

Media, Politics and Conflict: Evidence from Television in India*

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Abstract

The rise of the Bharatiya Janata Party (BJP) during the 1980s coincided with the rise of television and mass media in India. The TV serialization of the Ramayana, a Hindu epic, aired in 1987 and has been credited with a *Hindutva* (Hindu nationalist) shift in Indian politics. This paper studies the political economy impacts of mass media on national politics and inter-religious conflicts. By exploiting the geographic variation in the TV broadcast signal coverage at the time of Ramayan's airing, we find that exposure to Ramayan resulted in short-run improvements in the electoral performance of the BJP in national elections throughout the 1990s. However, we also find that the show led to a reduction in Hindu-Muslim conflict. There is considerable heterogeneity as these results on political outcomes and conflict are mainly driven by states with a significant Muslim presence. One mechanism that explains such a result is that the religious epic, through its ability to unite Hindus, created a greater sense of security which resulted in the rise of Hindu nationalist parties while subsequently reducing the incentives for inter-religious conflict.

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1 Introduction

The rise of the Bharatiya Janata Party (BJP) during the 1980s until the present-day coincided with the rise of television and mass media in India. The TV serialization of the Ramayana, one of the two major Sanskrit epics of Hinduism was commissioned by the Indian national broadcaster, Doordarshan, and aired in 1987 when TV viewership was rapidly increasing in India, but not all areas of the country had broadcast TV reception. Ramayan, a religious epic, quickly became a major cultural phenomenon, with a massive and unprecedented viewership, captivating Indians across the nation and has been credited with helping to create unity among Hindus.

This paper studies the political economy of mass media and explores the causal link between a religious mass media program on national politics and ethnic conflict. We exploit geographic variation in the TV broadcast signal coverage at the time of Ramayan's airing to estimate the impact of the show on national election outcomes and measures of Hindu-Muslim conflict. We find that exposure to Ramayan resulted in a sustained decrease in voter turnout and short-run improvements in BJP electoral performance in national elections during the 1990s, both at the intensive margin with the BJP vote share and at extensive margin with BJP victories. However, we also show that the incidence of riots, number of riots and duration of riots subsequently fell with greater exposure to Ramayan. The positive effects on the electoral prospects of the BJP and reductions in religious conflict are driven by states where there is a significant Muslim presence. One mechanism that explains such a result is that the religious epic, through its ability to unite Hindus, created a greater sense of security which resulted in the rise of Hindu nationalist parties while subsequently reducing the incentives for inter-religious conflict.

We contribute to the literature that explores the impacts of media on social, political and economic outcomes. DellaVigna and La Ferrara (2015) provide a review on the economic and social impacts of exposure to media on a wide range of outcomes such as fertility (Ferrara, Chong and Duryea, 2012), divorce (Chong and Ferrara, 2009) and social capital (Olken, 2009). In the Indian context, Jensen and Oster (2009) studies the impacts of cable television on women's status. In terms of the role of media in conflict and inter-ethnic attitudes, (Yanagizawa-Drott, 2014) shows that exposure to radio had a significant impact on participation in killings during the Rwandan genocide, while (Blouin and Mukand, 2019) find that exposure to radio broadcast in post-genocide Rwanda helped to lower salience of ethnicity and also increased inter-ethnic trust. The role of media in politics has also been studied, with Gentzkow (2006) identifying how the entry of television coincided with significant drops in voter turnout and (DellaVigna and Kaplan, 2007) finding that the entry of Fox News can increase the vote share of the right-wing party in the US.

We also contribute to the literature on Hindu-Muslim conflict in India. Mitra and Ray (2014) study the impacts of the economic outcomes of Hindus and Muslims on Hindu-Muslim violence and find that increases in per capita Muslim expenditures has a positive and significant effect on future religious violence, while higher per capita Hindu expenditures has the

opposite effect. Iyer and Shrivastava (2018) find that riots occurring in the year preceding a state election results in greater electoral success for the BJP.

The paper proceeds as follows. Section 2 characterises the setting and details the landscape of television in India during the 1980s. Section 3 describes our data. Section 4 outlines the empirical framework. Section 5 presents our results. Section 6 concludes.

2 Television in India

During the 1980s, television coverage expanded rapidly throughout India. In 1980, only 25% of the population had access to a television broadcast signal, while this increased substantially to 76.3% just a decade later in 1990. In 1982, India hosted the Asian Games and commissioned 20 transmitters in order to broadcast the event over television to a greater audience, marking the introduction of television to the masses. In 1984, the government launched a massive TV expansion plan, launching a transmitter per day with the goal of increasing television coverage to 70% of the population by the end of the decade.

During this period, Doordarshan, the national broadcaster began airing television shows. On the 25th of January in 1987, Doordarshan aired the first episode of Ramayan, a Hindu epic based off the Sanskrit epic of the same name which aired Sunday mornings until the 31st of July in 1988. The show became a major cultural phenomenon with massive viewership and has been credited with helping to create unity among Hindus across India and also with political effects (Ninan, 1995; Gupta, 1998; Rajagopal, 2001; Ghose, 2005; Nellis et al., 2016; Narayan, 2013).

3 Data

We combine three main datasets. We obtain data on the history and characteristics of 543 television transmitters from Indian government records to create a panel of television coverage from 1965 until 1994. We pair this data with general election outcomes for all 543 parliamentary constituencies from 1977 to 2004 and measures of Hindu-Muslim conflict based on over 7,000 geo-coded riots between 1980 and 2000, aggregated to 333 districts.

3.1 Data on Television Transmitters

Using various Indian government records, we collect data on the installation data, power and range of 543 transmitters starting in 1965, when the first transmitter commissioned in Delhi, until 1994. The majority of transmitters are either a high power transmitter (HPT) with a typical range of 120km or a low power transmitter (LPT) with a typical range of 25km. Using the location and range of each transmitter, we are able to construct a panel detailing the geographic coverage of television signals in India.

