Agrarian Change in Maoist influenced areas of Nepal

by

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Abstract: We conduct a statistical analysis of agrarian change in Maoist influenced districts of Nepal. Nepal Living Standards Survey data from 1995, prior to the Maoist insurgency, and 2003, at the height of insurgency, is applied to analyze land distribution and agricultural wages. We find indications that some landlords have collaborated with the Maoists and have been able to accumulate land. In general it appears that households move away from Maoist controlled villages, or split the land in expectation of a stricter land ceiling. We find no Maoist influence on agricultural wages.

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1. Introduction

From 1996 the Communist Party of Nepal-Maoist (CPNM) staged a civil war against what they see as feudalism in Nepal. The Maoists attacked security forces, but also local leaders including teachers and politicians, as well as the traditional feudal landlords. In Maoist controlled villages, the landlords have had the choice between collaboration, or displacement to urban centers. It appears that landlords who stayed back in the villages have accepted more capitalistic modes of payment to the workers, by switching from long term attached labor contracts to daily wage contracts, where also the wage level appears to have increased due to organization of the laborers. Landlords that have moved to urban areas have either sold the land, or they have become absentee landlords and rent out the land at a fixed rent contract. These observations are based on our own fieldwork throughout the war, as well as information from colleagues and regular reading of Nepali newspapers. Still, a proper quantitative analysis of agrarian change in Maoist controlled areas is lacking[1]. We present such an analysis, and thus contribute to the classical debate on whether a political and military revolutionary movement can contribute to the change in basic economic structures and mechanisms. In the Nepali case it appears that the Maoists depended upon local landlords for food, shelter and general economic support, which implies that we shall not necessarily expect more than marginal changes in agrarian relations in Maoist influences areas.

The empirical problem is to separate the effect of Maoist influence from other developments during the conflict period. There has been economic growth in Nepal throughout the war, and poverty has declined, see NLSS (2005). And as part of the development process we shall expect capitalist contracts to replace more feudal agrarian relations. We use a set of strategies to separate these effects. First, we control for initial conditions for the variable in question. Let us say that we study change in agrarian wages,

[1] There are a number of quantitative analyses of determinants of the conflict, see Hatlebakk (2007) and references therein.

then we add the initial wage as a control variable. Second, Maoist control is measured at the district level, while we expect economic development to be similar within a larger, but homogenous, geographical area. We thus add area fixed effects to study the variation in Maoist control within these areas. The larger areas are defined by the five administrative regions of Nepal, which divide the country from east to west, as well as the three ecological zones (mountains, hills and the plains (terai)) that divide the country north-south. We combine the Mid- and Far Western regions and are thus left with 4 east-west regions which are represented by the fixed effects. When it comes to ecological zones there are so large differences in economic and social structures, as well as in the level of Maoist control, that we have decided to run separate analysis for the terai and the hills/mountains to allow for differences in estimated coefficients. This also means that the fixed effects represent even more homogenous geographical areas assuming that Maoist control may explain variation in agrarian change within relatively small geographical areas.

As we include the initial condition for the dependent variables, we only need to add variables that may explain a more rapid *change* in agrarian relations, and not variables that explain the *level* of development. In addition to Maoist control we expect the change in agrarian relations to depend on social norms which in Nepal to a large extent is determined by your ethnic/caste identity. A number of economic and social factors will determine the initial agrarian relations in 1995, but we assume that when we control for the initial level, then these variables have no additional effect on the 2003 agrarian relations. However, we believe that caste specific social norms, and Maoist pressure, may speed up the agrarian change, and thus include these variables in the analyses. Note that Maoist influence may be the result of lack of agrarian development, but as long as we control for the initial level of agrarian development in 1995, we shall not expect Maoist influence categorized prior to 2003 to depend on agrarian development in 2003, and we thus avoid a potential reverse causality.

Section 2 presents the data, including a short presentation of the indicators of Maoist control, which we have discussed in more detail in Hatlebakk (2007). We shall see that the simplest presentation of the data immediately will reveal changes in agrarian relations. We go into detail on the descriptive statistics for Maoist and non-Maoist areas in section 3, where we also report on the multivariate analysis of agrarian change. Section 4 concludes.

