



—  
INSTITUT DE HAUTES  
ÉTUDES INTERNATIONALES  
ET DU DÉVELOPPEMENT  
GRADUATE INSTITUTE  
OF INTERNATIONAL AND  
DEVELOPMENT STUDIES

---

**Graduate Institute of International and Development Studies**  
**International Economics Department**  
**Working Paper Series**

Working Paper No. HEIDWP19-2015

**Riot Rewards? Study of BJP's Electoral Performance  
and Hindu Muslim Riots**

**Rohit Ticku**  
**The Graduate Institute, Geneva**

Chemin Eugène-Rigot 2  
P.O. Box 136  
CH - 1211 Geneva 21  
Switzerland

## Abstract

Do incidents of ethnic polarization influence voter behavior? I address this question through the case study of India, the world's largest functional democracy. Specifically, I test whether prior events of Hindu-Muslim riots electorally benefit Bharatiya Janta Party (BJP), a prominent Hindu nationalist party? The paper contributes to the literature by being the first to establish a causal relationship between Hindu-Muslim riots and BJP's electoral performance. Results show that riots have a positive and significant effect on BJP's vote share and are robust to our instrumentation strategy. The party vote share increases between 2.9 to 4.4 percent in response to different riot outcomes. Results seem to back the theory of *electoral incentives* i.e. parties representing elites among ethnic groups may have an incentive to instigate ethnic conflict to influence the marginal voter.

**Keywords:** Ethnic conflict, Hindu Muslim riots, Electoral performance, Voter behavior, Bharatiya Janta Party (BJP).

**JEL Classification Numbers:** D72, D74.

---

\* I would like to thank Nicolas Berman, Jean Louis Arcand, Mathias Thoenig and Dominic Rohner for their valuable suggestions and feedback at various stages of this paper. All errors are mine.

*"The peace we seek in the world begins in human hearts; it finds its glorious expression when we look beyond any differences in religion or tribe and rejoice in the beauty of every soul. It's when all Indians, whatever your faith, go to the movies and applaud actors like Shah Rukh Khan. When you celebrate athletes like Milkha Singh, or Mary Kom."*

*Barack Obama*

## 1 Introduction

Do incidents of ethnic polarization affect voting behavior? I test this hypothesis through the case study of India and Bharatiya Janta Party (BJP), a prominent Hindu nationalist party of the country. Specifically, I test whether prior events of Hindu-Muslim riots electorally benefit the BJP. I chose India as a case study for two reasons- first for its eminent position as the world's largest "*patronage democracy*"<sup>1</sup> which exacerbates the use of voting for strategic gains (Chandra, 2009). Second, the supposed realignment of Indian polity towards right wing politics, after 2014 national elections, has necessitated a deeper understanding of the link between ethnic polarization and electoral outcomes.<sup>2</sup>

The question has to be contextualized within the broader framework of voting behavior i.e. whether decision to vote on ethnic lines is driven by *sincerity* or *strategy* (Chandra, 2009). Early research on ethnic mobilization focused on the sincerity of such voter. For example, according to Horowitz (1985) voters in ethnically divided polities stubbornly vote for their representative party, irrespective of its prospect for victory or influence. However, recent literature (Chandra, 2009) has pointed to a strategic interest in voting, even when it is done on ethnic lines.

Strategic voting can take place in different forms, for example to signal a preference to the incumbent party, to help the most preferred party to win, or to prevent the least preferred one from being elected (ibid.). However, the underlying aim for each voter is to get individualized benefits from those elected. These benefits may either be material or psychological in the form of higher status or self-esteem (ibid.). The psychological rewards emanate from increased status, from having a co-ethnic in power, in comparison to other ethnicities which are not as well represented. The desire for such psychological rewards should be stronger in the aftermath of ethnically polarizing events. In other words, incidents of ethno-religious conflict should consolidate voting on the lines of ethnicity or religion.

The debate on ethno-religious conflict in India has come to fore in the aftermath of BJP's victory in 2014 national elections.<sup>3</sup> The victory was unprecedented as BJP became the first party in three decades, and the only non-Congress one till date, to win a majority on its

---

<sup>1</sup> Patronage democracy is defined as where voters are dependent upon the discretionary powers of those who control the state

<sup>2</sup> "Right wing Hinduism surges in India as Obama, Modi meet", USA Today (24.01.2015)

<sup>3</sup> "Is Modi's India safe for Muslims?", Foreign Policy (26.06.2015)

own.<sup>4</sup> This in spite of a relentless campaign by its political adversaries around the suspect role of its prime ministerial candidate, Narendra Modi, in 2002 anti-Muslim riots.<sup>5</sup> Statistics on riot incidences were presented as a proof of BJP run states being more communally violent.<sup>6</sup> Even a prominent media house like *The Economist* expressed apprehension of rise in sectarian hatred if a BJP government led by Narendra Modi came to power.<sup>7</sup>

In the two months after BJP's electoral victory over 600 "communal incidents" were reported.<sup>8</sup> These were located primarily in Uttar Pradesh, where BJP had recently recorded its best ever electoral performance in the national elections.<sup>9</sup> Most of these incidents were concentrated in twelve assembly constituencies which were scheduled for the by polls later in the year.<sup>10</sup> BJP's rivals alluded to the party having artificially engineered riots for electoral gains.<sup>11</sup> Hindu-Muslim riots again flared up in Delhi's Trilokpuri in October 2014, a few months prior to the state assembly elections.<sup>12</sup> Some saw a common pattern of communal polarization by BJP across Uttar Pradesh and Delhi riot incidences.<sup>13</sup> Curiously, BJP fared poorly in both the elections.<sup>14</sup>

The paper, in this backdrop, explores whether polarization triggered by Hindu Muslim riots causally benefit BJP's electoral performance. Thus I indirectly test whether BJP has any electoral incentive in "artificially engineering" communal riots. The paper also attempts to identify the sub texts under which ethno-religious polarization, if at all, could turn out to be a successful strategy.

I correct for the endogeneity of riots using intuition from climate conflict literature. Specifically, exploiting the idea that higher temperatures induce violent and aggressive behavior, I use district level variation in temperature as an instrument for Hindu-Muslim riots. I also control for agricultural wages to mitigate any effect of temperature variation on riots through change in agricultural productivity.

---

<sup>4</sup> "Narendra Modi and BJP sweep to power in Indian election", *The Guardian* (May 16, 2014)

<sup>5</sup> "Rahul Gandhi slams Narendra Modi's acquittal over 2002 Gujarat riots", *Deccan Chronicle* (March 17, 2014)

<sup>6</sup> "BJP ruled states more communally violent", *Chunauti.org* (February 15, 2014).

<sup>7</sup> "Can anyone stop Narendra Modi?", *The Economist* (April 5, 2014).

<sup>8</sup> "Express investigation part-I: Over 600 'communal incidents' in UP since LS results, 60% near bypoll seats", *The Indian Express* (August 9, 2014)

<sup>9</sup> *Ibid.*

<sup>10</sup> *Ibid.* Representatives of these state constituencies had been elected to the national parliament, necessitating the bypolls.

<sup>11</sup> "Uttar Pradesh Riots Engineered? Rahul Gandhi Thinks So, BJP Does Not", *NDTV* (August 9, 2014).

<sup>12</sup> "Trilokpuri riots may be an attempt to polarise Dalits as Delhi polls seem likely", *Scroll.in* (October 27, 2014)

<sup>13</sup> "Similarities between Trilokpuri riots and Muzaffarnagar hard to ignore", *Firstpost* (October 27, 2014)

<sup>14</sup> Uttar Pradesh by-poll results: Amit Shah, Yogi Adityanath brand of politics rejected, *Firstpost* (September 16, 2014); "Delhi election: Arvind Kejriwal's party routs Modi's BJP", *BBC* (February 10, 2015)

Existing empirical literature has cursorily looked at BJP's association with Hindu-Muslim riots, primarily within an *electoral incentives* framework i.e. use of riots as an instrument to polarize votes and thus win elections (Wilkinson, 2004). However, these studies have either not accounted for the plausible endogeneity of riots (Dhattiwala and Biggs, 2012) or focused on election outcomes in the aftermath of a specific riot event (Dhattiwala and Biggs, 2012; Jha, 2012). The paper aims to understand how BJP's electoral performance on average corresponds to prior riot events. Through a comprehensive panel study the paper not only accounts for the potential reverse causality of Hindu Muslim riots but also control for the time and locational specific effects. The paper thus contributes to the literature by being the first to estimate a causal relation between Hindu-Muslim riots and BJP's electoral performance over a significant period of time.

Results show that BJP's vote share increases between 2.9 to 4.4 percent in response to different riot outcomes. Riots also reduce the vote share of BJP's principal opponent i.e. Indian National Congress (INC) by 1.4 to 2 percent. These results lend further credence to the *electoral incentives* hypothesis i.e. anti-minority events polarize votes towards parties representing majoritarian ideology (Wilkinson, 2004).

