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The economic and social basis for state-restructuring in Nepal

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Executive Summary

Nepal is in the process of forming a federal state, where the borders of the provinces is one essential, but disputed, issue. This report discusses underlying economic and social conditions that should be taken into account when the provinces are formed. More precisely, we describe how the average province poverty levels, and related economic and social indicators, will depend on how the federal map is drawn. The general finding is straight forward, if there is variation in poverty between districts in a specific area, then a large province that includes both poor and rich districts will have the average poverty level of those districts. Since poor and rich districts tend to be geographically clustered, one can end up with poor districts in one province and richer districts in another one if the larger province is split in two. As a result models with a large number of provinces will tend to have a more unequal distribution of poverty between provinces than models with few provinces.

Although this logic is straight forward, we cannot see that it has been central to the discussion of federalism in Nepal. We show in this report that the argument applies in particular to western Nepal. The further west we go in the hills the more poverty we find. This implies that a western province that includes all districts in the mid- and far western regions, including the plains (terai) districts, will have a relatively low poverty rate. And the poverty rate will be even lower if the western province also includes the present day western region, where Pokhara is located. But this latter solution will cover half the country, and will probably not be feasible. But a province that includes the two western-most present day regions, with a province-capital in Nepalgunj, appears to be a realistic solution. This province would have a poverty rate of 37%.

In contrast, the three main proposals for a federal setup have poverty rates for the western hills of 42%, 44%, and 46%, depending on how many poor hill districts are included in the western hill province. The most common name for this province is Karnali, and one may imagine that Suhrket will become the province capital. Suhrket is defined as hill area, but is located only 100 kilometers by road from Nepalgunj, which is the natural province capital of a broader western province as discussed above. Nepalgunj will also be the natural choice for province capital in a separate terai (Tharuwan) province, and the short distance to Suhrket will hopefully help in communication and collaboration between the western hill and terai provinces. Redistribution of economic resources from Nepalgunj to Suhrket appears necessary as the Karnali hill province will have a poverty rate of 44%, while Tharuwan will have a poverty rate of 26%. Within a unified province this redistribution will take place within the province budget, while with two separate provinces we expect that the central government in Kathmandu will have to incorporate the redistribution in the national budget. This in turn means that Kathmandu will need stronger powers to collect taxes.

We have here focused on western Nepal because we there find larger differences between the hill and terai districts, and thus a strong argument for a combined hill-terai province. There are however similar arguments to be made for eastern Nepal. A large Kirat province, that also includes Limbuwan, is a better solution in terms of poverty levels than two separate Kirat and Limbuwan provinces. And a large Madhes state that includes Chitwan and the eastern-most terai districts is a better solution than a Madhes that only includes the core Madhes districts. This larger Madhes province may have Biratnagar as the capital, while Dharan will be the natural choice for the larger Kirat province. Again there will be a very short distance between the two capitals (only 40 kilometers by road). Taking this logic one step further would lead to a broad eastern province that includes most of Kirat and Madhes, but this solution will probably have limited political support.

Finally, there is a similar argument to be made for the Kathmandu region. If Tamsaling is formed as a separate province, but without the three districts in the Kathmandu valley, it will be a very poor province that in all matters will depend on Kathmandu. A larger province would even out differences in poverty levels.

If an even distribution of poverty is a goal, as it should be if one want to avoid a strong central government, then a reasonable compromise may be the following five-state model: 1) The present day mid- and far-western regions as one province with the capital in Nepalgunj. 2) The present day western region with the capital in Pokhara. 3) A Tamsaling province that includes the Kathmandu valley. 4) A Kirat province in the eastern hills with the capital in Dharan. 5) A broad Madhes province from Chitwan to Jhapa with the capital in Biratnagar, or in Janakpur or Birgunj. If the capital of Madhes is moved to the more centrally located Janakpur, then this opens up for a discussion of whether the three eastern-most terai districts should be part of Kirat (with the capital of Kirat being moved to Biratnagar), and if so also whether Chitwan should be a part of Tamsaling since it is also dominated by hill migrants. If this happens then Madhes will become a poorer province, and also a province with less caste and ethnic diversity in the sense that there will be fewer people of hill origin. The model we suggest here is basically the six-state model proposed by the state-restructuring-commission, but with Tharuwan split and integrated in the two western provinces. And the underlying argument for doing so is that the western-most hill province, that is usually named as Karnali, will otherwise be a very poor province that will depend on transfers from the central government.

