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ABSTRACT

Violent Conflict and the Child Quantity-Quality Tradeoff*

We show that the exposure to war-related violence increases the quantity of children temporarily, with permanent negative consequences for the quality of the current and previous cohort of children. Our empirical evidence is based on Nepal, which experienced a ten year long civil conflict of varying intensity. Our difference-in-differences analysis shows that women in villages affected by civil conflict increased their actual and desired fertility during the conflict by 22 percent, while child height-for-age declined by 11 to 13 percent. Supporting evidence suggests that the temporary fertility increase was the main pathway leading to reduced child height, as opposed to direct impacts of the conflict. This likely occurred because there were more mouths to feed in these households.

JEL Classification: D74, H56, J13, O10, 012

Keywords: conflict, violence, quantity-quality model of fertility, height-for-age, Nepal

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1 Introduction

Wars and armed conflicts are characterized by extreme aggression, destruction and mortality. For this reason, it is very surprising that recent evidence points to a positive effect of exposure to war on local social cooperation. Affected individuals are more likely to join social and civic groups, to take leadership roles in their communities and to exhibit prosocial behavior in experimental laboratory games (Bauer *et al.*, 2016). We show that this positive effect extends to fertility.

Our empirical evidence is based on Nepal, which experienced a civil conflict between the state and Maoist rebels between 1996 and 2006. During this conflict, both sides adopted intimidation and terror tactics, but did not aim to kill many civilians.[1] We combine nationally representative survey data from three waves of the *Nepal Demographic Health Survey* with village-level micro data on conflict from annual reports of the *Informal Sector Service Center* to examine the impact of violent conflict on both adult fertility decisions and the wellbeing of young children. Identification comes from spatial and temporal variation in the conflict, which left some areas of the country completely unaffected. We exploit that villages affected by the conflict had the same trend in fertility as non-affected villages prior to the onset of conflict and employ a difference-in-differences (DiD) estimator.

Our DiD estimates show that women in affected villages increased their fertility during the conflict by 22 percent. We find that this increase was entirely intended and that it was not a response to increased child mortality. Conflict could cause the demand for children to go up for several reasons. First, the increased uncertainty caused by conflict may intensify the long-run view of children as a type of income diversification and old-age support. This is likely to be particularly true in the case of a long-running civil conflict which no obvious end point as in Nepal. Second, and related, individuals may increase fertility to strengthen their own group. This is more likely in the type of civil conflict that features a breakdown of the functions of the state as was the case in Nepal. Third, as the conflict in Nepal led to reduced household wealth and cross-sectional evidence suggests that children there are inferior goods, demand should rise. Fourth, specific to Nepal, the general fear of abduction and extortion by Maoists led the general public in affected areas to reduce their travel, work and general outside activities. This increased leisure time could have led to increase demand for children, if leisure and childrearing are complimentary activities. In our analysis, we are not able to cleanly disentangle these specific causal channels, but we suspect that each plays a role in our findings.

Our analysis of post-conflict data shows that effect on fertility is just a *tempo effect.*

[1] The official death toll from the conflict is a bit more than 13,000 out of a population of nearly 26 million.

Five years after the end of the conflict, actual and desired fertility levels in treated and non-treated villages are the same. Despite the temporary nature of this effect on the *quantity of children*, we find a permanent impact on the *quality of the children* born during the conflict, as well as for their slightly older siblings. Young children in treated villages conceived before the conflict started have a reduced height-for-age of about 11 percent, while those conceived during the conflict are 13 percent shorter. A parity specific-analysis along with other results suggest that the major causal driver of the negative effect of the conflict on height-for-age is the increased quantity of children and not the direct impact of the conflict. This likely occurs because there are more mouths to feed in these households. A sex-specific analysis reveals that girls suffer comparably more from the increased intrahousehold competition for resources.

Our findings contribute to two strands of literature. *First*, we add to the literature studying the effect of armed conflicts on fertility. Existing empirical evidence on the effect of armed conflicts on fertility is mixed. Many studies find evidence for fertility reductions during periods of conflicts, but others put forward a positive effect or no significant relationship at all.[2] The variation in findings may be explained by the circumstances of the respective conflicts or the use of different empirical methodologies.[3] Many of the previous studies rely on cross-sectional comparisons and hence struggle to cleanly identify the causal impact of conflict on fertility (Hill, 2004). Our paper, by exploiting the spatial variation in the Nepali civil conflict and using a DiD methodology, is able to construct a valid counterfactual for what fertility rates would have been in each village without the onset of conflict. Furthermore, our data from the *Nepal Demographic and Health Survey* allows us to examine the timing of fertility decisions, child mortality and desired fertility in same empirical framework and the timing of the surveys enables us to examine fertility catch-up after the end of the conflict. This gives us better identification of the impact of conflict on fertility than most previous papers.

Second, we contribute to the literature on the impact of conflicts on child outcomes. This literature generally uses more sophisticated methodologies than the fertility literature

[2]A negative relationship is found by Khlat *et al.* (1997) for Lebanon, by Lindstrom and Berhanu (1999) for Ethiopia, by Agadjanian and Prata (2001, 2002) for Angola, by Blanc (2004) for Eritrea, by Caldwell (2004) in a cross country study of developed countries, by Heuveline and Poch (2007) for Cambodia, by Agadjanian *et al.* (2008) for Kazakhstan, by Jayaraman *et al.* (2009) for Rwanda, by Woldemicael (2008, 2010) for Eritrea, and Williams *et al.* (2012) for Nepal. In contrast, a positive relationship is reported by Grabill (1944) for the USA, Fargues (2000) for Israel and Palestine, Verwimp and van Bavel (2005) for Rwanda, Avogo and Agadjanian (2008) for Angola, Schindler and Brück (2011) for Rwanda, and Urdal and Che (2013) in a cross country study of developing countries. No significant relationship is found by a Kulczycki and Saxena (1999) for Lebanon, Randall (2005) for Mali, and Rutayisire *et al.* (2013) for Rwanda.

[3]In cases were conflicts lead to famine disease and reduced access to health services, there may be a negative effect of fertility due to involuntary reductions resulting from reduced fecundability and increased intrauterine mortality. Positive effects of conflict on fertility are more likely if voluntary adaptations are the driving force.

and our analysis follows suit using a similar methodology. Previous studies provide robust evidence for the detrimental effects of the pre- and post-natal exposure to conflicts on health and education outcomes.[4] However, despite the size of this literature, very little is known about the specific mechanism that links conflict and child outcomes, as well as the behavioral adaptations that parents adopt in response to conflict (Akresh, 2016). Our primary contribution to this literature is to highlight the so far overlooked, but important nexus, between child outcomes and fertility decisions. Becker and Lewis (1973) first pointed out the trade-off between the quantity and quality of children. Along these lines, our results suggest that the main channel through which conflict in Nepal has a negative impact on child outcomes is through temporary increases in fertility leading to more mouths to feed. While this finding could be particular to the context of the Nepali conflict, it is quite possible that this channel is also important for explaining the negative impacts of civil conflict on child outcomes found in other studies.

2 The Nepal Maoist Conflict

Nepal is a small landlocked Himalayan country in South Asia sandwiched between India and China. It has a population of 26.4 million and a GDP per capita of USD 2,500 (measured at PPP, 2016). It has three distinct agro-climatic regions: the fertile and flat Terai belt in the south, which is well connected by roads; a largely sloped middle region defined by rugged hills, valleys, rivers, cliffs, and forests; and a high-altitude mountain region in the north without much road connectivity.