2. Data

We have two cross-sectional national representative Living Standards Measurement Surveys, the first from 1995, prior to the war, and from 2003, at the height of the military conflict. In addition, a subset of the 1995 sample was re-interviewed in 2003, and thus constitutes a panel. We will only use the rural sub-samples since the focus is on agrarian relations. In Hatlebakk (2007) we demonstrated that the panel is biased as landless people are more likely to move away from the village, and were thus not found for the second interview. In addition, when we for the present paper compared the 1995 panel sub-sample to the full 1995 sample, we found that the even the original panel sub-sample appears to be non-randomly selected. There were fewer landless in the 1995 panel sub-sample, and significantly larger land-holdings, as compared to the households that were not selected for the panel. Now, for a 95% confidence interval this will happen by coincidence with a probability of 5%, so still the sub-sample may be randomly selected. Independently of the explanation, we thus have a combination of two explanations for the bias in landholdings in the final panel.

In addition, the number of households has increased from 1995 to 2003, so only the 2003 cross section is truly representative for the 2003 rural population. As the panel allows us to study change at the household level, we still report these changes, as they may help us in understanding the findings from the cross-sectional data. When it comes to the cross sectional data we will have to measure change, not at the household level, and due to the fact that the

survey organization did intentionally not sample the same villages in the two rounds, we cannot even measure change at the village level. The level of aggregation will thus be the districts. In the descriptive statistics we still use households as the unit of observation even for the cross-sectional data, but report averages for different categories of households. Table 1 presents the variables.

Table 1. Variables

Dependent variables:	
Change in land-holdings	NLSS
Change in the agricultural daily wage-level	NLSS
Independent variables:	
Alternative measures of Maoist influence:	
People's government announced by the Maoists	Sharma (2003)
Government classification of conflict level	Sharma (2003)
Control variables:	
Initial condition for dependent variable	NLSS
Regional dummies	NLSS
Caste/ethnic composition at district level	NLSS

The first round of NLSS (1996) was a survey of 3373 households from 274 wards (local administrative unit). For the second round of NLSS (2004) 100 of these wards were selected for re-interviews to establish a panel. In addition 334 new wards were selected for a second cross-sectional survey. Out of the 100 wards, one ward did not exist anymore, and four wards could not be visited due to the Maoists. Furthermore, one rural ward in the western terai was reclassified as urban. As our focus is on agrarian change, we only include wards that were classified as rural in 2004, and are thus left with 74 rural wards that were enumerated in both rounds of the survey. Among these, 5 wards in the far-western region had 16 sampled households, while the rest had 12 sampled households, in total 908 households. Among these 908 households, only 784 were identified in the second round, and one of these households did not report land holdings in the first round. So we have information on land holdings for both periods for 783 rural households. See Table 2 for details on landholdings.

Table 2. Landholdings for panel households

	NLSS1-panel	NLSS1-de-facto panel	NLSS2-panel
Landlessness	12.9% (9.8-16.1)	11.5% (8.4-14.6)	13.5% (9.5-17.6)
Median landvalue	74 000	78 000	118 000
Mean landvalue	233 000 (151-315)	249 000 (155-342)	277 000 (220-333)
Median landholding	0.72 bigha	0.75 bigha	0.68 bigha
Mean landholding	1.37 bigha (1.18-1.55)	1.40 bigha (1.19-1.60)	**1.16 bigha** (0.99-1.34)
N	907	783	783
N-bigha	759	657	657

95%-confidence interval in parenthesis
Bold means a significant change

We apply two measures of change in landholdings, that is, the change in landlessness, and the change in land-area. Some households have near zero land, and are in some government statistics considered as landless. But from eyeballing the data, we are not able to identify a natural threshold that may identify some household as marginal, and others as small holders, thus zero land is the ultimate threshold that we will apply.

In the descriptive statistics above we also report land values. Before we calculate the change in land value, we normalize land prizes using the same price-index as in the NLSS (2005) poverty analysis. Also wages are normalized using the price-index. Area is measured in bigha, which equals 270 x 270 sq.feet, or 0.68 ha. This was a slightly less common measure in 1996, as some households reported area in local units, such as sacks of rice produced from the land. For these households we do not report land holdings.

