Religion and Abortion: The Role of Politician Identity[*]

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Abstract

Leveraging close elections to generate quasi-random variation in the religious identity of state legislators in India, we find less male-biased sex ratios at birth in districts with Muslim legislators, and a corresponding increase in fertility. Our evidence suggests that the primary driver of this effect may be a stronger religious aversion to abortion among Muslims compared with Hindus, resulting in lower sex-selective abortion. We find no evidence of greater postnatal neglect of girls once more girls are born, and some suggestive evidence that Muslim legislators are more effective in enforcing the law against foetal sex determination.

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1. Introduction

Debates surrounding abortion often invoke both religion and politics. Abortion is a highly politicized issue, with governments often seeking to amend abortion legislation in line with the preferences of elected leaders or the sentiments of the electorate. Yet, there is little research that establishes a causal link between leader preferences and abortion outcomes. In this paper, we examine whether the religious identity of legislators influences abortion rates in the districts in which they are elected, conditional upon their party affiliation.

We examine sex-selective abortion in India, a phenomenon that has increased sharply over the past two decades, despite several policy interventions including a ban on prenatal sex determination.[1] A natural candidate explanation for this is insufficient political commitment, possibly related to state legislators' personal preferences towards abortion. Muslims express greater opposition to abortion than Hindus, and several previous studies have shown that Muslim families exhibit less male-biased sex ratios at birth (Bhalotra and Cochrane, 2010; Almond, et al., 2013). We therefore examine whether Muslim legislators are more effective at reducing sex-selective abortion.

Since electoral data in India do not identify candidate religion, we created a new data base on the religious identity of candidates for state assembly elections, coding religion from name. There are no official data on abortion and abortion is likely to be under-reported in surveys, especially sex-selective abortion in the post-prohibition era. We therefore follow a tradition in the literature of using the sex ratio at birth (i.e. the probability that a birth is female) as a marker of sex-selective abortion. Previous studies have shown that sex ratios at birth are male-biased in regions or communities with a preference for sons, and that such behavioral

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[1] Bhalotra and Cochrane (2010) estimate that 0.48 million girl foetuses were aborted each year during 1995-2005, a number larger than the total number of girls born in the U.K. each year. Abortion was legalized in India in 1971, under specific conditions.

variations in the sex ratio are larger than variations due to biological or environmental reasons (Almond and Edlund, 2008; Almond, Li and Zhang, forthcoming; Bhalotra and Cochrane, 2010). Since families that are not willing to commit abortion but have an unmet desire for sons tend to continue fertility until the desired number of sons is achieved (Bhalotra and van Soest, 2008; Clark, 2000; Jensen, 2012; Rosenblum, 2013), we examine fertility as an additional outcome. To test whether any marginal effects of legislator identity on prenatal sex selection are offset by changes in postnatal investments in girls relative to boys, we also examine the infant mortality rate of girls and boys, a widely used indicator of postnatal investments (Anukriti, Bhalotra and Tam, 2016; Bozzoli, Deaton and Quintana-Domeque, 2009; Oster, 2009).

Comparisons of fertility and birth outcomes across constituencies with and without Muslim legislators will not capture the impact of legislator preferences if the presence of Muslim legislators is correlated with voter preferences or other geographic, political or demographic characteristics. To address this challenge, we exploit the outcomes of close elections between Muslims and non-Muslims to generate quasi-random variation in the religious identity of the legislator. Since aggregation issues preclude us from using a standard regression discontinuity design, we instrument the fraction of Muslim legislators in a district with the fraction of seats in the district won by Muslim legislators who win in close elections against non-Muslims. Even when the outcomes of close elections are quasi-random, the occurrence of close elections between Muslims and non-Muslims may not be so. We therefore control for the fraction of seats in the district that had this type of elections in both the first and second stages of the instrumental variables estimation.

Our estimates indicate that the election of one additional Muslim legislator in a district leads to a statistically significant increase of 1.79 percentage points in the probability of a girl

birth. Our main specification controls for district and cohort fixed effects, and the result is robust to the inclusion of household demographics and district-specific time trends. Further, it is robust to mother fixed effects, which allow for endogenous compositional changes. In placebo tests using *future* Muslim legislators, we find no significant impact of Muslim legislators on the sex ratio. We also find no change in the sex ratio among births occurring *before* prenatal sex detection facilities became available. The impact of legislator religion on sex ratios at birth tends to be largest where previous research has shown that the underlying tendency to commit female foeticide is greatest: at higher birth orders (three and higher), in religious groups that practice more sex selection (Hindus and Sikhs, particularly those with a first-born daughter) and in states with more entrenched gender bias.

Results for fertility corroborate the findings on sex-selective abortion. We find that fertility is higher under Muslim legislators, consistent with continued fertility being an alternative means of obtaining the desired number of sons. The presence of an additional Muslim legislator leads to an increase of 2.02 percentage points in the probability of having a third or higher order birth. Thus, the increase in fertility is almost completely matched in size by the increased probability that a girl child is born, i.e. the estimates suggest that the increase in fertility reflects the reduction in girl abortion. There is no evidence that reduced prenatal sex-selection is substituted by postnatal neglect. Indeed, infant mortality rates of higher-birth-order girls relative to boys are lower under Muslim legislators. Muslims comprised only 7.3% of state legislators over our sample period, substantially lower than their population share of 12.6% in the 1991 census. Our estimates therefore imply that Muslim representation proportional to population share is a potential instrument that may be deployed to buck the rising trend of sex-selective abortion in India, albeit with concomitant increases in fertility.

Our findings are consistent with the underlying force behind Muslim legislators curbing sex-selective abortion being a religious aversion to abortion. In survey data, we find that Muslims are significantly more likely to report preferences against abortion, but do not express weaker son preference or more female-friendly views in general. We also find no evidence that Muslim legislators are more pro-female in their policies; for instance, the presence of Muslim legislators does not lead to any decline in crimes against women or self-reported domestic violence. We also show that the election of women legislators is associated with less male-biased sex ratios at birth, but not with higher fertility. Comparison of the results for Muslim vs female legislators is thus suggestive of women changing preferences (over the number or share of sons) and Muslims not changing preferences but reducing abortion, which is predominantly of girls.

Ideally, we would like to identify how the preferences of legislators are translated into policies and hence outcomes. We have data on preferences and on outcomes but it proved difficult to get the required data on the intermediate link in the chain, which is policies. For instance, there are no systematic records over time of individual legislators' voting behavior. Nevertheless, we find that the impact of Muslim legislators on sex ratios is significantly higher after the implementation of the Pre-Conception and Pre-Natal Diagnostic Techniques (PC&PNDT) Act that banned prenatal sex determination. This suggests that better enforcement of existing legislation may be a mechanism by which Muslim legislators enact their preferences over abortion.

Our paper brings together two major strands of research in development economics and political economy. The first is the literature on the determinants of population sex ratios. Previous research has emphasized demographic determinants such as declining fertility (Anukriti, forthcoming; Bhalotra and Cochrane, 2010; Das Gupta and Mari Bhat, 1997;

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Ebenstein, 2010; Jayachandran, 2017), economic determinants such as male-biased land reforms and dowry prices (Bhalotra et al, 2016; Bhalotra, Chakravarty and Gulesci, 2016) or institutional determinants such as female inheritance rights (Bhalotra, Brulé and Roy, 2017), but we know very little about the impact of politician identity.[2] In view of widespread international debate and media coverage linking abortion to religion, this is a striking omission.

The second is the literature on the substantive impacts of politician identity. Most empirical papers have focused on the gender or ethnic identity of leaders and the majority look at provision of public goods or, related, at outcomes like infant mortality that are closely tied to public goods provision.[3] There is relatively little empirical research examining the substantive impacts of religious identity in general and on gender outcomes in particular. Meyersson (2014) examines girls' education under the Islamist party in Turkey, but he focuses upon party whereas we focus upon the personal religious identity of politicians after controlling for party identity. Recent research has found a large impact of religious leaders on fertility: Bassi and Rasul (2017) show that persuasive messages in the Pope's speeches during a visit to Brazil led to an immediate reduction in contraceptive use of more than 40% and a 1.6% increase in fertility nine months later. Our results are novel in showing that the religious preferences of political leaders can similarly influence personal behavior with regard to fertility and abortion, and that minority group legislators can influence the behavior of the majority group.

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[2] Kalsi (2017) examines the impact of gender quotas on sex ratios. A literature on developed countries has linked abortion with politics and religion but has mostly focused on describing the preferences of different religious groups towards abortion (see, among others, Harris and Mill, 1985; Cook, Jelen and Wilcox, 1992; Clements, 2015).

[3] In the classical Downsian model, the preferences of politicians do not matter, and policy is determined by the preferences of the median voter (Downs, 1957). More recent models have modified and extended this framework to allow for the role of politician preferences (e.g. Besley and Coate, 1997). Many empirical papers have shown that women leaders prioritize pro-woman and pro-child policies (Bhalotra and Clots-Figueras, 2014; Chattopadhyay and Duflo, 2004; Clots-Figueras, 2011, 2012; Iyer et al., 2012; Brollo and Troiano, 2016). The evidence on politicians' ethnic identity is more mixed, with some studies finding that leaders preferentially transfer state resources to their co-ethnics (Besley et al., 2012; Burgess et al., 2015; Kramon and Posner, 2016; Pande, 2003), but others finding no evidence of this (Dunning and Nilekani, 2013; Kudamatsu, 2009).

The rest of the paper is organized as follows: Section 2 describes gender outcomes and the political environment in India, Section 3 describes our data and Section 4 outlines the empirical strategy. Section 5 presents and discusses the results, Section 6 discusses possible mechanisms and Section 7 concludes.

2. **Abortion, Religion and Politics in India**

2.1. Gender and Abortion in India

India exhibits an extremely male-biased population sex ratio, with women constituting only 48.5% of the population in the 2011 census. The corresponding figure for the United States is 50.8%, and it is estimated that there are 0.86 million "missing women" in India. The proximate causes of the biased population sex ratio have traditionally been female infanticide (Dickemann, 1979) and excess mortality amongst girls and women associated with their endemic neglect (Klasen, 1994; Sen, 1992; Anderson and Ray, 2010), both stemming from widespread son preference among the population. Male-biased sex ratios were noted as early as the first census in 1871 (Visaria, 1967). Decades of economic development have not rectified this imbalance, indeed the all-age ratio of males to females has drifted upwards through the twentieth century (Bhaskar and Gupta, 2007).

A more recent phenomenon, which motivates our study, is that the fraction of females *at birth* has declined sharply since the 1981 census, even as the all-age sex ratio has stabilized (see Appendix Figure A1, panel A). A major contributing factor to this trend has been the introduction of affordable pre-natal sex detection technology that has facilitated sex-selective abortion. The decline in the female share of births is particularly pronounced at higher birth orders, and among families that do not already have a son; there is no discernible tendency to

sex-select at first birth (see Appendix Figure A1, panels B, C and D).[4] The increasing male bias

in the sex ratio at birth has occurred despite rapid economic growth and no official restrictions on

fertility.[5] Female foeticide is generating an unprecedented demographic squeeze with likely

consequences for the prevalence of prostitution and sexually transmitted infections, crime and

violence, labor markets and old-age care (Angrist, 2002; Ebenstein and Sharygin, 2009; Edlund

et al., 2013; Samuelson, 1985).

Abortion was legalized in India with the passage of the Medical Termination of

Pregnancy (MTP) Act in 1971, effective in most states in 1972. The Act provides for legal

abortion under specified conditions in the first twenty weeks of pregnancy, but illegal abortion is

easily accessed in India and outweighs legal abortion by a factor of 8 to 11 (Jesani and Iyer,

1993). In response to civil society protests against widespread female foeticide, the Government

of India passed the Pre-Conception and Pre-Natal Diagnostic Techniques (PC&PNDT) Act in

1994. This legislation made it an offence to conduct prenatal sex detection, and imposed

penalties on both citizens and medical providers for violating the guidelines. While there is some

evidence that the Act had an impact on gender ratios (Nandi and Deolalikar, 2013), this has not

been large enough to reverse the overall decline in sex ratios at birth.

2.2. Muslims in India

India is a country of considerable religious diversity and the constitution enshrines

secularism by conferring the fundamental right to freely "profess, practice and propagate

religion." Muslims form the single largest religious minority in India, constituting 14.2% of the

population in the 2011 census. Hindus are the religious majority, constituting 79.8% of the

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[4] There is a biological tendency for the sex ratio at birth to be biased in favor of boys, with more boys being born and more dying before reproductive age, with most of this adjustment being in the first five years of life (Fisher, 1930). However, the sex ratio at birth in India is unnaturally skewed in favor of boys.

[5] Fertility control and declining fertility has been argued to intensify son preference (Das Gupta and Mari Bhat, 1997; Ebenstein, 2010; Jayachandran, 2017).

population. With 172 million Muslims in 2011, India had the third largest Muslim population in the world. Muslims in India are more likely to live in urban areas (36% compared to 28% of Hindus), and their population share varies substantially across states and across districts within states. They are, on average, poorer than Hindus: 31% of Muslims were below the poverty line in 2004-05, much higher than the figure of 21% for upper-caste Hindus and comparable to the figure of 35% for lower castes (Government of India, 2006).

Using data that we coded for the first time (see next section), we find that Muslims comprised only 7.3% of all members of state assemblies over the period 1980-1999, substantially lower than their population share. In a previous paper, we found that the presence of Muslim legislators in India significantly improves health and education outcomes, and that these benefits are population-wide rather than restricted to Muslim households (Bhalotra et al., 2014).

