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Spatial–Horizontal Inequality and the Maoist Insurgency in Nepal

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Abstract

The Maoist insurgency in Nepal is one of the highest intensity internal conflicts in recent times. Investigation into the causes of the conflict would suggest that grievance rather than greed is the main motivating force. The concept of horizontal or intergroup inequality, with both an ethnic and caste dimension, is highly relevant in explaining the Nepalese civil war. There is also a spatial aspect to the conflict, which is most intense in the most disadvantaged areas in terms of human development indicators and land holdings. Using the intensity of conflict (fatalities) as the dependent variable and HDI indicators and landlessness as explanatory variables, the authors find that the intensity of conflict across the districts of Nepal is significantly explained by the degree of inequalities.

1. Introduction

The landlocked Himalayan kingdom of Nepal is in the grips of a Maoist insurgency. Nepal is a low-income developing country; it also ranked 129th out of 162 countries in the composite human development index (HDI) in 2001, making it a low human development nation (UNDP, 2001). Nepal is also a new democracy; prior to 1991 it was an absolute monarchy. Nepal is composed of 75 districts across five geographical areas: eastern, central, western, mid-western and far-western. Each of these areas is divided into three ecological zones: mountain, hill, and plain (Tarai).

The Maoist insurgency in Nepal began in 1996.[1] Judging by the number of casualties, it is one of the highest intensity internal conflicts in the world at present. By November 2001 the Nepalese conflict entered into a new and more intense phase. Prior to the period of the first peace talks (July–November 2001) the total number of casualties numbered 1593 in the "People's War" or first phase of the present conflict between 13 February 1996 to 26 July 2001; see Gautam (2001). This means that it was a medium intensity conflict, with engagements taking place mainly between the police and Maoists. After the failure of peace negotiations it has assumed the character of a high-intensity conflict involving the Royal Nepalese Army (RNA). See Wallensteen and Sollenberg (2000) for the definition of conflict intensity.[2] In Nepal there were 2046 conflict-related deaths between 23 November 2001 and 3 April 2002. This death toll continued to mount in 2002. The civil war has also led to widespread human rights abuses (Amnesty International, 2002), including the murder, rape, and torture of civilians by the RNA, extortion, and the use of civilians as human shields by the Maoists.

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It is the contention of this paper that intergroup inequality and landlessness play a central part in motivating and sustaining the conflict in Nepal. The concept of horizontal or intergroup inequality, which is highly relevant in explaining the Nepalese civil war, has both an ethnic and caste dimension. Additionally, there is also a spatial aspect to the conflict, which is most intense in the mid- and far-western regions, which are economically the most disadvantaged in terms of human development indicators and asset (land) holdings. This conclusion is based upon econometric analysis using district-wide data on human development indicators (UNDP, 1998) for 1996, the year the conflict commenced, district-wide data on landlessness as well as geographical characteristics, alongside figures for fatalities in all of the districts of Nepal. Using the intensity of conflict (measured by the number of deaths) as the dependent variable and HDI indicators and landlessness as explanatory variables, we find that the intensity of conflict across the districts of Nepal is significantly explained by inequality indicators.

Section 2 looks at horizontal inequality and other explanations for contemporary civil wars. Section 3 moves on to apply these ideas to the specificities of the Nepalese case. Section 4 outlines the econometric results, and finally section 5 concludes with policy implications.

2. The Causes of Civil War

Greed versus Grievance

In recent years, economists have started paying more attention to internal conflict, motivated by the pressing need to understand continued development failure. This literature makes a distinction between *grievance*, based on a sense of injustice due to the way in which a social group is treated, often with a strong historical dimension; and *greed*, an acquisitive desire similar to crime, often on a much larger scale. According to the proponents of the greed theories of civil war, "greed" is disguised as political grievance. See Berdal and Malone (2000) and Collier and Hoeffler (2001) for examples of these types of arguments. By contrast, the alternative set of explanations emphasizes grievances, particularly discrimination against well-defined groups based on ethnicity or religion. The inequality that arises from this process is described as *horizontal* inequality (Stewart, 2000), which should be distinguished from vertical inequality across a relatively homogenous community. Discussion of greed as a motive for conflict has mainly arisen in the context of mineral resource endowments, an abundance of which appears to increase the risk of a country falling into serious conflict. Greed might drive civil war, but it is mainly in the context of capturable resource rents, such as oil, diamonds, or drugs. Addison et al. (2002) argued that it is not only resource rents that cause conflict; grievances also play their part in fuelling conflict, as does *poverty*. In practice, greed and grievance are inextricably intertwined.

