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MONASH BUSINESS SCHOOL

Department of Economics
ISSN number 1441-5429

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Discussion Paper no. 2023-22

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Keywords: Political alignment, Naxalite insurgency, security, India

JEL Classification: H11, H41, H56, D72

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Ashani Amarasinghe†, Pushkar Maitra‡and Yuchen Zhong§

October 2023

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*We have benefited from discussions with and comments from Kathryn Baragwanath, Gautam Bose, Gaurav Datt, Lata Gangadharan, David Kreitmeir, Claudio Labanca, Adit Maitra, Federico Masera, Nidhiya Menon, Rajesh Ramachandran, Saurabh Singhal and Ben Wong. We thank participants at the Sydney Development Economics Group Workshop, Semi-Periodic Agricultural & Development Economics Research Symposium at the University of Sydney, the Australasian Development Economics Workshop (ADEW) and the Melbourne Political Science/Political Economy Meetings for their comments and suggestions. The usual caveat applies. We thank Paul Raschky for giving us access to the SNL Minerals and Mining data.

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1 Introduction

It is argued that better economic outcomes prevail when governments at different hierarchical levels are politically aligned. There is, for example, a large literature on distributive politics that investigates whether and how the alignment of local governments with upper-level governments increases intergovernmental transfers or grants allocated to local areas (see, for example, Ansolabehere and Snyder Jr, 2006, Solé-Ollé and Sorribas-Navarro, 2008, Arulampalam et al., 2009, Hsieh et al., 2011, Brollo and Nannicini, 2012, Albouy, 2013, Asher and Novosad, 2017, Fafchamps and Labonne, 2017, Hahn et al., 2019, Mahadevan and Shenoy, 2023). This literature argues that politicians maximize electoral advantage both by delivering goods and services to their own constituencies, and by reducing service quality in opposition constituencies.

In this paper we examine how political alignment affects the delivery of public goods, specifically, security. Our focus is on the Naxalite insurgency (also termed as the problem of Left Wing Extremism) in India, an ongoing conflict between the government of India and Naxalite insurgents.[1] The scale and gravity of this insurgency is amply demonstrated by the assertion by the former Prime Minister of India, Dr. Manmohan Singh, in 2009, that the *Naxalite insurgency is the single biggest internal security threat facing the country.* Nilakantan and Singhal (2011) argue that the Naxalite insurgency has reduced economic output in the affected states (called the Red Corridor of India) by almost 12%, a number that becomes particularly relevant because the region affected by this conflict is possibly among India's poorest.[2] A large literature identifies Naxalite activity at the district level as being correlated with poverty, illiteracy, land inequality, forest cover, rainfall shocks, mineral prices and population share of marginalized castes and tribes. See for example Borooah (2008), Iyer (2009), Hoelscher et al. (2012), Gomes (2015), Kennedy (2015), Ghatak and Vanden Eynde (2017), Gawande et al. (2017), Dasgupta et al. (2017), Khanna and Zimmermann (2017), Vanden Eynde (2018), Mukherjee (2018a), Mukherjee (2018b), Shapiro and Vanden Eynde (2022).

What is political alignment and why does it matter? State (provincial) legislative assemblies in India are made up of elected members from different constituencies. The party (or coalition) with most elected representatives forms the state government. Our measure of

[1] See Section 2.2 for more on the background of the Naxalite movement in India.

[2] Of the 140 most backward districts of the country, more than 50% are in the high conflict states. 29% of all districts in the country are located in these high conflict states.

political alignment is based on the partisan affiliation of the state government and that of the elected members of local constituencies. Formally, we define a constituency as *politically aligned* if its locally elected representative to the state legislative assembly, also known as the Member of Legislative Assembly (MLA), belongs to the same party/coalition as the ruling party/coalition of the state legislative assembly.[3] Locally elected members represent their constituency in the state legislative assembly, and recommend projects to be funded within their constituencies. Recommendations or suggestions made by politically aligned members have a greater chance of being approved by the state cabinet, which ultimately decides which projects to fund.

Such alignment becomes especially meaningful in the context of our study because state governments in India are responsible for public safety and security, provision of law and order and managing counter-insurgency efforts within their territory.[4] Insurgency-related attacks typically result in deaths of civilians, and the state government is held responsible for not being able to provide adequate security.[5] As the intermediary between the citizens and the state government, the local member is deemed responsible for the delivery of this public good. Alignment with the state ruling party can provide the local representative with greater ability to deliver this public good at the constituency level.

To account for the fact that the election of politically aligned candidates is not random, we use a Regression Discontinuity (RD) design. Focusing on states within the *Red Corridor*, we compare constituencies which were narrowly won by politically aligned candidates against those narrowly won by non-aligned candidates.[6] Following Asher and Novosad (2017), ruling party status is defined ex post, i.e. alignment is defined after the election results are

[3]Note that we do not consider alignment across different levels of government (for example the central and state governments, the state governments and the district, sub-district or village councils.)

[4]'Police' and 'public order' are state subjects under the 7^{th} schedule to the constitution of India. It is the primary duty of the state governments to prevent, detect, register and investigate crime and prosecute the criminals. The central government supplements the efforts of the state governments by providing them financial assistance for modernization of their police forces in terms of weaponry, communication, equipment, mobility, training and other infrastructure including deployment of the Central Reserve Police Force (CRPF). See Ministry of Home Affairs, Government of India.

[5]For example, the narrative that law and order had improved under its rule was one of the key factors in the re-election of the Bharatiya Janatha Party (BJP) government in the state of Uttar Pradesh in 2022. The party campaigned on improved law and order in the state during the period 2017–2022 and warned voters that bringing the opposition Samajwadi Party to power (in power pre-2017) meant the return of the poor law and order environment. The voters concurred. See India Today.

[6]The states within the Red Corridor (Andhra Pradesh, Bihar, Chhattisgarh, Jharkhand, Maharashtra, Odisha, Telangana and West Bengal) where the insurgency is rampant account for 98.77% of all insurgency-related violent incidents. The states of Assam, Karnataka, Kerala, Ladakh, Madhya Pradesh, Tamil Nadu and Uttar Pradesh account for the remaining 1.23% of the incidents. Panel A of Figure A1 presents the locations of violent events across the country.

announced. Our results show that the election of a politically aligned candidate leads to a significant reduction in insurgency-related violence, suggesting that political alignment leads to improvements in public good delivery, particularly with respect to security. Linking these results to the literature on the retaliatory nature of violence (Jaeger and Paserman, 2006, 2008, Haushofer et al., 2010), we also document that government-initiated violence is primarily retaliatory in nature, and that the driver of the overall decline in violence is the reduction in Naxalite-initiated violent incidents in aligned constituencies, possibly because of the threat of retaliation.

Our analysis also reveals an interesting pattern on the spillover effects of political alignment on violence in a given constituency. We find that while the pure spillover effects of alignment may not be obvious, the benefits of alignment (in the form of increased security) are amplified where politically aligned constituencies are spatially clustered.

Since the *Red Corridor* is also rich in mineral deposits., we utilize the links between mining and the Naxalite insurgency to understand the mechanisms underlying our baseline estimates.[7] In India (Hoelscher et al., 2012), as in other parts of the world (Berman et al., 2017), mining is identified as a significant driver of conflict, both by contributing to the outbreak of conflicts and by providing financial support. There is a widespread belief that Naxalites benefit from the mining industry, by extorting mining revenues as well as by facilitating illegal mining activity (Prakash, 2015).[8] Additionally, there is a third actor: government officials and political leaders. Miners are reported to pay protection money to the police and other government officials to ensure that their illegal activities can continue unhindered. The simultaneous involvement of government officials and Naxalites has raised concerns that the insurgency may *exist* with government support.

This possible three way nexus between mining companies, Naxalities and government agents (including local politicians) provides us with an interesting lens to examine the relationship between political alignment and insurgency-related violence. On the one hand, the

[7]Panel B of Figure A1 presents the locations of the mines in the country. Nearly 78% of the country's mines are located in the states in the Red Corridor.

[8]Illegal mining entails miners operating outside of the area for which a company had received environmental clearance (*excess mining*), or continuing operations after the expiration of their lease. In 2010, the erstwhile Home Minister of the Indian state of Maharashtra claimed that *the Naxal movement is being funded by a section of the cash-rich mining industry.* See Times of India, May 21, 2010. Successive national governments in India have argued that state governments have not paid sufficient attention to the problem and have not fully internalized the disruption (economic and otherwise) caused by the insurgency. This is exacerbated by the fact that states are responsible for law and order within their territory. In 2014, the outgoing chief of the Central Reserve Police Force, a centrally funded force that assists the state police, accused "some states" of *wanting Maoists to continue.* See Times of India, November 28, 2014.

government has to be seen to be *doing things*, particularly in aligned constituencies, which may motivate elected leaders to push for the delivery of public safety and security. On the other hand, local leaders stand to gain financially and through other means, albeit informally, from *not doing anything* and letting the status quo persist. Which of these effects dominates ultimately depends on the relevance and intensity of such formal and informal relationships between the different actors.

Our empirical examination finds that the strongest decline in insurgency-related violence is recorded in aligned constituencies close to mining areas (the *near-neighbour* constituencies). We do not observe any effects in mining constituencies, or in constituencies located further away from mining areas (the *distant-neighbour* constituencies). These findings portray the delivery of the public good of safety as the outcome of strategic decisions made by politicians. On the one hand, through their actions in constituencies surrounding mining areas, local representatives show that they care about law and order. On the other hand, they are willing to let the status quo persist in mining constituencies, where they may benefit from the informal three-way nexus. Non-mining constituencies far from mines are poorer with less resources to extract, and receive limited attention from politicians; alignment has no effect on security in these constituencies.

This paper contributes to several strands of the literature. *First*, we contribute to the literature on the effects of political alignment at hierarchical levels of government.[9] There is a substantial literature discussing the effects of political alignment on government transfers, and we expand this literature by examining the effect of political alignment on public good delivery.

Second, our paper contributes to the growing literature on post election violence in an environment characterised by an existing civil conflict between people and government/security forces (World Bank, 2011, Berman et al., 2011, Crost et al., 2020). Elections that are narrowly won by incumbents are associated with post-election violence; a belief that the incumbents won fraudulently increases support for violent insurgents and contributes to an increase in the intensity of conflict. Within our setting, we do not find evidence of electoral manipulation, and we find that the election of an *aligned* candidate causes a reduction in violence in an environment characterised by existing civil conflict.

[9]See, for example, Ansolabehere and Snyder Jr (2006), Solé-Ollé and Sorribas-Navarro (2008), Arulampalam et al. (2009), Hsieh et al. (2011), Brollo and Nannicini (2012), Albouy (2013), Asher and Novosad (2017), Fafchamps and Labonne (2017), Hahn et al. (2019), Mahadevan and Shenoy (2023).

Finally, through the examination of mechanisms underlying the baseline findings, we contribute to the large literature on the relationship between resource abundance and violence. Starting with Collier and Hoeffler (2004), much has been discussed on how rapacity, especially associated with natural resource appropriation, has contributed to violence in resource-rich countries (see, for example, Brückner and Ciccone, 2010, Dube and Vargas, 2013, Lei and Michaels, 2014, Bazzi and Blattman, 2014, Berman et al., 2017, Shapiro and Vanden Eynde, 2022). Our work adds an interesting element to this literature by documenting how the dynamics of violence can differ between resource-rich vs resource-adjacent and non-adjacent geographies. Specifically, we show that while the rapacity mechanism may be at play in mining constituencies, the effects of political alignment on delivering security have different dynamics in resource-adjacent constituencies.

The rest of the paper is organized as follows. Section 2 presents background information on state politics and security in India (Section 2.1) and on the Naxalite movement in India (Section 2.2), describes the different data sets used in our analysis and presents selected descriptive statistics (Section 2.3). Section 3 discusses the empirical framework and the validity of the regression discontinuity design. The results are presented in Section 4. Section 5 discusses whether there is any evidence of spillover effects of political alignment on security across constituencies. In Section 6, we discuss the role of mining including its role as an underlying mechanism. Finally, Section 7 concludes.

2 Background, Data and Descriptives

2.1 State Politics and Security

India is a federal republic with two levels of parliamentary system of government: the national parliament and state assemblies. In this paper, our focus is on state assemblies. Elections are conducted under a *first past the post* system, where voters indicate the candidate of their choice on a ballot, and the candidate who receives the most votes wins. Generally multiple candidates (either nominated by parties or independents) stand for election from each constituency. The candidate receiving the most votes wins the seat and represents the constituency in the state assembly. The party or the coalition with the largest number of seats in the assembly forms the government in the state. Elections are typically held every five years, unless the assembly is dissolved before the government completes its five-year

term. This structure essentially means that any particular constituency may or may not be represented in the assembly by someone that belongs to the ruling party/coalition.

The Indian constitution provides significant legislative and administrative power and authority to state governments. These state governments play a key role in the allocation of government inputs: they have administrative control over police, public goods provision, land right, public service (state level) and the civil service, with state legislators having considerable power and control over central bureaucrats based in the state. Citizens view the state government as being responsible for the provision of public goods and security and reward or punish them for improvement or deterioration of law and order in the state.

Although most elected assembly members have little formal power and most decisions are taken by the executive, the elected members of legislative assemblies play an important role as intermediaries between the citizen and the state. Being seen as well connected and "getting things done" is crucial for future electoral success of these assembly members. Given that state governments are responsible for public safety and security, it is thus in the interest of the assembly member to ensure that the electorate is kept safe from violence. The delivery of this public good requires central support and resources, and it is easier to ensure a smoother flow of resources should the assembly member be aligned with the party in government.

2.2 The Naxalite Movement in India

The Naxalite movement traces its roots to Naxalbari, a small village in West Bengal, where a tribal farmer was attacked by local landlords over a land dispute in 1967. An armed uprising (known as the Naxal movement) across several states of India, though primarily focused in West Bengal, followed. The primary objective of the Naxals was overthrowing the state and establishing a communist regime (Gupta, 2007, Ramana, 2009). The response from the state was brutal and the Naxalite movement in West Bengal ended in failure. Overtime, ridden by internal conflicts, the movement splintered into various subgroups. But importantly, the movement moved away from the glare of public view and quietly migrated from the urban centers to the more remote "tribal" areas. The exploitation of the tribal people (the adivasis) in India provided a strong base for the Naxalites. Guha (2006) explains the allure of the Naxalites to the adivasis (local tribes, viewed as some of the most disadvantaged people in India) as follows: *Worse off than the Dalits (the "untouchable*

caste"), and without effective leadership of their own, many adivasis saw in the Naxalites an agency somewhat more welcoming (at any rate less oppressive) than the state.

The period 1970–2000 period was marked by a high level of conflict between the different Naxalite groups. However, in 2004, the major Naxalite factions merged to form the Communist Party of India–Maoist (CPI-Maoist). This led to a marked intensification of the insurgency and a shift towards more direct confrontations between the state and the Naxalites (Kujur, 2009). On paper the aim of the movement is to establish a *people's democratic state under the leadership of the proletariat* (Harriss, 2010), and they aim to do so by overthrowing the Indian state through armed struggle. The continuing popularity and strength of the Naxalite movement is often said to stem from chronic underdevelopment (Borooah, 2008). At the heart of the conflict is land (land rights, land acquisition and unequal distribution of land).

Naxalites operate in marginalised, rural communities that rely heavily on subsistence agriculture and the violence associated with the Naxalite groups is typically contained in rural areas. The Naxalites and the government compete for civilian collaboration. The government offers substantial rewards for tip-offs that lead to the death or arrest of Naxalite leaders (and sympathisers). Governments at different levels have designed programmes to encourage low-ranking Maoists to surrender and provide information. The Naxalite groups react to these attempts to elicit collaboration (or desertion) by killing or destroying the property of police informers. Given the rural nature of the conflict, the Naxalites extract income by charging levies on local economic activity (on agricultural output, in particular) to fund their activities. However, mineral resources also form an important component of the Naxalites' tax base. The three way relationship between mining companies, government agents/officials/politicians and the Naxalites is of crucial importance in our analysis.

2.3 Data and Descriptives

Election Outcomes, Vote shares and Margin of Victory

We use a number of different data sets in our analysis. The first is the data on election outcomes. Election reports published by the Election Commission of India provide rich and extensive constituency-level information about the candidates (including their party, votes received and margin of victory), the size of the overall electorate, the number of electors

who voted, and the type of the constituency (whether or not the constituency is reserved), along with the date the election was held in that constituency.[10] This allows us to compile a data set comprising of all state elections held in the period 2004–2019 in the states of Andhra Pradesh, Bihar, Chhhattisgarh, Jharkhand, Maharashtra, Odisha, Telangana and West Bengal.[11]

Insurgency and Violent Incidents

We match the election data to those on violent events related to the insurgency. This data comes from the Uppsala Conflict Data Program (UCDP).[12] The UCDP data provides detailed information on the parties involved (including the initiator), along with the date, location (geocode) and the number of deaths for each violent incident. We restrict ourselves to violent incidents where one of the two parties involved is either the Communist Party of India–Maoist (CPI-Maoist) or the People's War Group (PWG) and the incident happened in Andhra Pradesh, Bihar, Chhattisgarh, Jharkhand, Maharashtra, Odisha, Telangana or West Bengal (the Red Corridor).[13]

Figure 1 presents the cumulative death toll of this insurgency over the 20 year period for which UCDP data is available, i.e., 1989–2019, both in aggregate terms, as well as by initiator. The total number of (reported) deaths due to the insurgency is almost 8,500; the

[10]Seats are reserved for some of the most disadvantaged population groups in the country: the Scheduled Castes (SCs) and Scheduled Tribes (STs). While registered voters from all social groups can vote, only an SC (ST) candidate may contest elections in SC (ST) reserved seats.