We pair these geographic measures with 1980 gridded population data so that for any geographic unit of interest, we are able to calculate the share of the population in that unit with television coverage. As we are interested in exposure to Ramayan, the population share is the

Table 1
Statistics of Television Coverage

	(1)	(2)	(3)	(4)	(5)	(6)
	Parliamentary Constituencies			Districts		
1980 Coverage	0.189 (0.355)	0.219 (0.374)	0.167 (0.340)	0.171 (0.330)	0.225 (0.371)	0.128 (0.287)
1986 Coverage	0.586 (0.389)	0.621 (0.390)	0.560 (0.387)	0.539 (0.384)	0.593 (0.380)	0.494 (0.382)
1994 Coverage	0.826 (0.243)	0.881 (0.214)	0.785 (0.256)	0.802 (0.242)	0.882 (0.193)	0.738 (0.259)
Sample	All	Muslim	No Muslim	All	Muslim	No Muslim
Units	543	230	313	333	149	184
Area (km ²)	6,127	4,212	7,534	8,958	6,854	10,663
Population (Millions)	1.26	1.32	1.23	1.99	2.19	1.83

Notes: The units of observation are parliamentary constituencies in columns 1-3 and districts in columns 4-6. Each statistic measures the average television population coverage at the unit of observation for the labelled year, with standard deviations in parentheses. Columns 2 and 5 include the sub-sample of units in states with a significant Muslim population, defined as having at least 10% Muslim population according to the 1991 census; these include Assam, Bihar, Jammu and Kashmir, Karnataka, Kerala, Uttar Pradesh and West Bengal. Columns 3 and 6 include the sub-sample of remaining units, namely those in states without a significant Muslim population. Area measures the geographic area of the unit in squared kilometers. Population measures the 1980 population of the unit in millions.

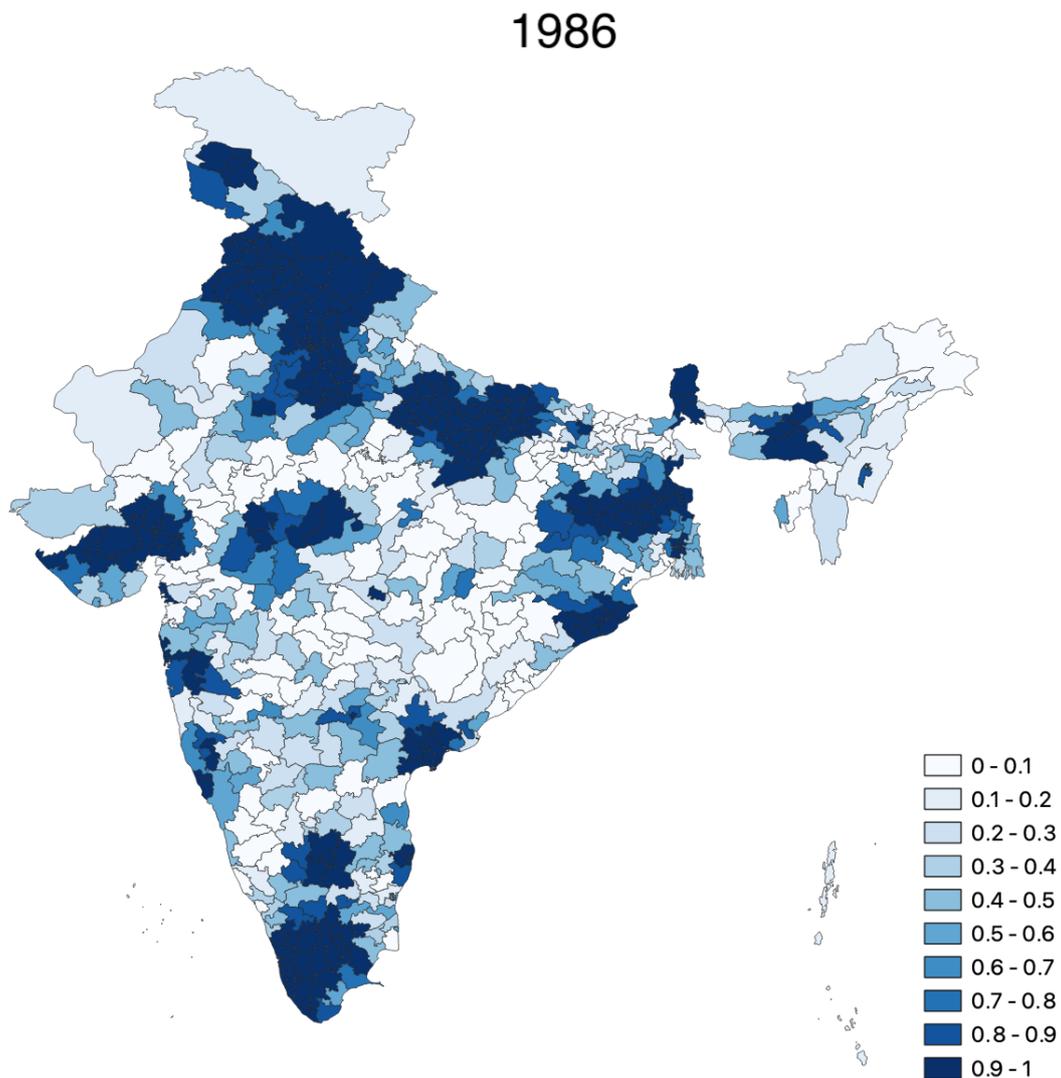
natural and preferred measure over the geographic share. Our main year of interest is television coverage in 1986, just prior to the launch of Ramayan. We focus on this period because we expect a *small* delay in television coverage and actual television access as households have to first purchase a television. Figure 1 highlights the geographic variation in 1986 television coverage across the country.

In Table 1, we present summary statistics of the population television coverage for 1980, 1986 and 1994 at the parliamentary constituency and district levels that we use for our analysis. Column 1 shows that coverage expanded greatly between 1980 and 1994, by a total of 63.7 percentage points at the parliamentary constituency level. Column 4 shows an almost identical extent of expansion of 63.1 percentage points over the same time span at the district level. The television coverage in 1986 is approximately at the midpoint of this expansion.