Most contemporary civil wars in developing countries have an ethnic dimension, in the sense of well-defined and ethnically distinct groups fighting one another. One reason is that ethnicity resolves the collective action problem of mobilizing groups to fight one another. Ethnicity, whether based on religion, language, or some other form, is a powerful organizing principle, far superior to social class. It overcomes the collective action problem (Olson, 1965), whereby groups are unable to cooperate due to mutual suspicions. Well-defined grievances, however, are required for ethnically based conflict. That is why horizontal inequality can be so important. Some of the causes of this type of inequality may be historical, others are a product of discrimination and

policy failures. Of course, collective action based on ethnicity requires conflict entrepreneurs or warlords to do the organising (Gates, 2001). Some of the salient aspects of horizontal inequality are briefly described below.

- *Asset inequality*. Land inequality and the dispossession of peasant communities provide fertile ground for insurrection particularly when the dispossessed belong to separate and distinct groups drawn along caste, ethnic, or religious lines.
- *Unequal access to public employment*. Discrimination in the allocation of public employment is particularly resented in societies where it represents the principal avenue for personal advance.
- *Unequal access to public services, and over-taxation*. The over-taxation of smallholders encourages insurrection, and indigenous peoples often face discrimination in access to schooling, healthcare, and public-sector jobs.
- *Economic mismanagement*. The risk of civil war is greater in low-income developing countries where poverty and poor human development indicators abound in the context of low growth rates. The lack of normal economic occupation among young males has been found to significantly contribute to the risk of civil war (Collier and Hoeffler, 2001).

The Social Contract and Institutions of Conflict Management

The catalogue of reasons outlined above pertains to the *risk* of war. For large-scale violence to break out other factors must be present. Not all societies with characteristics contributing to the risk of conflict, even those highly at risk, descend into open warfare. For that to occur there has to be a failure of the institutions of conflict management and a degeneration of the systems of redistribution. This is what Addison and Murshed (2001) and Murshed (2002a) refer to as the "social contract." Such a viable social contract can be sufficient to curb excessive opportunistic behaviour and the violent expression of grievance. Conflict-affected nations typically have histories of weak social contracts, or a once-strong social contract that has degenerated.

What causes poor institutions to emerge? Several theories abound—see Murshed (2002b) for a survey of the endogenous political economy literature. In certain cases an extractive and predatory pattern of production is set up. This prevents superior institutions, especially related to property rights and the rule of law, from taking root. An extractive or predatory form of production is not exclusively related to plantations and mines, but can also be associated with agricultural feudalism, and the tax farming associated with it. As the extractive state is expropriatory and predatory, poor institutions emerge and become entrenched over time. Such societies also tend to depress the middle-class share of income in favor of elites. These elites use their power, identical with the forces of the state, to coerce and extract rents (Bourguignon and Verdier, 2000). The important point made by Easterly (2001) is that small elite-based societies do not have a stake in the long-term development of the land. Unlike in middle-class dominated societies, publicly financed human capital formation and infrastructure is less, depressing growth prospects and increasing the risk of conflict.

Are democratic societies less prone to descend into violent conflict? Hegre et al. (2001) have demonstrated a U-shaped relation between democratic institutions and the incidence of civil war over time. The probability of civil conflict is lowest both in established, well-functioning democracies, and perfect autocracies. It is at some intermediate or transitory stage between autocracy and democracy that the risk of internal conflict is greatest. This suggests that state failure is more likely in between autocracy

and well-functioning democracy. In this connection it should be pointed out that until fairly recently (1991) Nepal was an autocracy; the transition to democracy is still at an early stage, increasing the risk of conflict. Indeed, Hegre et al. (2001) find that political transition is a primary factor in increasing the risk of civil war. Moreover, Nepal has reverted to being an autocracy, given the personal rule of the monarch; see Gates and Strand (2004), who statistically demonstrate that the risk of new democracies collapsing are in the early years of democracy.

The duration of conflict is clearly related to the financing of the war effort, especially but not exclusively for the rebels (Addison et al., 2001). The work of Buhaug and Gates (2002) suggests that, in general, civil wars and conflict in the context of a mountainous region or where the conflict zone abuts an international frontier are increased in duration and intensity. Generally speaking, the longer a conflict persists the greater the price of peace in terms of the concessions that need to be made. The work of Walter (2001) across a cross-section of countries demonstrates that it takes several attempts at peacemaking, and many failed peace agreements, before lasting peace emerges. This suggests an imperfect commitment to peace at various stages by the belligerent parties to civil war and insurrection. Addison and Murshed (2002) point out this may be because of an impatience to consume rents that arise in the context of war and the war economy.