The paper is organized as follows- Section 2 explains the existing literature on communal violence, with special emphasis on the Hindu-Muslim riots in India. Section 3 summarizes the anatomy of Hindu-Muslim riots, the rise of BJP as a political party and discusses the qualitative evidence on riots benefiting BJP's electoral performance. In Section 4 I explain the estimation strategy and choice of the instrument. I describe the data in Section 5, followed by an exposition of the results in Section 6. Section 7 concludes.

## **2 Literature Review**

The literature on communal violence in India has tried to explain their occurrence from socio- cultural and historic, political and economic viewpoints. The culturists approach tends to analyze the context rather than the cause of these riots (Tambiah, 1990). The emphasis is on post-riot narrative to identify the processes that lead to the riot. Another approach tries to identify causation qualitatively through case studies or anecdotal evidence (Shah, 1970). Both approaches arrive at two key conclusions: that an ethnic riot typically is a) multi causal phenomena emanating from social tension aided by historical distortions and myths b) often state sponsored "*pogrom*" against minority ethnicity for electoral gains (Horowitz, 1985).

Varshney (2002) proposes a theory based on contact hypothesis in social psychology. According to his theory the degree of interreligious interaction or civic engagement can explain why some towns experience riots while others do not. Through case studies, historical research and interviews he shows that daily contact in inter-communal associations help reduce communal violence in urban areas.

A related strand is the historic legacy of inter-ethnic interaction which helps shape up patterns of ethnic violence. This school of thought emphasizes on long-term persistence of attitudes. The key idea is that events and institutional arrangements of the past affect today's norms and behavior (Fernandez and Fogli (2009), Algan and Cahuc (2010), Nunn and Wantchekon (2011) etc.). Jha (2014), focusing his analysis on Gujarat, shows that political competition interacted with historic inter-ethnic relationship determined the change in propensity for ethnic rioting.

Wilkinson (2004) presents a framework of political logic in explaining an ethnic riot. Wilkinson argues that ethnic riots *"are best thought of as a solution to the problem of how to change the salience of ethnic issues and identities among electorate in order to build a winning political coalition"*. Violence that is generated as a consequence of such mobilization is allowed to continue or stopped based on the government which is in control of local law and order. Wilkinson tests his theory through analysis of Hindu-Muslim riots in 167 towns in Uttar Pradesh, between 1970 and 1995 and more recently the districts in Gujarat during the 2002 post-Godhra riots.

Economic theories of ethnic violence have tried to explain recurrence of conflict through the lens of economic growth and inequality. Gurr and Doval (1973) posit an inverse relationship between economic growth and violence, arguing that periods of economic deceleration could increase ethnic conflict. Olzak (1992), building on the resource mobilization theory, argues the contrary stating that *"as the fortunes of the economically disadvantaged rise, they come to compete with the ones just above them igniting ethnic conflict and protest of the part of those on the next rung"*. Miguel et. al (2004), however, were the first ones to recognize the problem of endogeneity and omitted variable bias in estimating the impact of economic growth on conflict. Using rainfall variation as an instrument for economic growth in forty one African countries, the authors found that growth is strongly and negatively related to civil conflict.

Empirical literature having been cognizant of the endogenous nature of conflict since then, and violence in general, has utilized different strategies to control for this bias. For example, Mehlum et al (2006) use rainfall to instrument for grain prices to understand the relationship between economic shocks and violent crimes in Germany in the 19<sup>th</sup> century. Bohlken and

Sergenti (2010) use rainfall variation to predict that increase in GDP at state level significantly decrease the expected number of Hindu Muslim riots in India. A critical assumption underlying this literature is the idea that rainfall shocks affect conflict only through the impact on income.

Collins and Margo (2007) use rainfall as a direct instrument for rioting to analyse the effect of riots on housing prices. They postulate that people are less likely to riot during intense rainfall and hence rainfall can be used directly as an instrument for conflict. Sarsons (2014), focusing on the evidence from Hindu Muslim riots in India, suggests that rainfall affects riots through channels other than income and recommends using it directly as an instrument for conflict. Recently, Mitra and Ray (2014) developed a framework of income inequality to explain occurrence of Hindu-Muslim riots in India. According to them *"if group incomes are low, increasing group incomes raises violence against that group and lowers violence generated by it"*. They conclude that a rise in Muslim per-capita expenditure viz. Hindu households leads to increase in future religious conflict.

Empirical studies on ethnic violence in India have tested for the correlation between BJP's election victory and Hindu-Muslim violence. Wilkinson (2004) finds that BJP having majority in any particular state did not have any independent impact on the level of riot occurrences between 1961 and 1995. He ascribes it partly to fewer observations as BJP only started to win outright in state elections in the 1990s. Ray and Mitra also find that the effect of BJP's vote share in state level electoral district on Hindu-Muslim riots is statistically insignificant. Arcand and Chakraborty (2013) however find a positive and statistically significant effect of BJP's seat share in state legislature on ethnic violence. Dhattiwala and Biggs (2012) using town level data on waves of violence in 1990-93 and 2002 find that BJP's electoral politics is positively associated with Hindu-Muslim violence. Similarly, Jha (2014), using local comparisons of historical inter-ethnic relationship between Hindus and Muslims in Gujarat, find that in the aftermath of Gujarat riots there was an increase in electoral support for the incumbent party in areas where these two ethnicities have historically competed.

To the best of my knowledge no study so far has looked at whether the electoral performance of BJP across state assembly elections in India, since its formation in 1980, causally benefits from Hindu-Muslim riots. A comparable study is the working paper of Nellis et. al (2014), who use the assumption of randomness of close assembly elections to show that India would have experienced 10% more riots if Congress had lost all close assembly elections between 1962 and 2000. The use of such quasi random variation in close races in developing countries is problematic as effects of such close victories may itself depend on pre-existing patterns of ethnic polarization and historical institutions (Jha, 2014).

I believe that an assessment of riots on BJP's electoral performance, corrected for endogeneity, would help understand whether ethnic polarization could work as an instrument for electoral success. It will also be useful to understand the sub texts under which such strategy is successful.

### **3 Background**

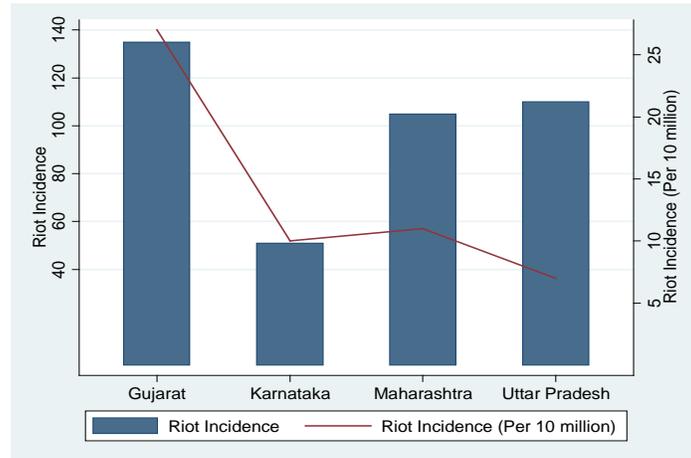
This section briefly sketches the anatomy of Hindu-Muslim riot and the rise of BJP as a political force. First I present the key features of riots, including their geographical spread, in post-independence India. I then profile the rise of BJP as a political force and see how its eminence as a party across India compares against the distribution of riots. Finally I present some qualitative evidence linking specific riot events with BJP's subsequent electoral performance.

#### **3.1 Hindu Muslim riots**

Hindu-Muslim riots have been a regular feature of post-independence India. Between 1950 and 2000 such riots resulted in approximately 10,000 deaths and about 30,000 injuries (Wilkinson, 2004). While these may be small numbers given the sheer size of Indian population, there are probably other more significant consequences of such violence, including insecurity, displacement and economic loss (ibid.). For example, the city of Mumbai lost an estimated USD 3.6 billion as a result of the Hindu-Muslim riots of January 1993 (ibid.). Importantly, Hindu-Muslim cleavage has already played a part in splitting the Indian state at the time of independence. Given that Hindus and Muslims coexist across the whole of India, local riot incidences have the potential to develop into violence of greater magnitude (ibid.).

Some states are more prone to riots than others. Four states, i.e. Uttar Pradesh, Maharashtra, Gujarat and Karnataka had a combined share of almost 70% of all riot incidences in our sample covering 15 states (1980-2000). Accounting for the population size, Gujarat and Maharashtra have the highest number of riot incidences (per 10 million) as shown in Figure 1.