1. Introduction

The parliament of Nepal, which doubled as the Constituent Assembly (CA) and was elected to make the new republican constitution of Nepal, has already declared Nepal as a federal state. However, it is not clear how the provinces will be drawn, and what powers they will have. Furthermore, it is not clear how the state will be governed at the central level, as the American, British and French systems, and variations on these, are discussed. The CA started their work in May 2008, and was supposed to write the constitution within two years. The deadline was extended a number of times by the CA itself, but the CA was finally dissolved in May 2012 by the Maoist prime minister Baburam Bhattarai, who announced new elections in November 2012. In May most issues were in fact decided, including the difficult issue of integration of the Maoist army in the Nepal Army. According to media reports a compromise was even found on the important issues of drawing the federal map and the system of governance at the central level. Still the prime minister decided to dissolve the CA, and announce new elections. It is not clear what will be the process from here, not even whether there will be elections in November.

A main recruitment factor for the Maoists was the ethnic fronts, and the Maoist party very early divided Nepal into ethnic based federal states, as we have discussed earlier in Aalen and Hatlebakk (2008). The first federal model prepared by a CA committee was very similar to the early map made by the Maoists. However, there are still strong forces in the two other main parties, the moderate left UML party, and the even more moderate Congress party, that argue that ethnic based provinces will not solve, but rather fuel, ethnic conflicts. These groups favor provinces similar to the present day regions that include both hill and terai (plains) districts. They argue that these regions will be more economically viable and will to a smaller extent be dominated by particular ethnic groups. In the latest census the population was classified into hundred ethnic groups that according to the different proposals will be organized into 6-15 ethnic based provinces. These ethnic provinces will normally include either only hill or only terai districts, with a few exceptions in some of the models. The exceptions are normally those cases where there are large hill origin populations in the terai. With that many ethnic groups there will obviously be many ethnic minorities in each province, and there are very few (if any) examples of provinces where one ethnic group will have the majority.

Although it is not openly discussed, there is a fear, in particular among hill origin Nepalis, that India in the long run will take control over terai. We believe that this is an imagined threat, but even imagined threats can have real consequences, and combined hill-terai provinces may counter this fear. The flip-side of this argument is that the terai-origin population feels that they are dominated by hill-origin people, high castes in particular, and the only way to rise against the hill high caste domination is to get control over their own federal provinces. So, there seems to be fertile ground for further ethnic conflict in Nepal independently of which model of ethnic federalism is selected.

Although we are clearly worried that ethnic based federalism will fuel ethnic conflict, this report will focus on economic viability. However, as we shall see, economic viability will in most cases imply support for the present day regions, rather than ethnic based provinces. This is because the hills have some very poor districts that should preferably be tied up with more wealthy districts in the terai, or with more developed hill districts. This argument is also valid if we imagine that the hill districts will become wealthy in the future, for example because of hydro power developments. In case of extensive hydro developments in the hills, it is our opinion that the terai counterparts should also benefit from the water resources, not only through irrigation schemes but also from the water rent. And integrated hill-terai provinces will probably more easily solve conflicts related to the use of water.

The poverty rates in the present paper are based on historical data. We will describe the ethnic/caste distribution of different proposed provinces along with a number of economic and social indicators. We shall see that some provinces will include a majority of poor hill districts, leaving the terai provinces with the more wealthy ones. We first present the federal models followed by a presentation

of the data. We then discuss poverty, before we discuss factors that can explain the variation in poverty, that is in order of appearance; mean landholdings (which over time reflects the number of households in a region), landlessness, agricultural wages (which to some extent reflects the degree of landlessness), education (which to some extent determines incomes) and remittances (which over the last years have been the main source of increased incomes for both migrants and those laborers who stay back and benefit from the lack of domestic labor).

2. Proposed federal models

Nepal is discussing different models of dividing the country into provinces within a federal state. We will focus on three of the proposed models, that is, the two models presented by the State-Restructuring-Commission (SRC) in the Constitutional Assembly (CA), as well as the compromise between the political parties that was agreed upon in May 2012 only days before the final deadline for a new constitution. As is well known this compromise did not materialize as the prime minister dissolved the CA and left Nepal with the interim constitution that was approved by an interim parliament in 2007 one year before the 2008 election to the CA.

For the poverty rate we will also, as a comparison, report on a fourth model that is the present five development regions, which would be the status-quo model. We will now describe the different models. We use available maps of the different models to ascribe districts to provinces. In some cases districts are divided between two or more provinces. These districts have, to the best of our map-reading ability, been placed in the province where the major part is situated. For more details see the maps and the table in the appendixes.

For the three main models we will also report the caste distribution over provinces according to the third NLSS survey from 2010. While we in the poverty section will allow for mixed-caste households, and thus use individual data, we will here report only on the household head, so that the reader can see how many households we have from each category in each province.

