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A Micro-Level Event-Centered Approach to Investigating Armed Conflict and Population Responses

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Abstract

In this article, we construct and test a micro-level event-centered approach to the study of armed conflict and behavioral responses in the general population. Event-centered approaches have been successfully used in the macro-political study of armed conflict but have not yet been adopted in micro-behavioral studies. The micro-level event-centered approach that we advocate here includes decomposition of a conflict into discrete political and violent events, examination of the mechanisms through which they affect behavior, and consideration of differential risks within the population. We focus on two mechanisms: instability and threat of harm. We test this approach empirically in the context of the recent decade-long armed conflict in Nepal, using detailed measurements of conflict-related events and a longitudinal study of first migration, first marriage, and first contraceptive use. Results demonstrate that different conflict-related events independently shaped migration, marriage, and childbearing and that they can simultaneously influence behaviors in opposing directions. We find that violent events increased migration, but political events slowed migration. Both violent and political events increased marriage and contraceptive use net of migration. Overall, this micro-level event-centered approach yields a significant advance for the study of how armed conflict affects civilian behavioral responses.

Keywords

armed conflict; migration; fertility; marriage; Nepal

Introduction

Armed conflict has serious consequences for physical well-being among those directly exposed to conflict. The longer-term consequences—such as adverse mental health, large migration flows, spread of infectious diseases, and economic instability—can also have implications around the world. As a result, the attention that armed conflicts receive is high, and the engagement of the scientific community in these issues is growing. Theoretical and

conceptual strategies from the social sciences will receive considerable attention in the widespread effort to improve our understanding of and mitigate the social consequences of conflict. We argue that core concepts from demography have a great deal to offer. In this article, we advocate a micro-level event-centered approach to the study of civilian behavioral responses to armed conflict. This approach includes attention to detailed records of discrete events that make up an armed conflict, careful analysis of the different kinds of events, and incorporation of these discrete events in quantitative analysis of demographic behaviors at the individual level.

The disaggregation of conflict events and consideration of the varying effects of different kinds of events is a well-developed tool in the political literature on armed conflict. The purpose is (1) to create a better match between theory and measurement, (2) to avoid using arbitrary definitions of types of conflicts (such as civil war and interstate war), and (3) to allow the researcher to consider contextual information, without which causal explanations can be misconstrued (Raleigh et al. 2010). This strategy has been used to understand how different events can affect political crises and outbreaks of violence, as well as mediation, intervention, and peace-building strategies (Bond et al. 1997; Davenport and Stam 2009; Jenkins and Bond 2001; Schrodt and Gerner 2004). Toward these ends, several large-scale programs to collect event-specific data have been instituted, such as the Social Conflict in Africa Database and the Kansas Events Data System. These event-centered data have significantly advanced the ability of the academic and policy communities to react to conflict and create early warning systems.

Considering micro-level research, there is a relatively large and growing body of research on demographic responses to armed conflict (Agadjanian et al. 2008; Agadjanian and Prata 2002; Bohra-Mishra and Massey 2011; Davenport et al. 2003; Engel and Ibanez 2007; Heuveline and Poch 2007; Jayaraman et al. 2009; Khawaja 2000; Lindstrom and Berhanu 1999; Schmeidl 1997). However, this area of study has taken little advantage of these empirical tools or conceptual advances (Verwimp et al. 2009). In 2004, a National Academy of Sciences book on the consequences of war and humanitarian crises for migration and fertility laid an important groundwork for research of this type, by identifying various types of conflict-related events and arguing that the effects of a conflict on demographic outcomes will depend on which events are experienced as well as the particular people who are affected (Hill 2004). In this article, we build on these ideas and the advances made in macro-political studies of conflict. We use a social-demographic perspective to create a strategy that treats armed conflict as something that can be decomposed into a series of discrete events that have different consequences for civilian behaviors. We argue that the broad benefits of such a strategy for micro-level research are similar to those for macro-political research: namely, a better match between theory and measurement, avoidance of arbitrary definitions of conflict, and the inclusion of contextual information.

This approach also yields important advances specific to the micro-level study of armed conflict. First, after a conflict is disaggregated into a series of discrete events, it becomes clear that no two events are the same, that these events take place over time, and that the timing of events is relevant to understanding their consequences. Second, the different types of events that make up a conflict vary across specific dimensions that produce variability in the meaning of these events to people living near them. Identification of these dimensions of meaning is essential to understanding behavioral responses to each type of event. Third, when the different consequences of specific types of events are carefully identified, the micro-level approach allows the researcher to identify the particular types of people who are most affected by these consequences, thereby predicting which types of people are most likely to respond. This disaggregation of armed conflict into specific events, sorting of events into clusters of types, identification of the people who are most affected by each type

of event, and investigation of the timing of events yields a significant advance in the scientific understanding of civilian behavioral responses to armed conflict.

The approach that we propose here is grounded in a detailed empirical study of the recent armed conflict in Nepal. Detailed ethnography among those exposed to the conflict provides the key grounding for sorting conflict events into categories. Records of violent and political events throughout the conflict provide the means to evaluate this conceptualization. This empirical record is directly linked to a panel study of individuals in rural Nepal that features monthly measurement of demographic behaviors throughout the entire conflict period. Although the micro-level event-centered approach and the mechanisms that we describe in this article are relevant to a wide variety of behavioral changes—from spending habits to time spent at work to consumption behavior—we empirically test this approach on three important demographic behaviors: international migration, marriage, and contraceptive use. These behaviors are key determinants of population growth and change, and they are integral to the long-term well-being of families and communities. As is common in social demography, we examine the first time when an individual ever undertakes each of these behaviors, making this a study of major life transitions.

The result of these empirical tests is an unprecedented empirical window into the micro-dynamics of a specific armed conflict and evidence that the micro-level event-centered approach to investigation of conflict could improve the study of armed conflict and civilian behavioral patterns in other areas of the world as well.

A Micro-Level Event-Centered Approach to the Investigation of Armed Conflict

The micro-level event-centered approach that we describe in this section is designed to be broadly applicable to investigation of the consequences of armed conflict on civilian behaviors, regardless of the geographic area or the specific context of a conflict. In subsequent sections of this article, we describe the setting of the armed conflict in Nepal and create setting-specific empirical predictions. Finally, we empirically test these predictions in an effort to demonstrate the efficacy of the micro-level event-centered approach, as well as what demographers and other students of armed conflict can gain from using this strategy.