Islam places a high priority on the sanctity of life, and this principle leads all schools of Islam to oppose abortion after the first 120 days of pregnancy. Views differ across different schools and scholars on the acceptability of abortion before this stage, with many scholars holding the view that life begins at conception. Infanticide is also severely discouraged. Previous research has shown that infant mortality is lower for Muslim children compared to Hindus, despite Muslims being poorer and less educated (Bhalotra, Valente and van Soest, 2010), and Muslim families exhibit less male-biased sex ratios than Hindu and Sikh families (Almond, et al., 2013; Bhalotra and Cochrane, 2010). Using the World Values Survey data for India, we find that even after controlling for age, gender, education and wealth, Muslim respondents are significantly less likely to agree that abortion is acceptable under a range of scenarios (Appendix Table A1). For instance, while 69% of Hindus agree that abortion is acceptable if the child is handicapped, the fraction is 12.5 percentage points lower for Muslim respondents.

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India is a federal country in which the constitution grants substantial policy autonomy to the 29 states. Indian states largely determine their own health and education budgets, although they receive supplementary funds from federal programs, and the federal government can also pass health-related legislation. Elections to state legislatures are held every five years on a first-past-the-post basis in single-member constituencies. There is no explicitly Islamist party but some parties appeal more to Hindus than to Muslims. While India has political quotas for low castes in state assemblies and local governments, there are no political quotas for Muslims.[6]

3. Data

3.1. Data on Politician Religious Identity

We constructed a unique dataset that identifies all candidates for state legislative assembly elections by their religion. We used data on state legislative elections provided by the Election Commission of India that list the name, constituency, political party, and votes obtained by every candidate for all elections from 1960-2010. We inferred religious identity from candidate names and classified candidates as Muslim or not. To minimize errors, we used two independent teams to conduct this classification of legislator names; disagreements between the two teams' classification were resolved by the authors on a case-by-case basis. The first team used a software program called "Nam Pehchan", which could classify about 72% of the names, the rest were classified manually. A second (India-based) team performed the whole classification manually, using their judgment gained from prior work with Election Commission files. After this procedure, we remained doubtful of the religious identity of less than 0.5% of candidate names (out of more than 250,000 names), and assigned them as "non-Muslim" as a tie-breaking rule. While Muslim names are often readily identifiable, it is difficult to distinguish

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[6] Jensenius (2013) discusses the historical reasons underlying the absence of electoral quotas for Muslims.

Hindu names from those of other religious minorities such as Sikhs, Jains, Buddhists or Christians who constitute approximately 6% of the total population. Thus, we effectively compare Muslim legislators to those of all other religions, with Hindus being the most numerous among them.[7]

3.2. Data on Fertility and Birth Outcomes

We use data from the National Family Health Survey of India (NFHS), a nationally representative survey that is one of the multi-country Demographic and Health Surveys. We use the 1998-1999 wave, since it has district identifiers that make it possible to match fertility and birth outcomes to the religious identity of local legislators.[8] Mothers aged 15-49 years at the time of the survey are asked to record their complete fertility histories and any child deaths. Births in the data go back in time to the 1960s, providing time variation in all the outcomes. Availability of the full history for each mother allows us to identify birth order, to identify the sex of the oldest biological sibling of every child (i.e. the mother's first born), and to use mother fixed effects in the estimation.

While legislator religion is available at the level of the electoral constituency, the lowest geographic level at which we have information on birth outcomes is the administrative district of residence of the respondent mother. Almost all state electoral constituencies are contained within district boundaries and the average number of constituencies per district is 9.5. The map in Appendix Figure A2 illustrates the match between electoral constituencies and administrative districts. It shows the district of Ghaziabad, which has eight electoral constituencies. We know whether a particular mother lives in the district, but do not know the electoral constituency in

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[7] Observed gender ratios among Sikhs are worse than among Hindus. Christians are similar to Muslims in being opposed to abortion; therefore, pooling Christian legislators with Hindus will lead to the under-estimation of the impact of Muslim relative to Hindu legislators.
[8] The third wave, conducted in 2005-6, does not have district identifiers.

which she lives i.e. we cannot match fertility and birth outcomes to the religious identity of a specific legislator. We therefore aggregate the electoral data to the district level using the administrative district boundaries in the 1991 census. We then study variation generated by close elections (discussed below) in the *fraction* of legislators in the district who are Muslim.

In our main specification, we restrict the analysis to the 16 largest states in India that contain more than 95% of India's population. The key exclusion here is the one Muslim-majority state of Jammu & Kashmir, though we verify that our results are robust to its inclusion.[9]The main analysis is conducted for the period 1980-1999. We focus on years 1980 and later because electoral constituencies did not change between 1980 and 2007, so that we do not need to take into account potential effects of redistricting that might differ by politician's religion. The end point is determined by the date of the birth outcomes survey.

3.3. Main Outcomes of Interest

We conceptualize a family as making the following sequence of choices: whether to conceive; conditional upon conception, whether to engage in prenatal sex detection; conditional upon knowing foetal sex, whether to abort; and conditional upon not aborting, how much to invest in children and in particular, whether to invest differently in sons and daughters.

The main outcome of interest is an indicator variable for whether a birth is a girl, a widely used marker of sex-selective abortion. Official data are likely to under-report abortions, since most abortions do not take place in health facilities (Singh et al., 2018), and survey data are subject to potentially endogenous under-reporting.

So as to check whether any change in live girl births (relative to boys) is offset or reinforced by changes in girl relative to boy mortality after birth, we also examine neonatal and

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[9] Jammu &Kashmir is also exceptional in being the scene of a long-running dispute between India and Pakistan. This state had its elected assembly suspended for several years, and many special laws apply solely to this state, while some national laws do not apply to it.

infant mortality, defined as dummies for whether the child died in the first month and the first year of life respectively. Child mortality rates are often used as indicators of post-birth investments in children in developing countries where mortality rates are high and sensitive to parental investments. Since sex at birth and mortality after birth are both conditional on the occurrence of a birth, we also model fertility using a dummy for whether the individual mother has a birth in a given year. We expand the data to create a mother-year panel, the length of which is the duration of her reproductive years (which we assume starts at marriage) and conditioning on time since last birth. Since fertility decisions are typically made in the year before the child is born, we match all individual outcomes to the share of Muslim legislators in the year before birth in the district of birth.[10]

4. Empirical Strategy

4.1. Identification Using Close Elections

We want to estimate the impact of the share of seats won by Muslim legislators in an electoral district on the birth outcomes of households living in that district in a given year. In general, the election of Muslims rather than non-Muslims is likely to be correlated with constituency (or district) characteristics, including demographics (share of Muslims), political circumstances and voter preferences. To address this, we leverage the fact that, in first-past-the-post elections, there is a sharp discontinuity in the chances of winning when the vote share difference between the top two vote-winners is arbitrarily small, i.e. at the zero-vote margin. In these circumstances, the identity of the winner can be considered quasi-random and a regression

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[10] Since the data record district of residence rather than district of birth, we restrict the sample to children who were conceived in their current location. Approximately 16% of the survey respondents moved to their current area of residence after the child was conceived.

discontinuity design (RDD) would provide unbiased estimates of the impact of winner identity[11]

RDD would therefore use the sample of elections in which Muslim and non-Muslim candidates contest, and compare constituencies in which Muslims won by a narrow margin to those in which Muslims lost by a narrow margin. As we explained in the previous section, in order to match the electoral data to the birth outcomes data (that only identify the district of residence of mothers), we need to aggregate over all constituency-specific discontinuities within a district, in the spirit of a "fuzzy" RDD.[12] This is implemented using a two-stage least squares approach, as described below.

A standard RDD would involve regressing the outcome of interest on a dummy for the election of a Muslim legislator, restricting attention to elections in which Muslims win against non-Muslims in a close election (defined as an election won by a narrow vote margin). Since we use data aggregated over constituencies, the explanatory variable of interest is the fraction of all seats won by Muslim legislators in a district. We instrument this with the fraction of seats in the district won by Muslim politicians in a close election against a non-Muslim politician. We define close elections as elections in which the winner won by a margin of less than 3% of votes; approximately 9% of Muslim winners are elected with a margin of 3% or less (see summary statistics in Appendix Table A2). We investigate robustness to alternative margins. As in the standard RDD, our regressions control for a polynomial in the vote margin, now for every

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[11] Regression discontinuity has been previously used in the context of close elections by, among others, Lee (2008) who studies incumbency advantage, Pettersson-Lidbom (2008) who looks at the effect of party control on fiscal policies, Lee, Moretti and Butler (2004) who estimate the effect of the degree of electoral strength on legislators' voting behaviour and Bhalotra, Clots-Figueras and Iyer (2017) who examine the impact of women's electoral victories on the subsequent political participation of women.
[12] Our approach of using an IV strategy to approximate a fuzzy RDD has antecedents in the work of Angrist and Lavy (1999) who estimate the effect of class size on educational achievements and the work of Rehavi (2007), Clots-Figueras (2011, 2012) and Bhalotra and Clots-Figueras (2014), who estimate related specifications to investigate the policy impact of the gender of elected politicians.

election within the district in which a Muslim and a non-Muslim are among the top two vote winners.

Although the use of close elections ensures the internal validity of our estimates, the *existence* of close elections between Muslims and non-Muslims in a given district and year is unlikely to be exogenous, and is likely to depend upon factors such as the share of Muslims in the population, their relative status and the extent to which religion is politicized in the region. To account for this, we control for the fraction of constituencies in the district that were contested in close elections between Muslim and non-Muslim candidates. This also controls for any direct effects of having close elections between the religions, such as greater political mobilization by parties or greater salience generated by the "excitement" of a close contest.

The instrumental variables (IV) regression equation is as follows, where equation (1) is the second stage and equation (2) is the first stage:

(1) $\quad Y_{idst} = \theta_{ds} + \psi_t + \beta\, ML_{ds,t-1} + \lambda TC_{ds,t-1} + \Sigma^{Nd}_{j=1}\, \alpha_{1j}\, I_{jds,t-1}{*}G(m_{jds,t-1}) + \Sigma^{Nd}_{j=1}\, \alpha_{2j}\, I_{jds,t-1} + \quad X_{idst}\, \eta + \varepsilon_{idst}$

(2) $\quad ML_{ds,t-1} = \theta_{ds} + \psi_t + \kappa MC_{ds,t-1} + \mu TC_{ds,t-1} + \Sigma^{Nd}_{j=1}\vartheta_{1j}\, I_{jds,t-1}{*}G(m_{jds,t-1}) + \Sigma^{Nd}_{j=1}\, \vartheta_{2j}\, I_{jds,t-1} + X_{idst}\, \sigma + u_{ds,t-1}$

where Y_{idst} is the dependent variable for mother i in district d of state s and year t (dummy for a girl birth, dummy for whether any child is born and dummies for child death in the first month or year of life). The explanatory variable of interest is $ML_{ds,t-1}$, the fraction of constituencies in the district in which a Muslim legislator was elected in district d in the previous year $t-1$, the lag allowing for conception, prenatal sex detection, and abortion decisions being made a year before the birth outcome is realized. The coefficient of interest is β, which identifies the impact of a Muslim legislator relative to a non-Muslim legislator.

The share of Muslim legislators $ML_{ds,t-1}$ is instrumented with the fraction of constituencies in the district won by Muslims in close elections against non-Muslims in the same

year, $MC_{ds,t-1}$. The fraction of constituencies in the district in which there were close elections between Muslims and non-Muslims, $TC_{ds,t-1}$, is controlled for in the second stage (equation 1) and partialled out of the instrument in the first stage (equation 2). The margin of victory for an inter-religious contest in constituency j of district d is denoted $m_{jds,t-1}$, defined as the vote share of the Muslim candidate minus the vote share of the non-Muslim candidate, so that by construction, a Muslim wins when the margin is positive. We control for second order polynomials of all these margins of victory in all constituencies with inter-religious elections, denoted $G(m_{jds,t-1})$. The polynomials are interacted with $I_{jds,t-1}$, which is an indicator for whether there was an inter-religious contest in constituency j of district d. We also include indicator variables for whether there are inter-religious races; Nd is the total number of constituencies in district d.

θ_{ds} represents district fixed effects, which control for time-invariant district characteristics (including the history of Muslim presence in the district), sluggish demographic characteristics (including the share of the district population that is Muslim), the slowly moving component of public goods infrastructure and time-invariant voter preferences. Cohort (year-of-birth) fixed effects ψ_t afford a flexible representation of aggregate shocks or nationwide policies that may have influenced both birth outcomes and the religion mix of politicians. X_{idst} is a vector of household-level control variables including dummies for religion, education levels of the mother and the father, rural vs urban residence, year of marriage of the mother and whether the individual belongs to a scheduled caste or tribe (which we loosely refer to as "low caste") or to the "Other Backward Castes."[13] To allow standard errors in a district to be correlated across families in the district and across time, the standard errors are clustered at the district level.

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[13] The Scheduled Castes are communities that have historically been at the bottom of the Hindu caste hierarchy. Scheduled Tribes include communities traditionally outside the Hindu caste system. Other Backward Castes refer to castes that are in the middle of the caste hierarchy.

To summarize, the thought experiment generated by our estimation strategy is that one, or more, Muslim legislators win randomly against non-Muslims, increasing the fraction of seats with Muslim legislators in an exogenous fashion, uncorrelated with other characteristics of these areas. The hypothesis we test is that this will result in lower rates of sex-selective abortion and higher rates of fertility in the district from which the legislator is elected. Previous research shows that there is no discernible sex-selective abortion among first births and that sex-selective abortion is increasing in birth order, especially as birth order approaches desired fertility (Almond et al., 2013; Bhalotra and Cochrane, 2010). We exploit this knowledge, allowing the impact of legislator religion to vary with birth order.