3. Horizontal Inequality and Institutional Failure in Nepal

The cultural context of the Nepalese conflict is analyzed in detail in Bista (1991). The overlap between caste and ethnicity in explaining horizontal inequality in Nepal occurs because people from the less-privileged castes (the non-Bahun–Chetri–Newari peoples)[3] are often also from different ethnic groups to the elite. Since the civil war in Nepal has a Maoist ideological orientation, it also brings in an element of class struggle, and is an extension of political struggles against elite (Bahun–Chetri–Newari) domination of political and economic life. There is little in the sense of capturable natural resources in Nepal to point to "greed" as a motivating factor in the onset of Nepal's conflict, unlike in much of Africa. The circumstances here point to grievance as the major catalyst for conflict, at least on the Maoist side, although greed-related motivation could emerge if the war persists.

Horizontal Inequality in Nepal

Data pertaining to the human development index are presented in Tables 1 and 2. Table 1 refers to the period 1999/2000 (the latest available data), and Table 2 reports statistics for 1996, when much more detailed information at the district level was available. District-level indicators are unavailable for 1999/2000.

Nepal made progress in terms of the human development index between 1996 and 2000, with the national HDI rising from 0.325 to 0.466. The HDI is an equal-weighted sum of income per capita, educational attainment, and longevity. The improvement in Nepal was mainly a result of a rise in the adult literacy rates. The poverty head count according to the national standard of Nepali Rs 4404 per annum was about 42% (42% of the population live below the national poverty line). The Gini coefficient measure of inequality for Nepal as a whole is 35 (UNDP, 2001).[4]

If we look at the purchasing power parity (PPP) GDP per capita or income per head across the regions, we find that it had worsened for the far-western and mid-western regions between 1996 and 1999. Thus, these regions, which constitute the starting point

Table 1. Human Development Indicators for Nepal, 1999/2000

	PPP GDP per capita	*Gap*	*HDI*	*Gap*	*Life expectancy*	*Gap*	*Adult literacy*	*Gap*
Nepal	1237		0.466		59.5		50.7	
Rural	1094	88%	0.446	96%	58.7	99%	48	95%
Urban	2133	172%	0.616	132%	71.1	119%	69	136%
Ecological zone:								
Mountains	898	73%	0.378	81%	49.8	84%	44.5	88%
Hill	1262	102%	0.51	109%	65.1	109%	55.5	109%
Tarai	1267	102%	0.474	102%	62.4	105%	46.8	92%
Development zone:								
Eastern	1073	87%	0.484	104%	62	104%	56.6	112%
Central	1713		0.493	106%	61.3	103%	49.8	98%
Western	1022	83%	0.479	103%	62.8	106%	51.67	102%
Mid-western	861	70%	0.402	86%	53.2	89%	47.8	94%
Far-western	899	73%	0.385	83%	52.1	88%	43	85%

Note: *Gap* refers to a percentage difference from the corresponding figure for Nepal.
Source: UNDP (2001).

of contemporary Maoist armed struggle in Nepal, have not benefited from recent growth in the rest of the economy—*prima facie* evidence of *worsening* horizontal inequality. The picture is even more startling when we examine district-wide data for 1996, the year in which the current people's war commenced (sourced from UNDP, 1998). Mid-western districts such as Rolpa, Jajarkot, and Salyan had 25, 19, and 17%, respectively, of the average income in Kathmandu. In the far-western district of Achham, the average income was only 24% of Kathmandu in 1996. Accompanying the per capita income differentials are wide gaps in HDI indices. For example, the HDIs for Rolpa, Jajarkot, and Salyan were only 45, 44, and 35%, respectively, of the Kathmandu level in 1996. In Achham, the HDI for 1996 was only 39% of Kathmandu. All of these indicators evidence extreme inequality *vis-à-vis* the capital in parts of Nepal that can be described as the major flashpoints of the Maoist insurgency.

We can attempt to calculate pseudo-Gini coefficients for spatial inequality based on the information in Tables 1 and 2. Several caveats are in order here. First, the five geographical regions of Nepal do not correspond to income-group quintiles, each with an equal (20%) of the population. Secondly, and more importantly, the figures correspond to highly aggregated data. This conceals a great deal of within-group inequality. The range of variation in income between the richest and poorest region (at about double in 1999/2000) is considerably smaller than one expects in a society where the Gini is about 35 across income groups based on household expenditure surveys. Nevertheless, they do provide some information, bearing in mind that they are considerably smaller than normal Gini coefficients. In fact, one would expect lower Gini indices associated with horizontal inequality, as long as low- and high-income groups exist in all regions and communities.