It experienced a civil conflict between the state and Maoist rebels between 1996 and 2006 that varied over time in intensity. The conflict had political origins. The country was an absolute monarchy until 1990, with political parties banned. A year-long political demonstration, coordinated by underground political parties, forced the king to accept a constitutional monarchy in 1991. Amidst political instability and widespread dissatisfaction with the new democratic system's ability to meet the rising economic and social needs and expectations of the citizenry, the *Communist Party of Nepal (Maoist Centre)* launched the People's War in February 1996 (Hachhethu, 2000; Sharma, 2006). The major aim of the Maoist conflict was to capture state power and replace the parliamentary system with a 'new people's democracy' the intention of which was to redistribute wealth

[4]The most studied health outcome is height-for-age. There is evidence for a number countries; for Burundi (Bundervoet *et al.*, 2009; Verwimp, 2012), for Germany (Akbulut-Yuksel, 2009), for Rwanda (Akresh *et al.*, 2011), for Eritrea (Akresh *et al.*, 2012), for Ivory Coast (Minoiu and Shemyakina, 2012, 2014), for Mozambique (Domingues and Barre, 2013), for Zimbabwe (Shemyakina, 2014), and for Mali (Tsujimoto and Kijima, 2015). Two papers study the effect on birth weight; for Palestine (Mansour and Rees, 2012) and for Nigeria (Nwokolo, 2015).

from the rich to the poor (Group, 2005).[5] The attributes of the Maoist conflict were common to many other civil wars (Blattman and Miguel, 2010), but it draws the closest resemblance to the two-decades-long Maoist conflict in Peru (Klaren, 2000).

Similar to the Peruvian conflict (Fielding and Shortland, 2012), the Maoist conflict in Nepal was mainly a low-key, law-and-order situation at first. The epicenter of the Maoist People's War was in the remote hill district of Rolpa in midwestern Nepal which had no road connectivity.[6] From February 1996 to November 2001, the majority of the country was untouched by the conflict and only approximately 15% of the 13,000 total conflict-related deaths occurred (see Figure 1).[7] During the next three years, the conflict escalated and spread rapidly from the midwest to other parts of Nepal.[8] Figure 2 shows the spatial distribution of the intensity of violence as measured by the number of conflict-related deaths across 75 administrative districts.[9] Approximately 69% of the total conflict-related deaths occurred between 2002 and 2004 alone, and 73 out of 75 districts were affected by the conflict by 2004. However, not all villages within these districts were affected; in total, only about 2,000 out of some 3,900 villages were ever affected by the conflict. Figure 3 shows the spread of violence across the villages of Nepal. The conflict ended in November 2006 with the signing of the Comprehensive Peace Accord between the government and the Maoists. The country entered into a new republican era in 2008 when it elected a constitutional assembly to write a new constitution. The CPN-Maoists emerged as the largest political party.

[Figure 1, 2, and 3]

During this conflict, both sides adopted intimidation and terror tactics. The Maoists adopted the policy of forced recruitment and abduction of villagers during the insurgency to increase their strength and influence, and also damaged several bridges and administrative buildings located in villages as well as in district headquarters (Eck, 2007; INSEC, 1996–2006). Security forces retaliated by arresting and torturing villagers suspected of being supporters or sympathizers of the Maoists, and displaced several health service

[5] Source: `http://ucpnmaoist.org/PageDetails.aspx?id=340&cat=4#.VKDH-sAoc` (accessed 29 December, 2014).

[6] Research suggests that difficult terrain provides an ideal environment for protracted guerilla wars (Bohara *et al.*, 2006; Do and Iyer, 2010; Klaren, 2000).

[7] We discuss this data in more detail in the next section.

[8] This escalation of conflict is attributed to failed peace talks between the Maoists and the government in 2001, coupled with the royal massacre during which 10 members of the royal family, including the then king and queen, were murdered in June 2001. The royal massacre has never been independently investigated and therefore the motivation behind it is not fully understood (Baral, 2002). It was unrelated to the conflict, but the Maoists tried to capitalize on the incident by advocating for the end of the monarchy (Baral, 2002).

[9] As of 2011, Nepal is officially divided into 3,914 Village Development Committees (VDC) and 58 municipalities of 75 districts (Central Bureau of Statistics, 2012)

facilities to set up their camps (Dhungana, 2006). Thus, there were a number of channels through which the conflict could have directly impacted child health; including food shortages caused by damage to infrastructure and regular closure of markets, increased stress during pregnancy and reduced access to health facilities. Obviously, many of these channels would have also affect fertility decisions and access to contraception.

3 Data

This paper relies on two sources of data. Our main data source is the 2001, 2006 and 2011 *Nepal Demographic and Health Survey* (henceforth NDHS).[10] Each NDHS is sampled independently and designed to be nationally representative. Households are selected using multi-stage stratified random sampling and the sample observations are clustered at the village level (Ministry of Health and Population (MOHP) [Nepal], New ERA, and ICF International Inc., 2012).[11] Different villages are surveyed in each NDHS, but all 75 districts are surveyed in each round. It is important to remember this aspect of the survey design, when we discuss our empirical methods. The NDHS collects extensive information on female fertility and marriage decisions, as well as some outcomes data for children and fairly limited socioeconomic information for each household along with some community attributes.[12]

Fertility information is collected in each wave from women aged 15–49.[13] We examine the impact of the conflict on six fertility related outcome variables. Specifically, we look at i. the total number of children ever born, ii. the number of children who ever died, iii. the number of children currently alive, iv. the number of children born during the last five years, v. the ideal number of desired children and vi. whether women are currently using contraceptives. The first three outcomes allow us to examine the impact on total fertility and whether compensating for child mortality is an important behavior. The

[10]The NDHS was administered by Nepal's *Ministry of Health and Population*, and *New Era*, a local research organization, with the technical support of *ORC Macro International*, a global research organization that has been involved in implementing DHS across the world (Ministry of Health and Population (MOHP) [Nepal], New ERA, and ICF International Inc., 2012). The NDHS data also provide *Global Positioning System* (GPS) information for each survey village allowing us to match them to the conflict data discussed below.

[11]In 2001, 6 of 257 primary sampling units (PSUs) were excluded during the fieldwork because of safety issues due to the conflict. In 2006, none of the PSUs were excluded, however, out of 36,010 enumeration (EAs) areas nationwide, 1,840 were excluded due to either incomplete information or security reasons. No EAs were excluded in 2011. In unreported results, we find that our impacts are generally linear in conflict intensity hence this should bias us towards finding smaller impacts. However, it is possible that impacts are different in the most intensely affected areas. In terms of the validity of our overall results, it is worth emphasizing that these areas tend to have small populations.

[12]Some waves collect fairly extensive socioeconomic data, however, there are issues with comparability across waves that limit our ability to include these variables in our analysis.

[13]The response rate of eligible women is over 98% in all rounds of the NDHS survey resulting in sample sizes of 8,726 in 2001, 10,793 in 2006 and 12,674 in 2011.

fourth outcome allows us to evaluate whether impacts are permanent or temporary in nature. The fifth and sixth outcomes allow us to judge whether any changes are likely to be voluntary or involuntary.

The 2001 and 2006 NDHS collected anthropometric information for all children in each household less than 60 months old. The 2011 NDHS did the same for a random 50 percent sample of households (hemoglobin levels were collected from the other half of households).[14] We examine the impact of the conflict on child height standardized by age in months and sex. The NDHS data includes the Z-scores of eligible children in standard deviation units from the sex-specific median of an international reference population recommended by the *World Health Organization* (henceforth WHO). The child height-for-age Z-score (HAZ) measures linear growth retardation and cumulative growth deficit and is the standard outcome variable examined in the literature on early life child outcomes (WHO Working Group, 1986). A child with a HAZ two standard deviations below the median of the reference population (HAZ<-2) is considered stunted, which is a serious health issue since child growth retardation is irreversible. Child height is generally known to be a sensitive indicator to the quality of economic and social environments (Steckel, 1995). Environmental factors are especially important determinants of child height in early childhood. Therefore, the WHO recommends focusing analysis of height measures to 0-5 year-olds (WHO Working Group, 1986). Relevant to our paper, the stature of infants and young children has been found to be particularly vulnerable to nutritional stresses.

The conflict data for this research was assembled by hand from the nine volumes of the *Human Rights Yearbooks* (1997–2005) published by a national human rights organization, the *Informal Sector Service Center* (henceforth INSEC).[15] INSEC collected the conflict-related casualties data from each Nepali village using its nationwide network. The INSEC annual reports include narratives about the types of incidents and the number of deaths that occurred in various places, along with the number of people arrested by the security forces, kidnapped by the Maoists and tortured from both sides in the villages. The geographic data available in the NDHS allow us to merge the conflict data with household in all three rounds based on their village of residence.

