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Gender bias in education during conflict

Evidence from Assam[1]

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Abstract:
Using a large-scale novel panel dataset (2005–14) on schools from the Indian state of Assam, we test for the impact of violent conflict on female students' enrollment rates. We find that a doubling of average killings in a district-year leads to a 13 per cent drop in girls' enrollment rate with school fixed effects. Additionally, results remain similar when using an alternative definition of conflict from a different dataset. Gender differential responses are more negative for lower grades, rural schools, poorer districts, and for schools run by local and private unaided bodies.

Keywords: conflict, education, gender discrimination, human capital, India

JEL classification: I2, J1, O1

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1 Introduction

The conflict economics literature has transitioned from understanding cross-country correlations to a micro-level analysis of violence. By removing reverse causality and omitted variable bias, these studies have contributed towards a deeper understanding of the consequences of civil conflict.[4] Yet, there has been little effort to analyze the impact of organized violence through a general equilibrium approach by adding effects of individuals across a region. In this paper, we use school-level variation over time and regions in the north-east Indian state of Assam to uncover district-level effects of violence on girls' enrollment rates.

Internal conflict imposes significant costs in terms of life and property. However, there may also be distortions to long-term investments due to conflict. These distortions may include forgoing education if resources become more limited. The negative effects may be even larger for sub-groups that are either discriminated against or are of less economic value. Moreover, in recent years, the nature of armed conflict around the globe has shifted from civil wars and large-scale conflicts to more localized insurgencies. We propose studying the impact of a tribal insurgency in the Indian state of Assam on gender bias in educational enrollment.

Although gender inequality in education is a serious concern in and of itself, as it precludes girls from achieving equal opportunities, it could also lead to lower economic growth in the long run. For example, Klasen (2002) finds that gender inequality in education is correlated with lower economic growth, directly by reducing average human capital and indirectly through its impact on investment and population growth.[5]

By compiling conflict data over the period 2000 – 14 across 22 districts in Assam, we propose, first, to test for the gender-differential impact of conflict on educational outcomes using a difference-in-differences approach with school, block, or district, and year fixed effects. Second, due to availability of detailed school-level data through the District Information System for Education (DISE) surveys, we propose to test how resources for schools interact with intensity of conflict to affect enrollment for girls versus boys. Resources may be private or public and may be used to improve teacher – pupil ratios or infrastructure, through building new classrooms, equipping existing classrooms with blackboards, or stocking libraries.

Conflict's effect on education is understudied primarily due to a lack of available data from households in conflict-affected regions. Moreover, even if the data is available, it is often of very poor quality and households are not representative of the entire population. Moreover, household

[4] Blattman and Miguel (2010) find that one of the ways in which conflict depletes capital is through a "massive flight of mobile forms of capital," possibly leading to low levels of new investment. In low-income countries, civil war makes poverty reduction and growth difficult to achieve (Murshed 2002). Verwimp et al. (2009) note the importance of taking the interaction between the armed actors and the households and individuals in affected communities seriously when studying violent conflict.

[5] Similarly, Baliamoune-Lutz and McGillivray (2015) demonstrate that gender inequality in primary and secondary education has a negative effect on income.

surveys do not allow us to consider a region-wide impact due to problems with agglomeration when using a small non-representative sample. Second, there may be spillovers on households not surveyed that may affect the biasedness of our estimates. For example, some households may decide to stop sending children to school in response to conflict and this may open up spaces for other households to send their children to school. Indeed the "treatment effect on treated" is likely to be different from the "intention to treat" effect when considering consequences of civil conflict. Nevertheless, the overall evidence of the impact of conflict on education for girls versus boys is mixed. Parents differentially invest in a son's secondary education as opposed to a daughter's depending on the context of conflict, and the intensity and nature of recruitment by rebel groups. The decline in educational attainment by women in war-torn societies has been observed by Chamarbagwala and Morán (2011), Shemyakina (2011) and Singh and Shemyakina (2016). However, Swee (2009) and Kecmanovic (2013) find lower levels of education among the cohort of young males affected by war due to their participation in the conflict.[6]

As in Singh and Skeyakina (2016), there are two channels that may explain lower education for girls during conflict. First, education of girls may be a luxury good. As a result, a decline in the household's expected future income due to conflict may induce a reallocation of their resources to the education of sons. The second mechanism proposes that young girls may be perceived to be more vulnerable to attacks and they may stop going to pursuing education. Although it is difficult to distinguish between these demand-side factors, we propose to check if the supply-side can make a difference to the level of enrollment of girls during conflict. This will help us provide policy suggestions on how to tackle the gender divide in education, especially in areas exposed to insurgencies and terrorism.

It is possible that children are taken out of school to engage in child labor during times of conflict, as supply of farm labor declines or parents lose jobs (assuming that there is no child soldiering as in the Assamese conflict). Even if the fees for schools do not increase, the parental income is likely to suffer during conflict. Finally, expected returns to education may change for both boys and girls differentially. Given changing opportunity costs for schooling, there may be an economic incentive for households to reduce enrollment of children and exercise their outside options. If girls' enrollment rate decreases for primary school children, it may signal either a reduction in expected marginal benefits from primary school going girls getting educated or an increased security risk for *younger* girls. If the female enrollment reduces for secondary school children, apart from the security risk, it could also be because of a better outside option (for example, engaging in casual labor).

Regardless of school resources that may work to cushion the gender-differential effects, price effects are also likely to play an important role. Policies that reduce fees and offer free primary and secondary schooling to girls may be especially important during times of conflict. Indeed, the poorest girls were the biggest beneficiaries of free primary schooling in Uganda (Deininger 2003).

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[6] Exposure to genocide in Rwanda resulted in a drop in educational achievement by 0.5 years of schooling for all children but the impact was higher for boys from non-poor families (Akresh and de Walque, 2010). In Nepal, educational attainment of girls who were of school age during the Maoist conflict actually increased (Valente, 2014).

2 Background of conflict in Assam

The Indian state of Assam is located in the country's northeast and shares an international border with Bhutan and Bangladesh.[7] Assam has been mired in ethnic conflict since 1979, primarily between the Bodos (an ethnic tribe) and Muslim immigrants from Bangladesh. Illegal migration into Assam from Bangladesh during its independence movement in 1971 led to competition for resources and jobs in the region. The lack of economic opportunities for young males instigated the formation of militant groups. The large influx of (primarily) Muslim immigrants was a threat to the Bodos, who have sustained their community through agriculture for decades (Bhattacharjee and Phukan 2012). ULFA (United Liberation Front of Assam) was formed in 1979 under the leadership of Paresh Barua, with the aim of bringing about Assam's political separation from India, largely supported by the indigenous Bodo population. Its demands included detection of illegal immigrants, deletion of immigrants' names from voters' list, which effectively revoked their political power. When the government did not accede to their demands, ULFA targeted economically wealthy districts, abducted prominent businessmen, attacked politicians and civilians. Several militant outfits, such as the National Democratic Front of Bodoland, Bodo Liberation Tigers, and the Adivasi National Liberation Army sprang up in the 1980s.

Riots and violence between Bodos and non-Bodos have been sporadic but persistent. In recent years violent incidents have increased; one riot that erupted in 2012 killed 77 people (Asian Centre for Human Rights 2012). Apart from fighting over resources and land, the Bodos under militant outfits have consistently expressed discontent with the state's policies (Goswami 2001). Over time, different tribal factions of Assam have unsuccessfully demanded autonomy from the Indian government.[8] A recent successful attempt to evict illegal settlers by the government from protected forests provided a boost to the militant Bodo movement. For example, in the district of Kokrajhar, the Bodo heartland, Muslim migrants are regularly attacked by Bodo separatist rebels (Bhaumik 2012).

The conflict data is a district-level panel for 14 years from 2000 to 2014, collated from the South Asia Terrorism Portal's (SATP's) list of all conflict events in South Asia.[9] We employ two main indicators of violence for our regressions: total killed in violent incidents in a district-year, and total killed or injured in a district-year. The incidents have been coded manually from their "all events" section, which is based on news reports and may be susceptible to measurement error. However, as long as the error is not systematically correlated with educational variables, there should be no bias.

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[7] Assam has a population of 31 million with an area of 30,285 square miles (Census of India, 2011).

[8] The worst violence prompted by such tensions erupted during a controversial election in February 1983—nearly 3,000 people were left dead in that episode. After the 1983 elections, the state government tried to placate the rebels by signing an accord with the All Assam Students Union (AASU) in 1985, which was leading the campaign against the migrants (Bhaumik 2012). However, even though this was accepted by the moderate wing of the Bodos, the extremists opposed the accord.

[9] SATP data has been used by several studies including Singh (2013).