2.1 Five region model

The least drastic change is to turn the present day development regions into provinces. We start by presenting these five development regions as they are today. The table below shows the caste distribution by province. We show the sample sizes of different groups in different regions. If we use probability weights so that the samples become representative for the total population then we find, as most Nepalis will know, that the hill caste groups, including both higher castes and Dalits, are overrepresented in the western hills, while hill ethnic groups (Janajatis) are overrepresented in the eastern hills. When it comes to the terai origin people, the middle and higher castes are overrepresented in the Central region, as we know, while the Dalits are also overrepresented in the Eastern region. The terai Janajatis are overrepresented in Eastern and the western regions.

Table 2.1: Sample caste-distribution 2010 for the five region model

Provinces	Districts	Hill B/C	Hill ethnic	Hill Dalit	Terai caste	Terai ethnic	Terai Dalit	Muslim	Others
Eastern	16	334	438	72	147	151	70	44	16
Central	19	653	943	84	349	87	71	75	18
Western	16	405	320	143	142	56	35	49	2
Mid-Western	15	341	152	117	36	80	11	19	0
Far-Western	9	356	9	91	13	53	2	4	0
Nepal (N=5988)	75	2089	1862	507	687	427	189	191	36

2.2 Six province model

The State-Restructuring-Commission in the CA proposed two federal models, with the six-state model having more support from the so-called mainstream parties, the UML (Unified Marxist Leninist) and the Nepali Congress. The former is, despite the ML-term, a (leftist) social democratic party, while Congress is a rightist, or moderate, but still social democratic party that is a member of the Socialist International. In the CA election these parties received approximately 21% of the votes each, in comparison to 29% for the Maoists, and 6% for the largest Madhesi (terai-based) party. To get a 2/3 majority behind a new constitution the three major parties will have to find a compromise. Note that in the six-province proposal all hill states will have a border with India.

In order to describe the model we will compare it to the development regions. The names were originally Province 1-6; however we have decided to use more descriptive names. Some of them are equivalent with the names of the development regions but do not necessarily cover the same districts. Other names are taken from the other models to be presented below. The model is build up in the following way:

- Eastern: Same districts as in the Eastern development region but without Saptari and Siraha.
- Central: Same districts as in the Central development region including Chitwan, but without the other 6 terai districts.
- Western: Same districts as in the Western development region but without the two terai districts, and including Pyuthan and Rolpa.
- Mid- and Far-Western: Same districts as in the Mid-Western and Far-Western development regions including Kanchanpur, but without Pyuthan, Rolpa and the other terai districts.
- Madhes: The eight Madhes districts in the eastern part of the country.
- Tharuwan: The remaining six terai districts in the western part of the country.

The table below shows the caste distribution over these provinces. Again we find that hill caste groups are overrepresented in the western hills while hill Janajatis are overrepresented in the eastern hills. Terai caste groups, including the Dalits, are overrepresented in Madhes, while we have the largest concentration of terai Janajatis in Tharuwan, but also many in Madhes and the Eastern province, which in this federal model also includes the eastern-most terai districts, where Tharu and Rajbansi are the largest ethnic groups. Muslims are also a terai-based group, and are overrepresented in Madhes and Tharuwan.

Table 2.2: Sample caste-distribution 2010 for the six province model

Provinces	Districts	Hill B/C	Hill ethnic	Hill Dalit	Terai caste	Terai ethnic	Terai Dalit	Muslim	Others
Eastern (Province 1)	14	324	431	70	57	100	33	26	15
Central (Province 2)	13	623	917	80	45	44	1	13	5
Western (Province 3)	16	377	323	149	57	43	9	12	2
Madhes (Province 4)	8	40	33	6	394	94	107	80	14
Mid-Far Western (Province 5)	18	479	64	144	14	9	2	8	0
Tharuwan (Province 6)	6	246	94	58	120	137	37	52	0
Nepal (N=5988)	75	2089	1862	507	687	427	189	191	36

2.3 Ten province model

The ten-state model is the second proposal from SRC, and was supported by the Maoist party as well as the Madhesi parties. In this model terai consists of two provinces that basically blocks the access to India for the hill states (except for little used border crossings in remote hill locations). The model is officially presented as an eleven-state model as the proposal also includes a non-territorial Dalit state.

In this model there are two terai provinces and eight hill provinces. There are no provinces that have both terai and hill districts. In order to describe the model we will compare it to the six-province model.