Multiple Events

The fundamental building block of our conceptualization is based on the ideas that any conflict actually comprises a series of different events and that civilian responses to those events will vary by type of event. In other words, there are different kinds of conflict-related events and different mechanisms through which they can affect behavior. The most obvious and commonly considered mechanism linking conflict to behavior is the threat of harm. Most studies of conflict identify threat of harm as the primary motivation for behavioral responses to violent events (Bohra-Mishra and Massey 2011; Davenport et al. 2003; Engel and Ibanez 2007; Spilerman and Stecklov 2009). Violent events—such as assassinations, bombings, and gun battles—clearly create threat of harm for all people in the local area. Events that create a threat of harm are likely to motivate individuals to behave in ways that they believe will help them avoid harm in the future. A common behavioral reaction to the threat of harm is out-migration, but there are many others, depending on the specific context. Alternatively, ceasefires—agreements to cease hostilities—fundamentally reduce the threat of harm. As a result, ceasefires are likely to produce effects opposite to those of violent events that increase the threat of harm.

Another important mechanism likely to affect behavioral response is instability, which reduces the individual's ability to predict future circumstances and creates a sense of chaos or anomie. Political events that are not overtly violent, such as large protests and states of emergency, create instability more than threat of harm. Instability is likely to have an independent influence on individual behaviors because it is frightening and because it reduces the ability to judge the threat of harm or plan for future social and economic survival. In a series of in-depth interviews in the Chitwan Valley of Nepal (the setting of the empirical analysis in this article), one respondent stated a common concern: "The situation was uncertain. I was confused about what I could do to earn a living. I couldn't decide exactly what was to be done, where I could go." In a context of macro-level instability, we argue that individuals may adopt behaviors that increase stability in their personal lives or delay behaviors that decrease personal stability. Of course, local context will determine exactly which behaviors increase or decrease stability in any particular area. In the case of Nepal, getting married can increase stability, while migrating or having children can decrease stability.

The threat of harm and instability are only two of the possible mechanisms likely to connect the events of an armed conflict to individual behaviors. Although these two mechanisms are likely to be associated with most armed conflicts, other mechanisms may also be at play. Our aim here is not a comprehensive consideration of all possible mechanisms. Instead, our goal is to advance the ideas that more than one mechanism may be at work, and that the specific events that make up an armed conflict are likely to vary with respect to each mechanism.

Differential Risk

The second part of our conceptualization is that there are variations in risk and perceptions of harm and instability, depending on individuals' circumstances. For example, during the recent conflict in Nepal, unmarried men were targeted by both sides of the conflict for conscription into arms. At the same time, the married in Nepal are significantly more likely to have children, homes, and property, which may raise their perception of threat of harm. As a common concern in our in-depth interviews, one mother reported fears about her son being conscripted, but none for herself. "They were taking young men from every household. One was taken from that house. I thought if the process continued then one day they would ask my son to join their team. If he rejected, they would have hurt him. Later, he got a visa to a foreign country and went abroad. We were satisfied only after that."

Virtually every dimension of an individual's circumstance may affect their perceptions of threat of harm and instability. Wealth, gender, religion, political affiliation, and ethnicity are strong candidates in most conflicts, but there are many others. The micro-level approach advocates recognizing this variability in risk within a conflict so that individual circumstances can be modeled appropriately.

Context and Setting

This conceptualization is valuable for the study of armed conflict across a wide range of settings. However, as is now common in social demography, we argue that each application of the approach should be tailored to the specific context being investigated (Axinn and Yabiku 2001; Caldwell et al. 1983; Massey and Espinosa 1997; Massey et al. 1987; Thornton and Lin 1994; Xie and Hannum 1996). Context-specific predictions must be grounded in information about the behavior in question, local meanings associated with conflict-related events, and localized constraints and opportunities for behavioral response.

The context of this study is the decade-long (1996–2006) armed conflict in Nepal. Our empirical analyses are based on data from the western part of the Chitwan Valley of south-central Nepal. There is one large city, Narayanghat; the rest of Chitwan's population, like much of Nepal, lives in small, rural villages. This fertile valley is dominated by agriculture; 82 % of households in the study area are involved in subsistence farming or animal husbandry.

This provides an ideal case example to test the micro-level event-centered approach for two reasons. First, the generally poor living conditions of the population and moderately intense violence in Nepal make this case comparable with other moderately intense intrastate conflicts, which make up about 90 % of recent armed conflicts around the world (Mack 2002). Second, this is the location of the Chitwan Valley Family Study (CVFS), a detailed, prospective social-demographic survey that covers the period of time well before the conflict began through the end of the violence. The CVFS, combined with detailed records of conflict-related events, offers an unprecedented opportunity to investigate relationships between conflict and demographic behavior.

Demographic Patterns in the Chitwan Valley

Migration has long been a common livelihood strategy in Chitwan. Much of migration is short-term and used to supplement regular farm incomes (Kollmair et al. 2006; Thieme and Wyss 2005). Nepal and India share an open border, so international migration, in addition to domestic migration, is common. Migration is related to marriage and childbearing. Evidence shows that men have always been more likely to migrate than women and that migration rates are lower among the married and people with children (Massey et al. 2010a; Williams 2009).

Marriage is almost universal in Nepal. Data from the Chitwan study area show that in 1996, 98.3 % of men and 99.6 % of women between 30 and 34 years old were married. Ages at marriage are relatively low but have been rising in the past few decades. The mean age at marriage between 1990 and 1996 was 17.6 for women and 21.9 for men (Yabiku 2005).

Along with marriage, contraceptive use has also changed dramatically in recent decades (Axinn and Yabiku 2001). Contraception is significantly related to marriage and migration in this setting. Premarital childbearing is uncommon; most sex, contraception, and childbearing takes place within marriage (Axinn and Yabiku 2001; Ghimire and Axinn 2010). Migration, which often separates spouses, affects contraceptive use as well. However, because a large portion of migration is seasonal and short-distance, it is common for male migrants to return home for visits (Gill 2003). Consequently, migration disrupts but does not preclude sex, contraception, and childbearing.

Armed Conflict in Nepal

The approach that we advocate requires disaggregating a conflict into different kinds of component events. Thus, it is not just intensity that we should use to characterize a conflict, but also the events that happened and what they meant for the people who were exposed to them. In this section, we provide a brief description of the conflict but offer more details about the kind of events that occurred and how they affected threats and instability.

The conflict began in 1996 when the Communist Party of Nepal (Maoist) made a declaration of war with the intention to unseat the monarchy and install a people's republic. The early stages of the conflict were contained primarily in several midwestern districts and involved damage to government installations. From mid-2000, however, the Maoists progressively expanded their campaign across the country, and the Nepalese government responded by creating a special armed force to fight the Maoists.