In our main analysis, we define any of the 694 villages surveyed in the three waves of the NHDS as being a 'conflict village' if at any point between 1996 and 2004 a death occurred in that village. Note that this is a static concept and is used to divide all villages in each NDHS wave into treatment villages (e.g. those ever affected by violence) and control villages (e.g. those never affected violence) allowing us to use a difference-in-differences

[14]Anthropometric information is available for 6,253 children in 2001, 5,283 children in 2006, and 2,392 children in 2011. Again, we drop a small number of observations with missing information on key variables. This results in sample sizes of 6,154 in 2001, 5,183 in 2006 and 2,312 in 2011.

[15]`http://www.insec.org.np/`.

approach to examine the impact of conflict on fertility and child height.[16] As discussed further in the next section, we use the timing of the conflict onset in Nepal to define the pre- and post-treatment periods when examining the impact on fertility outcomes. On the other hand, when we examine the impact on child HAZ, we can extend the DiD methodology by using the timing of conflict onset in each village relative to childbirth to define pre- and post-treatment periods separately for each sample child.

In Table 1, we present characteristics of i) eligible sample women; ii) eligible sample children; and iii) the households of eligible sample children in 2001 stratified by whether individuals live in a conflict village.[17] We also present the difference between each figure for conflict and non-conflict villages and test whether they are significant. As the conflict was at a very low intensity prior to 2001, we consider this the pre-treatment period in terms of measuring counterfactual fertility outcomes in affected villages. At the time of the 2001 NDHS, around 450 villages out of 3,914 overall and 12% of the surveyed villages were already affected by the conflict but less than 5% had more than one conflict-related death up to that point in time.[18]

[Table 1]

The data show a general pattern of conflict villages being initially relatively better off. In particular, the women and children in these villages are more likely to be of a higher caste and to be Hindu, while the mothers of sample children are more educated, and the households these children live in are more likely to be urban, are wealthier (based on the ownership of different assets), have better access to clean water and are more likely to have a TV, radio and a toilet. While the conflict started in a poor isolated area of Nepal, research has suggested that inequalities in resources and opportunities were the main drivers of the conflict and that this led it to spread into more affluent areas of the country (Bundervoet *et al.*, 2009; Macours, 2011; Murshed and Gates, 2005; Nepal *et al.*, 2011). Unlike in some other parts of South Asia, sex selectivity of children is not common in Nepal and female children are slightly more common as should be the case biologically. The average age of women in our sample is the same in conflict and non-conflict villages, which is important for making fertility comparisons.

[16]Our results are robust to using two alternative measures of conflict exposure, i) the cumulative number of conflict-related deaths in each survey village until 2004 normalized by the village's population; and ii) the cumulative number of people who were arrested, kidnapped and tortured by the state and the Maoists in each survey village normalized by the village's population.

[17]The characteristics of the households of eligible sample women are very similar to the households of eligible sample children.

[18]All our fertility results are robust to excluding these villages from our analysis. Our results for the impact of conflict on child outcomes are not impacted by the inclusion of these villages as we classify children as being treated based on the timing of their birth relative to the timing of the start of the conflict in each village.

In Table 2, we present means of the six outcome variables for women and HAZ scores for children stratified by whether a women or child lives in a conflict village and by survey year. Again, the differences between conflict and non-conflict villages are also presented. Overall fertility and child mortality rates are similar in 2001 in conflict and non-conflict villages, but as might be expected because of the higher levels of wealth and more educated women in conflict villages, both recent and desired fertility are lower in conflict villages in 2001 and, consistent with this, contraceptive use is higher. While Nepali children are more than 2 standard deviations below the median height of a representative sample of comparable Western children and hence are considered stunted, again consistent with the villages being richer, we find that children are less worse off in conflict villages prior to the intensification of the conflict.

[Table 2]

Examining outcomes in 2006 gives us some indication of the impact of the conflict on fertility and child outcomes as by then all conflict villages had experienced conflict. For both recent and desired fertility, we see a convergence in outcomes between conflict and non-conflict villages, which suggests that the conflict caused fertility to increase in conflict villages relative to non-conflict villages. A similar result is seen for child height-for-age suggesting that conflict had a negative impact on child height-for-age in conflict villages relative to non-conflict villages. Turning to the data for 2011, which covers the period after the conflict had ended in all villages, here we see a reemergence and increase in the differences originally found in 2001 between conflict and non-conflict villages. This suggests that the positive impact of the conflict on fertility and negative impact on child height-for-age were both temporary in nature.

These comparisons are equivalent to a simple DiD estimate of the impact of the conflict. However, there are three reasons why it is sensible to extend upon this analysis in a regression framework. First, a casual look at the outcome data for non-conflict villages shows a strong downward trend in fertility rates and upward trend in child height-for-age.[19] It is natural to think that these trends could be different for conflict villages even in the counterfactual state where a conflict never occurred as they already had better outcomes in 2001. In fact, it is quite possible that outcomes were improving at different rates in different places in Nepal due to the large differences in accessibility and population density seen across the country. For this reason, we incorporate in our regression analysis, by including district-year fixed effects, differential patterns in outcomes for all

[19]The downward trend in fertility rate is likely due to a combination of different factors including increased availability of contraceptives, increased male migration for short term work in foreign countries, legalization of abortion (which occurred in September 2002) and increasing levels of female education (Nepal, 2016).

75 districts.[20] Second, in particular for the analysis of child outcomes, the composition of women having children could be affected by the conflict (as our fertility analysis suggests) and hence it could be important to control for this if these characteristics are related to child outcomes. Third, also particular for the analysis of child outcomes, we are able to take advantage of the temporal variation in the onset of conflict across different villages to better identify the impacts on children by measuring conception relative to the onset of conflict. In the next section, we discuss in detail how our regression models incorporate these points.

4 Empirical Models and Results

4.1 Impacts on Fertility, Child Mortality and Fertility Planning

We begin by examining the impact of the conflict on fertility, child mortality and fertility planning. As discussed above, we look at the impact on the total number of children ever born, the number of children who ever died, the number of children currently alive, the number of children born during the last five years, the ideal number of desired children and whether women are currently using contraceptives. Since these outcomes are referenced to the interview date and all interviews occur in the first half of a particular year (2001, 2006 or 2011), it is not possible to use variation in the onset of conflict across villages to improve model identification. Instead, we rely on a traditional DiD estimator where 2001 is considered the pre-treatment period, 2006 covers the conflict period and 2011 captures post-conflict outcomes. As noted above, 12% of the surveyed villages were already affected by the conflict at the time of the 2001 survey but less than 5% had more than one conflict-related death to that point, and our results are robust to excluding these villages (see Table A.1 in the Web Appendix). As the length of exposure to conflict in 2006 varies from one to five years across conflict villages, this approach estimates the average impact of the conflict across all affected villages.

Specifically, we estimate the following regression model:

$$\begin{aligned} Y_{ivdt} = \gamma_1 \times CV \times D06_{vdt} + \gamma_2 \times CV \times D11_{vdt} + \tau \times CV_v \\ + \alpha^{06} D06_t + \alpha^{11} D11_t + \alpha_{dt} + \delta \mathbf{X}_{ivdt} + \varepsilon_{ivdt} \end{aligned} \quad (1)$$

where Y_{ivdt} is a fertility outcome for mother i in village v in district d at time t, CV_v is an indicator variable for whether a village ever experienced violent conflict from 1996-2004 (i.e. is a conflict village), $D06_t$ ($D11_t$) is an indicator variable for data coming from the

[20] Ideally, one would want to allow for differential trends at the village level, but recall that different villages are surveyed in each wave of the NDHS while villages are always included from all 75 districts.

2006 (2011) NDHS, α_{dt} are district-year fixed effects, X_{ivdt} are controls for a limited set of fixed characteristics (age, ethnicity, religion and urban/rural) and e_{ivdt} is standard error term that is potentially correlated between individuals in the same village regardless to time period (in other words, we allow for clustering at the village level).[21]

Our focus is on the parameters γ_1 and γ_2, which indicate whether outcomes have changed in conflict villages during the conflict or after the conflict ended, respectively; relative to changes over the same time period in non-conflict villages and after controlling for potential level differences and differential trends in outcomes at the district level. District fixed effects account for any remaining time-invariant unobserved heterogeneity, such as migration networks and institutional and health service delivery differences among the districts of Nepal.