From Table 1, we find that violent conflict increases sharply in the years 2007 – 9 and again from 2012 – 14 and an average district in Assam is exposed to half as many incidents in the intervening period (2010 – 11). For example, in the year 2008, for the 23 districts in total, each district on average had 25 killings due to the conflict. The non-monotonicity in conflict is important for testing a causal channel between conflict and education. Military technology used by militants includes rocket launchers, grenades, ammunition, bombs, detonators, and M16 rifles. They appear to largely target businessmen and their family members and carry out their kidnappings for extortion. Along with extortion, there appears to be an upswing in the targeting of civilians such as doctors and forest personnel from the SATP data.

In Table 2, we show the variation in conflict across districts. Some districts, such as Karbi Anglong, Kokrajhar and Tinsukia suffer more than 20 civilian casualties on average every year between 2000 and 2014 due to violence. Others, such as, Karimganj, Hailakandi and Marigaon have relatively low levels of violence. Part of the reason could be that "larger" districts such as Karbi Anglong (population and area wise) would automatically be more prone to such incidents (just as population is a significant predictor of conflict onset in cross-country regressions, for example in Collier and Hoeffler 1998). Similarly, some districts may be more conducive to insurgencies because of their terrain. Forested areas could provide hiding space for militants. This is also a pattern seen in cross-country correlations (Fearon and Laitin 2003). Figure 1 illustrates the high-conflict districts in the reddish spectrum whereas greener districts have lower levels of conflict from 2000 to 2014. Every district was affected by conflict over the time period. To control for larger districts having more violent incidents, or districts having more conflict because of their geography and proximity to an international border, we will include district fixed effects in our set of controls.

Figure 2 shows the dynamics of conflict in each district. We observe that districts follow one of three patterns: first, there are several districts that have low conflict throughout the period 2000 – 14 (for example, Hailakandi, Jorhat, Lakhimpur, Marigaon, Nagaon). Second, there are districts that show high levels of violence in the early years but declining conflict in later years (Karbi Anglong, Tinsukia, Nalbari). Finally, there are a few districts that show an increase in the incidence of violence over time (Kokrajhar, Goalpara, Bongaigaon).

3 Gender inequality in education in Assam

Among all states in India, the social status of women was found to be the poorest in Andhra Pradesh, Assam, and Bihar (Planning Commission 2007). In India's northeastern region, Assam ranks below the national average in terms of gender development index.[10] The gender gap in literacy is lower in the northeastern region than the rest of India. Over time, the literacy gender gap has narrowed down for all states except for Assam. In Assam the literacy gap has widened and the schooling enrollment gap by gender still persists in high schools.[11] Mahanta and Nayak (2013)

[10] Life expectancy at birth, of women in Assam is 58.1 years, lower than the national average at 63.3 years (Mahanta and Nayak, 2013).

[11] See Appendix Tables A1 and A2 for details.

find a greater gender gap in the enrollment ratio of grades 1 to 5 as compared to grades 6 – 7 over the period 1999 to 2010. This gap is highest for Assam (18.89 per cent) and lowest for Sikkim (0.84 per cent) among northeastern states. The figures are still above the national average.

In Figure 3, we see girls' enrollment patterns over time in the different districts. We observe the following three patterns despite a positive overall time trend for nearly all districts: first, there are districts that have both high levels of girls' enrollment rate as well as low levels of conflict (for example, Marigaon and Nagaon). Second, some districts have middling levels of conflict but vary in their trend of girls' enrollment (for example, stagnant and low enrollment in Sibsagar; sharply increasing in Darrang). Third, districts with high conflict show fluctuations in enrollment rates (Dhubri, Karbi Anglong, Tinsukia). In order to find if these variations correlate with variations in violence, we need to run regressions across and within districts.

Another way of illustrating the state of and trends in gender inequality in Assamese schools could be by looking at the supply-side. Figure 4 graphs the ratio of female to male teachers by district (2005 – 14). We find that, interestingly, districts with higher ratios of female to male teachers are usually the ones with low levels of girls' enrollment (Dibrugarh, Tinsukia, Golaghat, and Sibsagar). Similarly, several districts with lower ratios of female to male teachers had higher levels of girls' enrollment (Marigaon, Nagaon, Goalpara, and Barpeta). Thus, it is not straightforward to assume that gender inequality in educational enrollment across districts corresponds also to gender imbalance in teachers' employment across the same districts. Yet it may be the case that by increasing recruitment of female teachers in schools, the negative effects of conflict on gender balance are restrained. We test for this hypothesis in our policy recommendations section.

4 Data and empirical strategy

In the school-level dataset (2005 – 14), we have access to a rich set of variables. The data is collected by DISE at the school level (grades 1 – 8) for every village in all districts of Assam.[12] All schools falling under the Department of Education, tribal or social welfare department, local body, private aided, private unaided, and madrassas[13] are supposed to be covered under DISE. Most children who attend these grades would be in the age range of 6 – 14 years. Some of the variables at the school level include the type of management (as specified above), year of establishment, funds available for the school and the nature of funds, number of teaching staff and students, qualifications of teaching staff, and enrollment ratios of the students by grade, caste, tribe, and gender. We also know the number of students who repeat their grades by gender and grade, and presence of school facilities such as a library, blackboard, toilets, and computer facilities. This is an unbalanced panel at the school level with the average school being repeatedly surveyed 5.9 times.

[12] DISE data have been used for many studies on schooling (DISE website). For more studies using DISE, see: http://www.dise.in/Reports&Studies.htm.

[13] Schools that include the study of Islam, though this may not be the only subject studied.

We show some of the baseline means for schooling inputs by high- and low-conflict districts in Table 3. The districts are classified depending on whether their average annual killings are greater than or equal to the median or less than the median for the time period under consideration (2005 – 14). Girls' enrollment ratio at baseline is similar across low- and high-conflict districts. Several indicators, such as library books, male teachers, total children, total boys, and total girls are balanced between high- and low-conflict districts. However, there are significantly fewer computers in high-conflict district schools, which may also be related to lower funds available from grants for school development as well as learning material grants. Schools in high-conflict zones also appear to have significantly fewer female teachers.

The variation in conflict from the SATP dataset is at the district level and the number of schools in the sample is 86,558, each on average being repeated 5.9 times (n = 514,614) in our main regression). However, we will carry out a conservative check on our results by including block fixed effects – there are 149 blocks (smaller administrative units) under the 22 districts. Finally, we include school fixed effects. In all cases, we cluster our errors at the block level due to a small number of district clusters. When running the school fixed specification, we cluster our standard errors at the district level to obtain the *most conservative estimates* as the serial correlation in the error terms for all schools within a district is allowed to vary. The results are consistent when clustering at higher or lower levels. We run two sets of regressions.

In the first set, we find the first-order impact on the total boys and girls enrolled in schools in Assam. This is done using the following empirical specification:

(1)

where y_{ijt} is girls' enrollment rate (i.e. total girls/total children) enrolled in school i in district j in year t. α_i and are school and year fixed effects. is a measure of intensity of conflict in district j in year t. For running the above regression, we merge the school-level time varying data from DISE (available for 2005 – 14) with the conflict data collated from SATP described above. As the first academic year begins in 2005 and ends in 2006, we take district-level violence from 2005 as the "previous" year for the enrollment that is reported in 2006 at the end of the academic year. Each school is "exposed" to the conflict in its district in a year. The key innovation of the paper is to not only control for district fixed effects, the level at which conflict takes place, but to sequentially allow block fixed effects (149 blocks), and, finally, school fixed effects, as 86,558 schools are observed on average 5.9 times over the 9 years of data. If we did not control for block or school fixed effects, one could argue that attacks may be taking place in blocks within districts that had "worse" schools, either because of low human capital returns and the opportunity cost argument, or because of omitted variables that were correlated with schools having poorer outcomes and incidence of insurgent attacks. This would bias our estimates with the district fixed effects specification. In particular, if the omitted variables (for example, quality of public health services on the supply-side or parental education on the demand-side) positively affected girls' enrollment and were negatively correlated with the incidence of violence, then there would be a downward bias on our estimates. In other words, we would get a "bigger" negative coefficient on that would be biased and would show a much larger effect. Thus, controlling for block fixed

effects should give a lower estimate of the impact (in absolute value) than controlling at a higher level (such as with district fixed effects).

We believe that this is the first paper in the literature to study variation in enrollment patterns *within* schools in response to conflict at the district level.

The empirical specification for our next set of regressions is as follows:

(2)

Here, is an index of resources (number of computers, grants received, number of teachers, toilets, etc.) available at the school-level. can be interpreted as the impact of terrorism on girls' enrollment for schools having a resource index value equal to zero.