The conflict was staged as a guerrilla war. With no true "frontline," it was largely unknown where fighting would break out, and civilians were often caught up in violence. Respondents in our in-depth interviews consistently reported statements such as the following: "The people were really terrorized. It was insecure even to go to town to purchase things. It was difficult to send children to school," and, "It was difficult to go anywhere…. You never knew if a person who went outside would come back or not." Reported violent acts by the Maoists and government forces against civilians include torture, assassinations, bombings, gun fights, abductions, forced conscription, billeting, taxing, and general strikes (Hutt 2004; Pettigrew 2004; South Asia Terrorism Portal 2006).

As shown in Table 1, a variety of political events also characterized this conflict. There were two states of emergency and three periods of ceasefire; the prime minister was deposed or resigned six times; and Parliament was dissolved by the king, who assumed direct rule of the country. There were also multiple nationwide strikes and protests that severely affected the day-to-day life of the general population and spread considerable unrest and fear nationwide. The conflict formally ended in November 2006 when the government and Maoists signed a peace agreement.

Context- and Behavior-Specific Predictions

In this section, we use the micro-level event-centered approach and detailed information about the Nepali context to construct predictions about the consequences of conflict-related events for the hazard of first marriage, first use of contraception, and first international migration. We choose these classic demographic behaviors for several reasons. First, they are integral to the long-term well-being of families and communities on a micro-level, and they drive long-term demographic composition and change on a macro-level. Within these three domains, our focus on hazards of the first event in each domain is motivated by existing literature demonstrating that first events are highly consequential and have implications for subsequent events. The leading work on marriage shows that first marriage timing has important consequences for marital quality and subsequent marital events (Amato and Booth 1997; Cherlin 1992; Hoelter et al. 2004; Thornton et al. 2007; Waite 2000). Research on fertility often focuses on first contraceptive use and shows that this behavioral choice produces the greatest variance in fertility outcomes and is closely linked to subsequent use (Bongaarts 1987; Bulatao and Lee 1983; Easterlin and Crimmins 1985; Westoff and Ryder 1977). Finally, research on migration generally focuses on first migration because it has strong long-term consequences for multiple dimensions of social life and is closely linked to subsequent migration behavior (Donato 1993; Massey 1990; Massey and Espinosa 1997; Massey et al. 2010a, b).

Second, because our primary objective is investigation of behavioral choice in response to conflict-related events, we choose behaviors closely related to decisions rather than behaviors influenced by political, economic, or biological factors. The rural Nepalese setting is useful because marriage, contraceptive use, and international migration are not legally restricted (Nepal has an open border with India).

Migration

The study of migration points toward important differences between the threat of harm and instability. The vast majority of previous research shows that international migration is a common response to the threat of harm (Bohra-Mishra and Massey 2011; Davenport et al. 2003; Engel and Ibanez 2007; Moore and Shellman 2004; Morrison and May 1994; Schmeidl 1997). Similarly, we predict that violent events that increase the threat of harm increased rates of out-migration.

We expect the instability mechanism to work in the opposite direction, especially in a setting like rural Nepal, which experienced high rates of migration before the conflict. Migration before the conflict was high, well-organized, and somewhat dependent on public infrastructure (e.g., transportation and passports). Destabilizing political events during the conflict in Nepal, such as strikes and protests, resulted in shutdowns in public transportation (making travel within the country difficult) and shutdowns of public agencies (including those issuing international travel documents). In this context, we expect that destabilizing political events produced declines in migration.

Ceasefires, on the other hand, reduce the threat of harm and enhance stability, including transportation and travel infrastructure. Therefore, we expect ceasefires increased rates of migration via the instability mechanism but reduced migration via the threat mechanism. We have no basis to conclude that ceasefires were more strongly associated with either mechanism. Thus, analysis of ceasefires demands two-tailed tests and runs the risk that opposing forces produce the empirical observation of no effect.

Marriage

Single people faced different risks than married people during the conflict in Nepal. Given relatively young ages at marriage, low education, and high unemployment, unmarried people are mostly in their teens, have fewer family obligations, and are often more attracted to radical ideologies. Thus, unmarried people were the most preferred recruits for both warring parties. Consequently, single people were more exposed to forced conscription, forced labor, and physical harm than married people. We argue that these threats provided a motivation to marry. As a result, we expect that events raising levels of threat increased rates of marriage. Violent events increased the threat of harm the most, so we expect these events to have the greatest influence on marriage via this mechanism. Ceasefires, on the other hand, reduced the threat of harm; therefore, we predict that they decreased marriage in Nepal via the threat of harm mechanism.

The instability mechanism is likely to work in the same direction for marriage. In Nepal, marriage confers a well-defined place both socially and residentially and a larger, more diverse social-support network (Bennett 1983; Fricke 1994; Thornton and Fricke 1987). In other words, being married is a more stable position than being unmarried. Similar considerations have been documented among Palestinians during the periods of Intifada (Fargues 2000; Khawaja 2000). In Nepal, we expect political events (which increased instability) sped marriage; conversely, we expect ceasefires (which decreased instability) slowed marriage. These predictions are identical to our predictions about the effect of threat, making it impossible to differentiate between the two mechanisms with respect to this outcome.

Contraceptive Use

Theory generally suggests that conflict might be a disincentive to have children, leading people to adopt some form of contraception. Both the threat of harm and instability mechanisms lead to this expectation. Instability makes it difficult to predict the costs and benefits of childbearing and to access medical care. Likewise, the threat of harm could encourage delays in childbearing until the harm has passed. Evidence of fertility declines from a variety of conflict situations is generally consistent with this expectation (Agadjanian and Prata 2002; Agadjanian et al. 2008; Heuveline and Poch 2007; Jayaraman et al. 2009; Lindstrom and Berhanu 1999). In Nepal, we predict that violent and political events increased the rate of using any contraceptive. Conversely, we predict that ceasefires, which reduced the threat of harm and increased stability, reduced the use of contraceptives.

Reports from Nepal indicate that during particularly violent and unstable periods of the conflict, access to contraceptives was disrupted. In some cases, the Maoists intercepted delivery of contraceptive supplies to health centers, and in other cases, transportation of supplies was disrupted by strikes. This could depress the influence of an increased desire to use contraceptives on the rate of contraceptive use. The specific setting we study, however, is characterized by being among the best supplied in Nepal (Brauner-Otto et al. 2007).

Data

Our data come from several sources: survey data from the CVFS, event records from the South Asia Terrorism Portal (SATP) and other news sources, and qualitative data from in-depth interviews. The CVFS is a large-scale, multidisciplinary study designed to investigate the impact of macro-level socioeconomic changes on individual behavior (Axinn et al. 1997; Axinn et al. 1999; Barber et al. 1997). It includes interviews that were collected in 1996 and a prospective demographic event registry that was collected monthly, beginning in 1997.