- Limbuwan: Consists of the four eastern hill districts in the Eastern province
- Kirat: The remaining hill districts in the Eastern province
- Tamsaling: Consists of the hill districts in the Central province, except the three Kathmandu valley districts.
- Newa: The Kathmandu valley, including Kathmandu, Bhaktapur and Lalitpur
- Tamuwan: The mountain districts in the Western province
- Narayani: Three districts in the middle of the Western province; Tanahu, Syangja and Parbat
- Magarat: The remaining hill districts in the Western province
- Karnali-Khaptad: The hill districts in the Mid-Far Western province

- Madhes: All the eastern terai districts (including Chitwan)
- Tharuwan: All the western terai districts.

Again we find the hill caste groups in the western hill provinces, the hill Janajatis in the east, and the terai origin groups in Madhes and Tharuwan.

Table 2.3: Sample caste-distribution 2010 for the ten province model

Provinces	Districts	Hill B/C	Hill ethnic	Hill Dalit	Terai caste	Terai ethnic	Terai Dalit	Muslim	Others
Limbuwan	4	60	103	3	0	2	0	0	0
Kirat	7	115	197	47	1	9	2	1	0
Tamsaling	9	198	334	44	10	23	0	2	1
Newa	3	379	547	25	33	11	0	9	4
Narayani	3	88	62	31	3	5	1	2	0
Tamuwan	5	119	104	47	1	3	1	1	0
Magarat	7	143	129	70	0	12	0	6	0
Karnali-Khaptad	17	408	62	131	10	5	0	8	0
Madhes	12	235	200	37	452	193	139	107	29
Tharuwan	8	344	124	72	177	164	46	55	2
Nepal (N=5988)	75	2089	1862	507	687	427	189	191	36

2.4 Eleven province model

A week before the final May-2012 deadline for the constitution the parties presented a compromise that raised optimism regarding the CA's ability to finalize the constitution. However, the compromise, although at first sight similar to the Maoist-Madhesi proposal due to the number of provinces, is in reality more similar to the six-state model supported by the two main-stream parties, the UML and Congress, in the sense that in particular Kathmandu has direct access to India, and also in the west some hill districts have access to India, and finally there is a separate province for the three eastern-most terai districts, which is dominated by hill migrants and thus are expected to easily be able to collaborate with the hill provinces north of this Koshi province. This resulted in protests in the terai, where the demand has been a single terai state, but where they have settled for two states as long as they cover all terai. In addition the proposal did not mention names of the provinces (so we here use names from the previous proposal). This led to protests from the ethnic activists that want identity based provinces. They fear that if the provinces are to decide on the names at a later stage the majority in each province will not necessarily go for an identity based name. There is for example no majority of Limbus in the proposed Limbuwan, or Tharus in the proposed Tharuwan. There is, however, probably a majority of the so-called Khas (dominated by the Chettri) people in Karnali, but Karnali is the name of the main river and is thus not named after the main group living there.

The model consists of three provinces with only terai districts, six provinces with only hill districts and two provinces with both hill and terai districts. In order to describe the model, we compare it to the ten-province:

- Limbuwan: As the Limbuwan province but also including Dhankuta and Sankhuwasabha.
- Kirat: As the Kirat province but without Dhankuta and Sankhuwasabha.
- Kochila: The three eastern terai districts
- Madhes: As the Madhes province but without Chitwan and the three districts in Kochila.
- Tamsaling: As the Tamsaling province but without Makwanpur, Nuwakot and Dhading.
- Narayani: The Newa-province and Makwanpur, Nuwakot, Dhading and Chitwan
- Tamuwan: As the Tamuwan province but also including Tanahu Parbat and Syangja
- Magarat: As the Magarat province
- Tharuwan: As the Tharuwan province, but without Kailali
- Khaptad: The ten most eastern districts in Karnali-Khaptad
- Karnali: The remaining districts in Karnali-Khaptad and the two terai districts Kailali and Kanchanpur.

The Kochila state is, as noted above, dominated by hill origin people (together they constitute 57% of the population), but they are only overrepresented as compared to the two other terai provinces. When we look at each single group in the table, we find that the terai Janajatis are overrepresented (with 19% of the population in Kochila). There is no other province, including Tharuwan, with a larger terai Janajati population. The other provinces have a similar caste composition to the other models, the hill caste groups live in the western hills, the hill Janajatis in the eastern hills, the terai groups in Madhes and Tharuwan, with the terai Dalits mostly in Madhes.