**Figure 1: State Wise Riot Incidences (1980-2000)**

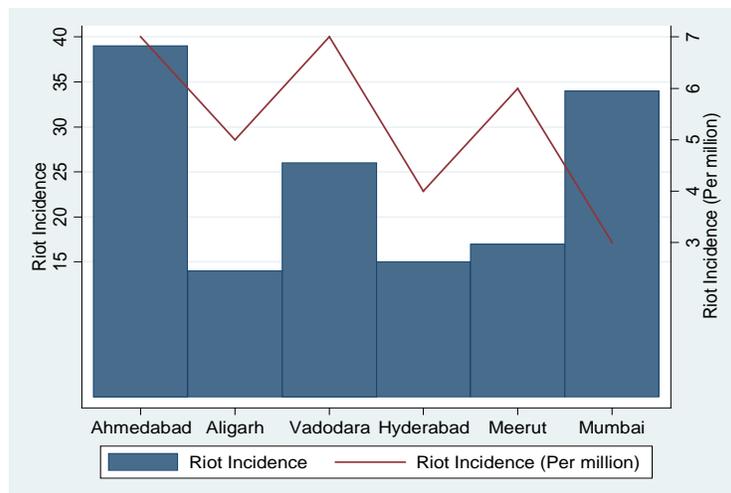


Source: Varshney- Wilkinson Dataset

Note: Population figures are from 2001 census

The same feature could be seen when the unit of analysis is at district level. Five districts, out of 151 in our sample, had about 19% share of the total riot incidences. Controlling for population size Vadodara, Ahmadabad, Meerut and Aligarh were the most riot prone districts, followed by Hyderabad and Mumbai (Figure 2)

**Figure 2: District Wise Riot Incidences (1980-2000)**



Source: Varshney- Wilkinson Dataset

Note: Population figures are from 2001 census

### 3.2 BJP's rise as a political party

According to Jafferlot (2014), BJP's rise to eminence as a national party follows three distinct stages of political strategy a) BJP as a moderate party (1980-89), b) Radical phase of BJP (89-98) c) Relative moderation as coalition leader (98-04).

BJP was formed in April 1980, under the stewardship of Atal Behari Vajpayee, after a split in the Janata Party which was the first non-Congress party in India to form a national government. The new party combined elements from both Hindu nationalist movement<sup>15</sup> and the socialist movement<sup>16</sup>. Keen to evolve from its Hindu nationalism based identity the party adopted concepts of "Gandhian socialism" and "positive secularism" (ibid.). However poor performance in the 1984 national elections forced it to support a mobilization campaign around Hindu religious symbol- reconstruction of a temple at a disputed site in Ayodhya where a 16th century mosque stood. As a result of the ensuing religious polarization BJP raised its seat share from mere two in 1984 national elections to 85 in 1989, further improving its tally to 119 seats in 1991 elections. This radical phase of the BJP culminated with the mosque's demolition at the hands of Hindu nationalists in December 1992 (ibid.).

The party, however, had to return to a moderation path due to its inability to woo potential allies, even after emerging as the single largest party in 1996 elections (ibid.). After returning as a single largest party in 1998 elections BJP embarked on another moderate phase, learning from its 1996 debacle. In the words of then BJP president LK Advani, "though we were the largest party we failed to form the government. It was felt on the ideological basis we could not go any further. So we embarked on the course of alliance based coalitions...".

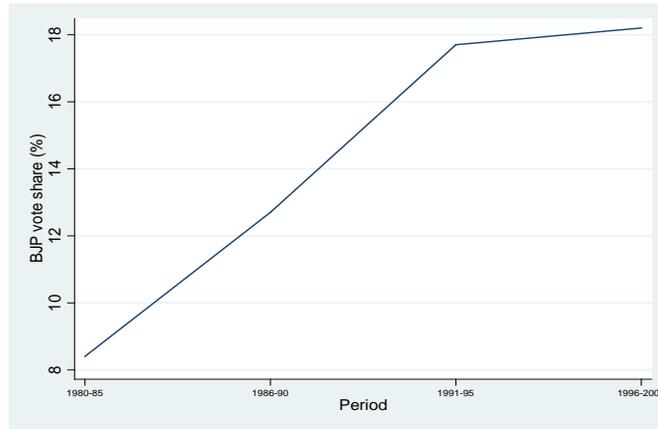
BJP's performance in state level elections mirrors its national level performance. From an average seat share of around 7% across all state level elections in my dataset between 1980-85, its performance improved to almost 15 percent by the next half of the decade. The party performed even better in the following decade, garnering about 20% of the total assembly seats in our sample (Figure 3).

---

<sup>15</sup> Represented in politics in the form of Jana Sangh

<sup>16</sup> The core of Janata party

**Figure 3: BJP's state level electoral performance (1980-2000)**

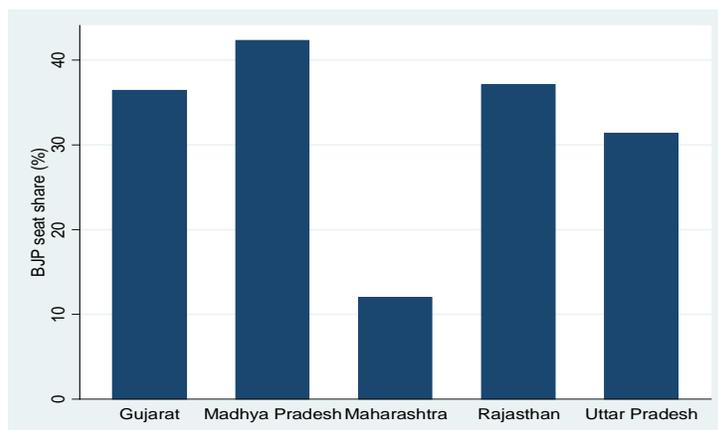


Source: Author's calculations

Note: Estimates are for 151 districts, covering 15 states

It is instructive to see how BJP performed across states during this period. BJP's won the largest share of assembly seats in Madhya Pradesh and Gujarat, as per my sample, followed by Rajasthan, Uttar Pradesh and Maharashtra (Figure 4).<sup>17</sup> Interestingly, three of the states (Gujarat, Uttar Pradesh and Maharashtra) where it has recorded the best electoral performance over the sample period also have the dubious distinction of being most riots prone.

**Figure 4: BJP's state wise electoral performance (1980-2000)**



Source: Author's calculations

Note: Estimates are for 151 districts, covering 15 states

<sup>17</sup> BJP's seat share in Maharashtra is exclusive of its key ally Shiv Sena

Eyeball evidence may thus indicate to BJP benefiting from riot events. In what follows I present some qualitative evidence connecting riot events with BJP's subsequent electoral performance.

### **3.3 BJP's electoral performance in the aftermath of riots: Qualitative Evidence**

#### ***Varanasi riots, November 1991***

On November 8, 1991 a serious riot broke out in Varanasi under the watch of BJP state government (Wilkinson, 2004). The riot was caused when a Hindu religious procession marched through a Muslim dominated part of the city, with a minimal police escort. The initial scuffle in response to setting off of firecrackers snowballed into four days of rioting in which seventeen people were killed.

Allegedly, the state government allowed the anti-Muslim procession to take place in one of the most sensitive areas as the bye-elections to fourteen assembly constituencies were due in two weeks. The leadership was worried that BJP would lose its precarious majority in the state assembly unless the Hindu vote consolidated behind the party (Wilkinson, 2004).

The party's strategy to win over the marginal Hindu voter worked in the bye elections. The party won 8 out of the 14 assembly constituencies and was able to maintain its slender majority in the state assembly.

#### ***Gujarat riots, February 2002***

On 27 February, 2002 riots erupted across Gujarat, then BJP ruled state, in the aftermath of a train burning incident in Godhra. The riots which engulfed most of the state left for a period of three days left about one thousand people dead in its wake.

Prior to the riots BJP been at the receiving end of election setbacks after losing two municipal elections and getting marginalized in most of the district councils (Jaffrelot, 2011). According to Jaffrelot (2011) the *Sangh Parivar*, the umbrella organization of which BJP is a constituent, used Godhra to unleash violence hoping to capitalize during early elections.

The party performed handsomely in the state elections held in December 2002. BJP returned to power with a record score of 126 seats out of a possible 182. The party also garnered over 50 percent of the votes polled. The results were starker in the districts most

affected by the rioting. The party won 42 out of 50 seats in the districts of Panchmahal, Dahod and Vadodara which were the most affected by the violence. According to an exit poll the Hindu votes were consolidated in favor of BJP, with both the upper castes and the Other Backward Castes (OBC) voting for the party en masse (ibid.).

Is it the case then riot incidences causally benefit BJP's electoral performance? Could it be possible that riot outcomes have continued to benefit BJP's electoral performance, in spite of the party projecting a shift towards moderation? In the following sections I discuss the empirical strategy and the data used to answer these questions.

## 4 Empirical Strategy

I carry out the empirical estimation in two parts, comparing the results from a non-instrumental with an instrumental approach. I propose using temperature variation as an instrument for Hindu-Muslim riots, building on the intuition from conflict-climate literature (Dell et. al, 2014).

In what follows I discuss the empirical strategy and results from the non-instrumental estimation, followed by a short description of potential endogeneity concerns. I then discuss the choice of instrument and alleviate any issues related to the identification strategy. I conclude the section with a discussion of the 2SLS framework.

