The Effect of Conflict on Lending: Evidence from Indian Border Areas

Mrinal Mishra[§] and Steven Ongena[†]

[§]*Department of Banking & Finance, University of Zurich and The Swiss Finance Institute*

[†]*Department of Banking & Finance at University of Zurich, The Swiss Finance Institute, KU Leuven & CEPR*

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Abstract

We study the effect of conflict on loan officers in areas bordering India and Pakistan in the state of Jammu & Kashmir in India. We capture this conflict by observing incidences of *shelling* (mortar gun firing) between both armies. Our results depict that the loan terms borrowers obtain get progressively worse after repeated incidences of *shelling*. We explore the channels at work and attribute the outcomes to simultaneously altering risk preferences and beliefs by the loan officers. Our study informs policymakers on how to deal with political and economic turmoil that may result in liquidity shortfalls and (or) credit spirals.

1 Introduction

Experiences play an instrumental role in shaping cognition and mental faculties. Additionally, our experiences are instrumental in determining prejudices and ex-post behaviour (Crandall and Eshleman (2003). An increasingly relevant and growing body of literature has sought to examine the role played by early life experiences on risk taking by individuals. The studies have been wide ranging from risk taking by CEOs (Bernile, Bhagwat, and Rau (2016)) to investment in more conservative assets contingent on Great Depression (Malmendier and Nagel (2011)) and early life inflation experiences (Malmendier and Nagel (2015)).

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Past work has also tried to point the effect of conflict experience on risk. While Voors, Nillesen, Verwimp, Bulte, Lensink, and Soest (2012) show evidence from the Burundian civil war in favour of heightened risk taking even well after experiencing conflict; Callen, Isaqzadeh, Long, and Sprenger (2014) carry out a survey in Afghanistan and demonstrate that individuals prefer higher certainty equivalents, i.e., increased risk aversion when primed to remember the violence experienced. However, given that Callen, Isaqzadeh, Long, and Sprenger (2014) prime subjects with fear, may affect past recollections in a precise manner. On the other hand Voors, Nillesen, Verwimp, Bulte, Lensink, and Soest (2012) use a ten year interval (from 1993-2003) to determine their violence measures. It is possible that the individuals surveyed a few years later suffer from a *recency effect* (Kahana (2012)), i.e., they attribute higher weights to most recent outcomes. As a result, the outcomes could be driven by individuals whose experiences of violence are more concurrent as compared to their survey counterparts.

Our setting and data allow us to address these concerns. First, we investigate the impact of contemporaneous and repeated incidences of conflict on loan outcomes. These incidences occur within a relatively short time; on average eight months after one another. This allows us to minimize the possible bias in outcomes arising due to inter-temporal nature of human recall where events that are more recent tend to get weighted higher (Bjork and Whitten (1974)). Additionally, longer sample periods in surveys are more prone to such errors of judgement, which we minimize by using frequent repeated incidences.

Second, our events cover those periods of conflict when a large number of border dwelling populace had to migrate out of their homes owing to war like situation prevalent in these areas. As a result, these incidents do not cover incidents with limited or no damage but actual occurrences. In addition, we use a region level loans database to observe the possible outcomes of *shelling*. This allows us to estimate objectively the after effects of the conflict episodes without having to condition the affected individuals.

The backdrop of our armed conflict is international in nature and revolves around the aggression between India and Pakistan in the districts of Jammu, Samba and Kathua situated in the Indian state of Jammu & Kashmir along the Radcliffe Line (International Border)[1]. The inter-state conflict in these border districts manifests itself primarily through *shelling*, i.e., mortar gun firing across both sides of the border.

There are specific reasons why we choose to focus on these three districts only. The erstwhile

[1]The border runs from the Line of Control (LoC), which separates Indian-administered Kashmir from Pakistani administered Kashmir, in the north, to the Zero Point between the Indian state of Gujarat and Sindh province of Pakistan, in the south.

princely state of Jammu & Kashmir consists of many divisions and borders following August 1947 when the British decided to repudiate the administration of India and partition it into the sovereign states of India and Pakistan. As a result of the wars fought over it and its geographic position (between India, Pakistan and China), the state has sizeable territorial disputes between the three countries. As a result, most of the boundaries in the state are *de-facto* and not formally agreed upon by either one of the countries. However, the portion of the international border, which separates these three districts on the Indian side and Pakistan, is the only boundary in the state which is *de-jure*, and an extension of the Radcliffe Line in Jammu & Kashmir.[2]

Hence, any aggression along the Radcliffe Line is considered a violation of international treaties. This is in stark contrast to the *de-facto* boundary between India and Pakistan in Jammu & Kashmir (colloquially referred to as the Line of Control) where mutual aggression has been the norm for many decades now. We use the *shelling* prone districts along this border for falsification tests in the latter part of the paper.

We use a staggered difference-in-differences methodology as our primary identification strategy. Our events correspond to those periods where shelling along the three border districts was so intense that it warranted a migration of the population. This distinction is important to make as isolated incidents of shelling or small arms firing occur as well. The treatment group corresponds to those branches, which lie within 10 kilometres of the international border where as the control group corresponds to those branches, which lie between 10 and 20 kilometres from the international border. The choice of 10 kilometres is dictated by a variety of measures. The range of the mortar guns is about 7 kilometres where as the Indian government classifies residents dwelling within 6 kilometres as "affected". We extend the classification, as it is plausible that people bank in branches which are a few kilometres outside the "affected" categorization. Moreover, our results are robust to the alteration of the cutoff for the treatment group from 7.5 kilometres to 10 kilometres.

Our results show higher cumulative loan pricing of about 10 basis points across the sample period for branches located in areas affected by *shelling*. Collateral requirements (% of the loan collateralized) for affected branches are lower by about 9% initially and subsequently increase by over 8% for successive events. We observe lower collateral after the first event followed by higher collateral as the *shelling* episodes repeat themselves. This pattern is non-uniform and probably suggests that it takes a while to adjust. It is possible that collateral requirements drop after the first event due to the damage caused by *shelling*. However, once the events repeat, loan officers build this into their expectations. As a result, we observe higher collateral requirements

[2]the official boundary separating Indian and Pakistan which came into force on 17th August, 1947.

over the next two shelling incidences.

We do not observe any changes in loan amount. The increase in mean loan amount is statistically indistinguishable from zero. This supports the proposition that the net observed effect is not driven by demand as an increase in interest rates driven primarily by demand would have been accompanied by a simultaneous increase in average loan amount. Instead, we observe a secular increase in interest rates with negligible changes in mean loan amount. This lends credence to the assumption that the net effect arises due to changes instituted by loan officers impacted by the shelling incidents.

Further, we control for the local variation in demand using district time fixed effects and for generic variations in supply using % of lending target achieved. We attribute the results thus obtained to supply effects emanating from the incidents of shelling. As additional robustness, we also limit our sample to loan types which tend to be more affected by shelling and observe similar results.

We also explore the channels which could be responsible for the observed outcomes. At a first glance, it is possible to attribute these changes in the behaviour of the loan officers to[3] altering risk preferences. However, it is possible that the outcome could be due to a combination of (or effect in isolation) changing risk preferences or change in beliefs about expected future default. Past literature on early-life as well as contemporary experiences tends to entirely attribute outcomes to altering preferences. Moreover, it is also plausible that preferences and beliefs operate in conjunction. We provide suggestive empirical evidence that both effects maybe at play.

While our results are primarily focused around conflict episodes, they can also be used to explore lending behaviour following generic political (or economic shocks). As these events occur very close to one another, exploring the response of loan officers to these incidences could be instructive in understanding how credit tightening works when they are faced with such shocks. In such circumstances, restricting credit availability by altering loan terms could accentuate downward spirals and (or) credit freezes in environments which are already credit constrained.

The remainder of the paper is organized as follows. Section 2 reviews the literature. Section 3 describes the context for our study. Section 4 explains the data and lists the hypotheses. Section 5 elucidates the empirical methodology and discusses the associated results. Section 6 tries to understand the mechanism driving our results. Section 7 elaborates on the robustness

[3]We use the terms loan officers to signify a group of individuals working at a particular branch. However, many of these branches are fairly small and have just one person responsible for loan vetting and approval.

tests where as Section 8 concludes.

2 Literature Review

This paper contributes to three different streams of literature. First, we contribute to the literature on micro-economic outcomes of conflict. Second, we also contribute to the literature which speaks to the effect of experiences on decisions and outcomes. Finally, the setting also relates to the larger literature in economics and finance on conflict.

Voors, Nillesen, Verwimp, Bulte, Lensink, and Soest (2012) conduct a field experiment in Burundi after the civil war among those who live in communities that had been violently attacked. They document that these individuals tend to be more selfless, risk-loving and impatient. However, they do not observe preferences and derive inferences about underlying preferences by observing behaviour. Callen, Isaqzadeh, Long, and Sprenger (2014) demonstrate that individuals present in areas exposed to violence[4] when primed to recall fear exhibit a preference for certainty. However, given the survey based approach there might be situations in which the recall factor is not deterministic. Both these studies use survey data given the intractability of data availability in the geographies they focus on. On the other hand, we use the loans database of the largest bank in the region which adds to the external validity of our outcomes. Nonetheless, our results are more in line with Callen, Isaqzadeh, Long, and Sprenger (2014) as we find increased risk aversion following episodes of broad based conflict. However, while Callen, Isaqzadeh, Long, and Sprenger (2014) prime their subjects with fear, we do not do so. Additionally, Jakiela and Ozier (2019) also use conflict as a backdrop to explore individual risk preferences using the post-election conflict in Kenya in early 2008 as backdrop.

Of late, there is a new and emerging literature which tries to investigate the role played by past experiences on outcomes. Apart from Malmendier and Nagel (2011) and Malmendier and Nagel (2015), Hanaoka, Shigeoka, and Watanabe (2018) use the 2011 earthquake in Japan to investigate change in risk preferences. They observe that men who experienced greater earthquake intensity became more tolerant to risk. Brown, Montalva, Thomas, and Velásquez (2018) observe opposite outcomes before and after the Mexican war on drugs. Specifically, they document a 5% increase in risk aversion compared to the average. Nguyen, Hagendorff, and Eshraghi (2017) go beyond the traditional early life experiences channel and depict that cultural origins matter for corporate outcomes. They show that firms led by CEOs who are second- or third-generation immigrants have a 6.2% higher profitability compared to the average firm.

[4] through failed insurgent attacks

Dessaint and Matray (2017) find that managerial behaviour becomes more risk averse when companies are situated in the neighbourhood of hurricane affected areas. Agarwal, Ghosh, and Zhao (2018) study the terrorist attack in Mumbai in 2008 to show that trading activity was affected primarily due to deterioration traders' cognitive abilities[5]

In this respect, the paper closest to ours is Fisman, Sarkar, Skrastins, and Vig (2018) as they also use outcome variables in a "banking" setting. They show how experience of communal riots prejudices loan officers by inducing taste based discrimination in favour of certain groups (during loan disbursement). However, while Fisman, Sarkar, Skrastins, and Vig (2018) use early life (and possible) on the job experiences are as a source of discrimination, we focus on the impact of contemporaneous experiences on shifting risk preferences or altering beliefs for the loan officers.

The widely cited paper of Abadie and Gardeazabal (2003) is one of the first works on the economic costs associated with conflict. Using a "synthetic" control group they show that the GDP declined in Basque Country region due to terrorism. Verdickt (2018) shows that an increase in the ex-ante possibility of war or its actual occurrence results in decreased stock returns. Nunn and Qian (2014) demonstrate that increase in US food aid in recipient countries prolongs the duration of existing civil conflicts. In a similar vein, Crost, Felter, and Johnston (2014) elaborate that randomized access to development projects in Philippines increases the likelihood of being affected by conflict as insurgents fear increase in support for the government. Esteban, Mayoral, and Ray (2012) exhibit that a link exists between ethnic divisions and conflict. Dwarkasing (2014) also investigates the effect of war on lending outcomes, specifically the effect the American Civil War had on mortgage lending approval. Yanagizawa-Drott (2014) depicts the role of media in disseminating propaganda and intensifying conflict between the Hutu and Tutsi tribal groups in Rwanda.

3 Background & Setting

The state of Jammu & Kashmir (J&K) is the northernmost province of the Republic of India with the Indian administered portion sharing its borders with Pakistan and China. The state has often been in the headlines owing to it being a flash point for much of the armed struggle between India and Pakistan.[6] The province has had a troubled history since 1947, the year when British India (also known colloquially as The British Raj or simply *The Raj*) was partitioned into

[5]The authors attribute this deterioration to fear and stress experienced after the terrorist attack.