Table 2.4: Sample caste-distribution 2010 for the eleven province model

Provinces	Districts	Hill B/C	Hill ethnic	Hill Dalit	Terai caste	Terai ethnic	Terai Dalit	Muslim	Others
Limbuwan	6	99	171	15	1	2	0	0	0
Kochila	3	149	131	20	56	89	31	25	15
Kirat	5	76	129	35	0	9	2	1	0
Madhes	8	40	33	6	394	94	107	80	14
Tamsaling	6	119	198	27	4	23	0	0	1
Narayani	7	504	719	53	41	21	1	13	4
Tamuwan	8	207	166	78	4	8	2	3	0
Magarat	7	143	129	70	0	12	0	6	0
Tharuwan	6	214	119	35	172	115	44	55	2
Khaptad	10	182	58	77	2	1	0	4	0
Karnali	9	356	9	91	13	53	2	4	0
Nepal (N=5988)	75	2089	1862	507	687	427	189	191	36

3. Data

We use the three rounds of Nepal Living Standard Surveys (NLSS) conducted by the Central Bureau of Statistics in Nepal (CBS) in collaboration with the World Bank.

The first round (NLSS1) was carried out between June 1995 and June 1996. In this period, CBS interviewed 3373 households¹ in 274 wards. In each ward, 12 (16 in Far-Western Development Region) households were interviewed. The wards were sorted into four strata (based on geographic and ecological regions): Mountains, urban hills, rural hills and terai (the plains along the border to India). From each stratum, wards were selected with a probability proportional to its number of households. Within each ward, households were randomly selected.

The second survey (NLSS2) was conducted from April 2003 to April 2004. CBS interviewed 5072 households in 421 wards in this period. Among these households 1160 of them (in 95 wards) were selected to create a panel (962 households were tracked from NLSS1, and 198 were new households from panel PSUs) and 3912 (in 326 wards) constituted a cross-section. For the cross-section data the process of selecting households was similar to the one used in NLSS1. In each ward (PSU) 12 households were interviewed. The wards were selected from six strata: Mountains, Kathmandu valley urban area, other urban areas in the hills, rural hills, urban terai and rural terai. In each stratum, wards were selected with a probability proportional to its size. Within each ward, households were randomly selected. The wards in the panel sample were chosen with equal probability from each stratum defined in NLSS1.

The third survey (NLSS3) was conducted from February 2010 to February 2011. CBS interviewed 5988 households in 499 wards for the cross-section sample, and 1032 households for the panel sample (of which 513 households were interviewed in NLSS2 only, and the rest in both NLSS1 and NLSS2). The process of selecting households was similar to the one used in NLSS1 and NLSS2. The wards were sorted into 14 strata: Mountains, urban areas of the Kathmandu valley, other urban areas in the hills, rural eastern hills, rural central hills, rural western hills, rural mid-western hills, rural far-western hills, urban terai, rural eastern terai, rural central terai, rural western terai, rural mid-western terai, and rural far-western terai. In each stratum, wards were selected with a probability proportional to its size and within each ward, households were randomly selected.

Table 3.1: Summary of NLSS1-NLSS3

	NLSS1	NLSS2	NLSS3
Period covered	June 1995 – June 1996	April 2003 – April 2004	February 2010 – February 2011
No. households cross-section	3373	3912	5988
No. wards cross-section	274	326	499
No. households panel 1-2	-	962	-
No. households panel 2-3	-	-	513
No. households panel 1-2-3	-	-	519
No wards panel	-	95	100
No. strata	4	6	14

¹ The original sample size was 3386, but a ward in the remote Dolpa district in the mountains was not visited, and three households are missing in another mountain ward.

We will report changes in poverty levels and other indicators of the economic and social status of the households. Below we describe the variables that will be used and explain how they have been derived (if necessary).

Poverty

A household is defined as poor if its annual per capita consumption level is below a given poverty line. The poverty line has been derived in the surveys by using a cost-of-basic-needs (CBN) method. Then they have been adjusted for the regional differences in living costs so that the nominal poverty line vary geographically and over time as described in the table below.

Table 3.2: Per capita poverty lines measured in Nepalese rupees

	1995/96	2003/04	2010/11
Mountains	-	-	19,858.7
Kathmandu	6,676.0	11,056.8	40,932.7
Other Urban	5,451.9	7,901.1	-
Urban Hills	-	-	19,576.7
Urban Terai	-	-	21,132.8
Rural Western Hills	5,403.0	8,901.5	18,427.7
Rural Eastern Hills	5,734.0	8,069.6	16,550.5
Rural Central Hills	-	-	18,688.7
Rural Mid and Far Western Hills	-	-	16,354.7
Rural Western Terai	4,173.4	7,418.4	15,998.4
Rural Eastern Terai	4,654.6	6,078.8	16,856.5
Rural Central Terai	-	-	17,539.8
Rural Mid and Far Western Terai	-	-	17,318.9
All-Nepal	5,088.7	7,695.7	19,261.2

Note: Mountains included in hills, Central region included in eastern and all western regions combined in the first two surveys.