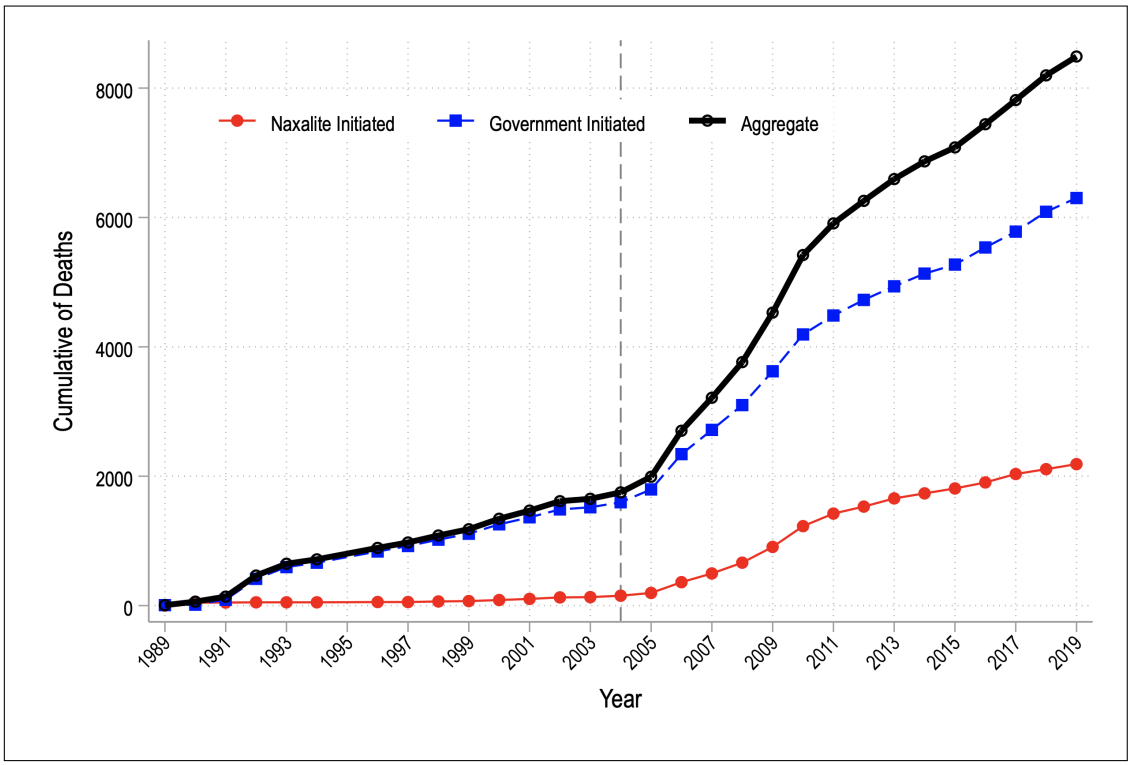
[11]The constituency boundaries changed in 2008 as a part of the recommendation of the 4^{th} Delimitation Commission. However, the focus in our empirical analysis is on violent events during the term of the elected representatives. Hence, changes in constituency boundaries do not impact our estimates. In India, the Delimitation Commission is the only legal mechanism for changing constituency boundaries and SC/ST reservation status for seats. There was one in 1972, which defined the constituencies until the next Delimitation Commission in 2008. Delimitation Commissions were originally supposed to be formed after every census, but part of the 42^{nd} Constitutional Amendment delayed the next commission until after the 2001 census. Prior to 1972, Delimitation Commissions were established in 1952 and 1962.

[12]The UCDP data set is ideal for our purpose because it covers a longer period, allowing us to focus on a longer sample period, i.e., from 2004–2019. While the alternative Armed Conflict Location and Event Data set (ACLED) also provides data on violent events, ACLED data for India is only available from 2016. Yet another data source is the data reported on the South Asia Terrorism Portal (SATP). However, the SATP data does not provide the actual location (geocodes) of the incidents; the most disaggregated level they have is the district. Additionally, they do not provide data on incidents and resulting deaths by initiator, something that is crucial for our analysis.

[13]In Figure A2 we present the yearly count of Naxalite related and other incidents in the Red Corridor during the period 1989–2019. Until 2004, the count of the two kinds of incidents are the same; post 2004, we see a large increase in the number of Naxalite related incidents, but the number of other incidents remain unchanged.

majority of deaths (6,300) are from Government initiated incidents while the remaining are from Naxalite initiated incidents. We observe a sharp increase in the number of deaths after 2004. We restrict our analysis to the period 2004–2019.[14]

Figure 1: Cumulative Deaths



Notes: Figure shows the number of deaths attributed to insurgency related violence initiated by Naxalites and the Government, as well as in total, aggregated over all incidents during each year.

In the data, all deaths in Naxalite initiated incidents are categorized as civilian deaths. For Government initiated incidents the data allows us to distinguish between the deaths to the different parties: the government (police and security forces), the Naxalites and civilians. The aggregate is the sum of all deaths during the year. On average, there are more deaths in Government initiated incidents compared to Naxalite initiated incidents (3.23 vs 1.42), although civilian deaths are higher in Naxalite initiated incidents (see Figure A5). Many of the civilian deaths due to the Naxalite initiated incidents are killing of (suspected) police informers. 6% of incidents result in no deaths and the average number of deaths in any incident is 2.4.

[14]The upper panel of Figure A3, in the Appendix, presents the distribution of incidents by year, irrespective of who the initiator is, while the lower panel of Figure A3 shows the corresponding distribution by initiator. The sharp increase in the number of incidents from 2004 onwards is clear here as well.

For the majority of our empirical analysis, we restrict ourselves to the set of events recording at least one death.[15] We generate separate count variables for violent incidents initiated by (a) Naxalite insurgents and (b) the government, by constituency. We also generate an indicator of the total number of violent incidents in a constituency, irrespective of initiator. Our primary estimation sample consists of 3,024 incidents, of which 1,395 are initiated by Naxalites and 1,629 by the Government of India.

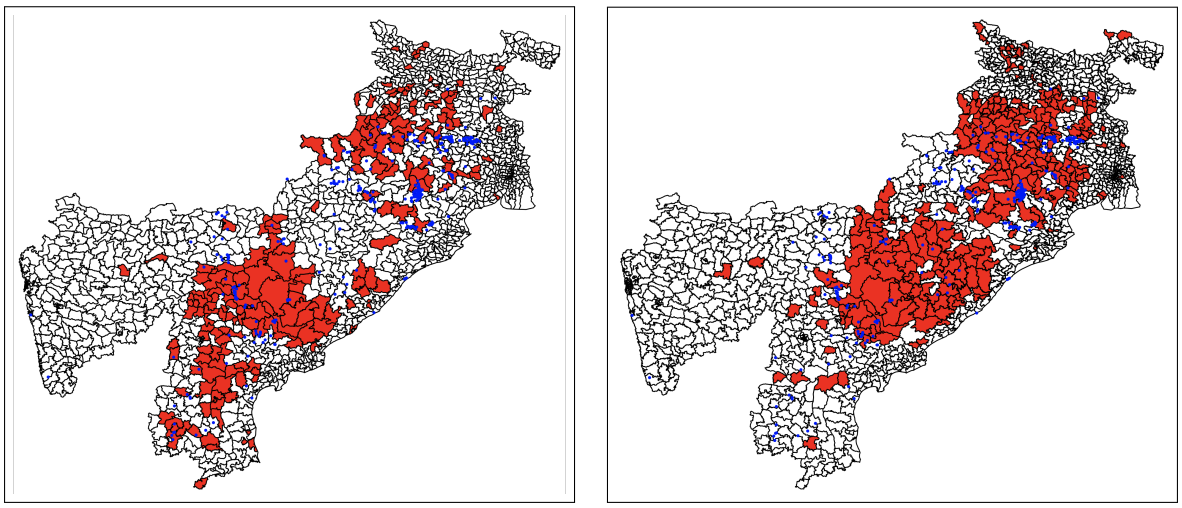
Mining

We use data on mining activity from the SNL Minings and Metals database. This data set provides geo-coded location of mines, which enables the aggregation of mining activity at various geographic units. We match the mine locations with the state constituencies and generate a time-invariant binary indicator = 1 if at least one mining property was recorded in the constituency over the sample period, and zero otherwise. The set of constituencies for which this time-invariant indicator is 1 are termed *mining constituencies*. Figure 2 presents the constituencies in our sample, before and after the delimitation of 2008. We mark the constituencies with at least one incident of violence (resulting in at least one death) and also the location of the mines. We observe that constituencies with high levels of violence are also rich in mineral resources. For the purpose of our analysis, we further sub-divide constituencies with no mining activity (non-mining constituencies) based on their geographic distance from mining constituencies: non-mining constituencies located within 100 km of the centroid of a mining constituency are considered *near-neighbour constituencies* and non-mining constituencies located 100–200 km away from the centroid of a mining constituency are considered *distant-neighbour* constituencies. We discuss this further in Section 6.

[15] Figure A4 presents the distribution of the number of deaths in each incident. The large majority of incidents had one death. This is true for all violent incidents and also separately by initiator. Our results are robust to using events recording alternative numbers of deaths. See discussion in Section 4.2.3.

Figure 2: Assembly Constituencies: Incidents and Mines

Panel A: Pre-2008 **Panel B: Post-2008**



Notes: The red shaded constituencies are those with at least one incident (initiated by Naxalites or Government). The grey shaded constituencies are those without any incident. The blue dots denote the location of the mines. The dots denote the location of mines. Separate figures are presented for the pre- and post-2008 (pre and post-delimitation) period because the constituency boundaries changed.

3 Empirical Framework: Regression Discontinuity Design

Our focus is on the causal identification of the effect of political alignment, i.e., electing a state ruling party aligned politician, on insurgency-related violence and the provision of security, at the constituency level. The main empirical challenge we face is that the victory of ruling party aligned politicians in a constituency is likely to be non-random, since ruling party success could be correlated with unobserved factors that affect both violence and security. For example, constituencies with certain pre-determined characteristics may have a tendency to elect representatives from certain parties. Additionally, exposure to violence could affect the vote. To address this challenge, we use a regression discontinuity (RD) design based on close elections between the ruling party and the opposition, comparing constituencies barely won by the ruling party candidate, against those barely lost by the ruling party candidate. The underlying assumption of the regression discontinuity design is that a constituency barely won by the ruling party candidate is similar to a constituency barely lost by the ruling party candidate on all unobserved characteristics that

are correlated with the dependent variable (Lee and Lemieux, 2009).[16] Note that the ruling party and alignment is defined ex post (i.e., after the election is completed) (see Asher and Novosad, 2017).

The RD design allows us to exploit a discontinuity in the assignment of treatment to identify the causal effect of a treatment variable. In our setting, the assignment of the treatment, i.e., whether the winner is aligned with the ruling party or not ($ALIGNED$), is determined solely on the basis of a cutoff value, $c = 0$, of the forcing variable, i.e., the victory margin ($MARGIN$). The margin of victory is defined as follows: in each constituency i, state s and election year y, let v^a_{isy}, v^n_{isy} and v^T_{isy} denote the number of votes received by the aligned (ruling party) candidate, the nearest non-aligned candidate and the total number of votes cast respectively. Then the margin percentage is defined as

$$MARGIN_{isy} = [\frac{v^a_{isy} - v^n_{isy}}{v^T_{isy}}] \times 100$$

The treatment assignment follows a known deterministic rule, $ALIGNED = 1(MARGIN \geq 0)$, where $1(.)$ is an indicator function. Constituencies that fall below the cutoff ($MARGIN < 0$), the control group ($ALIGNED = 0$), elect a non-aligned candidate who won against an aligned runner-up. The victory margin in these elections is the difference between the vote shares of the aligned runner-up and the non-aligned winner. Constituencies that fall above the cutoff ($MARGIN \geq 0$), the treatment group ($ALIGNED = 1$), elect an aligned candidate, who won against a non-aligned runner-up. The victory margin in these elections is the difference between the vote shares of the aligned winner and the non-aligned runner-up. Therefore, at the victory margin of zero, the alignment status of a constituency changes discontinuously from non-aligned to aligned. Crucially, nothing else should vary discontinuously at the threshold. As a result, constituencies that barely elected a non-aligned politician in a close election serve as a valid counterfactual for constituencies that barely elect an aligned politician.[17]

[16] Lee (2008) was possibly the first to exploit a regression discontinuity design using electoral data. Studies using a similar design in the context of India and elsewhere include Uppal (2009), Clots-Figueras (2011), Clots-Figueras (2012), Broockman (2014), Bhalotra and Clots-Figueras (2014), Fisman et al. (2014), Anagol and Fujiwara (2016) Asher and Novosad (2017), Bhalotra et al. (2017), Baskaran and Hessami (2018), Prakash et al. (2019), Lee (2020), Baskaran et al. (2021), Mahadevan and Shenoy (2023), Faravelli et al. (2023).

[17] Since alignment (and ruling party) status is determined by the ex post winner, there could be a concern that a single seat could tip the balance. In this case, the assumption that a constituency's result is independent of the state ruling party determination will not be valid. In all our elections, the seat margin for the ruling party is sufficiently large so that a single seat does not tip the balance of power.

Formally, we consider the following specification for estimating the RD treatment effect of electing an aligned candidate to state legislative assemblies relative to a non-aligned candidate:

$$INCIDENT_{i,s,t+\tau} = \beta_0 + \beta_1 ALIGNED_{i,s,t} + f(MARGIN_{i,s,t}) + \varepsilon_{i,s,t+\tau} \quad (1)$$
$$\forall MARGIN_{i,s,t} \in (c-h, c+h)$$

Here $INCIDENT_{i,s,t+\tau}$ is the number of incidents in constituency i in state s between t and $t+\tau$, where t is the election year and $\tau > 0$ (typically $\tau = 5$ since the term of an elected member is 5 years before they face the electors again). We do not include the number of incidents in the election year t as these could be driven by the previous candidate.[18]

The variable $ALIGNED_{i,s,t}$ is the treatment, $MARGIN_{i,s,t}$ is the forcing variable, and h is the neighborhood around the cutoff $c = 0$ (or the bandwidth). The control function $f(MARGIN_{i,s,t})$ is some continuous function, usually a n-order polynomial in the forcing variable on each side of c. Finally, $\varepsilon_{i,s,t+\tau}$ is the error term. The coefficient of primary interest, β_1, estimates the causal impact of a constituency electing an aligned politician to the state assembly on the incidence of insurgency-related violence. Note that the identification of this causal effect relies on fairly weak conditions on the conditional distribution of the error term ε, which is assumed to be a continuous function of the forcing variable ($MARGIN$).[19]

We report the descriptive statistics of the key variables in Table 1, separately for the full sample (columns 1–2) and the Top-2 mixed-sample (columns 3–4). Here, the full sample includes constituencies irrespective of whether one of the top-2 candidates (winner or runner-up) is an aligned candidate or not. The top-2 mixed-sample includes constituencies where either the winner or the runner-up is aligned. The outcome variables are all at the constituency-election level. For example, the number of violent incidents refers to the number of incidents (irrespective of the initiator) in the constituency during a particular election term (excluding the election year). Given that constitution boundaries changed in 2008, our data consists of one election term pre-delimitation and 2–3 election terms post-delimitation.

[18] As a robustness check, we also consider the cumulative number of incidents 1, 2, 3 and 4 years post-election. See discussion in Section 4.2.4.

[19] We estimate a local linear regression (Imbens and Lemieux, 2008) as it allows for a suitable bandwidth with a linear control function. Our preferred bandwidth specification follows the optimal bandwidth algorithm proposed by Imbens and Kalyanaraman (2012).

Table 1: Descriptive Statistics

	Full Sample		Top-2 (Mixed-Sample)	
	Mean	Std. Dev	Mean	Std. Dev
	(1)	(2)	(3)	(4)
Number of violent incidents†	0.13	1.10	0.14	1.17
Number of Government initiated violent incidents†	0.068	0.72	0.079	0.83
Number of Naxalite initiated violent incidents†	0.059	0.54	0.060	0.51
Aligned Vote Share	44.5	9.75	44.5	9.75
Number of Candidates	10.8	5.30	10.5	5.16
Turnout	69.0	13.1	71.4	12.6
Log Valid Votes	11.9	0.25	11.9	0.24
Log Electorate size	12.3	0.25	12.3	0.24
SC Reserved	0.036	0.19	0.033	0.18
ST Reserved	0.022	0.15	0.016	0.12
Female Winner	0.088	0.28	0.094	0.29
Female Runner-up	0.090	0.29	0.095	0.29
Winner's age	50.0	10.3	50.4	10.3
Runner-up's age	49.6	10.5	50.0	10.4
Winner's Education Level	3.95	2.44	4.01	2.46
Runner-up's Education Level	3.98	2.38	4.09	2.37

Notes: Full sample includes constituencies irrespective whether one of the top 2 is an aligned candidate or not. Top-2 mixed sample includes constituencies where either the winner or the runner up is an aligned candidate. †: Number with at least one death.

Table 2 presents the balance test on a set of pre-determined characteristics. Although there are a few statistically significant differences between the aligned and non-aligned candidates in the top-2 mixed sample (i.e., where one candidate is aligned and the other is not), these become insignificant when we look at the sample of close elections within the 5% margin.

Figure 3 plots the $ALIGNED$ party's win margin against the $ALIGNED$ party's vote share. Observations within 5 percentage points of the cutoff (in red) vary from 20% (with votes split across many parties) up to 50% (with votes more concentrated across fewer parties) of the total vote share for the $ALIGNED$ party: the forcing variable around the cutoff therefore constitutes a wide range of underlying $ALIGNED$ party's vote shares, and therefore a varied group of close elections. The RD treatment effect is thus not singular to a specific preference point, but representative of a more heterogeneous constellation of political circumstances: preferences for the $ALIGNED$ party are therefore continuous over the threshold.