[6]https://www.economist.com/asia/2019/02/21/india-vows-to-punish-pakistan-after-the-latest-terrorist-attack

India and Pakistan[7]. However, to establish our research context we would have to delve (a bit) deeper into the history of the region.

British India largely consisted of two major components – i) Areas directly administered by the British comprising about 60% of the land mass and ii) *Princely States* numbering 584 at the time of Indian independence in August, 1947 and comprising around 40 % of the total land area (Figure 1). These *princely states* were ruled by the native kings who had entered into treaties with the British and were not officially part of the British *Raj*. The erstwhile princely state of Jammu & Kashmir was one of the largest of these 584 agglomerations.

When India attained its independence in 1947, it was divided into the sovereign countries of India and Pakistan. However, Jammu & Kashmir chose to remain independent[8]. However, this independence was short lived. The strategic position and demographics of Jammu & Kashmir culminated in a war between India and Pakistan. Once the war subsided, a ceasefire was declared with the LoC demarcating the boundary along which ceasefire occurred. The official status of this border remains unsettled even today and is a bone of contention for both India & Pakistan. As a result, the Line of Control (LoC) is the largest of the *de facto*[9] boundaries in Jammu & Kashmir.

Apart from the LoC, the Radcliffe Line was drawn to divide British India into the independent states of India and Pakistan in 1947. What is interesting is that in its present situation the state consists of two *de facto* boundaries, the Line of Control (LoC) and the Line of Actual Control (also known as the LAC)[10] and a *de jure* boundary, the Radcliffe Line (Figure 2). As the Radcliffe Line is an international border formally agreed upon by both countries, any hostilities across it are tantamount to an act of war[11]. We use the districts situated along this border for our analysis. While there was always the odd shelling incident or stray bullets fired by the military stationed on both sides of the border, the hostilities crept up after 2014 with sustained mortar firing. This firing can at times last for days at a stretch making the region resemble a proxy "war-zone".

It is instructive to point out that for administrative purposes, the state of Jammu & Kashmir in India was been divided into three separate divisions, namely Jammu, Kashmir Valley and

[7]For a detailed time-line of the events since 1947, please refer to https://edition.cnn.com/2013/11/08/world/kashmir-fast-facts/index.html

[8]Remaining independent was a choice which was offered to each of the 584 *princely states*. The other choices they had was to join either India or Pakistan, something almost all of them except Jammu & Kashmir acquiesced to.

[9]The LoC was made a de-facto boundary from a ceasefire line as per the Shimla Agreement of 1971. For details, refer to https://www.mea.gov.in/bilateral-documents.htm?dtl/5541/Simla+Agreement

[10]This border separates the state from China, primarily the portion annexed during the 1962 Indo-China war. This border too, is yet to be formally settled by both countries.

[11]The portion of the Radcliffe Line which passes across the Jammu division in India is colloquially referred to as the "IB" on the Indian side and "Working Boundary" on the Pakistani side.

Ladakh[12]. This classification is germane for our analysis as the Radcliffe Line passes through the Jammu division only. The nature of conflict across the LoC is more structural and has persisted for close to 70 years now. As a result, cross border hostilities or large scale border skirmishes in districts along the LoC would not have the same unanticipated consequences as one would expect along the Radcliffe Line.

To perform our analysis, we require the precise dates of the occurrence of shelling in the areas adjoining the Radcliffe Line. The exact nature of these events is sporadic which makes proper documentation a challenge at times. We obtain our information on shelling incidents from the South Asian Terrorism Portal (SATP)[13]. While there have been reported and unreported instances of small arms firing or few shells being fired, we focus primarily on those incidents where the firing was so intense and damage so widespread that people had to be moved out of their homes. These large scale incidences took place starting in 2014 which coincides with our data availability from January 2011 to June 2017.

When hostilities between both countries were in full swing, the border dwelling populace was shifted temporarily to relief camps in safer areas lying outside the range of the artillery guns until the antagonism subsided. These incidents also saw temporary migration of border populations[14] as depicted in Table 1.

We colloquially refer to mortar gun rounds as *shells*. The distance to which the damage can be effected can be varied by altering the angle at which the gun is fired. The rounds can be quite damaging especially as they explode into tiny fragments once they hit the ground. Our field visit to one of the border towns depicted that the shrapnel and exploding fragments cause damage to cattle, houses and vehicles (Figure A2). They also result in injury and[15] sometimes even death, though such incidences are rare. Unexploded or inert shells in agricultural farms also pose a life threat to people during the harvest period. Figure 3 shows an example of one of the mortar guns (120 mm) used by the security forces stationed at the Radcliffe Line.

[12]The state also enjoyed some autonomy in certain matters due to special provisions of the Indian constitution. However, these statutes which granted the autonomy ceased to exist as of 5$^{\text{th}}$ August, 2019. Also, as of 31st October, 2019 the state was reorganized and divided into the two separate federally administered territories of Jammu & Kashmir and Ladakh.

[13]http://www.satp.org/

[14]It is noteworthy to mention that there is anecdotal evidence to suggest that in some cases households migrated permanently to cities or towns away from the purported war-zone after the shelling culminated.

[15]We would like to point out that while the damage to houses is significant, it does result in widespread destruction observed in a full blown war, such as the one in Syria few years ago. Pictures available at https://www.theguardian.com/world/2016/dec/21/aleppo-syria-war-destruction-then-and-now-in-pictures

4 Hypotheses & Data

Given our setting, we try and understand how conflict (manifested by shelling) affects lending and contributes to market frictions. Ex-ante, we propose that the optimal outcome for the loan officers is to impose more strict loan terms. Alternatively, it is also possible that the loan terms become lax due to the political influence or loan officers relaxing constraints for borrowers during times of need. Also, we hypothesize that the intensity of these terms increases with subsequent events. This is in line with past work (ref. Malmendier and Nagel (2011); Malmendier and Nagel (2015)) which uses experiences in early life and seeks to connect them to possible decision making and outcomes. Pin-pointing the the exact source of this supply focused behaviour remains instrumental in determining the channel. We conjecture that the response could be driven due to two possibly different channels. To ascertain the veracity of the aforementioned sequence of events, we test the following hypotheses:

$\mathbb{H}_1$: *Branches located in areas affected by shelling offer loan terms which are detrimental to borrowers. Alternatively, loan officers could issue loans with terms more favourable to the borrowers. These effects oppose each other.*

$\mathbb{H}_2$: *The effects are driven primarily due to changes in lending behaviour by the loan officers. These effects intensify over time after experiencing repeated events.*

$\mathbb{H}_3$: *The change in lending behaviour by loan officers situated in affected areas vis-a-vis unaffected areas can be attributed either to change in preferences or change in beliefs.*

We obtain our loan-level data from the largest lender in the state of Jammu & Kashmir. While not entirely, the lender which provides us with the data is close to a monopolist in terms of lending. For example, for the financial year 2017-18, the lending targets allocated to them were 71.67% of the overall lending targets[16] in the state of Jammu & Kashmir. They also have considerable reach accounting for 44.5% of the branches, 65.4% of the bank correspondents[17] and 43.7% of the ATMs in the state as of 31st December, 2017. Our dataset covers the period spanning from January 2011 - June 2017. Further details of the data are depicted in Table 2 which shows summary statistics for loans initiated by affected and unaffected branches.

The geocodes of each branch are hand collected using Google Maps. Subsequently, we use this information to calculate the shortest distance of each branch from the border. We can observe in Panel B of Table 2 that a loan granted in the affected region has a mean distance of

[16]These lending targets are assigned by the state level bankers' committee to districts based on lending categories. Within a district, various branches from different reallocate the targets based on their capacity to lend.

[17]Bank correspondents or BCs act as branchless banking associates and are responsible for last mile delivery of banking services like account opening, deposits collection and payment services.

about 6.4 kms from the border. This is well within the range of the mortar guns as depicted in Figure 3. We observe that the second row of Panel A, which calculates the logarithm of the interest rate, has a lower value for affected branches as compared to the unaffected branches. Similarly, the logarithm of the loan amounts and % loan collateralized have lower values for the affected areas. Any collateral is a variable which captures whether a loan had collateral put up against it at the time of disbursement. The variable does not change for either group.

On the other hand, we observe that productive lending, i.e., for agriculture, farming or income generating purposes is higher for the affected areas. This is probably because these areas are mostly rural, and agricultural loans constitute a bulk of the lending. We also observe that there is not much of a difference in the lagged supply slippage between the affected and unaffected branches. We would to point out that though we compute the mean of this variable at the loan level, the variation is primarily at the district level.

5 Empirical Methodology & Results

5.1 Primary Identification Strategy

We use a staggered difference-in-differences (DiD) as our primary empirical strategy. We limit our analysis to only those districts in the state of J&K which are situated along the Radcliffe Line (Table 3). Within these districts, our treatment group consists of those branches that lie within the 10 kilometres of the Radcliffe Line where as the control group consists of those branches which lie 10-20 km from the Radcliffe Line (Figure 4). The choice of employing a cutoff at 10 km is not random and is dictated by what the local authorities classify as areas affected by shelling. The local government states that areas lying within 0-5 km of the Radcliffe Line are affected and routinely issues circulars and warnings to citizens residing in this belt. An example of such a circular is depicted in Figure A1. Additionally, the Indian parliament also passed a bill recently which allows individuals living within 6 kms of the Radcliffe Line to be eligible for 3% reservation in appointment and promotions in state government posts, apart from admission to professional institutions[18].

However, we extend the affected region to 10 km from the border. The reasons for doing so are:

i) We do not have access to the exact location of the borrower and hence use a bank branch as our primary identifier.

[18] https://www.prsindia.org/billtrack/jammu-and-kashmir-reservation-amendment-bill-2019

ii) This allows us to include loans for those borrowers who might reside in the 0-5 km zone but bank in the 5-10 km zone. The 0-5 km belt in the Jammu division is primarily agrarian and rural with low branch density.

iii) The range of the mortar guns as depicted in Figure 3 is about 7 kilometres.

As a result, it is quite plausible that a borrower residing just around the 5 km cutoff would prefer banking with a branch in the 5-10 km zone as the branch density increases as one moves away from the border.

We use a window of $[t-3, t)$ months as our pre-period and $[t+1, t+4)$ months after the event as our post period. A burn-in of one month after allows us to remove the effect of those loans which were contracted prior to the event but initiated right after. To test the effect of conflict on loan terms for loans initiated by branches in the affected areas, we estimate the following equation:

$$Terms_{it} = \beta_0 + \beta_1 Treated_i \times Post_t + \beta_2 Treated_i + \beta_3 Post_t + \eta_{jt} + \mu_k + \epsilon_{mt} \quad (1)$$

where *Terms* denotes either of the loan terms, i.e., Interest rate, Loan amount or % Loan collateralized. *Treated* is a dummy variable which equals 1 for loans given by all branches within 0-10 kilometres of the Radcliffe Line where as it is 0 for loans given by all branches within 10-20 kilometres of the Radcliffe Line. η denotes district × time (quarter) fixed effects and μ denotes loan type fixed effects. District × time fixed effects allow us to control for any time varying demand across the districts. Loan type fixed effects allow us to compare within loan groups. This is pertinent as there are more than a hundred loan types in our data. The importance stems from the fact that we cannot compare two different loan types as the terms and conditions offered on both might be significantly different. For eg: consumption loans and short term credit lines might have very different orders of magnitude of interest rates and amounts.

An assessment of the news articles collected by the SATP portal reveals that shelling occurred around 5th Oct - 11th Oct 2014, 4th Jan - 5th Jan 2015, 26th Oct - 27th Oct 2015 and 23rd Oct - 1st Nov 2016. As the effects of dates and the subsequent effects of shelling could persist for more than a few days, we use a burn-in period of 1 month after the shelling subsided, i.e, we begin the post period 1 month after the last date of the shelling incident. This also allows us to control for any loans which had been contracted before the event period.

Eveidently, our first and second events occur very close to each other, i.e., within the 3 month window. Hence, we collapse both events to a single event due to the possibility of confounding effects associated with one event's pre-period being the post-period for another event. For the final event ending on 1st Nov, 2016 the post period coincides with the demonetization event[19]. Thus, we begin the post period for the DiD specification from 1 Jan, 2017 which is after the demonetization exercise ended. We do this because the lending almost came to a standstill during this period as bank officials were involved in collecting banknotes and tallying deposits.