### 4.1 Non-Instrumental Estimation

Equation 1 presents the empirical specification for the non-instrumental approach:

$$bjpvote_{i,t} = \alpha_i + \beta(riotoutcome_{i,t-1}) + X_{i,t} + \tau_T + e_{i,t} \quad (1)$$

Where the dependent variable is the log of BJP's vote share in district  $i$  in period  $t$  (biannual). Riot measures are the main explanatory variable of interest measuring number of riot incidences, number of deaths and duration of riots in days respectively. I use an inverse sine transformation of riot measures; whose relevance I will explain in section 4.3.  $\beta$  is the coefficient of interest and measures the elasticity of BJP's vote share with respect to different riot outcomes, which occur within 6 months prior to the elections. It would have been useful to test the impact of riot outcomes further close to the election period, for example within a lag of one or three month period. However, this reduces the sample

drastically to provide any insights. My choice of lag duration is consistent with Wilkinson (2004) who tests the predicting power of elections which are six or less months away on the probability of a riot (Wilkinson, 2004).

X is a set of other political and economic control variables. Among these district level wages and voter turnout are especially key for my identification strategy, as discussed in 4.2. The estimation accounts for both district  $\alpha_i$  and year  $\tau_T$  fixed effects.

Straightforward estimates of riot measures affecting BJP's electoral performance may however be biased for two reasons. BJP may be itself engineering riots to win elections, leading to the problem of reverse causality (Nellis et. al, 2015). Second, there may be some omitted variables which jointly determine the riot outcomes as well as BJP's electoral performance. For example, Muslim population share seems to have a nonlinear relationship with riot incidents, while it should be negatively correlated with BJP's electoral performance (Wilkinson, 2004).

I propose an instrumental variable approach to alleviate these potential endogeneity concerns. Specifically, I use temperature variation as an instrument for Hindu-Muslim riots. In what follows I argue for temperature variation as our choice of instrument.

## 4.2 Identification Strategy

There is a growing literature on the role of climate conditions in inciting conflict. The key idea being that *"changes in climate can alter the conditions under which certain social interactions occur and thus have the potential to change the likelihood that conflict results"* (Burke et. al). Existing literature refers to various mechanisms through which climactic conditions can impact conflict. For example, climate can increase the risk of conflict by reducing agricultural productivity and thus associated living standards (Miguel, Satyanath and Sergenti, 2004; Bruckner and Ciccone, 2011; Dell, 2012; Burke et al., 2009). Another pathway is the role of climate in population density changes, through induced migration, where rise in population is not matched by similar rise in productive labor (Bohra-Mishra et al., 2014; Feng et al., 2012; Marchiori et al., 2012).

Some authors suggest that climate can alter an aggressor's probability of success. This can either happen by changing the physical environment, for example access to roads during floods (Miguel et al., 2004; Fearon and Laitin, 2014) or compromising the opponent's strength, thus increasing the likelihood of an attacker's success (Bruckner and Ciccone, 2011; Chaney, 2013; Burke, 2012).

Finally, climate might alter the probability of conflict by affecting the psychological costs of employing violence, through induced anger or aggression (Card and Dahl, 2011; Ranson, 2014; Kenrick and Macfarlane, 1986).

I focus on the final two mechanisms to corroborate the use of temperature as an instrument for Hindu-Muslim riots. Drawing on the social interaction theory of crime, weather conditions that abet social interactions are likely to increase crime (Rotton and Cohn, 2003). Thus mild temperatures that encourage people to mobilize should increase the likelihood of a riot event. On the other hand very high temperatures should dissuade groups from mobilizing in streets and engage in riots.

The second mechanism draws on the theory that high temperature affects human judgment through heightened aggression and loss of control (Baumeister and Heatherton, 1996; Card and Dahl, 2011). Taking these two channels together we can postulate that the distribution of riots should be an inverted U shaped function of temperature. This hypothesis was first proposed by Baron and Bell's (1976) negative affect escape framework (NAE). According to this model moderately high temperatures cause individuals to behave aggressively, whereas very high temperatures result in escape from the situation. In our case moderately high temperature should increase the likelihood of riots by provoking aggressive behavior, whereas people would avoid outdoors at very high temperatures, reducing the likelihood of a riot (Rotton and Cohn, 2004).

There is both laboratory and empirical evidence linking temperature with intrapersonal and interpersonal violence. For example Kenrick and Macfarlane (1986) in a field experiment find that individuals exhibit higher likelihood of road rage on hot days. Baron and Bell (1976) in a lab experiment found that violent retaliation was at its peak at high ambient temperatures. Burke et al. (2014) in a meta-survey of 55 different studies on climate and conflict find out that deviations from temperature and precipitation patterns systematically increase the risk of conflict. They also conclude that contemporaneous temperature has the largest average effect, increasing the likelihood of intergroup conflict by 11.3%.

Notably, while earlier research has focused on the instantaneous effect of hot weather, using hourly, daily or weekly data (Bushman et al., 2005; Cohn and Rotton, 2000) recent empirical evidence points to cumulative impact of temperature on violence (Ranson, 2012). For example, Hsiang et al. (2011) show that the probability of civil conflicts in tropics rise during EL Nino (warm) years than during La Nina (cool) years.

It should be safe to assume that BJP's vote share would not systematically benefit from temperature variation, which would violate our identification strategy, except under two plausible circumstances. First, temperature may affect certain section of voters more, who may or may not vote for BJP, if it directly affects agrarian productivity and income (Dell et.

al, 2012). BJP's vote bank mainly comprises of middle class and urban voters, and hence its vote base is less likely to be affected directly by temperature related agricultural shock, in comparison to its rival parties (Chibber, 1997). Second, high temperature may reduce voter turnout which could affect BJP's electoral success as an incumbent. For example, Martina and Vega (2014) show in the case of Portugal that right-wing governments have lower vote share when turnout is higher.

I control for both agricultural wages and voter turnout in the empirical specification. Intuitively then temperature should satisfy the two conditions necessary for a valid instrument i.e. instrumental relevance and instrumental exogeneity.

### 4.3 Instrumental Variable Estimation

I re estimate equation (1) in a 2SLS framework, using temperature variation as an instrument for riot measures. The first stage is given in equation (2):

$$riotoutcome_{i,t-1} = \alpha + \gamma(tempvariation_{i,t-2}) + X_{i,t} + \tau_T + u_{i,t} \quad (2)$$

For the dependent variable I use an inverse hyperbolic sine transformation of riot variables. This is necessitated due to high proportion of zeroes among the riot variables which could skew the results in the first stage.<sup>18</sup> The coefficients on such a transformation can be interpreted in the same way as a log transformation.<sup>19</sup>

For instrument I use the lag z scores of temperature, a la Hidalgo et al. (2010). The z score essentially captures the deviation of temperature at district level from its long term mean. The advantage of using z scores is that it controls for seasonal patterns and thus any abnormalities at the district level. It also accounts for the wide range of climatic variation across a large country like India i.e. a degree Celsius variation in temperature will have different effect on the dry arid region of the North-west than the temperate weather of the North. I use square of the temperature z score to account for the non-linear relationship between temperature and conflict.

I do not control for the district fixed effects in the specification, as it immensely reduces the degrees of freedom.<sup>20</sup> However, instrumental regression's advantage is that it should correct for any omitted variable bias (Angrist and Pischke, 2008). One concern could be that the instrument is correlated with district specific characteristics which determine the average

<sup>18</sup> The inverse hyperbolic sign transformation of  $y_i$  is defined as  $\log(y_i + (y_i^2 + 1)^{1/2})$ .

<sup>19</sup> [http://worthwhile.typepad.com/worthwhile\\_canadian\\_initi/2011/07/a-rant-on-inverse-hyperbolic-sine-transformations.html](http://worthwhile.typepad.com/worthwhile_canadian_initi/2011/07/a-rant-on-inverse-hyperbolic-sine-transformations.html)

<sup>20</sup> The regression sample is about 220 observations, while district fixed effects would reduce 151 degrees of freedom

level of conflict. For example, difference in temperature levels may determine how institutions and thus conflict evolves across districts, which would hamper the identification strategy (Dell et. al, 2014). However, the use of within district temperature variation as an instrument should mitigate this concern. Moreover, I control for the variables necessary for the identification strategy in the first stage. Finally, I use year dummies to account for the time trend.

I now estimate the second stage using the following equation:

$$bjpvote_{i,t} = \alpha + \hat{\beta}(riotoutcome_{i,t-1}) + X_{i,t} + \tau_T + \hat{\epsilon}_{i,t} \quad (3)$$

$\hat{\beta}$  captures the elasticity of BJP's vote share with respect to random riot outcomes. In other words,  $\hat{\beta}$  shows the effect of riot outcomes on BJP's vote share, correcting for any bias due to reverse causality or omission of key explanatory variables.