4.2. First Stage Relationship

Figure 1 plots the overall fraction of seats won by Muslim legislators in the district against the victory margin, defined as the difference in vote share between the Muslim and the non-Muslim candidates in each one of the electoral constituencies, so that margin > 0 denotes a Muslim electoral victory and margin < 0 denotes a Muslim loss. We see that when a Muslim narrowly wins against a non-Muslim (i.e. when the vote margin is just larger than zero), there is a dramatic jump in the district share of Muslim legislators. In other words, if a Muslim wins a close election in any electoral constituency within a district, then the overall fraction of Muslim legislators in the (larger) administrative district rises significantly. This first stage effectively aggregates across all these points that are near the discontinuity. The first stage regression results, estimates of equation (2) above, are shown in Appendix Table A3, and they confirm that the instrument is a strong predictor of the fraction of Muslim legislators in a district.

4.3. Validity of the Instrumental Variables Strategy

In this section we present tests of the validity of the RDD that underlies our IV identification strategy (Imbens and Lemieux, 2008). First, we test for vote manipulation around the zero vote margin, and find that the vote margin is continuous in the neighborhood of zero, the threshold which separates the Muslim victory from the non-Muslim victory (Figure 2A). A formal test estimating the difference in the densities on either side of the zero point (McCrary, 2008) confirms this, the estimated difference being a statistically insignificant −0.0391 (Figure 2B).

Second, we examine whether constituency demographics vary discontinuously at the zero -vote margin, in the spirit of a test of balance between treated constituencies (in which a Muslim narrowly won against a non-Muslim) and control constituencies (in which a non-Muslim narrowly won against a Muslim). Using demographic characteristics from the 2001 census at the constituency level, we show RDD plots for the fraction of the population that is urban, the fraction of population belonging to the Scheduled Caste and Scheduled Tribe categories, the female population share and the average literacy rate (Figures 3A-3D). These characteristics are graphed against the victory margin on the x-axis (similar to Figure 1), with the lines representing a non-parametric (lowess) fit on either side of the discontinuity. None of these characteristics exhibits a discontinuity at the zero-vote margin. The share of Muslims in the population is not available at the constituency level but we have repeated the exercise with the share at the district level and this is continuous across the zero-margin threshold (Figure 3E).

Third, we examine political characteristics of the constituency, and find that electoral races with Muslim winners are not significantly different from those with non-Muslim winners in terms of total votes cast, number of candidates and the participation of Muslims and women as

candidates (Figures 4A-4D). However, Figures 4E-4G show that Muslim winners, even in close elections, are significantly more likely to belong to the Indian National Congress (INC) party or the Bahujan Samaj Party (BSP), and significantly less likely to belong to the Bharatiya Janata Party (BJP). This is not surprising, given that the BJP often espouses a vision of India as a Hindu nation, while the other parties do not. There is no difference in the probability of Muslim winners belonging to Communist parties (Figure 4H). In all regressions, we therefore include controls for the fraction of seats in the district won by the INC, the BJP and the BSP so that our estimates identify the effect of the personal religious identity of the legislator rather than his or her party affiliation. We further verify that Muslim winners are not more likely to be incumbents compared to non-Muslims, which rules out incumbency effects explaining our results (Figure 4I).

Although the close election strategy does not require balance on personal characteristics, it is useful for interpretation of the estimates to consider how the characteristics of Muslim vs non-Muslim legislators who win in close races against the other religion compare. Data on candidate characteristics are only available from 2004 to 2007,[14] using which we find no significant differences in education levels, net worth (assets minus liabilities) or the likelihood of having serious criminal charges pending against them (Appendix Figure A3). While we cannot rule out that Muslim winners are positively or negatively selected on unobservables compared to non-Muslims, this would only bias our estimates if such unobservables were correlated with preferences for abortion (or preferences for fertility or investments in boy vs girl children).

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[14] A Supreme Court decision mandated that, beginning in 2004, all candidates for political office were required to disclose information on their education, assets, liabilities and any criminal charges filed against them. We limit the data range to 2007 to avoid potential confounding effects of the 2008 electoral redistricting.

5. Muslim Political Representation and Gender Outcomes

5.1.   Sex Ratio at Birth

We first discuss estimates of equation (1) when the dependent variable is the probability that a birth is a girl. On average, we find no significant impact of legislator religion on this variable (Table 1, column 1). However, when we break out the effects by birth order, we see that there is a significantly higher probability of girl births at birth orders two and above in districts with a higher fraction of Muslim legislators (column 2). In fact, this is driven by birth orders three and above, where the impact of Muslim legislators is significant at the 5% level of significance (column 3). The effect is sizeable. Since districts on average have 9.5 electoral constituencies, one additional Muslim legislator in the district increases the fraction of Muslim legislators by approximately 10% and therefore the probability of a girl birth at birth order three or higher increases by 1.79 percentage points. In 1995, arbitrarily selected as being in the middle of our sample, there were 26.3 million births in India and 45.4% of these were third order or higher. Our estimates imply that if Muslim representation increased from the current district average of 8% to the population share of 13% (see district-level summary statistics in Appendix Table A2), this would increase third-order girl births by approximately 107,000. This is a fairly large impact, considering that Bhalotra and Cochrane (2010) estimate a total of 0.48 million sex-selective abortions per year in 1995-2005.

While our results already control for characteristics such as rural residence, education of the woman and her partner, her religion and caste, and her age at marriage, we verify that the results are robust to including a quadratic polynomial in the mother's age at birth, as well as her height which is often used as a proxy for early life nutritional status (column 4). So as to allow for compositional effects, e.g. women with different preferences giving birth under Muslim vs

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non-Muslim legislators, we ran an additional specification with mother fixed effects.[15] The coefficient of interest is now slightly larger, indicating that an additional Muslim politician results in a 2.11 percentage point increase in the probability of a girl birth at orders three and above (column 5).

Table 1 also displays the main effect of Muslim legislators which, in columns 2 onward, is the coefficient for the firstborn child. As discussed earlier, all previous research indicates that the sex of first births is not manipulated. The first birth attracts a negative, although insignificant coefficient, which is consistent with previous evidence that Muslim legislators are better at delivering maternal and child health services (Bhalotra et al., 2014). In view of the greater innate vulnerability of the male foetus (Low, 2001; Waldron, 1983), this will favor survival of male births. This is also evident in our results for childhood mortality, which show that first-order male births suffer lower infant mortality (see Table 6, discussed later). The coefficients for higher order births, which are of opposite sign, pick up the impact of sex-selective abortion (girl foeticide) net of any overall improvements in foetal health effected by Muslim legislators.

5.2.   *Robustness Checks*

We subjected the main results on the relative chances of a girl birth to a further barrage of robustness checks, using the specification in Table 1, Column 3. We tested robustness to controlling for state*cohort fixed effects, district-specific linear trends and household wealth, and to the inclusion of the Muslim-majority state of Jammu and Kashmir in the sample (Table 2, columns 1-4).[16] The coefficient of interest, for birth order three and above, remains statistically

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[15] The sample for this regression is limited to women with multiple births in our sample. The coefficient on Muslim legislators * birth order three and above for this sample (without mother fixed effects) is 0.169, very close to our estimate of 0.179 in column 4.

[16] The baseline specification does not control for household wealth because this is recorded only for the year of the survey, but may have varied across the reproductive years of the mother in ways that are correlated with household fertility decisions.

significant and is slightly larger than in our base specification. Restricting the sample to only district-years with at least one close election between non-Muslim and Muslim candidates also raises the coefficient slightly (to 0.189), but we lose statistical significance because of the large decrease in the number of observations (column 5).

We checked sensitivity to the definition of close elections, replacing the 3% vote margin with a series of alternative vote margins ranging from 1% to 5%. The resulting coefficients are shown in Appendix Figure A4. The coefficients remain in a narrow range between 0.15 and 0.20 over this range of vote margins, except for the extreme values of 1% and 5%. Finally, we conducted a placebo test that examines whether the religion identity of legislators elected in the next term, five years after the birth year, influence birth outcomes. The coefficient of interest is less than half the size of our main coefficient of interest and not significantly different from zero. (Table 2, column 6).

5.3.   Inferring Sex-Selection

The degree of variation that we identify in birth sex ratios is larger than what would be consistent with biological variation. Since we have quasi-experimental variation in legislator religion in the close election sample we use, and we have subjected that specification to tests for omitted trends, it is hard to think of an explanation of our findings other than that families are less likely to abort girls when Muslim legislators are in power. We nevertheless consider here whether the influence of legislator religion follows previously documented patterns of sex-selective abortion. Our result that Muslim legislators have a significant impact only on higher birth orders is consistent with a large literature showing that sex selection and other types of gender-biased investments are more prevalent at higher order births (Bhalotra and van Soest, 2008; Jayachandran and Kuziemko, 2011; Jayachandran and Pande, 2017). The reason there is

no sex-selection among first births is that most Indian parents want one girl and want at least two children. Since the median parent wants three, the tension between desired fertility and the desired sex composition of births is likely to become particularly strong at order three.

We investigate other known patterns. For instance, sex-selective abortion in India is concentrated among Hindus and particularly in those with a first-born daughter (Bhalotra and Cochrane, 2010). Sikhs are also known to conduct sex-selective abortions (Almond et al., 2013). In line with this, we find a slightly larger impact of Muslim legislators on the birth sex ratio in Hindu and Sikh than among Muslim families (Table 3, columns 1 and 2). These and other coefficients compared in this section are not statistically significantly different from one another because we are challenged by power, but the differences in coefficient size are often remarkable and they consistently point in the expected direction. Columns 3 and 4 show that among Hindus and Sikhs there is a larger reduction in foeticide in families with a girl child at first birth than in those with a first son, consistent with the former having a stronger underlying tendency to sex-select (the coefficients are 0.320, significant at 10% level vs 0.0870 which is insignificant).[17] Also, in line with results in Bhalotra and Cochrane (2010) and Jha et al. (2011) showing that sex-selective abortion is more common among urban, upper-caste and more educated women, we find that the influence of Muslim vs non-Muslim legislators on sex-selective abortion is larger in these groups (Appendix Table A4, columns 1-6). It is also highest for families in the middle of the wealth distribution consistent with the poor being liquidity constrained in terms of affording ultrasound scans and abortions, and the rich having the resources to raise an additional child (columns 7-9).[18]

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[17] Results are similar if we restrict the sample to Hindu families only (rather than Hindu and Sikh combined) or examine all non-Muslim families relative to Muslims.

[18] Wealth categories are constructed as terciles of an asset index based on ownership of a suite of assets for each household.

We also find that legislator religion has a larger impact in curbing female foeticide in states that historically have had greater gender bias. We proxy entrenched gender bias using the population share of women, computed at the state level using data from the 1981 census, before the start of our analysis period. This proxy is justified by a long literature documenting that the phenomenon of "missing women" in India arises from the pervasive neglect of girls and women (Anderson and Ray, 2010; Sen, 1992, 2003). Consistent with this, the coefficient of interest is twice as large for states with below-average population gender ratios and there is no statistically significant impact of Muslim legislators in states with above average gender ratios (Table 3, columns 5 and 6). We find a similar pattern of results using the gender literacy gap as a proxy for state-level gender bias (results available upon request).

Finally, we examine the relationship with ultrasound availability, since it was much more difficult and expensive to determine the gender of a foetus without ultrasound technology. Since ultrasound technology became widely available in India only after 1985,[19] we expect less sex-selective abortion and hence a lower influence of Muslim legislators in the period before 1985. This is indeed what we find (Table 3, columns 7 and 8).

5.4. *Fertility*

Gender at birth is, of course, conditional on birth. We examined the probability of any birth as a fertility outcome, keeping in mind that this reflects a combination of the decision to conceive and the decision not to terminate the pregnancy (for sex selection or other reasons). We find a significantly higher probability of a birth at birth orders 2 and greater, in places with a higher fraction of Muslim legislators (Table 4, column 2); this higher probability arises primarily

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[19] The first imports of ultrasound machines that enable prenatal sex detection are recorded in the mid-1980s; see Bhalotra and Cochrane (2010) who document that the sex ratio at birth only began to depart significantly from the normal ratio after the introduction of ultrasound.

from birth orders 3 and above (column 3). We estimate that one additional Muslim legislator (instead of a non-Muslim legislator) leads to a 2.02 percentage point increase in the probability of a birth at order three, which is close to the 1.79 percentage point increase in the probability of a *girl* birth at order three that we reported earlier (Table 1, column 3). Thus, increased fertility under Muslim leaders is almost completely explained by the higher probability of girl births.

We may additionally expect that families that do not conduct sex selection of births at order three but that nevertheless desire more sons, will continue fertility to birth orders 4 and higher. Thus, an intervention such as the (notional) replacement of a non-Muslim by a Muslim legislator that lowers sex selection at orders three and higher should lead to higher fertility at orders four and higher. We find that Muslim legislator presence is indeed associated with an increased probability of 4th and higher order births (Table 4, column 4). The results for fertility at third and fourth or higher order are robust to controlling for mother fixed effects; in fact, the coefficients are larger (columns 5 and 6). Note that this specification controls for (time-invariant) fertility preferences.

We subjected the fertility results to the same robustness checks as for the sex ratio at birth, including state*year fixed effects, district-specific linear time trends, controlling for household wealth, including the Muslim-majority state of Jammu & Kashmir, restricting the sample to only district-years with at least one close inter-religious election and changing the margin used to define close elections to 2.5%. Results are robust to all these changes (Appendix Table A5, columns 1-6). We also conducted a placebo exercise where current fertility outcomes were regressed on Muslim representation five years in the future, and found no significant effects (column 7). This verifies that our results are not driven by unobserved characteristics of the districts that elect more Muslim legislators.

As with the gender of birth, the pattern of coefficients in different subsamples is consistent with the additional fertility being driven by reduced sex-selective abortion. The fertility effects of Muslim legislators are larger for Hindu and Sikh than for Muslim families (Table 5, columns 1 and 2), although only slightly larger when the first child is a girl rather than a boy (columns 3 and 4). We also see a higher fertility response to Muslim legislators in the period after 1985, when ultrasound scanners became available in India (columns 5 and 6) and in states with below-average female population share (columns 7 and 8). In other words, we see the increases in fertility precisely among the households that display lower sex selection in response to the presence of Muslim legislators.