The key assumption identifying the causal impact of conflict in this model is that, in the absence of the conflict, fertility rates would have followed the same temporal pattern as in the villages not affected by the conflict. While this so-called *parallel-trend assumption* is untestable, it is instructive to examine whether conflict and non-conflict villages have common trends in the pre-treatment period. We use the comprehensive fertility history information collected in the 2001 NDHS to construct total fertility rates (TFR) for all villages in the pre-treatment period. Figure 4 contrasts the average TFR in conflict and non-conflict villages in the period between 1994 and 2000. This figure confirms Table 2 that fertility was somewhat higher in non-conflict villages prior to the conflict. More importantly, we see that TFR have been declining over time in an almost identical parallel trend in conflict and non-conflict villages prior to the onset of conflict. In each year, the 95-percent confidence intervals are overlapping. This provides strong support for our identification strategy.

[Figure 4]

In Table 3, we present the results from estimating the above model for each outcome. We only show the main coefficients of interest and the conflict village dummy variable as the year indicator variables are uninformative because of the inclusion of the district-year fixed effects. We also present the mean of each outcome variable in non-conflict villages to provide a reference for the size of any impacts. The coefficients on the conflict village dummy variables (in the third row) show, consistent with the descriptive statistics, that women in conflict villages have lower fertility rates, desire less children and are more likely to use contraceptive.

[21] Because experiencing conflict is measured at the village level, OLS standard errors will be biased (Bertrand *et al.*, 2004; Wooldridge, 2003). Therefore, it is necessary to cluster standard errors at the village level to account for within-village correlation in unobservable characteristics. The clustered standard errors also allow for arbitrary correlation in the error terms within villages that are surveyed in multiple NDHS waves over time.

[Table 3]

Turning to our main results, looking across the first row of the table, we see that being exposed to conflict led women to increase their fertility over the five year period between 2001 and 2006 by 0.14 children (or a 22.0 percent relative to women in non-conflict villages) and this translated to an extra 0.24 children being ever born to these women (or an 8.6 percent increase) at that point in time.[22] One potential reason why women exposed to conflict might increase their fertility is to replace children who have died as a result of the conflict (either via direct exposure or indirect pathways, such as malnutrition or inaccessible health services). We do not find any evidence for this as conflict does not have a significant impact on the number of children who ever died and the impact on the number currently alive is quite similar to the number born in the last five years. Finally, the results in the last two columns indicate that women who were exposed to conflict desired to have an extra 0.26 children (or a 14.1 percent increase) and reduced their use of contraception accordingly (by over 20 percent).

These results tell a consistent story of exposure to conflict leading to an increase in desired fertility, less use of contraception and a corresponding increase in realized fertility. Overall, there is strong evidence that this was a voluntary response to conflict and not replacement fertility for children that had died, increased childbearing due to rape or other forms of involuntary sex (which potentially increased during the conflict) or an involuntary reduction in contraception use because of reduced access to health care facilities.

Conflict could cause the demand for children to go up for several reasons. First, the increased uncertainty caused by conflict may intensify the long-run view of children as a type of income diversification and old-age support. This is likely to be particularly true in the case of a long-running civil conflict which no obvious end point as in Nepal. Second, and related, individuals may increase fertility to strengthen their own group. This is more likely in the type of civil conflict that features a breakdown of the functions of the state as was the case in Nepal. Third, if children are inferior goods, as is often the case in developing countries, and conflict causes a reduction in income, then demand will rise.[23] Fourth, specific to Nepal, the general fear of abduction and extortion by Maoists led the general public in affected areas to reduce their travel, work and general outside activities. This increased leisure time could have led to increase demand for children if leisure and childrearing are complimentary activities.

Examining the second row of Table 3 reveals whether the changes that occurred during

[22] Theoretically, these two coefficients should be the same, however, they are not significantly different from each other and the information on recent fertility is collected in a separate question than that on total fertility.

[23] The cross-sectional evidence from the NDHS suggests that children in Nepal are an inferior good as fertility rates are lower in richer households. Also, there is some evidence that the conflict reduced wealth among affected Nepali households.

the conflict persisted after the conflict ended. They did not. Looking at 2011, we find no evidence that women in conflict villages had more children in the past five years or an increase in the total number ever born. We also find that the desired number of children is now the same in conflict and non-conflict villages. All evidence here points to the increase fertility found during the conflict as being purely a *tempo* effect. In other words, women in conflict villages ended up bringing forward their childbearing but not increasing their total fertility. This is consistent with each of the four pathways discussed in the previous paragraph, since once the conflict ended, these reasons for having more children dissipated as well. It is important to note that overall fertility was declining rapidly in Nepal during the period we examine, hence it does not seem surprising that, once the conflict ended, affected women adjusted back to previous trends. Obviously, if the period of intense conflict lasted longer, this would have been more difficult to do and we would have likely found a permanent increase in fertility as well.

4.2 Impacts on Child Height-For-Age

We next examine the impact of conflict on child height-for-age. As opposed to the case for fertility, we know precisely each child's conception date relative to the onset of conflict in a particular village. Hence, we can now exploit both spatial and temporal variation in whether a child is exposed to conflict. We now define three separate treatment effects: i) children who were conceived in conflict villages after conflict had already started there (CF1); ii) children that were between conception and age three when conflict started in their village (CF2); iii) children that were between age three and five when conflict started in their village (CF3). We distinguish between the second and third group because epidemiological studies suggest that height, except in the case of famines and other types of extreme hardship, is only sensitive to inputs in the first three years of life (The World Bank, 2011). Finally, we define a post-treatment group of children born in conflict villages after 2006 when the conflict ended (CF4).

In all regressions, we also control for child birth-year (cohort) and district-year fixed effects. Hence, children in the different treatment groups are always directly compared to children born at the same time in a non-conflict village in the same district controlling for any pre-conflict differences between conflict and non-conflict village and level differences between districts in a particular year. Specifically, we estimate the following regression model:

$$HAZ_{icvdt} = \beta_1 \times CF^1_{ivd} + \beta_2 \times CF^2_{ivd} + \beta_3 \times CF^3_{ivd} + \beta_4 \times CF^4_{ivd} + \tau \times CV_v + \alpha_k + \alpha_{dt} + \delta \mathbf{X}_{icvdt} + \epsilon_{icvdt} \quad (2)$$

where HAZ_{icvdt} is the height-for-age z-score for child i born in year c in village v in district d at time t, CF^j_{ivd} for $j = 1 - 4$ indicate whether a child is in one of the three treatment groups or post-treatment group defined above, α_k are cohort fixed effect and all other variables are defined the same as in (1).

The four βs are our main coefficients of interest and are separately identified along with the conflict village dummy and the cohort fixed effects because there are multiple cohorts of children born in non-conflict villages, as well as children observed in conflict villages before the conflict started in a particular village. This model closely resembles that used in Akresh *et al.* (2012) and Minoiu and Shemyakina (2012), except that we are able to control for a finer breakdown of child birth cohorts and examine whether any differences in child height persist after the conflict has ended.

Initially, we only include among the X_{ivdt} variables that are exogenous to the conflict, but potentially related either directly to child height or to the composition of women choosing to have children. In particular, we control for parity, sex, age, religion and ethnicity of the child, the total number of children in the household, and whether the village of the household is rural. Religion and ethnicity maybe be particularly important to control for as these variables jointly affect whether individuals experience conflict and child HAZ as Nepalese families with different ethnicities and religions have different attitudes and food habits that affect child growth.[24] We then extend the model to include covariates which are potentially affected themselves by the conflict, for example mother's age and education, household's wealth status, and the availability of electricity, TV, radio, water, and sanitation for the household. This model allows us to judge the extent to which any impacts of the conflict found in the first model are being caused by changes in household resources or the composition of women having children. In additional results discussed below, we also examine directly whether conflict has affected the composition of women having children.