3.2 Data on Electoral Outcomes

We use the India National and State Election Dataset (Bhavnani, 2014) to construct our measures of electoral outcomes. This dataset contains candidate-level characteristics and election outcomes for all general elections from 1977 until 2014. The most dis-aggregated unit for general elections in the parliamentary constituency. Between 1977 and 2004, the 543 parliamentary constituencies were unchanged and set according to the 1973 delimitation commission and thus, we restrict our analysis to these nine elections. In total, we have three pre-Ramayan elections in 1977, 1980 and 1984 and six post-treatment elections in 1989, 1991, 1996, 1998, 1999 and 2004.

Figure 1
Television Coverage in 1986



Notes: The figure measures the proportion of the population with access to television at the parliamentary constituency for the start of 1986. Darker shades of blue represent greater television coverage.

For measures of electoral outcomes, we focus on three: i) voter turnout, the proportion of total votes cast relative to the number of registered voters; ii) BJP vote share, the proportion of votes cast for the BJP candidate relative to the total number of votes cast; and iii) BJP victory, a binary variable which equals to 1 if the BJP candidate wins the election and 0 otherwise. As the BJP came into existence following the 1980 general election, we use the BJP-predecessor parties as proxies for pre-1984 elections: the Janata Party (JNP) for 1980 and the Bharatiya Lok Dal (BLD) for 1977.

3.3 Data on Hindu-Muslim Conflict

Our measures of Hindu-Muslim conflict come from the replication files for Iyer and Shrivastava (2018) who collect data on Hindu-Muslim riots between 1980 and 2000 covering 16 states: Andhra Pradesh, Assam, Bihar, Gujarat, Haryana, Jammu and Kashmir, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Orissa, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh and West Bengal. This dataset builds on Varshney et al. (2006) who collects data from *The Times of India* on various Hindu-Muslim riots, and includes 7,119 geo-coded riots with additional information on the duration of the riots aggregated up to the district level, defined according to the Election Commission of India in 1976 (these districts will either coincide with the 1971 or 1981 census districts, depending on the state).

We aggregate the annual data to biennial, such that we have 10 two-year periods from 1981-82 until 1999-00 and have three outcomes: i) riot incidence, a binary variable equal to 1 if a riot occurred and 0 otherwise; ii) the total number of riot days; and iii) the duration of riots, measured as the total number of riot days.

4 Empirical Strategy

Our empirical analysis relies on a difference-in-differences approach. We employ a standard two-way fixed effects static specification in which we regress $Y_{i,t}$, the outcome of unit i in period t , on unit (θ_i) and period (λ_t) fixed effects and $S_{i,t} = Treat_i \times Post_t$, where $Treat_i$ is the 1986 population television coverage for unit i and $Post_t$ is a binary variable equal to 1 if the year is after 1987 and 0 otherwise:

$$Y_{i,t} = \lambda_t + \theta_i + \beta_{post} S_{i,t} + X_{i,t}^T \delta + \epsilon_{i,t} \quad (1)$$

The coefficient of interest β_{post} measures the combined treatment effect after Ramayan. For the electoral outcomes, the first treated period is the 1989 election while for Hindu-Muslim conflict outcomes, the first treated period is 1989-90. We also employ a standard two-way fixed effects dynamic specification, where we regress $Y_{i,t}$ on unit and period fixed effects with M leads and L lags of the treatment where $D_{i,t+r} = Treat_i \times \mathbb{1}\{t = k + r\}$ where k is the period that treatment occurs:

$$Y_{i,t} = \lambda_t + \theta_i + \sum_{r=-M}^{-2} \beta_r D_{i,t+r} + \sum_{r=0}^L \beta_r D_{i,t+r} + X_{i,t}^T \delta + \epsilon_{i,t} \quad (2)$$

For the dynamic specification, we exclude the treatment effect for the period prior to treatment ($r = -1$) as the reference period. For heterogeneity analysis, we simple run the same static and dynamic regressions on different relevant subsamples. We include in $X_{i,t}$ the following controls: the geographic area of the unit interacted with period fixed effects and the 1980 unit population interacted with period fixed effects. For all regressions, we report standard errors clustered at the unit level.

Table 2
Impacts of Ramayan on Electoral Outcomes

	(1)	(2)	(3)	(4)	(5)	(6)
	Voter Turnout		BJP Vote Share		BJP Victory	
<i>Panel A: All Elections</i>						
1986 Coverage	-0.056 (0.009)	-0.039 (0.009)	0.021 (0.016)	0.039 (0.018)	0.010 (0.035)	0.037 (0.039)
1984 Coverage		-0.018 (0.030)		0.028 (0.056)		0.005 (0.096)
1982 Coverage		-0.025 (0.031)		-0.078 (0.056)		-0.075 (0.096)
Mean 1989 Outcome	0.603	0.603	0.121	0.121	0.161	0.161
Units	543	543	543	543	543	543
Observations	4,848	4,848	4,848	4,848	4,848	4,848
<i>Panel B: Elections Prior to 2004</i>						
1986 Coverage	-0.055 (0.008)	-0.039 (0.009)	0.028 (0.016)	0.046 (0.017)	0.056 (0.034)	0.076 (0.039)
1984 Coverage		-0.015 (0.030)		0.011 (0.055)		-0.006 (0.095)
1982 Coverage		-0.024 (0.031)		-0.059 (0.055)		-0.045 (0.095)
Mean 1989 Outcome	0.603	0.603	0.121	0.121	0.161	0.161
Units	543	543	543	543	543	543
Observations	4,305	4,305	4,305	4,305	4,305	4,305