We note that prices in 2010 are 2.5 times higher than prices in 2003. We do use these poverty lines below, but we have doubts regarding the 2010 prices. And in particular when we calculate real wages below we will also report wages that are corrected for the price of the main staple (coarse rice). It is not unlikely that the price increase from 2003 to 2010 to some extent is due to increased quality of the products included in the basket of goods that is the basis for the index. If the actual increases in prices are lower than the ones we see in the table above, then poverty has declined even more than we will report below. Note, in particular, that the poverty line for Kathmandu implies that a family of two adults and three children will be registered as poor if their annual income is 200 000 rupees. So a public servant earning 15 000 per month will be registered as poor. While in 2003 if a family of five in eastern terai had only one factory worker earning 2600 rupees per month they would be classified as non-poor. So although we report poverty rates that use these prices, we will advise the reader to keep in mind that the real poverty rates in 2010 may be even lower.

The rice-prices, let us say for the rural eastern terai, have increased from 12 rupees in 1995 via 15 rupees in 2003 to 30 rupees in 2010. These prices are consistent with data from the International Rice Research Institute (IRRI) that reports the retail price for milled rice in Nepal to increase from 14

rupees in 1995 via 18 rupees in 2003 to 34 rupees in 2010. As this is probably a weighted average for different types of rice our prices for coarse rice are consistent with IRRI. So these prices should be compared to the nominal wages, which in eastern terai increased from 35 rupees in 1995 via 63 rupees in 2003 to 165 rupees in 2010. So while farm laborers for a daily wage could buy 2.9 kg rice in 1995, they could buy 4.2 kg in 2003 and 5.5 kg in 2010.

We use two poverty indicators; the headcount index and the poverty gap. The headcount index is defined as the proportion of poor in a given area. In contrast to the other indicators we also report the headcount for the 1995-2003 panel sub-sample², as the panel allows us to study the development over time for exactly the same households that are interviewed at two points in time.

A problem with the headcount is that a person living one rupee below the poverty line counts as much as a person living 10,000 rupees below the poverty line. In order to take this into account we also report the poverty gap. The poverty gap is defined as the mean distance below the poverty line for all households including the non-poor with zero poverty gap. The poverty gap is thus a measure of the depth of poverty. To calculate the poverty gap, the following formula is used. Let g be the gap between the poverty line z and consumption, and let this gap be zero if consumption is larger than z . And let N be the number of households. Then the poverty gap³ is given by

$$P = \frac{1}{N} \sum_{i=1}^N \frac{g_i}{z}$$

Caste

We split the NLSS3 poverty estimates according to caste. In NLSS3 a total of 78 castes and ethnic groups were identified. We have made 8 broad categories following Das and Hatlebakk (2010). We separate groups of traditional hill origin from groups of traditional plains (terai) origin. Within these two broad categories we separate Dalits from the so-called higher castes, and also from groups that are considered as indigenous (Janajatis) to the area. The largest Janajati groups are (according to the 2001 census) Magar, Tharu (terai), Tamang, Newar, Rai, Gurung and Limbu. The largest Dalit groups are Kami, Damai, Sarki, Chamar (terai) and Mushar (terai). The largest high-caste groups are hill Chettri and Brahmin and in terai the Yadav. Note that the terai Dalit and high caste groups we also find across the border in India, and in Nepal they use the term Madhesi for these groups. In addition we have one category for Muslims and one for other groups. In the present context of political pressure for ethnic based provinces in particular the Madhesi groups and also some Janajati groups are fighting for provinces named after their ethnic group, with the most prominent demands being for Madhes, Tharuwan, and Limbuwan states. The eight categories have the following distribution in NLSS3:

² As to date, the panel data for 2010/11 have not yet been officially released.

³ This poverty measure is often referred to as P1, as it is (g/z) to the power of one. If the power is zero the measure becomes P0, the headcount, if the power is two, then it becomes P2, the poverty severity measure where the people with largest poverty gaps count more. This class of poverty measures is very robust as they in particular can be consistently decomposed on for example regions as we do on this report, the so called FGT measures were introduced by Foster, Greer and Thorbecke (1984).

Table 3.3: Caste categories

	Number of households	Fraction of sample
Hill B/C Caste	2085	34.82
Hill Janajati	1861	31.08
Hill Dalit	502	8.38
Terai High/Middle Caste	684	11.42
Terai Janajati	431	7.20
Terai Dalit	189	3.16
Muslim	193	3.22
Other	43	0.72
Total	5988	100

Landholding

In rural Nepal land is still the main indicator of wealth. We report the average area converted from local units into hectares⁴. In contrast to many other reports using NLSS data we include households with zero land in the reported averages. While poverty rates are reported using individuals as the unit of observation, for land we use households as the unit of observation.