Overall, we would like to test the following hypotheses through regressions (1) and (2):

(a) is negative, implying a deleterious effect of terrorism on enrollment for girls after controlling for school and year fixed effects.
(b) The effect of conflict on girls' enrollment could be heterogeneous by grade. For example, if the opportunity cost of schooling is higher for higher classes (due to possibility of engaging in labor), the higher classes should experience a greater shortfall in enrollment in response to conflict. If, on the other hand, parents have a reduction in their expectations of the marginal returns to education, they may reduce education for their children in an earlier grade. This may happen if, for example, there is a higher risk of younger girls being targeted during a time of high conflict or if parents adopt a "wait and watch" policy for younger girls.
(c) should be positive. refers to the marginal impact of terrorism on girls' enrollment for schools with higher resources and is the impact of resources on enrollment in peaceful district-years. We would expect estimates of to be negative and to be positive; thereby resources may work to cushion the negative gender-differential effects of the insurgency.
(d) We would also like to test which resources are the most effective at cushioning the effect of conflict on enrollment for girls.

The results first document if conflict affects girls differently. Second, we propose to test if there are heterogeneous effects by grade and, finally, we test for a cushioning effect on the gender gap by interacting a school's resources with conflict in the district. This will help policy makers in deciding which resources are most effective in curtailing the gender gap and fostering equal access to education during times of conflict.

5 Results

In Table 4.1, we illustrate the main results of the impact of conflict on girls' enrollment in the schools for the classes provided in the data set (classes 1 – 8). From our regression, we observe to be significantly negative for the effect of total killings on girls' enrollment rates (total girls

enrolled in school divided by total children enrolled in school) without district and year fixed effects (column 1). The coefficient is equal to -0.0000480**.

Controlling for district and year fixed effects (in column 3), the main result is still significant at the 5% level but the girls' enrollment rate drops to -0.0000351**. However, our regression is high-powered because of the high number of observations. Note that the standard errors are clustered at the block level (the level of aggregation below a district) because we only have 22 districts in the sample, making clustering unreliable if the number of clusters are less than 42 (Angrist and Pischke 2008). Results remain robust to clustering at the village level and/or adding block fixed effects (149 dummy variables) instead of district fixed effects. With block fixed effects (column 4), the estimate is -0.0000322** hinting at a small downward bias in the regression with district fixed effects.

In the most conservative regression specification with year and school fixed effects, we observe significance at the 5 per cent level in column (5). The interpretation for -0.0000339** observed can be thought of as follows. There are, on average, 90 children per school and 3,934 schools per district per year in our sample, and we are ultimately interested in the costs of conflict (at the level of the district) on the girls' enrollment rate at the district level. This implies that to get the estimate of the number of female students who stop going to school in a district due to an extra killing in that district, the coefficient can be multiplied by 90*3,934 (= 354,060).

For every additional killing in a district in a year (6.16 is the mean of annual killings per district during 2005 – 14), we should see a decline in the district's girls' enrollment by -0.0000339*354,060 which equals 12 girls who are missing in school. For 6 killings per district (in an average year), 72 girls appear to drop out of school on average in that district. Going from the 5th percentile to a 95th percentile conflict-prone district increases killings from 0 to 21 in a year. This would imply a dropping out of 252 girls. Thus, effects of additional killings in the district are large if girls' enrollment is calibrated at the district level rather than the school level. Another way of thinking about the magnitude of the impact is to understand the impact on girls' enrollment rate at the school if the killings in a district double (increase by 100 per cent). This is done by running a regression of log of girls' enrollment on log of killed. As shown in Table 4.2, the impact is significant and about 13 per cent for doubling of killings in a district-year (from 6 to 12 killings).

When the definition of conflict is expanded to include the number of injured civilians in a district-year as well, we find less strong negative impacts of conflict on girls' enrollment (Appendix Table A3). This may mean that killings alone have more predictive power for reducing school enrollment of girls.

Table 5 shows the results split by total girls enrolled and total boys enrolled in a school. There are two take-away messages from this table. First, the coefficient on the variable "Killed" is negative and significant for both boys and girls across the different controls in specifications (1) to (4) and then (7) to (10). The school fixed effects regression gives an insignificant (and positive) coefficient for both boys and girls. This appears to suggest that school fixed effects absorb most of

the variation that explains total children enrolled while Killed has little additional effect in explaining the total children enrolled over and above school fixed effects. The other pattern we notice is that conflict's effects on total girls' enrollment are more deleterious than on total boys' enrollment across all specifications. This is consistent with what we had found in Table 4.1. However, Table 5 also shows that there is not necessarily an increase in boys' enrollment rate in response to the girls' decrease (that is, we find a lack of substitution effects).

The results are in line with Chamarbagwala and Morán (2011), Shemyakina (2011), and Singh and Shemyakina (2016), as they had found a greater negative impact on girls' education from household surveys, but different from Swee (2009) and Kecmanovic (2013), who had uncovered a larger negative effect for boys.

In Table 6, we split the samples by different school managements. We find that our main results are driven by two types of school management systems—local body and private unaided body. In both these cases, these schools appear to be locally administered and relatively autonomous. The results also show that schools, the majority of which are run by the Department of Education or Social Welfare Department, or private aided schools, do not show a decrease in girls' enrollment rates in response to violence (coefficients are insignificant and positive). Similarly, the coefficient on madrassas is insignificant (although negative). This may mean that households that send girls to attend public schools are "different" from those that send girls to attend private unaided schools and are unlikely to change schooling in response to conflict. On the other hand, it could also imply that public schools are better at retaining girls during times of uncertainty.

In Table 7.1, we illustrate heterogeneous effects of conflict on girls' enrollment by class or grade that would (most likely) be taking place at the schools run by local and private unaided bodies. Surprisingly, we find that the effects are not driven by (older) girls in higher classes. They seem to be driven by girls enrolled in classes 3 and 4. In fact, the enrollment rate for older girls is positive, suggesting that perhaps they have crossed the conflict trap either from the demand-side, by allowing parents to send them for additional education, or from the supply-side, by giving them more opportunities to study in higher secondary schools established by the government. Although the eighth class is widely considered to be the critical barrier during peaceful times, it may not necessarily be the margin to focus on when studying the effects of conflict on girls' enrollment.

We also find that the significant results are driven by schools located in rural areas in Table 7.2. This may be because the conflict was focused in rural areas, but it could also be that most of the schools surveyed under DISE were in rural areas, lowering the power for the urban area regressions. Nevertheless, the results are in line with the effects on rural girls' enrollment found in Singh and Shemyakina (2016).

A large literature recognizes that lower incomes and poorer growth may be reasons for both onset and persistence of conflict, leading to a conflict-poverty trap. We check whether the responses to conflict for girls' enrollment are greater for poorer districts. This may be because the parents may be more affected by conflict and may feel a greater need to either switch to only invest in boys (at the cost of girls) or reduce the schooling expenditure for both boys and girls. Although we

lack individual-level data on family incomes, district per capita income in 2005 that is available from the Directorate of Economics and Statistics in Assam is the next best proxy available. By defining a dummy for high gross domestic product (GDP) per capita to equal 1 for districts that are above the median income at baseline, we find that poorer districts have on average a three times higher response to civilian casualties than the richer districts, where effects are muted as shown in column (5) of Table 7.3. The effect for richer districts can be found by adding the two coefficients in the last regression. The stand-alone dummy for "High GDP" is not present in columns (3) – (5) because it gets absorbed by district fixed effects. However, we do not find differential effects of Killed on enrollment by GDP growth rates, suggesting that baseline economic indicators are more important for explaining heterogeneity than the growth rates (which might also be endogenous to conflict).[14]

In Table 7.4, we delve into the mechanisms for "safety" of girls to isolate the impact of economic deprivation from simply, security of girls in that district during the insurgency. Here, we use data on the incidence of rapes against women from 2005, as provided by the Ministry of Home Affairs, New Delhi. We calculate the median rapes per capita and again categorize districts as "High Rape" depending on whether or not they had greater than the median level of rape incidence. If safety was a pertinent issue, we might expect that the interaction between casualties and insecurity of girls would lead to an even greater negative response on girls' enrollment. However, we do not find the interaction effect to be significant although it has the sign we would expect (negative).