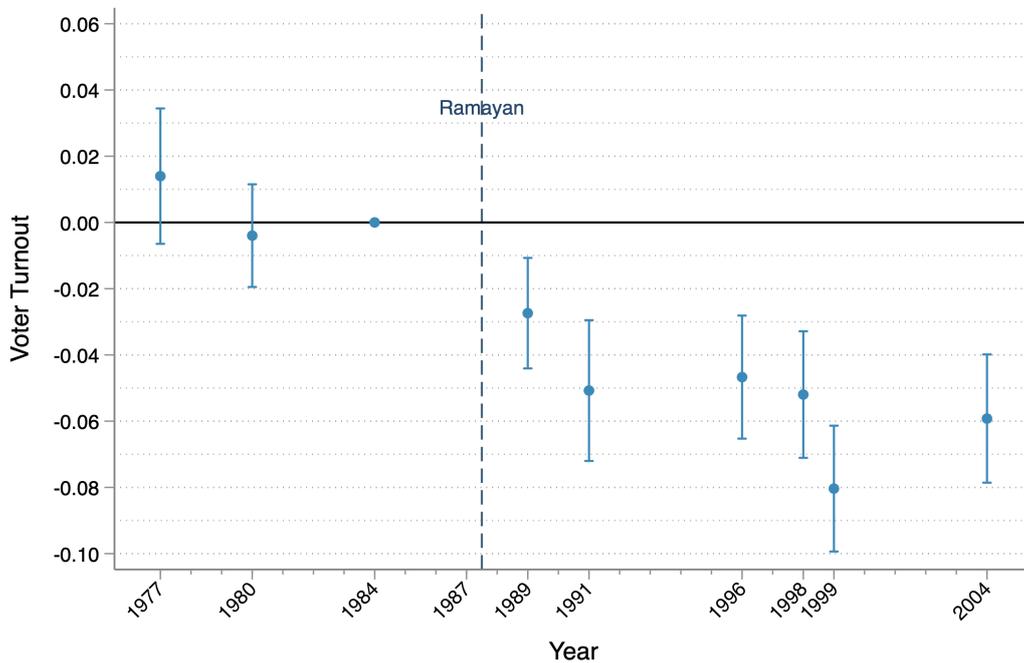
Notes: The units of observation are parliamentary constituencies. Robust standard errors, adjusted for clustering by parliamentary constituency, are in parentheses. Panel A covers all nine general elections from 1977 until 2004, while Panel B excludes the 2004 election. The dependent variable is voter turnout in columns 1–2, the vote share of the BJP candidate in columns 3–4 and a binary variable equal to 1 when the BJP candidate wins the election and 0 otherwise in columns 5–6. For 1977 and 1980, prior to the BJP's existence, BJP related variables use the outcomes of predecessor parties as a proxy (the BLD for 1977 and JNP for 1980). All dependent variables are measured at each general election. 1986 Coverage is the interaction of the television population coverage in 1986 (measured at the unit of the observation) and a binary variable equal to 1 if the year is after 1987 and 0 otherwise; 1984 Coverage and 1982 Coverage are defined equivalently. All regressions include year and unit fixed effects, and the controls include the interaction of geographic area and 1980 population with year fixed effects. The mean of the dependent variable is provided for the 1989 election for reference.

5 Results

5.1 Impacts on Electoral Outcomes

Estimates from Figure 2 indicate a sharp, persistent and statistically significant reduction in voter turnout after the introduction of Ramayan. There is no evidence of pre-trends and the results suggest that a 10 percentage point increase in 1986 television coverage corresponds to a sustained 0.30 to 0.70 percentage point reduction in turnout for all subsequent general elections. The point estimates in column 1 of Table 2 for both panels A and B suggest that a 10 percentage point increase in 1986 television coverage results in an average reduction in voter turnout of 0.55 percentage points. Relative to the 1989 average voter turnout of 60.3%, these effects are relatively modest, but still sizeable.