Table 3 reports changes in landholdings as a function of landholdings in 1996. The correlation coefficient between the two variables is – 0.68, which is very high. That is, the more land you had in 1996 the more land did you sell, or loose. We do not know whether the land is sold, or lost. Only sales during the last twelve months are reported. We see that the wealthiest 25% reduced their landholdings with an average amount that is almost equal to the mean land holding in 1996, but still on average they sold/lost only 22% of their landholdings. The poorest 25% have got more land, but not the majority of them, the median change is zero

among the 75% least wealthy. Thus the general trend is that the wealthy households have sold/lost land, and not to the original population, but rather to newly established households, which may even include their own siblings.

Table 3. Change in landholdings for panel households

Landholding 1996	Mean change	Median change
Poorest 25% 0-0.23 bigha	0.22 bigha (0.12 - 0.31)	0 bigha
Middle 50% 0.23-1.65 bigha	0.07 bigha (-0.02 - 0.16)	0 bigha
Wealthiest 25% 1.65-26.5 bigha	- 1.26 bigha (-1.82 - -0.70)	- 0.98 bigha
N=657		

Table 4 presents a transition matrix, which gives an alternative presentation of the same changes.

Table 4. Transition matrix for landholdings

	Landholding 2004			
Landholding 1996	Poorest 25% 0-0.23 bigha	Second 25% 0.23-0.68 bigha	Third 25% 0.68-1.50 bigha	Wealthiest 25% 1.50-23.0 bigha
Poorest 25% 0-0.23 bigha	69.7%	19.7%	6.1%	4.5%
Second 25% 0.23-0.75 bigha	22.2%	47.3%	23.1%	7.4%
Third 25% 0.75-1.65 bigha	7.6%	21.0%	44.0%	27.4%
Wealthiest 25% 1.65-26.5 bigha	5.9%	8.0%	23.2%	62.9%
N=657				

Again we can see that among the 25% poorest the majority are still poor in 2004, which corresponds with the zero change for the median household. But still 30% has moved to a higher rank. Similarly, the majority of the wealthy households is still in the same category, but among them as many as 37% have moved to a lower category, and as we know the median household has here sold or lost land.

The full NLSS1 cross-section have 2657 rural households (with 2215 reporting land holdings in standard units, and 2656 reporting land value), and the NLSS2 cross-section have 2748 rural holdings. Table 5 reproduces Table 2, but with use of the cross-sectional data.

Table 5. Landholdings for the cross-sectional samples

	NLSS1-cross-section	NLSS2-cross-section
Landlessness	14.5% (11.9-17.0)	**17.7%** (15.3-20.0)
Median landvalue	64 000	86 000
Mean landvalue	204 000 (161-248)	223 000 (198-248)
Median landholding	0.61 bigha	0.60 bigha
Mean landholding	1.19 bigha (1.08-1.29)	**0.98 bigha** (0.90-1.06)
N	2656	2748
N-bigha	2215	2748

95%-confidence interval in parenthesis
Bold means a significant change

For NLSS1 the full-panel sample in the first column of Table 2 is a sub-sample of the cross-sectional sample reported in Table 5, and should thus have the same characteristics. However, as already discussed, this is not the case. Although it appears that the sub-sample has larger land-values, this is not a significant difference. However, the land-holdings, as measured in bigha, are significantly higher in the sub-sample. This may be a random coincidence, but the probability of this coincidence is smaller than 5%. The explanation is not that the villages that used old units of measurement are underrepresented, and not that some of the ecological belts are underrepresented. The rural wards are highly overrepresented in the panel data, but again, this should not affect our estimates, as the reported cross-section is also only from the rural data. The most likely (with more than 95% probability) explanation is thus that the panel-wards were de-facto not randomly selected.

Table 5 demonstrates similar findings to the panel, there is a significant decrease in land-holdings, and also an increase in the number of landless. The apparent increase in land-values is not significant. A main underlying explanation for this is the increase in the number

of households, as the census data shows a 28% increase in the number of households every 10 years, while agricultural land is only increase with a few percent during the same 10-year period.