6 Robustness checks

Schools have been targeted in isolated incidents in 2013. From the SATP data, we observe that on February 11, 2013, three schools were set ablaze in Goalpara district on the eve of the local village elections (Panchayat elections). In a similar incident, three schools in the rural Kamrup district were partially burnt down in the run-up to the same set of elections. We test for the robustness of the results by running our main specification (as in Table 4.1) for different sub-samples. We test for the robustness of our main result in Table 8.1 by excluding:

(a) Hailakandi, Goalpara, and Kamrup as these were the districts that suffered direct attacks on schools. The estimate remains significant and similar (the estimate is -0.0000229**) with school fixed effects implying that these districts were not driving the main results.
(b) The year 2013 from our analysis when such incidents took place in the run-up to the local elections. The estimate remains significant and similar (the estimate is -0.0000283**) in the most conservative regression (with school fixed effects) suggesting that direct violence targeted at schools does not drive our main results.
(c) International border districts of Cachar, Dhubri, Kokrajhar, and Karimganj, as the violence surrounding border areas was usually carried out by different rebel groups hiding in foreign countries and thus the dynamics of conflict may be different from the rest of

[14] Available upon request—the median GDP growth rate is 6 per cent per year for a district between 2005 and 2012 according to the data available from the Directorate of Economics and Statistics, Assam.

Assam. The estimate remains significant and even higher in absolute value, the estimate is -0.0000552*** in the most conservative regression hinting that border district violence does not drive our main results.

In Table 8.2, we test for the impact of killed per capita in a district (dividing killed by district population in 2005, available from the Directorate of Economics and Statistics, Assam). The results remain consistent with this specification as well, suggesting that both aggregate levels of violence and likelihood of getting affected by violence are highly correlated. Results also remain robust to including per capita income and population as additional controls.

Next, we check for lagged effects of conflict by taking number of civilians killed in that district in the calendar year before the onset of the academic year (2.5 years before the end of the academic year). Observing the coefficients presented in Table 8.3, we find significant and negative effects on girls' enrollment rate but the size of the coefficient is smaller than that found in Table 4.1.

We were concerned that the conflict data may be biased as it is from collated news reports on the SATP website. The Bureau of Investigation's Special Branch under the Ministry of Home Affairs in Assam shared with us their dataset on district-wise bombings (and civilians, extremists, and security forces killed in those bombings) by the main insurgent group ULFA in the state from 2005 to 2012. We use this data to perform a sanity check on our results. In Table 8.4, we find consistent results that bombings that caused civilian or extremist casualties were correlated with a lower girls' enrollment rate within the most conservative specification.

Finally, we wanted to check if the effects were more severe for girls from marginalized communities or minority groups (scheduled caste/scheduled tribe/other backward caste). We classified girls enrolled from these groups as girls from a minority and calculated the minority girls' enrollment rate. We do not find a significant negative effect for these girls, although the coefficient size is similar to the one found for all girls. This indicates that girls from these minority groups did not suffer differentially (as compared to other girls) post-conflict.

Additionally, we wanted to check if results may have been driven by extensive differential migration rates across conflict-prone districts and this may be related to having a girl or a boy. However, due to a lack of individual data on migration, we are unable to rigorously test this assumption. Nevertheless, we checked the Indian Human Development Survey from 2012 for Assam and found that out of 4,598 households sampled from seven districts, only 53 households (1.1 per cent) had migrated from another district in the last five years.

7 Policy recommendations

Next, we elicit policy recommendations by checking for heterogeneities of responses to violence by school resources. Columns (1) and (2) in Table 9 show that even though grants to schools, such as teaching and learning grant, and school development grant, are useful in increasing girls' enrollment rate, they do not cushion the effects of conflict. All the regressions control for district and year fixed effects but results are robust to controlling for block fixed effects.

Computers and library books are neither strong predictors of girls' enrollment in peace nor in conflict (columns 3 and 4). What appears to matter most for improving the gender balance is having more teachers per pupil who are professionally qualified and recruiting more female teachers per pupil (columns 5 and 6). This implies that policies should focus more on incorporating more skilled human resources in schools and encourage more women to become teachers. Policies that stress physical resources within schools are less effective in combating the harmful effects of violence on women's empowerment.

8 Conclusion

In her 2014 Nobel Peace Prize acceptance speech, Malala Yousafzai said, "I tell my story, not because it is unique, but because it is not. It is the story of many girls." [15] This paper tells the story of many girls who are missing in schools because of localized insurgencies. We find negative effects on school enrollment for girls and these responses are greater for lower primary school girls studying in schools run by local and unaided private bodies. Gender enrollment ratios in rural schools and poorer districts seem to be particularly negatively affected by conflict. The effects are robust to including district, block, or school fixed effects, along with year fixed effects, and to a host of other robustness checks. There also does not appear to be a corresponding increase in total boys' enrollment.

The sprouting of several Assamese militant outfits representing local tribes (such as Bodos) does not augur well for gender inequality in education. Recently, it was reported that "nine organizations representing the indigenous and tribal communities of Assam joined hands to form a political alternative for the coming Assembly elections in Assam." [16] Hopefully, political concessions will lead to more peace in the state that has suffered from loss of life and capabilities. On the other hand, the government's policies to improve girls' enrollment during violent times in Assam should consider providing incentives for younger girls, and focusing efforts to build more public schools and monitoring local body schools.

Moreover, although school grants are useful for improving gender balance during peaceful times, policies that revolve around hiring female teachers and professionally qualified teachers appear to have the greatest impact on improving girls' enrollment. Nevertheless, it is also important to understand the socio-psychological reasons that lead some children away from school and these results, paired with finding demand-side explanations, can help policy makers spend resources more efficiently for gender equality and development.

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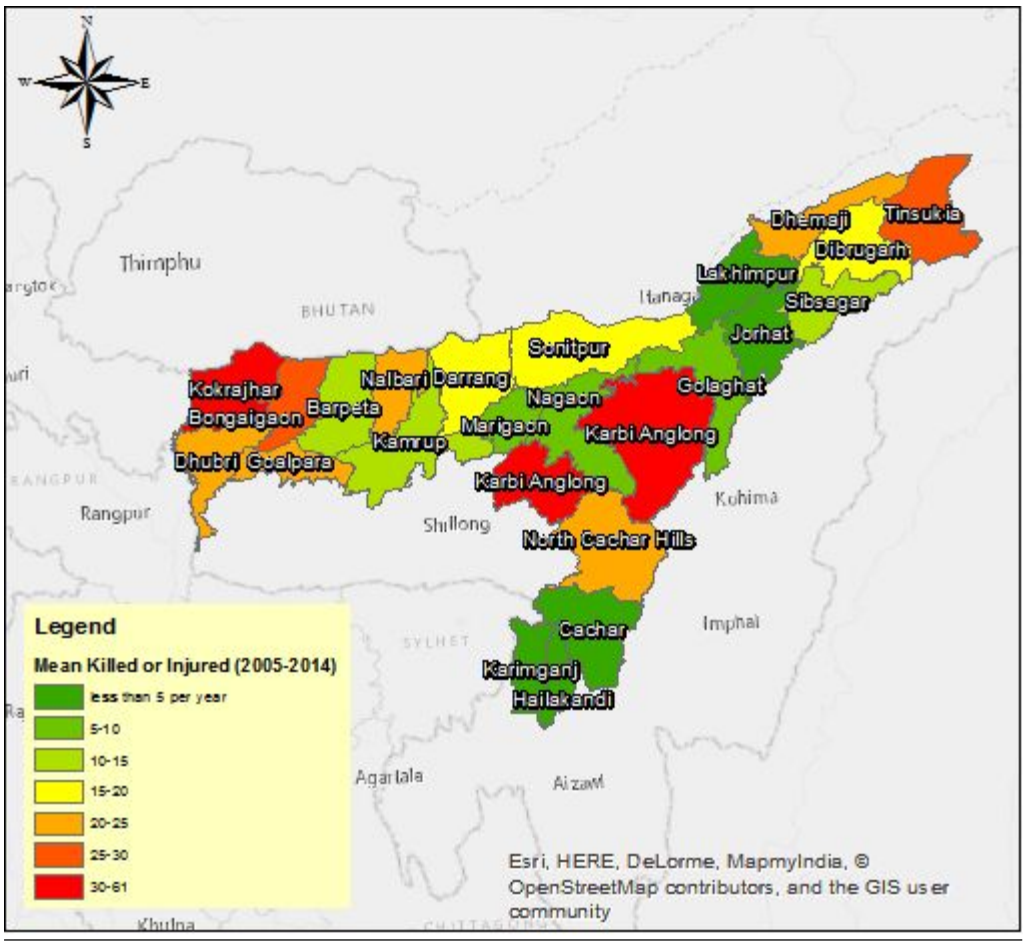
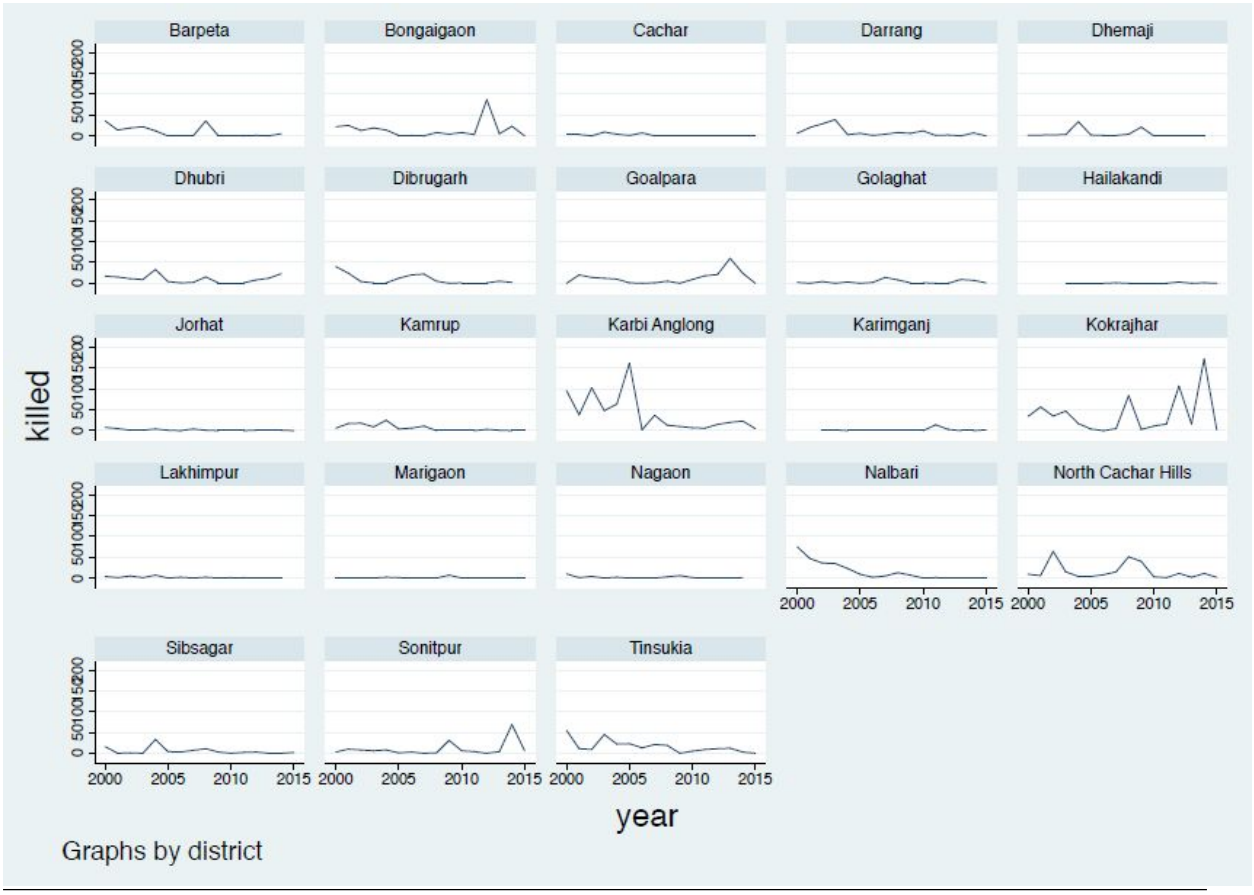
Figure 1: District heat map of Assam with mean killed or injured