The prospective household registry is our source of marriage, contraception, and migration data, providing exceptionally precise records of each of these behaviors. The registry includes 151 neighborhoods that were selected with an equal probability, systematic sample. All individuals between the ages of 15 and 59 in these neighborhoods were included in the survey. At 97 % of the original sample, the response rates are exceptional.

SATP, our source for records of violent events, is an NGO that compiles records of all violent events in Nepal. Measures of political events are compiled from major English and Nepali news media and NGOs in Nepal.

Qualitative data come from 25 open-ended interviews conducted in the Chitwan Valley in 2009. The interview guidelines were designed to elicit narratives on respondents' general perceptions of the conflict and their personal experiences. Respondents were purposively selected to represent a broad spectrum of the population in terms of gender, age, and socioeconomic status (SES).

Measures

Threat of Harm: Major Gun Battles

Our conceptualization of armed conflict is based on the idea that different kinds of events can have different meanings and different levels of threat, and might be systematically targeted at different kinds of people. As such, a single measure of threat that is a summation, an index, or a scale of different types of conflict-related events is inappropriate.[1] Instead, we use a measure of one specific type of threatening event: major gun battles. This includes major events that involved multiple people and multiple fatalities, and were likely to be known of by the general population. With an average of 31 fatalities per major gun battle in Nepal and reports of civilians being used as human shields, these events created high levels of fear in the population.

SATP provides records of the date and place of each major gun battle in Nepal. The data cover 51 months, from November 2001 through January 2006. Data from the CVFS indicate no major gun battles in the study area before November, 2001. We create a measure of the

[1]Another initially promising operationalization strategy is principal components analysis (PCA). However, PCA is inappropriate for the study of the effect of conflict events on behavior. PCA examines patterns of correlations between variables that represent characteristics of a single entity with the intent to identify latent characteristics of that entity. For the case of armed conflict, the variables that we are considering—such as gun battles and ceasefires—are not characteristics of a single entity. Thus, any factors derived through PCA could not be considered latent characteristics of a single entity or of these events.

number of major gun battles per month in the local area. The local area that can influence Chitwan residents' perceptions of threat is defined as Chitwan and the six neighboring districts (Nawalparasi, Tanahu, Gorkha, Dhading, Makwanpur, and Parsa). These districts are small: more comparable to U.S. counties than states.

As large, lengthy, and dangerous events, this measure of gun battles produces consistent and robust empirical estimates across all model tests. We also tested alternate measures of threat, including bomb blasts and abductions. These events were threatening but not as dangerous as gun battles. The effects of abductions and bomb blasts on migration, marriage, and contraception were comparable to, yet weaker than, those for gun battles.

Instability: Political Events

Our measure of instability is the number of major political events per month. This includes states of emergency, large strikes and protests, and major changes in government that threatened the stability of the central government. Major changes in government include changes or depositions of the prime minister, the dissolution of parliament, and the 2001 palace killings. Strikes and protests refer to any such event that involved at least several hundred people, took place nationwide and in Kathmandu, and was reported in national newspapers and on the radio.

We also examined alternate specifications of measures of instability. We tested a dichotomous measure of any political event in a month, as well as dichotomous measures for each separate type of political event. These tests produced comparable results to the models that we present herein that use a measure of the total number of political events per month.

Ceasefires

Ceasefires are measured with a dichotomous variable coded as 1 in any month when there was an official ceasefire. Because ceasefires involved a cessation of hostilities, this is a measure of decreases in the threat of harm and increases in stability. Ceasefires are not only important because they are a common event in many conflicts, but also because they provide something of a falsification test when compared with violent and political events. Because they have the opposite consequences of violent and political events, they should have the opposite effect on behaviors as well.

Population Responses

All three outcome measures that we test (international migration, marriage, and contraceptive use) come from the CVFS prospective demographic event registry. Thus, they are time-varying on a monthly basis. Measurement of international migration is based on residence records from the demographic event registry. To be considered an international migrant, a respondent must move to another country for at least one month. This precise definition has been used successfully in past research (Massey et al. 2010a, b; Williams 2009) and allows for the inclusion of both temporary and permanent migrants. This is important for the study of conflict, when migration durations can vary significantly.

Controls: Individual Characteristics

The controls that we use in the migration models have been shown to significantly affect migration in this setting (Bohra and Massey 2009; Massey et al. 2010a, b; Williams 2009). These include age, gender, educational attainment, enrollment, ethnicity, marital status, work experience, migration experience, distance to the nearest urban area, and land ownership. Descriptive statistics for these and all other measures are presented in Table 2.

Models of first marriage include controls that significantly affect the likelihood of marriage in Chitwan (Ghimire et al. 2006; Yabiku 2004, 2005). These include age, gender, education, ethnicity, and the number of nonfamily services available within a five-minute walk of the respondent's community (including schools, health centers, employers, movie halls, and bus stops). Important characteristics of a respondent's parents are also used, including their education, age at marriage, and number of children ever born.

For models of contraceptive use, we analyze the transition from never using contraception to using any type of contraception, including the pill, Depo-Provera, condoms, foam, IUDs, Norplant, abstinence, sterilization, or spouse sterilization. Controls in the contraceptive models have been shown to affect the likelihood of contraception in this study area (Axinn and Barber 2001; Axinn and Yabiku 2001; Brauner-Otto et al. 2007). These include age, gender, education, ethnicity, wage work experience, the number of children ever born, and the number of non-family services available in the respondent's community.

Time

For the study of armed conflict, which we argue is a series of events over time, the measurement of time is extremely important. The first three years of the study period were characterized by almost no conflict-related events in the Chitwan area. After this time, the intensity of the conflict increased through 2005, with more political and violent events in later years. Significant changes in the economy also characterize this period. Including no control for time runs the risk of conflating behavioral responses to the specific events that we are examining with other changes throughout the time period.

We operationalize a control for time with a continuous variable for years since 1997, the beginning of the study period, and a variable for years squared. We also tested a fixed-effects approach for time, where a dichotomous variable for each year was included in the model. These different approaches yielded nearly the same results. Tests using no control for time resulted in radically different results of which we are skeptical.

Analytic Strategy

We use discrete-time event history models and logistic regression equations to predict first international migration from the Chitwan Valley, first marriage, and first use of any contraception. Person-months are the unit of exposure to risk. The models test the monthly hazard of each of these behaviors, contingent on gun battles, political events, ceasefires, and control measures. We lag all conflict-related measures by one month to assure that the outcomes we measure occurred chronologically after the event.