Figure 2
Impacts of Ramayan on Voter Turnout

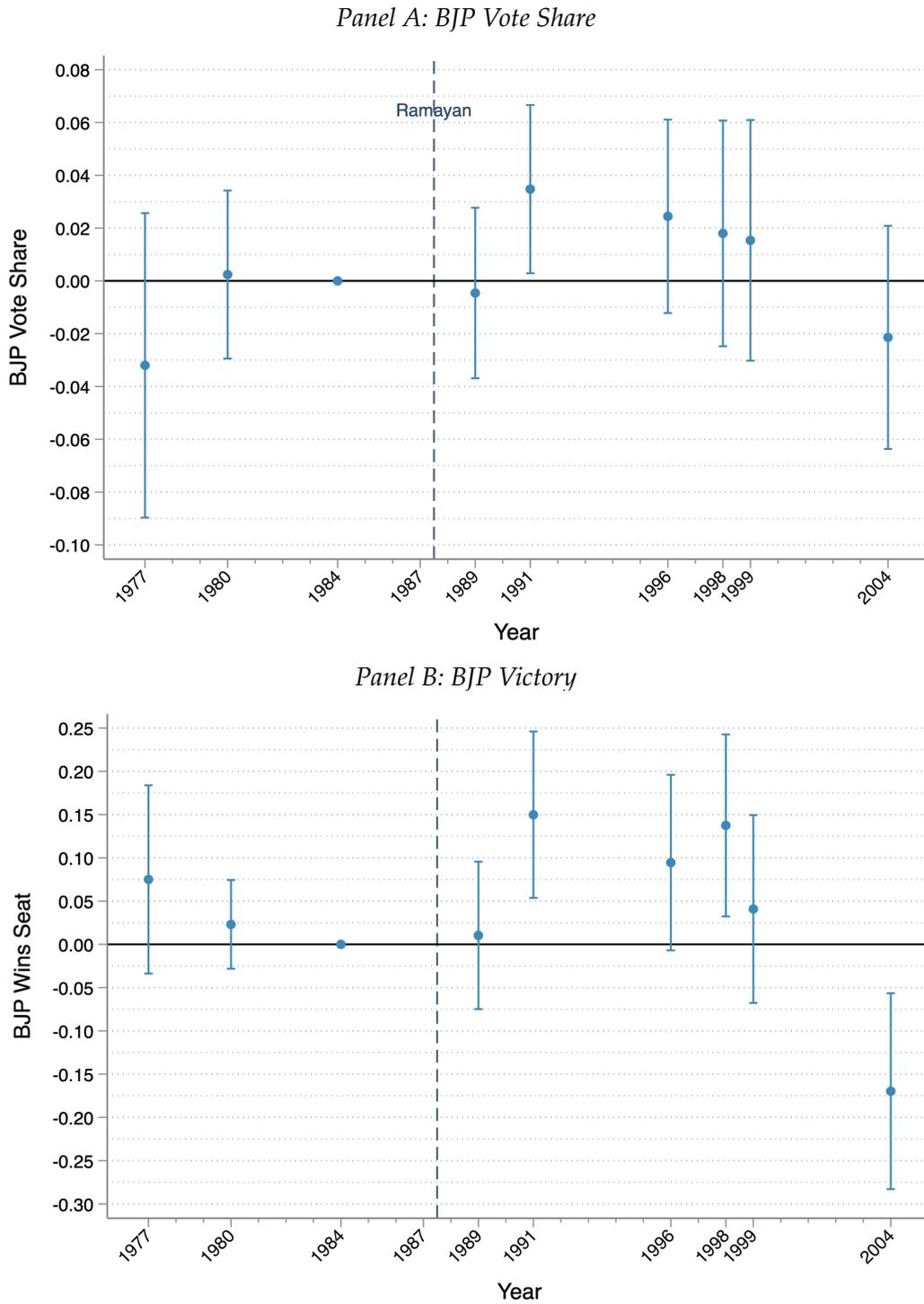


Notes: The figure plots the coefficients from a dynamic difference-in-differences regression at the parliamentary constituency level. The dependent variable is voter turnout. The treatment variable is the television population coverage in 1986. The sample consists of 543 parliamentary constituencies. Standard errors are clustered at the parliamentary constituency level and confidence intervals are presented at the 95% level.

Regarding the electoral outcomes of the BJP, both panels A and B in Figure 3 indicate no pre-trends in the elections prior to Ramayan but also no immediate effect in the 1989 general elections, only one year after Ramayan finished airing. However, there is a large and positive and statistically significant effect in the following 1991 general election, only two years afterwards. The results suggest that a 10 percentage point increase in 1986 television coverage corresponds to a 0.4 percentage point and 1.5 percentage point increase in the BJP vote share and the probability of a BJP victory in 1991. Relative to the 1989 average outcome of 12.1% and 16.1% for these measures respectively, the effect of Ramayan is considerably large. One possible explanation for the null effect in the 1989 general election is straightforward: it takes time for political parties to adapt to a shifting cultural landscape. The BJP needed at least some time to capitalise on the popularity of the show, and internalise several of the key Hindu aspects into the party's political platform. The fact that the effects appear not immediately afterwards, but only a very short time later in 1991 suggests that this is the case. Unlike with party-specific electoral outcomes, the effects of voter turnout are likely to be more immediate as it does not directly require the involvement of any political party.

Subsequently, the effects of BJP electoral performances persist, but to a lesser extent, throughout the elections of the late 1990s (1996, 1998 and 1999) before fading completely in 2004. These estimates highlight the dynamic nature of the treatment effects. Given the considerable degree of heterogeneity in these results, the static coefficients for both the BJP vote

Figure 3
Impacts of Ramayan on BJP Electoral Outcomes



Notes: The figures plot the coefficients from a dynamic difference-in-differences regression at the parliamentary constituency level. The dependent variable in Panel A is the BJP vote share and in Panel B is a binary variable equal to 1 when the BJP candidate wins the election and 0 otherwise. For 1977 and 1980, prior to the BJP's existence, BJP related variables use the outcomes of predecessor parties as a proxy (the BLD for 1977 and JNP for 1980). The treatment variable is the television population coverage in 1986. The sample consists of 543 parliamentary constituencies. Standard errors are clustered at the parliamentary constituency level and confidence intervals are presented at the 95% level.

Table 3
Impacts of Ramayan on Hindu-Muslim Conflict

	(1)	(2)	(3)	(4)	(5)	(6)
	Riot Incidence		Number of Riots		Duration of Riots	
1986 Coverage	-0.070 (0.030)	-0.085 (0.032)	-0.158 (0.083)	-0.159 (0.121)	-0.449 (0.187)	-0.247 (0.194)
1984 Coverage		-0.210 (0.124)		0.124 (0.278)		0.209 (0.491)
1982 Coverage		0.262 (0.130)		-0.128 (0.261)		-0.751 (0.543)
Mean 1987-88 Outcome	0.114	0.114	0.231	0.231	0.369	0.369
Units	333	333	333	333	333	333
Observations	3,330	3,330	3,330	3,330	3,330	3,330

Notes: The units of observation are districts. Robust standard errors, adjusted for clustering by district, are in parentheses. The dependent variable is a binary variable equal to 1 if a riot occurred and 0 otherwise in columns 1–2, the number of riots in columns 3–4 and the total number of riot days in columns 5–6. All dependent variables are measured over a two-year period. 1986 Coverage is the interaction of the television population coverage in 1986 (measured at the unit of the observation) and a binary variable equal to 1 if the year is after 1987 and 0 otherwise; 1984 Coverage and 1982 Coverage are defined equivalently. All regressions include year and unit fixed effects, and the controls include the interaction of geographic area and 1980 population with year fixed effects. The mean of the dependent variable is provided for the 1987–88 period for reference.

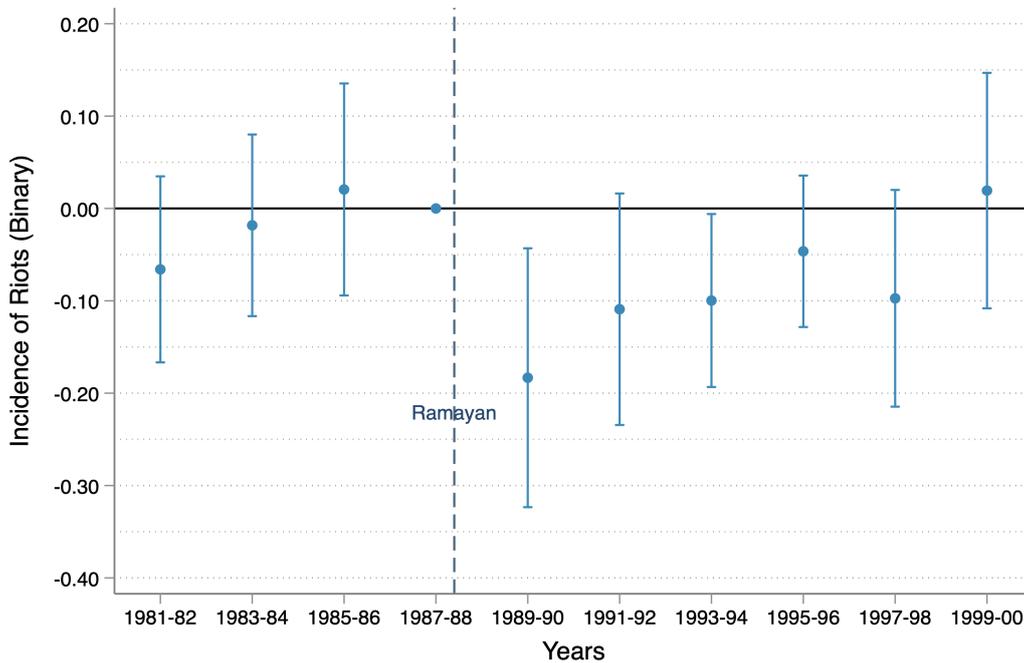
share and victory (see columns 3 and 4 of panel A in Table 2) are relatively small and not statistically significant. When restricting the sample to exclude the 2004 election in panel B, the effect on BJP vote share becomes significant at the 10% level and while the effect on BJP victory doubles, the coefficient is still marginally insignificant. These effects are attenuated due to the null effects in the 1989 election that are immediate from the dynamic specification.