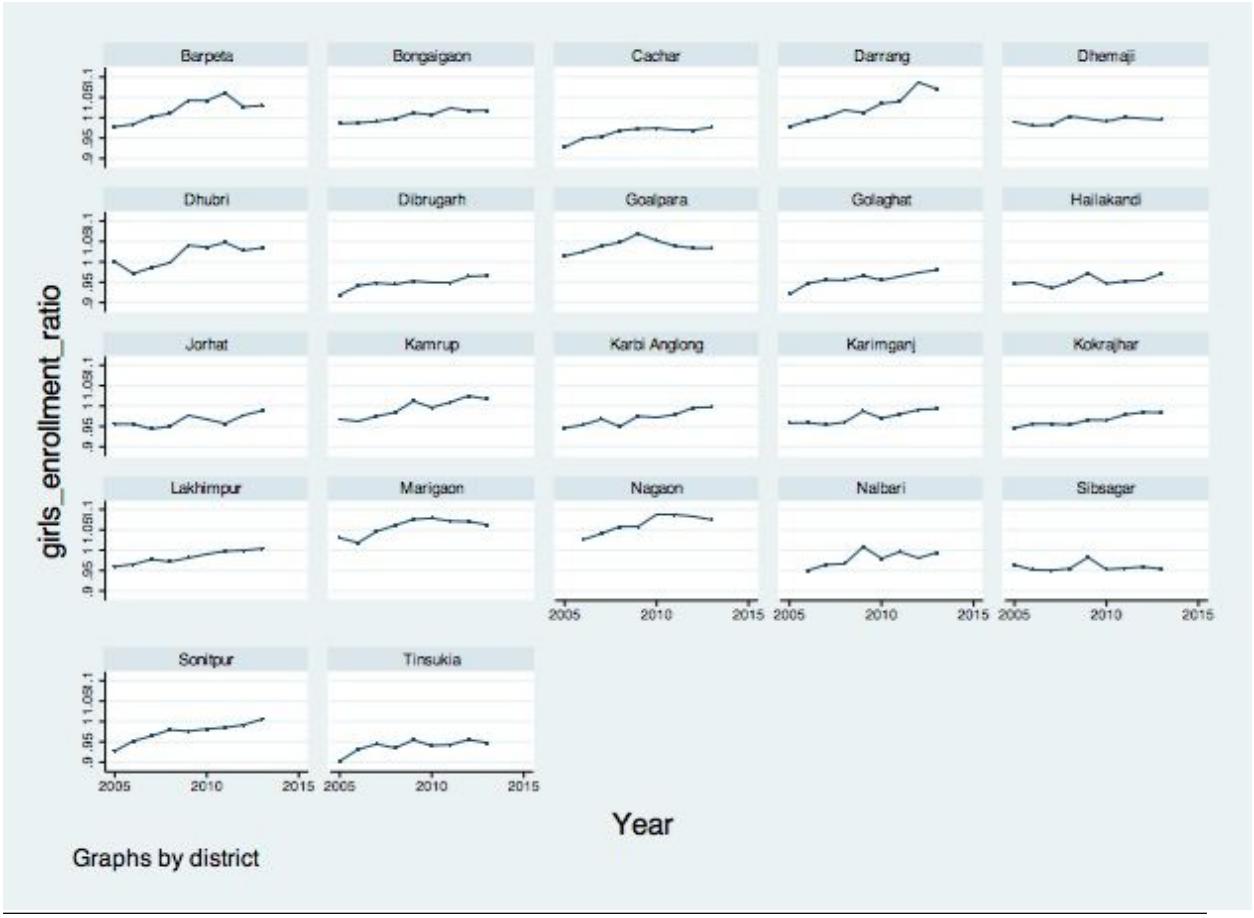
Source: Author's compilation.

Figure 2: Total civilians killed in the Assam insurgency, by district (2000–15)