In the first column of Table 4, we present the main coefficients of interest from estimating model (2) including only exogenous covariates. We also present the average height-for-age Z-score among children under five in non-conflict villages (-2.088) to allow one to judge the relative size of the impacts. In line with the descriptive evidence, we find that children in conflict villages prior to the onset of conflict are taller than those in non-conflict villages. However, being born during the conflict or having the conflict start while being less than three years-old (including being in-utero) has negative consequences for children. Specifically, children conceived while conflict is ongoing in a village are

[24]For example, it is very common in Nepal that high-caste Brahmin and Cherty people consume more dairy products, while indigenous ethnic groups prefer meat products. Additionally, Maoists promised to provide better living conditions and other rights to ethnic groups that had been under-represented in most of the state mechanisms such as bureaucracy and politics, in order to gain their support during the conflict. As a result, lower-caste people and underprivileged ethnic groups had larger participation in the conflict (Gurung, 2005).

0.222 standard deviations (or 10.6 percent) shorter than comparable children conceived in villages with no conflict, while those already conceived but less than three years-old when conflict started in a village are 0.265 standard deviations (or 12.7 percent) shorter. Consistent with the epidemiological evidence, we find no impact on the height of children that were already over three years-old when the conflicted started in their village. We also find no evidence for impacts on children born in conflict villages after the conflict ended.

[Table 4]

In the second column, we present the results with the addition of controls for some of the potential channels through which conflict could have impacted children and also for the potential changing composition of which women had children. Adding in these controls leads to a small reduction in the estimated impact of conflict on child height; the impact on children born after the conflict started is reduced by 11.3 percent while that for children under three when the conflict started by 6.1 percent. The overall impacts of conflict are still large with the first group of children 0.197 (or 9.4 percent) shorter and the second group 0.249 (or 11.9 percent) shorter. While we only capture a limited number of pathways in this analysis, these results suggest that direct impacts of the conflict per se are not the main channel leading to shorter children. We will further explore two other possible channels; i) changing selection in to childbearing and ii) the quantity-quality trade-off; for these negative effects in the next two sections.

In the third column, we summarize the results from an in-time placebo test. For this test, we randomly assign in conflict villages the start date of the conflict to earlier dates. Children born after actual conflict started in each village are dropped from this analysis. The coefficients and standard errors are bootstrapped at the village level with 99 replications. With the exception of the pre-treatment difference between children from conflict and non-conflict villages, we do not find any statistically or economically significant coefficients. This provides strong support for the identification strategy used to examine the impact on child height.

4.3 Heterogeneity by Birth Order and Sex

We next examine whether the impact of conflict on children differs by either the child's position in the birth order and/or their sex. Importantly, if the negative impacts we have found on child height-for-age are primarily driven by a quantity-quality trade-off induced by the temporary increase in fertility in conflict villages, we should find that the impacts on height are larger for higher birth order children. The intuition for this is that the main pathway for negative impacts on child health in a quantity-quality trade-off situation is that there are more mouths to feed with the same resources. Obviously, this is not the case for the first child by definition and is a larger issue the more children whom are competing for the same resources. We also examine differences by child sex as previous evidence from South Asia suggests that girls are particularly disadvantaged in intrahousehold reallocations as households respond to increased demand for resources (Behrman, 1988; Behrman and Deolalikar, 1990).[25]

[Table 5]

In Table 5, we present the results from this exercise with the first three columns showing the estimated impacts for boys, where we distinguish between the full sample of boys, the sub-sample of first-born, and the sub-sample of higher birth-order boys (i. e., non-first-born). The remaining three columns consider the equivalent samples for girls. A comparison of estimates across columns reveals two important dimensions of treatment effect heterogeneity. First, HAZ loses are driven by higher birth-order children. This gradient is particularly pronounced in the case of boys, where we do not find any statistical significant effects among the first-born (see column 2), but significant declines in height for the non-first-born who were less than three years-old when conflict started in a village (see column 1). Second, negative impacts on HAZ are generally higher among girls. A comparison of the sex gradient among non-first-born children shows that the HAZ declines for girls are almost twice as big as those for boys (compare columns 3 and 6). These findings strongly supports our interpretation that the increased quantity of children is the major causal driver of the negative effect of the conflict on child height-for-age and that girls suffer significantly more from the increased intrahousehold competition for resources.

4.4 Impacts on Selection into Childbearing

In the final section of our paper, we directly examine whether conflict affected selection into childbearing. Specifically, we estimate identical models as in the previous section, but now as outcome variables, we examine the characteristics of a sample child's mother and household. We consider the mother's age and education, the wealth of her household and whether her household has a toilet, electricity, a TV and a radio. This analysis allows us to capture whether women with different socioeconomic characteristics are having children when affect by conflict. This results are presented in Table 6.

[Table 6]

Examining the first two rows of the table, perhaps surprisingly, we see that women who conceived children after the conflict started in their village or who had very young

[25] Previous papers on the impact of conflict have found no significant sex differences in impacts on child height-for-age (e.g. Akresh *et al.*, 2011; Minoiu and Shemyakina, 2012)

children when the conflict started are statistically indistinguishable from women who had children at the same time in non-conflict villages relative to the pre-existing differences between these villages. In other words, conflict had no impact on the composition of women giving birth.[26] Interestingly, we do find evidence that women who had children in conflict villages more than three years prior to the conflict starting and after the conflict ended are from higher wealth households that are more likely to have a toilet, and in the case of after the conflict ended are also more educated, relative to women who had children at the same time in non-conflict villages.[27]

5 Conclusion

In this paper, we examine the impact of a ten-year-long civil conflict in Nepal on fertility decisions and child wellbeing. We exploit spatial and temporal variation in the conflict, which left some areas of the country completely unaffected to identify the causal impact of conflict in a difference-in-differences framework. Previous research has independently examined the impacts of conflict on fertility and on child wellbeing, but we are the first to our knowledge to examine the interdependence between the two, typically known as the child quantity-quality trade-off. This is potentially important as an exogenous shock that changes fertility decisions likely affects the resources that are then available for individual children.

We find that the exposure to war-related violence increases the quantity of children temporarily, with permanent negative consequences for the quality of the current and previous cohort of children. Women in villages affected by civil conflict relative to those in other villages increased their actual and desired fertility during the conflict by 22 percent, while child height-for-age declined by 11–13 percent. Supporting evidence suggests that the temporary fertility increase was the main pathway leading to reduced child height, as opposed to direct impacts of the conflict. This likely occurred because there were more mouths to feed in these households. Conflict could cause the demand for children to go up for several reasons; including increased uncertainty; reduced income; more leisure time and a desire to increase one's own group. In our analysis, we are not able to cleanly disentangle these specific causal channels, but we suspect that each plays a role in our findings.

Overall, our paper makes three contributions to the literature. First, we provide one of

[26]This finding alleviates concerns that selective migration could be important for explaining our results. To further explore this issue, we use the household migration history data collected in the NDHS to estimate DiD models of the impact of conflict on migration. Interestingly, we do not find evidence that conflict led to more out-migration by childbearing-age women.

[27]This may relate to the fact that conflict villages generally have higher levels of inequality than conflict villages.

the best identified estimates of the causal impact of civil conflict on fertility. By exploiting the spatial variation in the Nepali civil conflict and using a DiD methodology, we are able to construct a valid counterfactual for what fertility rates would have been in each village without the onset of conflict. Furthermore, we are able to examine the timing of fertility decisions, child mortality and desired fertility in same empirical framework and examine fertility catch-up after the end of the conflict. Second, we provide additional evidence on the negative consequences of civil conflicts on child outcomes. While this literature is well developed, most of the previous papers are on African countries and very little is known about the specific mechanism that links conflict and child outcomes. Our primary contribution to this literature is to highlight the so far overlooked, but important nexus, between child outcomes and fertility decisions. This leads to our third contribution. We are the first paper to highlight the trade-off between the quantity and quality of children in the context of civil conflict. While our findings could be particular to the context of the Nepali conflict, it is quite possible that this channel is also important for explaining the negative impacts of civil conflict on child outcomes found in other studies.