We now turn to the measures of Maoist control, which are essential for our analyses. Table 6 presents the districts classified as Maoist according to two separate indicators. A longer version of the discussion here can be found in Hatlebakk (2008).

Table 6. Maoist-controlled districts according to two indicators

People's government	Government classification
Achham	Achham
	Arghakhanchi
	Baglung
Bajura	
	Bardiya*
Dailekha	Dailekha
	Dang*
Dhading	Dhading
Dolakha	Dolakha
	Dolpa
Gorkha	Gorkha
Gulmi	Gulmi
Jajarkot	Jajarkot
Jumla	Jumla
Kalikot	Kalikot
	Kavrepalanchoc
	Khotang
	Lalitpur
Lamjung	Lamjung
	Makwanpur
Nuwakot	Nuwakot
	Okhaldhunga
Palpa	
Parbat	Parbat
	Pyuthan
Ramechhap	Ramechhap
Rasuwa	
Rolpa	Rolpa
Rukum	Rukum
Salyan	Salyan
Shankuwasabha	
Sindhuli	Sindhuli
Sindhupalchok	Sindhupalchok
	Surkhet
Tanahu	Tanahu
Tehratum	
	Udayapur

*Terai districts

As we can see from Table 6 most Maoist districts are in the hills and mountains. However, our impression is that the Maoists have had even more influence on agrarian relations in terai, as compared to the hills, so we will also analyze the terai districts. As the Maoists did not announce a People's government in terai, this indicator will only be applied in the hill regressions. But, as we have argued in Hatlebakk (2008) it is our impression that the government classification gives the best representation of Maoist control, with Dang and Bardiya of the mid-western region being the two Maoist districts in terai. Dang is actually more of a hilly district than the average terai district, while Bardiya is comparable to the neighboring Banke, Kailali and Kanchanpur districts. As the population size of the far-western region is low, we have combined the mid- and far-western regions when we defined the region fixed effects. This implies that Dang, Bardiya, Banke, Kailali and Kanchanpur will be compared to each other, with Dang and Bardiya being the Maoist controlled districts. The problem is now that there are many other characteristics that vary between these five terai districts. We have mentioned Dang as a more hilly district, and Banke contains the city of Nepalgunj, and in general the two Maoist districts are the most rural of the five. However, note that this will give a downward bias. We expect less change in the most remote areas, so if these Maoist districts actually have changed more than the less remote non-Maoist districts, then we may conclude that the Maoists have had some influence.

3. Findings

The cross-sectional data is supposedly random, in contrast to the panel data as discussed above. We thus start presenting the two cross-sections. Table 7 gives the change in landholdings between the two surveys for the hill districts.

Table 7. Reported landholdings in bigha (weighted estimates), hill districts, cross-sections

	NLSS1, maogov	NLSS1, nonmaogov	NLSS1, maoself	NLSS1, nonmaoself	NLSS2, maogov	NLSS2, nonmaogov	NLSS2, maoself	NLSS2, nonmaoself
landless	4.1%	**9.3%**	4.9%	7.0%	5.2%	**9.7%**	5.0%	8.3%
25-percentile	0.30	0.23	0.29	0.27	0.32	0.30	0.38	0.26
median	0.68	0.64	0.68	0.64	0.75	0.68	0.82	0.60
mean	0.97	1.04	1.03	0.98	0.94	1.04	1.04	0.93
75-percentile	1.29	1.35	1.35	1.33	1.28	1.35	1.35	1.27
75/25	4.30	5.87	4.66	4.93	4.00	4.50	3.55	4.88
change landless					1.1%	0.4%	0.1%	1.3%
change 25					0.02	0.07	0.09	-0.01
change median					0.08	0.04	0.14	-0.04
change mean					-0.03	0	0.01	-0.05
change 75/25					-0.30	-1.37	-1.10	-0.04
N-bigha	594	513	430	677	948	576	696	828
N-landless	912	633	740	805	948	576	696	828

Bold means significant larger than mao-districts within period.
There is no significant change between periods.

As discussed in more detail in Hatlebakk (2008) there are more landless people in non-Maoist districts, which indicates that landlessness cannot explain the support for the Maoists. This contrasts with the conclusion of Murshed and Gates (2005), which is due to two outliers. Hatlebakk's alternative finding is that land inequality matters, as indicated by the higher 75/25-percentile share in Table 7. So, it appears that land inequality (together with income poverty), and not landlessness has motivated Maoists activists.