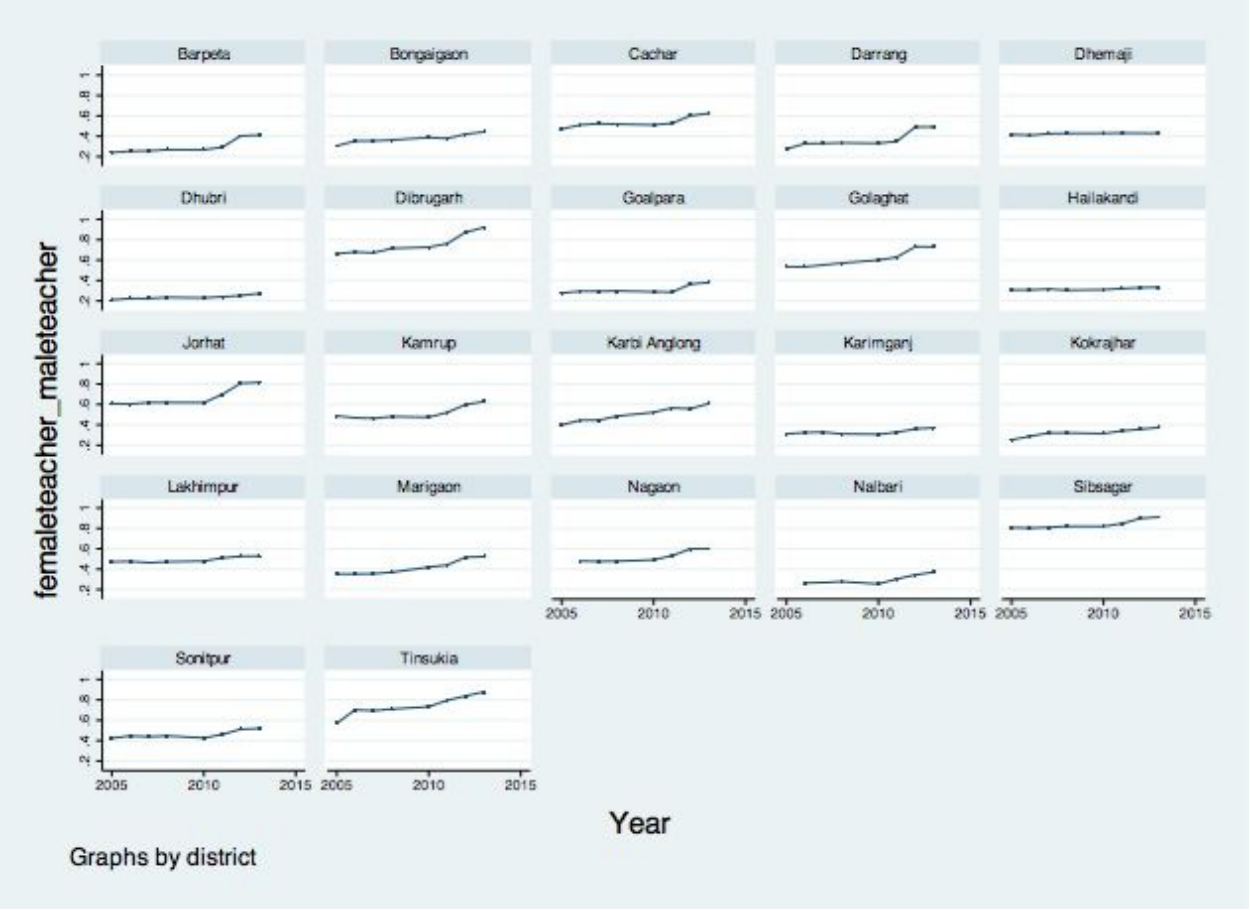
Source: Authors' compilation based on SATP data.

Figure 3: Girls' enrollment ratio using DISE surveys, by district (2005–14)



Source: Authors' compilation based on DISE data.

Figure 4: Ratio of female to male teachers using DISE surveys, by district (2005–14)



Source: Authors' compilation based on DISE data.

Table 1: Summary of conflict in Assam 2000–14 using SATP data

Year	Mean annual killed or injured per district	Mean annual killed per district
2000	26	21
2001	24	16
2002	22	18
2003	17	14
2004	34	15
2005	15	11
2006	11	3
2007	19	7
2008	26	12
2009	17	6
2010	7	3
2011	5	4
2012	18	13
2013	17	7
2014	24	19

Note: Means for every year are calculated per district in Assam. Killed or injured are total civilians killed or injured in insurgency-related incidents.

Source: Authors' compilation based on SATP data.

Table 2: Summary of conflict in Assamese districts (2000–) using SATP data

District	Mean annual killed or injured	Mean annual killed
Barpeta	15	13
Bongaigaon	27	15
Cachar	2	2
Darrang	17	9
Dhemaji	23	7
Dhubri	21	10
Dibrugarh	15	9
Goalpara	22	12
Golaghat	5	3
Hailakandi	1	0
Jorhat	4	2
Kamrup	14	6
Karbi Anglong	61	41
Karimganj	2	2
Kokrajhar	49	38
Lakhimpur	3	2
Marigaon	8	1
Nagaon	8	2
Nalbari	21	16
North Cachar Hills	24	15
Sibsagar	13	5
Sonitpur	17	10
Tinsukia	28	16

Source: Authors' compilation based on SATP data.

Table 3: Differences in Schooling for High vs. Low Conflict districts for the baseline year 2005-2006

Variables	Mean for Low Conflict Districts	Mean for High Conflict Districts	Difference in Means
	(1)	(2)	(3) = (2)-(1)
girls' enrollment ratio	0.500	0.500	-0.000
			(0.00161)
total number of girls enrolled	44.15	47.464	3.314
			(2.420)
total number of kids enrolled	88.58	95.080	6.500
			(4.604)
total number of boys enrolled	44.43	47.616	3.186
			(2.198)
total no of female teachers	1.381	0.971	-0.410***
			(0.101)
total no of male teachers	2.727	2.678	-0.0491
			(0.0811)
no of library books available	52.53	57.928	5.398
			(5.234)
total no of computers	0.292	0.237	-0.0549**
			(0.0256)
amount received as school development	4442.3	3979.1	-463.2
			(300.8)
amount spent as school development	4279.6	3786.5	-493.1*
			(278.6)
amount of teaching and learning material grant	1187.0	1083.8	-103.2**
			(44.50)
amount received for purchasing teaching	1213.0	1096.5	-116.5**
			(45.75)

Notes: School development grant is the amount received under Sarva Sikhsa Abhiyan, an educational program run by the central government. High conflict districts are defined as those districts that had a higher than or equal to the median annual killings on average between 2005-2014. Standard errors for the differences in the means in parentheses. Errors are clustered at the block level.
* p<0.1, ** p<0.05, *** p<0.01

Source: Authors' compilation based on DISE data.

Table 4.1: Impact of conflict on girls' school enrollment

	Dependent var.: Girls' enrollment ratio in school				
	(1)	(2)	(3)	(4)	(5)
Killed	-0.0000480**	-0.0000463**	-0.0000351**	-0.0000322**	-0.0000339**
	(0.0000229)	(0.0000230)	(0.0000140)	(0.0000145)	(0.0000144)
Year fixed effects	no	yes	yes	yes	yes
District ixed effects	no	no	yes	no	no
Block fixed effects	no	no	no	yes	no
School fixed effects	no	no	no	no	yes
N	514,164	514,164	514,164	514,164	514,164
adj. R-sq	0.000	0.001	0.003	0.005	0.005

Notes: District fixed effects are dummies for 22 districts. Year fixed effects include dummies for years from 2005 till 2013. Killed measures total number of civilians killed in a district-year in Assam in insurgency-related events. Injured measures total number of civilians injured in a district-year during the insurgency (2005–14). Errors are clustered at the block level in (1)–(4) and at the district level in (5). *** p<0.01, ** p<0.05, * p<0.1.

Source: Authors' compilation based on SATP and DISE data.

Table 4.2: Impact of conflict on school enrollment using log specification

	Dependent variable: Log Girls enrollment ratio				
	(1)	(2)	(3)	(4)	(5)
Log Killed	-0.00106	-0.00150*	-0.00102*	-0.00127**	-0.00131**
	(0.000820)	(0.000855)	(0.000586)	(0.000610)	(0.000615)
Year Fixed Effects	no	yes	yes	yes	yes
Distirict Fixed Effects	no	no	yes	no	no
Block Fixed Effects	no	no	no	yes	no
School Fixed Effects	no	no	no	no	yes
N	316118	316118	316118	316118	316118
adj. R-sq	0.000	0.002	0.003	0.006	0.005

Notes: Standard errors in parentheses clustered at the block level. District fixed-effects are dummies for 22 districts. Block fixed effects are dummies for 149 blocks. Year fixed effects include dummies for years from 2005 till 2014. Log of Killed measures the logarithm of total number of civilians killed in a district-year in Assam in insurgency-related events. *** p<0.01, ** p<0.05, * p<0.1.

Source: Authors' compilation based on SATP and DISE data.

Table 5: Impact of conflict on total girls and total boys enrolled in school

	Dependent var: Total girls enrolled in school					Dependent var: Total boys enrolled in school				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Killed	-0.0578**	-0.0557**	-0.0161*	-0.0161**	0.00151	-0.0457**	-0.0449**	-0.0140	-0.0152**	0.00531
	(0.0223)	(0.0234)	(0.00943)	(0.00732)	(0.00768)	(0.0211)	(0.0224)	(0.00868)	(0.00747)	(0.00759)
Year Fixed Effects	no	yes	yes	yes	yes	no	yes	yes	yes	yes
District Fixed Effects	no	no	yes	no	no	no	no	yes	no	no
Block Fixed Effects	no	no	no	yes	no	no	no	no	yes	no
School Fixed Effects	no	no	no	no	yes	no	no	no	no	yes
N	518301	518301	518301	518301	518301	518301	518301	518301	518301	518301
adj. R-sq	0.000	0.005	0.054	0.088	0.002	0.000	0.003	0.042	0.071	0.004

Notes: District fixed-effects are dummies for 22 districts. Year fixed effects include dummies for years from 2005 till 2013. Killed measures total number of civilians killed in a district-year in Assam in insurgency-related events. Injured measures total number of civilians injured in a district-year during the insurgency (2005-2014). *** p<0.01, ** p<0.05, * p<0.1.