5.2 Baseline Results

Table 4 shows how the loan terms varied for borrowers who took out loans from affected branches after the event. We convert all loan terms to their natural logarithms to avoid the preponderance of zeroes, if any. Our primary coefficient of interest is the DiD interaction term, *Affected*× *Post*. The dependent variables are depicted separately for each shelling event to understand how successive events impact the outcomes. Columns 1, 4 and 7 show that the interest rate increases progressively after each event. The interest rate for each subsequent event is approximately 0.5%[20] higher than before. However, over the successive course of the three events, the cumulative increase is about 1.5% to 1.6%. This amounts to an increase of around 10-11 basis points[21] assuming a mean interest rate of about 7% (Table 2). This increment, at first glance, might seem trivial. However, we would like to point out that the loan officers do not have too much slack to change the interest rate substantially given that there are specific guidelines in place regarding the interest rates. As a result, a loan officer can only vary the interest rates in a small range from the established guidelines.

The loan amount increases (as observed in columns 2, 5 and 8) but at a decreasing rate. Moreover, this effect this not significant except in the very first event where the significance is at the 90% confidence interval. Nonetheless, given that our argument is that supply side factors act as the driver of the increased interest rates, we revisit what could possibly drive the concomitant increase in loan amount in the forthcoming sections.

We observe that the percentage of loan amount collateralized (observed in columns 3, 6 and 9) shows an irregular trend but the first difference remains positive over subsequent events. However, we notice that the very first event depicts a drop in the collateral. This

[19]This pertains to the period when the government ordained that 500 and 1,000 rupee notes would no longer be recognized as legal tender https://www.rbi.org.in/Scripts/NotificationUser.aspx?Id=10684&Mode=0

[20]$\exp\left(0.5 \times 10^{-2}\right) - 1$

[21]$(1.005^3 - 1) \times 7\%$

could be because households suffer a loss (or damage) of collateral[22] when shelling takes place. Agricultural land and crop yield are a consequential form of collateral as agricultural households often use their farmland or expected crop yield for this purpose. Shelling damages the value of both as mortar shells often land on agricultural farms thus inhibiting the ability of the cultivator to put the land to good use. If the shelling occurs before the harvest season, it is plausible that there is a delay in harvesting leading to losses for the borrower. Additionally, as can be observed from Table 4, we see an increasing propensity for the loan terms to worsen over consecutive events. Hence, we observe a negative shock to collateral in the first event. However, as the loan officers reset their expectations about future such events, it is plausible that they demand higher collateral to cover from the losses arising from these events.

Separating the effects of demand and supply is pertinent to our setting. For example, it is plausible that the interest rate increase is determined by either supply decrease, demand increase or both simultaneously. An increase in demand may be driven by the re-seeding of economic activity following the temporary shutdown in these areas. On the other hand, the decrease in supply may be due to a rational reaction by the loan officers. Expecting future incidences of similar nature, the loan officers may increase the interest rate to account for any future losses or impairments on loans initiated to borrowers in this region. This outcome may be a rational one dictated by *learning about their environment*. On the other hand, it is also possible that these changes are necessitated by *changes in risk preferences* of the loan officers due to repeated occurrences of the shelling events. Hence, this begets the need to control for either demand or supply so that we may be able to understand which one of the aforementioned effects dominates in reality. To circumvent this problem of separating demand specific effects from supply, we control for demand in Table 4 using *District* × *quarter* fixed effects.

5.3 Disentangling Demand from Supply

As mentioned above, to separate demand specific effects from supply, we use *District* × *quarter* fixed effects[23] (Fisman, Paravisini, and Vig (2017)) so that we can attribute the remnant effects to supply. On the supply side, we would like to primarily investigate effects caused due to shelling. However, there might be other general supply side effects interfering with our results. To control for the same, we estimate the following modified specification:

[22]primarily cattle, homes, arable farmland and expected agricultural output.

[23]In a standard bank-firm setting, we would use firm fixed-effects to absorb firm specific effects. However, given that our data pertains to individuals, this is not a plausible exercise. Our specification assumes that there is little variation in demand within a district, especially between areas affected by shelling and ones unaffected by shelling.

$$Terms_{it} = \beta_0 + \beta_1 Treated_i \times Post_t + \beta_2 Treated_i + \beta_3 Post_t + \beta_4 Supply\ Slippage_{q-1} + \eta_{jt} + \mu_k + \epsilon_{mt} \quad (2)$$

where *Terms* denotes either of the loan terms, i.e Interest rate, Loan amount or % Loan collateralized. *Treated* is a dummy variable which equals 1 for loans given by all branches within 0-10 kilometres of the Radcliffe Line where as it is 0 for loans given by all branches within 10-20 kilometres of the Radcliffe Line. η denotes district (or branch) $\times$ time (quarter) fixed effects. μ denotes loan type fixed effects. Loan type fixed effects allows us to compare within loan groups. Lagged *Supply Slippage* is a term we observe at the district-loan category[24] level with a quarterly frequency. We estimate it for a given loan category, l for a quarter, q as follows:

$$Supply\ Slippage_{lq} = 1 - \frac{\sum_{i=1}^{n} Cumulative\ Loan\ Volume_{lq}}{Lending\ Volume\ Target_l} \quad (3)$$

where *Lending Volume Target* is the annual loan volume target for a loan category, l. n denotes the total no. of branches in the district.

The rationale behind using the *Supply Slippage* of the previous quarter as a control is that a greater chasm between the lending target (by loan volume) and cumulative achievement in the previous quarter may result in more aggressive loan disbursement policies employed by the branches to achieve the required numbers. On the other hand, if the target for a given loan category has been surpassed or is close to being surpassed, we can expect a more tepid supply side push.

Table 5 shows the results obtained from fitting equation 2. Our primary coefficients of interest are the factor loadings on *Treated*$\times$*Post* and *Supply Slippage*. We don't have results for the first shelling event as the *Supply Slippage* data does not cover that period. However, we do observe that including *Supply Slippage* does not affect the betas on the variable of interest, *Treated*$\times$*Post*. Table 5 shows that the factor loading on Interest rate (Columns 1 and 4) for *Treated*$\times$*Post* remains significant even after we control for *Supply Slippage*. However, we do find

[24]Loan category is different from loan-type which we use as fixed effects in our equations. Loan categories are a coarse agglomeration of loan type. While we have more 100 different loan types, they are collapsed into 11 loan categories to allocate lending volume targets.

that the significance for loan amount and % loan collateralized (Columns 2, 3, 5 and 6) alters a bit. On the whole, this demonstrates that generic supply effects do not affect our outcomes in a substantial way as compared to Table 4. It is to be noted that we continue to control for demand using *District* $\times$ *quarter* fixed effects. Thus, our results are driven more by changes in supply due to shelling.

5.4 Investigating loan types impaired by shelling

The results in Table 5 control for the effect of supply (other than shelling) and demand thereby depicting that our results are driven by supply changes due to shelling. However, there might still be concerns on the validity of the usage of *Supply Slippage* as a variable to control for supply-side effects. Since our main specification shows an increase in both interest rate and (although statistically insignificant) loan amount, it is difficult to attribute the increase in interest rate to supply side effects only. As an additional check, we re-run the specification for Table 4 to try to tease out what causes the increase in interest rates. However, to do so we restrict ourselves to those loan types which have a larger propensity of being affected or impaired by shelling. These loan types are primarily auto loans, two wheeler loans, housing loans and agriculture loans of various types. On the other hand, we do not observe any change in the complementary group i.e., the group of loans which remain unaffected by shelling as depicted in Table A1.

The results are depicted in Table 6 where we observe that the increase in interest rates is driven primarily by those loan types which tend to more impaired due to shelling. There is an increase[25] of about 0.8%[26] in the interest rate after the first event, 1.355 %[27] after the second event and of about 0.5%[28] after the third event as noted in Columns 1, 4 and 7. We do not see any significant effect on loan amount. As the increase in interest rate is not driven by a concomitant increase in amount, we can infer that demand effects are not in play when we whittle down our data to affected loan types. However, it is to be noted that columns 3, 6 and 9 which demonstrate % loan collateralized follow a pattern similar to Table 4.

[25] This is the % change in the interest rate before and after the shelling for both treatment and control groups

[26] $\exp\left(0.802 \times 10^{-2}\right) - 1$

[27] $\exp\left(1.346 \times 10^{-2}\right) - 1$

[28] $\exp\left(0.497 \times 10^{-2}\right) - 1$

6 Analyses of the possible mechanisms

The previous section tries to disentangle the demand and supply effects of the results we observe. Drawing up our inferences from Tables 5 and 6, we are able to conclude that the increase in interest rates (accompanied by tightening of other loan terms) is primarily a supply side reaction arising out of shelling which is evident from:

i) Table 5 shows that the results hold when we control for demand and the *general effect* of supply independent of shelling

ii) Table 6 where we observe an increase in interest rate[29] for loan types which have a greater propensity to be affected by shelling.

Subsequently, we try and understand the reasons which may explain the supply side reaction to the shelling events.

6.1 Rational response or Risk aversion?

The supply side rationale for the gradual worsening of loan terms over the shelling events as depicted in Table 4 can be attributed to two major mechanisms.

1. Change in risk preferences: Worsening of loan terms and the gradual increase in interest rate can be attributed to altering risk preferences. These preferences probably change over time after repeated observations of the shelling episodes.

2. Change in beliefs: The alternate reason is that shelling causes changes in probability of future expectations of loan default or impairment of loan value. This occurs due to better learning about the environment in which the loan officer operates. As a result, the loan officers may increase interest rates to account for any expected losses on their loan portfolio.

To test for changes in risk preference, we consider the following equation on the lines of Callen, Isaqzadeh, Long, and Sprenger (2014):

$$Certainty\ Premium = v(X|b)_c - v(X|b)_u \tag{4}$$

where $v(X|b)_c$ denotes the utility elicited from a sure payoff of X where as $v(X|b)_u$ is the utility derived from a gamble which has an expected value of X. The results are conditional upon the

[29]and decrease or negligible increase in loan amount.

fact that the beliefs, b do not alter as we move from the the certain to the uncertain payoff. Given these pre-conditions, we would expect the *Certainty Premium* to increase as the risk aversion increases i.e, the utility derived from a sure payoff would gradually become higher than one derived from a gamble yielding the same expected value.

We cannot elicit the exact payoffs (whether they are sure or expected values) like Callen, Isaqzadeh, Long, and Sprenger (2014) due to the nature of the dataset. Nonetheless, if we approximate the above specification with respect to our setting, we can proxy $v(X|b)_c$ as the utility derived from safe loans i.e., those loan types which are unaffected by shelling where as $v(X|b)_u$[30] would be the utility derived from risky loans i.e., which are affected by the shelling events. Ex-ante, we would expect shelling to increase the certainty premium as loan officers would prioritize safe loans over risky ones. Our results are depicted in Table 7 where Column 1 shows that the % volume of total lending accounted for by safe loans increases by around 11% after shelling for branches situated in the affected areas i.e., within 10 kilometres of the Radcliffe Line. There isn't a significant difference in the % volume of risky loans in Column 2.

Expectedly, the difference in % volume between safe and risky loans increases (Column 3) shows that there is a reallocation in lending in the affected ares from risky to safe loans. This reallocation amounts to 21.4% of the total lending volume. We control for time varying effects within a district (and thus demand) by including *District* × *month* fixed effects. Hence, Table 7 shows that the loan officers tends to exhibit risk averse behaviour after the shelling events. A caveat is in order here: While assessing changes in risk aversion we would like to keep beliefs[31] constant. However, while we control for other confounds, at this point we are unable to assess changes in risk aversion keeping beliefs constant.

Subsequently, we try and understand whether our results are driven by learning about expected future outcomes i.e., the loan officers do not alter their risk preferences but instead alter their beliefs. If this were true then the results we observe in Table 4 are driven by a rational response to the inter-temporal incidences of shelling that the loan officers observe. Ideally, if we were able to observe the expectations[32] of loan officers and compare the changes before and after the shelling episodes, we would be able to estimate the extent to which learning can play a role in altering loan terms and other outcomes. However, in the absence of data on expectations, we plot the distributions of the loan terms (Figure A4) for loans granted by branches in the affected area. By viewing the distributions, we are able to decipher whether shelling impacts the loan

[30]Simplifying our exposition, $v(X)_u = (1 - p).v(X)_c + p.0$ where p is the non-zero probability of default as a result of the shelling.

[31]changes in probability due to learning about expected future outcomes

[32]With respect to default or loan terms

terms for these branches. Specifically, what we are looking for are change in distributions before and after the event. We do not observe any distributional variations for the first event. Also, we do not observe any changes in the distribution in the loan amount or % loan collateralized. We do observe that there are changes in distributions for the second and third event for the interest rate suggesting that there might be some effect of learning.

