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Gender-differential effects of terrorism on education: The case of the 1981–1993 Punjab insurgency

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ABSTRACT

This study examines the long-run effect of the 1981–1993 Punjab insurgency on the educational attainment of adults who were ages 6–16 at the time, using the 2005 India Human Development Survey. We find a substantial and statistically significant negative effect of terrorism on female educational attainment through a triple differences specification. We find that our main effects are robust to two separate placebo tests, fertility checks, selection bias and migration checks, caste fixed effects and alternative ways of measuring conflict. Additionally, we carry out a unique parallel short-term analysis of the effect of conflict on education for boys and girls. This analysis makes use of micro-level expenditure data from a farmer-level data set and sheds light on household investments during the insurgency. Results from this analysis are consistent with the long-term effects found in the first part of the paper.

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1. Introduction

Between 2004 and 2008, the terrorist incidents in South Asia accounted for more than 30% of all incidents in the world.¹ In the recent years, the nature of armed conflict around the globe has shifted from civil wars and large-scale conflicts to more localized insurgencies and drug related violence that nevertheless substantially affect quality of life and local stability. Some examples include but are not limited to localized insurgencies in Pakistan, the Naxalite movement in India, and drug gangs

in Brazil and Mexico. Internal conflict imposes huge costs not only at the macro-level (e.g. Gates, Hegre, Nygård, & Strand, 2012) but also at the household level. Apart from the risk of losing life and property, there may also be intra-household distortions to long-term investments due to conflict documented by an extensive literature on the effect of armed conflict shocks on investments in human capital, such as education and health, of children.

Our study makes the following three contributions to the literature. First, we contribute to the literature on the effects of armed conflict on the human capital accumulation by households and individuals, with a focus on South Asia which has not been extensively researched by this literature. A large number of studies on the impact of violence on investment in human capital has focused on African countries (e.g. Akresh & de Walque 2010; Akresh, Lucchetti, & Thirumurthy, 2012; Akresh, Verwimp, & Bundervoet, 2011; Bundervoet, Verwimp, & Akresh, 2009; Verwimp & van Bavel, 2014), with the rest covering

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¹ GTD data 1970–2010: “National Consortium for the Study of Terrorism and Responses to Terrorism (START). (2011). Global Terrorism Database [Data file]. Retrieved from <http://www.start.umd.edu/gtd>”.

Europe and Latin America (Gerardino, 2014; Justino, Leone, & Salardi, 2014; León 2012; Shemyakina 2011), with only Valente (2014) exploring the case of Nepal in South Asia.² Specifically, we examine the impact of local insurgency within the state of Punjab which has a population of 27 million people (Population Census, 2011). Second, we add to the literature on gender bias in early childhood and the response by farming households to armed conflict shocks by exploring the relationship between shocks, gender composition and educational expenditures. A bias in the allocation of resources towards boys is particularly prevalent in South Asia (e.g. Das Gupta, 1987; Rose, 1999). Third, we find evidence for long-term educational disparity between women and men who were of school-going age in more terrorist prone-districts that reinforces the importance of understanding persistent effects on accumulation of human capital in response to short-term negative shocks.

Our analysis first explores the long-term effects of the Punjab insurgency on educational attainment of adults who were between ages 6 and 16 years at the time of insurgency. We use cross-sectional data for the state of Punjab drawn from the 2005 India Human Development Survey (IHDS). We merge the IHDS data for Punjab with the district level data from the South Asia Terrorism Portal (SATP) on terrorist incidents and associated with them killings during the 1981–1993 Punjab insurgency. The Punjab insurgency ran between 1981 and 1993 and was rooted in the desire of insurgents to establish Punjab as an independent state separate from India. To establish that the observed effect of conflict is not due to pre-existing differences across districts of Punjab, we use a within state counterfactual group and examine the effect of conflict on older population that would not be plausibly impacted by a conflict that occurred past their schooling years. To control for potentially endogenous migration, we perform analysis for the full sample and sub-sample of individuals whose households did not migrate during their lifetimes. We also explore potential threats to validity of our estimated by examining endogenous fertility and potential changes to sample composition due to migration. We should note that our results are conditional on an individual surviving the conflict. It is possible that there was a spillover of conflict from districts with more intense conflict activity to districts with fewer conflict events. In this case, a caveat to our analysis is that we observe only a lower bound effect of the conflict on educational expenditure and attainment.

Conditional on the assumptions above, we find a substantial and statistically significant effect of major terrorism incidents and terrorists' killings of civilians on educational attainment by girls as opposed to boys. For one standard deviation increase (262.34) in the number of killings due to terrorism and in the number of terrorist incidents (50.63)³ between 1981 and 1993, young women

from the affected cohort attained about 0.71 and 0.79 fewer years of education than men of the same age in these districts. These numbers are substantial as on an average, women in Punjab have only 4.83 years of education. The decline in educational attainment by women in war-torn societies has also been observed by Chamarbagwala and Morán (2011), Shemyakina (2011), and Walsh (2000). The magnitude of the decline in education is comparable to the estimated 0.5 years of schooling lost due to landmine contamination in Cambodia (Merrouche, 2011). The negative effect of insurgency is more prominent for rural locations, which is consistent with the geographic distribution of events that took place during the 1981–1993 insurgency. We find that our main effects are robust to two separate placebo tests, fertility checks, selection bias and migration checks, caste fixed effects and alternative ways of measuring conflict.

To explore channels through which education might have been affected, we analyze the data from household-level farm account surveys conducted by the Punjab's state agricultural department in 1981–1990. One channel through which the insurgency had a negative impact on female education appears to be a decrease in educational expenses by households that had a greater share of girls to boys of school-going age. This reduction in household expenditure on education appears to be one of the demand-side channels through which conflict affected educational attainment. The observed effect is robust to the introduction of additional district and household-level controls, and placebo tests with other types of household expenditure as a dependent variable in separate regressions. To control for factors that remain the same for a district over time (such as, its proximity to the international border and access to religious networks), we include district fixed effects in all our specifications. Additionally, we also control for district linear and quadratic time trends because factors may be trending differently across districts and may lead to a spurious correlation between increasing terrorism and declining educational expenditures. Examples include differential growth in industrial development, differential trends in openness to agricultural technologies such as tractors and high-yielding variety seeds as well as for unobservable linear and quadratic trends.

The remainder of the paper is organized as follows. In Section 2, we relate our study to previous literature and describe the historical context of the insurgency in Punjab. Section 3 presents the conceptual framework, the data, and the estimation strategy. Our empirical results and robustness checks are presented in Section 4. In Section 5, we discuss the results and conclude.

2. Prior literature and historical background

2.1. Literature review

There is a growing literature on the gender-specific effect of armed conflict on schooling that finds diverse

0.974 (significant at 1% level). The average number of killings per incident is 6.13 with a median of 5.91.

² For greater details on the causes of the conflict in Nepal, see Macours (2011).

³ The means and standard deviations are for the 10 districts of Punjab: Amritsar, Firozpur, Gurdaspur, Hoshiarpur, Jalandhar, Kapurthala, Ludhiana, Patiala, Rupnagar, and Sangrur. The pairwise correlation coefficient between the number of killings and number of incidents per district is

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