Education

Education is another important asset. People with education have more social and economic opportunities than illiterate people. We report three indicators of education, mean years of schooling for all people, literacy rate for household heads, and proportion of households with at least one member with SLC (School Leaving Certificate).

Mean years of schooling is measured for all people that are 15 years or above irrespectively of their schooling status⁵. Again we include those with zero years of schooling. For the people that are attending school we count the completed years of schooling, so a person in class four has completed three years of schooling. Literacy is here self-reported ability to read and write, which were two separate questions.

Wages

We report the daily wage rates in agriculture. As argued by Deaton and Dreze (2002) this is a good indicator of poverty as it is relatively easy to measure and the local wage rate for agricultural labor is the reservation income for most poor people. We start by reporting the nominal wage rates, but as these numbers do not reflect that there are different costs of living within Nepal and the increase in prices over time we also report real wages. In order to adjust for inflation and different living costs we use the poverty lines reported above, with Rural Eastern Terai in 2010/11 as the reference category. As discussed above the price increases from 2003 to 2010 implied by these poverty rates are probably too high, so we will also use an alternative price index that is the price of coarse rice, the major staple for poor people. As people report different prices even within village, we use the median price for each

⁴ The local units are: 1 ropani = 16 ana = 64 paisa in the hills and 1 bigha = 20 kattha = 400 dhur in the terai, where 1 ropani = 13.313 bigha, and 1 hectare = 0.6773 bigha.

⁵ In the surveys three schooling statuses have been used; never attended school, attended school in the past and currently attending school. In the NLSS report mean years of schooling have been calculated using data for those that “ever” attended school, our results will therefore be different from these results.

strata presented above. As the price of rice has increased at a slower rate than the poverty lines the tables for nominal wages will differ. And we ask the reader to focus on the tables where we adjust for the rise in rice prices. The prices for coarse rice are reported below⁶.

Table 3.4: Prices for coarse rice

	1995/96	2003/04	2010/11
Mountains	-	-	40
Kathmandu	16	20	38.33
Other Urban	13.88	16	-
Urban Hill	-	-	35.47
Urban Terai	-	-	30
Rural Western Hill	14.14	18	35.75
Rural Eastern Hill	14	18	35
Rural Central Hill	-	-	36
Rural Mid and Far Western Hill	-	-	34
Rural Western Terai	12	15	30
Rural Eastern Terai	12	15	30
Rural Central Terai	-	-	28
Rural Mid and Far Western Terai	-	-	29
All-Nepal	14	16	35

Remittances

There has been a large increase in remittances in Nepal during the last decade, which in turn can explain the decline in poverty, both via the direct effect of increased incomes, and the indirect effect on local wages as labor has come in short supply. To be able to discuss these effects we report remittances below. These are measured at the household level. We make sure to add up all remittances, whether they are in cash or in kind, and whether they come from household members or from others.

⁶ So if we take, for example, the wages reported in the eastern hills in 1995, we will have to multiply those with $30/14 = 2.14$ to be able to compare them to the wages reported in the eastern terai in 2010.

4. Poverty

Below we report poverty rates for different federal models. As we shall see many of the findings are repeated as the underlying tendencies of high poverty rates in particular the western hills will be common for all models. To demonstrate this effect we start with the poverty rates for the six main economic areas of Nepal, as shown in Table 1. For the two first surveys the numbers are identical to Table 1.2.2. in NLSS (2005) except that we have added confidence intervals, the 2010 numbers are compiled by us using the raw data.

Table 4.5: Poverty by areas (%)

Region	1995-96	2003-04	2010-11
Kathmandu	4.3* [0.7; 7.9]	3.3* [0.4; 6.1]	11.5* [8.6; 14.3]
Other urban	31.6 [13.9; 49.3]	13.0* [7.3; 18.8]	17.5 [12.7; 22.3]
R.W. Hill	55.0* [47.2; 62.8]	37.4* [30.5; 44.3]	32.3* [27.2; 37.4]
R.E. Hill	36.1 [29.2; 43.1]	42.9* [35.4; 50.4]	24.0 [17.3; 30.6]
R.W. Terai	46.1 [38.0; 54.1]	38.1* [29.1; 47.2]	26.8 [20.4; 33.2]
R.E. Terai (ref)	37.2 [30.5; 43.8]	24.9 [20.0; 30.0]	22.2 [18.2; 26.2]
Nepal	41.8 [38.1; 45.4]	30.8 [27.7; 34.0]	25.2 [23.0; 27.3]
N	3373	3912	5580

Notes: 1) * indicates a significant difference from reference category within the same period at the 95%-level.
 2) Bold indicates a significant difference from first period at the 95%-level.
 3) Italics indicates a significant difference from previous period at the 95%-level.
 4) The figures in brackets are 95% confidence intervals.