Models for each outcome behavior are derived from previously published research, using the CVFS data. This strategy is possible because there are dozens of previous studies of population outcomes using measures from the CVFS, including 8 articles on migration (Bhandari 2004; Bohra and Massey 2009; Bohra-Mishra and Massey 2011; Massey et al. 2010a, b; Piotrowski 2010; Shrestha and Bhandari 2007; Williams 2009, forthcoming), seven articles on marriage (Barber 2004; Ghimire et al. 2006; Hoelter et al. 2004; Yabiku 2004, 2005, 2006a, b), and 12 articles on fertility (Axinn and Barber 2001; Axinn and Yabiku 2001; Barber and Axinn 2004; Barber et al. 2000, 2002; Biddlecom et al. 2005; Brauner-Otto et al. 2007; Ghimire and Axinn 2006, 2010; Ghimire and Hoelter 2007; Ghimire and Mohai 2005; Maples et al. 2002). Those studies provide clear and comprehensive information about factors known to influence the demographic events of interest in this study. We used these same models and added one conflict event at a time to estimate the effect of each event separately. Then we combined all conflict events in a single model to estimate the independent effects of each. Multilevel modeling techniques are used

to adjust for autocorrelation that might result from the clustering of sample respondents at the neighborhood level (Barber et al. 2000).

We define the sample population for each outcome similar to already published articles. First international migration is modeled for a sample of individuals who are between the ages of 15 and 59. Models for marriage use a sample of respondents who have never been married and are between the ages of 15 and 24. Premarital childbearing is rare in Nepal, so our models predicting the first use of contraception include those who are married, between the ages of 15 and 44, have never used any form of contraception, and have at least one child.

Because many young people migrate for short periods of time, we include migrants in the samples that we use to test marriage and contraception. However, migration could confound an individual's exposure to marriage or using contraceptives. For example, migrants might be less likely to marry while they are away or to use contraceptives while they are not coresiding with their spouses. To address this issue, we tested the marriage and contraceptive models in two other ways. First, we controlled for migration during the study period. Second, we deleted from the sample anyone who migrated during the study period. In both series of tests, for both marriage and contraception, the results were substantively identical to those that we present here. Alternative specifications of migration produce only minor changes in estimated coefficients.

Results and Discussion

As in most demographic analyses of discrete-time hazards, we discuss our results as multiplicative effects on the hazards of each behavior. This means that we have transformed the model coefficients into odds ratios. Hazard coefficients greater than 1 mean that the effect is positive, and coefficients less than 1 mean that the effect is negative.

Migration

Individual Characteristics—The results for Model 1 in Table 3 show important influences of social and demographic characteristics on international migration. Notably, age and female gender decreased the hazard of migration. The coefficient of 0.92 for age indicates that with each additional year of age, the hazard of migration decreased by about 8 %. The coefficient of 0.17 for gender suggests that the hazard of migration for women was about 83 % lower than for men. Migration experience prior to 1996 had a strong positive influence, almost doubling the hazard of migration. These results are consistent with migration theory and previous empirical research in this study area (Bohra and Massey 2009; Williams 2009).

Conflict-Related Events—Moving to Model 2, we find strong effects of threat of harm on migration. The coefficient for gun battles is 1.67, meaning that the hazard of international migration increased by about 67 % in a month following one major gun battle. Odds ratios are multiplicative; thus, we can expect the hazard of international migration to be almost three times higher in a month following two gun battles. This evidence is consistent with existing theory that identifies international migration during armed conflict as a strategy to decrease exposure to harm and is consistent with empirical evidence from other conflicts (Bohra-Mishra and Massey 2011; Davenport et al. 2003; Engel and Ibanez 2007; Moore and Shellman 2004; Morrison and May 1994; Schmeidl 1997).

Alternatively, as shown in Model 3, the effect of political events on international migration is negative and strong, with a coefficient of 0.51. This suggests that in a month following one political event, we would expect the hazard of international migration to decrease by

about one-half. However, the statistical significance is marginal; thus, our confidence in this result is not strong. In Model 4, the effect of ceasefires shows no significant effect on international migration. Model 5, which includes all three measures of conflict-related events, produces similar results. The effect of gun battles is large, significant, and positive. Political events produce a negative and marginally significant effect, and there is no impact of ceasefires on international migration.

As discussed earlier, ceasefires are a measure of decreased threat (which theoretically suggests lower migration) and increased stability (which theoretically suggests higher migration). The nonsignificant effects of ceasefires on international migration could mean that they indeed have no effect, or that opposing effects of decreased threat and increased stability produced the empirical result of no effect. Overall, these results for international migration provide evidence that violent events that increase threats of harm increased out-migration and also that political events that increase instability decreased migration. Further research would be helpful to better examine the marginal, but strong, relationship between instability and migration.

Marriage

Individual Characteristics—Table 4 presents the results of a series of models predicting the hazard of first marriage. Model 6, which includes only control measures, yields similar results to previously published studies on marriage in Chitwan (Ghimire et al. 2006; Yabiku 2004, 2005, 2006a, b). Age and female gender had positive effects on the hazard of marriage. Parental education had a negative effect on marriage, meaning that respondents whose parents achieved higher education had lower hazards of marriage.

Conflict-Related Events—Model 7 includes major gun battles. As expected, gun battles increased the likelihood of marriage. The coefficient of 1.29 indicates that in a month following one major gun battle, respondents had about a 29 % higher hazard of marrying. This result supports the hypothesis that the threat of harm increased marriage rates as young people sought to avoid conscription.

As shown in Model 8, political events also had a positive and significant effect on marriage. The coefficient of 1.28 indicates that in a month after one political event, the hazard of marriage increased by about 28 %. This result supports the prediction that instability will increase marriage.

Ceasefires had a strong negative and statistically significant effect on marriage. As shown in Model 9, ceasefires decreased the likelihood of marriage by more than 50 %. The influence of ceasefires on marriage is opposite of that for gun battles and political events, which is entirely expected. Ceasefires decrease the threat of harm and increase stability, which is exactly opposite of gun battles and political events. Thus, we expected that ceasefires would have the opposite effect on marriage.

As shown in Model 10, which includes all three measures of conflict events, the effects of gun battles, political events, and ceasefires on marriage remain strong, consistent, and statistically significant. This means each of these three conceptually distinct dimensions of the conflict also had independent effects on marriage.

As we predicted (and consistent with our in-depth interviews), the civilian population caught in the Nepalese armed conflict used multiple strategies to mitigate or cope with the consequences of the conflict. The results from Table 4 suggest that because unmarried young people occupied an unstable social position and were the most vulnerable target of conscription and violence, they responded to both instability and the threat of harm by

marrying. On the other hand, ceasefires brought stability and a cessation of violence, so people might not have felt as desperate to marry. As a result, we find the unusual consequence that ceasefires lowered rates of marriage.