The spatial Gini coefficient based upon regional per capita income did, however, worsen from 9 in 1996 to 13 in 1999/2000. The Gini for the overall HDI remained at 5 during this period, as did the Gini for adult literacy. The life-expectancy Gini rose from 3 to 4 during the same time.

Table 2. Human Development Indicators for Nepal, 1996

	PPP GDP per capita	*Gap*	*HDI*	*Gap*	*Life expectancy*	*Gap*	*Adult literacy*	*Gap*
Nepal	1186		0.325		55		36.72	
Eastern	1148	97%	0.339	104%	55.4	101%	41.9	114%
Mountain	1033	87%	0.342	105%	58.9	107%	38.4	105%
Hill	892	75%	0.368	113%	64.2	117%	40.2	109%
Tarai	1326	112%	0.378	116%	59.8	109%	43.2	118%
Central	1442	122%	0.339	104%	55.7	101%	35.1	96%
Mountain	1099	93%	0.269	83%	53.1	97%	22.2	60%
Hill	1871	158%	0.441	136%	64.7	118%	45	123%
Tarai	1185	100%	0.31	95%	56.2	102%	29.1	79%
Western	1082	91%	0.35	108%	59.3	108%	39.5	108%
Mountain	1075	91%	0.313	96%	52.7	96%	39.5	108%
Hill	1235	104%	0.351	108%	57.2	104%	41	112%
Tarai	867	73%	0.349	107%	62.5	114%	37	101%
Mid-western	933	79%	0.276	85%	51.2	93%	32.2	88%
Mountain	770	65%	0.241	74%	52.7	96%	19.6	53%
Hill	961	81%	0.311	96%	56.8	103%	33.2	90%
Tarai	943	80%	0.307	94%	55.7	101%	33.9	92%
Far-western	916	77%	0.286	88%	52.1	95%	34.6	94%
Mountain	648	55%	0.261	80%	52.7	96%	29.6	81%
Hill	909	77%	0.26	80%	48.9	89%	31.5	86%
Tarai	1061	89%	0.327	101%	55.9	102%	39.5	108%

Note: Gap refers to a percentage difference from the corresponding figure for Nepal.
Source: UNDP (1998).

So far we have focused on the spatial dimensions of horizontal inequality in Nepal. We now move on to ethnic or caste aspects. Table 3 presents inequality across caste lines, another and perhaps more powerful form of horizontal inequality. The upper castes (Bahun–Chetri–Newar) constitute only 37.1% of the population according to the 1991 census, yet their human development indicators can be about 50% greater than the hill ethnic, Tarai ethnic, and occupational caste groups. Income per capita amongst the disadvantaged hill ethnic groups is about 55% of Newaris.

The caste/ethnic level pseudo-Gini coefficients are subject to the same caveats as mentioned earlier. We have data pertaining only to 1996. The pseudo-Gini based on caste at 14 is greater than the spatial pseudo-Gini for that year (9). This suggests the caste dimension to horizontal inequality exceeds its spatial counterpart. The pseudo-Ginis for HDI (13), life expectancy (5), and adult literacy (20) are also more unequal than the corresponding spatial measures at 5, 3, and 5, respectively. It seems that educational inequality is the worst of all.

Table 4 presents the breakdown of the composition of the central civil service by caste. Not surprisingly the upper castes dominate, and their representation is vastly in excess of their population share. It shows that, at least in the upper echelons (Secretary and Joint Secretary), Bahun–Chetri–Newar domination in 2000 is even more

Table 3. Caste Differences in 1996

	PPP GDP per capita	*Gap*	*HDI*	*Gap*	*Life expectancy*	*Gap*	*Adult literacy*	*Gap*
Nepal	1186		0.325		55		36.72	
Bahun	1533	129%	0.441	136%	60.8	111%	58	158%
Chetri	1197	101%	0.348	107%	56.3	102%	42	114%
Newar	1848	156%	0.457	141%	62.2	113%	54.8	149%
Limbu	1021	86%	0.299	92%	53	96%	35.2	96%
Muslim	979	83%	0.239	74%	48.7	89%	22.1	60%
Ahir	1068	90%	0.313	96%	58.4	106%	27.5	75%
Occupational castes	764	64%	0.239	74%	50.3	91%	23.8	65%
Other	1130	95%	0.295	91%	54.4	99%	27.6	75%

Source: UNDP (1998).