## 5 Data and Descriptive Statistics

To carry out the empirical analysis I create a dataset combining state level elections' data with data on Hindu Muslim riots. The dataset is constructed biannually over a period from 1980 to 2000. Pre 1980 years are excluded since BJP in its current avatar was only formed in 1980. Post year 2000 analysis could not be carried out due to unavailability of data on Hindu Muslim riots. The dataset covers 151 out of 676 districts in India, across 15 key Indian states. In what follows I present a snapshot of the key variables, their construction and sources.<sup>21</sup>

Electoral data for the state assembly elections is sourced from Rikhil Bhavnani's dataset.<sup>22</sup> The electoral data is available at assembly level while rest of the data is available at district level. To mitigate this I match the assemblies, which are a smaller unit, to their respective districts. I thus create two indicators of BJP's electoral performance i.e. BJP voteshare and BJP seatshare. BJP voteshare is the average voteshare garnered by BJP across assemblies within a district/election round. BJP seatshare is the proportion of assembly seats garnered by BJP within a district/election round. I only use BJP voteshare as my dependent variable. I also create three control variables from the electoral dataset a) SC seatshare i.e. proportion of assemblies reserved under Scheduled Caste (SC) category per district, b)

<sup>21</sup> See appendix for the list of districts and states covered

<sup>22</sup> Bhavnani, Rikhil R., 2014, "India National and State Election Dataset", <http://dx.doi.org/10.7910/DVN/26526>, Harvard Dataverse, V2

average voter turnout per district and c) effective number of parties.<sup>23</sup> One concern could have been district delimitation i.e. redrawing of district as well as legislative territorial boundaries, which would have affected the consistency of data across time. However, delimitation in India was suspended between 1976 and 2001 and should not concern our analysis.<sup>24</sup>

Riots data is sourced from the Varshney-Wilkinson dataset. The dataset collates all riot incidents reported by The Times of India, an Indian national newspaper. While the original dataset is available till 1995, I use Mitra and Ray's (2014) version, who extend the data till 2000.

I use three measures of Hindu Muslim riots, *Riot incidence* i.e. the number of riots that happened within a district in six months; *Killed* i.e. the number of people killed during riots within a district biannually and *Riot Days* i.e. the average number of days of rioting within a district over a six month period.

Two issues have to be noted regarding the riots data. Firstly, the aggregate dataset only includes those districts where at least one riot observation was reported. This has a direct implication for our analysis i.e. we only capture the variation across districts which reported at least one riot event over the sample period. This is in line with other authors' treatment of these districts (for example Bohlken and Sergenti (2010), Mitra and Ray (2014), and Sarsons (2014)). Second, I set riot variables as zero for those periods where the dataset does not report any information. It is plausible that the Times of India may not have reported all riot incidents so that some missing observations get treated as zeroes. However, given that the newspaper reports the data for at least one period for all districts in the sample it gives me more confidence against missing values.

Temperature data is sourced from India water portal, and measures mean monthly maximum temperature averaged biannually for my analysis.<sup>25</sup> I use two different forms of temperature as instrument. While the former measures the temperature level, the latter is square of the long term deviation from its mean. I choose square of the deviation as there is evidence of non-linear relationship between temperature and conflict.<sup>26</sup>

---

<sup>23</sup> Effective number of parties are calculated using Laakso and Taagepera (1979) formula:

$$N = 1 / \sum_{i=1}^n p_i^2$$

Where n is the number of parties with atleast one vote, and  $p_i^2$  is the square of each party's voteshare.

<sup>24</sup> <http://eci.nic.in/delim/AboutDel.pdf>

<sup>25</sup> <http://www.indiawaterportal.org/>

<sup>26</sup> Our data supports that there is an inverse U shaped relationship between temperature and riot outcomes (See Appendix, Graph 5)

I control for district prosperity in my estimation using annual district level agricultural wage rate (male). Since over half of Indian working population is still dependent on agriculture, agricultural wage rate should be a good proxy for overall income.<sup>27</sup> The second advantage of using agricultural wage is that weather affects conflict in developing countries significantly through agricultural productivity. This may have a bearing on the exogeneity of my instrument, as explained in section 5.2, and controlling for agricultural wages should address that. I use the series for men as the data is more complete compared to the one for women. The data is sourced from Village Dynamics in South Asia (VDSA), ICRISAT.<sup>28</sup> Table 1 presents the descriptive statistics for the main variables. BJP has an average vote share over 13 percent, as per the sample. Although the number of riot incidents and deaths seem to be low, the important aspect is the variation. For example, less than one person was killed on average in a riot per district (bi annually). However, the standard deviation is almost 11 deaths per district.

**Table 1: Descriptive Statistics**

	Mean	Standard Deviation	Observations	Data Source
A. Electoral Outcome				
BJP Vote (%)	13.3	10	748	Rikhil Bhavnani
Congress Vote (%)	20.7	8.7	748	Rikhil Bhavnani
B. Riot Indicators				
Number of Riots	0.1	0.4	6342	Varshney-Wilkinson
Killed	0.7	10.9	6342	Varshney-Wilkinson
Riot Duration (Days)	0.2	1.3	6342	Varshney-Wilkinson
C. Rainfall Measure				
Maximum temperature (degree Celsius)	31.5	3	5838	India Water Portal
D. Agricultural Wages				
District wage rate for Men (Rupees per hour)	21.8	16.4	2746	ICRISAT
E. Control Variables				
SC seat share (%)	13.6	12.3	748	Rikhil Bhavnani
Effective number of parties	9.8	8	748	Rikhil Bhavnani
Voter turnout (%)	60.2	10.8	748	Rikhil Bhavnani

<sup>27</sup> [http://censusindia.gov.in/Census\\_And\\_You/economic\\_activity.aspx](http://censusindia.gov.in/Census_And_You/economic_activity.aspx)

<sup>28</sup> <http://vdsa.icrisat.ac.in/vdsa-mesodata.asp>

## **6 Results**

The section sums up the results. I first present the baseline results from the non-instrumental and instrumental regressions, and mitigate any concerns related to the weakness of the instrument. I then perform some robustness checks to identify the contexts in which riots are more advantageous to BJP's electoral performance than others.

### **6.1 Baseline Results**

The results from equation (1) are reported in Table 2. Riot outcomes have a positive and significant effect on BJP's electoral performance in majority of the specifications. BJP's vote share improves marginally i.e. between 0.06 to 0.35 percent conditional on the nature of riot outcomes. The riot variables lose their significance in two of the three specifications when I account for time trend, and in all three specifications when I control for both district fixed effects and time trend. However, the coefficients stay positive across all the specifications. In, other words there seem to be a weak but positive relationship between riot outcomes and BJP's electoral performance (Table 2).

**Table 2 : Riot Outcomes and BJP's Electoral Performance (Non-Instrumental approach)**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
VARIABLES	BJP Vote(t)	BJP Vote(t)	BJP Vote(t)	BJP Vote(t)	BJP Vote(t)	BJP Vote(t)						
Number of Riots (t-1)	0.349*** (0.097)			0.184** (0.082)			0.162 <sup>o</sup> (0.109)			0.047 (0.111)		
Riot Days (t-1)		0.202*** (0.057)			0.112*** (0.041)			0.090 (0.063)			0.036 (0.061)	
Killed (t-1)			0.108** (0.048)			0.062** (0.026)			0.060 (0.046)			0.037 (0.035)
District Wage (Male)	0.020*** (0.003)	0.019*** (0.003)	0.019*** (0.003)	0.017*** (0.003)	0.017*** (0.003)	0.017*** (0.003)	0.004 (0.005)	0.004 (0.005)	0.003 (0.005)	-0.002 (0.006)	-0.002 (0.006)	-0.002 (0.006)
Sched. Cast Seat Share (%)	-0.018** (0.007)	-0.017** (0.007)	-0.017** (0.007)	-0.029 (0.026)	-0.025 (0.026)	-0.028 (0.026)	-0.008 (0.006)	-0.008 (0.006)	-0.008 (0.006)	-0.046** (0.022)	-0.046** (0.019)	-0.053** (0.020)
Effective Number of Parties	-0.050*** (0.016)	-0.051*** (0.016)	-0.052*** (0.016)	-0.036*** (0.011)	-0.037*** (0.011)	-0.037*** (0.011)	-0.050*** (0.017)	-0.050*** (0.017)	-0.051*** (0.017)	-0.030** (0.012)	-0.030** (0.012)	-0.030** (0.012)
Voter Turnout	-2.206*** (0.479)	-2.235*** (0.481)	-2.328*** (0.481)	1.509*** (0.504)	1.482*** (0.500)	1.411*** (0.498)	-1.775*** (0.546)	-1.787*** (0.548)	-1.815*** (0.547)	1.854** (0.730)	1.856** (0.710)	1.854*** (0.695)
Constant	11.76*** (2.034)	11.78*** (2.043)	12.13*** (2.047)				11.06*** (2.355)	11.06*** (2.363)	11.16*** (2.360)			
District Fixed Effects				Y	Y	Y				Y	Y	Y
Observations	240	240	240	240	240	240	240	240	240	240	240	240
R-squared	0.268	0.264	0.259	0.255	0.255	0.252	0.437	0.436	0.437	0.477	0.477	0.479
Number of districts				89	89	89				89	89	89

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1 <sup>o</sup>p<0.15

Notes: Column 1-3 are ordinary OLS. Column 4-6 control for district fixed effects and Column 7-9 control for time trend. Column 10-12 control for both district and time fixed effects.

I now report the results from equation (2), the first stage of my 2SLS framework, in Table 3. We would expect a negative sign on our instrument variable. The negative sign alludes to the non-linear relationship between temperature and conflict i.e. moderately high temperatures cause individuals to behave aggressively, whereas very high temperatures result in escape from the situation. The instrument has a negative and strongly significant effect on all three riot measures. The negative sign confirms the non-linear relationship between temperature and conflict, i.e. people avoid outdoors when temperature rises significantly, thus reducing the likelihood of riots.