Source: Authors' compilation based on SATP and DISE data.

Table 6: Impact of conflict on girls' enrollment by school management

	Dependent var: Girls Enrollment Ratio under different school managements					
	dept of education	tribal/social welfare department	local body	private aided body	private unaided body	madrassa
	(1)	(2)	(3)	(4)	(5)	(6)
Killed	0.00000792	0.000727	-0.000312**	0.0000995	-0.000336***	-0.0000381
	(0.0000169)	(0.00361)	(0.000126)	(0.0000642)	(0.000107)	(0.000292)
District Fixed Effects	yes	yes	yes	yes	yes	yes
Year Fixed Effects	yes	yes	yes	yes	yes	yes
N	374527	1476	4673	44911	26838	774
adj. R-sq	0.003	0.042	0.029	0.015	0.051	0.273

Notes: Standard errors in parentheses clustered at the block level. District fixed-effects are dummies for 22 districts. Year fixed effects include dummies for years from 2005 till 2013. Killed measures total number of civilians killed in a district-year in Assam in insurgency-related events (2005-2014). *** p<0.01, ** p<0.05, * p<0.1.

Source: Authors' compilation based on SATP and DISE data.

Table 7.1: Heterogeneous effects of conflict on girls' enrollment by class

	class 1	class 2	class 3	class 4	class 5	class 6	class 7	class 8
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Killed	-0.0000272	-0.0000328	-0.0000624**	-0.0000730**	-0.00000139	-0.0000278	-0.0000294	0.0000561**
	(0.0000192)	(0.0000256)	(0.0000250)	(0.0000323)	(0.0000393)	(0.0000162)	(0.0000208)	(0.0000229)
Year Fixed Effects	yes	yes	yes	yes	yes	yes	yes	yes
School Fixed Effects	yes	yes	yes	yes	yes	yes	yes	yes
N	396838	388191	377112	368021	204181	118917	117909	65935
adj. R-sq	0.000	0.000	0.001	0.001	0.001	0.005	0.004	0.002

Notes: Dependent Variable is girls' enrollment rate. Errors are clustered at the district level. Year fixed effects include dummies for years from 2005 till 2013. Killed measures total number of civilians killed in a district-year in Assam in insurgency-related events. *** p<0.01, ** p<0.05, * p<0.1.

Source: Authors' compilation based on SATP and DISE data.

Table 7.2: Impact of conflict by rural or urban location of school

	Dependent var: Girls Enrollment Ratio in school							
	Rural				Urban			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Killed	-0.0000478**	-0.0000336**	-0.0000304**	-0.0000347**	-0.0000219	-0.0000640	-0.0000502	-0.0000313
	(0.0000233)	(0.0000137)	(0.0000144)	(0.0000142)	(0.0000608)	(0.0000510)	(0.0000526)	(0.0000272)
Year Fixed Effects	yes	yes	yes	yes	yes	yes	yes	yes
District Fixed Effects	no	yes	no	no	no	yes	no	no
Block Fixed Effects	no	no	yes	no	no	no	yes	no
School Fixed Effects	no	no	no	yes	no	no	no	yes
N	486305	486305	486305	486305	27855	27855	27855	27855
adj. R-sq	0.001	0.003	0.006	0.005	0.000	0.003	0.009	0.005

Notes: Standard errors in parentheses clustered at the block level. District fixed-effects are dummies for 22 districts. Year fixed effects include dummies for years from 2005 till 2014. Killed measures total number of civilians killed in a district-year in Assam in insurgency-related events. Injured measures total number of civilians injured in a district-year during the insurgency (2005-2014). *** p<0.01, ** p<0.05, * p<0.1.

Source: Authors' compilation based on SATP and DISE data.

Table 7.3: Heterogeneity of impact of conflict by GDP per capita

	Dependent var: Girls Enrollment Ratio in school				
	(1)	(2)	(3)	(4)	(5)
Killed	-0.0000845	-0.000155*	-0.000189***	-0.000149***	-0.0000961***
	(0.0000858)	(0.0000869)	(0.0000314)	(0.0000547)	(0.0000279)
High GDP	-0.00483***	-0.00532***			
	(0.00159)	(0.00160)			
Killed*High GDP	0.0000657	0.000153*	0.000184***	0.000141**	0.0000742**
	(0.0000894)	(0.0000901)	(0.0000330)	(0.0000560)	(0.0000296)
Year Fixed Effects	no	yes	yes	yes	yes
District Fixed Effects	no	no	yes	no	no
Block Fixed Effects	no	no	no	yes	no
School Fixed Effects	no	no	no	no	yes
N	514164	514164	514164	514164	514164
adj. R-sq	0.000	0.001	0.003	0.005	0.005

Notes: High GDP is a dummy variable that takes the value 1 if that district in Assam had higher than median level of GDP per capita in 2005 or greater than Rs. 17048. GDP data was obtained from Directorate of Economics and Statistics, Assam. District fixed-effects are dummies for 22 districts. Year fixed effects include dummies for years from 2005 till 2013. Killed measures total number of civilians killed in a district-year in Assam in insurgency-related events. Injured measures total number of civilians injured in a district-year during the insurgency (2005-2014). Errors are clustered at the block level in (1) - (4) and at the district level in (5). *** p<0.01, ** p<0.05, * p<0.1.

Source: Authors' compilation based on SATP, DISE, and Directorate of Economics and Statistics, Assam data.

Table 7.4: Heterogeneity of impact of conflict by safety for girls

	Dependent var: Girls Enrollment Ratio in school				
	(1)	(2)	(3)	(4)	(5)
Killed	-0.0000140	-0.00000349	-0.0000260*	-0.0000267*	-0.0000234*
	(0.0000233)	(0.0000233)	(0.0000136)	(0.0000136)	(0.0000114)
High Rape	0.00616***	0.00652***			
	(0.00152)	(0.00153)			
Killed*High Rape	-0.0000742	-0.000114	-0.0000454	-0.0000265	-0.0000545
	(0.0000749)	(0.0000692)	(0.0000368)	(0.0000444)	(0.0000350)
Year Fixed Effects	no	yes	yes	yes	yes
District Fixed Effects	no	no	yes	no	no
Block Fixed Effects	no	no	no	yes	no
School Fixed Effects	no	no	no	no	yes
N	514164	514164	514164	514164	514164
adj. R-sq	0.001	0.001	0.003	0.005	0.005

Notes: High Rape is a dummy taking value of 1 if the district has higher rates of rape per capita ('000 population) than the median (>0.04) in 2005. Data on rape was obtained from Ministry of Home Affairs, New Delhi and population in 2005 from Directorate of Economics and Statistics, Assam. District fixed-effects are dummies for 22 districts. Year fixed effects include dummies for years from 2005 till 2013. Killed measures total number of civilians killed in a district-year in Assam in insurgency-related events. Errors are clustered at the block level in (1) - (4) and at the district level in (5). *** p<0.01, ** p<0.05, * p<0.1.

Source: Authors' compilation based on SATP, DISE, Ministry of Home Affairs, New Delhi, and Directorate of Economics and Statistics, Assam data.

Table 8.1: Robustness checks

	Dependent var: Girls' enrollment ratio					
	excluding 2013		excluding districts where school attacks took place		excluding international border districts	
	(1)	(2)	(3)	(4)	(5)	(6)
Killed	-0.0000283**	-0.0000285**	-0.0000219*	-0.0000229**	-0.0000577***	-0.0000552***
	(0.0000137)	(0.0000109)	(0.0000123)	(0.0000106)	(0.0000174)	(0.0000138)
Year Fixed Effects	yes	yes	yes	yes	yes	yes
Block Fixed Effects	yes	no	yes	no	yes	no
School Fixed Effects	no	yes	no	yes	no	yes
N	456349	456349	438197	438197	411269	411269
adj. R-sq	0.005	0.004	0.005	0.005	0.005	0.004

Notes: Year fixed effects include dummies for years from 2005 till 2014 and Block Fixed Effects are dummies for 149 Blocks. Killed measures total number of civilians killed in a district-year in Assam in insurgency-related events (2005-14). *** p<0.01, ** p<0.05, * p<0.1.

Source: Authors' compilation based on SATP and DISE data.