The distributions are descriptive in nature and do not provide a clear answer in favour of learning. Hence, we run an empirical specification which allows us to measure the effect of learning on loan outcomes. We estimate the following weighting function on the lines of Malmendier and Nagel (2011) and determine the weight for a given branch i at time t:

$$w_{it}(k, \lambda) = \frac{(age_{it} - k)^{\lambda}}{\sum_{k=1}^{30}(age_{it} - k)^{\lambda}} \tag{5}$$

where age denotes the age of the branch at the time of loan disbursement. The age is determined by subtracting the no. of days between the disbursement of a given loan and the disbursement of the very first loan by the branch. The intuition behind using the age is that the longer a branch has been around, the better its understanding of borrowers and hence its ability to *learn*. For a given branch i at time t, we consider a window of 30 previous loan observations and subtract the no. of days k, between the age at a reference time t, and a loan disbursed within the 30 day window prior to the reference loan. The reference loan and subsequently the reference time t alters, as we loop over all the loans disbursed by a branch i.

λ is a parameter which Malmendier and Nagel (2011) estimate using maximum likelihood estimation. However, they state that the ballpark estimate of the same is about 1.5. We use a line consisting of equally spaced points to determine λ incrementally. However, as our results in Table 8 show, the outcomes do vary but are not dependent on the choice of λ. The choice of λ determines the shape of the weighting function. According to Malmendier and Nagel (2011), for $\lambda < 0$, past observations receive a higher weight than more recent observations. For $\lambda = 0$, we have constant weights and with $\lambda > 0$, recent observations are weighted more. Our interest is in how recent observations affect beliefs and thus we set $\lambda > 0$ for our regression specifications.

Subsequently, we determine the weighted shelling variable for a given time t as a multiplication of the shelling dummy and the weighting parameter:

$$Weighted\ Shelling_{it}(\lambda) = \sum_{k=1}^{30} w_{it}(k,\lambda)\ Shelling_{t-k} \quad (6)$$

For days when shelling occurs, the dummy, $Shelling_{t-k}$ is 1 where as when there is no such occurrence, the dummy is 0.01. The days when no shelling occurs are far fewer than when it does. As a result, using a non-zero dummy avoids the preponderance of zeros when computing $Weighted\ Shelling_{it}(\lambda)$. The intuition behind using the weighting parameter is that it allows us capture the lagged effect of the shelling incidence days well past the event. We assume that this persistence lasts around a month and diminishes in strength progressively i.e., as we move away from the shelling event in the time dimension. We then interact *Weighted Shelling* with *Affected* branches to determine our coefficient of interest in Table 8. Our results demonstrate that the interest rates are higher for branches by in affected areas when interacted with the *learning* component. This demonstrates that experiential learning is instrumental in explaining outcomes.

However, similar to Table 7 where we cannot keep beliefs constant, we are also unable to keep risk aversion constant. In a nutshell, we observe that the total effect is a possible combination of *changes in beliefs* and *changes in risk aversion*. However, it is beyond the scope of this paper to successfully disentangle these individual effects and their contribution to the overall outcome.

7 Further Analyses

We carry out another set of analyses as robustness to gain further insights regarding our setting. We also investigate if our effects are exclusive to a particular geography and explore the political channel which could be influencing our results. The state government of Jammu & Kashmir has a majority shareholding in the bank (from which we obtain our data) with more than 50% of the shares[33]. Over the years, they have consolidated their stake by increasing it further. We also show how constructed loan variables respond to the shelling events apart from demonstrating the possibility of overreaction by the loan officers.

[33] https://www.jkbank.com/pdfs/annrep/J-&-K-Bank-AR-2014.pdf

7.1 Falsification tests

Table 9 mimics the specification in equation 1. However, instead of using the branches in the districts along the Radcliffe Line, we select the branches in the districts along the *de-facto* border i.e., along the Line of Control (LoC). As mentioned previously the LoC is a border which has not been formally agreed upon by both India and Pakistan and as a result, hostilities between the two countries along the border are commonplace. In fact, military aggression along the LoC has been the norm since 1947, the year which both countries became independent. Given the backdrop, ex-ante we would not expect to see any changes in loan terms before and after the shelling events as these effects would have been factored in by the branches situated there. Table 9 shows that there isn't much of a difference in the loan terms across the events. This proves that our results not specific to the location of branches along the India-Pakistan border but instead are dominated by the sudden nature of the shelling events which the loan officers are unable to anticipate. However, we do see a temporary increase in interest rate in Column 1 after the first event.

We then try and investigate the possible effect of politics on our results and whether they are driven by political patronage or influence. Our effects could be influenced by lending directed by the government to these areas since they face financial distress and damage from shelling. To investigate this effect, we first select those assembly constituencies (in the districts along the Radcliffe Line) where there was a close contest in the 2014 state assembly elections held between November-December, 2014. We define a *Close contest* as one where the difference in votes between the first and second placed candidate was less than the votes polled by the third placed candidate. We obtain information on the voting percentages and votes polled from the IndiaVotes[34] website. Subsequently, we map bank branches to their relevant assembly constituencies using their geocodes (for the bank branches) and shapefiles (for the constituencies). This is done by plotting assembly constituency maps and placing the bank branches on these constituencies using GIS maps in R.

The dummy variable *Close Contest* equals 1 for those branches which lie within those border constituencies which experienced a close electoral contest where as it equals 0 for those branches which lie within those constituencies which did not experience a close close contest (but still lie in the districts situated along the Radcliffe Line). Table 10 shows that the loan terms aren't significantly different for the two shelling events occurring after the state assembly elections. An exception is Column 1 which shows a drop in interest rate for these branches. It is plausible

[34]http://www.indiavotes.com/

that the first shelling event after the elections results in these branches being directed to lower interest rates to aid the residents of the areas affected by shelling. However, this effect does not translate on to the third shelling event which occurs a couple of years after the elections. Nonetheless, the effect in Column 1 works in a direction opposite to our main results and is expected to make our results weaker, if at all.

7.2 Effect on productive loans

We construct a set of outcome variables, namely *Productive loan* and *Loan with collateral* which indicate whether a loan was given for productive purposes or whether it had a collateral attached to it respectively. Table 11 shows that the productive lending in the affected areas is lower than the unaffected areas with it spiking after the third event. On further inspection (not reported), we observe that the spike in unproductive lending after the third event is driven primarily by credit card issuance. On the other hand, loans with collateral do not seem to be affected significantly by the shelling.

7.3 Overreaction to shelling events

Figure 5 shows a plot of the betas corresponding to the $Treated \times Post$ term from equation 1. Each of the three sections separated by the red lines correspond to the three different events. We shift the post period by one month for each event and then re-estimate equation 1. For Figure 6a, which shows the plot of the interest rate DiD betas over time, we see an upward trend i.e., higher betas till the the second event after which the values fall and subsequently stabilize. Similar patterns are observed for loan amounts and % loan collateralized, though the results are not significant. This figure depicts the possibility of an overreaction to the shelling events by the loan officers and then a subsequent reversion to (a higher) mean.

7.4 Change in borrower pool

A notable concern that could be expressed about our results is that the worse loan terms could be symptomatic of worsening borrower quality over the sample period. In other words, its possible that the results we observe could be not reflective of the altering preferences and beliefs of the loan officers due to shelling. A generic worsening in borrower quality could also precipitate a similar supply side reaction by the loan officers. If this were true, we would observe an increase in both ex-ante and ex-post borrower risk measures over time.

We explore how ex-post risk changes for borrowers due to shelling. The first panel of Figure 6 shows the mean % of NPLs for loans originated before and after each shelling event for the treated group. The treated group has higher % of NPLs for the first event but there does not seem to be a definite upward trend over the course of the three events. This demonstrates that worsening borrower quality is not responsible for the loan officers' reaction. The results with NPLs could, however, be vitiated by the problem of right censoring. As it takes a while for banks to recognize NPLs, loans disbursed earlier in the sample period have a greater chance of turning into NPLs as compared to loans disbursed later in the sample period.

From the lower panel of Figure 6, we deduce that the ex-ante risk for loans in the treated group aren't significantly different from each other. To depict this, we plot the mean of the internal ratings for the treated groups for loans initiated before and after each of the shelling events. We find neglible differences in internal ratings for the treated group across all three events. This supports the claim that ex-ante, loan officers do not perceive a deterioration in borrower quality. Thus, using a combination of % of NPLs and internal ratings we ascertain that the borrower quality does not worsen after shelling. This adds merit to our hypothesis that the results we observe are not a reaction (by the loan officers) due to perceived change in borrower quality.

8 Conclusion

We analyze the altered response of individuals (specifically loan officers) to repeated episodes of observed conflict. We measure conflict episodes using incidents of *shelling* i.e., mortar gun firing across the Radcliffe Line (agreed international boundary between India and Pakistan). Our incidents are restricted to only those events where the damage was large enough to trigger migration of the border dwelling populace. To explore our hypotheses, we use a region wise loan level database from the largest bank (in terms of lending volume and overall presence) in the state of Jammu & Kashmir in India. We use loan terms i.e., changes on the intensive margin as our outcome variables.

We observe that interest rates show a successive increase over each event. The pattern for collateral is more sporadic where as loan amounts do not change appreciably. We control for possible demand side effects to establish that our results are primarily supply driven.

We also explore the channels for this altered behaviour and then depict that this is due to recast beliefs and modified preferences. Our empirical strategy to show changing preferences employs a certainty premium approach where as to test for changing beliefs we use a specific weighting kernel. We observe evidence in favour of both, thus establishing that both effects could be occurring in conjunction with each other.

We also show that productive lending declines after these events and that the effects are limited to incidences only along the Radcliffe Line. Moreover, since the bank was controlled by the state government (through a majority stake) during this period, we explore the possibility of political interference in lending. We observe that following close electoral contests, there is a greater propensity of the branches to offer lax terms to affected areas. However, this discount disappears over time.

While we use a setting, which corresponds to conflict, our results are also applicable in a general context of supply side credit tightening. We observe that when faced with economic or political shocks, banks tend to tighten credit, which could exacerbate credit or liquidity spirals on the downside. This calls for policy action to prevent or limit the intensity of such episodes. Further research could also focus on disentangling the extent of the observed effect due to change in beliefs or preferences. Investigating the intensity of credit spirals propagated by the supply side could also be a topic of future research.

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Figure 1: **British Indian Empire, 1909**
The map below shows the territories of British India. Areas shaded in pink denote territories administered by the Government of India where as the areas shaded yellow depict the *princely states*. The boundaries did not alter significantly between 1909 and 1947, the year when India obtained independence.

Source: Oxford University Press, 1909. Scanned and reduced from personal copy by Fowler & Fowler, 5 August 2007. Author: Edinburgh Geographical Institute; J. G. Bartholomew and Sons

Figure 2: **The (many) boundaries of the erstwhile princely state of Jammu & Kashmir**
The map below shows the present boundaries of the erswhile princely state of Jammu & Kashmir. The area shaded in green denotes territory administered by Pakistan where as the area shaded in yellow denotes territory administered by the Government of India. Areas in brown are under Chinese control. The red border marks the periphery of the undivided princely state.

Source: Geography and Map Division, Library of Congress. Washington, D.C. (http://hdl.loc.gov/loc.gmd/g7653j.ct001188)
Contributor: Central Intelligence Agency, Cartography Center. United States 2004

Figure 3: **Details of one of the mortar guns used by the security forces**
The figure below depicts the details of one of the mortar guns employed by the Pakistani army along its borders. The maximum range of the rounds fired is approximately 7 km.

Source: Ministry of Defence Production, Government of Pakistan.

Figure 4: **Position of Jammu, Samba and Kathua within the larger map of the erstwhile princely state of Jammu & Kashmir**
The figure below depicts the location of the three districts along the Radcliffe Line for the undivided state of Jammu & Kashmir. This map does not reflect the contemporary political boundaries which are depicted in Figure 2.

