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

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Abstract

We investigate whether the religious preferences of politicians influence abortion-related outcomes in India, leveraging close elections to generate quasi-random variation in politician religion. We find lower rates of sex-selective abortion under Muslim state legislators, a corresponding increase in fertility and no evidence that improved survival to birth among girls is offset by higher infant mortality from postnatal neglect. We report significantly higher aversion to abortion among Muslims compared to Hindus, and suggestive evidence that Muslim legislators are more effective in enforcing the law against foetal sex determination. Our results suggest that, under Muslim leaders, families continue fertility till they achieve their desired sex composition, rather than use sex-selective abortion. We find no evidence to support the competing hypothesis that the presence of Muslim legislators changes preferences towards women.

JEL codes: I15, J13, O15, P16
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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 personal religious identity of legislators influences abortion rates in the districts in which they are elected, controlling for their party affiliation.

Our focus is on sex-selective abortion in India, which is a leading cause of India's male-biased population sex ratio. Women constituted only 48.5% of India's population in the 2011 census, compared to 50.8% in the United States. India's Economic Survey of 2017-2018 estimated that 63 million women are "missing" from the population, highlighting this as one of the most pressing problems facing the country. A male-biased gender ratio is a vivid marker of son preference in fertility, and can have long run implications for crime, violence against women and marriage patterns (Edlund et al., 2013; Hussam, 2017; Amaral and Bhalotra, 2017). Abortion was legalized in India in 1971, and ultrasound scanners and other prenatal sex-detection technologies became widely available following trade liberalization in the mid-1980s and industrial delicensing in the mid-1990s, leading to large increases in sex-selective abortion. As a consequence, the gender ratio at birth has worsened over time, despite rapid increases in income, improvements in women's education and policy interventions such as a 1994 ban on prenatal sex determination.

One possible explanation for the relative ineffectiveness of policies is insufficient political commitment which, in turn, may be a function of politician preferences. We investigate the extent to which the religious identity of state legislators influences sex-selective abortion. The two main religious groups in India are Hindu and Muslim. Muslims are a minority in India relative to Hindus

and they comprised only 6.3% of state legislators over our sample period, substantially lower than their population share of 13% in the 1991 census. We document survey evidence showing that Muslims express similar levels of son preference but greater opposition to abortion than Hindus; they are also less likely to report having used ultrasound or had an abortion. In line with this, previous studies have shown that Muslim families exhibit less male-biased sex ratios at birth (Bhalotra and Cochrane, 2010; Almond et al., 2013). This evidence leads us to hypothesize that Muslim legislators may be more committed to reducing sex-selective abortion. In section 2, we explain that, in India, state legislators have considerable leeway to influence outcomes in their constituencies.

Since electoral data in India do not identify candidate religion, we created a data base containing the religious identity of all candidates for state assembly elections, coding religion from name (Bhalotra et al., 2014). Official data on abortion are scarce in India, 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 validated this, showing that sex ratios at birth are male-biased in regions or communities with a greater preference for sons. Moreover, behavioral variations in the sex ratio identified in these studies are larger than can be reasonably accounted for by variations in biological or environmental factors (Almond and Edlund, 2008; Almond et al., 2019; Bhalotra and Cochrane, 2010).

While our primary variable of interest is the sex ratio at birth, we also examine how subsequent fertility responds to the religious identity of legislators, in order to understand the behavioral mechanisms more clearly. In particular, continuation of fertility is a potential substitute for sex-selective abortion as a means of achieving a desired gender mix of children. Previous work

has shown that families that have an unmet desire for sons but are not willing to commit abortion tend to continue fertility until the desired number of sons is achieved (Gangadharan and Maitra, 2003; Bhalotra and van Soest, 2008; Almond et al. 2013; Clark, 2000; Jensen, 2012; Rosenblum, 2013). We also investigate changes in behavior at a third margin available to families to adjust the sex composition of their children, namely selective neglect after birth. Previous research shows that this was an important determinant of the historically higher rates of child mortality among girls than boys in India (Sen, 1992; Oster, 2009), but the increasing availability of technologies for sex selective abortion has narrowed this gap (Anukriti et al., 2016).

Comparisons of fertility and birth outcomes across areas 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 of the area that could also be correlated with the outcome variables. To address this identification challenge, we exploit the outcomes of close elections between Muslims and non-Muslims to generate quasi-random variation in the religious identity of legislators. Birth outcomes are not available at the electoral constituency level, which precludes us from using a sharp regression discontinuity design. Instead, we instrument the fraction of seats won by Muslim legislators in a district with the fraction of seats in the district won by Muslim legislators in close elections against non-Muslims. Even when the outcomes of close elections can be considered 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 close elections. A similar close election strategy applied at the district level has been widely used in previous research (Rehavi, 2007; Clots-Figueras, 2011; Clots-Figueras, 2012; Bhalotra and Clots-Figueras, 2014; Bhalotra et al., 2014; Bhavnani and Jensenius, 2019; Nellis et al., 2016).

Our estimates indicate, in line with our hypothesis, that sex-selective abortion is lower in districts with a Muslim legislator. We estimate 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 that a birth is a girl at birth orders three or higher. The birth order pattern is consistent with previous work showing that sex selective abortion is increasing in birth order, being effectively zero at first birth and most evident at third births or higher. Almond and Edlund (2008) demonstrate the third-birth deficit of girls among Asians (including Indians) in the US 2000 Census, and Bhalotra and Cochrane (2010) show that the pattern emerges in the mid-1980s in India, coinciding with the introduction of prenatal sex detection technology. Further support for attribution of our results to sex-selective abortion emerges from our finding that legislator religion does not affect the sex ratio at birth for cohorts born *before* prenatal sex detection facilities (ultrasound) became available in India. The impact of legislator religion is also larger in families that have been shown by previously cited studies to be most likely to practice sex selection (e.g. Hindus and Sikhs with a first-born daughter), and in states with more entrenched gender bias.

Our main specification controls for district and birth cohort fixed effects, and the results are robust to inclusion of state-year fixed effects and district-specific time trends. We perform two further tests. First, we show that our findings are robust to conditioning upon mother fixed effects; this mitigates the concern that unobserved (time-invariant) characteristics of households drive our findings. Second, in a placebo test regressing the sex ratio at birth on *future* Muslim legislators, we cannot reject the null of no impact. This confirms that our results are not biased by unobserved district-specific time-varying variables that may affect both legislator religion and birth outcomes.

Our results for fertility responses to legislator religion corroborate our findings for 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 about 2.02 percentage points in the probability of having a third or higher order birth. Thus, the increase in fertility is closely matched in size by the increased probability that a girl child is born and it occurs at the same birth orders, making it more plausible 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.

Muslim legislators who share the anti-abortion preferences of Muslims in the wider population could use legislative or executive channels to shape abortion behavior in their constituencies. Our results are robust to the inclusion of state-year fixed effects, suggesting that state-level legislation is not the primary mechanism. However, we find that the impact of legislator religion on the birth sex ratio is significantly higher after the enactment of the federal Pre-Conception and Pre-Natal Diagnostic Techniques (PC&PNDT) Act that banned prenatal sex determination. This is consistent with Muslim legislators achieving better enforcement of existing legislation against sex-selective abortion. We investigate whether our results are driven by pro-woman preferences of Muslim legislators rather than anti-abortion preferences but find no evidence that this is the case. For instance, we find no evidence that the election of Muslim legislators changes stated son preference, crimes against women or domestic violence. We also investigate the impact of women legislators on the birth sex ratio and find that it is smaller in magnitude than the impact of Muslim legislators; women legislators also have no significant impact on fertility, in contrast to the positive impact at higher orders observed under Muslim legislators.