In the present paper the focus is on the reverse causality, that is, whether Maoist control has led to change in agrarian relations. Table 7 indicates that these changes are non-significant. However, some of the changes are large, although not significant, and may turn up in the panel data as significant, since we there compare changes for a fixed sample of households. However, remember that the panel sample in Table 8 is biased, with under-representation of small-holders and a misrepresentation of the NLSS2 households as newly established households are not included. The bias can be seen by comparing Tables 7 and 8.

Table 8. Reported landholdings in bigha (weighted estimates), hill districts, panel

	NLSS1, maogov	NLSS1, nonmaogov	NLSS1, maoself	NLSS1, nonmaoself	NLSS2, maogov	NLSS2, nonmaogov	NLSS2, maoself	NLSS2, nonmaoself
landless	3.0%	3.7%	3.2%	3.4%	5.7%	5.2%	4.7%	6.0%
25-percentile	0.40	0.19	0.39	0.21	0.35	0.13	0.45	0.15
median	0.84	0.75	0.92	0.75	0.75	0.66	0.86	0.63
mean	1.00	1.10	1.06	1.04	1.07	1.04	1.29	0.92
75-percentile	1.52	1.73	1.50	1.73	1.54	1.50	1.50	1.50
75/25	3.80	9.11	3.85	8.24	4.40	11.54	3.33	10.00
change landless					2.7%	1.5%	1.5%	2.6%
change 25					-0.05	-0.06	-0.06	-0.06
change median					-0.09	-0.09	-0.06	-0.12
change mean					0.07	-0.06	0.23	-0.12
change 75/25					0.60	2.43	-0.52	1.76
N-bigha	146	163	114	195	146	163	114	195
N-landless	228	207	193	242	228	207	193	242

There are no significant differences between or within periods.

Again there is no significant change. But we have to remember that we here report averages for households from all over the country, and many other factors than Maoist control may explain a change in land-distribution. We thus go on to the multivariate analysis to control for any regional variation, as well as variation according to ethnic composition of the districts. We focus on the change in landholding measured in bigha, the proportion of landless households, as well as the wage level for agricultural laborers. We already know from the data section that at the national level the mean land-holding is declining, which can only be explained by an increase in the number of households. For a fixed number of households the mean change would by definition be zero. The multivariate analysis explains the variation in this reduction between districts, where 40% of the hill districts and 25% of the terai districts actually have a positive change, according to the cross-sectional data. We control for the initial level of the dependent variables as we expect the mean to decline more in districts with a higher mean.

The multivariate analyses are reported in three tables, one table with panel data analyses, and two with cross-sectional analyses. For each data set we have separate analyses for the terai (the plains along the border to India where approximately 50% of the population live), where only a few districts were under Maoist control, as well as the hill/mountain belt.

We do not run the wage-regression for the panel data as there will normally be different household members working in the two periods, and there was no People's government in terai, so there we only use the government indicator of Maoist control. We shall see that in most of the regressions the Maoist influence is non-significant in support of the descriptive findings. For the caste/ethnicity variables we combine ethnic groups that traditionally have lived in the same areas.

Table 9. Agrarian change, population weighted cross-sectional, hill/mountain districts