5.5. *Infant Mortality of Girls vs Boys*

Indian Muslims do express a preference for sons, similar to that of Hindus. However, it seems that Muslims achieve their desired number of sons primarily through continuing fertility, while Hindus additionally use both abortion *and neglect* to "eliminate" girls before and after birth. We therefore investigate whether declines in girl abortion are offset by increases in postnatal girl deaths (see Table 6). There are no significant impacts on neonatal mortality, but infant mortality tends to be lower in districts and years with Muslim legislators, consistent with Bhalotra et al. (2014). These impacts are specific to gender and birth order. Among first births, where we expect no sex-selective abortion, boys are the main beneficiaries, in line with their greater biological vulnerability. At birth orders 3 and higher, which is where we have documented lower girl abortion, we estimate larger declines in girl rather than boy infant mortality, although the girl coefficient is only significant at the 10% level. Still, the evidence suggests we can reject the concern that, under Muslim legislators, parents substitute postnatal for prenatal elimination of girls. Taking all our results together, the main finding is that, under

Muslim legislators, more children are born (at birth orders 3 and higher), and the share of surviving girls is higher.

6. Mechanisms

Our working hypothesis is that the suite of results we have discussed arise from stronger anti-abortion preferences among Muslims that are embodied in Muslim legislators who find ways to translate them into policy. As there are no systematic data matched to our sample that would allow us to identify specific activities of state legislators in their constituencies, we report exploratory work designed to illuminate the mechanisms at play.

6.1. Gender Preferences or Abortion Preferences?

Since the share of surviving girls increases under Muslim legislators, we investigate the competing hypothesis that our results arise from Muslims having stronger pro-woman preferences.

As documented earlier, using data from the World Values Surveys for India, Muslims express significantly greater opposition to abortion (Appendix Table A1).[20] However, they do not express lower son preference in their stated fertility preferences in the NFHS: Muslims report a desire for more sons and more daughters (higher desired fertility) but the desired *share* of boys among all children is not significantly different between Hindu and Muslim families (Appendix Table A6, columns 1-3). Muslims also do not express more "pro-woman" attitudes. Using data from the World Values Surveys for India, we find that Muslims are significantly less likely to agree with the statement "both the husband and wife should contribute to household income," but no more likely than Hindus to say that "A university education is more important for a boy

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[20] In the literature on politician identity that we cite in the Introduction, the theoretical premise is that legislators of a particular gender or religion embody the preferences of that gender or religion.

than a girl" (Appendix Table A6, columns 4 and 5). There is also no significant difference between Muslims and Hindus on whether they agree with the statements "Men make better political leaders than women do" and "Men make better executives than women do" (columns 6 and 7).

If Muslim legislators were acting to avert violence against girls in the foetal and infant years because they were, in general, more protective of women, we may expect that they also act to reduce violence against women at other stages of life. We investigated self-reported domestic violence recorded in the NFHS, which takes great care to ask questions in a confidential setting to encourage reporting. Since these questions were asked only for the time of the survey, there is no time variation in the data. We therefore run a regression that includes state*year of interview fixed effects (the survey was conducted over 1998 and 1999), and instrument the fraction of Muslim legislators in the district with the fraction of Muslim legislators who won in close elections with margin less than 3%. We find no significant impact of legislator religion on the fraction of women who report not being beaten over the past 12 months, or being beaten many times over the past 12 months (Appendix Table A7, panel A, columns 1 and 2). Consistent with no change in incidence, we find no change in attitudes towards domestic violence, measured as the fraction of female respondents who agree that it is acceptable for a husband to beat his wife for any or all of six specified reasons (Appendix Table A7, panel A, columns 3 and 4).[21]

Since domestic violence occurs in a private space within homes, it is often more difficult for policy-makers to address than is violence against women outside the home. For instance, policy-makers may influence the reporting and handling of crime against women (Iyer et al., 2012, Amaral et al., 2018). For this reason, we also investigated crimes reported to the police.

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[21] The reasons enumerated in the survey are: if he suspects her of being unfaithful; if her natal family does not give expected money, jewellery, or other items; if she shows disrespect for her in-laws; if she goes out without telling him; if she neglects the house or children; or if she does not cook food properly.

We recognize that, without knowledge of the extent to which deterrence dominates reporting, we cannot specify a prior on whether crime incidence statistics go up or down. So this test has its limitations but we nevertheless sought to identify whether legislator religion has either a positive (reporting) or a negative (deterrence) impact on reported crimes against women. We obtained data for 1980-1999 from the National Crime Records Bureau, and ran an instrumental variables regression, similar to (1), controlling for district and year fixed effects. The dependent variables are the (logarithms of) per capita reports of rape, kidnapping of women and girls, sexual assault, sexual harassment, domestic violence and dowry deaths. We do not find any significant effect of Muslim relative to non-Muslim legislators on any category of crime against women (Appendix Table A7, panel B).[22] While these results are not conclusive, the whole constellation of findings indicates that our findings on sex-selective abortion cannot simply be put down to Muslims being more "pro-female" than Hindus.

A different way to assess the extent to which differences in pro-woman preferences between Muslims and Hindus might drive our findings, is to compare our estimates with estimates of the impact of female vs male legislators in determining the same outcomes. Using a similar identification strategy based on close elections between men and women, we find that women legislators are associated with a higher probability of girl births at higher birth orders, but the coefficient is not statistically significant (Appendix Table A8, column 1). These findings are also consistent with the results in Kalsi (2017) who finds that exposure to female politicians (in *local* governments) increases female survival. There is no impact of women legislators on fertility, in fact the estimated effect on third-order births is negative (column 2). Consistent with

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[22] The last four categories are reported only in years 1995 and later; kidnapping of women and girls is reported for years 1985 and later. We see no impact of Muslim legislators on crimes against women even in the longer sample period of 1980-2008 for which we have crime data.

the results in Bhalotra and Clots-Figueras (2014), we find that infant mortality and neonatal mortality rates are lower under women legislators (columns 3-6).

Taking together the fact that the estimated coefficient for women legislators is similar in size to the coefficient linking Muslim leaders and sex selection, but that fertility shows a compensating rise under Muslim leaders but not under women leaders, it seems that women leaders may be more effective at mitigating the exercise of son preference while Muslim leaders, concerned primarily with averting the act of abortion, engender a substitution from sex-selective abortion to fertility continuation.

In sum, using data on preferences or attitudes in four relevant domains, analyzing the influence of legislator religion on violence against women, and comparing the effects of legislator religion with the effects of legislator gender, it seems that our findings are not primarily the result of differences in gender preference between Muslims and Hindus.

6.2. Legislative versus Executive Action

Muslim legislators' anti-abortion preferences may translate into fertility and gender outcomes via the legislative process, for instance, by Muslim legislators lobbying for more restrictive access either to abortion or to sex-determination. India does not collect data on individual state legislators' voting records. As a partial proxy for legislative action, we examined the records of parliamentary debates over 2001-2015 to see whether Muslim legislators in the central government spoke more often on issues of abortion or sex determination.[23] We do not find any evidence of this, for instance, after normalizing so as to obtain comments per Muslim or Hindu legislator respectively, we found that Muslim legislators made 0.21 remarks regarding

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[23] These data were obtained using the search engine on debates in the national parliament http://164.100.47.194/Loksabha/Debates/DebateAdvSearch16.aspx. Unfortunately, similar debate proceedings are not easily available at the state level.

foeticide on average, compared to 0.27 for Hindu legislators; Muslim legislators made no comments related to abortion, while 2% of Hindu legislators contributed to debates on abortion.

A different mechanism by which legislators can implement their preferences is to ensure better enforcement of existing legislation. The Pre-Conception and Pre-Natal Diagnostic Techniques (PC&PNDT) Act, enacted in 1994 and in effect from 1996, made pre-natal sex determination a legal offence. We examined whether the impact of Muslim legislator on gender of births is higher in periods after the PC&PNDT Act was enforced. We code the post-PC&PNDT period as the years 1996 and later for all states, except for Maharashtra which unilaterally enacted the law in 1988. Consistent with greater enforcement of this law by Muslim legislators, we find larger impacts of Muslim legislators on the probability of a girl at third or higher order birth in periods in the post-reform years (0.296), compared to the pre-reform years (0.171), although the difference is not statistically significant (Table 7, columns 1 and 2). Since the law mainly penalizes sex determination, it is more likely to have an effect in urban areas where significantly more women in our sample report using ultrasound than in rural areas. Consistent with this, we do find that the post-law impact of Muslim legislators on higher-order births is significantly higher in urban areas than in rural areas (columns 3 and 4). Since the post-law impact of Muslim legislators appears for second order births as well (column 1), we ran a specification pooling second and higher order births. As before, we find a larger effect of Muslim legislators in the post-law period, and in this specification, the difference between the two periods is statistically significant (Table 7, columns 5 and 6).

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7. **Conclusions**

We examined whether the religious preferences of elected representatives can shape the birth outcomes of the population, using large-scale representative household survey data and a unique data base identifying the religion of all candidates for election to India's state legislative assemblies. We focused on sex-selective abortion as an outcome, because different religions have different preferences towards abortion, and because sex-selective abortion is a phenomenon of growing proportions. Moreover, it is a phenomenon that appears not to have responded to policy-led prohibitions. Our results suggest that one reason for this is that India has predominantly Hindu legislators whose preferences are likely to be aligned with those of the majority Hindu population, which appears to condone or at least accept sex-selective abortion. Using a quasi-experimental approach we show that Muslim legislators are more effective at controlling the selective abortion of girls. Our paper highlights that the personal identity of legislators is a key component of policy effectiveness.

In line with the idea that this mainly reflects the exercise of anti-abortion preferences, we find a corresponding rise in fertility under Muslim legislators, suggesting a substitution from sex-selective abortion to greater fertility as a means of achieving the desired gender mix of children. This is in contrast to the results we find under women legislators, where we do not observe any rise in fertility. The impact of Muslim legislators on higher birth order sex ratios is larger after passage of legislation against prenatal sex detection, consistent with greater enforcement of existing laws against sex-selective abortion being a mechanism.

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Table 1
Legislator Religion and Sex-Selective Abortion

Dependent variable: Dummy for the birth of a girl child

	(1)	(2)	(3)	(4)	(5)
				Mother	
	Pooled birth order	Order 2+	Order 2, 3+	characteristics	Mother FE
Fraction Muslim legislators (ML)	-0.0650	-0.141	-0.141	-0.141	-0.121
	(0.0812)	(0.0906)	(0.0912)	(0.0910)	(0.117)
ML*birth order>=2		**0.115***			
		(0.0678)			
ML*birth order 2			**0.00507**	**0.00524**	**0.0157**
			(0.0890)	**(0.0891)**	**(0.0941)**
ML*birth order>=3			**0.179****	**0.179****	**0.211****
			(0.0716)	**(0.0715)**	**(0.0830)**
Fraction of seats with close inter-religious elections	-0.00603	-0.00639	-0.00939	-0.00964	-0.0136
	(0.0330)	(0.0326)	(0.0328)	(0.0328)	(0.0407)
Birth order>=2		-0.00920			
		(0.00575)			
Birth order 2	-0.00150		-0.00182	-0.00183	0.00249
	(0.00397)		(0.00691)	(0.00692)	(0.00772)
Birth order>=3	-0.00259		-0.0139**	-0.0139**	-0.0409***
	(0.00448)		(0.00651)	(0.00650)	(0.00918)
Observations	119,237	119,237	119,237	119,237	111,121
Number of mothers					32,731

*** p<0.01, ** p<0.05, * p<0.10. Standard errors in parentheses, clustered at district level. Coefficients are from 2SLS regressions, controlling for district and year-of-birth fixed effects, quadratic polynomials in the vote margins, demographics of the household (dummies for rural residence, Scheduled Caste, Scheduled Tribe, Muslim, Other Backward Caste, education levels of father and mother, year of marriage of mother), and party identity of politicians. Regressions exclude the state of Jammu & Kashmir.

Table 2
Legislator Religion and Sex-Selective Abortion: Robustness Tests

Dependent variable: Dummy for the birth of a girl child

	(1)	(2)	(3)	(4)	(5)	(6)
	State*year FE	District-specific trends	Control for household wealth	Include Jammu & Kashmir	District-years with at least one close inter-religious election	Muslim representation 5 years after birth
Fraction Muslim legislators (ML)	-0.149	-0.136	-0.142	-0.151	0.00490	-0.129
	(0.0928)	(0.0945)	(0.0905)	(0.0977)	(0.145)	(0.0826)
ML*birth order 2	0.0118	0.0113	0.00526	0.00609	-0.0198	0.0453
	(0.0895)	(0.0897)	(0.0890)	(0.0989)	(0.128)	(0.0721)
ML*birth order>=3	**0.183****	**0.192*****	**0.179****	**0.201****	**0.189**	**0.0747**
	(0.0726)	**(0.0732)**	**(0.0715)**	**(0.0808)**	**(0.123)**	**(0.0614)**
Fraction of seats with close	0.00293	-0.0190	-0.00911	-0.0102		0.0247
inter-religious elections	(0.0333)	(0.0379)	(0.0327)	(0.0325)		(0.0343)
Birth order 2	-0.00195	-0.00233	-0.00173	-0.00155	0.00246	-0.00727
	(0.00693)	(0.00694)	(0.00691)	(0.00914)	(0.0213)	(0.00601)
Birth order>=3	-0.0142**	-0.0151**	-0.0140**	-0.0185**	-0.0181	-0.00907
	(0.0066)	(0.00665)	(0.00650)	(0.00858)	(0.0277)	(0.00556)
Observations	119,237	119,237	119,208	123,404	15,953	150,707

*** p<0.01, ** p<0.05, * p<0.10. Standard errors in parentheses, clustered at district level. Coefficients are from 2SLS regressions, controlling for district and year-of-birth fixed effects, quadratic polynomials in the vote margins, demographics of the household (dummies for rural residence, Scheduled Caste, Scheduled Tribe, Muslim, Other Backward Caste, education levels of father and mother, year of marriage of mother), and party identity of politicians. Regressions exclude the state of Jammu & Kashmir except when specified.