Our paper brings together two major strands of research. The first is a literature on the determinants of population sex ratios that has emphasized demographic determinants such as declining fertility (Anukriti, 2018; Bhalotra and Cochrane, 2010; Das Gupta and Mari Bhat, 1997; Ebenstein, 2010; Jayachandran, 2017), economic determinants such as land reform and dowry prices (Almond et al., 2019, Bhalotra et al,. 2019; Bhalotra et al., 2016) or institutional determinants such as female inheritance rights (Jain, 2014; Bhalotra et al., forthcoming), but we know little about the influence of politicians or their religion.[1] In view of widespread international debate and media coverage linking abortion to religion, this is a striking omission.

The second is a literature on the substantive impacts of politician identity. Most empirical papers have focused on the gender or ethnic identity of leaders and examined provision of public goods or, relatedly, outcomes like infant mortality that are closely tied to public goods provision.[2] There is relatively little empirical research examining the substantive impact 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. Our findings cohere with recent research that reports 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.

[1] 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 et al., 1992; Clements, 2015).

[2] 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).

Our results are novel in showing that the religious identity of *political* leaders can similarly influence personal behavior with regard to fertility and abortion. Importantly, they provide compelling and rare evidence that minority group legislators can influence the behavior of the majority group.

In a previous paper (Bhalotra et al., 2014), the motivating question was whether leaders target broad-based public services toward their own group, a question that has previously been asked with respect to caste in India (Pande, 2003) and ethnicity in Africa (Burgess et al., 2015). Using infant mortality and education outcomes as proxies for the effective provision of public goods, we found that these outcomes are better under Muslim leaders than non-Muslims. Importantly, the improvements are broad-based and not just confined to Muslim families. This paper differs from Bhalotra et al. (2014) in two key ways: first, our focus is on private behavior such as fertility and sex-selective abortion rather than public goods provision. Second, the presence of Muslim legislators reduces sex-selective abortion and increases fertility, thus pointing to an alternative and quite different effect of Muslim legislators on household behavior that does not go through the provision of public goods.

The rest of the paper is organized as follows: Section 2 describes gender outcomes and the political environment in India. Importantly, it presents survey data showing that Muslims have a lower tolerance of abortion than Hindus and are less likely to undergo abortion, but that they exhibit the same degree of son preference. We also cite evidence that, on average, Muslims conduct little or no sex-selective abortion. Sections 3 and 4 describe our data and empirical strategy. Section 5 presents our 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%, leading to an estimate of 66 million "missing women" in India and a further 21 million "unwanted girls" who are born in the parental quest for a son (Government of India, 2018). 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). 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.

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 in the most recent censuses (see Appendix Figure A1, panel A). A major contributing factor to this trend has been the introduction of affordable prenatal 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).[3] The increasing male bias in the sex ratio at birth has occurred despite rapid economic growth and no official restrictions on

[3] 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.

fertility.[4] 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 and Politics 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 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

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

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). We find that only 6.3% of electoral constituencies in a district were won by Muslims over the period 1980-1999, substantially lower than their population share.

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. State legislators can shape outcomes in their districts. For example, they can spend discretionary funds on local public works (Keefer and Khemani, 2009), or influence federally funded development programs, such as the public works program NREGA (Gupta and Mukhopadhyay, 2014) or the effective implementation of policies and the supply of public services (Baskaran et al., 2015; Min, 2015). Elections to state legislatures are held every five years on a first-past-the-post basis in single-member constituencies. Explicitly Islamic parties win very few elections in India, but among the national and prominent regional parties, 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.[5]

2.3. Abortion and Gender Preferences by Religion

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

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

shown that infant mortality rates are lower for Muslim children compared to Hindus, despite Muslims being poorer and less educated (Bhalotra, Valente and van Soest, 2010), and that Muslim families are less likely than Hindu and Sikh families to commit sex-selective abortion (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, columns 1-4). 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. In column (5), we show that Muslim women are also significantly less likely to report having ever had an abortion in the National Family and Health Survey (NFHS) wave of 1998-99 (see Section 3.2 for more details on the data set). In addition, Muslim women are significantly less likely to report having used techniques such as ultrasound or amniocentesis in their last pregnancy (columns 6 and 7).

We find no evidence that Muslims have more pro-women preferences than non-Muslims. The NFHS data show that 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 Muslim and Hindu families (Appendix Table A2, columns 1-3). In other words, both. Hindus and Muslims display the same degree of son preference. 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 than a girl" (Appendix Table A2, 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).

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 surnames) and classified candidates as Muslim or non-Muslims. While Muslim names are often readily identifiable, it is difficult to distinguish Hindu names from those of other religious minorities such as Sikhs, Jains, Buddhists or Christians who constitute approximately 6% of India's population. Thus, we effectively compare Muslim legislators to those of all other religions, with Hindus being the most numerous among them.[6]

To minimize errors, we used two independent teams to conduct this classification of legislator names. 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. Disagreements between the two teams' classification were resolved by the authors on a case-by-case basis. After this procedure, we remained doubtful of the religious

[6] 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.

identity of less than 0.5% of candidate names (out of more than 250,000 names), and classified them as "non-Muslim" as a tie-breaking rule. These data were also used in Bhalotra et al. (2014).

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.[7] 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 and the sex of 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 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.

[7] The third wave, conducted in 2005-06, does not have district identifiers.

In our main specification, and for comparability, we restrict the analysis to the 16 largest states in India that contain more than 95% of India's population, and 94% of the Indian Muslim population in India. The key exclusion here is the one Muslim-majority state of Jammu & Kashmir, though we verify that our results are robust to its inclusion.[8] The main analysis is conducted for births over the period 1978-1999. We focus on years 1978 and later because electoral constituencies did not change between 1977 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. In our main sample, we have data on 119,237 births for 40,847 mothers across 385 districts.

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 fetal 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 examine neonatal and infant mortality, defined as dummies for whether the child died in the first month and the first year of life

[8] 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.

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.[9]

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

[9] 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.[10] A standard RDD would 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 and use 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 A3). We investigate robustness to alternative margins. As in the standard RDD, our regressions control for a second-order polynomial in the vote margin, now for every election within the district in which a Muslim and a non-Muslim are among the top two vote winners.

[10] 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 (2018) who examine the impact of women's electoral victories on the subsequent political participation of women.

4.2 External Validity

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 randomly assigned. In particular, close inter-religious elections are much more likely to occur in areas with a higher population fraction of Muslims and these areas tend to be more urban and have a lower population share of Scheduled Tribes (see Appendix Table A3). 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 in both the first and second stage. 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.

4.3 Main Specification

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

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

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

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 Muslim legislators relative to non-Muslim legislators.

The share of constituencies won by 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."[11] To allow for outcomes in a district to be correlated across families in the district and across time, the standard errors are clustered at the district level.

To summarize, the thought experiment generated by our estimation strategy is that one or more Muslim legislators win in close elections against non-Muslims (conditional upon the occurrence of a close election), exogenously increasing the fraction of seats with Muslim legislators. 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.

4.4. 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

[11] 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.

