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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 inter-group 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, we find that the intensity of conflict across the districts of Nepal is significantly explained by the degree of inequalities.

Keywords: Nepal, Maoist insurgency, spatial inequality, horizontal inequality

JEL classification: D30, D74, R11

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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 (see 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 23rd November 2001 and 3rd April 2002. This death toll continued to mount in 2002. The civil war has also led to widespread human rights abuses (see 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.

It is the contention of this paper that inter-group inequality and landlessness play a central part in motivating and sustaining the conflict in Nepal. The concept of horizontal or inter-group 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 of Nepal, 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.

The rest of the paper is organized as follows. 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.

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1 See Bray, Lunde and Murshed (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.

2 The causes of civil war

2.1 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, Le Billon, and Murshed (2002) argue 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 organizing (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 overtaxation:* The overtaxation of smallholders encourages insurrection, and indigenous peoples often face discrimination in access to schooling, health care, 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 amongst young males has been found to significantly contribute to the risk of civil war, Collier and Hoeffler (2001).

2.2 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 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 favour 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, there are less publicly financed human capital formation and infrastructure, 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 recently (1991) Nepal was an autocracy, the transition to democracy is still at an early stage, increasing the risk of conflict in Nepal. 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, Le Billon and Murshed 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 can increase the duration and intensity of the conflict. 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 analysed 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 in Nepal (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 grievances as the major catalyst for conflict, at least on the Maoist side, although greed related motivation could emerge if the war persists.

3.1 Horizontal inequality in Nepal

Data pertaining to the human development index are presented in Table 1, where Table 1A refers to the period 1999-2000 (the latest available data) and Table 1B 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 (HDI) 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 headcount according to the national standard of Nepali Rs. 4404 per annum was about 42 per cent (42 per cent 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]

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[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 untouchable 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 whom are the most conflict prone areas of Nepal. But these figures pertain to within-region inequality and not inter-regional inequality.

Table 1A
Human development indicators for Nepal, 1999-2000

	PPP GDP per capita		HDI		Life expectancy		Adult literacy	
Nepal	1237	GAP, %	0.466	GAP, %	59.5	GAP, %	50.7	GAP, %
Rural	1094	88	0.446	96	58.7	99	48.0	95
Urban	2133	172	0.616	132	71.1	119	69.0	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	62.0	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	43.0	85

Note: Gap refers to a % difference with the corresponding figure for Nepal.
Source: UNDP (2001).

Table 1B
Human development indicators for Nepal, 1996

	PPP GDP per capita		HDI		Life expectancy		Adult literacy	
Nepal	1186	GAP, %	0.325	GAP, %	55	GAP, %	36.72	GAP, %
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	45.0	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	41.0	112
Tarai	867	73	0.349	107	62.5	114	37.0	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 % difference with the corresponding figure for Nepal.
Source: UNDP (1998).

If we look at the purchasing power parity (PPP) GDP per capita or income per head across the regions, we will find that it had worsened for the far-western and mid-western regions between 1996 and 1999 (Table 1A and 1B). Thus, these regions, which constitute the starting point 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 per cent, respectively, of the average income in Kathmandu. In the far-western district of Achham the average income was only 24 per cent of Kathmandu in 1996. Accompanying the per capita income differentials are wide gaps in HDI indices. For example, the HDI for Rolpa, Jajarkot and Salyan were only 45, 44 and 35 per cent, respectively, of the Kathmandu level in 1996. In Achham, the HDI for 1996 was only 39 per cent 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 psuedo-Gini coefficients for spatial inequality based on the information in Tables 1A and 1B. 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 per cent) of the population. Second, 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 Ginis 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
Caste differences, 1996

	PPP GDP per capita		HDI		Life expectancy		Adult literacy	
Nepal	1186	GAP, %	0.325	GAP, %	55.0	GAP, %	36.72	GAP, %
Brahmin	1533	129	0.441	136	60.8	111	58.0	158
Chetri	1197	101	0.348	107	56.3	102	42.0	114
Newar	1848	156	0.457	141	62.2	113	54.8	149
Limbu	1021	86	0.299	92	53.0	96	35.2	96
Muslim	979	83	0.239	74	48.7	89	22.1	60
Rajbansi								
Yadav								
Tharu								
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

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

Table 3
Central civil service by caste (% in 1989)

	Section officer	Assistant secretary	Deputy secretary	Joint secretary	Additional secretary	Secretary
In the year 1989 [1						
Brahmin (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 [2						
Brahmin and Chetri				73.4		74.3
Newar				22.3		17.9
Others				4.3		7.8

Sources: [1 Gurung (1998: 121);
[2 ESP (2001: 184).

So far we have focussed on the spatial dimensions of horizontal inequality in Nepal. We now move on to ethnic or caste aspects. Table 2 presents inequality across caste lines, another and perhaps more powerful form of horizontal inequality. The upper castes (Bahun-Chetri-Newar) constitute only 37.1 per cent of the population according to the 1991 census, yet their human development indicators can be about 50 per cent greater than the hill ethnic, Tarai ethnic and occupational caste groups. Income per-capita amongst the disadvantaged hill ethnic groups is about 55 per cent 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 psuedo-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 educational inequality is the worst of all.