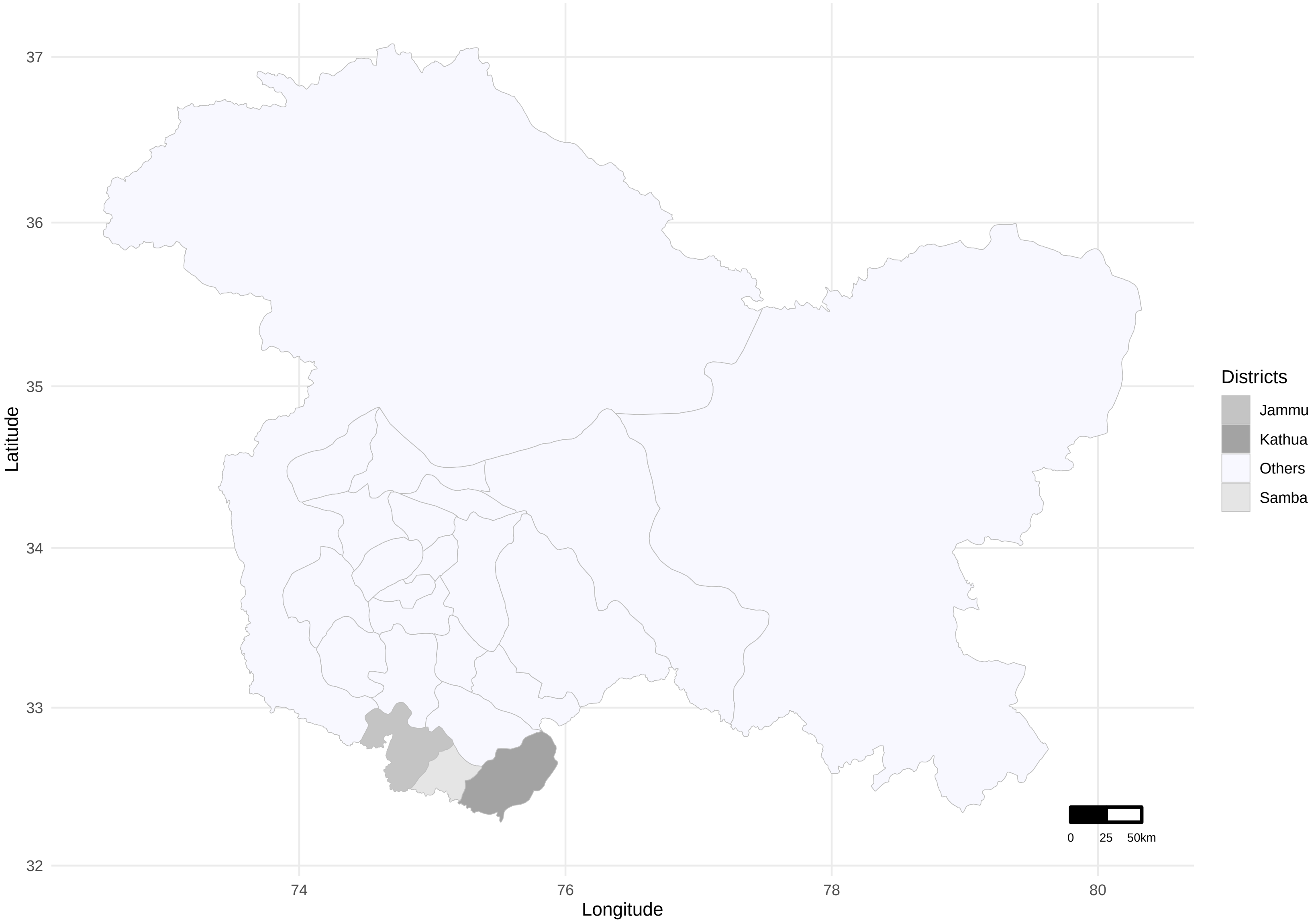


Figure 5: **Treated and control branches in the districts along the Radcliffe Line**
The figure below depicts the location of the treated and control branches in the three districts along the Radcliffe Line. The red circles depict the treated branches which are situated within 10 kilometres of the Radcliffe Line where as the green circles depict the control branches. The two green circles at the bottom depict branches that are on the state border within India and not along the Radcliffe Line.

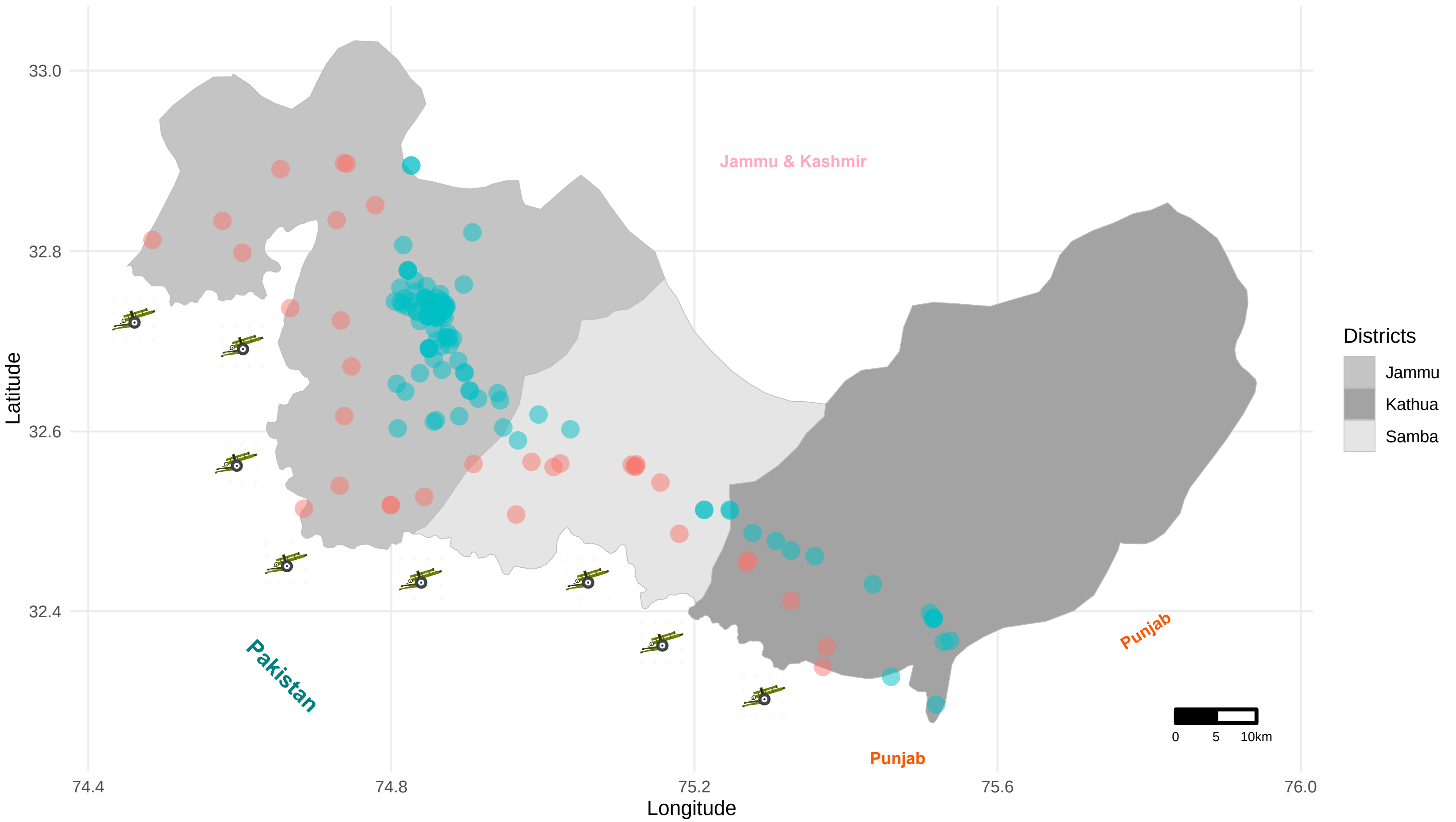
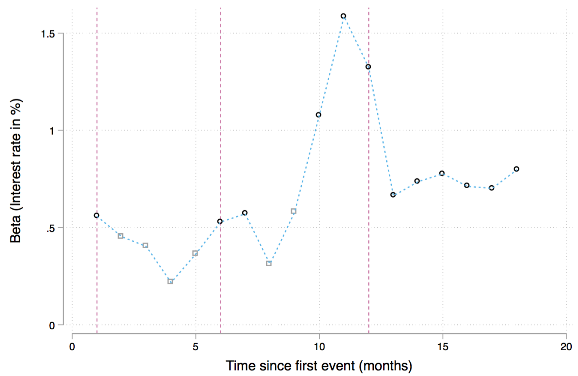


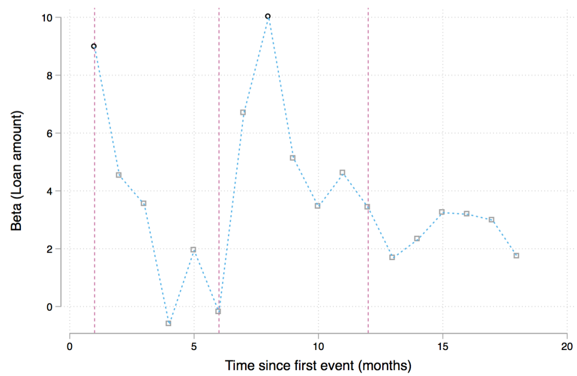
Figure 6: **Time varying Difference-in-Difference (DiD) betas for various loan terms**

The figures depict the DiD betas for the loan terms over time starting from the first shelling event. We shift the post period ahead by one month steps till six months. The red vertical lines depict the second and third events respectively and the dark circles denote DiD coefficients which are significant at the 95% confidence interval.

(a) Interest Rate



(b) Loan Amount



(c) % Loan Collateralized

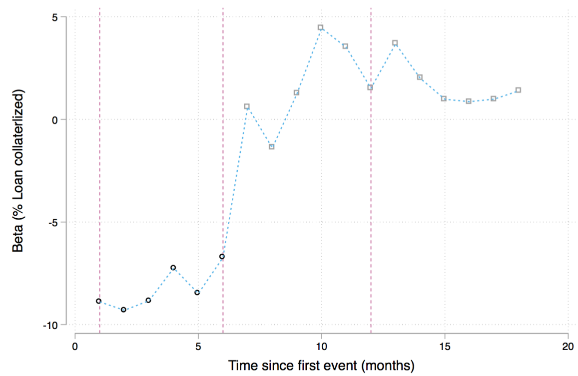
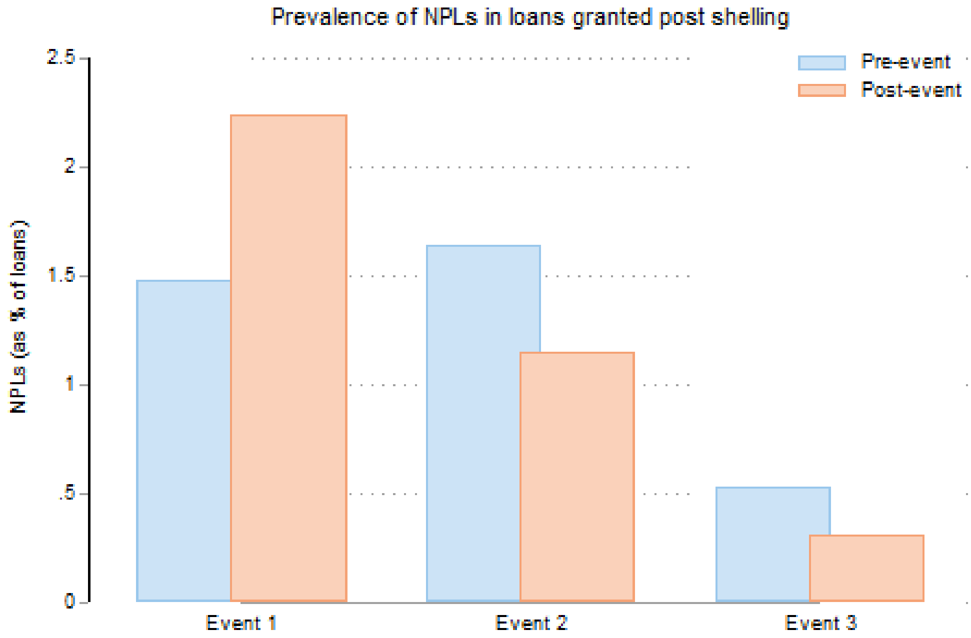