Table 4. Central Civil Service by Caste, 1989 (percentages)

	Section Officer	*Assistant Secretary*	*Deputy Secretary*	*Joint Secretary*	*Additional Secretary*	*Secretary*
Bahun	62.1	54.5	45.6	54.9	46.2	31.3
Chetri	9.5	11.2	13.4	17.1	15.4	31.3
Newar	21	26.6	29.9	22.5	34.6	25
Hill ethnics	2	0.9	2.1		3.1	
Tarai ethnics	4.2	5.2	7.9	5.4		9.4
Muslim	0.3	0.3				
Others	0.8	1.3	0.9			
In the year 2000						
Bahun and Chetri				73.4		74.3
Newar				22.3		17.9
Others				4.3		7.8

Sources: Gurung (1998) and Enabling State Programme (ESP) (2001, p. 184).

entrenched in the post-democracy era, compared to 1989 when Nepal was under the direct rule of the monarch. According to Gurung (1998, p. 121), in 1992 about 87% of all graduates came from the higher castes. The lack of employment opportunities of ethnic peoples at the level of the central civil service, combined with landlessness and the debt trap, greatly reduces their opportunities for peaceful employment, making the alternative, armed rebellion, a less unattractive option (Grossman, 1991).

Table 5 presents the pattern of landholding in Nepal based on official figures. It shows that, following land reform and land ceiling acts, the percentage of large holdings (greater than 4 hectares) has declined, as has the area covered by large holdings. But the percentage of medium-sized holdings (1–4 hectares) shows an upward trend, at least in terms of the area covered by such holdings. It also suggests that there is a

Table 5. Landholding in Nepal (percentages)

	1961		*1971*		*1981*		*1991*	
	Households	*Area*	*Households*	*Area*	*Households*	*Area*	*Households*	*Area*
Landless	1.43	0	0.8	0	0.37	0	1.17	0
<1 hectare	73.89	24.03	76.77	27.2	66.32	17.33	68.63	30.5
1–4 hectares	19.56	35.68	18.39	39.29	28.05	46.13	27.68	50.8
>4 hectares	5.13	41.42	4.03	33.74	5.35	36.54	2.51	18.7

Source: Karki (2001, p. 127).

great deal of avoidance of land ceiling legislation by parcelling off ownership to relatives. The area covered by smallholdings appeared to be on the rise during the 1980s. The 2001 census states that about 1.2 million households, around a quarter of total Nepalese households, are landless. It is not landlessness per se that is the problem, but rather corrupt practices associated with land redistribution and the even more invidious debt-trap nexus that lie at the heart of rural grievance so central to the Maoist uprising. These are considered in the next subsection.

Institutional Failure in Nepal

The bonded labor (Kamaiya) system This practice is widespread in the Tarai and midwestern regions of Nepal, and has its historical antecedents in a system of compulsory unpaid labor services, which all classes except the exempt Bahuns and Chetris had to render. The modern Kamaiya system is related to the debt nexus (*saunki*), which forces the indebted to render labor services in lieu of debt servicing. In principle, there is a voluntary contract, but in practice the renewal of the contract is based on compulsion, and occasionally the falsification of debt outstanding (Karki, 2001, ch. 4). The movement against this system began in the 1950s. But importantly this campaign has intensified, especially within the Kamaiya community with Maoist support, after the restoration of democracy in 1991. The failure to deal with this problem is evidenced by the fact that it was officially abolished only on 17th July 2000. Land given to the Kamaiyas under official land redistribution systems has eventually ended back in the hands of the erstwhile landlords, with the Kamaiyas once again falling into debt owing to their inability to generate enough income.

Landlessness (Sukumbasi) Along with the Kamaiya system, landlessness and the unfair practices connected with it are at the center of rural unrest fanning the Maoist insurgency. Central to the Maoist movement is the destruction of (sometimes false) mortgage and debt documents. Various attempts at land reform since the 1960s motivated by donor (American) pressure to contain the spread of communism in Asia failed to successfully redistribute land amongst the landless (Karki, 2001). Redistributed land ended up in the hands of the nonpoor, and as long as the debt nexus was not modified, the burden of debt servicing rendered the recent landless, landless once again.

The extractive state The Nepalese state since the Rana period (1846–1950) has been extractive in the sense of exacting excess rents from the peasantry and smallholders.

The landlord was a tax farmer. The effect is the development of poor institutions as discussed above. The state is akin to a roving bandit, and not a stationary bandit with an encompassing interest in the land (Olson, 1996). It also lacked the farsightedness (or a sufficient fear of communism) of the leadership in northeast Asia (South Korea and Taiwan) who redistributed land, which proved central to their future development. In Nepal, on balance, the state has chosen to suppress rather than placate or remedy grievances, particularly rural demands. Nepal's imperfect democracy since 1991 raised expectations but failed to deliver, and the state is seen to be ineffectual and corrupt. In many ways, corrupt and rent-seeking politicians have replaced the former feudal tax farmer.