Contraception

Individual Characteristics—Results for Model 11 in Table 5, our base model of contraception, are consistent with estimates from previous work using these data. Specifically, the hazard of first contraceptive use decreased with each additional year of age. Conversely, higher education and more children increased the hazard of contraceptive use (Axinn and Barber 2001; Axinn and Yabiku 2001; Brauner-Otto et al. 2007).

Conflict-Related Events—The addition of measures of conflict demonstrates that civilians responded to conflict events through changing contraceptive behaviors. As shown in Model 12, the coefficient of 1.22 suggests that gun battles increased the hazard of contraceptive use by about 22 % in a month following one gun battle and 49 % in a month following two gun battles. Political events had an even stronger effect on contraceptive use. The coefficient of 1.45 in Model 13 indicates that the hazard of using any contraceptive increased about 45 % in a month following just one major political event. Following two political events, the hazard increased about twofold; and following three political events, the hazard increased about threefold. As shown in Model 14, the effect of ceasefires on contraceptive use was negative but not statistically significant. Thus, we find no evidence that ceasefires had any effect on contraception. Turning to Model 15, which includes gun battles, political events, and ceasefires, the effects of gun battles and political events are again positive and significant. Ceasefires remain statistically nonsignificant.

Overall, these results show strong support for the prediction that both destabilizing and threatening events increased contraceptive use. As discussed earlier, these positive effects of gun battles and destabilizing events on contraceptive use were likely biased downward because of decreased access to contraceptives during these same times. Thus, independent of access, we would expect the effect of these events on the desire to use contraceptives to be even higher.

Contraceptive use is an important behavioral indicator of couples' fertility plans and intentions. Our analysis of this indicator is consistent with the conclusion that people mitigated the adversity of conflict through their childbearing behavior. As discussed in detail earlier, most political events are characterized by strikes, disruption of supplies, transportation, and key services, including health care. During such periods, it is difficult to give birth to a child and to take care of that child after birth. This is a likely reason for the strong effect of political events on contraceptive use. The threat of physical harm associated with gun battles also had an important and independent effect that increased contraceptive use.

Conclusion

This article introduces a micro-level event-centered approach to the scientific study of how armed conflict influences demographic behaviors. This approach includes decomposition of a period of conflict into separate violent and political events, careful conceptualization of how the meanings of these events create different mechanisms that link them to behavior, context-specific examination of the differential risks within the population experiencing these events, and micro-level empirical analysis to address individual risk differences. The general benefits to using such an approach are to create a better match between theory and measurement, to decrease the use of arbitrary definitions of what is and is not a conflict, and to facilitate the inclusion of contextual information. Using this approach is more

complicated than measuring a conflict as a single period of time, but we can expect more accurate conclusions from doing so.

To test this micro-level event-centered approach, we focus on three demographic outcomes: first international migration, first marriage, and first contraceptive use. We find strong evidence that conflict-related events influence each of these different demographic processes. We also show that different conflict events can have opposing consequences on the same demographic process. For example, we find that violent events that constitute a threat of harm had positive effects on migration, while political events that create instability negatively affected migration. On the other hand, violent and political events both had positive effects on first marriage and first contraception, while ceasefires had negative effects on marriage but not contraception. Together, these results illustrate our general argument: namely, that when a conflict is disaggregated into separate events, empirical analyses reveal that the demographic consequences are, in fact, quite complex.

Many of the empirical results from our models based in Nepal are similar to those from previous research in other areas of the world. For example, most studies on migration during conflict find that increased violence leads to increased migration (Davenport et al. 2003; Engel and Ibanez 2007; Moore and Shellman 2004; Schmeidl 1997). Many studies also find decreases in fertility during conflict or periods of political instability, in places as disparate as Kazakhstan, Angola, Cambodia, Rwanda, and Ethiopia (Agadjanian and Prata 2002; Agadjanian et al. 2008; Heuveline and Poch 2007; Jayaraman et al. 2009; Lindstrom and Berhanu 1999). However, some of our results are precisely opposite of those in other studies. For example, there is evidence that conflict negatively affected rates of marriage in Cambodia, Tajikistan, Ethiopia, and Rwanda (Heuveline and Poch 2007; Jayaraman et al. 2009; Lindstrom and Berhanu 1999; Shemyakina 2009), but that conflict positively impacted Palestinian fertility during the first and second intifadas (Fargues 2000; Khawaja 2000).

There are several possible reasons for these differences that the micro-level event-centered approach—with its emphasis on context specificity, differential risk, and differential mechanisms—can help to disentangle. First, context matters. For example, the situation where unmarried young adults were more at risk of harm relates to the Nepalese context but could be completely different in another conflict. Second, micro-level analyses of a heterogeneous population could result in completely different results from analyses based on aggregate population data. For example, declines in marriage at the aggregate level can result from disruptions in the marriage market caused by increased mortality. Alternatively, declines in rates of marriage in a micro-level study would be more directly related to behavioral choice and less affected by marriage market disruptions. Third, the disaggregation of a conflict into component events means that we can find opposing effects of different events on behaviors. For example, periods of ceasefire significantly decreased marriage rates, and destabilizing political events decreased migration, with exactly the opposite consequences of violent events. Without considering different events, we risk misleading or incorrect predictions and analysis of empirical results.

Our effort reveals that event, setting, and outcome-specific reasoning are required to arrive at reasonable predictions for the consequences of armed conflict. Such reasoning is commonplace in other areas of social demography yet is still underdeveloped in the study of conflict. This article highlights two key mechanisms—threat of harm and instability—that link specific events to specific outcomes, and it provides evidence to support this reasoning. The micro-level event-centered approach also suggests other potentially important dimensions of conflict-related events, including timing and sequencing of events, spatial distribution of events, and threats in public versus private areas. Although these issues close

our analysis with more questions than answers, we argue that they highlight the most important conclusion from our investigation: a micro-level event-centered approach to the demographic study of armed conflict yields the opportunity for tremendous advances in this area of science.

Of course, the field of demography has provided extensive evidence that marriage, contraception, and migration behaviors are not independent; to the contrary, there are interactions between these behaviors. For example, we know that migration reduces fertility and the likelihood of marriage and that marriage reduces the likelihood of migration and heavily increases fertility (Andersson 2004; Cleland and Hobcraft 1985; Lindstrom and Saucedo 2002; Rindfuss et al. 1988; Thornton et al. 2007). In this article, we examine each of these demographic behaviors as separate outcomes, using the other demographic behaviors as controls or to define the population at risk. To understand the overall consequences of conflict for population composition and change, it will be necessary to examine these demographic behaviors using interactive analytic techniques, such as agent-based models. We encourage future research using both regression-based and agent-based modeling techniques to study the consequences of armed conflict for population composition and change. We further advocate for the use of the micro-level event-centered framework as a conceptual tool that can be used in either approach.