**Table 3: Temperature Variation and Riots (First stage results)**

VARIABLES	(1) Number of Riots (t-1)	(2) Killed (t-1)	(3) Riot Days (t-1)
Temperature Variation (t-2)	-0.001*** (0.000)	-0.002** (0.001)	-0.002*** (0.001)
District Wage (Male)	0.002 (0.004)	0.016 (0.017)	0.006 (0.008)
Sched. Cast Seat Share (%)	0.009* (0.004)	0.014* (0.007)	0.009* (0.005)
Effective Number of Parties	-0.004 (0.004)	-0.003 (0.007)	-0.005 (0.005)
Voter Turnout	-0.372* (0.214)	-0.444 (0.355)	-0.596** (0.284)
Constant	0.738 (0.921)	0.213 (1.910)	1.468 (1.266)
F-Stat	7.5	4.7	7.4
Observations	219	219	219
R-squared	0.286	0.132	0.271

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Note: Columns 1-3 control for time dummies

All three specifications confirm that the riot measures are endogenous and hence necessitate the use of instrumental variable (Mackinnon, 1993).<sup>29</sup> However, I get the best F-statistic score of 7.5 across the three regressions. We may potentially be dealing with the problem of weak instrument. In other words, the instrument may be weakly correlated with the endogenous variable so that it would not overcome the bias of OLS, especially when the sample size is small, as is our case (Murray, 2006). Stock and Yogo (2002) suggest an F-statistic of over 10 to be assured of the strength of the instrument; however this is not a theorem.

Angrist and Pischke (2008) state that the bias in 2SLS increases with the number of instruments. The bias is the least in case of just identified 2SLS. Thus even with weak instruments just identified 2SLS is approximately centered around its median. However they warn that with weak instruments just identified models could be highly unstable.

<sup>29</sup> The author proposes use of Durbin-Wu-Hausman test with the null hypothesis that the problematic explanatory variable can be treated as exogenous and hence accept the consistency of OLS results. A rejection of null confirms the endogeneity of the variable in question.

I perform a battery of tests to mitigate the concern of weak instrumentation. First, I run the reduced form regression of BJP's electoral performance on the exogenous instruments, as shown in equation (4) below.

$$bjpvote_{i,t} = \alpha + \hat{Y}(tempvariation_{i,t-2}) + X_{i,t} + \tau_r + v_{i,t} \quad (4)$$

The reduced form is proportion to the causal effect of interest i.e. it will show us the direction of effect of riot outcomes on BJP's electoral performance. The advantage is that reduced form estimate, being OLS, would be unbiased.

The results are reported in Table 4. The statistical significance of  $\hat{Y}$  rejects the null that riot outcomes have no causal effect on BJP's electoral performance. The negative sign on  $\hat{Y}$  confirm that riot outcomes should have a positive and significant effect on BJP's electoral performance, since the instrument itself is negatively correlated with the riot outcomes.

**Table 4: Temperature Variation and BJP's Electoral Performance (Reduced Form)**

VARIABLES	(1) BJP Vote (t)
Temperature Variation (t-2)	-0.005*** (0.001)
District Wage (Male)	-0.003 (0.008)
Sched. Cast Seat Share (%)	-0.006 (0.004)
Effective Number of Parties	-0.058*** (0.019)
Voter Turnout	-1.595*** (0.572)
Constant	10.82*** (2.574)
Observations	219
R-squared	0.505

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Note: Column 1 controls for time dummies in the specification

I crosscheck the result by performing the weak instrument robust test.<sup>30</sup> I test the null that the effect of riot outcomes on BJP's electoral performance is equal to zero. Table 4a (appendix) shows that the null is rejected for all three riot outcomes. These results validate that riot outcomes have a significant effect on BJP's vote share.

I now ascertain the elasticity of BJP's vote share with respect to riot outcomes from the second stage. The results are reported in Table 5. Random riot outcomes have a positive and significant effect on BJP's electoral outcome. The coefficients are bigger and statistically significant in comparison to the non-instrumental regressions. BJP's vote share increases by 2.9%-4.4% in response to a random riot outcome, if it happened within six months prior to the elections.

**Table 5: Riot Outcomes and BJP's Electoral Performance**

VARIABLES	(1) BJP Vote (t)	(2) BJP Vote (t)	(3) BJP Vote (t)
Number of Riots (t-1)	4.412** (1.83)		
Killed (t-1)		2.888** (1.468)	
Riot Days (t-1)			3.405** (1.404)
District Wage (Male)	-0.012 (0.022)	-0.049 (0.051)	-0.024 (0.032)
Voter Turnout	0.048 (1.121)	-0.312 (1.206)	0.436 (1.278)
Sched. Cast Seat Share (%)	-0.044** (0.019)	-0.047** (0.023)	-0.037** (0.018)
Effective Number of Parties	-0.040** (0.018)	-0.051** (0.025)	-0.041** (0.019)
Constant	7.567* (4.156)	10.21* (5.565)	5.822 (4.706)
Observations	219	219	219

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Note: Columns 1-3 control for time dummies

<sup>30</sup> Rivtest package in stata calculates confidence intervals which have correct coverage probability irrespective of the instrument's strength or weakness

To ascertain whether these magnitudes are reliable, even if the instrument is weak; I revisit the weak instrument robustness test. This time I test the null that the magnitude of riot outcomes on BJP's electoral performance is equal to the point estimates reported in the second stage.

A failure to reject the null would give us confidence in the  $\hat{\beta}$  as reported in the second stage. The AR statistic reported in Table 5a (appendix) fails to reject the null for all three riot outcomes. This assures us that point estimates are stable.

I now turn to re estimating the instrumental equation using LIML (Limited information maximum likelihood).<sup>31</sup> The LIML estimator is approximately median unbiased for over-identified models (Angrist and Pischke, 2008). The main advantage of LIML in comparison to 2SLS is that it provides finite sample bias reduction.

Similarity of results under LIML specification would further assure us about the point estimates reported in second stage. The results are reported in Table 6. The point estimates are fairly similar to the ones estimated under 2SLS, which gives us confidence in our results, even if the instrument not strong enough.

---

<sup>31</sup> To estimate an over identified model I use average maximum temperature along with temperature z squared as two instruments for the endogenous riot variables.

**Table 6: Riot Outcomes and BJP's Electoral Performance (LIML)**

VARIABLES	(1) BJP Vote (t)	(2) BJP Vote (t)	(3) BJP Vote (t)
Number of Riots (t-1)	4.526*** (1.685)		
Killed (t-1)		2.766** (1.179)	
Riot Days (t-1)			3.351*** (1.217)
District Wage (Male)	-0.012 (0.022)	-0.047 (0.050)	-0.024 (0.031)
Voter Turnout	0.010 (1.162)	-0.379 (1.119)	0.398 (1.238)
Sched. Cast Seat Share (%)	-0.045** (0.020)	-0.046** (0.022)	-0.037** (0.018)
Effective Number of Parties	-0.040** (0.018)	-0.051** (0.025)	-0.041** (0.019)
Constant	7.473* (4.329)	10.25* (5.341)	5.910 (4.629)
Observations	219	219	219

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Note: Columns 1-3 control for time dummies

## 6.2 Robustness Checks

The results indicate that BJP may have an incentive to instigate riots for electoral benefits. This is in line with the *electoral incentives* theory (Wilkinson, 2004). Specifically, the theory “suggest that parties that represent elites within ethnic groups will often- especially in the most competitive seats- use polarizing anti-minority events in an effort to encourage members of their wider ethnic category to identify with their party and the “majority” identity rather than a party that is identified with economic redistribution or some ideological agenda”.<sup>32</sup> I further test the framework by analyzing the contexts where riots are more advantageous for BJP’s electoral performance than others.

### 6.2.1 When BJP is already in power

While BJP seems to benefit electorally from random riot events, voters may also see it an indicator of poor governance. This is because the state governments control the institutions for example the police force to prevent riots (Wilkinson, 2004). While there is empirical evidence that BJP may have benefited electorally in Gujarat post 2002 riots (Dhattiwala and Biggs, 2012; Jha, 2014), some also believe that the riots were partially responsible for BJP’s loss in subsequent national elections.<sup>33</sup> I re estimate equation 3 by interacting riot outcomes with a dummy variable for BJP being the incumbent government. Results are presented in Table 7. While riot incidences seem to have a stronger effect on BJP’s vote share in BJP ruled states, the results are insignificant for other two riot outcomes. This may indicate to a countervailing effect of punishment for poor governance on gains from voter polarization.

