

Quantifying the Microeconomic Effects of War Using Panel Data: Evidence From Nepal

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Summary. — The extensive coverage of household surveys in conflict regions in recent decades has fueled a growing literature on the microeconomic effects of war. In this paper, we use a unique panel dataset to quantify the impact of the Nepalese civil conflict on schooling attainment. Given longitudinal data, we are able to directly estimate unobserved individual heterogeneity and thus address selective wartime displacement. Despite the widely-held view that war is detrimental to human capital formation, we find no effect of war intensity on schooling attainment once unobserved individual heterogeneity is accounted for. We draw on supplementary data to explain our findings.

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1. INTRODUCTION

In recent decades, the World Bank conducted household surveys in several war-torn countries around the world, while many more were covered by the Demographic and Health Surveys (Brück, Justino, Verwimp, & Avdeenko, 2010).¹ The extensive coverage of household surveys in conflict regions has fueled a growing literature that addresses many important—but previously unanswered—questions about the microeconomic consequences of war.

To date, more than a dozen studies have examined the effects of violent conflict on the health, schooling attainment, and labour market outcomes of affected populations.² Many researchers identify these effects by exploiting variation in birth cohorts and war intensity, which is analogous to the difference-in-differences framework.³ In the last few years alone, more than a handful of researchers have used this approach, by combining cross-sectional data from household surveys with spatially-varied data on war intensity, to measure the effects on individual outcomes (Akbulut-Yuksel, 2014; Akresh & de Walque, 2008; Akresh, Lucchetti, & Thirumurthy, 2012; Akresh, Verwimp, & Bundervoet, 2011; Bundervoet, Verwimp, & Akresh, 2008; Chamarbagwala & Morán, 2011; Grimard & Laszlo, 2014; León, 2012; Mansour & Rees, 2012; Menon & Rodgers, 2013; Merrouche, 2011; Shemyakina, 2011; Swee, 2009; Valente, 2013).

In this paper, we use a unique longitudinal dataset from Nepal to quantify the impact of civil conflict on individual schooling attainment. To the best of our knowledge, ours is the first study to estimate this using longitudinal household surveys which allow us to directly estimate individual heterogeneity. Apart from its unique panel dimension, two additional features of the Nepalese dataset distinguish it from data traditionally used in the conflict literature. The first is that the two waves of the longitudinal survey were collected before and after the onset of war; this allows us to compare individuals in the affected schooling cohorts during the conflict with those who have completed schooling before the onset of war, while simultaneously controlling for individual heterogeneity. The second feature is the availability of both cross-sectional and panel components collected concurrently within

each wave of the survey; this allows us to replicate the conventional estimation approach using the cross-sectional component with which we compare our estimation using panel data.

Empirically, we find that conventional difference-in-differences estimation yields a positive effect of war intensity on schooling attainment. However, the effect diminishes completely when we augment difference-in-differences with individual fixed effects, suggesting that unobserved individual heterogeneity may play an important role. Specifically, we find that individuals at the lower end of the endowment distribution are more likely to be geographically displaced, causing a positive selection bias which may be responsible for the discrepancy between the difference-in-differences and fixed effects estimates.⁴ Furthermore, we use alternative measures of conflict, political variables, and information about displacement, to provide supplementary evidence explaining our findings.

We make two contributions to the literature concerning microeconomic effects of war. First, our findings suggest that individual heterogeneity is an important factor to consider when examining the effects of war. Specific to Nepal, we find that low-endowment individuals are “twice-cursed” in the sense that they not only incur direct costs of war but are also more likely to be geographically displaced. This is an important insight that improves our knowledge of the impact heterogeneity of war. Second, because we find evidence of selective wartime displacement, there is an important policy lesson to be learnt: post-war reconstruction efforts that are typically directed at high-war intensity areas may miss many intended recipients if these low-endowment individuals have already moved out of those areas.

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The rest of this paper is organised as follows. Section 2 constitutes an introduction of Nepal and the data that we use. Section 3 describes the empirical framework for understanding common empirical methods, and compares them to our preferred specification with panel data. We present the empirical results and conduct robustness checks in Section 4. Section 5 concludes.

2. BACKGROUND AND DATA

In this section, we provide a description of Nepal—particularly, of its civil war and schooling—and the data that we use. Our objective here is to offer sufficient background to understand empirical results, hence the brevity.

(a) Nepal

Nepal is a small landlocked country in South Asia with a largely agrarian economy. For much of its modern history, Nepal was ruled by a monarchy until widespread protests led to the emergence of multi-party democracy and the introduction of a new constitution in 1990. While democratisation brought expectations of greater political freedom, social mobility, and economic advancement, the new regime faced considerable political instability; there were as many as 12 governments in the first 12 years.