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, 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 (at district level) is also continuous across the zero-margin threshold (Figure 3E).[12]

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, ensuring that the effect we capture is the effect of the personal religious identity of legislators, over and above the political party effect.[13] 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).

[12] We formally test for the presence of a statistically significant difference at the zero vote margin threshold, and do not find any such differences.

[13] Results without controlling for political party are very similar, and the coefficients are somewhat larger. These are available upon request.

Although the close election strategy does not require balance on other 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. Using data from 2004 to 2007, 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 do not find any differences in these observable characteristics, we cannot rule out that Muslim winners have different unobservable characteristics. However, to compete with our interpretation that sex ratios improve under Muslim leaders because of their preferences against abortion, such unobservables would need to be correlated with preferences over abortion (or, in the case of the other outcomes we study, with preferences for fertility or for investments in boy vs girl children).

4.5. First Stage Relationship

We now verify that the aggregation issue highlighted earlier does not invalidate our empirical strategy. In particular, if a Muslim winning a close election in a district was always matched by another Muslim candidate losing a close election in the same district, then the results of close elections would not change the overall district fraction of Muslim legislators. 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 A4, and they confirm that the instrument is a strong predictor of the fraction of Muslim legislators in a district.

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 about 10 electoral constituencies (the mean is 9.5), 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 6.3% to the population share of 13% (see district-level summary statistics in Appendix Table A3), this would increase third-order girl births by approximately 143,000. 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 non-Muslim legislators, we ran an additional specification with mother fixed effects.[14] 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 under Muslim legislators (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.

[14] The sample for this regression is limited to women with multiple births during our sample period. 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.

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).[15] The coefficient of interest, for birth order three and above, remains statistically 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). We also examined whether the impact of Muslim legislators was different early in their tenure compared to later. We find almost identical effects on girl births of the first three years of a legislator's term compared to the last two years (results available upon request).

[15] 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.

5.3. Inferring Sex-Selection

In line with previous literature, we have used the sex ratio at birth as a marker of sex-selective abortion of girls. Here we present evidence that ratifies this. First, we note that the degree of variation that we identify in birth sex ratios is larger than would be consistent with biological variation. Second, we refer to previous research on sex-selective abortion to demonstrate that the patterns it has been shown to follow is also reflected in our estimates. 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 almost all Indian parents want more than one child, and many want more than two (see Appendix Table A2). 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 Sikhs, particularly in families with a first-born daughter (Bhalotra and Cochrane, 2010; Almond et al., 2013). We find no difference on average but once we separate the Hindu and Sikh sample by first-born gender, we find a larger impact of Muslim legislators on the birth sex ratio in Hindu and Sikh families with a girl child at first birth – more than when these families have a first son and more also than among Muslim families (see Table 3, columns 1-4).[16] 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

[16] 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.

groups (Appendix Table A5, 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).[17]

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 1981 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,[18] 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). Overall, while the sub-group comparisons do not always show statistically significant differences, our finding that heterogeneity across

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

[18] 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.

several lines consistently aligns with heterogeneity in prenatal sex selection increases our confidence in the interpretation of our main results.

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 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 4^{th} 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) household 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 A6, 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

As documented earlier, 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 are more likely to use sex selective abortion. If sex selective abortion becomes harder under Muslim legislators, Hindu families may seek to adjust the sex

composition of their births by neglecting girls- a practice that has been documented to have resulted in excess postnatal girl deaths in the century preceding the advent of prenatal sex detection. We find no significant impacts on neonatal mortality, but infant mortality tends to be lower in districts and years with Muslim legislators (see Table 6). The overall results are similar to those documented in Bhalotra et al. (2014), but here we see that the effects 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 order 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. Thus, under Muslim legislators, more girl children are born (at birth orders 3 and higher), and they are no less likely to survive than under non-Muslim legislators.

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 lower rates of abortion. We have already provided evidence that Muslims have stronger anti-abortion preferences (Appendix Table A1). As in the literature on politician identity that we cite in the Introduction, the assumption is that Muslim legislators share the anti-abortion preferences of Muslim citizens.

There are no systematic data matched to our sample that would allow us to identify the activities of state legislators in their constituencies, but we report exploratory evidence designed to illuminate the mechanisms at play. Our results are unlikely to be driven by a legislative channel, such as Muslim legislators passing new laws restricting or discouraging abortion since our results

are robust to the inclusion of state-year fixed effects which control for any state-specific legislation. An alternative channel is that state legislators influence implementation of federal laws in their electoral districts; this has been documented for policies such as public works programs (Gupta and Mukhopadhyay, 2016), electricity provision (Baskaran et al., 2015; Min, 2015) and local economic growth (Asher and Novosad, 2017; Bhalotra et al., 2018). Our data span a period before and after implementation of the Pre-Conception and Pre-Natal Diagnostic Techniques (PC&PNDT) Act, which made prenatal sex determination a legal offence. We examined whether the impact of legislator religion on sex selective abortion is higher after the legislation is enacted. We code the post-PC&PNDT period as the years 1996 and later for all states, except for the state of Maharashtra that unilaterally enacted the law in 1988.

Consistent with stricter enforcement of the law by Muslim legislators, we find they have a larger impact on the probability of a girl birth at third and higher order in the post-reform years (0.296), than in the pre-reform years (0.171). Although the difference is not statistically significant on average (Table 7, columns 1 and 2), it is significant in the urban sub-sample (columns 3 and 4) and also in the entire sample once we pool second and higher birth orders to increase precision of the estimates (columns 5 and 6). Clearer impacts in urban areas make sense since Muslims are more likely to be elected in urban areas (Muslims are more likely to live in urban areas), and since ultrasound use is higher in urban areas.[19]

An alternative channel is that our results are driven by Muslim legislators being more protective of women in general, rather than because of a religious aversion to abortion. We discuss several pieces of evidence to show that this is unlikely to be the case. First, we find no impact of

[19] The impact of Muslim legislators on the sex ratio at birth is higher when they do not belong to the ruling party in the state, both in the period before and in the period after PNDT (results available upon request). One possible explanation for this pattern is Muslim politicians who belong to the party in government may be constrained by government priorities, while the ones in the opposition may be more free to follow their preferences.

Muslim legislators on violence against women at later 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.[20] 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). We also 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] Additionally, we investigated gender-based crimes reported to the police; previous research having shown that policymakers can influence the reporting and handling of crime against women (Iyer et al., 2012, Amaral et al., 2018).[22] 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 legislator religion on any of these crimes against women (Appendix Table A7, panel B).[23] The constellation of findings indicates that our finding that sex-selective abortion falls under Muslim legislators is unlikely to arise from their being more "pro-female" than Hindus.

[20] 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 a vote margin of less than 3%.

[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.

[22] We recognize that this is only an imperfect test, since it is possible for an increase in reporting of crimes to be counterbalanced by an increase in the deterrent effect, if any.

[23] 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.

We compare the effect of having a Muslim legislator with the effect of having a female legislator, using a similar close elections strategy, but now based on using a sample of elections in which the top two contestants are a man and a woman (as in Bhalotra and Clots-Figueras, 2014). We find that the impact of women on sex-selective abortion is similar in size to the impact of Muslims on sex-selective abortion, but less precisely determined. However, fertility tends to rise under Muslim legislators (at higher birth orders) and shows no significant change under women legislators (see Appendix Table A9). One interpretation of these results is that the decline in girl abortion under women reflects a shift in son preference while the decline in girl abortion under Muslims reflects primarily a decline in abortion, with households substituting fertility continuation for sex-selective abortion to fulfil their desire for sons.