We also conduct the McCrary (2008) density test for a discontinuity at the cutoff in the density of the forcing variable. In our context, this tests whether aligned candidates dispro-

Table 2: Balance Test on Pre-determined Characteristics

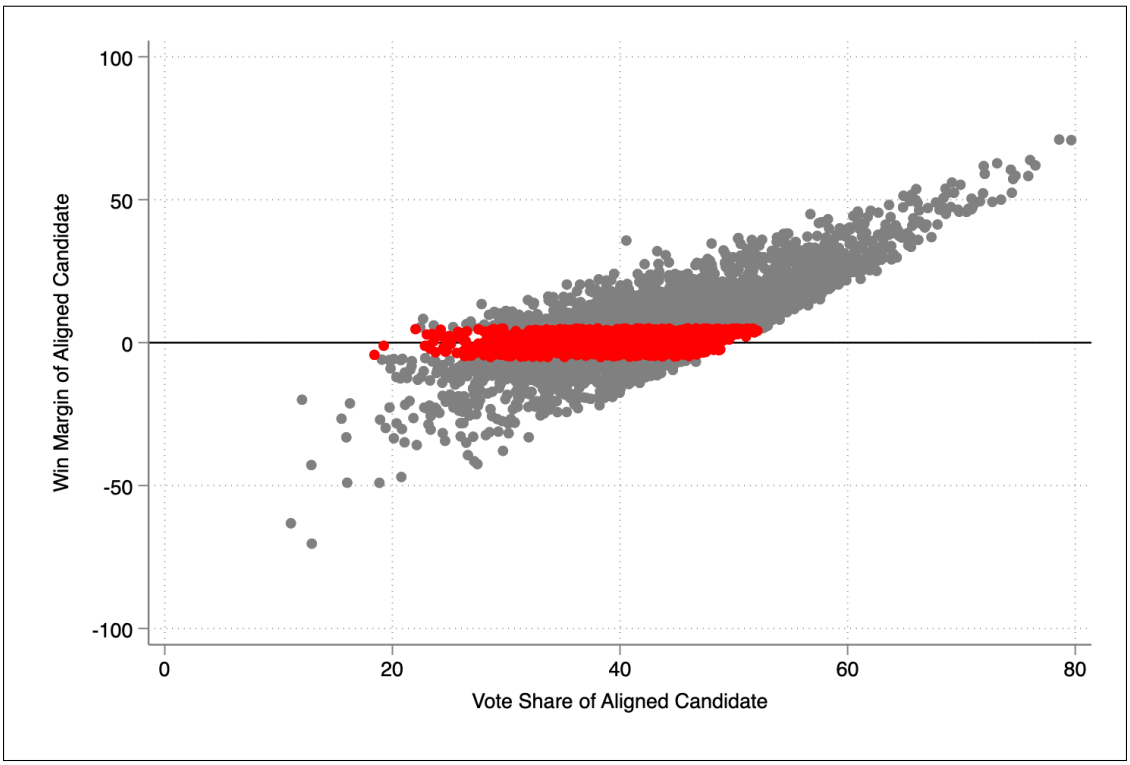
	Top-2 (Mixed-Sample)			Top-2 (Mixed-Sample) within 5% margin		
	Aligned	Non-Aligned	Diff.	Aligned	Non-Aligned	Diff.
	(1)	(2)	(3)	(4)	(5)	(6)
Number of Candidates	10.343	10.972	0.628**	10.755	10.720	-0.035
	(5.096)	(5.304)	(0.194)	(5.043)	(5.460)	(0.334)
Turnout	71.459	71.201	-0.257	72.308	72.076	-0.232
	(12.828)	(12.128)	(0.477)	(12.261)	(12.720)	(0.797)
Log Valid Votes	11.905	11.916	0.011	11.908	11.910	0.002
	(0.242)	(0.241)	(0.009)	(0.226)	(0.235)	(0.015)
Log Electorate size	12.259	12.272	0.012	12.248	12.255	0.007
	(0.237)	(0.244)	(0.009)	(0.229)	(0.223)	(0.015)
SC Reserved	0.039	0.017	-0.023***	0.025	0.018	-0.008
	(0.195)	(0.128)	(0.007)	(0.158)	(0.132)	(0.009)
ST Reserved	0.013	0.022	0.008	0.010	0.013	0.003
	(0.115)	(0.146)	(0.005)	(0.097)	(0.112)	(0.007)
Female Winner	0.100	0.079	-0.021	0.100	0.088	-0.012
	(0.300)	(0.270)	(0.011)	(0.300)	(0.284)	(0.019)
Female Runner-up	0.095	0.095	-0.000	0.075	0.091	0.016
	(0.293)	(0.293)	(0.011)	(0.263)	(0.288)	(0.017)
Winner's age	50.670	49.716	-0.954*	50.017	50.637	0.620
	(10.391)	(9.890)	(0.396)	(10.229)	(9.751)	(0.657)
Runner-up's age	49.823	50.368	0.545	49.876	49.961	0.084
	(10.211)	(10.749)	(0.400)	(10.018)	(10.874)	(0.678)
Winner's Education Level	3.972	4.126	0.154	3.940	4.199	0.259
	(2.521)	(2.296)	(0.093)	(2.423)	(2.180)	(0.149)
Runner-up's Education Level	4.121	3.987	-0.134	4.22	3.935	-0.293*
	(2.395)	(2.304)	(0.089)	(2.274)	(2.340)	(0.147)

Notes: Top-2 mixed sample (columns 1–3) includes constituencies where either the winner or the runner up is an aligned candidate. Top-2 mixed sample (Columns 4–6) includes constituencies where either the winner or the runner up is an aligned candidate and the margin of victory is less than 5%. Columns 3 and 6 include standard errors of the difference in the means of aligned and non-aligned constituencies in parentheses. Significance $^{***}p < 0.01$,** $p < 0.05$,* $p < 0.1$.

portionately win close elections. For instance, aligned politicians might be able to manipulate elections and therefore be more likely to win close elections. If this were the case, we would find a larger frequency of aligned candidates, compared to non-aligned candidates, in the neighborhood of the cutoff, implying that the density of the margin of victory, the forcing variable, is discontinuous at the cutoff. Figure 4 shows that the density of the victory margin above and below the cutoff is not statistically significant: the estimated size of discontinuity in margin of victory (log difference in height) is -0.0685 (SE $= 0.0627$).

A second test of the validity of the RD design is whether observed pre-determined constituency level characteristics are continuous around the cut-off. While the characteristics for aligned and non-aligned constituencies might be different over the full sample, with the

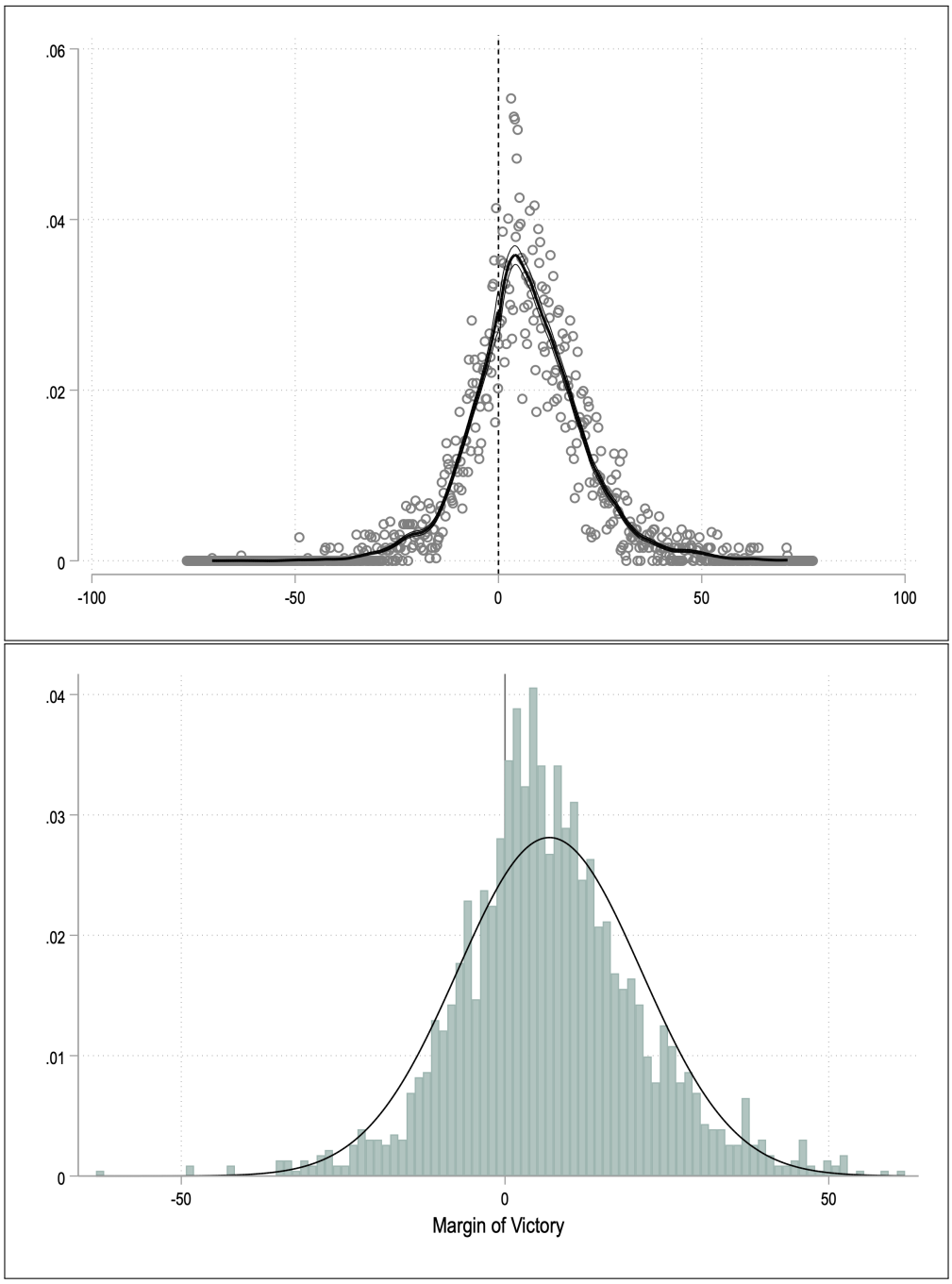
Figure 3: Win Margin and Vote Share of *ALIGNED* party



Notes: The Figure shows the total vote share for the *ALIGNED* party (candidate) plotted against the *ALIGNED* party win margin (the difference between the *ALIGNED* party's vote share and the nearest party's vote share. Observations within 5 percentage points of the threshold at zero are in red.

exception of the treatment, no other variable should be discontinuous around the cut-off. We formally check this in Table 3, where we present the RD estimates of *ALIGNED* on the number of candidates, turnout percentage, log of number of electors, log number of valid votes and log of area of the constituency. We are again comparing constituencies where the *ALIGNED* candidate barely won with those where the *ALIGNED* candidate barely lost. These results show that there are no statistically significant differences in the observed covariates around the cutoff. The results from the McCrary test and the continuity of covariates both suggest that the assumptions underlying the RD design are valid in this setting.

Figure 4: Continuity of Victory Margin between aligned and non-aligned constituencies



Notes: The forcing variable is the margin of victory of an aligned candidate. Negative values are the difference in the vote shares of an aligned runner-up and a non-aligned winner. Positive values are the differences in the vote shares of an aligned winner and a non-aligned runner-up. The estimated size of discontinuity in margin of victory (log difference in height) is -0.0685 (SE $= 0.0627$).

Table 3: Balance Test for Constituency Characteristics. RD estimates

	Number of Candidates	Turnout Percentage	Log Number of Electors	Log Valid Votes	Log Area
	(1)	(2)	(3)	(4)	(5)
ALIGNED Constituency	0.1621	-0.6766	0.0030	0.0194	-0.1227
	(0.7083)	(1.4966)	(0.0367)	(0.0431)	(0.1947)
Observations	3,572	3,572	3,572	3,572	3,572
Bandwidth (h)	4.4246	6.0276	2.3195	2.3660	3.5000

Notes: RD estimates of *ALIGNED* presented. $ALIGNED = 1$ if the winner is aligned with the ruling party in the state. The forcing variable is the margin of victory of the *ALIGNED* candidate. Standard errors, clustered at the State×Year level, are in parentheses. Significance $^{***}p < 0.01$,** $p < 0.05$,* $p < 0.1$.

4 Results

4.1 Baseline Estimates

We start with a graphical illustration of the RD effect of an *ALIGNED* constituency (i.e., electing a winner who belongs to the state ruling party) in Figure 5. We plot the total number of violent incidents during the term against the margin of victory of the aligned candidate (Panel A), the number of Naxalite initiated incidents (Panel B) and the number of Government initiated incidents (Panel C). The scatter plot shows the averages for successive intervals in the margin of victory, on either side of the cutoff. The solid lines implement a linear polynomial on the data on either side of the discontinuity. Positive margins of victory indicate a constituency in which an aligned candidate won against a non-aligned candidate, while a negative margin shows that the non-aligned candidate won and the aligned candidate is the runner-up. The vertical difference between the two curves at the cutoff (i.e., at $MARGIN = 0$) reflects the estimated causal effect of electing an aligned candidate on the number of insurgency-related violent events. Panels A, B and C all show a drop in the number of violent events at the cutoff, suggesting that constituencies that barely elect an aligned candidate benefit from a reduction in total violence, Naxalite initiated violence, as well as Government initiated violence, over the election term, compared to

constituencies that barely elect a non-aligned candidate.[20]

The corresponding regression results are presented in Table 4. Here the dependent variable is the total number of incidents (Panel A), the total number of Naxalite initiated incidents (Panel B) and the total number of Government initiated incidents (Panel C) during the assembly term, excluding the year of the election. Column 1 presents the results using the optimal bandwidth, while Columns 2 and 3 provide estimates based on half and double the optimal bandwidth. In Column 1, the RD estimates show that the total number of incidents, the total number of Naxalite initiated incidents and the total number of Government initiated incidents are all significantly lower, over the election term, in aligned constituencies. There are 0.37 fewer incidents (Panel A), 0.16 fewer Naxalite initiated incidents (Panel B) and 0.25 fewer Government initiated incidents (Panel C) in constituencies that barely elect a candidate aligned with the ruling party as compared to those constituencies that barely elected a candidate who is not aligned with the ruling party in the state assembly.

These effects remain consistent in Columns 2 and 3 of Table 4, where we halve the optimal bandwidth ($1/2 \times h$) and double the optimal bandwidth ($2 \times h$), respectively. In Column 2 we observe that when the bandwidth if halved, the reduction in violence becomes greater in magnitude and more precisely estimated. In Column 3 when the bandwidth is doubled, the magnitude of the effect is smaller and less precisely estimated. For example, comparing the point estimates in Columns 1 and 3 in Panel A, doubling the bandwidth approximately halves the effect of political alignment on insurgency-related violence.[21] Together, these estimates suggest that the election of a politically aligned candidate leads to a reduction in insurgency-related violence. We interpret this as an improvement in security, as a result of political alignment.

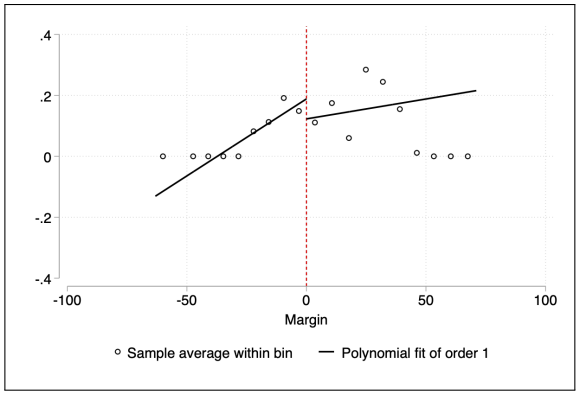
While overall a reduction in violence is consistent with improvements in security, we next draw on the growing literature on retaliatory patterns in conflict to better understand the process underlying this finding. This literature characterizes conflict as a non-zero sum game in that each side may choose to threaten violence in order to deter/incapacitate the opponent, or to exact revenge. (Jaeger and Paserman, 2006, 2008, Haushofer et al., 2010). Many conflicts have been characterized as *vicious cycles of vengeful violence from which it is impossible to escape* (Jaeger and Paserman, 2008, page 1591). Other conflicts can be viewed

[20] In Figure 5, the order of polynomial used to fit is 1 (linear fit). Robustness tests using polynomials of higher orders (2, 3 and 4), presented in Figure B2, show similar patterns.

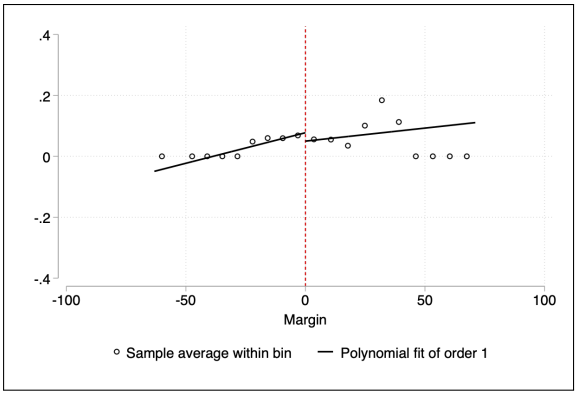
[21] In Section 4.2.1, we experiment further by varying the bandwidth between a factor of 0.5 and 2 of the optimal bandwidth, in increments of 0.1. The estimates remain fairly stable over the range of bandwidths.

Figure 5: Vote Margin of *ALIGNED* Winner and Insurgency-Related Violence

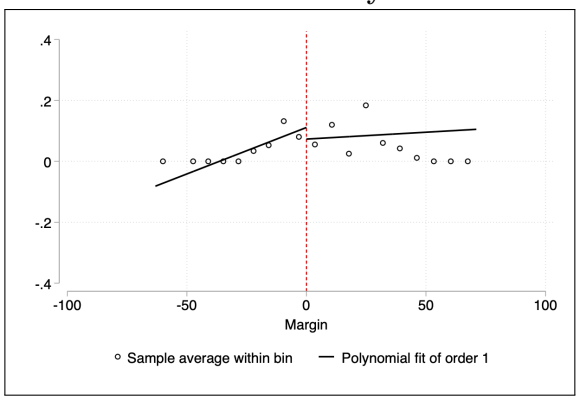
Panel A: Total Incident Count



Panel B: Incidents Initiated by Naxalites



Panel C: Incidents Initiated by the Government



Notes: Effect of electing an *ALIGNED* candidate on total incident count (Panel A), incidents initiated by Naxalites (Panel B) and incidents initiated by the Government (Panel C). The forcing variable is the margin of victory of an *ALIGNED* candidate. Negative values are the difference in the vote shares of an *ALIGNED* runner-up and a non-aligned winner. Positive values are the differences in the vote shares of an *ALIGNED* winner and a non-aligned runner-up. The variable on the y-axis is the count of incidents. The dots in the scatter plot depict the average of the count of incidents over each successive interval of 0.5% of margin of victory.