4. Empirical Results

Hypotheses

Our central hypothesis is that violent civil conflict, specifically its intensity, is caused by asset and (horizontal) income inequality. Landlessness serves as a proxy for the former, while HDI (the human development indicator) is a proxy for the latter. We further hypothesize that natural resource rents are absent. Moreover, we posit that criminality and loot are not currently an issue in the Nepalese conflict.

Data

To evaluate civil violence we examine the number of people *killed* in each of the 75 districts of Nepal, which is analyzed with respect to a common set of independent variables. The data for the dependent variable are based on Gautam (2001). Some Maoist fighters may travel to the conflict zones, but nevertheless areas where the fighting is most intense reflects local conditions and a degree of regional support, as many of the guerrillas reside there. The common independent variables are also based at the district level and include: *life expectancy* (measured in years), *years of schooling, human development index, landlessness* (the proportion in a district that hold no land), *road density* (a measure of the concentration of paved roads), *a natural resource index*, *extent of mountainous terrain* (percentage of area sloping by more than 30 degrees), and as means of controlling for a curvilinear effect, the *mountainous area squared*. As we are particularly interested in the extent of horizontal inequality, several of these variables are transformed with respect to the gap between Kathmandu and each district. We rely on five such variables to test our hypothesis: *life expectancy gap*, *schooling gap*, *HDI gap*, *landlessness*, *and the road density gap.* The natural resource index and mountainous area parameters control for geographical factors. All independent variables pertain to the initial period of conflict onset. These data come from the UNDP (1998) and pertain to 1996, the year the conflict began. The summary statistics for these data are presented in Table 6. The count is a cumulative value of the number killed.

Method and Results

To examine the data on specific counts of incidents of civil violence, we utilize a Poisson regression analysis. The Poisson distribution is especially appropriate when dealing with small numbers of events. The Poisson distribution describes the probability that an event occurs λ times given that each occurrence is independent and has a constant probability.[5] The shape of the Poisson distribution depends on the value of its mean

Table 6. Summary Statistics of Dependent and Independent Variables

Variable	*Observations*	*Mean*	*Standard deviation*	*Min*	*Max*
Killed	74	50.126	94.4729	0	521
Life expectancy	74	55.647	6.1491	36	66.5
Life expectancy gap	74	–11.353	6.1491	–31	–0.5
Schooling	74	2.024	0.7038	0.813	4.385
Schooling gap	74	–3.330	0.7038	–4.541	–0.969
HDI	74	0.3170	0.0656	0.147	0.523
HDI gap	74	0.526	0.1089	0.244	0.867
Road density	74	0.0567	0.1047	0	0.785
Road density gap	74	0.060	0.1120	0	0.837
Landlessness	74	0.389	0.1410	0.176	0.847
Landlessness gap	74	0.129	0.141	–0.083	0.587
Natural resource index	74	0.38	21.795	1	75
Mountainous area	74	0.515	0.257	0	0.93
Mountainous area squared	74	0.335	0.2451	0	0.859

(which is equal to its variance). If the mean is close to zero, then the distribution is skewed; if the mean is larger, the peak moves further from the vertical axis. (If the mean is very large, the Poisson distribution can be approximated with the normal distribution.) Figure 1 portrays the distribution of the dependent variables. This distribution is clearly skewed, demonstrating the appropriateness of Poisson regression analysis.

The Poisson distribution for Y_i is a function of λ, the mean probability of an event occurring in a fixed period:[6]

$$\Pr(\mathrm{Y_i} = \text{event of violent civil conflict}) = f(y_i) = \frac{\exp(-\lambda_i)\lambda_i^y}{Y_i!}.$$

We reparameterize λ in terms of some set of explanatory variables, x_i, and coefficients b. Because λ must be positive, we choose exponentiation as the link function; i.e. $\lambda = \exp(x_i b)$. These procedures are standard. The results of this analysis are presented in Table 7.

Poisson regressions (with a linear link as we use here) are somewhat unique for maximum-likelihood estimates in that the coefficient estimates can be interpreted in a way similar to OLS coefficients. We have also reported the marginal effect of the explanatory variables, $\partial\mu/\partial X_i$;[7] that is, the rate of change of the mean value (number killed) with respect to an independent variable.