Table 3 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 entrenched in the post-democracy era, compared to 1989 when Nepal was under the direct rule of the monarch. According to Gurung (1998: 121) in 1992 about 87 per cent of all graduates came from the higher castes. The lack of employment opportunities of ethnic peoples at the level of 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 4 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 is the area covered by large holdings. But the

Table 4
Landholding in Nepal (in %)

	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
Less than 1.0 hectare	73.89	24.03	76.77	27.2	66.32	17.33	68.63	30.5
1-4 Hectare(s)	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: Central Bureau of Statistics (cited in Karki 2001: 27).

percentage of medium-sized holdings (1-4 hectares) shows an upward trend, at least in terms of the acreage or area covered by such holdings. It also suggests that there is a great deal of avoidance of land ceiling legislation by parcelling off ownership to relatives. The area covered by small-holdings 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 the 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 sub-section.

3.2 Institutional failure in Nepal

The bonded labour (Kamaiya) system

This practice is widespread in the Tarai and mid-western regions of Nepal, and has its historical antecedents in a system of compulsory unpaid labour 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 labour 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: chapter 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 only officially abolished on 17 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 centre 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

non-poor, 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 far-sightedness (or a sufficient fear of communism) of the leadership in North-East 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

4.1 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 (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.

4.2 Data

To evaluate civil violence, we examine the number of people *killed* in each of the 75 districts of Nepal, which is analysed with respect to a common set of independent

Table 5
Summary statistics of dependent and independent variables

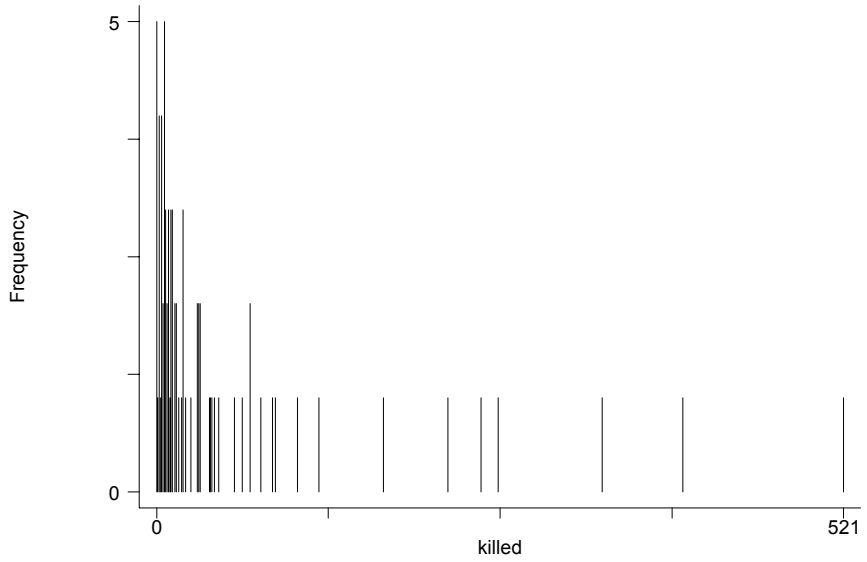
Variable	Obs	Mean	Std. dev.	Min	Max
Killed	74	50.216	94.4729	0.0	521.0
Life expectancy	74	55.647	6.1491	36.0	66.5
Life expectancy gap	74	-11.353	6.1491	-31.0	-0.5
Schooling	74	2.023932	0.7038	0.813	4.385
Schooling gap	74	-3.330	0.7038	-4.541	-0.969
HDI	74	0.3170	0.0656	0.147	0.523
HDI gap percentage	74	0.526	0.1089	0.244	0.867
Road density	74	0.0567	0.1047	0.0	0.785
Road density gap	74	0.060	0.112	0.0	0.837
Landlessness	74	0.389	0.1410	0.176	0.847
Landless gap	74	0.129	0.141	-0.083	0.587
Natural resource index	74	0.38	21.795	1.0	75.0
Mountainous area %	74	0.515	0.257	0.0	0.93
Mtn area squared	74	0.335	0.2451	0.0	0.859

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 reflect local conditions and a degree of regional support, as the 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* (*HDI*), *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* (per cent of area sloping by more than 30 degrees)*,* and as means of controlling for a curvilinear effect, a squaring of the *mountainous area squared*. As we are particularly interested in the extent of horizontal inequality, several of these variables are transformed with respect 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 5. The count is a cumulative value of the number killed.

4.3 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

Figure 1
The distribution of the dependent variables



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.

mean (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.) See Figure 1, which 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]

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

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 6.

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, $\frac{\partial \mu}{\partial X_i}$.[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 per cent is associated with a reduction in the number killed by nearly 49. Factors that can improve the life of the 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 gaps 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

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6 See Gourieroux, Monfort and Trognan (1984: 702-3); Lee (1986: 690-1).

7 These values were calculated using the statistical package, Clarify (Tomz, Wittenberg and King 2003).

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 per cent 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 areas 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. These results are quite similar to those presented here.

Table 6
Poisson regression analysis of number killed by civil violence

Killed	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	
Number of observations	74 districts			
Wald chi2(8)	81.12			
Probility > chi2	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-tail tests.

5 Conclusions and policy implications

As presented in sections 3 and 4, 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 also has 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 (see Addison and Murshed 2002).

At a fundamental level there is a trade-off 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: inter-group 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.

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).

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