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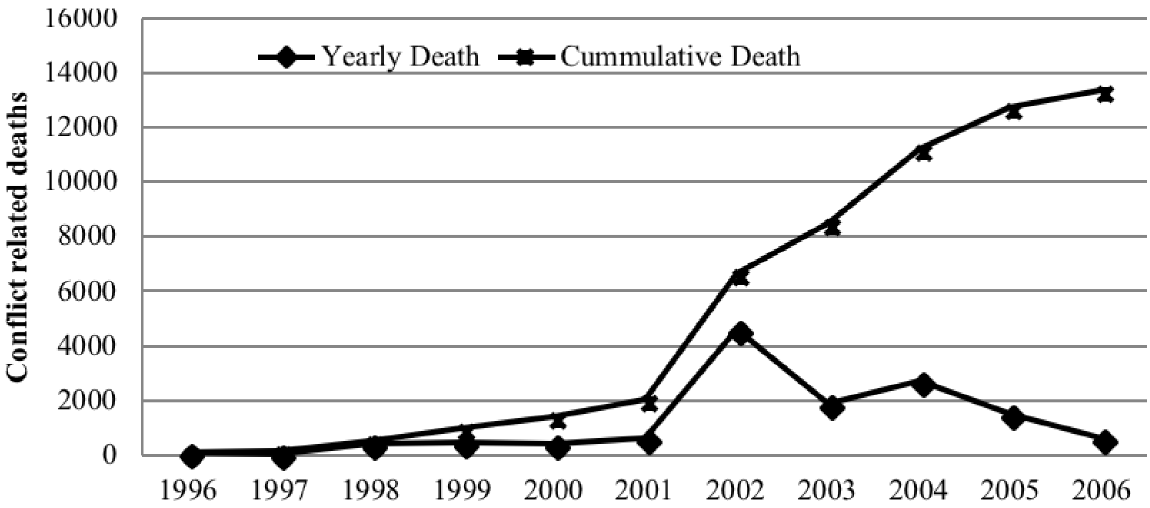
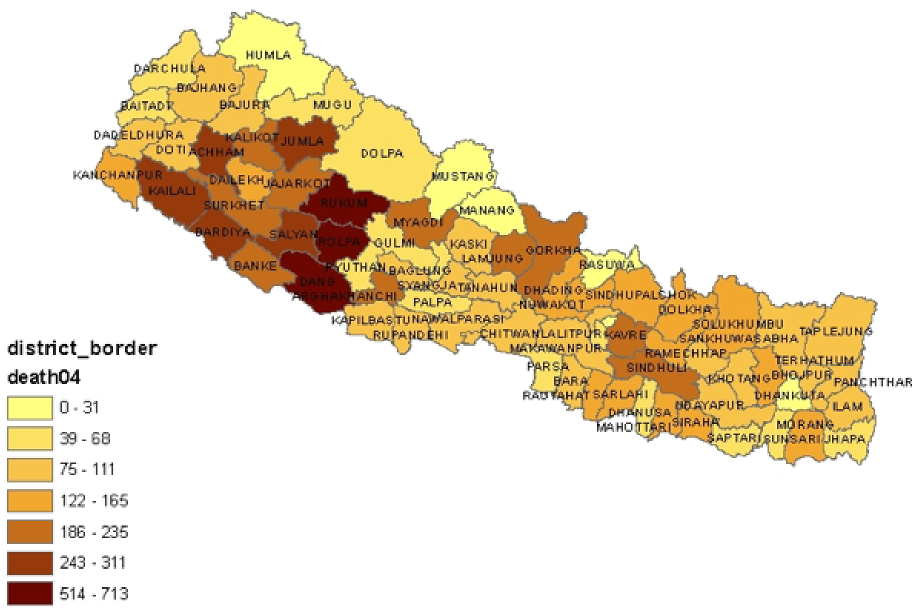
6 Figures (to be placed in the paper)

Figure 1: Conflict-Related Deaths during Nepal's Maoist Conflict (1996–2006)



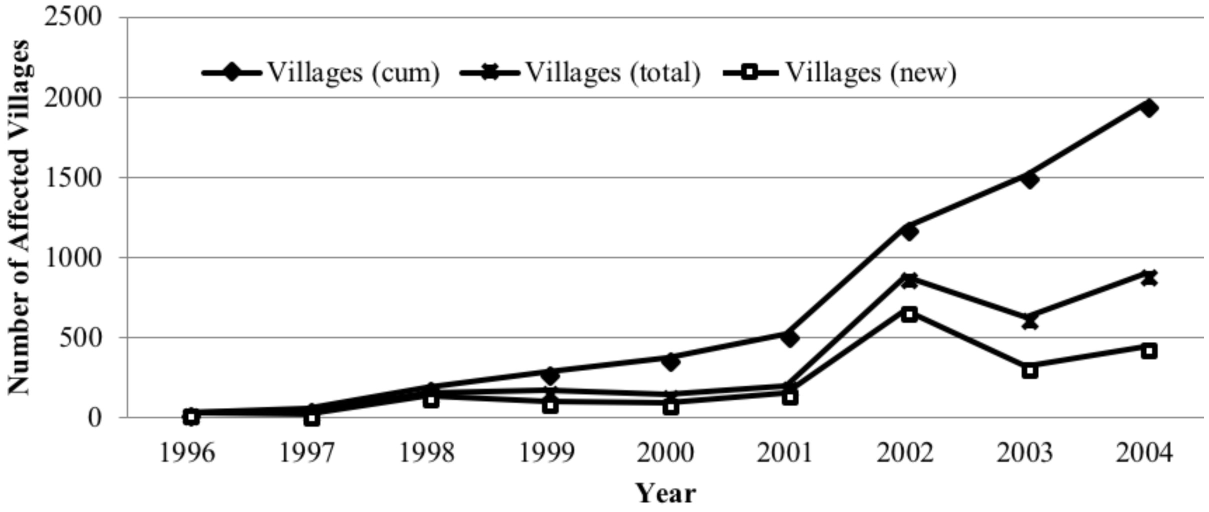
Notes: Conflict-related deaths were highest in 2002. Source: INSEC's aggregate conflict data..

Figure 2: Total Number of People Killed in each District during 1996–2004 Maoist People's War



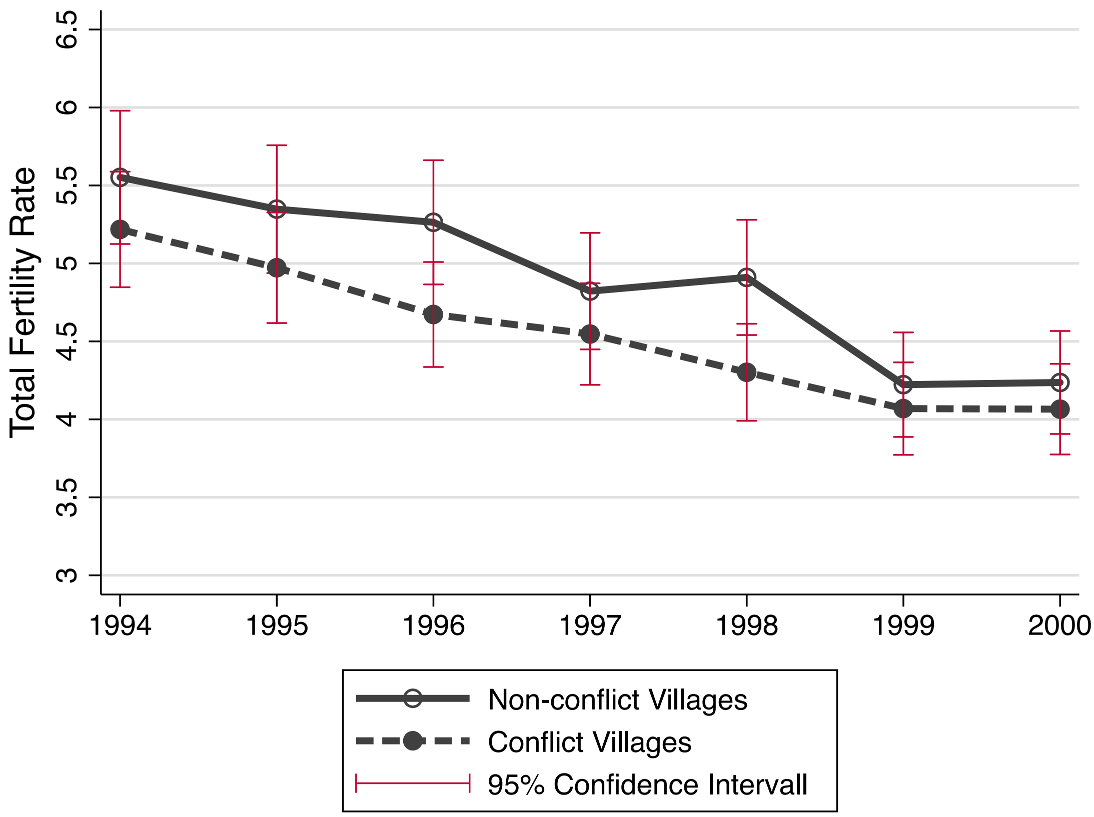
Notes: The darker area represents higher conflict intensity. This figure shows the total conflict-related deaths between 1996 and 2004. Source: GIS map was created by the author using district-level conflict data that INSEC collected.