All independent variables except the mountain resources interactive variable are statistically significant with p-values well below the standard 0.05 criteria. (The p-values were estimated using White robust standard errors.) The life-expectancy gap between a district and Kathmandu, the schooling gap, the road density gap, and the natural resource index are all negatively associated with deaths due to armed civil conflict. By increasing life expectancy and education (or more particularly, by decreasing the gap with Kathmandu), a district would see the number of deaths drop. Schooling has a strongly negative substantive effect. An increase in the average level of schooling by one year in a district is associated with a corresponding drop in casualties of approximately 29. Similarly, an increase in road density of 10% is associated with a reduction in the number killed by nearly 49. Factors that can improve the life of the

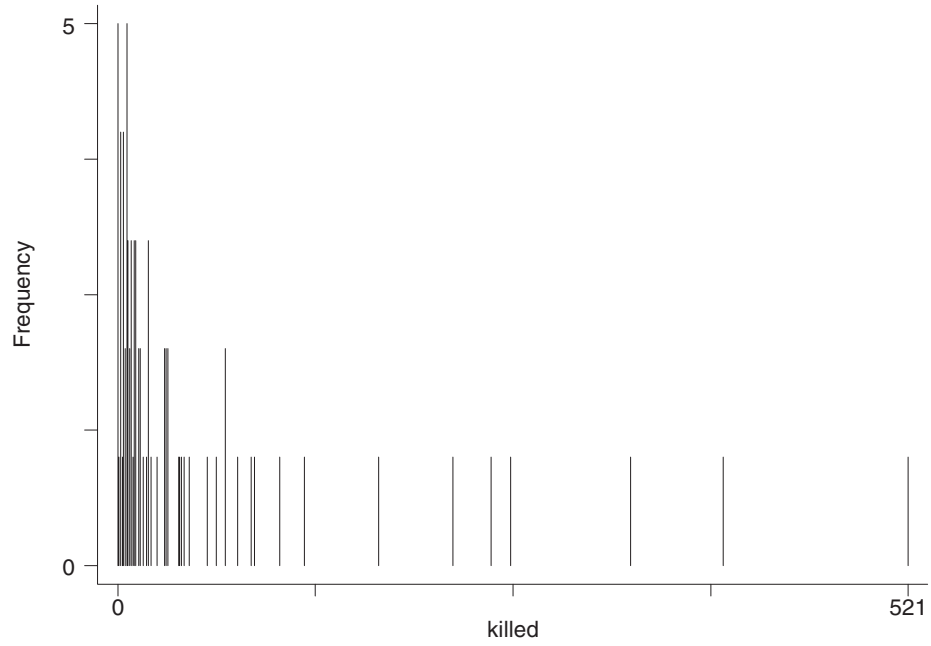

Figure 1. Distribution of Number Killed in Civil Violence

Table 7. Poisson Regression Analysis of Number Killed by Civil Violence

Independent variable	*Coef.*	*Robust SE*	*P > |z|*	*Marginal effect*
Life expectancy gap	–0.1905	0.08393	0.012	–3.6494
Schooling gap	–1.505	0.59489	0.005	–28.838
HDI gap (%)	16.6702	7.19407	0.010	31.942
Landless gap	1.88209	1.01157	0.032	3.606
Road density gap (%)	–25.47	6.48825	0.000	–48.805
Natural resource index	–0.0215	0.01053	0.021	–0.412
Mountain area (%)	4.4713	3.37231	0.092	
Mountain area (%) squared	–6.5367	3.4469	0.029	
Constant	–11.034	6.44902	0.044	

No. of observations = 74 (districts)
Wald χ^2 (8) = 81.12
Probability >χ^2 = 0.0000
Log-likelihood = –1929.3594
Pseudo R^2 = 0.5069

Note: The dependent variable is an event—a count of the number of people killed in each district of Nepal. The *p*-values are for one-tailed tests.

citizenry can lead to a marked reduction in the predicted degree of violence in a district.

Other indicators of horizontal inequality (measured in terms of the gap between a district and Kathmandu) play a notably strong role in increasing the propensity for

increased civil conflict. The gap in the human development index and landlessness both possess strong coefficient values. The effect of increasing the HDI gap is especially strong. We find the greater the degree of inequality in a district relative to Kathmandu, the greater the intensity of conflict. These results lend strong support to our central hypothesis. An increase in the gap in inequality between a district of 10% is associated with an increase of 32 killed by political violence on average.

Resource availability is associated with lower level of civil violence. This result tends to contradict the proposition that resource abundance leads to conflict. Indeed, it appears that resource-rich districts are likely to experience fewer deaths due to civil conflict than resource-poor districts, but the substantive effects are modest.