Table 8.2: Using Killed per Capita as the main independent variable

	Dependent var: Girls Enrollment Ratio in school				
	(1)	(2)	(3)	(4)	(5)
Killed per capita	-0.0332*	-0.0337*	-0.0285**	-0.0260**	-0.0291**
	(0.0199)	(0.0200)	(0.0117)	(0.0122)	(0.0123)
Year Fixed Effects	no	yes	yes	yes	yes
District Fixed Effects	no	no	yes	no	no
Block Fixed Effects	no	no	no	yes	no
School Fixed Effects	no	no	no	no	yes
N	514164	514164	514164	514164	514164
adj. R-sq	0.000	0.001	0.003	0.005	0.005

Notes: District fixed-effects are dummies for 22 districts. Year fixed effects include dummies for years from 2005 till 2013. Killed per capita measures total number of civilians killed in a district-year in Assam in insurgency-related events divided by the population (in '000) in that district in 2005 as obtained from Directorate of Economics and Statistics, Assam. Errors are clustered at the block level in (1) - (4) and at the district level in (5). *** p<0.01, ** p<0.05, * p<0.1.

Source: Authors' compilation based on SATP and DISE data.

Table 8.3: Using Lagged Conflict as main independent variable

	Dependent var: Girls Enrollment Ratio in school				
	(1)	(2)	(3)	(4)	(5)
Lag Killed	-0.0000275	-0.0000377*	-0.0000260**	-0.0000281**	-0.0000262***
	(0.0000185)	(0.0000197)	(0.0000110)	(0.0000115)	(0.00000724)
Year Fixed Effects	no	yes	yes	yes	yes
District Fixed Effects	no	no	yes	no	no
Block Fixed Effects	no	no	no	yes	no
School Fixed Effects	no	no	no	no	yes
N	428300	428300	428300	428300	428300
adj. R-sq	0.000	0.001	0.003	0.006	0.004

Notes: District fixed-effects are dummies for 22 districts. Year fixed effects include dummies for years from 2005 till 2013. Lag Killed measures total number of civilians killed in a district-year in Assam in insurgency-related events in the year prior to onset of academic year. Errors are clustered at the block level in (1) - (4) and at the district level in (5). *** p<0.01, ** p<0.05, * p<0.1.

Source: Authors' compilation based on SATP and DISE data.

Table 8.4: Alternative definition of conflict

	Dependent variable: Girls enrollment ratio		
	(1)	(2)	(3)
Civilians bombing	-0.0000649***		
	(0.0000180)		
Security bombing		-0.000116	
		(0.000122)	
Extremists bombing			-0.00128**
			(0.000573)
Year Fixed Effects	yes	yes	yes
School Fixed Effects	yes	yes	yes
N	348186	348186	348186
adj. R-sq	0.002	0.002	0.002

Notes: Data on ULFA bombing was obtained from Bureau of Investigation Special Branch, Department of Home Affairs, Assam. Civilians bombing measures the civilians killed in ULFA bombing incidents in Assam by district and year. Security bombing measures security forces killed in bombing incidents in Assam by district and year. Extremists bombing measures extremists killed in bombing incidents. *** p<0.01, ** p<0.05, * p<0.1.

Source: Authors' compilation based on Bureau of Investigation Special Branch, Department of Home Affairs, Assam and DISE data.

Table 8.5: Impact of conflict on Minority Girls' Enrollment Ratio

	Dependent var: Minority Girls' Enrollment Ratio in school				
	(1)	(2)	(3)	(4)	(5)
Killed	0.000654*	0.000859***	-0.0000612	-0.000103	-0.0000313
	(-0.000351)	(-0.000249)	(-0.0000897)	(-0.000113)	(-0.000183)
Year Fixed Effects	no	yes	yes	yes	yes
District Fixed Effects	no	no	yes	no	no
Block Fixed Effects	no	no	no	yes	no
School Fixed Effects	no	no	no	no	yes
N	514164	514164	514164	514164	514164
adj. R-sq	0.002	0.099	0.294	0.376	0.226

Notes: The dependent variable is defined as the total number of girls enrolled who are identified as belonging to a Scheduled Caste, Scheduled Tribe or Other Backward Caste divided by total children enrolled. District fixed-effects are dummies for 22 districts. Year fixed effects include dummies for years from 2005 till 2013. Killed measures total number of civilians killed in a district-year in Assam in insurgency-related events. Injured measures total number of civilians injured in a district-year during the insurgency (2005-2014). Errors are clustered at the block level in (1) - (4) and at the district level in (5). *** p<0.01, ** p<0.05, * p<0.1.

Source: Authors' compilation based on SATP and DISE data.

Table 9: Impact of Conflict on School Enrollment with Resource Effects

	Dependent variable: Girls' enrollment ratio					
	(1)	(2)	(3)	(4)	(5)	(6)
Killed	-0.0000331**	-0.0000333**	-0.0000296**	-0.0000297**	-0.0000535***	-0.0000565**
	(0.0000151)	(0.0000146)	(0.0000141)	(0.0000149)	(0.0000157)	(0.0000225)
teaching and learning grant per pupil (TL)	0.0000178***					
	(0.00000653)					
TL*killed	7.24e-08					
	(0.000000563)					
school development grant per pupil (SDG)		0.00000107**				
		(0.000000471)				
SDG*killed		1.60e-08				
		(1.93e-08)				
No of computers per pupil			0.00272			
			(0.0210)			
No of computers per pupil*killed			-0.00159			
			(0.00181)			
number of Library Books per pupil				0.000275		
				(0.000168)		
number of Library Books per pupil*killed				-0.00000343		
				(0.0000104)		
teachers with professional qualifications per pupil (Profqual)					0.0200*	
					(0.0109)	
Profqual*killed					0.00157***	
					(0.000525)	
numberof femaleteachers per pupil						0.0740***
						(0.0200)
numberof femaleteachers per pupil*killed						0.00194*
						(0.00108)
District Fixed Effects	yes	yes	yes	yes	yes	yes
Year Fixed Effects	yes	yes	yes	yes	yes	yes
N	514021	510623	514161	514162	462307	462307
adj. R-sq	0.005	0.005	0.005	0.005	0.005	0.007

Notes: Standard errors in parentheses clustered at the block level. District fixed-effects are dummies for 22 districts. Year fixed effects include dummies for years from 2005 till 2013. Killed measures total number of civilians killed in a district-year in Assam in insurgency-related events. *** p<0.01, ** p<0.05, * p<0.1. School development grant is the amount received under Sarva Sikhsa Aviyan.

Source: Authors' compilation based on SATP and DISE data.

Appendix

Table A1: Cross-state literacy gaps in 2001

	GDI in 2001	Literacy gap in 2001	Literacy gap in 2011**
A. Pradesh	0.48	20.33	14.12
Assam	0.49	8.64	11.54
Manipur	0.58	18.17	13.32
Meghalaya	0.51	5.73	3.39
Mizoram	0.67	4.56	4.32
Nagaland	0.42	9.19	6.60
Sikkim	0.59	15.60	10.86
Tripura	0.56	16.10	9.03
India	0.54	21.60	16.68

Source: * Planning Commission (2001); ** www.indiastat.com.

Table A2: Cross-state literacy gaps in classes IX–XII

	Classes IX–X (14–15 years)			Classes XI–XII (16–17 years)		
	Boys	Girls	Gap	Boys	Girls	Gap
Ar Pradesh	73.3	67.9	5.4	49.1	45.7	3.4
Assam	52.0	46.9	5.1	18.2	14.6	3.6
Manipur	83.5	80.1	3.4	39.0	32.1	6.9
Meghalaya	49.0	49.9	-0.9	13.7	17.3	-3.6
Mizoram	75.4	78.3	-2.9	41.2	40.2	1.0
Nagaland	27.4	29.5	-2.1	18.3	16.7	1.6
Sikkim	44.9	50.3	-5.4	27.6	29.5	-1.9
Tripura	73.0	73.3	-0.3	31.9	25.0	6.9
India	69.0	60.8	8.2	42.2	36.1	6.1

Source: www.indiastat.com

Table A3: Impact of conflict on girls' school enrollment

	Dependent var: Girls' enrollment ratio in school				
	(1)	(2)	(3)	(4)	(5)
Killed or Injured	-0.0000109	-0.000000895	-0.00000696	-0.00000219	-0.0000174*
	(0.0000177)	(0.0000184)	(0.0000112)	(0.0000119)	(0.00000930)
District fixed effects	no	no	yes	no	no
Year fixed effects	no	yes	yes	yes	yes
Block fixed effects	no	no	no	yes	no
School fixed effects	no	no	no	no	yes
N	514,164	514,164	514,164	514,164	514,164
adj. R-sq	0.000	0.001	0.003	0.005	0.005

Notes: District fixed effects are dummies for 22 districts. Year fixed effects include dummies for years from 2005 till 2013. Killed measures total number of civilians killed in a district-year in Assam in insurgency-related events. Injured measures total number of civilians injured in a district-year during the insurgency (2005-2014). Errors are clustered at the block level in (1) - (4) and at the district level in (5). *** p<0.01, ** p<0.05, * p<0.1.

Source: Authors' compilation based on SATP and DISE data.