Figure 3: Spread of Violence across the Villages of Nepal (1996–2004)



Notes: The number of new villages affected by the conflict is the highest in 2002. Between 2002 and 2003, villages experienced intense fighting between the state army and the rebel forces. 'Affected villages' means villages hit by the conflict. Source: INSEC Annual Reports (1997–2005).

Figure 4: Total Fertility Rates among Conflict and Non-conflict Villages (1994–2000)



Notes: The total fertility rates are estimated using individual record files of all women aged 15 to 49 from the NDHS 2001 using Schoumaker (2013).

7 Tables (to be placed in the paper)

Table 1: Child and Household Characteristics in 2001 by Villages Conflict Experience

	Conflict Village	Non-conflict Village	Difference
Characteristics of Women Aged 15–49 Years			
Age	31.9	31.8	0.070
Ethnicity:			
Brahmin, Cherty & Newer	0.419	0.331	0.088***
Indigenous	0.299	0.292	0.007
Underprivileged group	0.139	0.146	−0.007
Other ethnicities	0.144	0.231	−0.088***
Religion:			
Hindu	0.864	0.849	0.015**
Buddhist	0.076	0.075	0.001
Other	0.060	0.075	−0.015***
Characteristics of Children Aged <60 Months			
Age in Months	29.8	29.3	−0.500
Female	0.507	0.506	−0.001
Parity	3.133	3.302	0.169***
Ethnicity:			
Brahmin, cherty & newer	0.376	0.303	0.073***
Indigenous	0.318	0.299	0.020*
Underprivileged group	0.144	0.154	−0.010
Other ethnicities	0.161	0.244	−0.083***
Religion:			
Hindu	0.848	0.832	0.015
Buddhist	0.082	0.078	0.005
Other	0.070	0.09	−0.020***
Characteristics of Households (HHs) of Eligible Children			
Residency in rural area	0.877	0.937	−0.061***
Mother is illiterate	0.718	0.746	−0.028**
Mother has primary education	0.145	0.139	0.006
Mother has middle school education	0.122	0.109	0.013
Mother has high-school or above education	0.015	0.006	0.009***
Wealth status of HH – poor	0.448	0.478	−0.031**
Wealth status of HH – middle	0.189	0.192	−0.003
Wealth status of HH – rich	0.363	0.33	0.034***
HH has access to electricity	0.178	0.177	0.001
HH has piped water	0.331	0.34	−0.009
HH has well water	0.419	0.371	0.048***
HH has water from open sources	0.25	0.289	−0.039***
HH has TV	0.128	0.073	0.055***
HH has radio	0.435	0.392	0.043***
HH doesn't have toilet	0.26	0.214	0.045***
Number of women aged 15–49 Years	4,855	3,871	
Number of children <60 months	3,299	2,855	
Number of HHs with eligible children	2,344	1,991	

Notes: *** p<0.01, ** p<0.05, * p<0.1. Standard errors which account for clustering at the village level are in parenthesis. The difference column shows the mean value for conflict villages minus the mean values for non-conflict villages in each year.

Table 2: Child and Household Outcomes by Villages Conflict Experience and Year

	Pre-conflict (2001)			**Conflict period (2006)**			**Post conflict (2011)**		
	Conflict Village	Non Conflict Village	Diff.	Conflict Village	Non Conflict Village	Diff.	Conflict Village	Non Conflict Village	Diff.
Outcomes for Women Aged 15–49									
Total No. of Children Ever Born	3.292	3.351	−0.059	2.427	2.484	−0.057	2.027	2.314	−0.287***
No. of Children Currently Alive	2.779	2.819	−0.040	2.128	2.145	−0.017	1.829	2.057	−0.228***
No. of Children Ever Died	0.513	0.531	−0.018	0.299	0.338	−0.039***	0.198	0.256	−0.058***
No. of Children Born in the Last 5 Years	0.756	0.843	−0.087***	0.522	0.565	−0.043***	0.391	0.498	−0.106***
Ideal Number of Desired Children	2.615	2.766	−0.149***	2.334	2.397	−0.060***	2.073	2.252	−0.179***
Contraceptive Used	0.383	0.308	0.075***	0.340	0.305	0.032***	0.333	0.317	0.021**
Number of Eligible Women	4,855	3,871		7,259	3,534		9,434	3,240	
Outcomes for Children Aged <60 Months									
Height-for-age Z-score	−2.059	−2.223	0.164***	−1.897	−1.974	0.077**	−1.615	−1.818	0.203***
Number of Eligible Children	3,299	2,855		3,405	1,778		1,648	664	

Notes: *** p<0.01, ** p<0.05, * p<0.1. The columns termed 'Diff.' show the mean value for conflict villages minus the mean values for non-conflict villages in each year.

Table 3: Impact of the Conflict on Fertility, Child Mortality and Fertility Planning

	(1) No. of Children Born in the Last 5 Years	(2) Total No. of Children Ever Born	(3) No. of Children Currently Alive	(4) No. of Children Ever Died	(5) Ideal Number of Desired Children	(6) Contraceptive Used
Conflict Village at End of Conflict (γ_1)	0.143***	0.236**	0.167**	0.069	0.256***	−0.068**
	(0.043)	(0.101)	(0.078)	(0.048)	(0.082)	(0.027)
Conflict Village 5 Years After Conflict (γ_2)	0.036	0.014	−0.049	0.063	0.077	−0.047*
	(0.040)	(0.112)	(0.092)	(0.044)	(0.089)	(0.026)
Village Ever Exposed to Conflict (τ)	−0.086***	−0.133*	−0.072	−0.061	−0.155**	0.037**
	(0.031)	(0.075)	(0.059)	(0.039)	(0.072)	(0.018)
Socio-economic controls ($\mathbf{X}_{ivdt}$)	Yes	Yes	Yes	Yes	Yes	Yes
District-year FE ($\alpha_d t$)	Yes	Yes	Yes	Yes	Yes	Yes
Mean of Outcome Variable	0.65	2.75	2.36	0.38	2.35	0.33
R-squared	0.122	0.596	0.561	0.212	0.282	0.148
Number of Observations	32,193	32,193	32,193	32,193	32,193	32,193

Notes: *** $p<0.01$, ** $p<0.05$, * $p<0.1$. Standard errors which account for clustering at the village level are in parenthesis. The socio-economic control variables comprise information on the mother's age, ethnicity, religion and place of residence (urban vs. rural). The sample is all women between 15 to 49 years of age. The mean of each outcome is for the subsample of non-conflict villages.