Table 3
Legislator Religion and Sex-Selective Abortion: Heterogeneity

Dependent variable: Dummy for the birth of a girl child

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Sample	Hindus & Sikhs	Muslims	Hindus & Sikhs, First child is a girl	Hindus & Sikhs, First child is a	States with worse gender ratio 1981	States with better gender ratio 1981	After 1985	Until 1985
Fraction Muslim	-0.152	-0.0255	-0.311	-0.216	-0.199*	-0.0663	-0.219	0.0348
legislators (ML)	(0.125)	(0.197)	(0.217)	(0.222)	(0.115)	(0.162)	(0.141)	(0.433)
ML*birth order 2	-0.0747	0.111			0.0114	-0.0198	-0.0121	-0.272
	(0.130)	(0.148)			(0.106)	(0.174)	(0.137)	(0.238)
ML*birth order>=3	**0.157**	**0.150**	**0.320***	**0.0870**	**0.221*****	**0.104**	**0.227****	**0.166**
	(0.118)	**(0.117)**	**(0.169)**	**(0.173)**	**(0.0828)**	**(0.171)**	**(0.111)**	**(0.366)**
Fraction of seats with close	0.0282	-0.129**	-0.0151	0.0485	-0.00703	0.0246	0.0220	0.334
inter-religious elections	(0.0449)	(0.0654)	(0.0876)	(0.0787)	(0.0405)	(0.0836)	(0.0525)	(0.208)
Birth order 2	0.00129	-0.0193			-0.000809	-0.00263	-0.00386	0.0198
	(0.00777)	(0.0282)			(0.00917)	(0.0112)	(0.00827)	(0.0161)
Birth order>=3	-0.0109	-0.0269	-0.0232**	0.00426	-0.0208**	-0.00415	-0.0161**	-0.00995
	(0.00734)	(0.0247)	(0.0104)	(0.0103)	(0.00875)	(0.0110)	(0.00730)	(0.0232)
Observations	101054	15,133	33845	32182	69958	49279	82080	22024

*** p<0.01, ** p<0.05, * p<0.10. Standard errors in parentheses, clustered at district level. Coefficients are from 2SLS regressions, controlling for district and year-of-birth fixed effects, quadratic polynomials in the vote margins, demographics of the household (dummies for rural residence, Scheduled Caste, Scheduled Tribe, Muslim, Other Backward Caste, education levels of father and mother, year of marriage of mother), and party identity of politicians. Regressions exclude the state of Jammu & Kashmir.

Table 4
Legislator Religion and Fertility

Dependent variable: Whether there is any birth in that year

	(1)	(2)	(3)	(4)	(5)	(6)
	Pooled birth orders	Order 2+	Order 2, 3+	Order 2, 3, 4+	Order 2, 3+; mother FE	Order 2, 3, 4+; mother FE
Fraction Muslim legislators (ML)	0.0465 (0.0445)	-0.0594 (0.0650)	-0.0499 (0.0637)	-0.0517 (0.0634)	-0.0987 (0.0965)	-0.115 (0.0940)
ML*birth order>=2		**0.150**** **(0.0745)**			0.00739 (0.0794)	0.00369 (0.0724)
ML*birth order 2			0.0167 (0.0633)	0.0158 (0.0628)		
ML*birth order>=3			**0.202**** **(0.0818)**		**0.226*** **(0.117)**	
ML*birth order 3				0.168** (0.0826)		0.172 (0.105)
ML*birth order>=4				**0.224***** **(0.0847)**		**0.274**** **(0.129)**
Fraction of seats with close inter-religious elections	-0.0144 (0.0216)	-0.0132 (0.0216)	-0.0152 (0.0215)	-0.0149 (0.0216)	-0.0163 (0.0301)	-0.0179 (0.0306)
Observations	573879	573879	573879	573879	571888	571888
Number of mothers					49563	49563

*** p<0.01, ** p<0.05, * p<0.10. Standard errors in parentheses, clustered at district level. Coefficients are from 2SLS regressions, controlling for district and year-of-birth fixed effects, quadratic polynomials in the vote margins, demographics of the household (dummies for rural residence, Scheduled Caste, Scheduled Tribe, Muslim, Other Backward Caste, education levels of father and mother, year of marriage of mother), and party identity of politicians. All regressions control for the time since the last birth and main effects of birth order dummies (not shown). Regressions exclude the state of Jammu & Kashmir.

Table 5
Legislator Religion and Fertility: Heterogeneity

Dependent variable: Whether there is any birth in that year

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
			Hindus & Sikhs, First child is a girl	Hindus & Sikhs, First child is a boy	After 1985	Until 1985	States with worse gender ratio	States with better gender ratio
	Hindus & Sikhs	Muslims						
Fraction Muslim	-0.0833	0.00882	-0.113	-0.0594	-0.103	0.158	-0.0971	0.0867
legislators (ML)	(0.0685)	(0.114)	(0.0870)	(0.0960)	(0.0642)	(0.222)	(0.0796)	(0.0924)
ML*birth order 2	0.0451	-0.0373			0.0522	-0.0968	-0.0234	0.0325
	(0.0826)	(0.0917)			(0.0647)	(0.136)	(0.0738)	(0.0898)
ML*birth order>=3	**0.228*****	**0.141**	**0.194****	**0.185****	**0.236*****	**0.193**	**0.206****	**0.0845**
	(0.0836)	**(0.132)**	**(0.0894)**	**(0.0745)**	**(0.0849)**	**(0.163)**	**(0.102)**	**(0.131)**
Fraction of seats with close	-0.0130	-0.0254	0.0584**	-0.0247	-0.0232	-0.0884	-0.00130	0.000939
inter-religious elections	(0.0247)	(0.0346)	(0.0291)	(0.0303)	(0.0204)	(0.0871)	(0.0252)	(0.0407)
Birth order 2	0.0185***	0.0276			0.00463	0.0330***	0.0380***	-0.00244
	(0.00593)	(0.0168)			(0.00581)	(0.0107)	(0.00798)	(0.00733)
Birth order>=3	-0.0864***	-0.0534**	-0.0885***	-0.105***	-0.0974***	-0.0645***	-0.0638***	-0.102***
	(0.00734)	(0.0237)	(0.00599)	(0.00498)	(0.00759)	(0.0130)	(0.0102)	(0.0102)
Observations	511039	62840	145723	199805	487812	86067	321786	252093

*** p<0.01, ** p<0.05, * p<0.10. Standard errors in parentheses, clustered at district level. Coefficients are from 2SLS regressions, controlling for district and year-of-birth fixed effects, quadratic polynomials in the vote margins, demographics of the household (dummies for rural residence, Scheduled Caste, Scheduled Tribe, Muslim, Other Backward Caste, education levels of father and mother, year of marriage of mother), and party identity of politicians. All regressions control for the time since the last birth. Regressions exclude the state of Jammu & Kashmir.

Table 6

Legislator Identity and Childhood Mortality by Gender

Dependent variable -->	(1)	(2)	(3)	(4)	(5)	(6)
	Infant mortality			Neonatal mortality		
	All	Girls	Boys	All	Girls	Boys
Fraction Muslim	-0.133*	0.0135	-0.279***	-0.0549	0.0218	-0.126
legislators (ML)	(0.0688)	(0.0912)	(0.0893)	(0.0654)	(0.0759)	(0.0847)
ML*birth order 2	0.00217	-0.0566	0.0606	-0.0241	-0.0164	-0.0257
	(0.0541)	(0.0838)	(0.0588)	(0.0482)	(0.0635)	(0.0584)
ML*birth order>=3	**-0.0250**	**-0.120***	**0.0511**	**-0.0127**	**-0.0485**	**0.0153**
	(0.0433)	**(0.0622)**	**(0.0637)**	**(0.0424)**	**(0.0513)**	**(0.0559)**
Fraction of seats with close	0.00719	0.00427	0.0136	0.0234	0.0180	0.0313
inter-religious elections	(0.0297)	(0.0360)	(0.0360)	(0.0218)	(0.0273)	(0.0299)
Birth order 2	-0.000413	0.00993*	-0.0100**	-0.00461	-0.00230	-0.00727
	(0.00395)	(0.00582)	(0.00489)	(0.00344)	(0.00450)	(0.00457)
Birth order>=3	0.0142***	0.0340***	-0.00275	-0.000716	0.00746	-0.00771
	(0.00413)	(0.00595)	(0.00572)	(0.00373)	(0.00483)	(0.00485)
Sample	all	girls	boys	all	girls	boys
Observations	111,637	53,604	58,033	118,377	56,841	61,536

*** p<0.01, ** p<0.05, * p<0.10. Standard errors in parentheses, clustered at district level. Coefficients are from 2SLS regressions, controlling for district and year-of-birth fixed effects, quadratic polynomials in the vote margins, demographics of the household (dummies for rural residence, Scheduled Caste, Scheduled Tribe, Muslim, Other Backward Caste, education levels of father and mother, year of marriage of mother), and party identity of politicians. Regressions exclude the state of Jammu & Kashmir.

Table 7

Legislator Identity and Effectiveness of Prohibition on Pre-Natal Sex Determination

Dependent variable: Dummy for the birth of a girl child

	(1)	(2)	(3)	(4)	(5)	(6)
	PC&PNDT Act in Force	PC&PNDT Act Not in Force	PC&PNDT Act in Force; Urban sample	PC&PNDT Act in Force; Rural sample	PC&PNDT Act in Force	PC&PNDT Act Not in Force
Fraction Muslim	-0.321	-0.142	-0.711	-0.202	-0.321	-0.140
legislators (ML)	(0.275)	(0.103)	(0.575)	(0.282)	(0.276)	(0.103)
ML*birth order 2	0.338*	-0.0359	0.318	0.353		
	(0.192)	(0.0954)	(0.449)	(0.239)		
ML*birth order>=3	**0.296***	**0.171****	**0.761*****	**0.186**		
	(0.180)	**(0.0846)**	**(0.282)**	**(0.199)**		
ML*birth order>=2					**0.311****	**0.0935**
					(0.154)	**(0.0773)**
Fraction of seats with close	-0.248**	0.00559	-0.0524	-0.295**	-0.248**	0.00894
inter-religious elections	(0.126)	(0.0392)	(0.379)	(0.131)	(0.126)	(0.0390)
Birth order 2	-0.0251*	0.00118	-0.0513*	-0.0154		
	(0.0146)	(0.00756)	(0.0301)	(0.0181)		
Birth order>=3	-0.0221	-0.0142*	-0.0910***	-0.00155		
	(0.0162)	(0.00755)	(0.0338)	(0.0175)		
Birth order>=2					-0.0233*	-0.00796
					(0.0131)	(0.00654)
Observations	25447	93790	6747	18700	25447	93790

