The Conflict Induced Costs of Lending

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Conflict can affect economic outcomes through the decisions of key individuals. However, observing these decisions and measuring such outcomes is not easy given the dangers present in a conflict zone. Consequently, there is a resultant lack of data on the impact of conflict on economic decisions by affected individuals. Contrary to popular perception, the incidence of conflict in a particular region does not result in a complete shutdown of all economic activity. Life in conflict zones continues, albeit with a renegotiation of contracts to better reflect the ground-level realities (Verwimp, Justino and Brück (2019)). The recent conflict in Afghanistan has further highlighted the role of informal contracts and the way they are structured in a war torn and volatile environment.[2] However, most studies in the past have relied on ex-post survey data to assess such re-negotiations and other implications, with the survey taken long after the conflict has ended.

Our paper aims to quantify the effects of conflict in a lending context and the "premium" the involved agents attribute to the resultant frictions arising there. In particular, we study the impact of mortar shelling along the border of the Indian state of Jammu & Kashmir from October 2014 to November 2016. Our unique setting and data allow us to measure this premium better than extant work for three reasons. First, we investigate the impact of contemporaneous and repeated incidences of conflict on a singular, simple, yet pervasive business contract, i.e., the bank-to-business credit contract. These incidences occur within a relatively short time-period on average eight months after one another. This allows us to minimize the possible measurement bias arising due to the inter-temporal nature of human recall where events that are more recent tend to be weighted more heavily (Bjork and Whitten (1974)). Indeed, the long look-back periods present in many conflict surveys may induce such errors of

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[2] https://www.nytimes.com/2021/08/18/opinion/taliban-afghanistan-economy.html

judgement, which we can avoid by using actual and contemporaneous information around frequently repeated incidences.

Second, our study covers an intense period of conflict, war-like almost, when a large number of people living close to the border out of fear for their lives and damage to their local communities decided to temporarily leave their homes. In contrast, many earlier studies on conflict often rely on incidences with limited or no such level of fear. Finally, our usage of a region-level credit database allows us to directly estimate the ex-post outcomes. Conversely, other studies on conflict commonly only observe outcomes after conditioning affected individuals with a set of emotions bringing them "back in time" to the conflict situation. Our study is the first to investigate the impact of contemporaneous and repeated incidences of intense conflict on the conditions present in actual bank credit contracts.

Our estimates show that loan interest rates cumulatively increase by about 20-22 basis points (bps) across the sample period for branches located in areas affected by shelling with the effect intensifying over time. The increase for the first two events is about the same, i.e., 6 bps each, but we see a jump of about twice that for the third shelling event. While we observe a pronounced increase in the interest rates, there are only negligible changes in disbursed loan amounts. We control for demand by saturating our specification with district and time fixed effects. In addition, to account for shelling-specific localized changes in demand, we use the work demand pattern from the government mandated Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS). We also use the level of bank deposits to account for changes in demand arising out of changes local deposits (Drechsler, Savov, and Schnabl (2017)) apart from accounting for branch level census characteristics.

Our results also inform us about both the immediate and delayed costs of conflict allowing us to understand the premium loan officers place on operating in conflict zones.[3] The short-run reaction of loan officers to shelling is similar to the reaction of loan officers in areas that were continuously exposed to conflict, something that we could therefore consider the long-run response. The difference between the immediate and long-run response is also not statistically distinguishable from zero. However, once the loan officers experience subsequent events, they charge higher interest rates compared to the long-

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[3] Please refer to https://www.youtube.com/watch?v=vUzX1O-PDDE&feature=youtu.be&ab_channel=KarlRock for a detailed documentary on the physical and psychological effects of mortar shelling in these regions.

run levels. Our empirical results show this difference is negligible for the first event, increases in intensity after the second event and persists well into the third event. Overall, our estimates shows that operating in conflict zones entails a cost for financial institutions who transmit the same to borrowers.

We also assess the change in the dispersion of the interest rates. While the interest rates progressively increase over successive events, their dispersion decreases. This implies that the loan officers' beliefs about interest rates "hardens" over time as they become more certain about the effects of the shelling events. Repeated incidents reduce the uncertainty associated with shelling while the loan officers begin to incorporate a premium for any perceived negative fallout of these incidences. A stylized Bayesian model we include also makes similar predictions. The model predicts that over successive events, as the uncertainty regarding the shelling decreases, the standard deviation of the interest rates levied by the loan officers decreases while the interest rate by itself increases. Our empirical results are in line with the simulated results of the model.

The armed conflict we study is international in nature and involves India and Pakistan in the districts of Jammu, Samba and Kathua. These districts are situated in the erstwhile Indian state of Jammu-Kashmir along the Radcliffe Line (International Border).[4] The inter-state conflict in these border districts manifests itself primarily through shelling, i.e., mortar gun firing across both sides of the border.[5]

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 (km) of the international border whereas the control group corresponds to those branches, which lie between 10 and 20 km from the international border. The choice of 10 km is dictated by a variety of considerations. The range of the mortar guns is about 7 km whereas the Indian government classifies residents dwelling within 6 km as "affected". We extend the classification, as it is

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[4] As of 31st October, 2019 the state of Jammu-Kashmir was reorganized and divided into the two separate federally administered territories of Jammu-Kashmir and Ladakh. No changes were made to the district boundaries

[5] 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.

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 for various values between 7.5 and 10 km. Our identifying assumption is that the areas situated around the cutoff of 10 km do not vary widely with respect to their local and demographic characteristics thus ensuring that the coefficients we estimate largely capture the effects of shelling.

We also explore the channels, which could be responsible for the observed outcomes. At first sight, it is possible to attribute these changes in the behaviour of the loan officers to altering risk preferences.[6] However, it is possible that the outcome could be due to a combination of (or effect in isolation) changing risk preferences or changes in beliefs about expected future default. Past literature on early-life as well as contemporary experiences tends to entirely attribute outcomes to altering preferences. We, on the other hand, provide suggestive empirical evidence that beliefs dominate the channel, which results in the effects that we observe. Further, as robustness, we also control for generic variations in supply using percentage of lending target achieved. We attribute the results thus obtained to supply effects emanating from the incidents of shelling. Additionally, we also limit our sample to loan types which tend to be more affected by shelling and observe similar results. Our analysis also reveals a reallocation of lending towards safer loans which are less impacted by the shelling. Finally, we reject any possible political interventions that might be driving our results by limiting our sample to close contest assembly constituencies where such interventions would be more burdensome.[7]

While our results are primarily focused around conflict episodes, they can also be used to explore lending behaviour following more commonly observed political shocks. As these events occur very close to one another, exploring the short-, medium- and long-term 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, especially the excessive restricting of credit availability in the medium term by altering loan terms could accentuate downward spirals and credit freezes in environments, which are already credit constrained.

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[6] 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, approval and handling.

[7] Where the difference in votes between the first and second placed candidate was less than the votes polled by the third placed candidate.

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