Amid political turmoil, civil war (otherwise known as the People's War) broke out in 1996, when members of the Communist Party of Nepal (Maoists) attacked a police post in the Rolpa district of Western Nepal. In the first few years of civil war, the government mobilised the police to contain the insurgency, but was unable to stop the proliferation of the Maoist propaganda. By 2000, the insurgency covered at least 35 of 75 Nepalese districts. Following King Gyanendra's ascension to the throne in 2001, violence escalated dramatically as the warring parties launched frequent attacks, killing over 4,600 people that year, many of whom were civilians.⁵ A ceasefire with the Maoists was reached in 2003, leading to a decline in violence; however, government talks failed and violence resumed. By then, the Maoists were already active in 72 of Nepal's 75 administrative districts.

The next few years saw plenty of violence in the form of mass strikes, riots, kidnappings, blockades, and terrorist bombings. Gradually, the Maoist insurgents dominated the rural regions of Nepal. In September 2005, the Maoists declared a unilateral ceasefire, and began talks with seven major political parties to present a common front against

the monarchy. The Nepalese monarch finally relinquished power in April 2006, when a peace agreement was signed, formally ending the decade-long conflict that claimed more than 13,000 lives and displaced thousands more.⁶

Overall, the complexity and length of the war meant that there is considerable variation in war intensity across the country. For instance, there are nearly 5,000 war casualties in the Western region, and only around 1,600 in the Far-Western region. As seen in Figure 1, which depicts the spatial aspect of the conflict intensity by quartiles, the extent of conflict is greater in hilly and rural areas (primarily in Western and Mid-Western Nepal) than in relatively flat and urban ones (in Eastern and Central Nepal).⁷ Importantly, displacement is also prevalent during these years. According to our data, around 15% of individuals moved during the war, 59% of which moved across districts.

The effects of war intensity on schooling attainment could materialise via several channels. One obvious example is the destruction of infrastructure. During the war, the Royal Nepal Army and the Maoists frequently exchanged fire, so schools buildings and other educational facilities could have been damaged or even completely destroyed by artillery shells which may have led to the closure of schools. Moreover, given significant wartime displacement, it is easy to imagine that many teachers may have fled those districts experiencing high war intensity. This implies that the supply of teachers could have decreased, impacting classroom learning.

On the other hand, where violence was widespread, the demand for schooling may have decreased as well. Specifically, students may be compelled to stay home if their parents were concerned about their children's safety. This is understandable, especially since the Royal Nepal Army frequently carried out surprise raids to capture Maoists. In fact, safety concerns may not apply equally to all children. For instance, [Shemyakina \(2011\)](#) finds that, in the case of armed conflict in Tajikistan, parents may be more concerned about daughters than sons, which would result in a larger decline in female schooling attendance. Similarly, household may face severe economic constraints during periods of violence, which may lead to substitution away from schooling toward other consumption goods. There may even be instances of child labor to supplement household income during times of extreme poverty.

There are also other channels that are more indirect in nature. For example, when individuals are displaced during the war, they may relocate to unfamiliar destinations which would make them less likely to attend school. Indeed, displaced parents may be in a state of shock or feel uncertain about the duration of their stay, and thus feel less inclined to send their

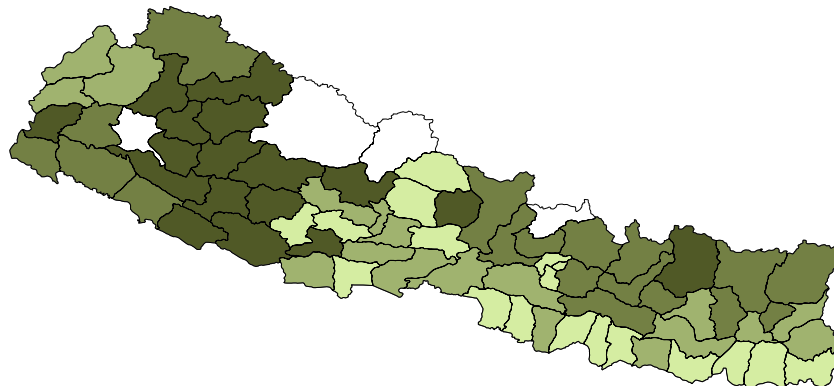


Figure 1. War intensity (by district). Note: Shaded districts (71 of 75) are included in the panel data, with darker shades denoting higher war intensity quartiles. The quartiles, in number of casualties per thousand, are: 0–0.390, 0.391–0.685, 0.686–1.161, 1.162 and above.

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