Table 4: *ALIGNED* Constituency and Violence at the Constituency Level

	h (1)	$1/2 \times h$ (2)	$2 \times h$ (3)
Panel A: *Total Violence*			
ALIGNED Constituency	-0.3752**	-0.4689***	-0.1850*
	(0.1769)	(0.1616)	(0.1118)
Observations	10,601		
Bandwidth (h)	1.965		
Effective Observations (N_h)	1230	599	2481
Panel B: *Naxalite Initiated Violence*			
ALIGNED Constituency	-0.1595*	-0.1937**	-0.0729
	(0.0968)	(0.0901)	(0.0657)
Observations	10,601		
Bandwidth (h)	1.891		
Effective Observations (N_h)	1197	571	2343
Panel C: *Government Initiated Violence*			
ALIGNED Constituency	-0.2472**	-0.2476***	-0.1351*
	(0.1065)	(0.0831)	(0.0722)
Observations	10,601		
Bandwidth (h)	1.728		
Effective Observations (N_h)	1099	520	2145

Notes: RD estimates of *ALIGNED* Constituency presented. *ALIGNED* Constituency = 1 if the winner is aligned with the ruling party in the state. Sample restricted to incidents with at least one death. Includes incidents during the period 2004–2019. Standard errors, clustered at the State×Year level, are in parentheses. Significance $^{***}p < 0.01,^{**} p < 0.05,^{*} p < 0.1$.

as deterrant mechanisms. Whether conflicts are retaliatory in nature, leading to an endless cycle of violence, or whether violence by one side is designed to deter the opposition from engaging in future violence is an open question, which needs to be examined empirically.

To investigate whether (and what) patterns of retaliation are observed within this insurgency, where the Naxalites and Governments have long engaged in continuous violent attacks, we follow the approach adopted in Haushofer et al. (2010). Essentially, this approach investigates whether Naxalite initiated incidents "Granger caused" Government initiated incidents and vice versa, through a series of vector autoregressions (VAR).[22] Here we regress Naxalite initiated incidents and associated fatalities (in week t) on previous Naxalite and Government initiated incidents and fatalities, up to a pre-specified lag. Likewise, we also regress Government initiated incidents and associated fatalities in week t on previous Naxalite and Government initiated incidents and fatalities again up to a pre-specified lag. More details on the approach are presented in Section C in the Appendix.

Table 5 presents the results on the retaliatory patterns of insurgency-related violence, the estimating equations for which are given in equations (C1) and (C2) in Appendix C. In this Table, incident captures the extensive margin, while level captures the intensive margin. Panel A of Table 5 implies that there are a significantly higher number of government-initiated incidents in response to civilian fatalities due to Naxalite initiated incidents; the likelihood of a government response (through a government initiated incident) is significantly higher following Naxalite initiated incidents and civilian fatalities. Panel B suggests that evidence of any Naxalite retaliation is weak. What is then evident in Table 5 is that, within this insurgency, retaliatory violence primarily emanates from the Government and not from the Naxalities.

Recall that, in Table 4, we observe a decline in overall, Government-initiated and Naxalite-initiated violence in constituencies that barely elected an aligned candidate, compared to those that barely elected a non-aligned candidate. Linking these RD estimates with the evidence in Table 5, our analysis suggests that the driver of the overall decline in violence is the drop in Naxalite initiated incidents in response to possibly the *threat* of Government response. Aligned constituencies display stronger connections with state governments, and

[22] In this setting, X Granger causes Y if a model that uses current and past values of X and current and past values of Y to predict future values of Y has smaller forecast error than a model that only uses current and past values of Y to predict Y. In other words, Granger causality answers the following question: does the past of variable X help improve the prediction of future values of Y? While it provides insight into it, Granger causality does not conclusively establish/demonstrate that there is a true causal relationship between the two variables.

Table 5: Retaliation

	Panel A: Government Retaliation			
	Incidents to Incidents		Incidents to Fatalities	
Test Statistic	Level	Incidence	Level	Incidence
F	1.48 [0.1104]	2.60 [0.0015]	2.34 [0.0037]	3.69 [0.0006]
	Fatalities to Incidents		Fatalities to Fatalities	
Test Statistic	Level	Incidence	Level	Incidence
F	0.95 [0.4990]	1.91 [0.0258]	0.89 [0.5715]	1.68 [0.1099]
	Panel B: Naxalite Retaliation			
	Incidents to Incidents		Incidents to Fatalities	
Test Statistic	Level	Incidence	Level	Incidence
F	0.73 [0.6011]	0.31 [0.9517]	1.60 [0.1732]	1.54 [0.0858]
	Fatalities to Incidents		Fatalities to Fatalities	
Test Statistic	Level	Incidence	Level	Incidence
F	1.00 [0.4164]	0.79 [0.5958]	1.67 [0.1562]	1.47 [0.1101]

Notes: Estimating equations are given by equations (C1) and (C2) in Appendix C. Test statistics for the test of the null hypothesis that the lagged coefficients on the respective other variable are jointly equal to zero. Significant statistics (p-values ≤ 0.05) can be interpreted as retaliation by one party for previous violence from the other side. p-values in square brackets.

as such have stronger retaliatory power in terms of security (police) and financial resources. This stronger threat in aligned constituencies reduces Naxalite initiated incidents, which in turn Granger causes a decline in Government initiated incidents and leads to an overall reduction in violence.

4.2 Robustness and Heterogeneity

We now examine the robustness of our key results to a number of alternative specifications.

4.2.1 Alternative Bandwidths

In Columns 2 and 3 of Table 4 we examine the robustness of the baseline estimates to half $(1/2 \times h)$ and double $(2 \times h)$ the optimal bandwidth. In Figure B1, we investigate this further, by presenting point estimates and the 90% confidence interval when varying the bandwidth between a factor of 0.5 and 2 of the optimal bandwidth, in increments of 0.1. The RD estimates are fairly stable over the range of bandwidths.

4.2.2 Alternative Polynomial Fits

In the baseline plots presented in Figure 5, we present the line of best fit based on a polynomial of order 1. In Figure B2, we present lines of best fit based on polynomials of order 2, 3, and 4. The pattern remains largely consistent, and we observe a decline in insurgency-related violence in constituencies that barely elected an aligned candidate, compared to those that barely elected a non-aligned candidate.

4.2.3 Number of Deaths in the Incident

The majority of insurgency-related violent events in the data set report one death, with only a few incidents having 10 or more deaths. This is true irrespective of whether we consider all incidents or incidents by initiator separately (see Figures A4 and A5). In the baseline estimates (see Section 4.1) we only consider violent events reporting at least one death. In Figure B3 we examine the robustness of our results to changing this definition of violence. We observe that the point estimates remain similar to the baseline when considering events

with no deaths. The direction of the effect also remains consistent when we adopt stricter definitions of violence (i.e., events involving at least $2, 3, 4, 5$ and 10 deaths), although the effect gradually weakens, as only a handful of events record higher number of deaths.

4.2.4 Cumulative Effects over the Term

In the baseline estimates, we consider the number of violent incidents for each year of the election term (excluding the election year). We next examine the cumulative effects over the election term: the total incident count in the first, first two, first three years post election and the entire term of the election. We present, in Figure B4, the RD estimates and the corresponding 90% confidence intervals, for the total number of incidents as well as for the number of incidents by initiator. We observe that the overall decline in violence occurs gradually, with effects becoming more precisely estimated over time. This same pattern is observed for Naxalite initiated violence as well. With Government initiated violence however, we observe an immediate decline in the first year post-election (0.26 fewer events), and the point estimate remains fairly stable thereafter, becoming more precisely estimated over time. These estimates therefore show how the strong and immediate effect of the reduction in Government initiated violent incidents, combined with the gradual reduction in Naxalite initiated violent incidents, underlie the baseline effects we observe in Table 4.

4.2.5 State Specific Estimates

Recall that state governments in India are responsible for ensuring security and managing counter-insurgency efforts within their territory. In this context, are the baseline results consistent for all states in our sample, or are there any state-specific factors that drive our estimates? We examine this question by considering the heterogeneity of our baseline estimates by state, as presented in Table B1.[23]

Reassuringly, we observe that the direction of the effect is consistent with the baseline estimates for most states i.e., constituencies that barely elect an aligned candidate record lower levels of violence compared to those that barely elected a non-aligned candidate. This holds for Bihar, Chhattisgarh and Odisha. Considering the point estimates in Column 1, in Bihar, $ALIGNED$ constituencies experience 0.66 fewer violent incidents, while in Chhatis-

[23]These estimates cannot be operationalized for West Bengal due to low sample size.

garh the effect is stronger at 2.34 fewer incidents. In Odisha, the effect is somewhere in between, at 1.61 fewer incidents. For Jharkhand and Maharashtra, the overall incident count, the count of Naxalite initiated incidents and the count of Government initiated incidents are not significantly different in $ALIGNED$ constituencies at the optimal bandwidth; though for Jharkhand, the estimates are statistically significant at half bandwidth (columns 2, 5 and 8).

Interestingly however, we observe the opposite effect for Andhra Pradesh, where aligned constituencies experience more violence.[24] Specifically, these constituencies experience 0.31 more total attacks over the election term (0.17 more Naxalite initiated incidents and 0.14 more Government initiated incidents). There are two potential reasons as to why the patterns of violence might be different here.

The first relates to some of the more recent policy decisions. Of the states affected by the Naxalite insurgency, only Andhra Pradesh raised a separate police force, called the *Greyhounds*, whose main purpose was to combat the Naxalite insurgency in the state (see Singhal and Nilakantan, 2016). It was established in 1989 as a separate administrative unit, and is an elite commando force specially trained in counterinsurgency methods, well-equipped and have their own intelligence network and other support units. While there is little or no quantitative evidence on the effect of the Greyhounds on Naxalite violence, its existence does suggest that the relationship between the state and the Naxalites is more adversarial in Andhra Pradesh. The increase in incidence of violence that we observe in Andhra Pradesh in aligned constituencies is possibly a consequence of this more adversarial relationship. We investigate this further by conducting the retaliation analysis (see Section C for details) restricting our sample to Andhra Pradesh. The results are presented in Table C2. Here we find strong evidence of retaliatory behaviour on the part of the Naxalites, and these patterns of retaliation are quite different to those for the full sample (Table 5).

The second reason relates to the persistent effects of British colonial institutions (see Mukherjee, 2021). The parts of Andhra Pradesh where Naxalite activity is concentrated were historically part of the princely state of Hyderabad, where the Nizam's rule (via despotic extraction) created lower levels of development and high levels of land inequality.[25] Consequently, this region witnessed a series of class conflicts: the Telangana peasant

[24] Note that the state of Telenagana was established in 2014 when it separated from Andhra Pradesh. For the purpose of our empirical analysis, we combine these two states.

[25] British rule in India during the period 1857–1947 was characterized by two kinds of territories: Presidencies and Residencies. Presidencies, were the direct rule areas where the Crown (the British government) had complete control over the administration. Residencies (also known as the indirect rule areas or princely

rebellion of 1946–49, the CPI-Marxist- Leninist movement in 1967–72, and finally the People's War Group (PWG) Maoist insurgency in the 1980s. Andhra Pradesh thus has a longer history (possibly the longest of any state) of Naxalite insurgency.

4.2.6 Estimates by Reservation Status of Constituencies

Finally, we present estimates by the reservation status of the constituency. In India, seats are reserved for the two disadvantaged population groups the Scheduled Castes (SCs) and Scheduled Tribes (STs) in both the national parliamentary elections and state assembly elections. The constituencies reserved for STs are those where the percentage of the ST population, relative to the total population of the constituencies, is the largest. Seats are reserved for SCs in a similar manner. In these reserved seats, all citizens (irrespective of caste/tribe) are eligible to vote, but candidates have to belong to the specific caste/tribe.

Our focus is specifically on ST reserved seats, because the region under consideration has a large proportion of ST population. For example, the shares of ST population in Maharashtra (9.35%), Odisha (22.85%), Jharkhand (26.21%) and Chhattisgarh (30.62%) are considerably higher than the national average (8.6%). As such, we examine whether the election of an aligned candidate has differential effects on insurgency related violence in reserved versus non-reserved constituencies.

Table B2 presents the estimates for ST reserved (Panel A), any reserved i.e., SC or ST reserved (Panel B) and Non-Reserved or Open (Panel C) constituencies. We observe that total violence, Naxalite initiated violence and Government initiated violence are all lower in ST reserved constituencies (Panel A), though imprecisely estimated possibly because of the low effective sample size. When we extend the definition of reservation to include SC reserved constituencies as well (Panel B), the effects are more precisely estimated, with total violence and Government initiated violence both being significantly lower in reserved constituencies that barely elect an aligned candidate. The estimated effects are large: total violence is 0.58 lower in reserved constituencies were an $ALIGNED$ candidate barely wins, relative to reserved constituencies where an $ALIGNED$ candidate barely loses. Finally, in Panel C we observe that in open (or non-reserved) constituencies, the election of an aligned

states) were territories where the Crown could only oversee through a resident of the Crown. These indirect rule areas were allowed domestic autonomy with preconditions of good governance and were provided with security against foreign invasions. An agent or resident was located in the territory to represent the Crown and to monitor the day-to-day affairs (Rudolph, 1963).

candidate also results in a reduction in the total number of violent incidents, although the magnitudes of the effects are smaller (0.08 in Column 1 of Panel C vs 0.58 in Column 1 of Panel B). These estimates demonstrate that the election of an aligned candidate has stronger effects on security in a reserved constituency. As such, these results are consistent in spirit to Pande (2003) who finds that political reservation has increased transfers to groups, which benefit from the mandate.

5 Spillover Effects of Political Alignment

Is there any evidence of spillover effects of political alignment in delivering security across constituencies? For example, does violence in constituency i respond to the alignment status of its neighbouring constituencies? On the one hand, when an aligned politician is elected in a given constituency, violence may relocate to neighbouring constituencies, leading to an increase in violence in constituencies surrounding aligned constituencies. On the other hand, it could also be that the politically aligned constituencies are spatially clustered in a way that amplifies the benefits of alignment, leading to an overall decline in violence in neighbouring constituencies as well. A third possibility is that alignment of neighbouring constituencies is not relevant in explaining violence in a given constituency.

To approach this question, we first identify, for each constituency, the "nearest neighbour constituency". Within our context, the "nearest neighbour constituency" for constituecny i is the one with the shortest distance between centroid of constituency i and that of all its geographical neighbours. With this demarcation, we are able to identify the winner's margin of victory, as well as the alignment status, of the nearest neighbour constituency for each index constituency.

In Table 6, we examine the spillover effects of political alignment in two ways. *First*, in Panel A, we examine the pure spillover effect of political alignment on violence in neighbouring constituencies, using a variant of equation (1). Specifically, we examine the effect on violence in constituency i due to the election of an aligned candidate in constituency j, where j is the nearest neighbour for i. Note that the RD design ensures that the election of an aligned candidate in constituency j is orthogonal to violence in constituency i. The RD estimates (Table 6, Panel A) show that the election of an $ALIGNED$ candidate in the nearest neighbour constituency does not have a statistically significant spillover effect on violence in the index constituency (i).

Table 6: Spillovers in Violence. RD Estimates on Violence in Near Neighbour Constituencies

	Total	Naxalite Initiated	Government Initiated
	(1)	(2)	(3)
Panel A: Effect of nearest neighbour's alignment on violence in a given constituency			
Nearest Neighbour *ALIGNED*	0.0759	0.0631	0.1202
	(0.1161)	(0.0835)	(0.1049)
Observations	10,601	10,601	10,601
Panel B: Heterogeneous Effects of Nearest Neighbours' Alignment on Violence in *ALIGNED* Constituency			
B1: *ALIGNED constituency; nearest neighbour is ALIGNED*	-0.5179**	-0.1897*	-0.3081***
	(0.2091)	(0.1108)	(0.1192)
Observations	7,702	7,702	7,702
B2: *ALIGNED constituency; nearest neighbour is* not *ALIGNED*	0.1405	0.0085	0.1073*
	(0.1374)	(0.1063)	(0.0602)
Observations	2,899	2,899	2,899

Notes: RD estimates presented. In Panel A, Nearest Neighbour $ALIGNED = 1$ if the winner of the nearest neighbour constituency is aligned with the ruling party in the state. In Panel B, *ALIGNED* Constituency $= 1$ if a constituency's own winner is aligned with the ruling party in the state. In Panel B1 , the sample is restricted to the set of constituencies for which the nearest neighbour constituency is also politically aligned with the ruling party in the state, while in Panel B2, the sample is restricted to the set of constituencies for which the nearest neighbour constituency is politically not aligned with the ruling party in the state. Sample restricted to incidents with at least one death. Includes incidents during the period 2004–2019. Standard errors, clustered at the State×Year level, are in parentheses. Significance $^{***}p < 0.01,^{**} p < 0.05,^{*} p < 0.1$.

Next, we examine the heterogeneous effects of neighbours' alignment on violence in an aligned constituency. For this purpose, we re-estimate equation (1), but separately for two sets of constituencies, as shown in Panel B of Table 6. In Panel B1, we estimate equation (1) but the sample is restricted to constituencies whose nearest neighbour is also politically aligned with the state ruling party. The combined effect of these dual dimensions of political alignment is an amplification of the reduction in violence. The coefficient in Column 1 of Panel B1 implies a reduction in overall violence by 0.52, which is larger in absolute terms when compared to the effect size of 0.37 in the baseline estimate (Column 1 of Panel A in Table 4). This amplifying effect is also observed when considering violence by initiator, in Columns 2 and 3.

In Panel B2, we conduct the same exercise, but the sample is restricted to the set of constituencies where the nearest neighbour is not aligned with the state ruling party. In-

terestingly, we observe that the baseline effect dissipates in this context. Although these constituencies, by themselves, are politically aligned, the non-alignment of their neighbours negates the pacifying effect of violence we observed in the baseline.

Our analysis then reveals an interesting pattern of spillover effects of political alignment on violence in a given constituency. The findings suggest that, although the pure spillover effects of alignment may not be obvious, the benefits of alignment are amplified where politically aligned constituencies are spatially clustered.