Table 4: Impact of the Conflict on the Height for Age of Children up to Age 5

Dep. Variable: Height-for-age Z-score (HAZ)	(1) Main Model	(2) Including Endogenous Covariates	(3) Placebo Conflict
Affected by Conflict Starting Before Birth (β_1)	−0.222***	−0.197***	−0.021
	(0.079)	(0.072)	(0.124)
Affected by Conflicted Starting Age 0–3 (β_2)	−0.265***	−0.249***	0.065
	(0.065)	(0.059)	(0.131)
Affected by Conflict Starting Age 3–5 (β_3)	−0.005	−0.042	0.044
	(0.119)	(0.117)	(0.132)
Born in a Conflict Village after Conflict Ends (β_4)	0.026	−0.029	
	(0.103)	(0.010)	
Village Ever Exposed to Conflict (τ)	0.155***	0.158***	0.178***
	(0.054)	(0.050)	(0.149)
Socio-economic Controls ($\mathbf{X}_{ivdt}$)	Yes	Yes	Yes
District-year FE (α_{dt})	Yes	Yes	Yes
Cohort FE (α_k)	Yes	Yes	Yes
Endogenous Covariates	No	Yes	No
Mean of HAZ	−2.088	−2.088	−2.088
R-squared	0.201	0.22	
Number of Observations	13,649	13,649	9,209

Notes: *** p<0.01, ** p<0.05, * p<0.1. Standard errors which account for clustering at the village level are in parenthesis. The socio-economic control variables comprise information on parity, sex of the child, age of the mother, religion, ethnicity, the total number of children in the household, and whether the village of the household is rural. In addition, the second specification includes controls for mother's age, education, household's wealth status, and the availability of electricity, TV, radio, water, and sanitation for the household. In the third specification, the timing of conflict is randomly assigned to earlier dates in conflict villages and coefficients and standard errors are bootstrapped at the village level with 99 replications. Children born after actual conflict started in each village are dropped from the placebo analysis. The mean of HAZ is for the subsample of non-conflict villages.

Table 5: Impact of the Conflict on the Height for Age by Birth Order and Sex

Dep. Variable: Height-for-age Z-score (HAZ)	(1)	(2)	(3)	(4)	(5)	(6)
		Boys			**Girls**	
	All	First Born	Non-First Born	All	First Born	Non-First Born
Affected by Conflict Starting Before Birth (β_1)	−0.148	−0.049	−0.196*	−0.292***	−0.286*	−0.328***
	(0.104)	(0.166)	(0.112)	(0.083)	(0.148)	(0.096)
Affected by Conflicted Starting Age 0–3 (β_2)	−0.179**	−0.185	−0.185**	−0.353***	−0.342**	−0.387***
	(0.082)	(0.152)	(0.085)	(0.082)	(0.142)	(0.102)
Affected by Conflict Starting Age 3–5 (β_3)	−0.056	−0.281	−0.012	0.044	0.429	−0.111
	(0.140)	(0.252)	(0.164)	(0.158)	(0.327)	(0.178)
Born in a Conflict Village After Conflict End (β_4)	0.043	0.454*	−0.167	−0.059	0.099	−0.226
	(0.152)	(0.249)	(0.203)	(0.128)	(0.207)	(0.170)
Village Ever Exposed to Conflict (τ)	0.152**	0.151	0.166**	0.180***	0.144	0.223***
	(0.075)	(0.125)	(0.080)	(0.061)	(0.110)	(0.069)
District-year FE (α_{dt})	Yes	Yes	Yes	Yes	Yes	Yes
Socio-economic Controls ($\mathbf{X}_{ivdt}$)	Yes	Yes	Yes	Yes	Yes	Yes
Cohort FE (α_k)	Yes	Yes	Yes	Yes	Yes	Yes
Mean of HAZ	−2.09	−1.83	−2.18	−2.09	−1.78	−2.20
S.d. of HAZ	1.29	1.21	1.31	1.33	1.34	1.31
Number of Observations	6,862	1,868	4,994	6,787	1,901	4,886
R-squared	0.21	0.30	0.20	0.24	0.34	0.21

Notes: *** p<0.01, ** p<0.05, * p<0.1. Standard errors which account for clustering at the village level are in parenthesis. All regressions include controls for child's sex, age, religion and ethnicity, child birth year and parity fixed effects, the total number of children in the household, and whether the village of the household is rural, and district-year fixed effects. The mean of each outcome is for the subsample of non-conflict villages. All variables besides the district-year time-trends are interacted with either the child's sex or parity group.

Table 6: Impact of the Conflict on Composition of Households with Children Five and Under

	Mother's Age	Mother Has Primary Educ.	Mother Has Secondary Educ.	Mother Has Higher Educ.	HH Has Low Wealth	HH Has Middle Wealth	Hhold Has a Toilet	HH Has Electricity	HH Has TV	HhoHHld Has a Radio
Affected by Conflict	−0.269	0.020	−0.018	−0.001	0.031	−0.038	−0.031	−0.034	−0.067***	−0.034
Starting Before Birth	(0.208)	(0.019)	(0.018)	(0.007)	(0.039)	(0.028)	(0.035)	(0.041)	(0.023)	(0.026)
Affected by Conflict	−0.065	0.009	−0.014	−0.001	0.003	0.008	0.001	−0.017	−0.035	−0.0131
Starting Age 0–3	(0.210)	(0.018)	(0.020)	(0.001)	(0.037)	(0.027)	(0.035)	(0.043)	(0.026)	(0.0269)
Affected by Conflict	0.351	−0.024	0.012	0.001	−0.099**	−0.013	0.120**	0.004	0.038	0.115**
Starting Age 3–5	(0.368)	(0.023)	(0.028)	(0.011)	(0.039)	(0.038)	(0.051)	(0.051)	(0.041)	(0.056)
Born in a Conflict Village	−0.224	−0.052*	0.079*	0.039**	−0.014	−0.088**	0.146***	0.0779	0.0464	0.0329
After Conflict End	(0.296)	(0.028)	(0.042)	(0.017)	(0.049)	(0.042)	(0.048)	(0.060)	(0.046)	(0.044)
Mean of Dep. Var.	26.1	0.153	0.144	0.012	0.528	0.199	0.274	0.261	0.124	0.452
R-squared	0.672	0.084	0.259	0.110	0.331	0.134	0.384	0.423	0.311	0.130

Notes: The number of observations is in each case 13,649. *** p<0.01, ** p<0.05, * p<0.1. Standard errors which account for clustering at the village level are in parenthesis. All regressions include controls for child's sex, age, religion and ethnicity, child birth year and parity fixed effects, the total number of children in the household, whether the village of the household is rural, and district-year fixed effects. The mean of each outcome is for the subsample of non-conflict villages. 'HH' stands for household.

Web Appendix

This Web Appendix (not for publication) provides additional material discussed in the unpublished manuscript 'Violent Conflict and the Child Quantity-Quality Tradeoff' by Apsara Karki Nepal, Martin Halla and Steven Stillman.

Table A.1: Impact of the Conflict on Fertility, Child Mortality and Fertility Planning, Alternative Sample

	(1) No. of Children Born in the Last 5 Years	(2) Total No. of Children Ever Born	(3) No. of Children Currently Alive	(4) No. of Children Ever Died	(5) Ideal Number of Desired Children	(6) Contraceptive Used
Conflict Village at End of Conflict (γ_1)	0.144***	0.185*	0.153*	0.032	0.218**	−0.075***
	(0.046)	(0.110)	(0.086)	(0.051)	(0.093)	(0.028)
Conflict Village 5 Years After Conflict (γ_2)	0.017	−0.098	−0.114	0.015	0.074	−0.044
	(0.043)	(0.113)	(0.097)	(0.045)	(0.103)	(0.029)
Village Ever Exposed to Conflict (τ)	−0.090**	−0.111	−0.076	−0.036	−0.166**	0.048**
	(0.035)	(0.084)	(0.067)	(0.042)	(0.083)	(0.022)
Socio-economic controls ($\mathbf{X}_{ivdt}$)	Yes	Yes	Yes	Yes	Yes	Yes
District-year FE ($\alpha_d t$)	Yes	Yes	Yes	Yes	Yes	Yes
Mean of Outcome Variable						
R-squared	0.127	0.595	0.557	0.214	0.284	0.153
Number of Observations	24,975	24,975	24,975	24,975	24,975	24,975

Notes: *** p<0.01, ** p<0.05, * p<0.1. Standard errors which account for clustering at the village level are in parenthesis. The socio-economic control variables comprise information on the mother's age, ethnicity, religion and place of residence (urban vs. rural). The sample is all women between 15 to 49 years of age. The mean of each outcome is for the subsample of non-conflict villages.