*** $p<0.01$, ** $p<0.05$, * $p<0.10$. Standard errors in parentheses, clustered at district level. Coefficients are from 2SLS regressions, controlling for district and year-of-birth fixed effects, quadratic polynomials in the vote margins, demographics of the household (dummies for rural residence, Scheduled Caste, Scheduled Tribe, Muslim, Other Backward Caste, education levels of father and mother, year of marriage of mother), and party identity of politicians. Regressions exclude the state of Jammu & Kashmir. PC&PNDT Act refers to the Pre-Conception and Pre-Natal Diagnostic Techniques Act, that came into force nationwide in 1996, and in Maharashtra state in 1988.
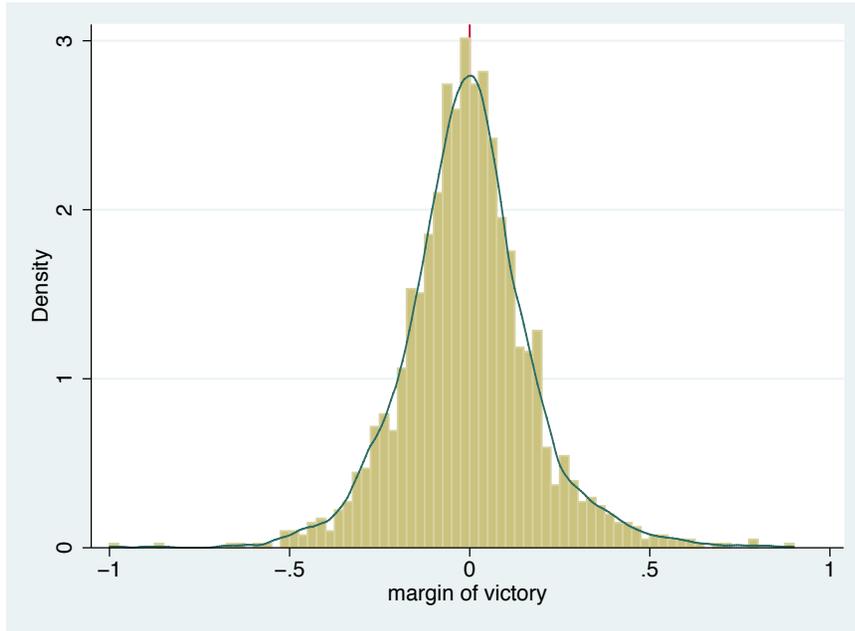
Figure 1
First Stage: Discontinuity in Winning Chances at Victory Margin of Zero
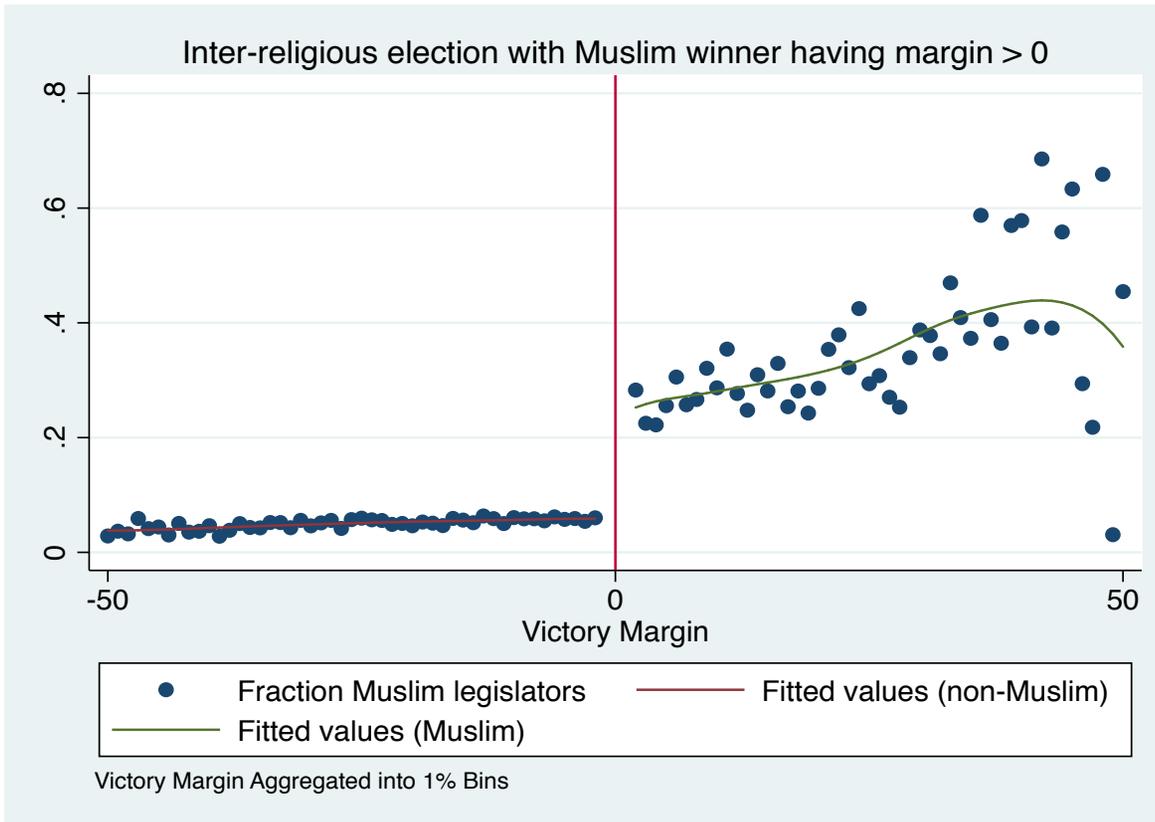

Notes: The x-axis shows the constituency-level victory margin between Muslims and non-Muslims, defined as the vote share of Muslim candidate(s) minus vote share of non-Muslim candidate(s) so that a positive margin is associated with a Muslim winning a legislative assembly seat. The y-axis shows the district-level fraction of Muslim legislators.

Figure 2
Continuity of the vote margin between Muslims and non-Muslims
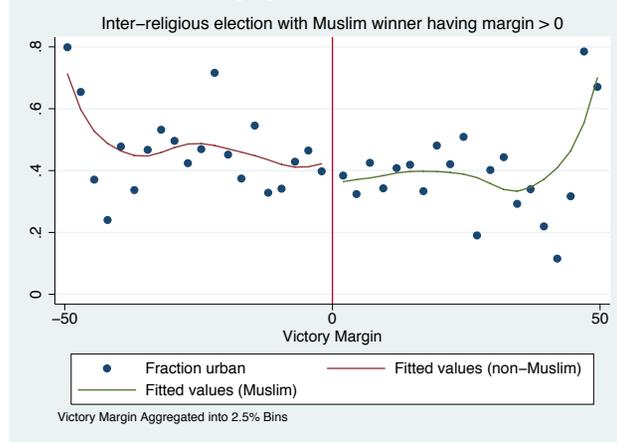
A. Density of the victory margin

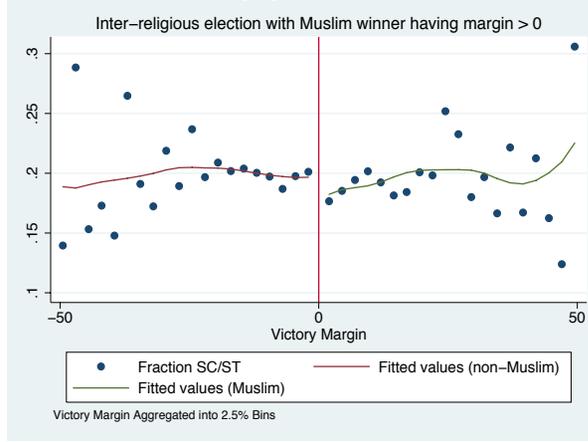**B. Testing for density discontinuities at zero (McCrary test)**
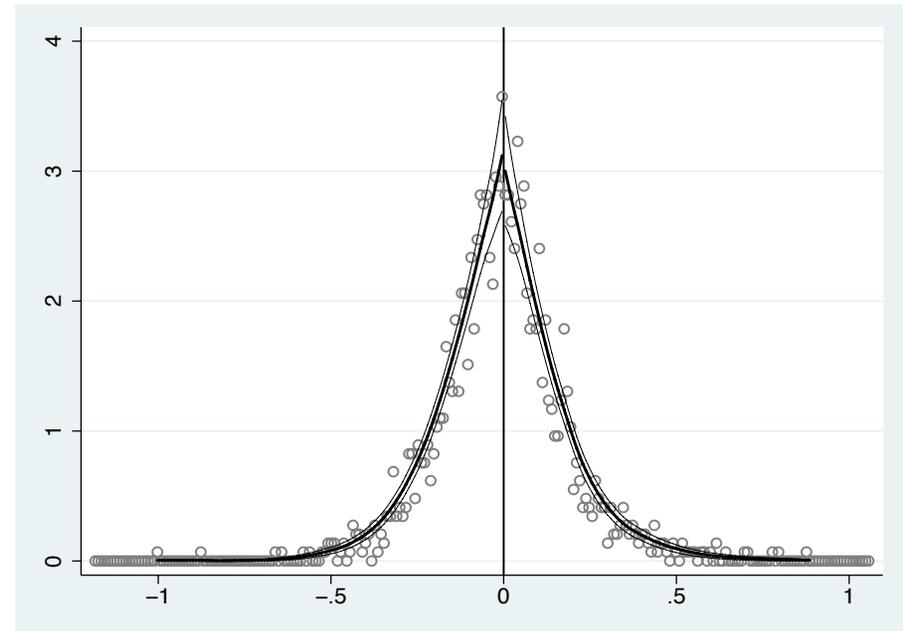
Notes: Sample restricted to elections where a Muslim and a non-Muslim were the top two vote-getters.
Discontinuity estimate in Figure B (log difference in height): -0.0391 (standard error = 0.1054)

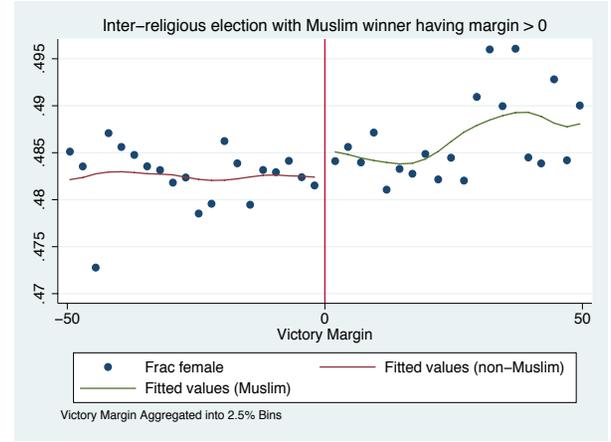# Figure 3: Continuity in Demographic Characteristics
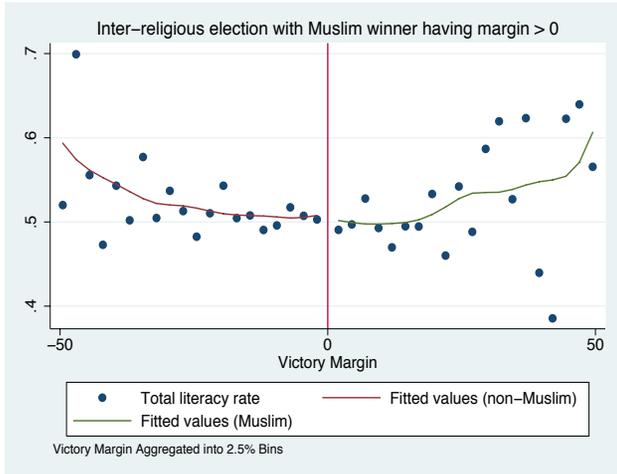
A. Fraction urban population

Inter−religious election with Muslim winner having margin > 0

- Fraction urban
- Fitted values (Muslim)
- Fitted values (non−Muslim)

Victory Margin

Victory Margin Aggregated into 2.5% Bins

B. Fraction SC/ST population

Inter−religious election with Muslim winner having margin > 0

- Fraction SC/ST
- Fitted values (Muslim)
- Fitted values (non−Muslim)

Victory Margin

Victory Margin Aggregated into 2.5% Bins

C. Fraction female

Inter−religious election with Muslim winner having margin > 0

- Frac female
- Fitted values (Muslim)
- Fitted values (non−Muslim)

Victory Margin

Victory Margin Aggregated into 2.5% Bins

D. Fraction literate

Inter−religious election with Muslim winner having margin > 0

- Total literacy rate
- Fitted values (Muslim)
- Fitted values (non−Muslim)

Victory Margin

Victory Margin Aggregated into 2.5% Bins

E. Fraction Muslims

Inter-religious election with Muslim winner having margin > 0

- Frac Mulim
- Fitted values (Muslim)
- Fitted values (non-Muslim)

Victory Margin

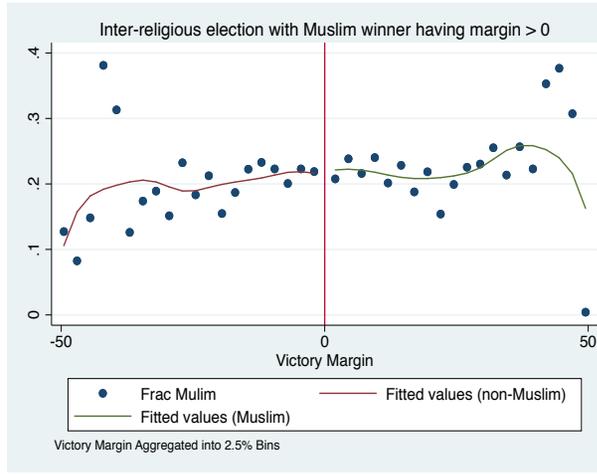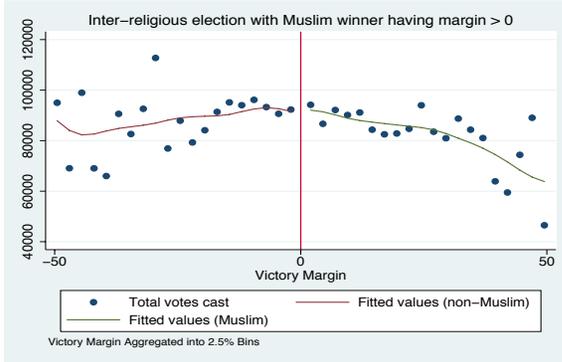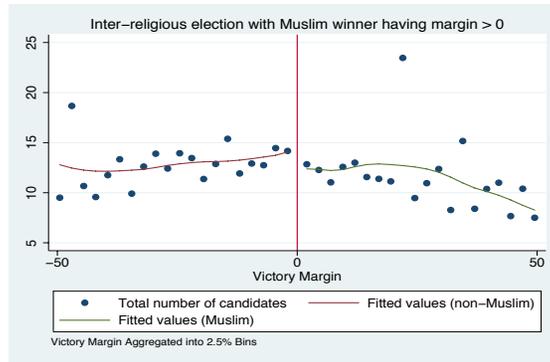Victory Margin Aggregated into 2.5% Bins

Figure 4: Continuity in Political Characteristics

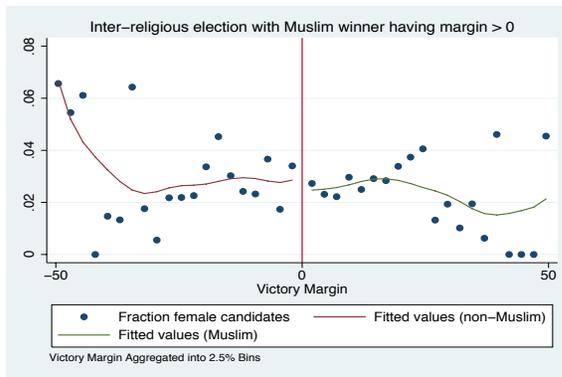**A: Total votes cast**

Inter−religious election with Muslim winner having margin > 0

Total votes cast ● | Fitted values (non−Muslim) ——
Fitted values (Muslim) ——

Victory Margin Aggregated into 2.5% Bins

B: Number of candidates

Inter−religious election with Muslim winner having margin > 0

Total number of candidates ● | Fitted values (non−Muslim) ——
Fitted values (Muslim) ——