---

<sup>33</sup> The then incumbent Prime Minister AB Vajpayee considered Gujarat riots as one of the reasons why BJP lost the elections.  
<http://www.rediff.com/news/2004/jun/12abv.htm>

**Table 7: Riot Outcomes and BJP's Electoral Performance**

VARIABLES	(1) BJP Vote (t)	(2) BJP Vote (t)	(3) BJP Vote (t)
Number of Riots (t-1) x BJP ruled state	0.918* (0.525)		
Killed (t-1) x BJP ruled state		0.688 (0.676)	
Riot Days (t-1) x BJP ruled state			0.769 (0.551)
District Wage (Male)	-0.010 (0.022)	-0.048 (0.052)	-0.023 (0.032)
Voter Turnout	0.007 (1.125)	-0.344 (1.207)	0.405 (1.284)
Sched. Cast Seat Share (%)	-0.046** (0.020)	-0.048** (0.024)	-0.038** (0.018)
Effective Number of Parties	-0.040** (0.018)	-0.051** (0.025)	-0.041** (0.019)
Constant	7.683* (4.197)	10.31* (5.588)	5.906 (4.741)
Observations	219	219	219

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Note: Columns 1-3 control for time dummies

### 6.2.2 Electoral benefit from riots during BJP's "extreme" phase

As discussed in Section 3.2, BJP's political evolution from 1980 to 2000 can be divided into three distinct phases. I test whether random riot outcomes had a differential impact on its electoral performance during its "extreme" phase (89-98). I modify equation 3 to interact riot outcomes with a dummy representing if BJP was in its radical phase or not. Results presented in Table 8 show there is no discernible difference of riot outcomes on BJP's electoral performance, conditional on the political alignment of the party.

**Table 8: Riot Outcomes and BJP's Electoral Performance**

VARIABLES	(1) BJP Vote (t)	(2) BJP Vote (t)	(3) BJP Vote (t)
Number of Riots (t-1) x Extreme phase	140.0 (968.3)		
Killed (t-1) x Extreme phase		17.19 (20.03)	
Riot Days (t-1) x Extreme phase			89.52 (398.2)
District Wage (Male)	-0.131 (0.836)	-0.065 (0.059)	-0.099 (0.372)
Voter Turnout	-24.77 (165.1)	-2.044 (3.780)	-14.80 (63.49)
Sched. Cast Seat Share (%)	0.324 (2.479)	0.004 (0.0596)	0.190 (0.987)
Effective Number of Parties	-0.619 (3.883)	-0.148 (0.119)	-0.413 (1.581)
Constant	17.77 (108.6)	5.415 (14.54)	9.291 (64.48)
Observations	219	219	219

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Note: Columns 1-3 control for time dummies

### 6.2.3 Excessive violence and BJP's electoral performance

According to Jaffrelot (2011) too many riots should cancel out any electoral gains in terms of votes. This is because even Hindu elites are affected by the tumult generated by repeated violence and curfews. This is especially true for businessmen and traders, who are key constituents of BJP's support base, when violence is excessive and drawn out. For example, the violence following Babri mosque's demolition was the worst that India had seen since partition (ibid.). Consequently, BJP was also dissuaded from using riots as a strategy as its stakes grew bigger in national politics, as well as under pressure from its allies which did not share its Hindutva ideology (ibid.).

We should observe an inverse U shaped relationship between riot outcomes and BJP's electoral performance, if this relationship holds. To test this hypothesis I re estimate equation three using a square of riot outcomes as key independent variable. The results are presented in Table 9. The negative sign on the coefficients for the square of the riot variables indicate to a non-linear relationship. However the effect is insignificant.

**Table 9: Riot Outcomes and BJP's Electoral Performance**

VARIABLES	(1) BJP Vote (t)	(2) BJP Vote (t)	(3) BJP Vote (t)
Number of Riots (t-1)	20.61 (238.0)		
Number of Riots Squared (t-1)	-39.28 (570.6)		
Killed (t-1)		20.93 (99.67)	
Killed Squared (t-1)		-4.258 (22.91)	
Riot Days (t-1)			5.741 (5.798)
Riot Days Squared (t-1)			-1.859 (4.135)
District Wage (Male)	0.00847 (0.314)	0.344 (2.131)	3.52e-05 (0.0541)
Voter Turnout	3.496 (53.50)	6.788 (41.63)	0.168 (1.332)
Sched. Caste Seat Share (%)	-0.0161 (0.400)	-0.0777 (0.211)	-0.0449* (0.0255)
Effective Number of Parties	-0.0622 (0.298)	0.154 (1.128)	-0.0367 (0.0250)
Constant	21.96 (198)	-27.37 (215)	8.208 (6.494)
Observations	219	219	219

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Note: Columns 1-3 control for time dummies

## 6.2.4 Electoral effect on BJP's principal opposition

Riots should polarize votes away from parties that are identified with economic redistribution or some ideological agenda, as postulated by the electoral incentives framework. I test this hypothesis by estimating the effect of random riot outcomes on Indian National Congress (INC), principal rival of BJP and having economic redistribution as one of its key political objectives, party's electoral performance.<sup>34</sup> Results are presented in Table 10. The party's vote share declines by 1.4%-2% in response to random riot outcomes. This further lends credence to the electoral incentives framework that anti-minority events like Hindu-Muslim riots lead to a transfer of votes from INC, purporting an economically inclusive agenda towards BJP, which has positioned itself as a rightwing Hindu nationalist party. Thus, such riots such further benefit BJP's electoral performance in constituencies (or states) where it is in direct electoral battle with the INC.

**Table 10: Riot Outcomes and Congress's Electoral Performance**

VARIABLES	(1) Congress Vote (t)	(2) Congress Vote (t)	(3) Congress Vote (t)
Number of Riots (t-1)	-2.013* (1.179)		
Killed (t-1)		-1.243 (0.839)	
Riot Days (t-1)			-1.377* (0.776)
District Wage (Male)	-0.001 (0.008)	0.015 (0.021)	0.004 (0.012)
Voter Turnout	-0.253 (0.614)	-0.117 (0.590)	-0.302 (0.585)
Sched. Cast Seat Share (%)	0.014 (0.013)	0.014 (0.015)	0.009 (0.009)
Effective Number of Parties	-0.008 (0.008)	-0.011* (0.006)	-0.012** (0.006)
Constant	1.601 (1.744)	0.747 (2.133)	2.136 (1.739)
Observations	237	237	237

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Note: Columns 1-3 control for time dummies

<sup>34</sup> <http://inc.in/about-congress/mission>

## 6.2.5 Controlling for most riot prone districts

To ensure that the results are not being driven the most riots prone areas, I drop five districts from my sample<sup>35</sup> and re estimate equation 3. The results are shown in Table 11. Riot outcomes still have a positive and significant effect on BJP's electoral performance. In fact the effect is slightly stronger when we exclude the most riot prone districts from the sample. This assures us that the results are not being driven by a few outliers.

**Table 11: Riot Outcomes and BJP's Electoral Performance**

VARIABLES	(1)	(2)	(3)
	BJP Vote (t)	BJP Vote (t)	BJP Vote (t)
Number of Riots (t-1)	5.365*** (1.858)		
Killed (t-1)		3.446** (1.641)	
Riot Days (t-1)			3.696*** (1.341)
District Wage (Male)	-0.017 (0.025)	-0.065 (0.058)	-0.027 (0.033)
Voter Turnout	-0.080 (1.284)	-0.186 (1.395)	-0.042 (1.077)
Sched. Cast Seat Share (%)	-0.033** (0.015)	-0.036** (0.018)	-0.031** (0.014)
Effective Number of Parties	-0.045** (0.0214)	-0.058** (0.0290)	-0.050** (0.0202)
Constant	8.887* (5.020)	10.80* (6.526)	8.130* (4.374)
Observations	209	209	209

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Note: Columns 1-3 control for time dummies

<sup>35</sup> Most riot prone districts include Mumbai, Ahmadabad, Baroda, Meerut and Hyderabad

## 7 Conclusion

The paper set out to understand whether Hindu-Muslim riots causally affect BJP's electoral performance. I find a positive and significant effect of random riot events on BJP's vote share across state assembly elections, over a twenty year period. These riots also seem to hurt the electoral performance of BJP's principal opponent i.e. Indian National Congress. These results lend further credence to the "electoral incentives" hypothesis i.e. anti-minority events polarize votes towards parties representing majoritarian ideology. The results are line with localized studies (Dattiwala and Biggs, 2012; Jha, 2014) which indicate to polarization of votes towards BJP in the aftermath of 2002 Gujarat riots.

BJP may thus have an incentive to instigate riots to benefit electorally. However, the paper does not establish the mechanisms through which BJP can actually cause voter polarization (and ensuing riots). The closest evidence comes from Blakeslee (2013), who shows that BJP's use of Ram Rath Yatra in 1991, high profile road campaign with liberal use of Hindu religious metaphors, raised the probability of Hindu Muslim riots by 9 percent as well as increased its vote share in the ensuing national elections.

I believe that a more systematic study of such electoral mechanisms employed by the party to polarize votes would add further nuance to the argument. Till then the daggers may remain drawn on the party's role in fomenting communal disharmony.