We also examined the effect of geography, and find evidence of a curvilinear pattern evidenced by the statistical significance of the squared term for the portion of mountainous terrain in a district. Our results indicate that the extremely mountainous and the valleys are less prone to violence. The areas in between are most vulnerable.

The results from the Poisson regression analysis prove to be quite robust and significant. In addition to number killed (incidence of civil violence), we also examined the incidence of civil conflict in general (bombings and other forms of property destruction in addition to acts of violence that resulted in deaths). The results were quite similar to those presented here.

5. Conclusions and Policy Implications

As presented in sections 3 and 4 above, horizontal inequalities in Nepal robustly explain the intensity of the Maoist insurgency. Many of these inequalities have worsened in recent years, and group differences based on caste and ethnicity are central to explaining the genesis of the present conflict. The caste dimension to horizontal inequality appears to exceed the spatial dimension. Reducing horizontal inequalities is part and parcel of the strategy of overall poverty reduction. The difference with conflict countries like Nepal is that there needs to be an equal focus on tackling horizontal inequalities in addition to the general strategy of poverty reduction. The twin strategies of poverty and horizontal inequality reduction are *complementary* and do not compete with one another. It has also to be remembered that poverty, the lack of employment opportunities, and other forms of horizontal inequality assist Maoist recruitment and retention, making life in Maoist cadres a relatively attractive option. The key areas of horizontal inequality that need to be addressed include landlessness, the debt burden of the rural poor, as well as greater non-upper-caste access to state-sector jobs.

Donor support and aid can play a pivotal role in reducing conflict intensity. Despite the fact that aid is fungible and money allocated for social sector expenditure can be diverted to military use, aid might prove useful in reducing the intensity of fighting. This is because military expenditure is very resilient in the presence of civil war. Without aid, social-sector expenditure might be even lower than in the presence of aid. The peace party within the state needs to be encouraged, and improvements in matters relating to human rights could be a condition of aid. Development assistance needs to be related to "commitment technologies," actions that promote lesser conflict intensity (Addison and Murshed, 2002).

At a fundamental level there is a tradeoff for the state involving fighting the insurgents or appeasing them. It is, therefore, unfortunate that some donors are encouraging military solutions, providing military aid and tolerating Nepal's slide back to autocracy based on an inapplicable excuse: fighting international terrorism. Outright

military victory for either side is unlikely. A narrow focus on the prosecution of war also serves to distract all concerned from the root causes of the insurgency: intergroup inequality, poverty, and widespread human rights abuses.[8] Military strategies also do not assist the process of the removal and redress of human rights abuses, so central to eliminating the ordinary Maoist guerrilla's intrinsic motivation to fight.

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Notes

1. See Bray et al. (2003) for further details on the origins and time-line of this conflict.
2. Low-intensity armed conflict: at least 25 battle-related deaths per year and fewer than 1000 battle-related deaths during the course of the conflict. Medium-intensity armed conflict: at least 25 battle-related deaths per year and an accumulated total of at least 1000 deaths, but fewer than 1000 deaths per year. High-intensity armed conflict: at least 1000 battle-related deaths per year.
3. In traditional Indian Hinduism there are five castes: Brahmins, Kashtriyas, Vaishyas, Sudras, and outcastes (untouchables or Dalits). The first two correspond to the upper strata of society. In Nepal they are known as Bahun and Chetri, respectively, to which the Newari group is added to form the upper caste group. Ethnic groups in the hills, mountains, and the Tarai constitute the lower castes. Nepal also has its untouchables or Dalit group who are frequently referred to as the "occupational" castes.
4. There is very little variation in the Gini coefficient for different regions. For the eastern region it is 32.1, in the central region it is 35.0, 32.6 for the west, 29.4 for the mid-west and 36.2 in the far-west. This makes the far-western region the most unequal and the mid-west region the most equal, both of which are the most conflict-prone areas of Nepal. But these figures pertain to within-region inequality and not inter-regional inequality.
5. To check this assumption of independence, we also estimated these results using a negative binomial regression and a generalized event count model. We found no evidence of over-dispersion or under-dispersion. Moreover, the results remain robust across estimations.
6. See Gourieroux (1984, p. 702–3) and Lee (1986, p. 690–1).
7. These values were calculated using the statistical package, Clarify (Tomz et al., 2003).
8. Some of the fiercest Maoist guerrillas are women who have been raped by the Nepalese army or security forces. This fact serves to illustrate that people fight not just for material gain (extrinsic motivation), but also out of a sense of injustice (intrinsic motivation).