)	0.0389	(0.0281)	0.0660	(0.0187)***	0.0635	(0.0196)***
Expenditure 5	-0.0560	(0.0188)***	-0.0592	(0.0189)***	-0.0250	(0.0101)**	-0.0274	(0.0103)***
Expenditure 25	0.0325	(0.0335)	0.0418	(0.0350)	0.0235	(0.0203)	0.0301	(0.0213)
Expenditure 50	0.0087	(0.0343)	0.0095	(0.0361)	-0.0359	(0.0219)	-0.0356	(0.0227)
Expenditure 75	-0.0245	(0.0268)	-0.0366	(0.0276)	-0.0005	(0.0167)	-0.0084	(0.0172)
Expenditure 95	-0.0061	(0.0127)	-0.0019	(0.0131)	-0.0034	(0.0085)	-0.0010	(0.0088)
Urban	0.0104	(0.0360)	0.0144	(0.0349)	-0.0122	(0.0164)	-0.0099	(0.0160)
Constant	0.1571	(0.0554)***	0.1559	(0.0571)***	0.1458	(0.0369)***	0.1436	(0.0375)***
Observations	567		567		567		567	
R Squared	0.5363		0.4979		0.6342		0.6114	

Source: Census of India, 2001 and Election Commission of India, post-2001. Robust standard errors are reported in columns (2), (4), (6) and (8). *** Significant at 1%, ** significant at 5%, * significant at 10%.

Table 15: OLS Regression Results With Population Growth Rates: Female-Male Birth and Child Ratios, Indian Districts, 2001

Variable	Birth Ratio		Birth Ratio		Child Ratio		Child Ratio	
	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
High Castes	-0.0604	(0.0273)**	-0.0657	(0.0288)**	-0.0348	(0.0183)*	-0.0342	(0.0206)*
Hindu Votes	0.0312	(0.0504)			0.0347	(0.0335)		
Hindu Votes * High Castes	-0.2204	(0.0719)***			-0.1562	(0.0519)***		
Hindu Votes (Alternate)			0.0820	(0.0663)			0.0872	(0.0466)*
Hindu Votes (Alternate) * High Castes			-0.1850	(0.0904)**			-0.1462	(0.0685)**
Muslims	0.0330	(0.0336)	0.0328	(0.0353)	0.0715	(0.0209)***	0.0695	(0.0217)***
Christians	0.0372	(0.0224)*	0.0570	(0.0248)**	0.0331	(0.0158)**	0.0504	(0.0190)***
Sikhs	-0.3139	(0.0304)***	-0.3038	(0.0331)***	-0.2559	(0.0230)***	-0.2474	(0.0250)***
Buddhists	0.0469	(0.0331)	0.0513	(0.0338)	0.0289	(0.0204)	0.0359	(0.0213)*
Jains	-0.3703	(0.5864)	-1.0388	(0.5184)**	-0.3006	(0.4893)	-0.8030	(0.3967)**
Male Voters	-0.0512	(0.0493)	-0.0530	(0.0514)	0.0462	(0.0331)	0.0415	(0.0335)
Female Voters	0.0113	(0.0520)	0.0271	(0.0533)	-0.0905	(0.0319)***	-0.0744	(0.0316)**
Literate Males	-0.1740	(0.0952)*	-0.2352	(0.0961)**	-0.1273	(0.0592)**	-0.1672	(0.0602)***
Literate Females	0.1123	(0.0745)	0.1361	(0.0754)*	0.0750	(0.0484)	0.0890	(0.0495)*
Male Workers	0.1891	(0.0915)**	0.2100	(0.0966)**	0.1356	(0.0552)**	0.1477	(0.0591)**
Female Workers	-0.0050	(0.0402)	-0.0102	(0.0424)	0.0425	(0.0267)	0.0373	(0.0285)
Male Cultivators	-0.0428	(0.0400)	-0.0622	(0.0413)	-0.0586	(0.0252)**	-0.0729	(0.0260)***
Female Cultivators	-0.0659	(0.0302)**	-0.0695	(0.0327)**	-0.0062	(0.0225)	-0.0086	(0.0245)
Male Agricultural Laborers	-0.0936	(0.0573)	-0.0860	(0.0592)	-0.0934	(0.0365)**	-0.0855	(0.0378)**
Female Agricultural Laborers	0.0064	(0.0303)	-0.0036	(0.0328)	0.0529	(0.0225)**	0.0458	(0.0243)*
Expenditure	-0.0322	(0.0096)***	-0.0380	(0.0108)***	-0.0353	(0.0064)***	-0.0395	(0.0073)***
Urban	0.0324	(0.0453)	0.0353	(0.0437)	0.0031	(0.0183)	0.0056	(0.0175)
Population Growth	-0.0003	(0.0002)	-0.0003	(0.0002)	-0.0003	(0.0001)***	-0.0004	(0.0001)***
Constant	0.1764	(0.0656)***	0.2105	(0.0706)***	0.1583	(0.0387)***	0.1793	(0.0417)***
Observations	442		442		442		442	
R Squared	0.5328		0.4870		0.6276		0.5967	

Source: Census of India, 2001 and Election Commission of India, post-2001. Robust standard errors are reported in columns (2), (4), (6) and (8). *** Significant at 1%, ** significant at 5%, * significant at 10%.