In conclusion, our application of the micro-level event-centered approach points to a tremendous theoretical challenge that we do not resolve here. That is, if each different dimension of a conflict can have varying and even opposing consequences for each different demographic process, how do we predict the consequences of a period of conflict? Although resolution of this important theoretical question is not our aim, we do aim to provide an essential foundation for advancement toward such resolution: a micro-level event-centered conceptualization that can be used to build theories of the connection between specific conflict events and demographic processes. Further theory that connects conflict-related events and demographic processes will be an important scientific contribution and better prepare policy makers to anticipate sociodemographic changes.

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Table 1

Timeline of major political events during armed conflict in Nepal, 2000–2006

Date	Events
Government Instability	
March 2000	Change in Prime Minister
June 2001	Palace killings
July 2001	Change in Prime Minister
May 2002	Prime Minister dissolves parliament
October 2002	King deposes Prime Minister and takes up executive powers
May 2003	Change in Prime Minister
June 2004	Change in Prime Minister
August 2004	Maoists blockade Kathmandu for one week
February 2005	King assumes absolute power/direct rule
June 2005	Change in Prime Minister
State of Emergency	
November 2001–August 2002	State of emergency
February–April 2005	State of emergency
Ceasefires	
July–November 2001	First ceasefire
January–August 2003	Second ceasefire
September 2005–January 2006	Third ceasefire
Major Strikes and Protests	
February (yearly since 2001)	Annual Maoist anniversary of “People’s War,” weeklong protests
April 2001	General nationwide strike, markets and transportation affected
April 2002	Five-day nationwide strike, called by Maoists
April 2003	Three-day nationwide strike
August 2003	One-day strike, called by Maoists
September 2003	Three-day general strike
May 2004	Street protests called by political parties, restoration of Parliament
June 2004	Street protests continue
April–May 2005	Protests, strikes, failure of peace talks
September 2005	Daily protests, restoration of democracy

Table 2

Descriptive statistics of the CVFS sample in 1997

Measure	Range	Mean	Std dev
Conflict-Related Events[a]			
Gun battles (no. per month)	(0–4)	0.16	0.59
Political events	(0–3)	0.28	0.53
Ceasefires	(0,1)	0.16	0.37
Sample Used to Analyze International Migration, Ages 15–59 in 1997 (N = 4,003) Outcome: Migration			
Migrated during study period	(0,1)	0.08	0.27
Controls: Individual characteristics			
Age	(15–59)	32.77	12.34
Gender (female)	(0,1)	0.54	0.50
Ever migrated (before 1997)	(0,1)	0.23	0.42
Educational attainment (years completed)	(0-16)	4.31	4.36
School enrollment	(0,1)	0.31	0.73
Nonfamily work	(0,1)	0.44	0.50
Farmland owned (acres)	(0–17)	2.05	2.42
Distance to Narayanghat	(0–18)	8.63	4.09
Marital Status			
Never married	(0,1)	0.21	0.41
Married, living with spouse	(0,1)	0.61	0.49
Married, not living with spouse	(0,1)	0.13	0.34
Divorced, separated, widowed	(0,1)	0.04	0.20
Ethnicity			
Brahmin-Chhetri	(0,1)	0.47	0.50
Dalit	(0,1)	0.10	0.30
Hill indigenous	(0,1)	0.15	0.36
Terai indigenous	(0,1)	0.20	0.40
Newar	(0,1)	0.06	0.24
Sample Used to Analyze Marriage: Unmarried Individuals, Ages 15–24 in 1997 (N = 952)			
Outcome: Marriage			
Married during study period	(0,1)	0.73	0.44
Controls: Individual characteristics			
Community services (in adult community)	(0–5)	2.50	1.26
Parents' characteristics			
Age at marriage	(6–36)	18.87	4.63
Number of children ever born	(0–13)	5.40	2.18
Education	(0–16)	3.42	4.30
Sample Used to Analyze Contraception: Married Individuals, Ages 15–44 in 1997 (N = 986)			
Outcome: Contraception			
Started using contraception during study period	(0,1)	0.70	0.46
Controls: Individual characteristics			

Measure	Range	Mean	Std dev
Number of children ever born	(0–10)	2.19	2.08
Wage work experience	(0,1)	0.46	0.50

[a]The unit of measure for conflict related events is months. The unit of measure for all other characteristics is persons.

Table 3

Logistic regression estimates predicting first international migration following violent and political events

	Model 1	Model 2	Model 3	Model 4	Model 5
Conflict Events					
Gun battles		1.67**			1.64*
(no. per month)			(2.50)		(2.29)
Political events			0.51†		0.53†
(no. per month)			(1.58)		(1.50)
Ceasefires				1.20	0.93
				(0.46)	(0.18)
Controls: Individual Characteristics					
Age	0.92***	0.95***	0.92***	0.95***	0.95***
	(4.63)	(4.15)	(4.31)	(4.68)	(4.40)
Gender (female)	0.17***	0.20***	0.17***	0.20***	0.20***
	(7.26)	(7.09)	(6.77)	(7.33)	(6.92)
Educational attainment	1.02	1.00	1.02	1.00	1.00
	(0.12)	(0.11)	(0.13)	(0.12)	(0.13)
School enrollment	1.02	1.06	1.02	1.06	1.06
	(0.46)	(0.44)	(0.43)	(0.46)	(0.44)
Nonfamily work	1.01	0.93	1.01	0.93	0.92
	(0.44)	(0.45)	(0.42)	(0.44)	(0.45)
Land ownership	1.00	1.00	1.00	1.00	1.00
	(0.85)	(0.88)	(0.89)	(0.84)	(0.95)
Distance to Narayanghat	1.03†	1.03	1.03	1.03†	1.03
	(1.30)	(1.27)	(1.24)	(1.31)	(1.27)
Ever migrated before 1996	2.23***	2.26***	2.22***	2.27***	2.26***
	(4.57)	(4.44)	(4.25)	(4.62)	(4.34)
Marital Status[a] Never married	0.68	0.88	0.68	0.87	0.88
	(0.55)	(0.48)	(0.51)	(0.55)	(0.47)
Married, not living with	0.93	0.98	0.93	0.99	0.98

	Model 1	Model 2	Model 3	Model 4	Model 5
spouse					
	(0.05)	(0.07)	(0.04)	(0.05)	(0.06)
Divorced or widowed	1.18	0.85	1.17	0.89	0.86
	(0.18)	(0.24)	(0.17)	(0.19)	(0.23)
Ethnicity[b] Dalit	1.13	1.21	1.12	1.21	1.21
	(0.73)	(0.72)	(0.66)	(0.74)	(0.69)
Hill indigenous	1.28	1.30	1.28	1.30	1.29
	(1.21)	(1.19)	(1.11)	(1.23)	(1.15)
Terai indigenous	0.52**	0.49**	0.52**	0.49**	0.49**
	(2.58)	(2.51)	(2.40)	(2.60)	(2.46)
Newar	0.43*	0.45†	0.43†	0.45†	0.45†
	(1.58)	(1.55)	(1.48)	(1.60)	(1.52)
Year	0.43***	0.50***	0.43***	0.47***	0.52***
	(6.10)	(5.18)	(5.42)	(6.17)	(4.85)
Year Squared	0.43*	1.03	0.43*	1.04*	1.03†
	(2.29)	(1.19)	(2.24)	(2.30)	(1.32)
Deviance	4,267	4,257	4,261	4,267	4,252
No. of Observations (person-months)	377,005	377,005	377,005	377,005	273,719

Notes: Estimates are presented as odds ratios. *Z* statistics are given in parentheses. Months of the year included in all models, but results not shown here.