Additional specifications reinforce the results so far in suggesting no change in gender preferences under Muslim leaders. First, if Muslim legislators acted to change gender preferences in the population, we should expect to see persistent impacts after the end of their five-year electoral term, but we found none (Appendix Table A8, columns 4-5). Second, in the absence of longitudinal data on son preference, we assume that fertility preferences are most accurately reflected by women on the cusp of fertility (age 20). Using the stated son preference of women of this age in the NFHS data, we examined whether these change with the religion of the legislator and found no significant relationship (Appendix Table A8, columns 1-3).[24]

[24] We average over women aged 20 in the survey year 1998 to obtain a measure of son preference for their cohort for the year 1998, while the preferences of women aged 40 when surveyed in 1998 define son preference in 1978, the year in which they were age 20. We checked that our findings are not sensitive to variation of three or five years around this border. This cohort-based approach assumes that reported preferences do not vary within woman as a function of her age or her fertility experience. A similar cohort-based construction to examine time variation in son preference is used in Bhalotra et al. (forthcoming), where it exhibits a pattern consistent with expectation.

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 database 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, who (the data show) 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. 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 possible explanation for our results. Our estimates thus imply that reducing barriers to Muslim representation in political office may help to counteract the rising trend of sex-selective abortion in India, albeit with concomitant increases in fertility.

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Table 1
Legislator Religion and Sex-Selective Abortion

Dependent variable: Dummy for the birth of a girl child *(mean 0.4800 and standard deviation 0.4996).*

	(1)	(2)	(3)	(4)	(5)
	Pooled birth order	Order 2+	Order 2, 3+	Mother 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					40,847

*** 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 *(mean 0.4800 and standard deviation 0.4996).*

	(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 *(mean 0.4800 and standard deviation 0.4996).*

	(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 boy	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 *(mean 0.2121 and standard deviation 0.4088).*

	(1)	(2)	(3)	(4)	(5)	(6)
	Pooled birth orders	Order 2+	Order 2, 3+	Order 2, 3, 4+	Order 2, 3+; woman FE	Order 2, 3, 4+; woman FE
Fraction Muslim	0.0465	-0.0594	-0.0499	-0.0517	-0.0987	-0.115
legislators (ML)	(0.0445)	(0.0650)	(0.0637)	(0.0634)	(0.0965)	(0.0940)
ML*birth order>=2		**0.150****			0.00739	0.00369
		(0.0745)			(0.0794)	(0.0724)
ML*birth order 2			0.0167	0.0158		
			(0.0633)	(0.0628)		
ML*birth order>=3			**0.202****		**0.226***	
			(0.0818)		**(0.117)**	
ML*birth order 3				0.168**		0.172
				(0.0826)		(0.105)
ML*birth order>=4				**0.224*****		**0.274****
				(0.0847)		**(0.129)**
Fraction of seats with close	-0.0144	-0.0132	-0.0152	-0.0149	-0.0163	-0.0179
inter-religious elections	(0.0216)	(0.0216)	(0.0215)	(0.0216)	(0.0301)	(0.0306)
Observations	573879	573879	573879	573879	571888	571888
Number of women					51554	51554

*** 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 *(mean 0.2121 and standard deviation 0.4088).*

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Hindus & Sikhs	Muslims	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
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 (mean 0.0788)			Neonatal mortality (mean 0.0489)		
	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.

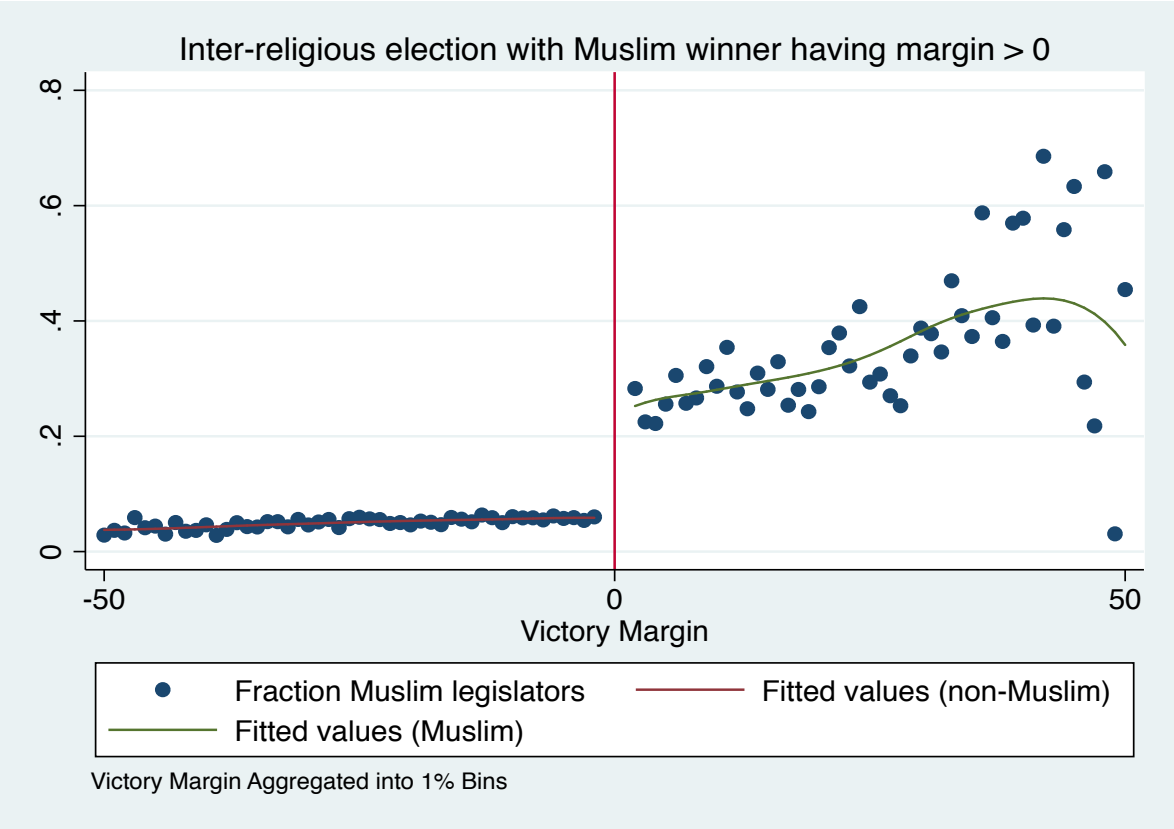
Table 7
Legislator Identity and Effectiveness of Prohibition on Pre-Natal Sex Determination

Dependent variable: Dummy for the birth of a girl child *(mean 0.4800 and standard deviation 0.4996).*

	(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.