Overall, we find that television coverage in 1986 had a negative and persistent result on voter turnout and a positive effect on BJP electoral outcomes during the 1990s. In order to evaluate whether the effects are coming specifically from exposure to Ramayan, and not just exposure to television coverage in general, we augment the static difference-in-differences regression to include past television measures of coverage for 1984 and 1982. In columns 2, 4 and 6 of Table 2, we see that the coefficients for 1984 and 1982 coverage are never statistically significant, even at the 10% significance level, whereas the coefficients for 1986 coverage are highly significant. After introducing the 1984 and 1982 coverage variables, the 1986 coefficient on voter turnout in column 2 is statistically significant at the 1% across both panels. For the BJP vote share outcome in column 4, the 1986 coefficient is statistically significant at the 5% level in panel A and at the 1% level in panel B. For the BJP victory outcome in column 6, the coefficient is significant at the 5% level only in panel B. These results indicate that television coverage in 1986, just prior to the launch of the highly influential Ramayan serial, and not earlier access to television is driving these electoral results.

5.2 Impacts on Hindu-Muslim Conflict

Estimates in Figure 4 show an immediate drop in the incidence of Hindu-Muslim riots in 1989–90, the period immediately following Ramayan. The effects persist throughout the 1990s but

Figure 4
Impacts of Ramayan on Hindu-Muslim Conflict



Notes: The figure plots the coefficients from a dynamic difference-in-differences regression at the district level. The dependent variable is a binary variable equal to 1 if a riot occurred and 0 otherwise. The treatment variable is the television population coverage in 1986. The sample consists of 333 districts. Standard errors are clustered at the district level and confidence intervals are presented at the 95% level.

fade towards the end of the decade. This immediate effect is large and substantial, especially relative to the 1987-88 average incidence of 11.4%. The point estimate suggests that a 10 percentage point increase in 1986 television coverage would correspond with a 1.8 percentage point reduction in the incidence of a riot. The average effect over the entire sample period is lower at -0.070 and is statistically significant at the 5% level (column 1 in Table 3). These extensive margin effects on Hindu-Muslim conflict are complemented by similar results for the intensive margin of violence with negative effects on both the number and duration of riots, which are statistically significant at the 10% and 5% levels respectively (columns 3 and 5 in Table 3). The combination of effects on both the extensive and intensive margins of riots show that television coverage in 1986 resulted in a reduction of Hindu-Muslim conflict.

In columns 2, 4 and 6 of Table 3, we explore whether these effects are driven by exposure to Ramayan, or television coverage in general. Similar to before in Table 2, we augment the static difference-in-differences regression to include past television measures of coverage for 1984 and 1982 and find that at the intensive margin, the coefficients on all coverage measures are no longer statistically significant with large standard errors (columns 4 and 6 in Table 3). Unlike with the parliamentary constituency level, districts are larger and more aggregated such that the television coverage measures across time are likely to be more correlated; this will result in greater multi-collinearity and an increase in the standard errors. At the extensive margin, the results are unclear as while the coefficient on 1986 television coverage is precisely estimated

Table 4

Heterogeneous Impacts of Ramayan on Electoral Outcomes

	(1)	(2)	(3)	(4)	(5)	(6)
	Voter Turnout		BJP Vote Share		BJP Victory	
<i>Panel A: Electoral Outcomes for All Elections</i>						
1986 Coverage	-0.040 (0.012)	-0.064 (0.013)	0.050 (0.023)	-0.001 (0.020)	0.061 (0.047)	-0.026 (0.044)
Sample	Muslim	No Muslim	Muslim	No Muslim	Muslim	No Muslim
Mean 1989 Outcome	0.614	0.595	0.055	0.167	0.051	0.236
Units	230	313	230	313	230	313
Observations	2,035	2,813	2,035	2,813	2,035	2,813
<i>Panel B: Electoral Outcomes for Elections Prior to 2004</i>						
1986 Coverage	-0.038 (0.012)	-0.062 (0.012)	0.063 (0.023)	-0.000 (0.020)	0.115 (0.047)	0.006 (0.045)
Sample	Muslim	No Muslim	Muslim	No Muslim	Muslim	No Muslim
Mean 1989 Outcome	0.614	0.595	0.055	0.167	0.051	0.236
Units	230	313	230	313	230	313
Observations	1,805	2,500	1,805	2,500	1,805	2,500