Victory Margin Aggregated into 2.5% Bins

C: Fraction of Muslim candidates

Inter−religious election with Muslim winner having margin > 0

Fraction Muslim candidates ● | Fitted values (non−Muslim) ——
Fitted values (Muslim) ——

Victory Margin Aggregated into 2.5% Bins

D: Fraction female candidates

Inter−religious election with Muslim winner having margin > 0

Fraction female candidates ● | Fitted values (non−Muslim) ——
Fitted values (Muslim) ——
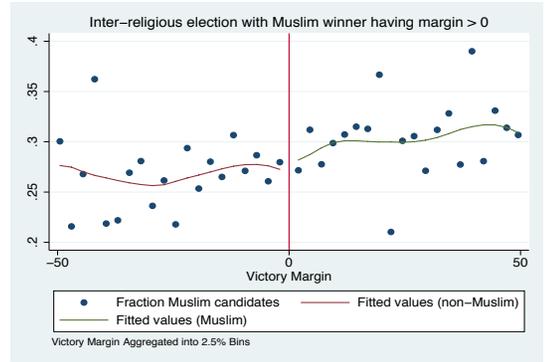
Victory Margin Aggregated into 2.5% Bins

E: Winner is from Congress

Inter−religious election with Muslim winner having margin > 0

Winner is from a Communist party ● | Fitted values (non−Muslim) ——
Fitted values (Muslim) ——

Victory Margin Aggregated into 2.5% Bins

F: Winner is from BJP

Inter−religious election with Muslim winner having margin > 0

(mean) partyBJP ● | Fitted values (non−Muslim) ——
Fitted values (Muslim) ——

Victory Margin Aggregated into 2.5% Bins

G: Winner is from BSP

Inter−religious election with Muslim winner having margin > 0

(mean) partyBSP ● | Fitted values (non−Muslim) ——
Fitted values (Muslim) ——

Victory Margin Aggregated into 2.5% Bins

H: Winner is from a Communist party

Inter−religious election with Muslim winner having margin > 0

(mean) partyLeft ● | Fitted values (non−Muslim) ——
Fitted values (Muslim) ——

Victory Margin Aggregated into 2.5% Bins

I: Winner is an incumbent

Candidate is the incumbent ● | Fitted values (Muslim) ——
Fitted values (Non−Muslim) ——

Victory Margin Aggregated into 2.5% Bins

Appendix Tables and Figures

Table A1

Views on Abortion by Religion: World Values Survey

	(1)	(2)	(3)	(4)
	Agree that abortion is acceptable when			
	Mother's health is at risk	Child is physically handicapped	Mother is not married	More children are not wanted
Muslim	-0.0720**	-0.125***	-0.0882**	-0.0551
	(0.0319)	(0.0433)	(0.0426)	(0.0431)
Dep var Mean for Muslims	0.8333	0.5434	0.6449	0.5435
Dep var Mean for Non-Muslims	0.9084	0.6881	0.7234	0.6129
N	2344	2344	2344	2344
R-squared	0.013	0.011	0.008	0.012

Notes: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Controls include gender, age, education categories, marital status of the respondent and family income categories. Data from World Values Survey for India in 1990; 6% of this sample is Muslim.

Table A2
Summary Statistics

	#obs	Mean	s.d.
Panel A: Birth Outcomes and Demographics, NFHS 1998-1999, birth cohorts 1980-1999			
Dummy for girl birth	119,237	0.4800	0.4996
At birth order 1	40,847	0.4798	0.4996
At birth order 2	32,731	0.4792	0.4996
At birth order 3 or higher	45,659	0.4808	0.4996
Dummy for any birth			
Infant mortality (dummy for child dying in first year of life), girls	57,234	0.0788	0.2694
Infant mortality (dummy for child dying in first year of life), boys	62,003	0.0819	0.2742
Neonatal mortality (dummy for child dying in first month of life), girls	57,234	0.0489	0.2157
Neonatal mortality (dummy for child dying in first month of life), boys	62,003	0.0576	0.2330
Rural resident	119,237	0.77	0.42
Muslim	119,237	0.13	0.33
Scheduled caste	119,237	0.20	0.40
Scheduled tribe	119,237	0.10	0.30
Other backward caste	119,237	30.56	0.47
Age of mother at birth of child	119,237	30.6	6.0
Panel B: Electoral Variables. District-year data, Election Commission of India, 1980-1999.			
Fraction of seats won by Muslim legislators	8132	0.0796	0.1729
Fraction of seats won by Muslim legislators who won in close inter-religious elections (3% vote margin)	8132	0.0073	0.0349
Fraction of seats with close inter-religious elections (3% vote margin)	8132	0.1438	0.1609

Table A3
Instrumental Variables Stratgy: First Stage

Dependent variable: Fraction Muslim legislators in the district

	(1)	(2)
	Girl birth sample	Birth sample
Fraction of seats with Muslim legislators who won close elections against non-Muslims	0.835***	0.881***
	[0.060]	[0.053]
Fraction of seats with close inter-religious elections	-0.383***	-0.415***
	[0.047]	[0.047]
Observations	119237	541756
R-squared	0.9153	0.9228
F-statistic	193.25	271.46
Margin of victory for close elections	3%	3%

*** $p<0.01$, ** $p<0.05$, * $p<0.10$. Standard errors in parentheses, clustered at district level. All regressions control for district and year fixed effects, quadratic polynomials in the vote margins, demographics of the household (dummies for rural residence, Scheduled Caste, Scheduled Tribe, Muslim, Other Backward Caste, education levels of father and mother, year of marriage of mother) and party identity of politicians. Column (2) controls for time since last birth. Regressions exclude the state of Jammu & Kashmir.

Table A4

Legislator Identity and Sex-Selective Abortion: Heterogeneity by Household Characteristics

Dependent variable: Dummy for the birth of a girl child

	Education		Location		Caste		Wealth index		
	High	Low	Rural	Urban	Low Caste	High Caste	High	Middle	Low
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Fraction Muslim legislators (ML)	-0.0907	-0.145	0.0163	-0.193*	-0.0625	-0.203**	0.0618	-0.222	-0.250*
	(0.172)	(0.116)	(0.200)	(0.104)	(0.150)	(0.0981)	(0.272)	(0.146)	(0.151)
ML*birth order 2	0.0211	0.000193	-0.178	0.0499	-0.0926	0.0324	0.125	0.0123	0.0498
	(0.172)	(0.115)	(0.179)	(0.101)	(0.172)	(0.0956)	(0.225)	(0.162)	(0.123)
ML*birth order>=3	**0.270**	**0.167****	**0.154**	**0.193****	**0.0566**	**0.173*****	**0.0177**	**0.222***	**0.174**
	(0.177)	**(0.0842)**	**(0.189)**	**(0.0784)**	**(0.142)**	**(0.0647)**	**(0.262)**	**(0.120)**	**(0.108)**
Fraction of seats with close	0.0662	-0.0278	-0.0368	0.000560	0.0130	0.00928	0.00195	0.0713	-0.0324
inter-religious elections	(0.0802)	(0.0369)	(0.0894)	(0.0357)	(0.0499)	(0.0377)	(0.122)	(0.0735)	(0.0568)
Birth order 2	-0.00351	-0.00101	0.000105	-0.00135	0.00393	-0.00320	-0.00603	-0.00306	-0.00484
	(0.0129)	(0.00869)	(0.0138)	(0.00783)	(0.00987)	(0.00801)	(0.0162)	(0.0110)	(0.0131)
Birth order>=3	-0.0367**	-0.00895	-0.0289*	-0.0105	-0.00135	-0.0184**	-0.0349*	-0.00107	-0.0203*
	(0.0143)	(0.00755)	(0.0157)	(0.00701)	(0.00890)	(0.00737)	(0.0185)	(0.00963)	(0.0122)
Observations	37,152	82,085	27,460	91,777	74,110	83,463	18,299	42,938	37,868

*** $p<0.01$, ** $p<0.05$, * $p<0.10$. Standard errors in parentheses, clustered at district level. Coefficients are from 2SLS regressions, controlling for district and year-of-birth fixed effects, quadratic polynomials in the vote margins, demographics of the household (dummies for rural residence, Scheduled Caste, Scheduled Tribe, Muslim, Other Backward Caste, education levels of father and mother, year of marriage of mother), and party identity of politicians. Regressions exclude the state of Jammu & Kashmir. High, middle and low in columns 1-3 refer to terciles of the wealth index constructed from a suite of household assets; high education refer to mothers having completed primary school; low caste includes the categories of Scheduled Castes and Other Backward Castes.

Table A5
Legislator Identity and Fertility: Robustness Tests

Dependent variable: Whether there is any birth in that year

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
			Control for household wealth	Include Jammu & Kashmir	District-years with at least one close inter-religious election	Close elections with 2.5% vote margins	Muslim representation 5 years after birth
	State*year FE	District-specific trends					
Fraction Muslim legislators (ML)	-0.139**	-0.0151	-0.0887	-0.0572	-0.143	-0.0214	-0.110*
	(0.0601)	(0.0704)	(0.0831)	(0.0702)	(0.108)	(0.0700)	(0.0663)
ML*birth order 2	0.0237	0.0178	0.0422	0.0180	0.200*	-0.0170	0.0178
	(0.0615)	(0.0630)	(0.0854)	(0.0692)	(0.112)	(0.0721)	(0.0539)
ML*birth order>=3	**0.208***	**0.208***	**0.247**	**0.230**	**0.284**	**0.173***	**0.0884**
	(0.0790)	**(0.0807)**	**(0.106)**	**(0.0943)**	**(0.127)**	**(0.0931)**	**(0.0606)**
Fraction of seats with close	-0.0130	-0.0135	-0.0172	-0.0178		-0.0191	0.000431
inter-religious elections	(0.0176)	(0.0229)	(0.0249)	(0.0214)		(0.0247)	(0.0184)
Birth order 2	0.0183***	0.0172***	-0.0550***	0.0174***	-0.0291	0.0202***	0.0282***
	(0.00570)	(0.00570)	(0.00749)	(0.00668)	(0.0199)	(0.00615)	(0.00584)
Birth order>=3	-0.0844***	-0.0856***	-0.164***	-0.0918***	-0.109***	-0.0825***	-0.0603***
	(0.00748)	(0.00756)	(0.00935)	(0.00981)	(0.0226)	(0.00809)	(0.00690)
Observations	573879	573879	496800	591713	82462	573879	757805

*** p<0.01, ** p<0.05, * p<0.1. Standard errors in parentheses, clustered at district level. Coefficients are from 2SLS regressions, controlling for district and year-of-birth fixed effects, quadratic polynomials in the vote margins, demographics of the household (dummies for rural residence, Scheduled Caste, Scheduled Tribe, Muslim, Other Backward Caste, education levels of father and mother, year of marriage of mother), and party identity of politicians. All regressions control for the time since the last birth. Regressions exclude the state of Jammu & Kashmir except where specified.

Table A6

Gender and Fertility Preferences by Religion

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	NFHS Survey			World Values Surveys : Agreement with statements			
	Ideal number of boys	Ideal number of girls	Ideal share of boys	Husband and wife should both contribute to household income.	University education is more important for a boy.	Men make better political leaders than women do.	Men make better executives than women do.
Muslim	0.245***	0.174***	-0.00281	-0.0550***	-0.00461	-0.0263	0.0489
	(0.0282)	(0.0179)	(0.00256)	(0.0203)	(0.0227)	(0.0235)	(0.0429)
Dep var Mean for Muslims	1.582	1.124	0.579	0.7417	0.4073	0.5571	0.6563
Dep var Mean for Non-Muslims	1.349	0.944	0.586	0.8079	0.3936	0.5690	0.6079
N	40336	40336	40290	5411	4435	4344	1255
R-squared	0.273	0.134	0.064	0.019	0.070	0.055	0.037

Notes: *** p<0.01, ** p<0.05, * p<0.1. Robust standard errors in parentheses. Regresssions in columns (1)-(3) use data from NFHS 1998-99 wave and control for age of respondent (and its square), education level, rural residence, caste identity, year of marriage and state fixed effects. Data for column (4) is from World Values Surveys of 1990, 1995, 2001; data for columns (5) and (6) is from the 1995, 2001 and 2006 waves and for column (7) is from 2006. Dependent variables in columns (4)-(7) are binary and were obtained by transforming variables initially coded as integer on [1,4]. Controls include gender, age, educational category, marital status and family income category of the respondent, and dummies for year of survey.

Table A7
Legislator Religion and Violence Against Women

Panel A: Domestic Violence - Incidence and Attitudes (Self-Reported)

	(1)	(2)	(3)	(4)
		Beaten many	Beating acceptable	Beating acceptable
	No beatings	times	(any reason)	(all reasons)
Fraction Muslim	0.240	0.189	0.104	0.056
legislators (ML)	(0.369)	(0.212)	(0.303)	(0.102)
Observations	35776	35776	161551	158927
Mean of dependent variable	0.484	0.133	0.561	0.029

Standard errors in parantheses, clustered at district level. Data are from NFHS 1998-99 in which the respondents are women. The coefficients are from 2SLS regressions, controlling for party identity of legislators, fraction of close inter-religious elections in the district, quadratic polynomials in the victory margin, individual demographics and state*year of interview fixed effects. Dependent variables are dummy variables defined as follows: (1) equal to one if respondent reports not being beaten in the last 12 months; (2) equals one if respondent reports being beaten "many times" in the last 12 months; (3) equals one if the respondent agrees that it is acceptable for a husband to beat his wife for any one of the following reasons: if he suspects her of being unfaithful; if her natal family does not give expected money, jewellery, or other items; if she shows disrespect for her in-laws; if she goes out without telling him; if she neglects the house or children; or if she does not cook food properly; (4) equals one if the respondent agrees that it is acceptable to beat the wife for all of these reasons.