## Appendix

**Table 4a: Weak Instrument Robust Test (Anderson Rubin)**

	(1)		(2)		(3)	
<i>H0</i>	$\hat{\beta}$ (Number of Riots (t-1))=0		$\hat{\beta}$ (Killed (t-1))=0		$\hat{\beta}$ (Riot Days (t-1))=0	
Test	Statistic (chi2(1) )	p-value	Statistic (chi2(1) )	p-value	Statistic (chi2(1) )	p-value
AR	34.89	0.000	34.89	0.000	3.6	0.058
Wald	5.81	0.016	3.87	0.049	2.63	0.105

Note: Wald test is not robust to weak instruments

**Table 5a: Weak Instrument Robust Test (Anderson Rubin)**

	(1)		(2)		(3)	
<i>H0</i>	$\hat{\beta}$ (Number of Riots (t-1))=4.412		$\hat{\beta}$ (Killed (t-1))=2.888		$\hat{\beta}$ (Riot Days (t-1))=3.405	
Test	Statistic (chi2(1) )	p-value	Statistic (chi2(1) )	p-value	Statistic (chi2(1) )	p-value
AR	0.00	0.100	0.00	0.100	3.60	0.100
Wald	0.00	0.100	0.00	0.100	2.63	0.100

Note: Wald test is not robust to weak instruments

## **List of States Covered**

1. Andhra Pradesh
2. Assam
3. Bihar
4. Gujarat
5. Haryana
6. Jammu and Kashmir
7. Karnataka
8. Madhya Pradesh
9. Maharashtra
10. New Delhi
11. Orissa
12. Rajasthan
13. Tamil Nadu
14. Uttar Pradesh
15. West Bengal

## List of Districts Covered

1 Agra	31 Bhadrak	61 Goalpara	91 Mandsaur	121 Purulia
2 Ahmadabad	32 Bhagalpur	62 Gonda	92 Mandya	122 Raigarh
3 Ahmadnagar	33 Bhavnagar	63 Gulbarga	93 Meerut	123 Rajauri
4 Akola	34 Bhilwara	64 Hailkandi	94 Moradabad	124 Rajsamand
5 Aligarh	35 Bhopal	65 Hassan	95 Munger	125 Rampur
6 Allahabad	36 Bijapur	66 Howrah	96 Murshidabad	126 Rangareddi
7 Ambedkar Nagar	37 Bijnor	67 Hyderabad	97 Muzaffarnagar	127 Ratlam
8 Amravati	38 Bombay	68 Indore	98 Muzzaffarpur	128 Ratnagiri
9 Anand	39 Bulandshahr	69 Jaipur	99 Mysore	129 Rohtas
10 Anantapur	40 Buldana	70 Jalgaon	100 Nadia	130 Sabarkantha
11 Anantnag	41 Cachar	71 Jalna	101 Nagaon	131 Saharanpur
12 Araria	42 Calcutta	72 Jalpaiguri	102 Nagaur	132 Sangli
13 Aurangabad	43 Central	73 Jammu	103 Nagpur	133 Satara
14 Azamgarh	44 Chennai	74 Jamnagar	104 Nalanda	134 Sehore
15 Badaun	45 Chitradurga	75 Jhalawar	105 Nanded	135 Sirohi
16 Bahraich	46 Chittoor	76 Junagadh	106 Nashik	136 Sitamarhi
17 Baleshwar	47 Chittorgarh	77 Kachchh	107 Nawada	137 Sitapur
18 Banas Kantha	48 Cuttack	78 Kaira	108 NewDelhi	138 Solapur
19 Bandipore	49 Dakshina Kannada	79 Kamrup	109 Nilgiris	139 South24Parganas

20 Bangalore	50 Dharwad	80 Kanniyakumari	110 North24Parganas	140 Srinagar
21 Bangalore Rural	51 Dhubri	81 Kanpur(Urban)	111 North East	141 Supaul
22 Banswara	52 Dindigul	82 Kolar	112 Pali	142 Surat
23 Bara Banki	53 Doda	83 Kolhapur	113 Panchmahals	143 Thane
24 Bareilly	54 East Godavari	84 Kota	114 Parbhani	144 Tirunevli
25 Baroda	55 Etah	85 Kurnool	115 Pashchim Champaran	145 Tonk
26 Baruch	56 Faizabad	86 Latur	116 Patan	146 Tumkur
27 Barwani	57 Faridabad	87 Lucknow	117 Patna	147 Ujjain
28 Basti	58 Gandhinagar	88 Mahbubnagar	118 Pilibhit	148 Uttar Kannada
29 Beed	59 Gaya	89 Mahesana	119 Pune	149 Varanasi
30 Belgaum	60 Ghaziabad	90 Malda	120 Purnia	150 Virudhunagar
				151 Yavatmal

## Bibliography

1. Mitra, A, & Ray, D., "Implications of an economic theory of conflict: Hindu-Muslim violence in India", *Journal of Political Economy* (2014).
2. Miguel, E., Satyanath, S. & Sergenti, E., "Economic Shocks and Civil Conflict: An Instrumental Variables Approach" , *Journal of Political Economy* (2004), vol. 112, no. 4.
3. Collins, W. & Margo, R., "The Economic Aftermath of the 1960s Riots in American Cities: Evidence from Property Values", *The Journal of Economic History*, Cambridge University Press, vol. 67(04), pages 849- 883, December.
4. Jha S., "'Unfinished Business': Historic Complementarities, Political Competition and Ethnic Violence in Gujarat", *Journal of Economic Behavior and Organization* (2014), Vol. 104, Pages 18-36.
5. Bohlken, A. & Sergenti, E., "Economic growth and ethnic violence: An empirical investigation of Hindu–Muslim riots in India", *Journal of Peace Research* (2010), Vol. 47(5) 589–600.
6. Angrist J. & Krueger A , "Instrumental variables and the search for identification: From supply and demand to natural experiments", *The Journal of Economic Perspectives* (2001)
7. Murray M., "Avoiding invalid instruments and coping with weak instruments", *Journal of Economic Perspectives* (2006)
8. Hidalgo F., Naidu S., Nichter S. and Richardson N., "Economic determinants of land invasion", *The Review of Economics and Statistics* (2010)
9. Horowitz D., "Ethnic groups in conflict", Berkley: University of California Press (1985).
10. Varshney A., "Ethnic conflict and civic life: Hindus and Muslims in India", New Haven: Yale University Press (2002).
11. Wilkinson S., "Votes and violence: Electoral competition and ethnic riots in India", Cambridge, UK: Cambridge University Press (2004).
12. Dhattiwala R. and Biggs M., "The political logic of ethnic violence: The anti-muslim pogrom in Gujarat", *Politics and Society* 40(4) 483-516 (2012).
13. Gurr, T.R. & Duvall, R., "Civil Conflict in the 1960s: A Reciprocal Theoretical System with Parameter Estimates", *Comparative Political Studies*, vol. 6, no. 2, Jul., pp. 135-69 (1973).
14. Nellis, G., Weaver, M. & Rosenzweig, S., "Do parties matter for ethnic violence? Evidence from India", Yale University, Working Paper (2014).
15. Arcand, J. & Chakraborty P., Department of Economics, "What explains ethnic violence? Evidence from Hindu-Muslim riots in India", The Graduate Institute, Working Paper (2013).
16. Sarsons H, "Rainfall and Conflict", Yale University, Working Paper (2014).
17. Shah G., "Communal riots in Gujarat: Report of a Preliminary Investigation", *Economic and Political Weekly* 5, no. 3/5 (1970).
18. Tambiah S., "Reflections on Communal Violence in South Asia", *The Journal of Asian Studies* 49, no. 4 (1990): 741-60.
19. Dell, M, Jones B & Olken B, "What do we learn from the weather? The new climate economy literature", *Journal of Economic Literature*, Forthcoming (2014)
20. Burke, M., Hsiang S.M. & Miguel E. , "Climate and conflict", National Bureau of Economic Research, Working paper (2014)

21. Rotton J. and Cohn E., "Outdoor temperature, climate control, and criminal assault: The spatial and temporal ecology of violence", *Environment and Behavior*, Vol. 36 No. 2 (2004)
22. Dell M., Jones B. and Olken B., "Temperature shocks and economic growth: Evidence from the last half century", *American Economic Journal: Macroeconomics* (2012)
23. Ranson M., "Crime, weather and Climate change", M-RCBG working paper series (2012)
24. Angrist J. and Pischke J. "Mostly harmless econometrics: An empiricist's companion", Princeton University Press: Princeton (2008).
25. Jaffrelot C., "Religion, Caste and Politics in India", Oxford University Press: Oxford (2011)
26. Jaffrelot C., "Refining the moderation thesis. Two religious parties and Indian democracy: the Jana Sangh and the BJP between Hindutva radicalism and coalition politics", Routledge (2014).
27. Brass P., "Forms of Collective Violence: Riots, Pogroms and Genocide in Modern India", Three Essay Collectives (2011)
28. Chibber P., "Who voted for Bharatiya Janta Party?", *British Journal of Political Science* (1997)
29. Martins R. and Veiga F., "Does voter turnout affect the votes for the incumbent government?", *European Journal of Political Economy* (2014).
30. Chandra K., "Why voters in patronage democracies split their tickets: Strategic voting for ethnic parties", *Electoral Studies* (2009)
31. Blakeslee D., "Propoganda and Ethno-Religious Politics in Developing Countries: Evidence from India", Working paper (2013).