6 Mining as a Potential Mechanism

No discussion of the Naxalite violence in India can be made independent of the symbiotic relationship between insurgency, mining and the government. The Naxalites need funds to operate. They sometimes impose taxes on the civilian population but, given that these are some of the poorest regions of the country, this tax base is limited. As such, mineral resources form an important component of the Naxalites' tax base. The dynamics of violence in the mining regions is also systematically different. Vanden Eynde (2018), using a district-year panel of Naxalite incidents in India during the period 2005–2011, finds that deficient rainfall spurs targeted Naxalite violence against civilians and against government security forces. While the attacks against civilians increases irrespective of whether or not the district is a mining district or not, attacks against security forces increases only in mining districts. Concurrently, there is growing evidence (including anecdotes and media reports) that the mining companies pay the Naxalites to continue engaging in illegal mining. Government officials and local leaders get a portion of this "cut-money" to turn a blind eye to illegal mining. See Prakash (2015), Vanden Eynde (2018) and our discussion on Page 3.

Given this three way nexus between mining companies, Naxalites and Government agents (including local politicians), it would be of considerable interest to examine how political alignment plays out in this environment. On the one hand, the government has to be seen to be doing things, particularly in aligned constituencies, to maintain an image of being pro-active in the law and order space. On the other hand, local leaders stand to gain from doing nothing and allowing the status quo to persist.

To examine the role of mining in the delivery of security amidst the insurgency, we first identify the constituencies which engaged in mining activity during the sample period. We

generate a time-invariant binary indicator which equals 1 if at least one mining property was recorded in the constituency over the sample period. Such constituencies are classified as *mining* constituencies.[26] Constituencies for which this indicator is 0 are categorized as *non-mining* constituencies. If the government wants to show that they are doing something and yet not overturn the apple cart (i.e., maintain the three way nexus), the overall reduction in violence we observe in Table 4 will be driven by aligned, but non-mining constituencies.[27]

Figure A7 presents the effect of electing an aligned candidate on insurgency-related violence in mining constituencies (Column 1) and non-mining constituencies (Column 2). We observe that, for mining constituencies, the vertical difference between the two curves at the cutoff is slightly positive for total violence and for Government initiated violence (Panels A and C), and slightly negative for Naxalite initiated violence (Panel B). By contrast, for non-mining constituencies, the vertical difference between the curves is always negative at the cutoff. These demonstrate that the improvements in security are indeed related to non-mining constituencies.

These results are corroborated by the RD estimates presented in Panels A and B of Table 7. In non-mining constituencies (Panel B), the election of an aligned candidate leads to a large and statistically significant drop in the total number of incidents (0.60), the number of incidents initiated by Naxalites (0.26) and the number of incidents initiated by the Government (0.38). On the other hand, the election of an aligned candidate in a mining constituency (Panel A) has no effect on the total number of incidents and the number of Naxalite initiated incidents and a weakly positive effect on the number of government initiated violence. We return to our explanation of the results for mining constituencies below.

To better understand what drives these results in the non-mining constituencies, we next sub-divide these constituencies based on their geographic distance from mining constituencies. We categorize non-mining constituencies into *near-neighbour* constituencies (the nearest mining constituency is 0–100 km away from its centroid) and *distant-neighbour* con-

[26]It is important to note here that, for the purpose of our analysis, we are only interested in identifying whether a constituency has mining potential or not. The mining locations data provides a reasonable proxy for such mining potential. It is also for this same reason that we do not factor in the opening or closing of mines, the decision of which may be endogenous to insurgency-related violence. In this sense, our approach is similar to Berman et al. (2017) and Amarasinghe et al. (2021) who also use a time-invariant mining indicator as an identifier.

[27]Incidents of violence (total and by initiator) are higher in mining constituencies compared to non-mining constituencies. See Panels A and B of Figure A6.

Table 7: *ALIGNED* **Constituency and Violence at the Constituency Level. Mining, Non-Mining, Near-Neighbour and Distant-Neighbour Constituencies**

	Total Violence			Naxalite Initiated Violence			Government Initiated Violence		
	h	$1/2 \times h$	$2 \times h$	h	$1/2 \times h$	$2 \times h$	h	$1/2 \times h$	$2 \times h$
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Panel A: *Mining Constituencies*									
ALIGNED Constituency	0.5080	1.0059**	0.2568	0.2946	0.5019	0.1096	0.3984*	0.5267	0.1309
	(0.3179)	(0.5075)	(0.2455)	(0.1941)	(0.3125)	(0.1466)	(0.2340)	(0.3627)	(0.1599)
Observations	1,108			1,108			1,108		
Bandwidth (h)	4.116			3.480			3.235		
Effective Observations (N_h)	262	132	528	224	114	443	212	114	413
Panel B: *Non-Mining Constituencies*									
ALIGNED Constituency	-0.6038***	-0.7190***	-0.3407**	-0.2623**	-0.3164***	-0.1425*	-0.3779**	-0.3452***	-0.2242**
	(0.2328)	(0.1961)	(0.1652)	(0.1099)	(0.0846)	(0.0827)	(0.1497)	(0.1129)	(0.1091)
Observations	9,493			9,493			9,493		
Bandwidth (h)	1.695			1.659			1.516		
Effective Observations (N_h)	951	454	1905	933	445	1866	863	411	1688
Panel C: *Near-Neighbour Constituencies*									
ALIGNED Constituency	-0.6648**	-0.9317***	-0.3614	-0.2643*	-0.3892***	-0.1333	-0.4276**	-0.5521***	-0.2599*
	(0.3075)	(0.2681)	(0.2209)	(0.1472)	(0.1096)	(0.1144)	(0.1942)	(0.1767)	(0.1415)
Observations	5,701			5,701			5,701		
Bandwidth (h)	1.890			1.807			1.792		
Effective Observations (N_h)	680	326	1322	625	299	1241	625	299	1229
Panel D: *Distant-Neighbour Constituencies*									
ALIGNED Constituency	-0.1106	-0.1173	-0.0429	-0.0987	-0.1140	-0.0525	-0.0126	0.0000	0.0067
	(0.0970)	(0.1232)	(0.0562)	(0.0990)	(0.1204)	(0.0578)	(0.0128)	(0.0000)	(0.0113)
Observations	3,135			3,135			3,135		
Bandwidth (h)	1.289			1.229			1.329		
Effective Observations (N_h)	228	101	434	211	97	418	240	109	443

Notes: RD estimates of *ALIGNED*. The samples are defined as follows: constituencies that have mining activity (mining constituency, Panel A); all constituencies with no mining activity (non-mining constituency, Panel B); non-mining constituencies that share a border with a mining constituency (mining neighbour constituency, Panel C); non-mining constituencies that do not share a border with a mining constituency (pure non-mining constituency, Panel D); non-mining constituencies with the nearest mining constituency 0–100 km (near-neighbour constituency, Panel E); and non-mining constituencies with the nearest mining constituency 100–200 km (distant-neighbour constituency, Panel E). *ALIGNED* Constituency = 1 if the winner is aligned with the ruling party in the state. Sample restricted to incidents with at least one death. Includes incidents during the period 2004–2019. Standard errors, clustered at the State×Year level, are in parentheses. Significance $^{***}p < 0.01, ^{**}p < 0.05, ^{*}p < 0.1$.

stituencies (nearest mining constituency is 100–200 km away from its centroid).[28]

Panels C and D of Table 7 present the estimates for these two groups of constituencies.[29] We observe that the election of an aligned candidate results in a statistically significant reduction in incidents of violence in near-neighbour constituencies. This effect is observed for total violence, as well as for incidents initiated by Naxalites and government. We do not observe the election of an aligned candidate having a statistically significant effect on violence in distant-neighbour constituencies.

How do we explain these differential patterns for mining, near-neighbour and distant-neighbour constituencies? One possible explanation is as follows. There are very few incidents in the distant-neighbour constituencies (see Figure A6). Additionally, the links between the Naxalites, mining companies and state actors are likely to be considerably weaker in distant-neighbour constituencies. Hence, while electing an aligned candidate may bring other benefits to these constituencies, there are no security effects.

In the near-neighbour constituencies, the links between the Naxalites, mining companies and state actors are likely to be stronger (though possibly weaker than in the mining constituencies). While the incident count in these constituencies is lower than in the mining constituencies, they are sufficiently large for the government to benefit from playing the security card. We therefore observe a statistically significant decline in violence in the near-neighbour constituencies when an aligned candidate is elected, as indicated in Panel C of Table 7.

A priori, it is not clear how the effects will play out in mining constituencies. There are three possibilities. *First*, given the nature of the relationship between the mining companies, the Naxalites and the local leaders, there is possibly no incentive (from any of the players) to change the status-quo. Additionally, the election of an aligned candidate might actually make it easier for the mining companies to influence the decisions of the state government. This implies that there should be no change in the incidence of violence in these mining constituencies. *Second*, the arrangements and side-payments might include a reduction in violence so as to not attract attention. A *third* possibility is that greater security presence in near-neighbour constituencies with the election of an $ALIGNED$ candidate would mean that the Naxalites are forced to reduce their operations in these constituencies, leading them

[28] Incidents of violence (total and by initiator) are higher in near-neighbour constituencies compared to distant-neighbour constituencies. See Panels C and D of Figure A6.

[29] Figure A8 presents these estimates in graphical format and corroborate the results in Table 7.

to move to constituencies where the returns to their activities are higher. They might then choose to re-locate to the mining constituencies, which might lead to an increase in the incidence of violence in these constituencies. Overall which of the three effects dominate is an empirical question. The results presented in Panel A of Table 7 show that the first effect dominates. There is possibly no incentive (from any of the players) to change the status-quo and as a consequence there is no change in the incidence of violence in these mining constituencies.

7 Conclusion

In this paper, we examine whether political alignment — defined as the member of a particular constituency belonging to the same party that is in power in the state — affects the delivery of public goods. The specific public good that we consider is security in the "Red Corridor" of India, which has been subject to continuous violence due to the ongoing Naxalite insurgency.

The key challenge in causally identifying the effects in this context is that political alignment between the state and local levels is likely non-random. To address this challenge, we apply a RD design that exploits the margin of victory at local elections. The underlying assumption in this identification strategy is that a constituency where the ruling party (aligned) candidate barely won the election is not significantly different from a constituency where the ruling party candidate barely lost, on all unobserved characteristics that are correlated with the dependent variable. We confirm the validity of this assumption using a series of tests typically used in the literature.

Having thus confirmed that the pre-conditions of the RD design hold, we are able to causally identify the effect of political alignment on violence. We find that political alignment leads to lower overall violence, with constituencies that barely elected a candidate aligned to the ruling party recording 0.37 fewer incidents over the election term as compared to those constituencies that barely elected a non-aligned candidate. We observe a similar trend when considering violent incidents initiated by the Government as well as by Naxalites. Interestingly, the decline in violence is further amplified when politically aligned constituencies are spatially clustered. We also document that government-initiated violence is primarily retaliatory in nature, and that the driver of the overall decline in violence is the drop in Naxalite-initiated violent incidents.

Since the Naxalite insurgency mostly affects the resource-rich Red Corridor in India, we next consider the role played by mining activity within this insurgency. Interestingly, we find that the reduction in violence mainly stems from constituencies located near-neighbour constituencies. In mining constituencies, we find that election of an aligned candidate does not have a statistically significant effect on violence, which suggests that the availability of valuable resources to be captured can affect the dynamics of this relationship. These findings confirm the relevance of political alignment on delivering security within constituencies and the potential role played by local level wealth in such delivery.

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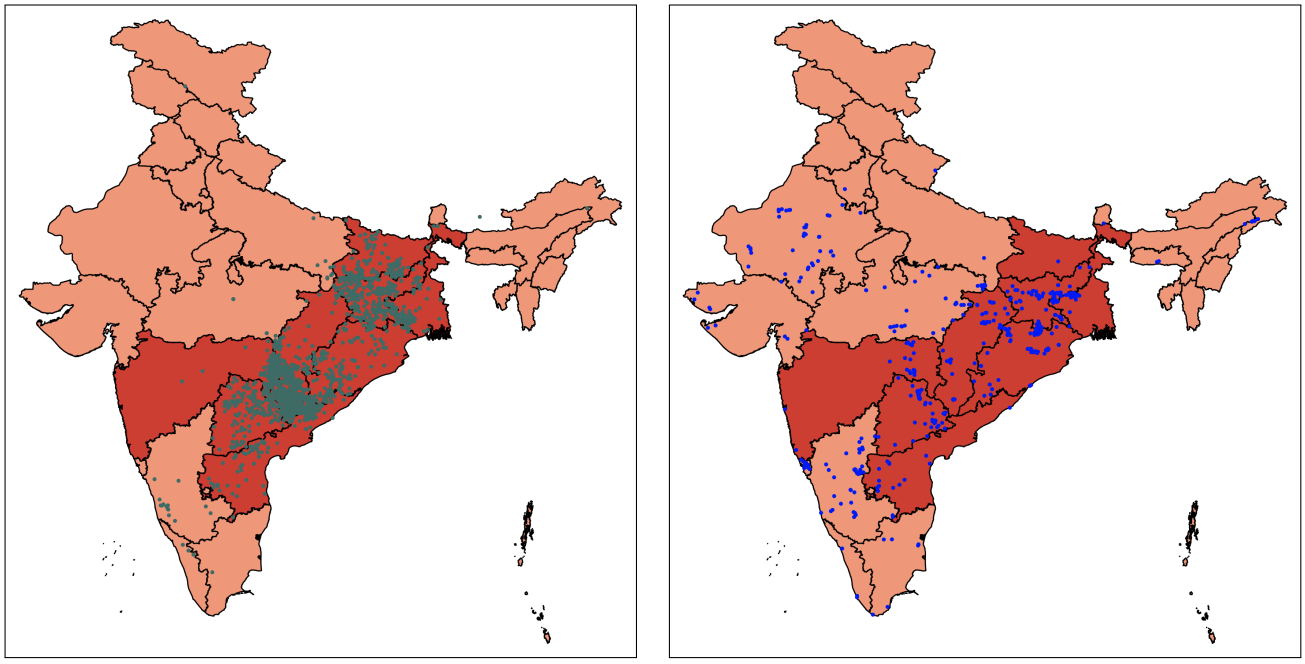
Online Appendix. Partisan Alignment, Insurgency and Security: Evidence from the Indian Red-corridor

A Additional Data Description

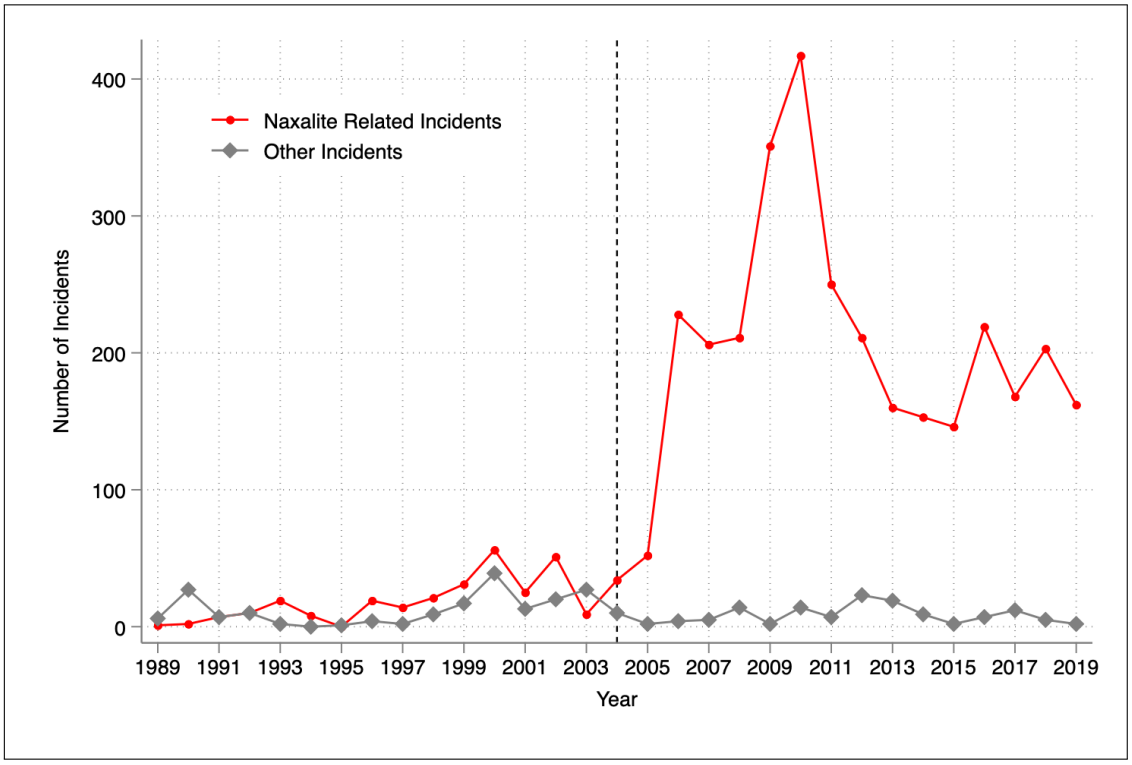
Figure A1: Location of Violent Incidents and Mines

Panel A: Violent Incidents **Panel B: Mines**



Notes: The darker shaded states denote the Red Corridor, i.e., Andhra Pradesh, Bihar, Chhattisgarh, Jharkhand, Maharashtra, Odisha, Telangana and West Bengal. In Panel A, dots denote locations of violent incidents (initiated by Naxalites or Government). In Panel B, dots denote locations of mines.