Maoist-dummy	Maogov	Maoself	Maogov	Maoself	Maogov	Maoself
Dependent var:	Bigha	Bigha	Landless	Landless	Wage	Wage
Initial value	- 0.699***	- 0.741***	0.003	- 0.022	- 0.530***	- 0.517**
	(0.156)	(0.156)	(0.217)	(0.206)	(0.190)	(0.192)
Mao-dummy	- 0.086	0.180	0.021	- 0.019	1.787	4.287
	(0.106)	(0.140)	(0.027)	(0.036)	(3.986)	(4.359)
Eastern	0.166	0.282	- 0.013	- 0.028	- 14.141**	- 12.95**
	(0.207)	(0.232)	(0.040)	(0.043)	(5.663)	(6.136)
Western	0.086	0.131	- 0.014	- 0.021	- 0.280	- 1.133
	(0.182)	(0.160)	(0.039)	(0.036)	(7.603)	(7.323)
Mid-far-west	0.017	0.056	- 0.063	- 0.069	- 5.719	- 7.012
	(0.189)	(0.172)	(0.049)	(0.044)	(9.562)	(8.827)
High-caste	1.217**	- 1.089**	0.075	0.052	- 9.789	- 9.063
	(0.487)	(0.445)	(0.095)	(0.091)	(18.860)	(18.83)
Newar	- 1.141	- 0.910	- 0.118	- 0.159	- 10.107	- 14.40
	(0.704)	(0.597)	(0.172)	(0.172)	(18.660)	(19.24)
Tamang-Gurung	- 0.867*	- 0.894*	0.036	0.034	- 1.551	- 4.922
	(0.468)	(0.452)	(0.097)	(0.094)	(18.264)	(18.91)
Magar	- 0.938	- 1.038*	- 0.000	0.010	- 5.413	- 7.758
	(0.582)	(0.563)	(0.145)	(0.140)	(25.190)	(25.18)
Rai-Limbu	- 0.629	- 0.535	0.140	0.116	16.642	12.03
	(0.512)	(0.509)	(0.158)	(0.161)	(21.571)	(22.85)
Hill-Dalit	- 1.366**	- 1.516**	0.199	0.198	- 0.738	- 0.627
	(0.664)	(0.686)	(0.150)	(0.148)	(35.320)	(34.12)
_cons	1.695***	1.507***	- 0.019	0.025	43.496*	43.28*
	(0.490)	(0.445)	(0.085)	(0.082)	(23.522)	(24.52)
R-squared	0.5688	0.5918	0.1750	0.1742	0.4021	0.4194
N	47	47	51	51	40	40

Robust standard errors in parenthesis
*** Significant at 99%-level
** Significant at 95%-level
* Significant at 90%-level

Table 9 present the main findings, from the supposedly unbiased cross-sectional data. In the table we focus on the hill and mountain districts of Nepal as this is where the Maoists had some control during the war. Bigha is applied as a unified land measure, but in reality this measure is only used in the terai, not in the hills. In some hill districts they used local

measures in NLSS1, which is why the number of districts is lower for the bigha measure than for the landlessness measure. Furthermore, in some districts there were no agricultural workers, which is why the number of districts for the wage measure is even lower.

Note that the *R-squared* is low for the change in landlessness, and none of the explanatory variables are significant. So, there were few landless in Maoist controlled areas before the war, as well as at the height of the war, and thus no significant change. When we add the information from the panel data, we will see that the initial value has a negative sign smaller than one, but this basically means that in case of a change then landless households are more likely to have land in the second period, and households with land are more likely to be landless. But we note that landlessness has declined in districts with a Maoist announced People's government (or increased in the other districts), but only when we control for the district caste-composition. The caste variable itself is not significant, but if we omit the variable then the Maoist measure is no longer significant. The finding is supported by the descriptive statistics from the panel data in Table 8, where we can see an apparent increase in landlessness in districts where the Maoists have not announced a People's government. Note that this finding is from the panel data, so some households in non-Maoist areas have sold land and become landless. This may of course be to invest in other businesses, or land in urban areas.

Returning to Table 9 we now focus on the size of the land-holdings. We have to remember that the unit of observation is district, so a decline in land-holdings must mean that the number of households has increased. The negative sign for the initial value thus means that households in districts with initially large land-holdings have split and distributed the land among family members. This is a tendency that we have seen in Nepal during the last decades as more strict land-ceilings have been announced. But we note that there is no difference between Maoist and non-Maoist districts. But if we go to the panel data in Table 10 then we find that households living in districts with a Maoist declared People's

government are more likely to have an increase in landholdings[2], which is supported by the descriptive statistics in Table 8. The descriptive statistics indicate that the median land-holding has not changed, meaning that only the wealthier households have purchased land in these districts. Fieldwork is needed to understand these mechanisms, but anecdotal evidence indicates that some landowners have collaborated with the Maoists, and thus stayed back in the villages and bought land from people who have moved away because of the war.