Figure 7: **Change in borrower quality before and after shelling**

(a) NPLs



(b) Internal Ratings

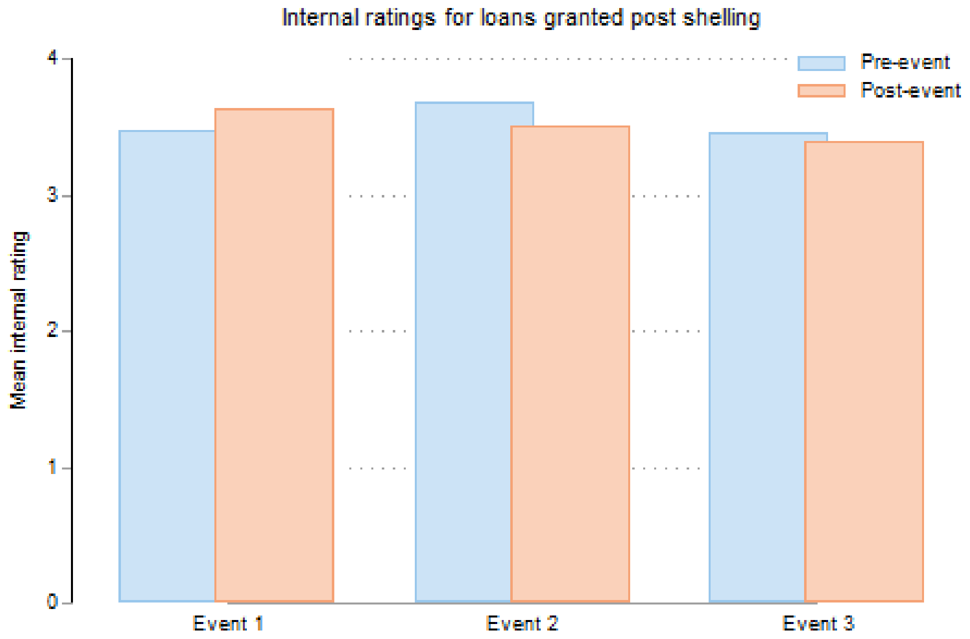


Table 1: **Shelling events and affected population**
The table presents the dates of shelling, affected districts and number of people who were forced to migrate from their homes. The displaced population numbers are ballpark and have been obtained from a curation of newspaper articles on the South Asian Terrorism Portal (SATP) website via http://old.satp.org/satporgtp/countries/india/states/jandk/timeline/index.htm. The event in 2016 was the most long drawn and intense with the latter half of October, 2016 seeing 29 villages bombed by mortar guns.Event 1 is the amalgamation of 2 separate events occurring very close to each other; namely from 5th Oct, 2014 - 11th Oct, 2014 and 4th Jan, 2015 - 5th Jan, 2015 across Jammu, Samba and Kathua. The displaced population for these events was approximately 20,000 and 10,000 individuals respectively.

# Event	Shelling Date(s)	Affected Districts	Displaced population (approx.)
1	5th Oct, 2014 - 5th Jan, 2015	Jammu, Samba and Kathua	30,000
3	26th Oct, 2015 - 27th Oct, 2015	Samba and Kathua	3,000
4	2nd Oct, 2016 - 1st Nov, 2016	Jammu, Samba and Kathua	10,800

Table 2: **Summary statistics**

This table presents summary statistics for selected loan, and branch specific variables for branches in both affected and unaffected areas. Our data covers the period from January 2011 to June 2016 where we subset to branches affected by shelling (0-10 km from the Radcliffe Line) and those unaffected by shelling (10-20 km from the Radcliffe Line). Loan amounts are expressed in Indian rupees (INR).

	(1) Affected branches			(2) Unaffected branches		
	Obs.	Mean	Std. Dev.	Obs.	Mean	Std. Dev.
Panel A. Loan Terms and Lending Variables						
Interest rate (%)	50,334	7.03	4.81	137,318	6.94	5.84
Log(Interest rate)	37,523	2.20	0.30	85,215	2.38	0.28
Amount (INR)	50,367	145057.73	270709.17	137,376	220498.55	367869.95
Log(Amount)	31,908	11.41	1.70	81,833	12.19	1.36
% Loan collateralized	31,908	0.65	0.94	81,833	0.78	1.24
Loan maturity (months)	14,195	68.15	30.44	55,921	71.32	33.40
Any collateral	50,367	0.29	0.46	137,376	0.28	0.45
Productive loan	47,203	0.52	0.50	120,306	0.21	0.41
Panel B. Branch Specific Variables						
Distance from Radcliffe Line (km)	50,367	6.41	2.29	137,376	16.17	2.63
Lagged supply slippage (%)	22,415	0.56	0.15	82,995	0.60	0.15

Table 3: **Separation of divisions and districts within the state of Jammu & Kashmir**
This table depicts the three divisions within the state of Jammu & Kashmir and the districts in each administrative division. The three districts of the Jammu division (in bold) are the ones we use for our analysis.

Division	**District**	**Area (sq. km)**	**Population (2011 Census)**
	Kathua	2,651	615,711
	Jammu	3,097	1,526,406
	Samba	904	318,611
	Udhampur	4,550	555,357
Jammu	Reasi	1,719	314,714
	Rajouri	2,630	619,266
	Poonch	1,674	476,820
	Doda	11,691	409,576
	Ramban	1,329	283,313
	Kishtwar	1,644	231,037
Total		26,293	5,350,811
	Anantnag	3,984	1,069,749
	Kulgam	1,067	423,181
	Pulwama	1,398	570,060
	Shopian	613	265,960
Kashmir Valley	Budgam	1,371	755,331
	Srinagar	2,228	1,250,173
	Ganderbal	259	297,003
	Bandipora	398	385,099
	Baramulla	4,588	1,015,503
	Kupwara	2,379	875,564
Total		15,948	6,907,622
	Kargil	14,036	143,388
Ladakh	Leh	45,110	147,104
Total		59,146	290,492

Table 4: **Changes in loan terms for branches situated in areas affected by shelling**

The table below presents difference-in-differences estimates for loan terms initiated by branches close to the Radcliffe Line (International Border). The treatment group consists of all branches within 10 kilometres from the Radcliffe Line where as the control group consists of branches within the 10-20 kilometre range from the Radcliffe Line. *Affected* is a dummy variable which captures whether a branch was situated within 10 kilometres from the Radcliffe Line where as *Post* is a dummy which captures only those loans which were initiated within $[t+1, t+4)$ months after the shelling subsided. We use a burn in period of one month after the shelling to account for any loans that might have been contracted prior to the event. The analysis is limited to those shelling events where the damage was calamitous enough to warrant migration of border dwelling populations. We also consider only those districts of Jammu & Kashmir that share the Radcliffe Line (International Border) with Pakistan which was agreed upon during the partition of British India in 1947. Standard errors are depicted in parentheses and corrected for heteroskedascity using White's methodology. *** p<0.01, ** p<0.05, * p<0.1.

	First Shelling Event			Second Shelling Event			Third Shelling Event		
	(1) Log(Interest rate)	(2) Log(Amount)	(3) Log(% Collateralized)	(4) Log(Interest rate)	(5) Log(Amount)	(6) Log(% Collateralized)	(7) Log(Interest rate)	(8) Log(Amount)	(9) Log(% Collateralized)
Affected×Post(10^{-2})	0.498**	7.032*	−8.810***	0.492**	4.609	1.756	0.588***	1.139	4.170*
	(0.249)	(3.840)	(2.933)	(0.244)	(3.206)	(2.708)	(0.124)	(2.588)	(2.435)
Affected(10^{-2})	−0.725***	−8.327***	0.764	−0.565***	−6.004***	−5.457***	−0.385***	−6.686***	−3.330*
	(0.179)	(2.758)	(2.191)	(0.191)	(2.321)	(2.033)	(0.102)	(2.092)	(1.862)
Post(10^{-2})	−1.215	−16.992	9.268	−2.158***	10.623***	−4.590**	−2.724***	−3.707	−8.852***
	(0.759)	(11.505)	(6.118)	(0.211)	(2.509)	(2.258)	(0.136)	(2.402)	(2.540)
District × Quarter fixed-effects	*Y*	*Y*	*Y*	*Y*	*Y*	*Y*	*Y*	*Y*	*Y*
Loan-type fixed-effects	*Y*	*Y*	*Y*	*Y*	*Y*	*Y*	*Y*	*Y*	*Y*
R^2	0.964	0.550	0.394	0.950	0.533	0.376	0.969	0.565	0.205
Observations	7, 540	7, 523	4, 434	11, 201	11, 188	5, 284	18, 926	18, 921	6, 800

Table 5: **Changes in loan terms for branches situated in areas affected by shelling adjusting for demand-supply effects**

The table below presents difference-in-differences estimates for loan terms initiated by branches close to the Radcliffe Line (International Border) controlling for supply side effects. We interact *Affected* and *Post* dummies with a variable which captures the % of lending volume target achieved in the prior quarter thus allowing us to absorb any effects emanating from supply. The treatment group consists of all branches within 10 kilometres from the Radcliffe Line where as the control group consists of branches within the 10-20 kilometre range from the Radcliffe Line. *Affected* is a dummy variable which captures whether a branch was situated within 10 kilometres from the Radcliffe Line where as *Post* is a dummy which captures only those loans which were initiated within $[t+1, t+4)$ months after the shelling subsided. We use a burn in period of one month after the shelling to account for any loans that might have been contracted prior to the event. The analysis is limited to those shelling events where the damage was calamitous enough to warrant migration of border dwelling populations. We also consider only those districts of Jammu & Kashmir that share the Radcliffe Line (International Border) with Pakistan which was agreed upon during the partition of British India in 1947. Standard errors are depicted in parentheses and corrected for heteroskedascity using White's methodology. *** p<0.01, ** p<0.05, * p<0.1.

	Second Shelling Event			Third Shelling Event		
	(1) Log(Interest rate)	(2) Log(Amount)	(3) Log(% Collateralized)	(4) Log(Interest rate)	(5) Log(Amount)	(6) Log(% Collateralized)
Affected×Post(10^{-2})	0.497**	5.556*	2.015	0.582***	0.840	4.274*
	(0.245)	(3.294)	(2.719)	(0.124)	(2.632)	(2.438)
Supply Slippage(%)	0.045	1.516	8.426	0.455*	−0.629	−4.711
	(0.247)	(6.159)	(6.969)	(0.250)	(6.304)	(3.002)
Affected(10^{-2})	−0.565***	−7.070***	−5.587***	−0.379***	−6.870***	−3.353*
	(0.191)	(2.377)	(2.035)	(0.102)	(2.123)	(1.862)
Post(10^{-2})	−2.159***	10.302***	−4.656**	−2.747***	−3.937	−8.641***
	(0.212)	(2.591)	(2.259)	(0.137)	(2.512)	(2.546)
District × Quarter fixed-effects	*Y*	*Y*	*Y*	*Y*	*Y*	*Y*
Loan-type fixed-effects	*Y*	*Y*	*Y*	*Y*	*Y*	*Y*
R^2	0.950	0.526	0.377	0.969	0.557	0.205
Observations	11,201	11,188	5,284	18,926	18,921	6,800

Table 6: **Changes in terms for loan types impaired by shelling**

The table below presents difference-in-differences estimates for loan terms initiated by branches close to the Radcliffe Line (International Border). The treatment group consists of all branches within 10 kilometres from the Radcliffe Line where as the control group consists of branches within the 10-20 kilometre range from the Radcliffe Line. We restrict the set of observations to only those loan types that have a greater tendency to be effected by the shelling events. *Affected* is a dummy variable which captures whether a branch was situated within 10 kilometres from the Radcliffe Line where as *Post* is a dummy which captures only those loans which were initiated within $[t+1, t+4)$ months after the shelling subsided. We use a burn in period of one month after the shelling to account for any loans that might have been contracted prior to the event. The analysis is limited to those shelling events where the damage was calamitous enough to warrant migration of border dwelling populations. We also consider only those districts of Jammu & Kashmir that share the Radcliffe Line (International Border) with Pakistan which was agreed upon during the partition of British India in 1947. Standard errors are depicted in parentheses and corrected for heteroskedascity using White's methodology. *** p<0.01, ** p<0.05, * p<0.1.