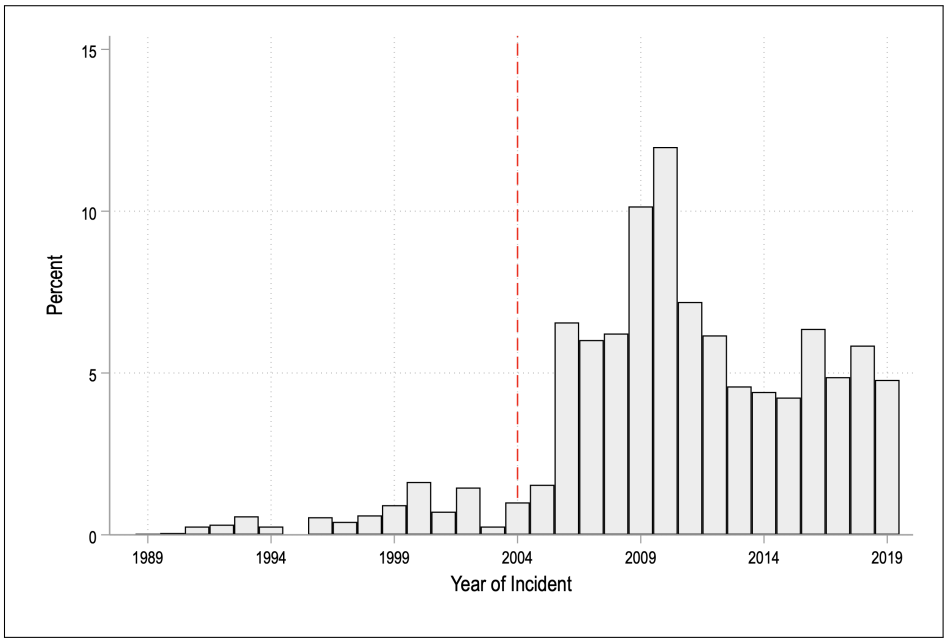
Figure A2: Count of Naxalite related and other incidents. 1989–2019



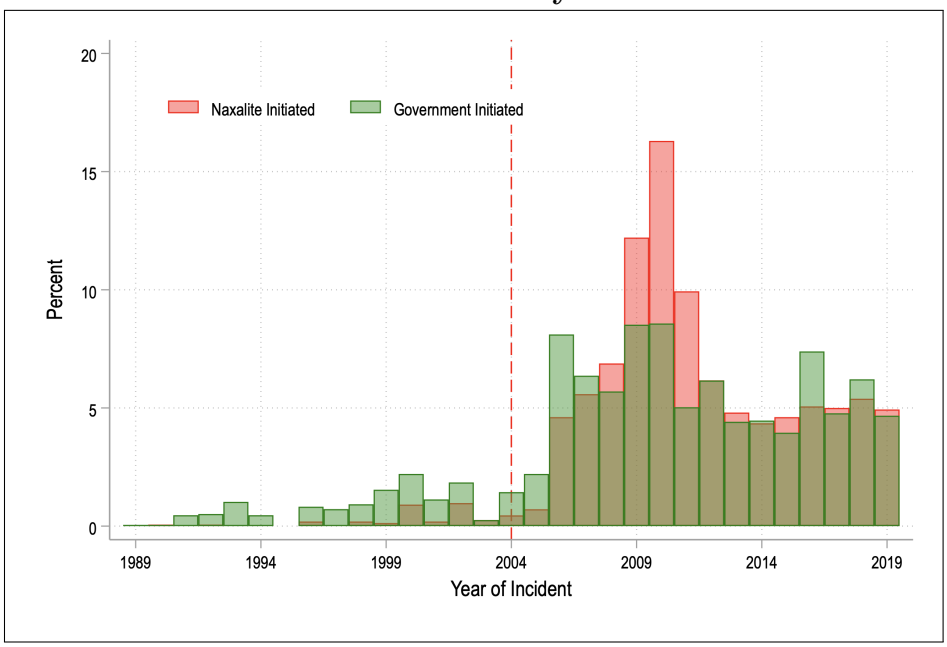
Notes: Naxalite related incidents refer to violent events where one of the two parties involved is either the Communist Party of India–Maoist (CPI-Maoist) or the People's War Group (PWG) and the incident happend in Andhra Pradesh, Bihar, Chhattisgarh, Jharkhand, Maharashtra, Odisha, Telangana or West Bengal. Other incidents refer to violent events in these states that did not involve the CPI-Maoist or the PWG.

Figure A3: Temporal Variation in Incidents

Panel A: All Incidents



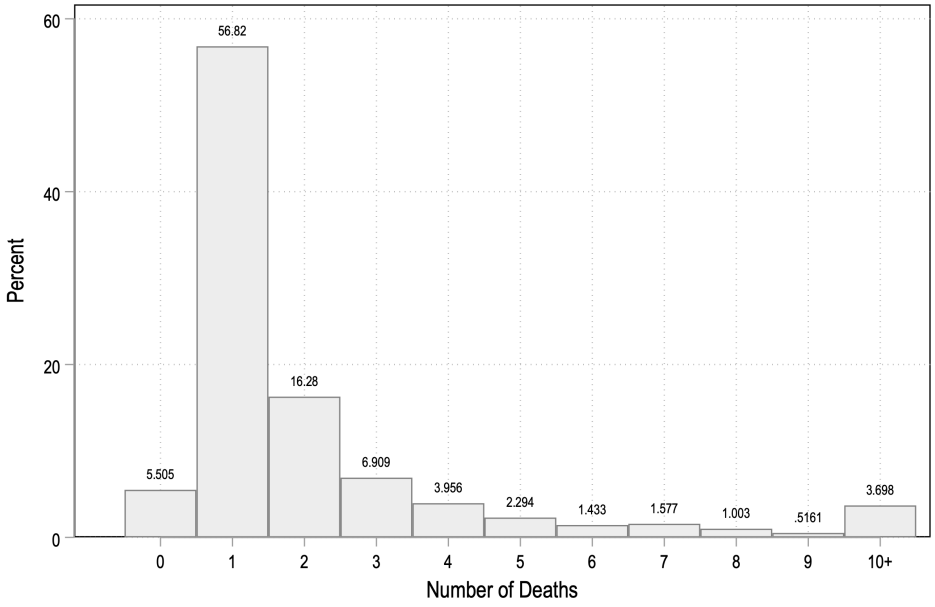
Panel B: Incidents by Initiator



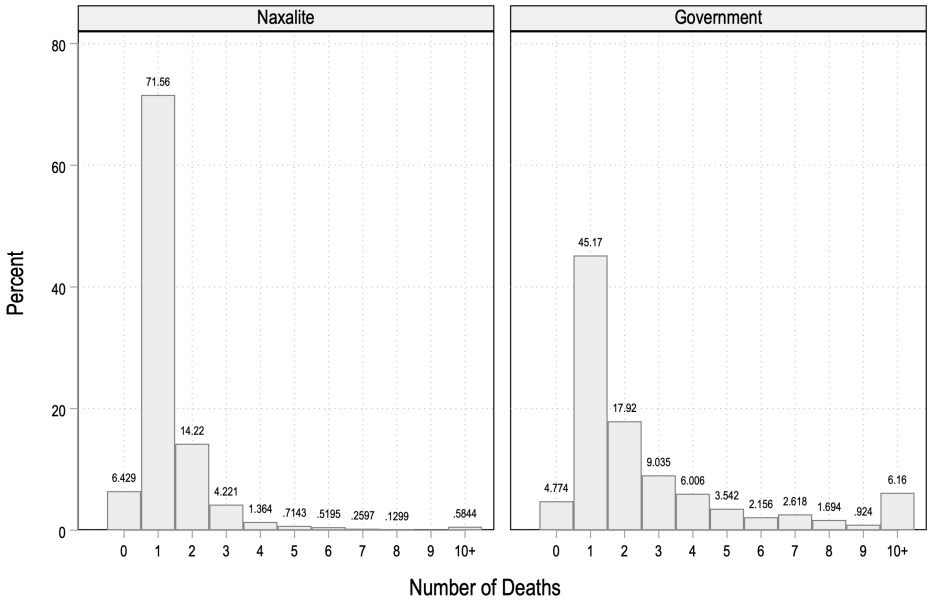
Notes: Panel A presents the distribution of the number of incidents initiated by all parties. Panel B presents the corresponding distribution by initiator (Naxalites or Government of India).

Figure A4: Distribution of the Number of Deaths in Incidents

Panel A: All Violent Incidents

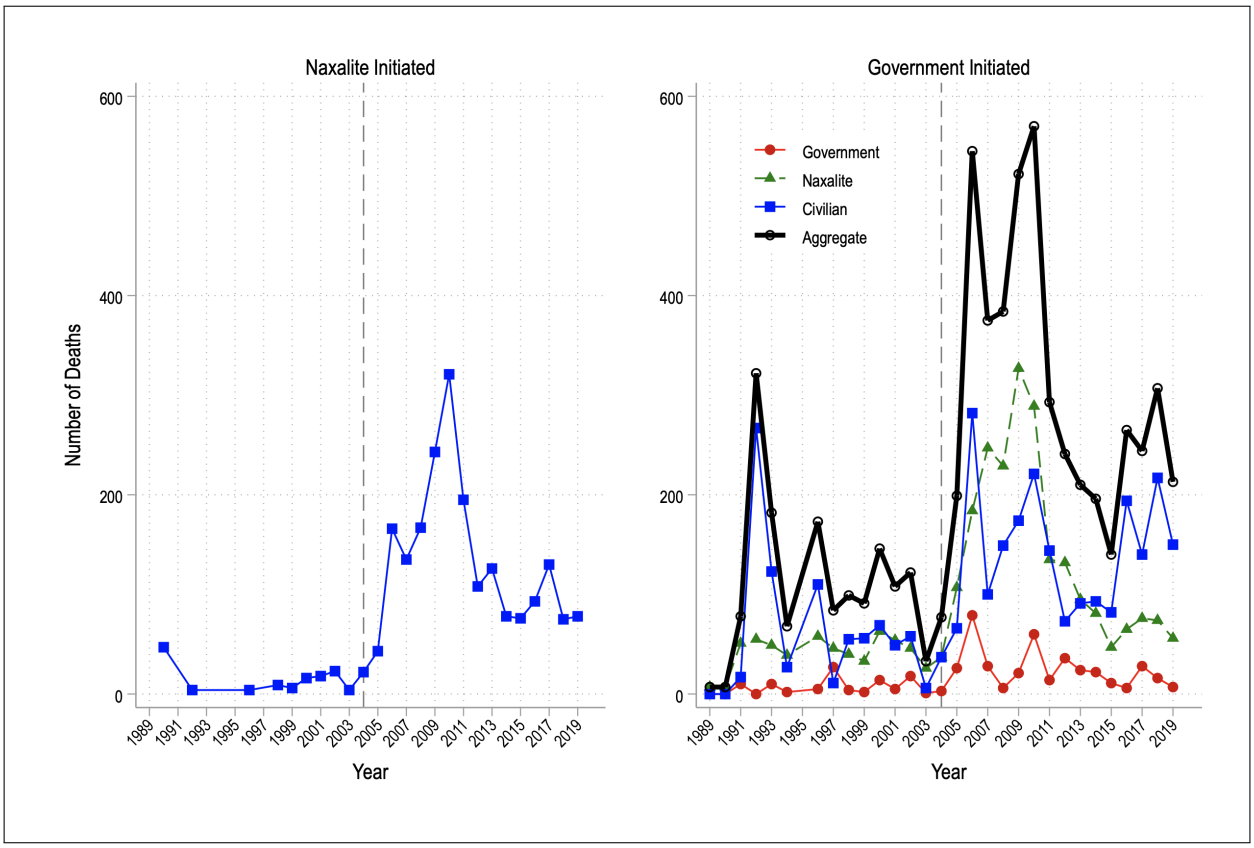


Panel B: Violent Incidents by Initiator



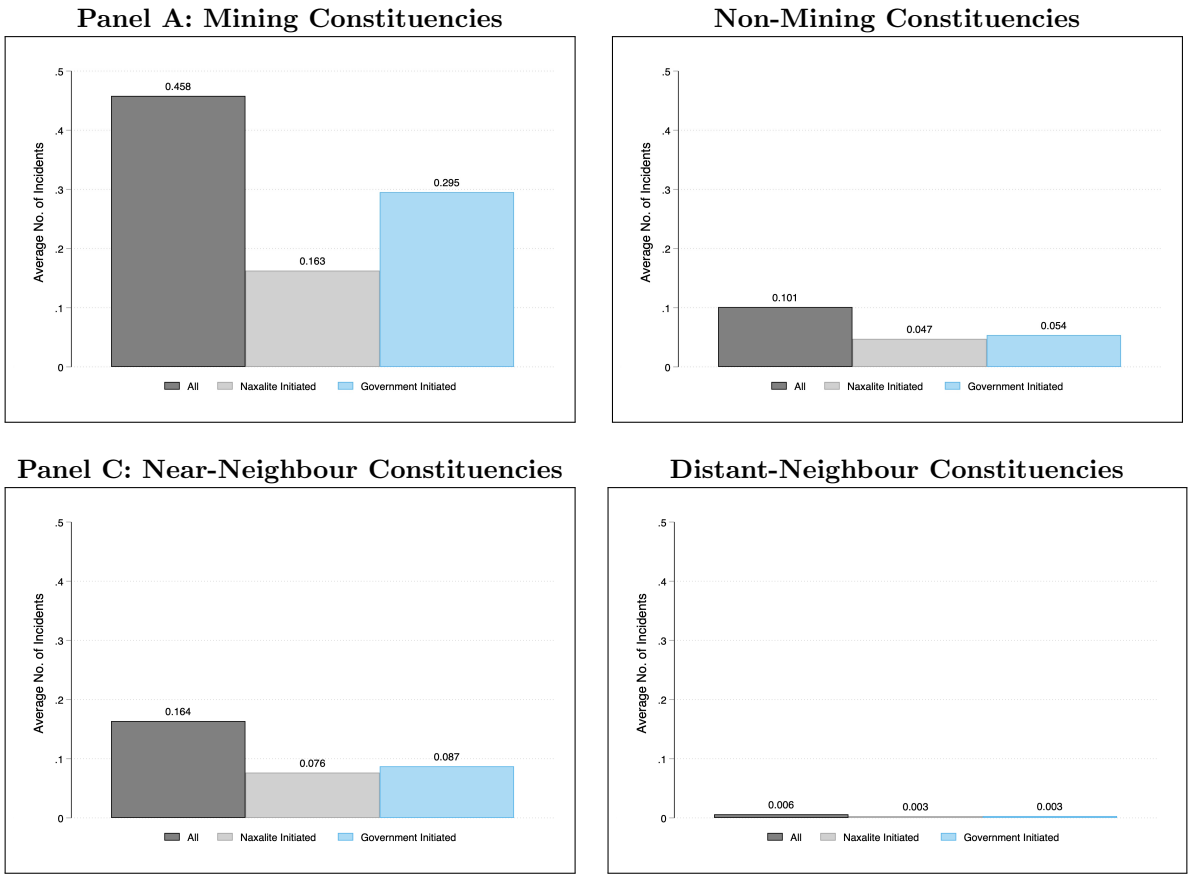
Notes: Best Estimate of the number of deaths in each incident presented. 10+ denote 10 or more deaths in the incident.

Figure A5: Temporal Variation in Number of Deaths of Each Affected Group



Notes: For Naxalite initiated incidents, all deaths are categorized as civilian deaths. For Government initiated incidents, the aggregate number of deaths is the sum of deaths of the Government (police/security forces), Naxalites and civilians. Deaths aggregated over all incidents during the year.

Figure A6: Average Number of Incidents per year in Mining, Non-mining, Near-Neighbour and Distant-Neighbour Constituencies

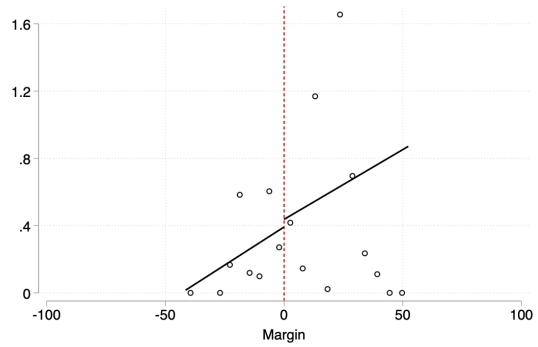


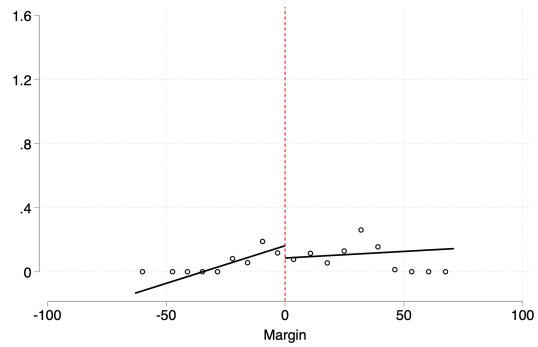
Notes: Average number of incidents per year, Naxalite initiated incidents and Government initiated incidents per year in Mining, Non-Mining, Near-Neighbour and Distant-Neighbour Constituencies.