Table 10. Agrarian change, population weighted panel-data

Ecological belt	Hill/mountains				Terai	
Maoist-dummy	Maogov	Maoself	Maogov	Maoself	Maogov	Maogov
Dependent var:	Bigha	Bigha	Landless	Landless	Bigha	Landless
Initial value	- 0.564***	- 0.569***	- 0.632***	- 0.631***	- 0.603***	0.319***
	(0.078)	(0.077)	(0.154)	(0.151)	(0.102)	(0.044)
Mao-dummy	- 0.081	0.254*	0.005	- 0.045*	1.010***	- 0.029
	(0.177)	(0.147)	(0.021)	(0.024)	(0.275)	(0.061)
Central hills	0.409*	0.309	- 0.123	- 0.112	0.656**	- 0.101**
Eastern terai	(0.237)	(0.222)	(0.108)	(0.104)	(0.296)	(0.050)
Western	0.430	0.409	- 0.133	- 0.132	0.293	0.064**
	(0.283)	(0.272)	(0.109)	(0.108)	(0.232)	(0.031)
Mid-far-west	0.407	0.404	- 0.097	- 0.091	0.972**	- 0.064
	(0.377)	(0.369)	(0.115)	(0.113)	(0.404)	(0.076)
High-caste	- 0.654	- 0.473	- 0.060	- 0.083	0.480	- 0.156
	(0.689)	(0.746)	(0.142)	(0.128)	(1.090)	(0.197)
Newar	- 1.155	- 0.894	0.060	0.038	- 1.641	- 1.714*
	(0.787)	(0.654)	(0.252)	(0.254)	(3.880)	(0.972)
Tamang-Gurung	- 1.275	- 1.473	0.104	0.166	0.525	1.282***
	(0.899)	(0.941)	(0.164)	(0.155)	(2.171)	(0.350)
Magar	2.929**	2.617**	- 0.065	- 0.014	4.654***	- 0.812***
	(1.286)	(1.269)	(0.167)	(0.148)	(1.527)	(0.248)
Rai-Limbu	0.308	0.424	- 0.300	- 0.308	- 3.475*	- 0.982**
	(0.650)	(0.677)	(0.190)	(0.198)	(1.994)	(0.419)
Tharu					- 2.114***	- 0.057
					(0.504)	(0.103)
Yadav					- 0.486	- 0.500***
					(0.912)	(0.181)
Muslim					0.544	- 0.387*
					(0.944)	(0.191)
Hill-Dalit	- 2.516*	- 2.582*	- 0.133	- 0.135	- 4.387***	- 0.283
	(1.335)	(1.429)	(0.153)	(0.155)	(1.593)	(0.301)
_cons	0.875	0.711	0.189	0.209	0.440	0.143
	(0.592)	(0.627)	(0.131)	(0.133)	(0.392)	(0.087)
R-squared	0.2200	0.2233	0.2328	0.2376	0.6386	0.2069
N	309	309	435	435	348	348

Robust standard errors in parenthesis, corrected for within PSU (ward) correlations.
*** Significant at 99%-level
** Significant at 95%-level
* Significant at 90%-level

[2] The large R-squared for the bigha regression for terai is explained by the strong explanatory power of the initial landholding, which in turn indicates a better functioning land market than in the hills.

We also have significant results for the ethnic/caste composition. To some extent this reflects regional differences within the broader east-west regions. For example, in districts with many hill Dalits is appears to be a robust finding that land-holdings have declined. This may indicate that more people have stayed back in these districts and thus have split the family-land as sons have established their own household, while other caste groups have moved away from the village to establish themselves. Note that also in the panel data we use ethnic/caste composition at the district level as the explanatory variable, not the household's own identity.

Finally we look into the wage-equation. As expected, the initial value has a negative sign, so districts with low wages in the first round will have a larger increase. We find no effect of Maoist control. The only significant additional effect is the smaller increase in wages in the Eastern hills, which corresponds with the poverty estimates in NLSS (2005), as this is the only region of Nepal where poverty has increased. Districts with basically no increase are Dhankuta, Bhojpur, Solukhumbu and Okhaldunga, with the two first having the lowest wages.