[a] Reference category is married and living with spouse.

[b] Reference category is Brahmin-Chhetri.

† $p < .10$

* $p < .05$

** $p <. 01$

*** $p <; .001$ (two-tailed tests for ceasefires; one-tailed tests for all other measures)

Table 4

Logistic regression estimates, predicting first marriage following violent and political events

	Model 6	Model 7	Model 8	Model 9	Model 10
Conflict Events					
Gun battles		1.29***			1.27***
(no. per month)		(3.77)			(3.64)
Political events			1.28***		1.22**
(no. per month)			(3.24)		(2.46)
Ceasefires				0.43***	0.46***
				(5.43)	(4.84)
Controls: Individual Characteristics					
Age	1.13***	1.13***	1.13***	1.13***	1.13***
	(6.61)	(6.61)	(6.59)	(6.58)	(6.56)
Gender (female)	2.01***	2.01***	2.01***	2.00***	2.00***
	(8.06)	(8.06)	(8.02)	(8.02)	(7.99)
Education	1.02	1.02^	1.02	1.02	1.02
	(1.03)	(1.00)	(0.99)	(1.01)	(0.99)
Community services	0.98	0.98	0.98	0.98	0.98
	(0.42)	(0.42)	(0.43)	(0.42)	(0.42)
Ethnicity[a]					
Dalit	1.12	1.12	1.12	1.12	1.12
	(0.64)	(0.64)	(0.64)	(0.64)	(0.64)
Hill indigenous	1.24†	1.24†	1.24†	1.24†	1.24†
	(1.43)	(1.43)	(1.43)	(1.42)	(1.42)
Terai indigenous	0.94	0.94	0.94	0.94	0.94
	(0.35)	(0.36)	(0.35)	(0.34)	(0.35)
Newar	0.78†	0.78†	0.78†	0.78†	0.78†
	(1.33)	(1.33)	(1.32)	(1.30)	(1.30)
Parental Characteristics					
Education	0.94***	0.94***	0.94***	0.94***	0.94***

	Model 6	Model 7	Model 8	Model 9	Model 10
	(4.93)	(4.92)	(4.93)	(4.90)	(4.89)
Age at marriage	1.00	1.00	1.00	1.00	1.00
	(0.06)	(0.07)	(0.04)	(0.07)	(0.06)
No. of children	1.00	1.00	1.00	1.00	1.00
	(0.10)	(0.09)	(0.12)	(0.10)	(0.11)
Year	1.26***	1.32***	1.22**	1.18***	1.32***
	(3.46)	(4.00)	(2.63)	(4.00)	(3.87)
Year Squared	0.99†	0.98**	0.99	1.18†	0.98**
	(1.43)	(2.33)	(0.95)	(1.59)	(2.16)
Deviance	6,415	6,406	6,408	6,385	6,372
No. of Observations (person-months)	53,701	53,701	53,701	53,701	53,701

Notes: Estimates are presented as odds ratios. *Z* statistics are given in parentheses.

[a] Reference category is Brahmin-Chhetri.

† $p < .10$

* $p <. 05$

** $p < .01$

*** $p < .001$ (one-tailed tests for all measures)

Table 5

Logistic regression estimates predicting first use of any contraception following violent and political events

	Model 11	Model 12	Model 13	Model 14	Model 15
Conflict Events					
Gun battles			1.22*		1.27**
(no. per month)		(2.18)			(2.57)
Political events			1.45***		1.46***
(no. per month)			(4.59)		(4.66)
Ceasefires				0.84	0.99
				(1.14)	(0.05)
Controls: Individual Characteristics					
Age	0.96***	0.96***	0.96***	0.96***	0.96***
	(5.49)	(5.49)	(5.52)	(5.49)	(5.52)
Gender (female)	0.90	0.90	0.90	0.90	0.90
	(1.24)	(1.25)	(1.24)	(1.25)	(1.24)
Education	1.03**	1.03**	1.03**	1.03**	1.03**
	(2.42)	(2.43)	(2.42)	(2.42)	(2.42)
Community services	0.94	0.94	0.94	0.94	0.94
	(1.25)	(1.25)	(1.24)	(1.25)	(1.24)
Wage work experience	1.01	1.01	1.01	1.01	1.01
	(0.15)	(0.15)	(0.13)	(0.15)	(0.13)
No. of children ever born	1.20***	1.20***	1.19***	1.20***	1.20***
	(6.70)	(6.71)	(6.73)	(6.70)	(6.74)
Ethnicity[a]					
Dalit	1.14	1.14	1.14	1.14	1.14
	(0.84)	(0.83)	(0.86)	(0.84)	(0.86)
Hill indigenous	1.11	1.11	1.11	1.11	1.11
	(0.71)	(0.71)	(0.72)	(0.71)	(0.72)
Terai indigenous	0.87	0.87	0.87	0.87	0.87
	(0.96)	(0.96)	(0.94)	(0.96)	(0.94)
Newar	0.91	0.91	0.91	0.91	0.91

	Model 11	Model 12	Model 13	Model 14	Model 15
	(0.44)	(0.44)	(0.43)	(0.44)	(0.44)
Year	1.07	1.10†	0.93	1.08	1.05
	(1.05)	(1.46)	(0.19)	(1.15)	(0.69)
Year Squared	0.99*	0.98*	0.93†	0.99*	0.98*
	(1.79)	(2.32)	(1.43)	(1.77)	(2.10)
Deviance	7,201	7,197	7,183	7,200	7,177
No. of Observations (person-months)	56,635	56,635	56,635	56,635	56,635

Notes: Estimates are presented as odds ratios. *Z* statistics are given in parentheses.

[a]Reference category is Brahmin-Chhetri.

† $p < .10$

* $p < .05$

** $p < .01$

*** $p < .001$ (one-tailed tests for all measures)