	First Shelling Event			Second Shelling Event			Third Shelling Event		
	(1) Log(Interest rate)	(2) Log(Amount)	(3) Log(% Collateralized)	(4) Log(Interest rate)	(5) Log(Amount)	(6) Log(% Collateralized)	(7) Log(Interest rate)	(8) Log(Amount)	(9) Log(% Collateralized)
Affected×Post(10^{-2})	0.802***	4.754	−9.000***	1.346***	−4.825	1.192	0.497**	−2.949	5.603**
	(0.309)	(4.817)	(2.977)	(0.413)	(4.389)	(2.776)	(0.197)	(3.607)	(2.559)
Affected(10^{-2})	−0.561***	−5.299	0.143	−0.209	1.042	−3.577*	−0.332**	−2.725	−4.820**
	(0.190)	(3.429)	(2.229)	(0.341)	(3.208)	(2.141)	(0.153)	(2.580)	(2.021)
Post(10^{-2})	−1.450*	−9.860	13.621**	−1.018***	6.666*	−8.202***	−1.840***	−1.040	−14.948***
	(0.878)	(13.794)	(5.869)	(0.389)	(3.449)	(2.417)	(0.243)	(3.462)	(2.354)
District × Quarter fixed-effects	*Y*	*Y*	*Y*	*Y*	*Y*	*Y*	*Y*	*Y*	*Y*
Loan-type fixed-effects	*Y*	*Y*	*Y*	*Y*	*Y*	*Y*	*Y*	*Y*	*Y*
R^2	0.955	0.649	0.359	0.911	0.672	0.393	0.957	0.728	0.243
Observations	3,463	3,452	3,423	4,155	4,152	3,945	6,612	6,609	4,692

Table 7: **Reallocation in lending volume for branches situated in areas affected by shelling**
The table below presents the regression of % change in allocation across risky or safe loan types against a dummy variable, *Post* which is 1 for $[t+1, t+4)$ months after the shelling subsided and 0 for $[t-3, t)$ months before the shelling. We compute the total volume of loans initiated each month and then determine what % of the volume may be attributed to risky or safe loan types thus reducing our loan level data to a monthly level. We restrict the sample to loans initiated by branches close to the Radcliffe Line (International Border) i.e., within 10 kilometres from the Radcliffe Line. As before, the analysis is limited to those shelling events where the damage was calamitous enough to warrant migration of border dwelling populations. We also consider only those districts of Jammu & Kashmir that share the Radcliffe Line (International Border) with Pakistan which was agreed upon during the partition of British India in 1947. Standard errors are depicted in parentheses and corrected for heteroskedascity using White's methodology. *** p<0.01, ** p<0.05, * p<0.1.

	Safe loans	Risky loans	Safe - Risky
	(1)	(2)	(3)
Post	0.110***	−0.104	0.214**
	(0.036)	(0.082)	(0.089)
District × Month fixed-effects	*Y*	*Y*	*Y*
R^2	0.041	0.070	0.037
Observations	1,726	1,726	1,726

Table 8: **Effect of learning on interest rate for branches situated in areas affected by shelling**
The table below presents difference-in-differences estimates for interest rates on loans initiated by branches close to the Radcliffe Line (International Border). The treatment group consists of all branches within 10 kilometres from the Radcliffe Line where as the control group consists of branches within the 10-20 kilometre range from the Radcliffe Line. *Affected* is a dummy variable which captures whether a branch was situated within 10 kilometres from the Radcliffe Line. The continuous variable *Weighted Shelling* uses time varying weights (Malmendier and Nagel (2011)) to capture the lingering effects of shelling after the culmination of the event (which usually lasts about one week). The parameter λ determines the shape of the weighting function. The results are robust to the selection of λ. The analysis is limited to those shelling events where the damage was calamitous enough to warrant migration of border dwelling populations. We also consider only those districts of Jammu & Kashmir that share the Radcliffe Line (International Border) with Pakistan which was agreed upon during the partition of British India in 1947. Standard errors are depicted in parentheses and corrected for heteroskedascity using White's methodology. *** p<0.01, ** p<0.05, * p<0.1.

	Log(Interest Rate)				
	(1)	(2)	(3)	(4)	(5)
	$\lambda = 1$	$\lambda = 1.5$	$\lambda = 2$	$\lambda = 2.5$	$\lambda = 3$
Affected × Weighted Shelling(10^{-2})	1.677***	1.680***	1.682***	1.683***	1.684***
	(0.644)	(0.644)	(0.644)	(0.644)	(0.644)
Affected(10^{-2})	−0.343***	−0.343***	−0.343***	−0.343***	−0.343***
	(0.053)	(0.053)	(0.053)	(0.053)	(0.053)
Weighted Shelling(10^{-2})	0.042	0.022	0.002	−0.018	−0.038
	(0.474)	(0.476)	(0.477)	(0.478)	(0.479)
District × Quarter fixed-effects	*Y*	*Y*	*Y*	*Y*	*Y*
Loan-type fixed-effects	*Y*	*Y*	*Y*	*Y*	*Y*
R^2	0.953	0.953	0.953	0.953	0.953
Observations	77, 170	77, 170	77, 170	77, 170	77, 170

Table 9: **Falsification: Change in loan terms initiated by branches within 10 kilometres of the de-facto border i.e., Line of Control (LoC)**
The table below presents difference-in-differences estimates for loan terms initiated by branches close to the Line of Control (LoC)). The treatment group consists of all branches within 10 kilometres from the LoC where as the control group consists of branches within the 10-20 kilometre range from the LoC. *Affected* is a dummy variable which captures whether a branch was situated within 10 kilometres from the LoC where as *Post* is a dummy which captures only those loans which were initiated within $[t+1, t+4)$ months after the shelling subsided. We use a burn in period of one month after the shelling to account for any loans that might have been contracted prior to the event. The analysis is limited to those shelling events along the Radcliffe Line where the damage was calamitous enough to warrant migration of border dwelling populations. We consider only those districts of Jammu region (within the state of Jammu & Kashmir) that share the LoC with Pakistan. Standard errors are depicted in parentheses and corrected for heteroskedascity using White's methodology. *** p<0.01, ** p<0.05, * p<0.1.

	First Shelling Event			Second Shelling Event			Third Shelling Event		
	(1) Interest rate	(2) Limit granted	(3) Log(% Collateralized)	(4) Interest rate	(5) Limit granted	(6) Log(% Collateralized)	(7) Interest rate	(8) Limit granted	(9) Log(% Collateralized)
Affected×Post(10^{-2})	0.317**	8.015	0.246	−0.091	−5.389	1.205	0.208	0.440	4.123
	(0.148)	(5.250)	(3.250)	(0.209)	(4.847)	(3.467)	(0.201)	(3.525)	(2.898)
Affected(10^{-2})	−0.341***	−16.587***	5.898**	0.121	−4.235	1.663	−0.659***	−8.023***	−4.472**
	(0.113)	(3.937)	(2.395)	(0.173)	(3.603)	(2.379)	(0.163)	(3.018)	(2.094)
Post(10^{-2})	0.168	−21.350	−6.454	−1.894***	8.959*	0.533	−2.957***	17.818***	−2.760
	(0.612)	(28.971)	(6.060)	(0.215)	(4.910)	(3.584)	(0.225)	(3.330)	(2.935)
District × Quarter fixed-effects	*Y*	*Y*	*Y*	*Y*	*Y*	*Y*	*Y*	*Y*	*Y*
Loan-type fixed-effects	*Y*	*Y*	*Y*	*Y*	*Y*	*Y*	*Y*	*Y*	*Y*
R^2	0.996	0.666	0.118	0.992	0.661	0.128	0.982	0.648	0.181
Observations	3, 119	3, 117	2, 102	3, 555	3, 552	1, 818	6, 867	6, 865	2, 280

Table 10: **Falsification: Changes in loan terms for branches situated in close contest electoral constituencies and areas affected by shelling**

The table below presents difference-in-differences estimates for loan terms initiated by branches close to the Radcliffe Line (International Border). The treatment group consists of all branches within 10 kilometres from the Radcliffe Line where as the control group consists of branches within the 10-20 kilometre range from the Radcliffe Line. *Close Contest* is a dummy variable which captures whether a branch was situated within 10 kilometres from the Radcliffe Line also lies in a close contest assembly constituency. We use results in state elections in late 2014 to determine these constituencies. A constituency is flagged as a *Close Contest* if the margin of victory is less than the number of votes polled by the candidate in the third place. *Post* is a dummy which captures only those loans which were initiated within $[t+1, t+4)$ months after the shelling subsided. We use a burn in period of one month after the shelling to account for any loans that might have been contracted prior to the event. The analysis is limited to those shelling events where the damage was calamitous enough to warrant migration of border dwelling populations. We also consider only those districts of Jammu & Kashmir that share the International border (Radcliffe Line) with Pakistan which was agreed upon during the partition of British India in 1947. Standard errors are depicted in parentheses and corrected for heteroskedascity using White's methodology. *** p<0.01, ** p<0.05, * p<0.1.

	Second Shelling Event			Third Shelling Event		
	(1) Log(Interest rate)	(2) Log(Amount)	(3) Log(% Collateralized)	(4) Log(Interest rate)	(5) Log(Amount)	(6) Log(% Collateralized)
Close Contest×Post(10^{-2})	−1.183***	−9.259	−0.990	0.074	5.256	1.352
	(0.427)	(6.298)	(5.223)	(0.216)	(5.246)	(5.298)
Close Contest(10^{-2})	1.087***	−4.111	3.253	−0.048	−3.094	6.821
	(0.327)	(4.409)	(3.028)	(0.179)	(4.261)	(4.184)
Post(10^{-2})	−1.602***	19.141***	−0.888	−2.234***	−2.607	−5.835
	(0.383)	(5.381)	(3.958)	(0.211)	(4.286)	(4.262)
District×Quarter fixed-effects	*Y*	*Y*	*Y*	*Y*	*Y*	*Y*
Loan-type fixed-effects	*Y*	*Y*	*Y*	*Y*	*Y*	*Y*
R^2	0.971	0.585	0.358	0.983	0.545	0.231
Observations	2, 513	2, 512	1, 393	3, 978	3, 978	1, 607

Table 11: **Changes in constructed loan variables for branches situated in areas affected by shelling**
The table below presents difference-in-differences estimates for a set of constructed loan variables terms initiated by branches close to the Radcliffe Line (International Border). The treatment group consists of all branches within 10 kilometres from the Radcliffe Line where as the control group consists of branches within the 10-20 kilometre range from the Radcliffe Line. *Affected* is a dummy variable which captures whether a branch was situated within 10 kilometres from the Radcliffe Line where as *Post* is a dummy which captures only those loans which were initiated within $[t+1, t+4)$ months after the shelling subsided. We use a burn in period of one month after the shelling to account for any loans that might have been contracted prior to the event. The analysis is limited to those shelling events where the damage was calamitous enough to warrant migration of border dwelling populations. We also consider only those districts of Jammu & Kashmir that share the Radcliffe Line (International Border) with Pakistan which was agreed upon during the partition of British India in 1947. Standard errors are depicted in parentheses and corrected for heteroskedascity using White's methodology. *** p<0.01, ** p<0.05, * p<0.1.

	First Shelling Event		Second Shelling Event		Third Shelling Event	
	(1)	(2)	(3)	(4)	(5)	(6)
	Productive loan	Loan with collateral	Productive loan	Loan with collateral	Productive loan	Loan with collateral
Affected×Post(10^{-2})	−0.022	−0.027	−0.041*	−0.020	−0.115***	−0.026*
	(0.028)	(0.026)	(0.022)	(0.022)	(0.014)	(0.014)
Affected(10^{-2})	0.210***	0.099***	0.199***	0.105***	0.137***	0.036**
	(0.020)	(0.018)	(0.016)	(0.016)	(0.014)	(0.014)
Post(10^{-2})	0.032	−0.056	0.004	−0.037**	−0.122***	−0.347***
	(0.081)	(0.082)	(0.015)	(0.017)	(0.008)	(0.009)
District × Quarter fixed-effects	*Y*	*Y*	*Y*	*Y*	*Y*	*Y*
R^2	0.106	0.021	0.077	0.018	0.092	0.158
Observations	6,943	7,808	10,342	11,522	74,564	80,513

Online Appendix

Figure A1: **Government circular on closure of schools due to shelling**
The exhibit below shows a circular issued by the district authorities instructing the closure of schools in the border areas.

E-mail : chiefeducationofficer_jammu@yahoomail.com
Ph/Fax : 0191-2561953

GOVERNMENT OF JAMMU AND KASHMIR
OFFICE OF THE CHIEF EDUCATION OFFICER, JAMMU

SUBJECT : CLOSING OF BORDER AREA SCHOOLS WITHIN RADIUS OF 5 KMS ZONE : ARNIA IN VIEW OF PREVAILLING SITUATION AND PURELY AS PRECAUTION

ORDER

As directed by worthy District Development Commissioner Jammu, all the Border Areas Schools falling within the radius of 5 kms from International Border of Zone : Arnia are closed due to prevailing situation and purely as precautionary measures with immediate effect. All the Head of the Institution of District Jammu are directed to allow the students who have been migrated due to firing/shelling across the border in their institution till further orders. Further all the staff of affected schools are directed to report alternative school earmarked in the Annexure 'A'.