We now turn to the terai data. We recall that there are only two terai districts, Bardiya and Dang, which were defined by the government as influences by the Maoists. From our experiences during the war, this is a precise description. With only 2 out of 20 districts as Maoist controlled we may not expect to find significant effects. However, Table 11 indicates that these two districts have seen a decline in landlessness, and an increase in landholdings, possibly because some households have sold their land and moved away from these conflict ridden districts, and wages of agricultural laborers have also increased. Note that the dummy for the Mid-Far-west regions is negative in the wage equation. Wages in Dang has increased most, while wages in Kanchanpur, although high initially, has decreased in real terms due to the price increases. Landlessness has in particular declined in Bardiya district, where we

believe that there is an effect of the government implemented land-titlement program of the year 2000 when the Kamaiyas (bonded-laborers) where declared free by the government. In the range of 10 000 households received a small plot of government land in this district as they moved away from their landlord, see Hatlebakk (2006) for more details on this intervention.

Table 11. Agrarian change, population weighted cross-sectional-data, terai districts

Maoist-dummy Dependent var:	Maogov Bigha	Maogov Landless	Maogov Wage
Initial value	- 1.126***	- 0.826	- 0.557**
	(0.136)	(0.494)	(0.181)
Mao-dummy	0.223*	- 0.152**	11.40#
	(0.096)	(0.059)	(5.85)
Eastern	0.570*	- 0.134	- 10.79
	(0.246)	(0.111)	(12.74)
Western	0.888**	- 0.166	14.92
	(0.248)	(0.111)	(13.34)
Mid-far-west	0.663*	0.064	- 8.294
	(0.274)	(0.109)	(7.109)
High-caste	0.886	- 0.552	14.14
	(0.552)	(0.368)	(35.40)
Newar	7.951**	- 2.655*	- 184.2
	(2.889)	(1.164)	(194.3)
Tamang-Gurung	3.235	- 1.139	57.57
	(2.088)	(1.173)	(67.60)
Magar	- 4.494***	0.684	- 80.11
	(0.719)	(0.389)	(58.24)
Rai-Limbu	- 0.962	0.753	50.63
	(1.370)	(0.543)	(48.84)
Tharu	0.084	- 0.333	- 17.40
	(0.516)	(0.256)	(21.19)
Yadav	0.988	- 0.502	- 12.13
	(1.145)	(0.397)	(42.55)
Muslim	- 0.040	- 0.231	- 41.54
	(0.851)	(0.229)	(54.39)
Hill-Dalit	0.628	-1.450**	- 6.750
	(1.181)	(0.534)	(61.45)
_cons	0.495	0.573*	46.16
	(0.343)	(0.268)	(24.93)
R-squared	0.9553	0.8473	0.9247
N	20	20	20

Robust standard errors in parenthesis
*** Significant at 99%-level
** Significant at 95%-level
* Significant at 90%-level
# Significant at 89%-level

To sum up, landlessness has increased in hill districts where the Maoists have not announced a People's government, probably as some people have sold their land and invested in other

businesses, or urban land. In general for all districts it appears that households with initially larger land-holdings have divided their land among family members. However, within districts with a People's government there is some indication that some landlords did not have to sell land. In contrast, landlords that have been able to stay back in the village, presumably as they have collaborated with the Maoists, have been able to increase their land-holdings. Furthermore, we find no effect on agricultural wages of Maoist control in the hills. In the terai there is an increase in wages in Dang district. When it comes to landholdings in terai, Bardiya is the special case with an increase in average landholdings, as some households presumingly have moved to urban areas, and a decline in landlessness, possibly as a result of the Kamaiya intervention.

4. Conclusions

We find statistical support for some of the anecdotal evidences that we have picked up from media reports and our own fieldwork throughout the civil war in Nepal. It appears that households have divided their land among family members in expectation of a lower land ceiling. Furthermore, there is some support for the presumption that landlords who have collaborated with the Maoists, and thus stayed back in the villages, have been able to purchase land from others who have moved away due to the war. More fieldwork is necessary to confirm this finding. In the terai, we have a similar finding for Bardiya district, where we also find a decline in landlessness, which probably is due to a government intervention. We find no wage-effect of Maoist control, except for the inner-terai district of Dang.

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