Figure A7: *ALIGNED* Constituency and Violence at the Constituency Level. Mining and Non-Mining Constituencies

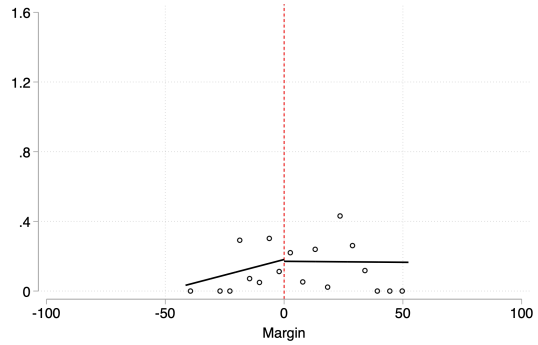
	Mining Constituencies (1)	**Non-Mining Constituencies** (2)

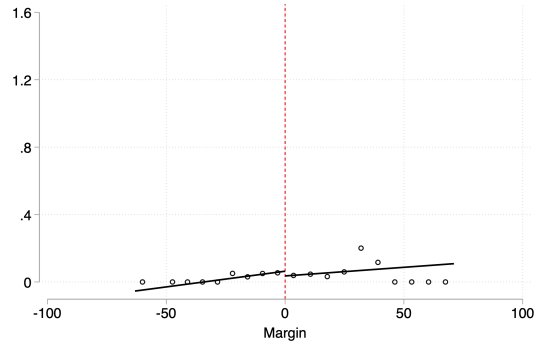
Panel A: Total Incident Count



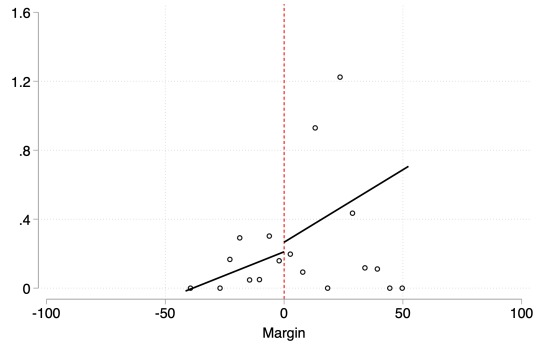


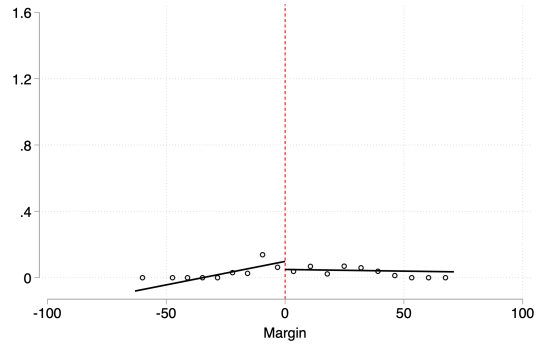
Panel B: Incidents Initiated by Naxalites





Panel C: Incidents Initiated by Government



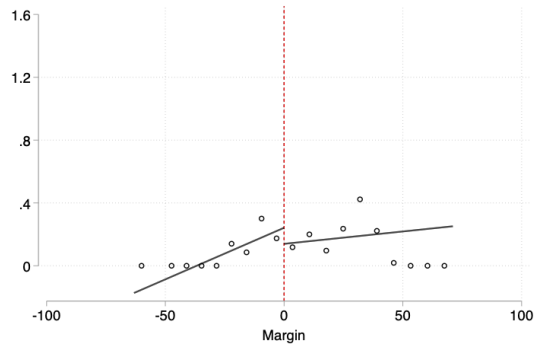


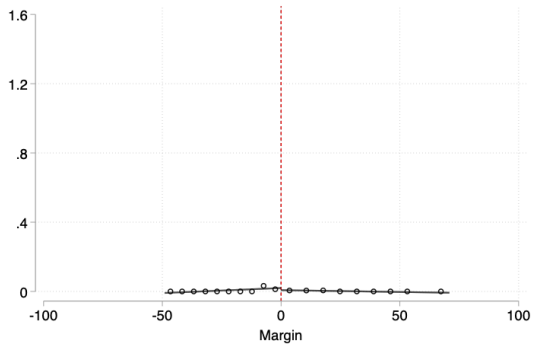
Notes: Effect of Electing an *ALIGNED* candidate on total incident count (Panel A), incidents initiated by Naxalites (Panel B) and incidents initiated by the Government (Panel C), separately for mining (Column 1) and non-mining constituencies (Column 2). Polynomial of order 1 (linear) used to fit. The forcing variable is the margin of victory of an *ALIGNED* candidate. Negative values are the difference in the vote shares of an *ALIGNED* runner-up and a non-aligned winner. Positive values are the differences in the vote shares of an *ALIGNED* winner and a non-aligned runner-up. The variable on the y-axis is the count of incidents. The dots in the scatter plot depict the average of the count of incidents over each successive interval of 0.5% of margin of victory.

Figure A8: *ALIGNED* Constituency and Violence at the Constituency Level. Near-Neighbour and Distant-Neighbour constituencies

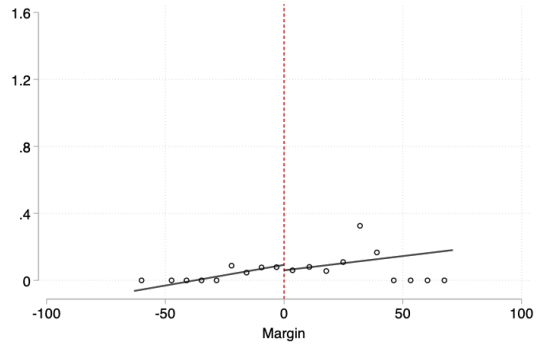
	Near-Neighbour Constituencies (1)	**Mining Distant-Neighbour Constituencies** (2)

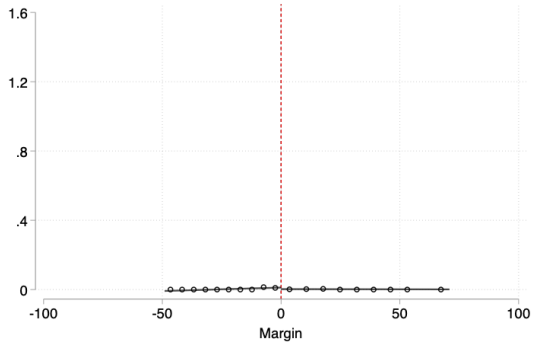
Panel A: Total Incident Count



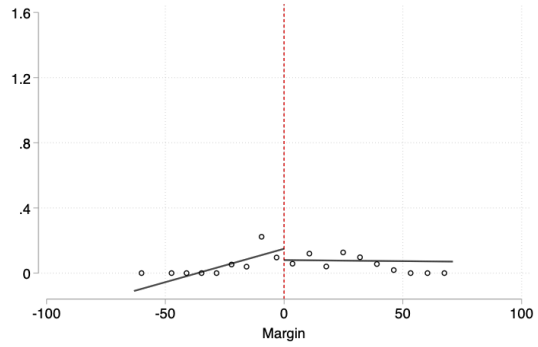


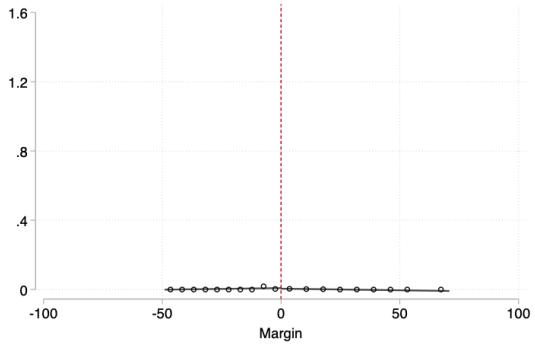
Panel B: Incidents Initiated by Naxalites





Panel C: Incidents Initiated by Government



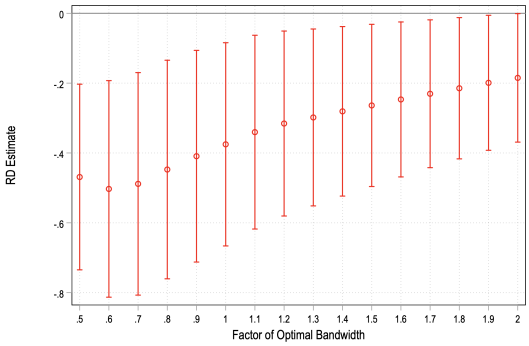


Notes: Effect of Electing an *ALIGNED* candidate on total incident count (Panel A), incidents initiated by Naxalites (Panel B) and incidents initiated by the Government (Panel C), separately for near-neighbour (Column 1) and distant-neighbour (Column 2) constituencies. Near-neighbour constituencies are those within 0–100 km of the centroid of a mining constituency. Distant-neighbour constituencies are those within 100–200 km of the centroid of a mining constituency. The forcing variable is the margin of victory of an *ALIGNED* candidate. Negative values are the difference in the vote shares of an *ALIGNED* runner-up and a non-aligned winner. Positive values are the differences in the vote shares of an *ALIGNED* winner and a non-aligned runner-up. The variable on the y-axis is the count of incidents. The dots in the scatter plot depict the average of the count of incidents over each successive interval of 0.5% of margin of victory.

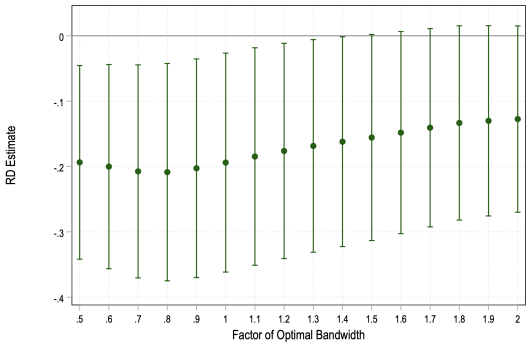
B Robustness and Heterogeneity

Figure B1: *ALIGNED* Constituency and Violence at the Constituency Level. Robustness to alternative bandwidths

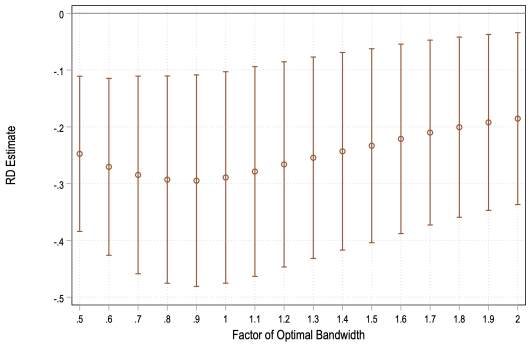
Panel A: Total Incident Count



Panel B: Incidents Initiated by Naxalites

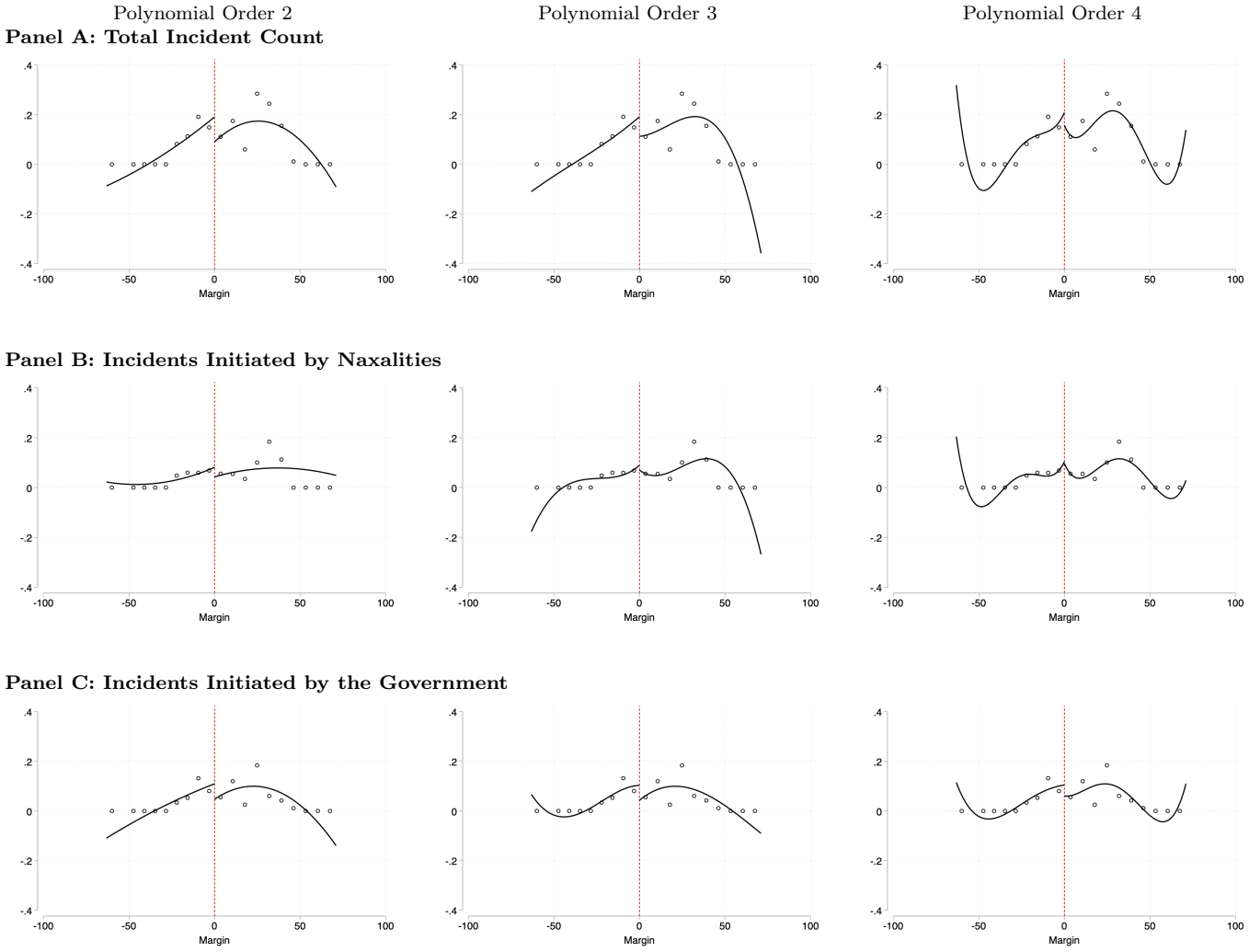


Panel C: Incidents Initiated by the Government



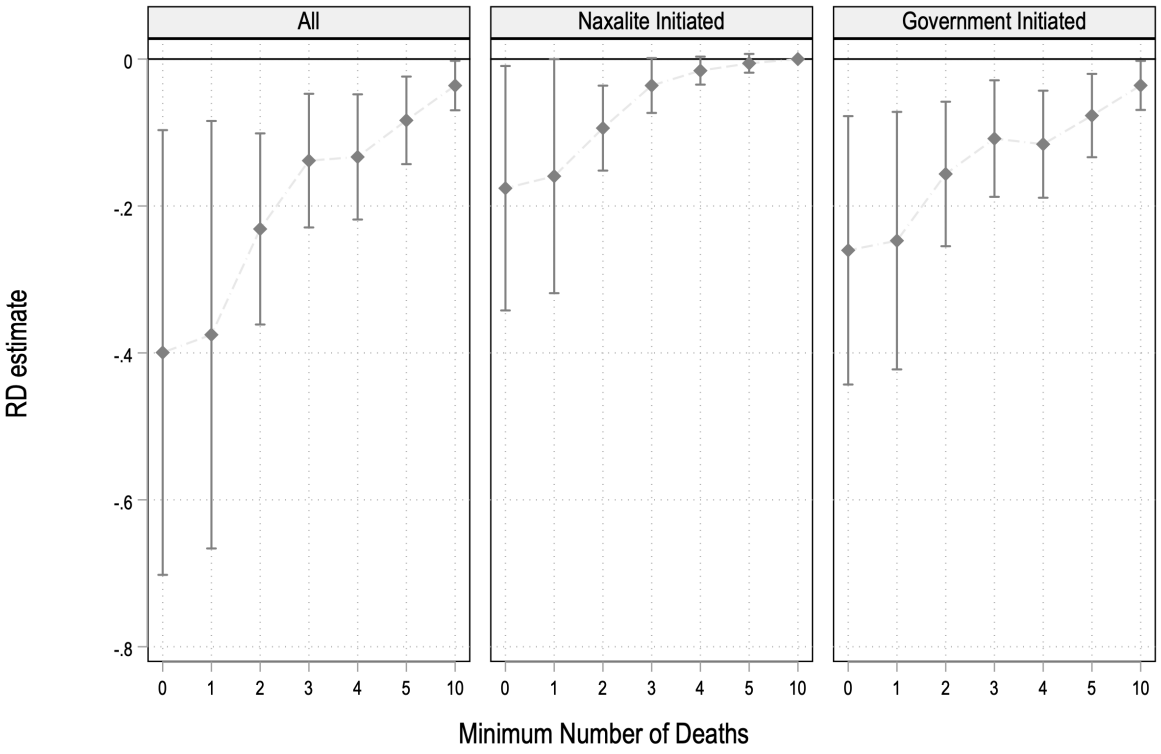
Notes: Effect of Electing an *ALIGNED* candidate (and the 90% confidence interval) on total incident count (Panel A), incidents initiated by Naxalites (Panel B) and incidents initiated by the Government (Panel C) for varying bandwidths is presented. The forcing variable is the margin of victory of an *ALIGNED* candidate.

Figure B2: *ALIGNED* Constituency and Violence at the Constituency Level. Robustness to degree of polynomial fit



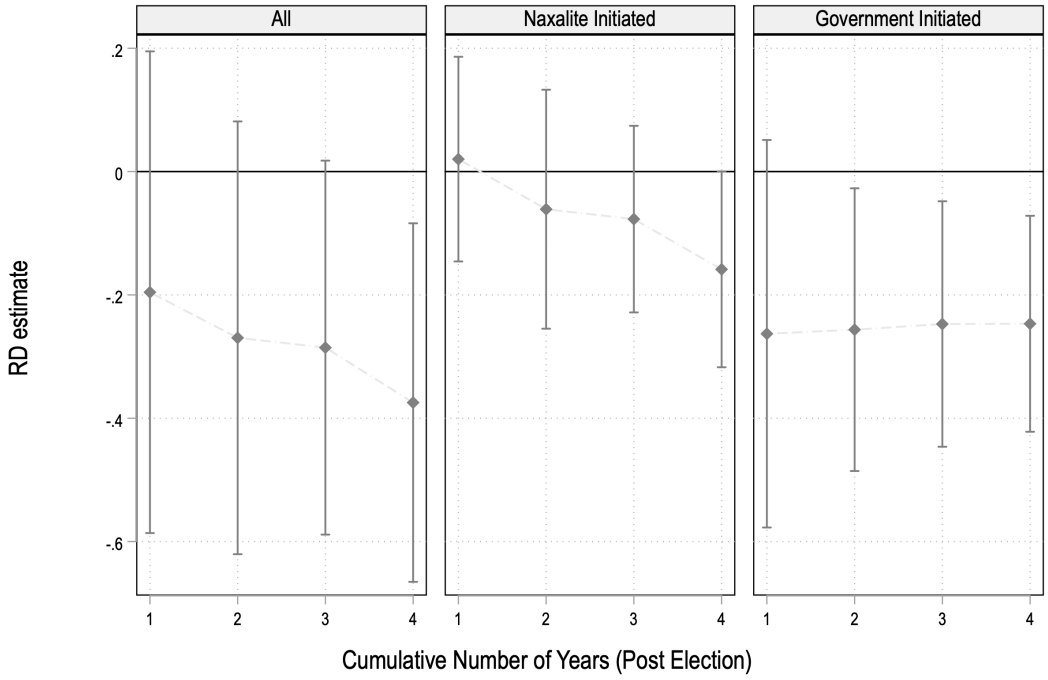
Notes: Effect of Electing an *ALIGNED* candidate on total incident count (Panel A), incidents initiated by Naxalites (Panel B) and incidents initiated by the Government (Panel C), separately for mining (Column 1) and non-mining constituencies (Column 2). Polynomial of orders 2, 3 and 4 used to fit. The forcing variable is the margin of victory of an *ALIGNED* candidate. Negative values are the difference in the vote shares of an *ALIGNED* runner-up and a non-aligned winner. Positive values are the differences in the vote shares of an *ALIGNED* winner and a non-aligned runner-up. The variable on the y-axis is the count of incidents. The dots in the scatter plot depict the average of the count of incidents over each successive interval of 0.5% of margin of victory.