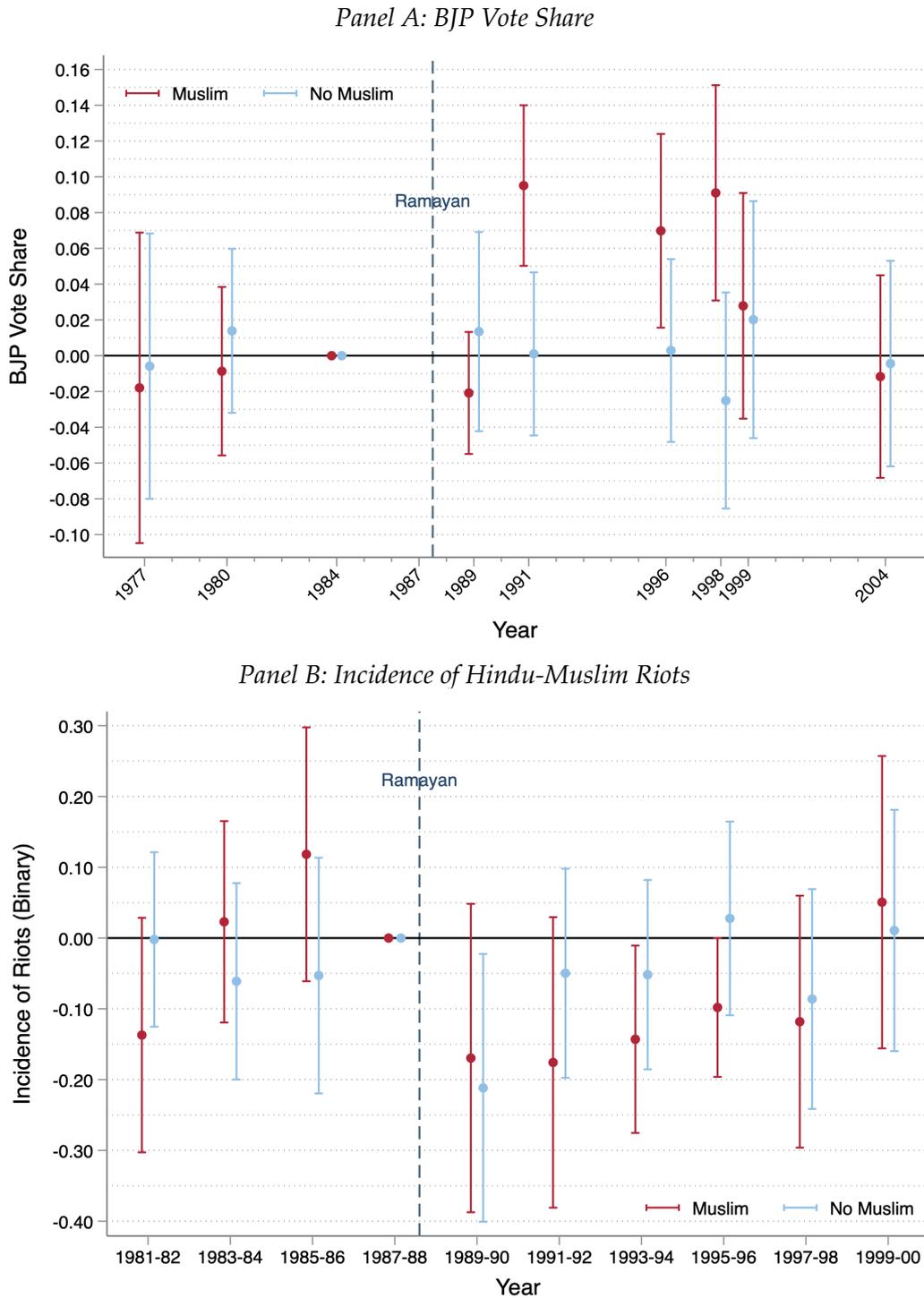
Notes: Notes: The units of observation are parliamentary constituencies. Robust standard errors, adjusted for clustering by parliamentary constituency, are in parentheses. Panel A covers all nine general elections from 1977 until 2004, while Panel B excludes the 2004 election. The dependent variable is voter turnout in columns 1–2, the vote share of the BJP candidate in columns 3–4 and a binary variable equal to 1 when the BJP candidate wins the election and 0 otherwise in columns 5–6. For 1977 and 1980, prior to the BJP’s existence, BJP related variables use the outcomes of predecessor parties as a proxy (the BLD for 1977 and JNP for 1980). All dependent variables are measured at each general election. 1986 Coverage is the interaction of the television population coverage in 1986 (measured at the unit of the observation) and a binary variable equal to 1 if the year is after 1987 and 0 otherwise. Columns 1, 3 and 5 include the sub-sample of parliamentary constituencies in states with a significant Muslim population, defined as having at least 10% Muslim population according to the 1991 census; these include Assam, Bihar, Jammu and Kashmir, Karnataka, Kerala, Uttar Pradesh and West Bengal. Columns 2, 4 and 6 include the sub-sample of remaining parliamentary constituencies, namely those in states without a significant Muslim population. All regressions include year and unit fixed effects, and the controls include the interaction of geographic area and 1980 population with year fixed effects. The mean of the dependent variable is provided for the 1989 election for reference.

and significant at the 1% level, the other coefficients are large, but are imprecisely estimated. Unlike with the effects on electoral outcomes, the evidence is less clear in favour of a direct impact of exposure to Ramayan on Hindu-Muslim conflict.

5.3 Heterogeneity by State-Level Muslim Presence

Given the results on BJP electoral outcomes and Hindu-Muslim conflict, we explore whether there is heterogeneity in our treatment effects by Muslim presence. We define states as having a *significant* Muslim population if they have at least 10% Muslim population according to the 1991 census. These include the following seven states: Assam, Bihar, Jammu and Kashmir, Karnataka, Kerala, Uttar Pradesh and West Bengal. As these states are relatively large, when we divide our sample according to states with and without a significant Muslim presence, the sub-samples are relatively balanced. In Table 1, we see that both parliamentary constituencies and districts in states with a significant Muslim population are on average geographically

Figure 5
Heterogeneous Impacts of Ramayan



Notes: The figure plots the coefficients from two separate dynamic difference-in-differences regression where the sample is divided by states with a significant Muslim population (labelled as 'Muslim') and those without (labelled as 'No Muslim'), defined as having at least 10% Muslim population according to the 1991 census. The dependent variable in Panel A is the BJP vote share at the parliamentary constituency level and in Panel B is a binary variable equal to 1 if a riot occurred and 0 otherwise at the district level. The sample sizes in Panel A are 230 and 313, and in Panel B are 149 and 184 for the 'Muslim' and 'No Muslim' categories respectively. The treatment variable is the television population coverage in 1986. Standard errors are clustered at the unit level and confidence intervals are presented at the 95% level.