21/09/2017
Chief Education Officer
Jammu

No : CEOJ/2017/ P / 48305-308
Dated : 21-09--2017

Copy to the :-
1. District Development Commissioner Jammu for favour of information please.
2. Director School Education Jammu for favour of information please.
3. SDM South for favour of information please.
4. Tesildar Arnia for favour of information and necessary action please.
5. Zonal Education Officer Arnia with directions to inform all the concerned Principals/ Headmasters of their respective Zone.

Figure A2: **Damages due to shelling**
The pictures below depict the damages caused by shelling to households situated along the Radcliffe Line. Clockwise from top left, we observed a damaged wall due to an exploded round. The next picture shows damage on the walls due to repeated firing. The pictures below show an *inert* or unexploded shell lodged into the wall and dead cattle dead owing to the shelling.

(a) Damaged House

(b) Damaged Walls

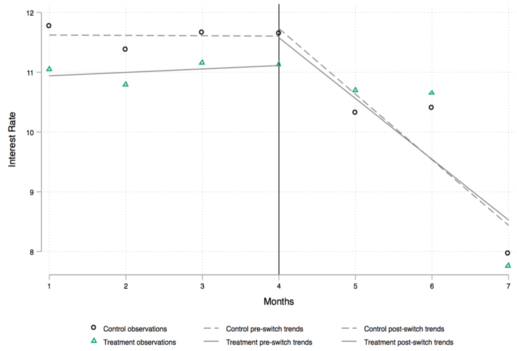
(c) Dead Cattle

(d) Inert Shell

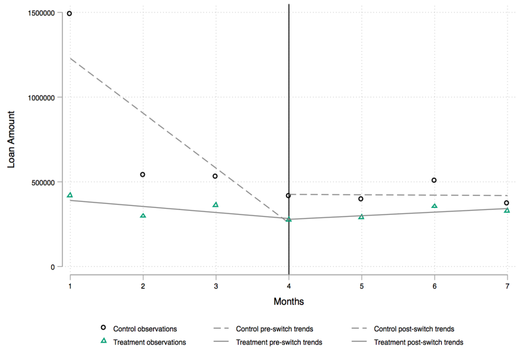
Figure A3: **Parallel Trends**

The figures below show the parallel trend graphs for the three events for each of the loan terms we use as outcome variables.

(a) Interest Rate



(b) Loan Amount



(c) % Loan Collateralized

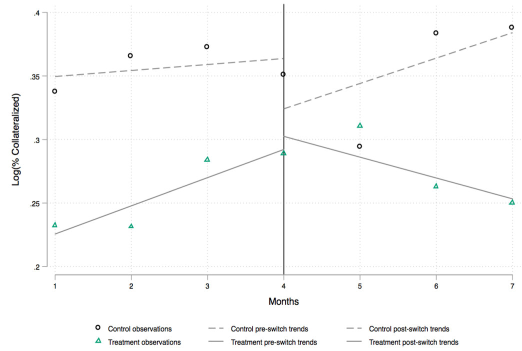
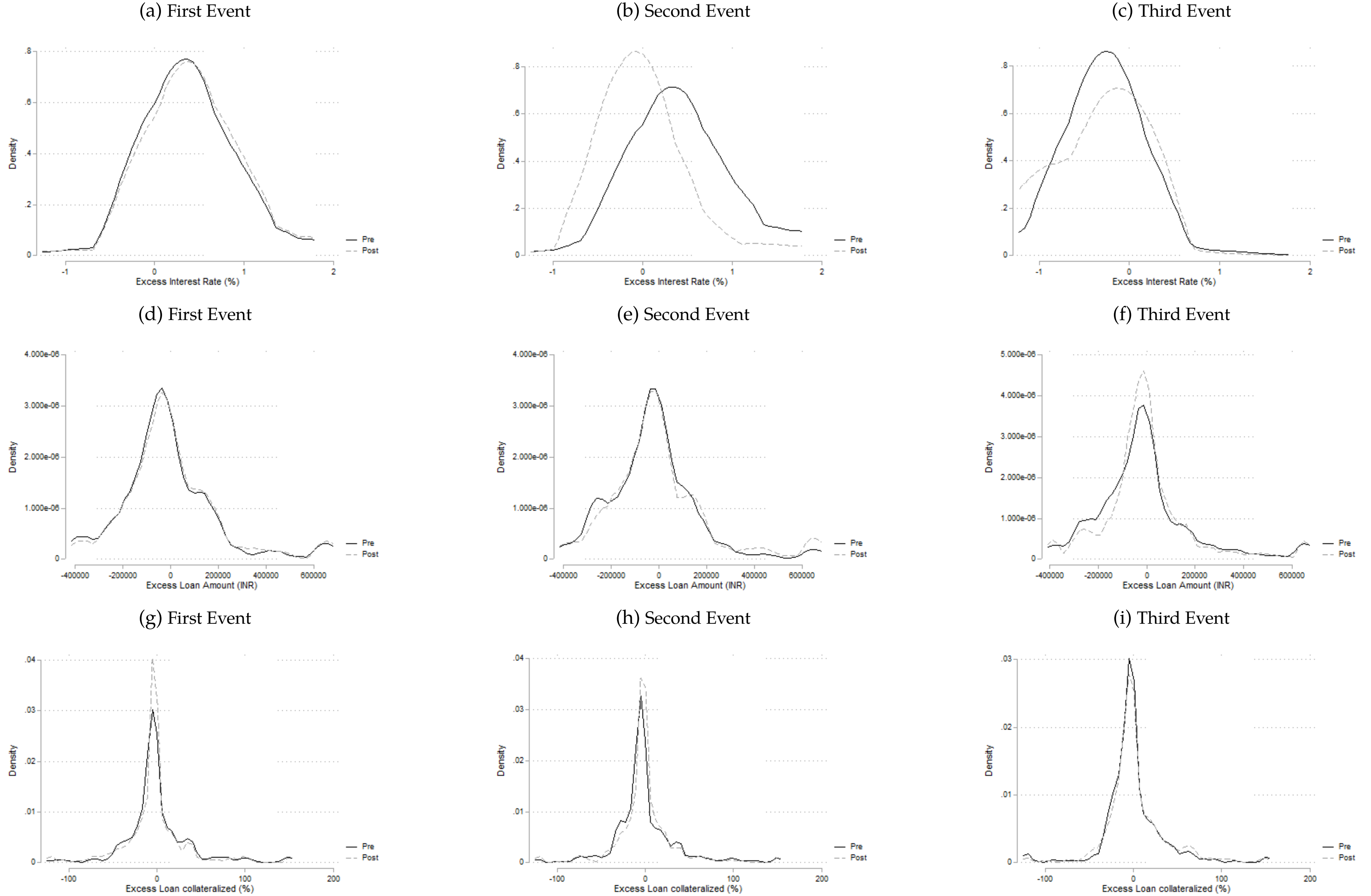


Figure A4: **Changes in the distribution for loan terms for branches situated in areas affected by shelling**

The figures below show how loan terms vary for loans disbursed by branches affected by shelling before and after the event. The first, second and third panel depict interest rates, loan amount and % loan collateralized respectively. To control for effects within similar loan type, we de-mean the loan terms within each loan type and compute the excess values above mean. The treatment group consists only of those districts of Jammu & Kashmir that share the Radcliffe Line with Pakistan which was agreed upon during the partition of British India in 1947.



(a) First Event (b) Second Event (c) Third Event

(d) First Event (e) Second Event (f) Third Event

(g) First Event (h) Second Event (i) Third Event

Table A1: **Changes in terms for loan types NOT impaired by shelling**

The table below presents difference-in-differences estimates for loan terms initiated by branches close to the Radcliffe Line (International Border). The treatment group consists of all branches within 10 kilometres from the Radcliffe Line where as the control group consists of branches within the 10-20 kilometre range from the Radcliffe Line. We restrict the set of observations to only those loan types that have a lesser tendency to be effected by the shelling events. *Affected* is a dummy variable which captures whether a branch was situated within 10 kilometres from the Radcliffe Line where as *Post* is a dummy which captures only those loans which were initiated within $[t+1, t+4)$ months after the shelling subsided. We use a burn in period of one month after the shelling to account for any loans that might have been contracted prior to the event. The analysis is limited to those shelling events where the damage was calamitous enough to warrant migration of border dwelling populations. We also consider only those districts of Jammu & Kashmir that share the Radcliffe Line (International Border) with Pakistan which was agreed upon during the partition of British India in 1947. Standard errors are depicted in parentheses and corrected for heteroskedascity using White's methodology. *** p<0.01, ** p<0.05, * p<0.1.

	First Shelling Event			Second Shelling Event			Third Shelling Event		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Log(Interest rate)	Log(Amount)	Log(% Collateralized)	Log(Interest rate)	Log(Amount)	Log(% Collateralized)	Log(Interest rate)	Log(Amount)	Log(% Collateralized)
Affected×Post(10^{-2})	0.005	12.939**	−9.458	−0.083**	9.373**	−0.030	0.041**	8.334**	3.985
	(0.051)	(6.446)	(10.387)	(0.039)	(4.576)	(8.478)	(0.018)	(3.804)	(6.874)
Affected(10^{-2})	−0.100**	−16.322***	6.423	−0.058**	−10.095***	−3.247	−0.016	−14.295***	−1.287
	(0.040)	(4.626)	(6.825)	(0.028)	(3.329)	(6.521)	(0.016)	(3.344)	(5.351)
Post(10^{-2})	−0.220	−30.287**	9.921	−0.385***	9.437***	4.660	−0.471***	−1.778	5.836*
	(0.139)	(12.545)	(16.034)	(0.034)	(3.581)	(5.949)	(0.011)	(2.274)	(3.466)
District × Quarter fixed-effects	*Y*	*Y*	*Y*	*Y*	*Y*	*Y*	*Y*	*Y*	*Y*
Loan-type fixed-effects	*Y*	*Y*	*Y*	*Y*	*Y*	*Y*	*Y*	*Y*	*Y*
R^2	0.919	0.447	0.437	0.910	0.434	0.353	0.949	0.440	0.110
Observations	3, 957	3, 951	938	6, 690	6, 680	1, 094	11, 645	11, 643	1, 765

Table A2: **Appendix: Similarity in loan terms within the treatment group**

The table below presents difference-in-differences estimates for loan terms initiated by branches close to the Radcliffe Line (International Border). The treatment group consists of all branches within 5 kilometres from the Radcliffe Line where as the control group consists of branches within the 5-10 kilometre range from the Radcliffe Line. *Affected* is a dummy variable which captures whether a branch was situated within 5 kilometres from the Radcliffe Line where as *Post* is a dummy which captures only those loans which were initiated within $[t+1, t+4)$ months after the shelling subsided. We use a burn in period of one month after the shelling to account for any loans that might have been contracted prior to the event. The analysis is limited to those shelling events where the damage was calamitous enough to warrant migration of border dwelling populations. We also consider only those districts of Jammu & Kashmir that share the Radcliffe Line (International Border) with Pakistan which was agreed upon during the partition of British India in 1947. Standard errors are depicted in parentheses and corrected for heteroskedascity using White's methodology. *** p<0.01, ** p<0.05, * p<0.1.

	First Shelling Event			Second Shelling Event			Third Shelling Event		
	(1) Interest rate	(2) Limit granted	(3) Log(% Collateralized)	(4) Interest rate	(5) Limit granted	(6) Log(% Collateralized)	(7) Interest rate	(8) Limit granted	(9) Log(% Collateralized)
Affected×Post(10^{-2})	0.173	11.087*	−5.570	−0.745**	8.905*	−1.051	0.361**	5.759	3.237
	(0.427)	(6.647)	(10.603)	(0.306)	(4.758)	(8.887)	(0.168)	(3.962)	(7.351)
Affected(10^{-2})	−0.844**	−15.677***	3.934	−0.376*	−9.969***	−2.898	−0.144	−12.625***	−0.587
	(0.328)	(4.664)	(7.004)	(0.221)	(3.374)	(6.624)	(0.139)	(3.428)	(5.550)
Post(10^{-2})	−0.825	−20.753	0.028	−2.905***	9.549***	5.446	−3.518***	−2.031	8.634
	(1.436)	(20.157)	(22.868)	(0.252)	(3.567)	(5.926)	(0.176)	(3.439)	(7.380)
District × Quarter fixed-effects	*Y*	*Y*	*Y*	*Y*	*Y*	*Y*	*Y*	*Y*	*Y*
Loan-type fixed-effects	*Y*	*Y*	*Y*	*Y*	*Y*	*Y*	*Y*	*Y*	*Y*
R^2	0.955	0.449	0.441	0.957	0.435	0.355	0.965	0.439	0.112
Observations	3,997	3,991	957	6,742	6,732	1,113	11,715	11,713	1,790