Panel B: Crimes Against Women (Police Reports)

	(1)	(2)	(3)	(4)	(5)	(6)
		Kidnapping of			Domestic	Dowry
	Rape	women and girls	Sexual assault	Sexual harassment	violence	deaths
Fraction Muslim	0.413	0.804	0.420	1.463	1.182	-0.082
legislators (ML)	(0.484)	(0.559)	(0.650)	(1.853)	(1.172)	(0.788)
Observations	6143	3674	1534	1032	1507	1405

Standard errors in parantheses, clustered at district level. The coefficients are from 2SLS regressions, controlling for district and year fixed effects, district population and literacy rates, party identity of legislators, fraction of close inter-religious elections in the district and quadratic polynomials in the victory margin. Dependent variables are log(# of reported crimes per 100,000 women). Crime data obtained from National Crime Records Bureau for 1980-1999.

Table A8
Women Legislators and Birth Outcomes

Dependent variable -->	(1) Girl birth	(2) Any birth	(3) Infant mortality girls	(4) Infant mortality boys	(5) Neonatal mortality girls	(6) Neonatal mortality boys
Fraction women legislators (WL)	-0.194	-0.0454	0.0404	0.0459	0.0399	-0.166**
	(0.129)	(0.0877)	(0.104)	(0.0998)	(0.0681)	(0.0746)
WL*birth order 2	0.185	0.0441	-0.0391	-0.154	-0.00971	-0.00727
	(0.163)	(0.0961)	(0.115)	(0.119)	(0.0874)	(0.0936)
WL*birth order>=3	**0.141**	**-0.0261**	**-0.199***	**-0.107**	**-0.144***	**0.0288**
	(0.119)	**(0.129)**	**(0.112)**	**(0.104)**	**(0.0773)**	**(0.0829)**
Fraction seats with	0.0965	0.000957	0.0268	-0.0257	0.0143	-0.00388
close mixed-gender elections	(0.0618)	(0.0217)	(0.0451)	(0.0357)	(0.0284)	(0.0312)
Birth order 2	-0.0102	0.0167**	0.00834	0.000914	-0.00280	-0.00871*
	(0.00801)	(0.00667)	(0.00616)	(0.00655)	(0.00491)	(0.00526)
Birth order>=3	-0.00914	-0.0703***	0.0360***	0.00525	0.0113**	-0.00820*
	(0.00734)	(0.00796)	(0.00707)	(0.00622)	(0.00518)	(0.00496)
Observations	119237	573879	53604	58033	56841	61536

*** p<0.01, ** p<0.05, * p<0.10. Standard errors in parentheses, clustered at district level. Coefficients are from 2SLS regressions, controlling for district and year-of-birth fixed effects, quadratic polynomials in the vote margins, demographics of the household (dummies for rural residence, Scheduled Caste, Scheduled Tribe, Muslim, Other Backward Caste, education levels of father and mother, year of marriage of mother), and party identity of politicians. Regression in column (2) controls for time since last birth. Regressions exclude the state of Jammu & Kashmir.

Figure A1
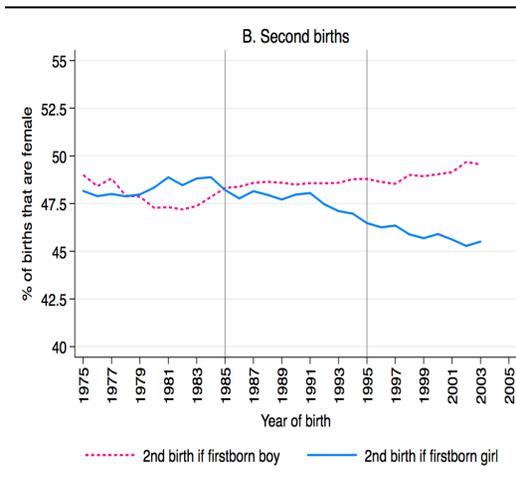**Sex Ratio Trends in India (Fraction of Females)**

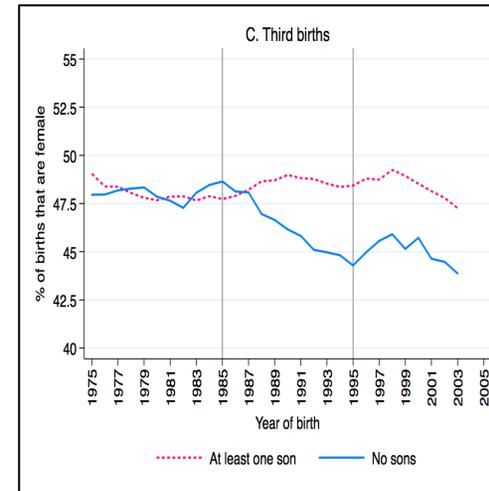**A: Total and 0-6 Years (Census Data)**
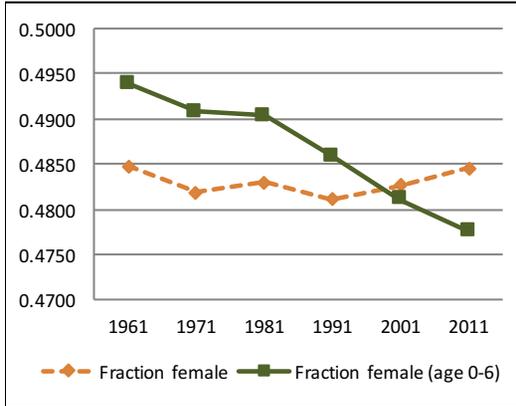
B. At Birth, First Births
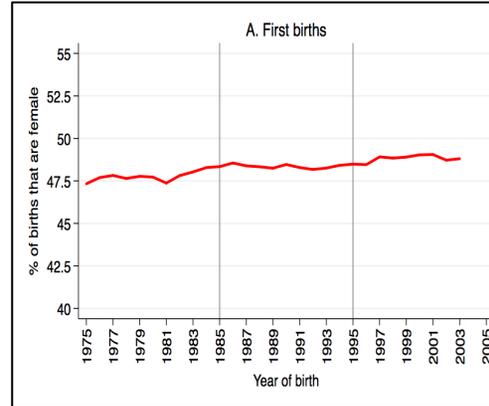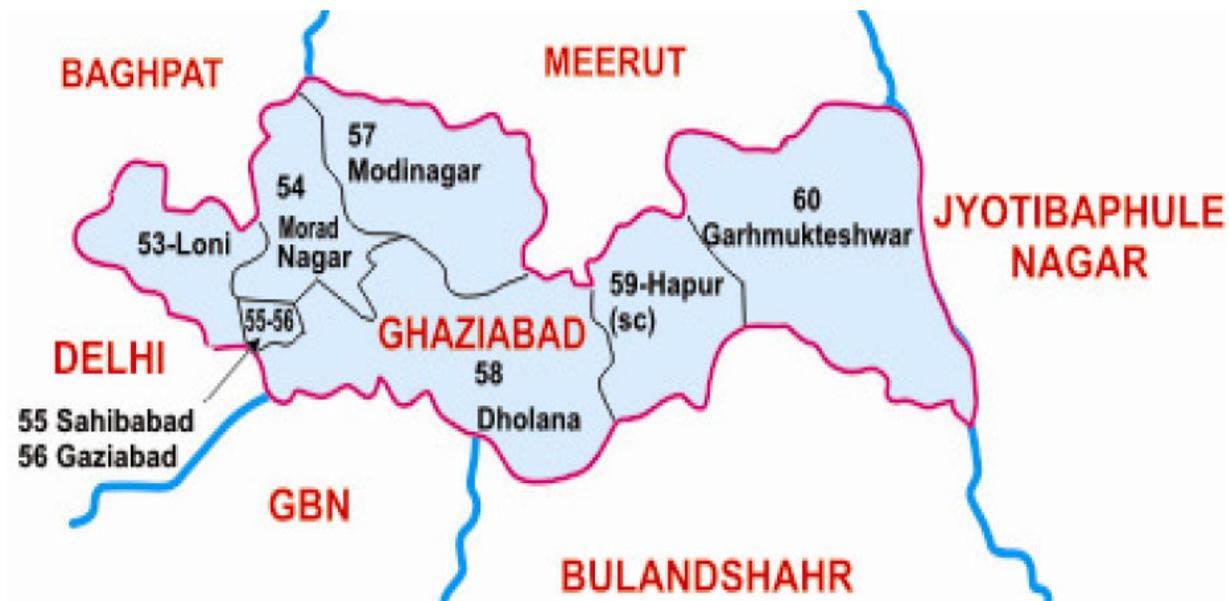

C. At Birth, Second Births

D. At Birth, Third Births

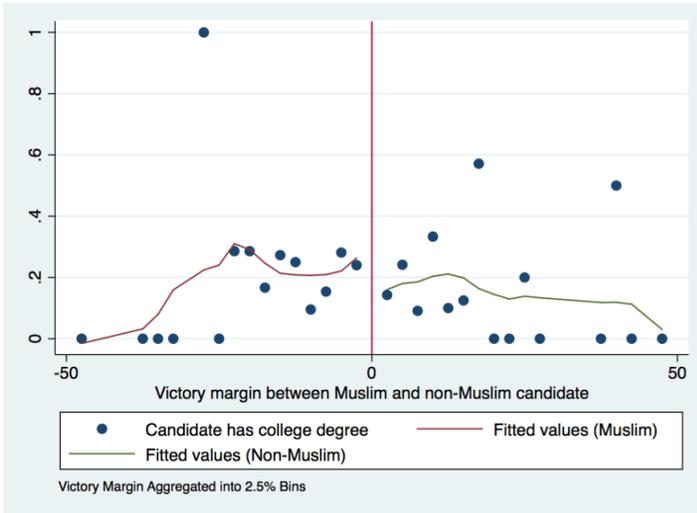Source: Census reports for A; Author calculations from NFHS surveys for B, C, D.

Figure A2
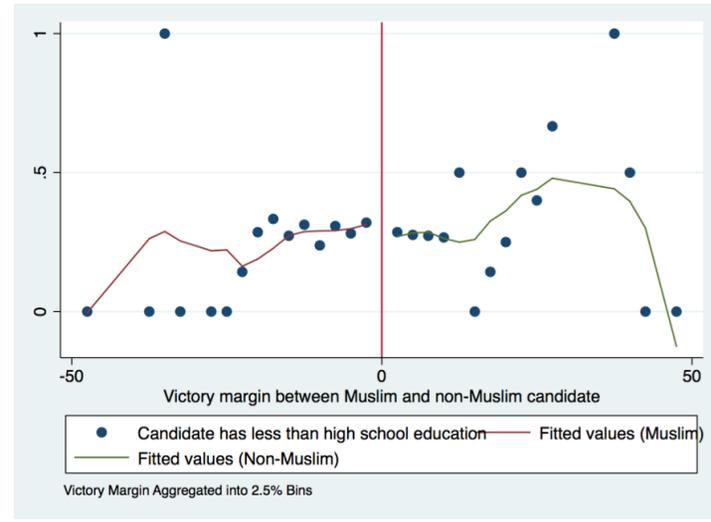**Electoral Constituencies and Administrative District**

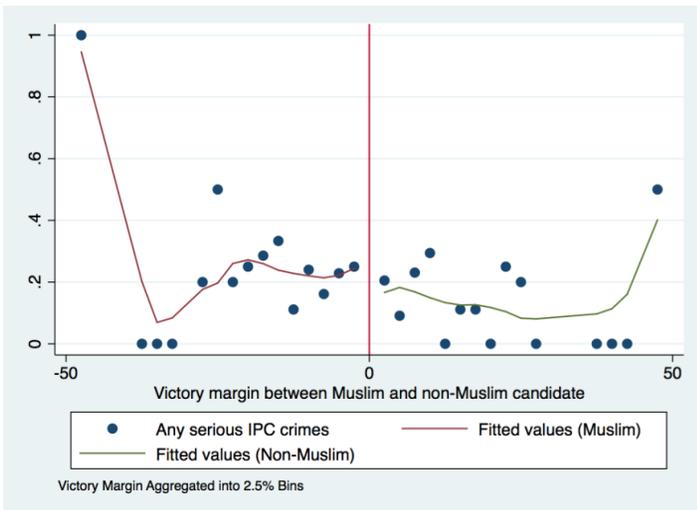# Figure A3: Continuity in Candidate Characteristics

A: Candidate is college-educated

B: Candidate did not complete high school

C: Any serious criminal charge filed against candidate
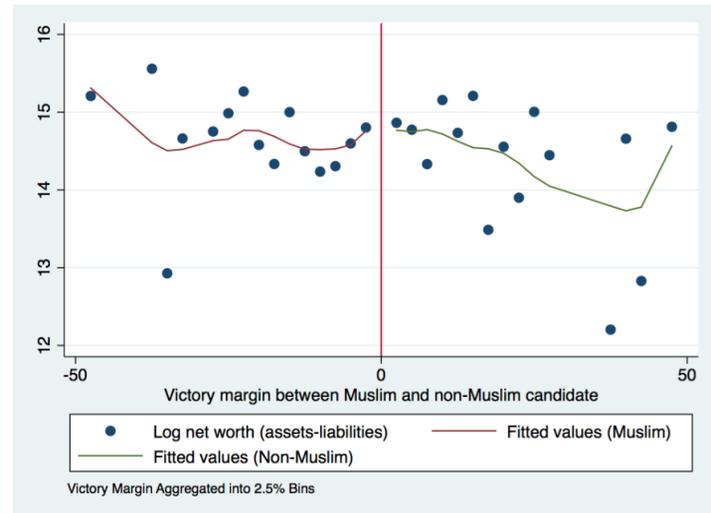

D. Log net worth of candidate

Figure A4
Robustness of Results to Alternative Vote Margins for Defining Close Elections

Coefficient ML*birth order>=3 with different margins