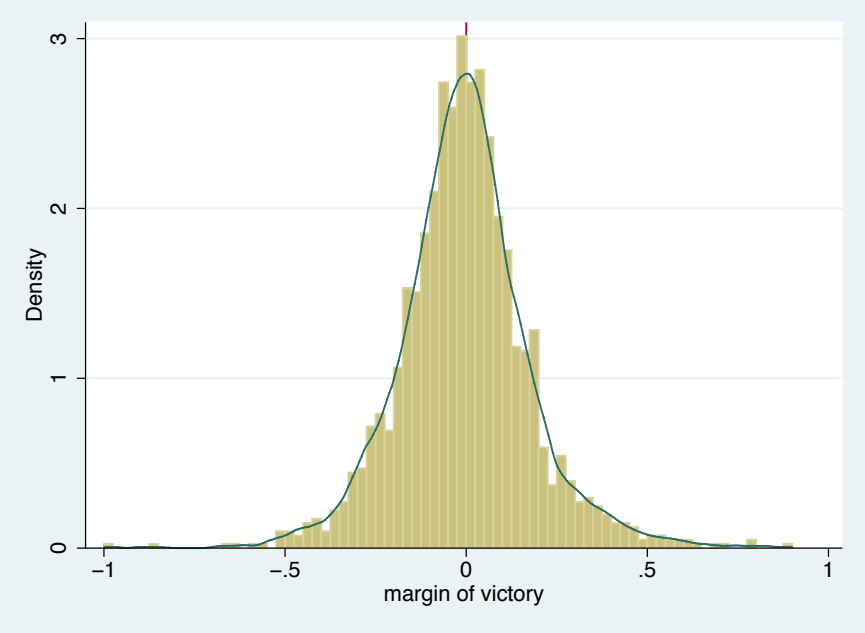
Figure 1
First Stage: Discontinuity in Winning Chances at Victory Margin of Zero



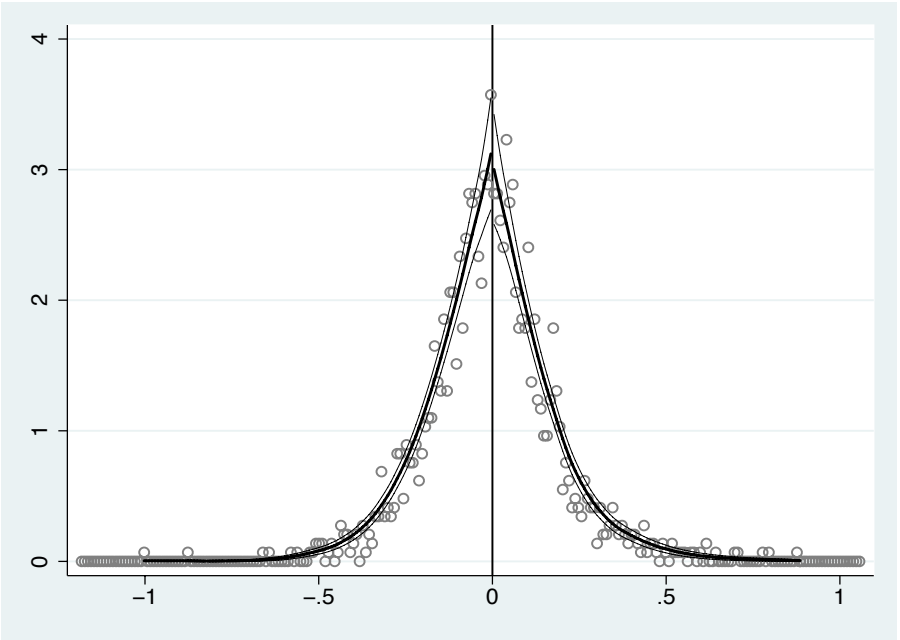
Notes: The x-axis shows the constituency-level victory margin between Muslims and non-Muslims, defined as the vote share of Muslim candidate(s) minus vote share of non-Muslim candidate(s) so that a positive margin is associated with a Muslim winning a legislative assembly seat. The y-axis shows the district-level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

Figure 2
Continuity of the vote margin between Muslims and non-Muslims

A. Density of the victory margin



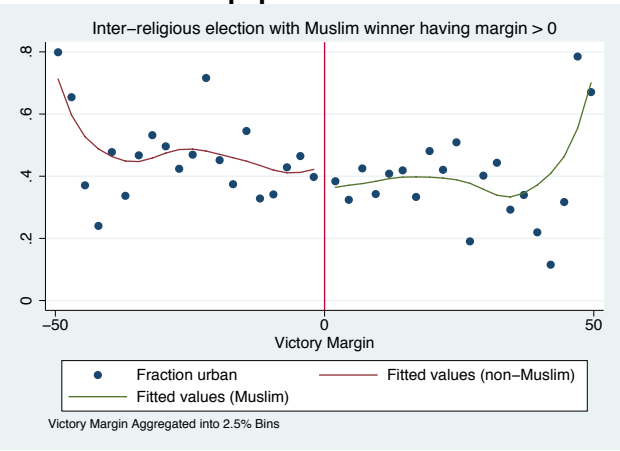
B. Testing for density discontinuities at zero (McCrary test)



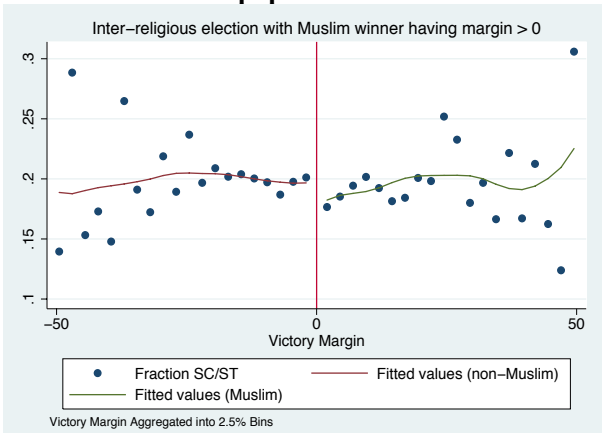
Notes: Sample restricted to elections where a Muslim and a non-Muslim were the top two vote-getters.
Discontinuity estimate in Figure B (log difference in height): -0.0391 (standard error = 0.1054)