Table 5

Heterogeneous Impacts of Ramayan on Hindu-Muslim Conflict

	(1)	(2)	(3)	(4)	(5)	(6)
	Riot Incidence		Number of Riots		Duration of Riots	
1986 Coverage	-0.110 (0.047)	-0.031 (0.041)	-0.162 (0.080)	-0.096 (0.112)	-0.394 (0.229)	-0.459 (0.306)
Sample	Muslim	No Muslim	Muslim	No Muslim	Muslim	No Muslim
Mean 1987-88 Outcome	0.101	0.125	0.235	0.228	0.470	0.288
Units	149	184	149	184	149	184
Observations	1,490	1,840	1,490	1,840	1,490	1,840

Notes: The units of observation are districts. Robust standard errors, adjusted for clustering by district, are in parentheses. The dependent variable is a binary variable equal to 1 if a riot occurred and 0 otherwise in columns 1–2, the number of riots in columns 3–4 and the total number of riot days in columns 5–6. All dependent variables are measured over a two-year period. 1986 Coverage is the interaction of the television population coverage in 1986 (measured at the unit of the observation) and a binary variable equal to 1 if the year is after 1987 and 0 otherwise; 1984 Coverage and 1982 Coverage are defined equivalently. Columns 1, 3 and 5 include the sub-sample of parliamentary constituencies in states with a significant Muslim population, defined as having at least 10% Muslim population according to the 1991 census; these include Assam, Bihar, Jammu and Kashmir, Karnataka, Kerala, Uttar Pradesh and West Bengal. Columns 2, 4 and 6 include the sub-sample of remaining parliamentary constituencies, namely those in states without a significant Muslim population. All regressions include year and unit fixed effects, and the controls include the interaction of geographic area and 1980 population with year fixed effects. The mean of the dependent variable is provided for the 1987–88 period for reference.

smaller, but with a larger population. Moreover, the 1986 television coverage in states with a significant Muslim presence is on average higher by 7 and 10 percentage points for parliamentary constituencies and districts respectively, although the standard deviations of television coverage are identical and unchanged.

Panels A and B from Figure 5 illustrate the clear heterogeneity in our results for both electoral and conflict outcomes. First, panel A in Figure 5 shows that the positive effect of Ramayan on the BJP vote share during the 1990s is entirely driven by parliamentary constituencies in states with a significant Muslim presence. The point estimate in 1991 indicates that a 10 percentage point increase in 1986 television coverage now corresponds to a 1.0 percentage point increase in BJP vote shares. Relative to the 1989 average BJP vote share of 5.5%, this effect is not only highly statistically significant, but is also substantially large. The point estimates for states without a significant Muslim presence are all very close to 0 and stable across all election years, suggesting that Ramayan had very little causal impacts on the electoral performances of the BJP.

Second, panel B in Figure 5 shows a similar, albeit less stark, divergence in the effects of Ramayan on the incidence of riots. While no individual pre-trend is significantly different from 0 at the 5% significance level, there appears to be an upward trend for states with a Muslim presence. However, as the effects are negative, this suggests that the effect of Ramayan in these states might be attenuated. From 1991 until 1996, coinciding with the BJP electoral effects, we find that the effect on conflict is larger in absolute terms and more persistent in states with a Muslim presence relative to states without. During the 1991–92 period, the coefficients differ by 0.13, indicating that an additional 10 percentage points in 1986 television coverage would

have reduced the incidence of riots by an additional 1.3 percentage points in states with a Muslim presence relative to those without. For both panels in Figure 5, the effects in states with a Muslim presence fade out at the end of the sample period.

These dynamic results are consistent with the static results in Tables 4 and 5. The effects on BJP vote share for states with a Muslim presence (column 3 in Table 4) are large and significant at the 5% level in panel A, and at the 1% level in panel B. The equivalent effects for states without a Muslim presence (column 4 in Table 4) are precisely estimated at virtually 0. We see a similar narrative for effects on BJP victory (columns 5 and 6 in Table 4) where the effects are positive for states with a Muslim presence, and close to 0 for those without. With regards to voter turnout, while there are statistically significant negative effects for both sub-samples, the reductions in voter turnout are larger in states without a Muslim presence. One possible explanation for this difference is that in states with a Muslim presence, where Ramayan improved the electoral performance of the BJP, the party might have been able to increase voter turnout, providing an additional effect going in the opposite direction.

Regarding Hindu-Muslim conflict, columns 1 and 2 in Table 5 show that the effects on riot incidence are three times as large in states with a Muslim presence than those without, where the latter effect is relatively small and not statistically significant. The coefficient in column 1 of -0.110 is very large, and approximately equal to the average outcome in 1987-88. Taken to its extreme, this suggests that a district going from 0% television coverage to 100% in 1986 could completely ameliorate the incidence of Hindu-Muslim riots. We find similar results on the intensity of riots, with larger and statistically significant effects for the number and duration of riots in Muslim presence states at the 5% and 10% significance levels respectively (columns 3 and 5 of Table 5) when compared to the effects in states without a Muslim presence (columns 4 and 6 of Table 5). Importantly, one concern would be that Hindu-Muslim conflict would already be low in states without a significant Muslim presence which explains the heterogeneity. In fact, we find the opposite: the incidence of riot during the 1987-88 period is actually slightly higher at 12.5% in states without a Muslim presence, relative to 10.1% in states with a Muslim presence.

6 Conclusion

We explore the impacts of mass media, through the highly influential Ramayan religious epic that aired during the late 1980s in India on national politics and Hindu-Muslim conflict. We find that exposure to Ramayan lowered voter turnout and increased the electoral performance of the BJP in both the intensive and extensive margins during the 1990s while the incidence and intensity of Hindu-Muslim riots fell. We document that these effects are concentrated in states with a significant Muslim presence and that there are limited effects in states without a significant Muslim presence. These results can be reconciled through Ramayan's impact on creating unity amongst Hindus and fostering a greater sense of security which would lead to the rise of Hindu nationalism while subsequently reducing the incentives for inter-religious conflict.

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