Figure B3: *ALIGNED* Constituency and Violence at the Constituency Level. Robustness to Number of Deaths in the Incident



Notes: Robustness of results to minimum number of deaths in the incident. RD estimates of electing an *ALIGNED* candidate on total incident count, incidents initiated by Naxalites and incidents initiated by the Government and the corresponding 90% confidence interval presented. Sample Includes incidents during the period 2004–2019.

Figure B4: *ALIGNED* Constituency and Cumulative Number of Incidents During the Term



Notes: RD estimates of *ALIGNED* Constituency presented. *ALIGNED* Constituency = 1 if the winner is aligned with the ruling party in the state and the corresponding 90% confidence interval presented. RD estimates for the optimal bandwidth (h) presented. Sample restricted to incidents with at least one death. Sample Includes incidents during the period 2004–2019.

Table B1: *ALIGNED* Constituency and Violence at the Constituency Level. State Specific Estimates

	Total Violence			Naxalite Initiated Violence			Government Initiated Violence		
	h	$1/2 \times h$	$2 \times h$	h	$1/2 \times h$	$2 \times h$	h	$1/2 \times h$	$2 \times h$
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Panel A: *Andhra Pradesh and Telangana*[†]									
ALIGNED Constituency	0.3137***	0.1973**	0.2099***	0.1740***	0.1098**	0.1117***	0.1432***	0.0440	0.1050***
	(0.0852)	(0.0772)	(0.0510)	(0.0530)	(0.0520)	(0.0338)	(0.0500)	(0.0466)	(0.0364)
Observations	2,818			2,818			2,818		
Bandwidth (h)	2.218			2.263			1.908		
Effective Observations (N_h)									
Panel B: *Bihar*									
ALIGNED Constituency	-0.6594***	-1.0645***	-0.0820	-0.7360***	-0.8492**	-0.2518**	-0.1392	-0.3228	0.0351
	(0.1860)	(0.3805)	(0.1381)	(0.2482)	(0.3502)	(0.1174)	(0.1159)	(0.2249)	(0.0816)
Observations	1,298			1,298			1,298		
Bandwidth (h)	1.858			1.458			1.723		
Effective Observations (N_h)	114	52	254	92	42	182	114	52	238
Panel C: *Chhattisgarh*									
ALIGNED Constituency	-2.3362***	-3.4669***	-1.0396***	-0.2973	-0.5203	-0.2267*	-2.3849***	-3.1445***	-0.8814***
	(0.7178)	(1.0043)	(0.2243)	(0.2068)	(0.4010)	(0.1307)	(0.7780)	(0.7567)	(0.1360)
Observations	777			777			777		
Bandwidth (h)	3.686			4.053			3.205		
Effective Observations (N_h)	167	96	387	187	106	421	143	87	344
Panel D: *Jharkhand*									
ALIGNED Constituency	-0.6208	-2.2785**	-0.4076	-0.6342	-1.4865**	-0.3359	-0.2807	-1.8463***	-0.1424
	(0.6488)	(1.0138)	(0.5063)	(0.4134)	(0.6105)	(0.3469)	(0.3650)	(0.5599)	(0.2878)
Observations	496			496			496		
Bandwidth (h)	4.237			3.190			3.610		
Effective Observations (N_h)	166	71	292	114	59	219	130	65	253

Continued ...

ALIGNED Constituency and Violence at the Constituency Level. State Specific Estimates (Continued)

	Total Violence			Naxalite Initiated Violence			Government Initiated Violence		
	h	$1/2 \times h$	$2 \times h$	h	$1/2 \times h$	$2 \times h$	h	$1/2 \times h$	$2 \times h$
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Panel E: *Maharashtra*									
ALIGNED Constituency	0.3085	-0.1800	0.2138	0.2698	0.1463	0.1484	0.0512	-0.1027	0.0278
	(0.3456)	(0.2232)	(0.1914)	(0.1805)	(0.1339)	(0.1063)	(0.1680)	(0.2187)	(0.0954)
Observations	1,671			1,671					
Bandwidth (h)	2.605			3.102			3.064		
Effective Observations (N_h)	284	133	508	336	153	576	336	153	576
Panel E: *Odisha*									
ALIGNED Constituency	-1.6094***	-2.2647***	-0.8340*	-1.0600**	-1.3777**	-0.6018*	-0.7001**	-0.8773**	-0.2508
	(0.5804)	(0.8468)	(0.4309)	(0.4498)	(0.5969)	(0.3380)	(0.3393)	(0.4039)	(0.1635)
Observations	1,349			1,349			1,349		
Bandwidth (h)	2.669			2.696			2.226		
Effective Observations (N_h)	161	82	367	165	82	367	121	62	309

Notes: State Specific RD estimates of *ALIGNED* Constituency presented. *ALIGNED* Constituency = 1 if the winner is aligned with the ruling party in the state. Sample restricted to incidents with at least one death. Includes incidents during the period 2004–2019. Standard errors, clustered at the State×Year level, are in parentheses. Significance $^{***}p < 0.01$,$^{**}p < 0.05$,$^{*}p < 0.1$. † : The state of Andhra Pradesh was split into the states of Andhra Pradesh and Telangana in 2014.

Table B2: *ALIGNED* Constituency and Violence at the Constituency Level. Estimates by Reservation Status of Constituencies

	Total Violence			Naxalite Initiated Violence			Government Initiated Violence		
	h	$1/2 \times h$	$2 \times h$	h	$1/2 \times h$	$2 \times h$	h	$1/2 \times h$	$2 \times h$
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Panel A: *ST Reserved Constituencies*									
ALIGNED Constituency	-0.6350	-1.0315	-0.4345	-0.1454	-0.2978	-0.1185	-0.4670	-0.7242*	-0.2838
	(0.5848)	(0.6839)	(0.4417)	(0.3314)	(0.3912)	(0.2626)	(0.3467)	(0.4014)	(0.2467)
Observations	1,115			1,115			1,115		
Bandwidth (h)	3.208			3.277			3.399		
Effective Observations (N_h)	272	141	476	279	141	484	283	141	492
Panel B: *Any Reserved Constituency*									
ALIGNED Constituency	-0.5769*	-1.2965***	-0.2814	-0.1996	-0.4989**	-0.1002	-0.4415*	-0.8906***	-0.2044
	(0.3477)	(0.4579)	(0.2371)	(0.1997)	(0.2469)	(0.1460)	(0.2313)	(0.3119)	(0.1464)
Observations	2,887			2,887			2,887		
Bandwidth (h)	2.847			2.782			2.479		
Effective Observations (N_h)	528	289	1003	523	289	989	468	254	896
Panel C: *Non-Reserved (Open) Constituencies*									
ALIGNED Constituency	-0.0835*	-0.1148*	-0.0587**	-0.0548	-0.0708	-0.0408*	-0.0350	-0.0381	-0.0215
	(0.0490)	(0.0663)	(0.0295)	(0.0354)	(0.0457)	(0.0213)	(0.0269)	(0.0294)	(0.0209)
Observations	7,714			7,714			7,714		
Bandwidth (h)	1.695			1.589			1.502		
Effective Observations (N_h)	728	345	1496	690	340	1382	660	314	1293

Notes: RD estimates of *ALIGNED* Constituency by reservation status of constituencies presented. *ALIGNED* Constituency = 1 if the winner is aligned with the ruling party in the state. Any Reserved Constituency denotes constituencies that are either ST reserved or SC reserved. Non-Reserved (Open) constituency denotes constituencies that are neither ST reserved nor SC reserved. Sample restricted to incidents with at least one death. Includes incidents during the period 2004–2019. Standard errors, clustered at the State×Year level, are in parentheses. Significance $^{***}p < 0.01$,** $p < 0.05$,* $p < 0.1$.

C Retaliatory Nature of Attacks

Every conflict has two sides. In the case of the Naxalite insurgency, the two sides are the Naxals and the Government (security forces). Whether conflicts are retaliatory in nature leading to an endless cycle of violence or whether violence by one side, is designed to deter the opposite side from engaging in future violence (or to ensure an incapacitation effect, limiting the operational capability of the other side to carry out attacks) is an open question, which needs to be examined empirically. To do this, we need high frequency data to analyze the dynamics of violence.

The conflict data that we have provides both the date of the violent incident and which side initiated it. Restricting ourselves to the period January 1, 2005 – December 31, 2019, we see there were no incidents on 59.31% of the days; 34.39% of the days had incident initiated by one side while the remaining 6.3% of the days had two incidents. To avoid the large number of 0's, we aggregate the incidents to the week level. 6.39% of weeks had no incidents; and the remaining had at least one incident. Figure C1 presents the total number of incldents and fatalities per week over the period January 1, 2005 – December 31, 2019, by initiator.

To test whether Naxalite initiated incidents caused Government initiated incidents and vice versa, we condicted a series of vector autoregressions (VAR). This approach regresses current Naxalite initiated incidents (in week t) on previous Naxalite and Government initiated incidents, upto a pre-specified lag. We use the Akaike's information criterion (AIC) to choose the most appropriate autoregressive order for each VAR process.

VAR requires all variables to be of the same order of integration. We this tested for the presence of unit root using the augmented Dickey-Fuller (DF) test. The absence of a unit root implies stationarity of the time series and integration of order 0 and thus use of VAR on the data is justified. The null hypothesis of the DF test is the presence of a unit root. A large negative value rejects this null hypothesis. The test results are presented in Table C1. The null hypothesis was rejected in all cases, suggesting that the time series are stationary and a VAR approach is justified.

Our regression specification is given by the following system of equations

$$N_t = \alpha_N + \sum_{s=1}^{L_N} \beta_{N,s} N_{t-s} + \sum_{r=1}^{L_G} \gamma_{N,r} G_{t-r} + \varepsilon_{N,t} \tag{C1}$$

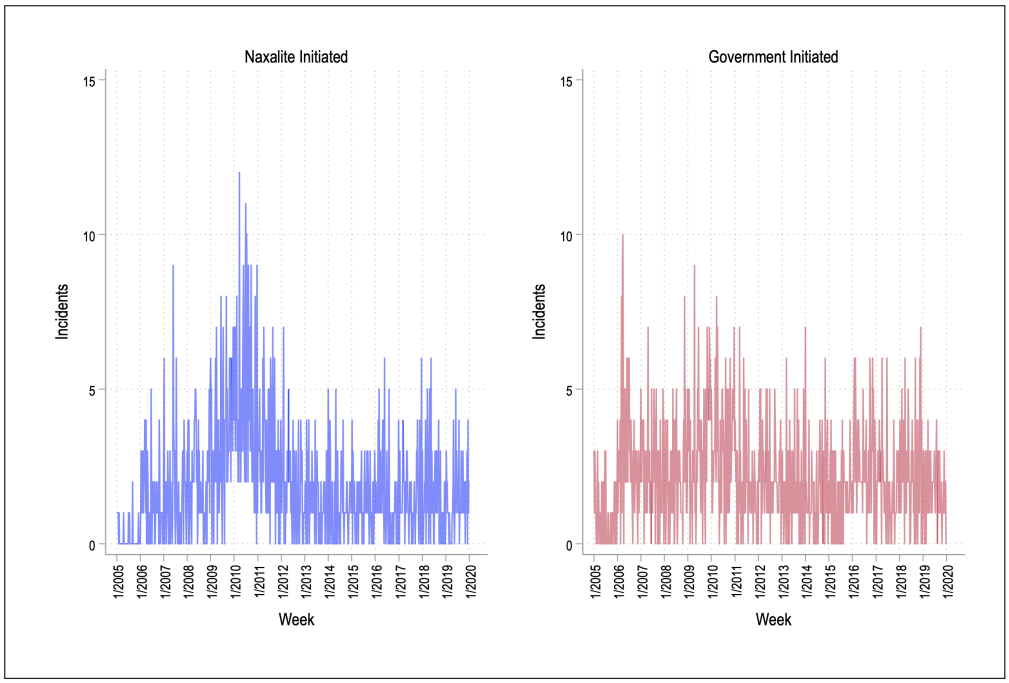
$$G_t = \alpha_G + \sum_{r=1}^{L_N} \beta_{G,r} N_{t-r} + \sum_{s=1}^{L_G} \gamma_{G,s} G_{t-s} + \varepsilon_{G,t} \tag{C2}$$

Here N_t and G_t denote the number of Naxalite initiated and Government initiated attacks on a particular day t; L_N and L_G are the optimal number of lags on incidents initiated by the Naxalites and the Government respectively (determined by the AIC), α_N and α_G are constant terms and finally $\varepsilon_{N,t}$ and $\varepsilon_{G,t}$ are the error terms. To test whether past incidents initiated by Naxalites predict current attacks by the Government we test whether the L_G elements of the coefficient vector β_G are jointly significantly different from 0 by computing the F-statistic. Conversely, to test whether past incidents initiated by Government predict current attacks by the Naxalites we test whether the L_N elements of the coefficient vector β_N are jointly significantly different from 0.

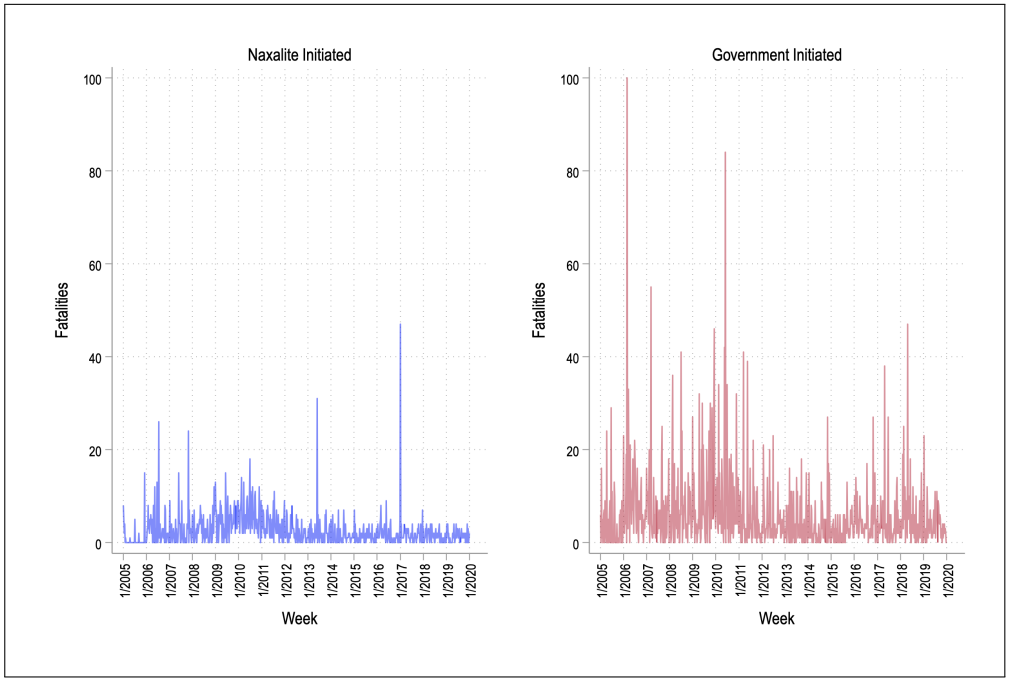
Table 5 presents the results on retaliation.

Figure C1: Incidents and Fatalities by Initiator. Aggregation at Week Level

Panel A: Incidents



Panel B: Fatalities



Notes: Total number of incidents and fatalities in each week by initiator. Sample restricted to the period January 1, 2005 – December 31, 2019.

Table C1: Dickey-Fuller Test

Test Specification	Test Statistic	Incidents by Initiator		Fatalities by Initiator	
		Naxalite	Government	Naxalite	Government
		(1)	(2)	(3)	(4)
With intercept but no trend	Z	-5.739 [0.000]	-8.540 [0.000]	-8.998 [0.000]	-10.068 [0.000]
With trend	Z	-5.788 [0.000]	-8.603 [0.000]	-9.348 [0.000]	-10.062 [0.000]
With drift	Z	-5.739 [0.000]	-8.540 [0.000]	-8.998 [0.000]	-10.068 [0.000]

Notes: Results of the augmented Dickey-Fuller test for the four time series of interest. The trend term includes a trend term in the associated regression, and assumes that the process under the null hypothesis is a random walk, possibly with drift. The drift specification assumes that the process under the null hypothesis is a random walk with non-zero drift. Significantly negative test statistics are evidence of stationarity. p-values in square brackets.

Table C2: Retaliation: Andhra Pradesh

	Panel A: Government Retaliation			
	Incidents to Incidents		Incidents to Fatalities	
Test statistics	Level	Incidence	Level	Incidence
F	1.01	1.30	1.56	1.36
	[0.3865]	[0.2725]	[0.1071]	[0.1895]
	Fatalities to Incidents		Fatalities to Fatalities	
Test statistics	Level	Incidence	Level	Incidence
F	0.29	0.75	1.47	1.32
	[0.8355]	[0.5230]	[0.1363]	[0.2108]
	Panel B: Naxalite Retaliation			
	Incidents to Incidents		Incidents to Fatalities	
Test statistics	Level	Incidence	Level	Incidence
F	1.52	1.40	1.55	1.60
	[0.1208]	[0.1676]	[0.0446]	[0.0350]
	Fatalities to Incidents		Fatalities to Fatalities	
Test statistics	Level	Incidence	Level	Incidence
F	1.50	1.40	1.47	1.64
	[0.1281]	[0.1658]	[0.0701]	[0.0285]

Notes: Sample restricted to incidents in the state of Andhra Pradesh only. Test statistics for the test of the null hypothesis that the lagged coefficients on the respective other variable are jointly equal to zero. Significant statistics (p-values ≤ 0.05) can be interpreted as retaliation by one party for previous violence from the other side. p-values in square brackets. Corresponding Dickey-Fuller Test results available on request.