Figure 3: Continuity in Demographic Characteristics

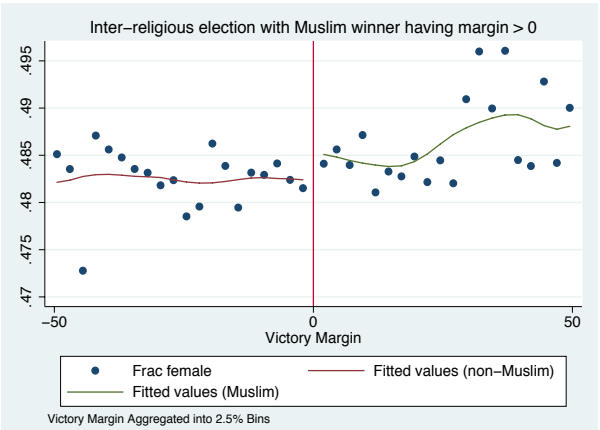
A. Fraction urban population



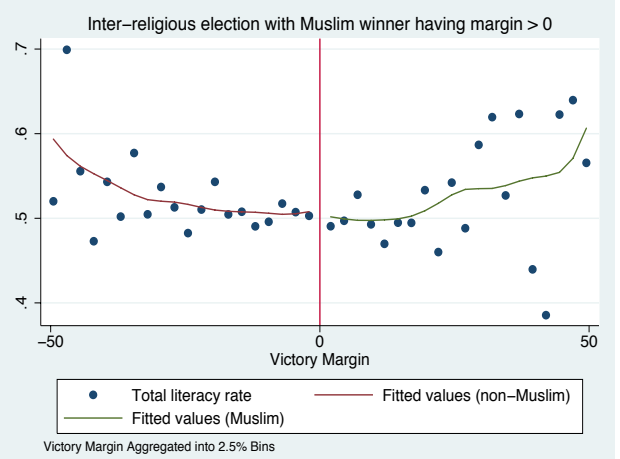
B. Fraction SC/ST population



C. Fraction female



D. Fraction literate



E. Fraction Muslims

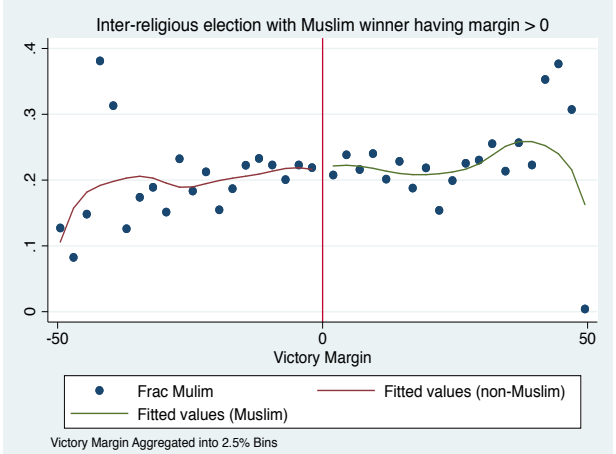
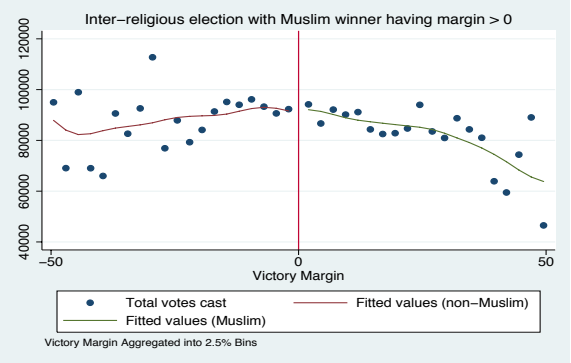
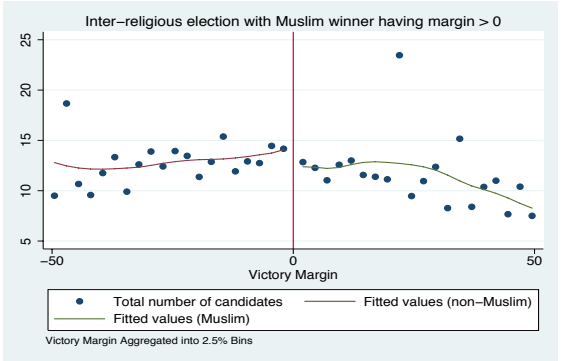


Figure 4: Continuity in Political Characteristics

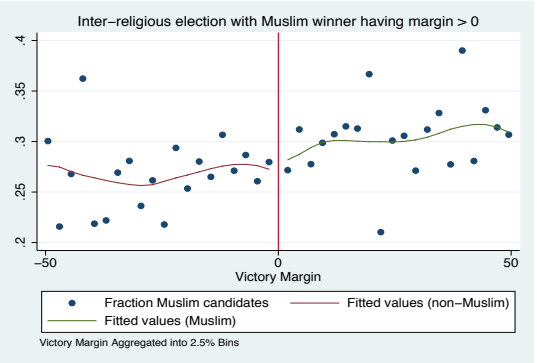
A: Total votes cast



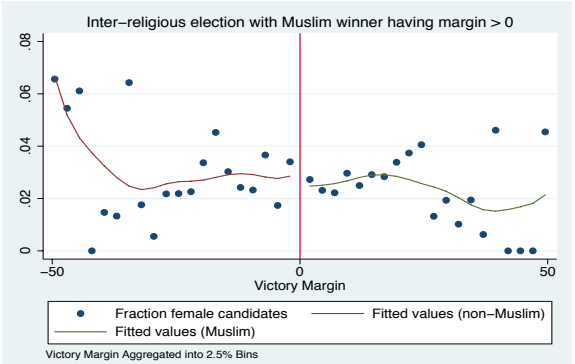
B: Number of candidates



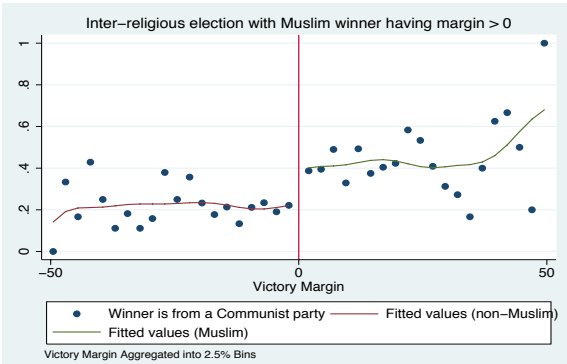
C: Fraction of Muslim candidates



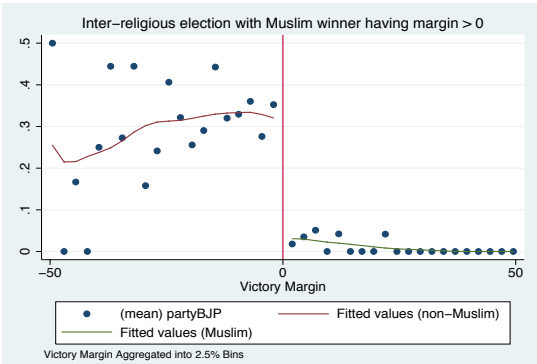
D: Fraction female candidates



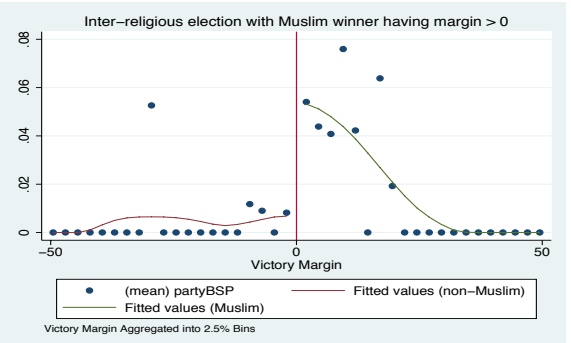
E: Winner is from Congress



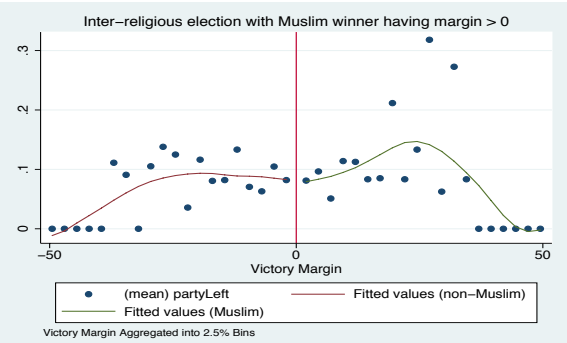
F: Winner is from BJP



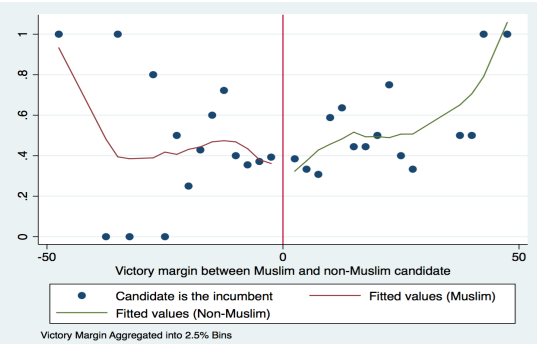
G: Winner is from BSP



H: Winner is from a Communist party



I: Winner is an incumbent



Appendix Tables and Figures

Table A1
Abortion Preferences and Experiences by Religion

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Agree that abortion is acceptable when				Abortion and prenatal diagnostic use		
	Mother's health is at risk	Child is physically handicapped	Mother is not married	More children are not wanted	Ever had an abortion	Used ultrasound in last pregnancy	Used amniocentesis in last pregnancy
Muslim	-0.0720**	-0.125***	-0.0882**	-0.0551	-0.00631**	-0.0207***	-0.00538**
	(0.0319)	(0.0433)	(0.0426)	(0.0431)	(0.00314)	(0.00659)	(0.00252)
Dep var Mean for Non-Muslims	0.9084	0.6881	0.7234	0.6129	0.057	0.141	0.017
N	2344	2344	2344	2344	119237	29873	29837
R-squared	0.013	0.011	0.008	0.012	0.054	0.283	0.086

Notes: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Data from World Values Survey for India in 1990 in columns (1)-(4); 6% of this sample is Muslim. Controls include gender, age, education categories, marital status of the respondent and family income categories. Data from NFHS 1998-99 in colulmns (5)-(7). Controls include district fixed effects, dummies for rural residence and caste category (Scheduled Caste, Scheduled Tribe, Other Backward Caste), education levels of father and mother, and year of marriage of mother.

Table A2
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 A3
Summary Statistics

	#obs	Mean	s.d.	Districts without close elections	Districts with close elections
Panel A: Birth Outcomes and Demographics, NFHS 1998-1999, birth cohorts 1979-1999					
Dummy for girl birth	119,237	0.480	0.500	0.478	0.483
At birth order 1	40,847	0.480	0.500	0.478	0.482
At birth order 2	32,731	0.479	0.500	0.482	0.476
At birth order 3 or higher	45,659	0.481	0.500	0.476	0.488
Dummy for any birth	573,879	0.212	0.409	0.212	0.212
Infant mortality (dummy for child dying in first year of life), girls	57,234	0.079	0.269	0.080	0.076
Infant mortality (dummy for child dying in first year of life), boys	62,003	0.082	0.274	0.082	0.082
Neonatal mortality (dummy for child dying in first month of life), girls	57,234	0.049	0.216	0.051	0.047
Neonatal mortality (dummy for child dying in first month of life), boys	62,003	0.058	0.233	0.058	0.058
Rural resident	119,237	0.77	0.42	0.81	0.71
Muslim	119,237	0.13	0.33	0.07	0.21
Scheduled caste	119,237	0.20	0.40	0.20	0.20
Scheduled tribe	119,237	0.10	0.30	0.13	0.06
Other backward caste	119,237	0.32	0.47	0.33	0.31
Age of mother at birth of child	119,237	30.6	6.0	30.5	30.6
Panel B: Electoral Variables. District-year data, Election Commission of India, 1979-1998.					
Fraction of seats won by Muslim legislators	7,961	0.0633	0.1267	0.0257	0.1269
Fraction of seats won by Muslim legislators who won in close inter-religious elections (3% vote margin)	7,961	0.0072	0.0345	0.0000	0.0193
Fraction of seats with close inter-religious elections (3% vote margin)	7,961	0.0158	0.0503	0.0000	0.0425

Table A4
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 A5
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 A6
Legislator Identity and Fertility: Robustness Tests

Dependent variable: Whether there is any birth in that year

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	State*year FE	District-specific trends	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
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 inter-religious elections	-0.0130	-0.0135	-0.0172	-0.0178		-0.0191	0.000431
	(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 A7
Legislator Religion and Violence Against Women

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

	(1)	(2)	(3)	(4)
	No beatings	Beaten many times	Beating acceptable (any reason)	Beating acceptable (all reasons)
Fraction Muslim legislators (ML)	0.240	0.189	0.104	0.056
	(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)
	Rape	Kidnapping of women and girls	Sexual assault	Sexual harassment	Domestic violence	Dowry deaths
Fraction Muslim legislators (ML)	0.413	0.804	0.420	1.463	1.182	-0.082
	(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
Muslim Legislators and Change in Gender Preferences

Dependent variable -->	(1) Ideal number of boys	(2) Ideal number of girls	(3) Ideal share of boys	(4) Girl birth (6 years later)	(5) Girl birth (10 years later)
Fraction Muslim legislators when mother was age 20 (ML20)	0.193	0.402*	0.0218		
	(0.165)	(0.210)	(0.0389)		
Fraction Muslim legislators (ML)				0.0263	-0.308*
				(0.114)	(0.159)
ML*birth order 2				0.183**	-0.0456
				(0.0812)	(0.0702)
ML*birth order>=3				**0.0686**	**-0.0958**
				(0.0673)	**(0.0973)**
Fraction seats with close mixed-gender elections	-0.0463	-0.0468	-0.00678	-0.0108	-0.0118
	(0.0942)	(0.127)	(0.0204)	(0.0470)	(0.0670)
Birth order 2				-0.0162**	-0.00224
				(0.00734)	(0.00745)
Birth order>=3				-0.00772	0.00457
				(0.00721)	(0.00952)
Observations	40456	40456	35377	86397	57404

*** p<0.01, ** p<0.05, * p<0.10. Standard errors in parentheses, clustered at district level. Coefficients are from 2SLS regressions, all data are are from NFHS 1998-99 wave. Regressions in (1)-(3) control for age of respondent (and its square), education level, rural residence, caste identity, year of marriage and state fixed effects. Regressions in columns (4)-(5) control for 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.

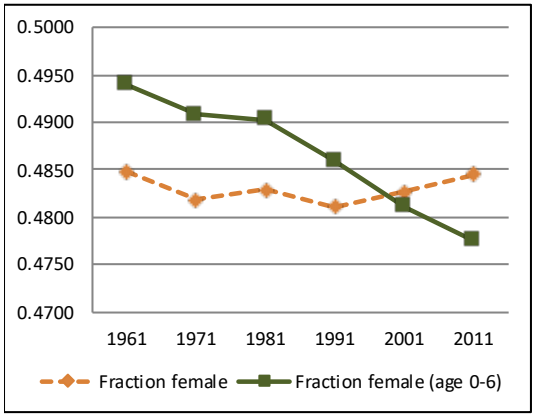
Table A9
Women Legislators and Birth Outcomes

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent variable -->	Girl birth	Any birth	Infant mortality girls	Infant mortality boys	Neonatal mortality girls	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

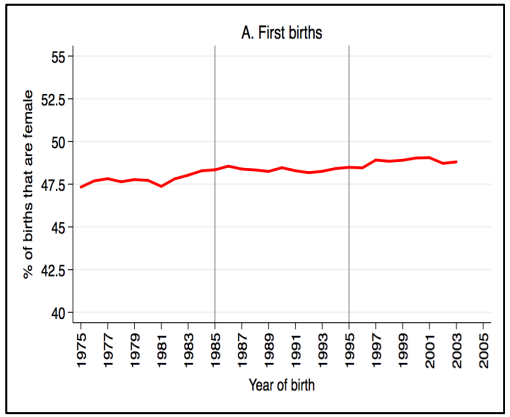
*** p<0.01, ** p<0.05, * p<0.10. Standard errors in parentheses, clustered at district level. Coefficients are from 2SLS regressions, controlling for district and year-of-birth fixed effects, quadratic polynomials in the vote margins, demographics of the household (dummies for rural residence, Scheduled 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)

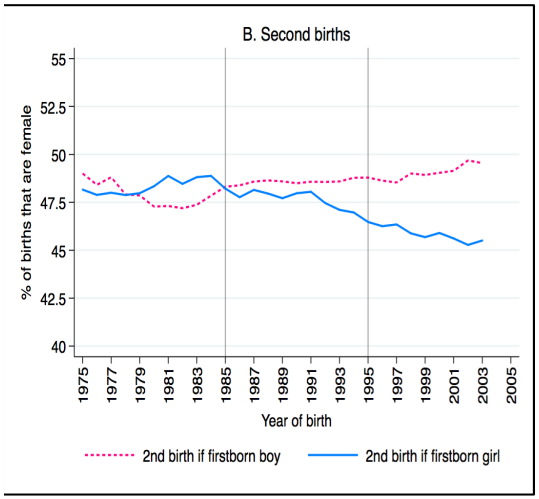
A: Total and 0-6 Years (Census Data)



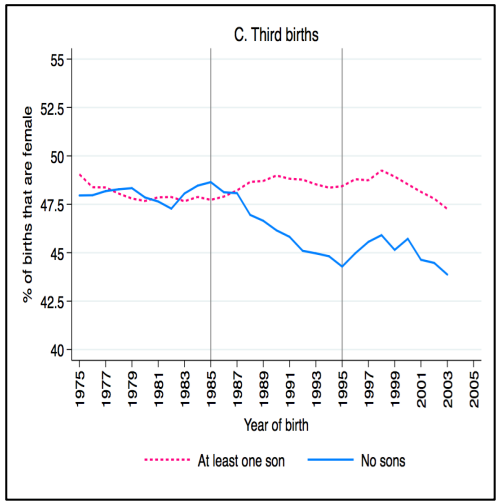
B. At Birth, First Births



C. At Birth, Second Births



D. At Birth, Third Births



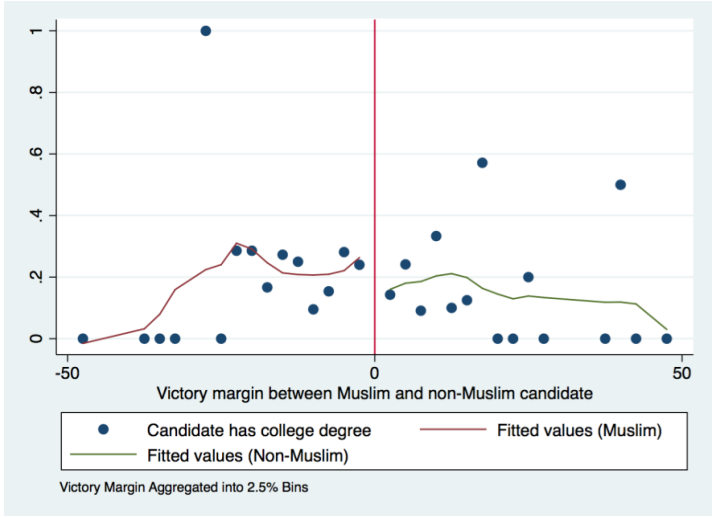
Source: Census reports for A; Authors' calculations from NFHS surveys for B, C, D.

Figure A2
Electoral Constituencies and Administrative District

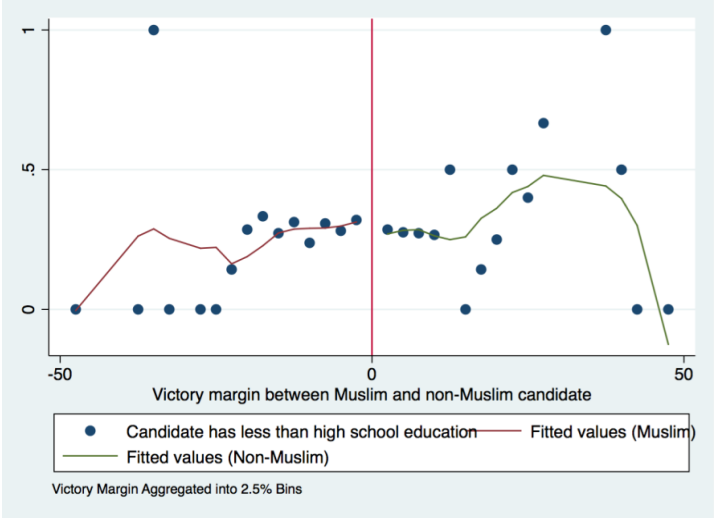
Source: http://www.uttarpradesh.election2017results.in/ghaziabad/loni_uttar_pradesh_assembly_election_2017.html

Figure A3: Continuity in Candidate Characteristics

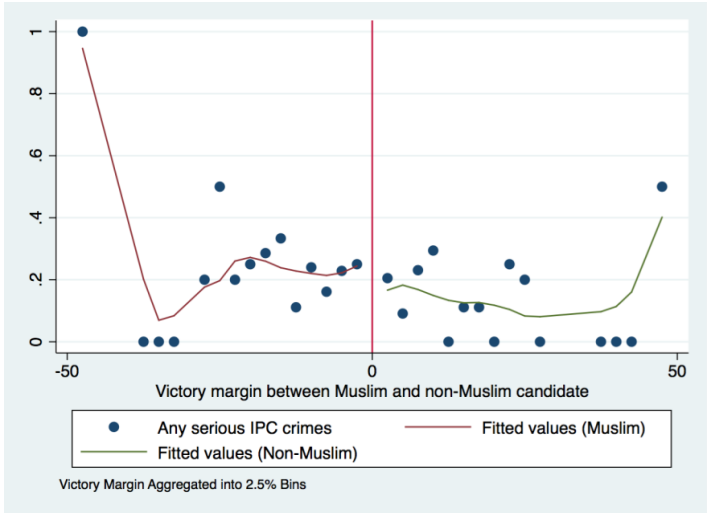
A: Candidate is college-educated



B: Candidate did not complete high school



C: Any serious criminal charge filed against candidate



D. Log net worth of candidate

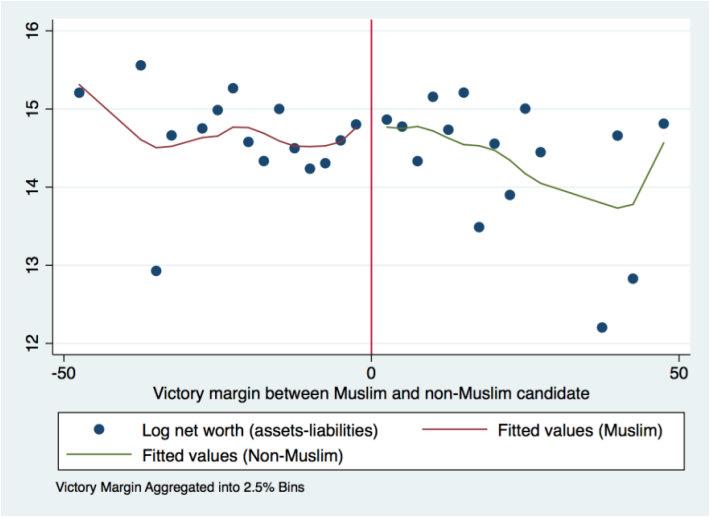


Figure A4
Robustness of Results to Alternative Vote Margins for Defining Close Elections