Poverty at the national level has declined from 42% in 1995 to 25% in 2010. As discussed above the latter may be an upper estimate. In particular for Kathmandu the inflation estimates are very high, which in turn may explain the increase in poverty from 2003 to 2010. As we can see there is a bump in the poverty estimates for the eastern hills in 2003, while poverty in 2010 is again lower than in 1995, so we now believe this rural eastern hills bump is an artifact of the 2003 survey, maybe by coincidence particularly poor villages were selected. Except for Kathmandu, the relative decline in poverty rates has been around 40%. When it comes to the regional variation we see that the rural western hills were the poorest in 1995 as well as in 2010, although poverty has declined there as well.

Any federal model will reflect these underlying tendencies. A province in the western hills will be poor, while a province in the eastern terai will be wealthier. Now, the different federal models will contain different districts, and depending on the particular model some provinces will include mostly poor districts, while others may include only wealthy districts. In general there will be less spatial variation the larger are the provinces (as poor districts will cancel out richer ones). A main conclusion is thus that any western hills province will, irrespectively of the districts included, have a high poverty

rate, and the only way to avoid this is to make a large province in the west that also includes the terai districts.

None of the proposed models follow this strategy to full extent, which would imply to combine the mid- and far-western regions into one province. But the six-state SRC model goes furthest in this direction. There is a similar case to be made in the east. The Eastern region has a low aggregate poverty rate. But if that region is split into many provinces, then some of those will be poor, with the poorest one being Tamsaling in the SRC ten-states model, where Tamsaling is made up of nine poor hill districts. The flip-side of that calculation is that when the east is split into many provinces, where some are poor, then there will also be some richer provinces as long as they can restrict themselves to include only developed districts, such as the Limbuwan province (in particular the one with only the four core districts included with Ilam as the economic center) and Kochila (with the three eastern terai districts that includes the city of Biratnagar and the relatively wealthy district of Jhapa where the richer households from the hill districts have settled, which in turn explains the higher poverty rates in the hills as the poor stay back).

In the following we will go in detail on the different models reporting on the headcount using the cross-sectional data, the headcount using the panel data, the headcount in NLSS3 cross-section separated for different castes, as well as the poverty gap for the NLSS3 cross-section.

4.1 Headcount poverty

The national poverty rate declined from 41.8% in 1995 to 30.8% in 2003 and finally to 25.2% in 2010. The 2010 estimate has been debated, as the first number to be released was as low as 13%. With that low poverty rate there is a large concentration of households just above the poverty line. So when the price-index was later adjusted the poverty estimate was correspondingly adjusted to 25.2%. As we have discussed in the data section, we believe the increases in the prices included in the price index may to some extent reflect improved average quality of the goods purchased for those higher prices. As a result it is our view that poverty, in a strict sense, is lower than 25.2%. However with a lower poverty line, there would be many households just above the line, and they would still be relatively poor, so for the purpose of public policy a poverty rate of 25.2% may still be a good estimate, and is the one we will use below. See however the section on agricultural wages (which constitute the income of the very poor) below, where we also use rice prices as an alternative price index.

It may be useful to know how sensitive the poverty rate is to small changes in the poverty line. If the poverty line is set 10% lower then the poverty rate would be 18%, in stead of 25%, and if the poverty line is set 10% higher then the poverty rate would be 32%. So we note that there is a concentration of households on both sides of the poverty line. With the poverty line being at the 25-percentile we can directly get measures of inequality by comparing the poverty line to the median income and the income at the 75-percentile. The median income is only 1.4 times the poverty line, while the 75-percentile income is only double the poverty line. This is a low level of inequality, as is also shown by the Gini index, which is only 0.33. There was an increase in inequality from the 1995 survey to the 2003 survey, when the Gini was 0.44, and the income at the 75-percentile 2.3 times the income at the 25-percentile. But back in 1995 the Gini was 0.35 and the 75-percentile income was again only double of the 25-percentile income⁷.

As described in Hatlebakk (2008) Nepal has had a good economic growth since the mid 1980s. Normally we shall expect an increase in inequality as economic growth tends to imply that higher incomes grow faster, so the surprising finding is the decline in inequality from 2003 to 2010. This means that the lower incomes have grown faster than the higher incomes. There is probably a set of

⁷ The weighted Gini coefficients are calculated by us, and are consistent with World Development Indicators.

underlying and intertwined explanations for this development. The two most important proximate explanations are the large increase in remittances and the large increase in wages that to some extent is the result of migration as labor comes in short supply at home. One may argue that both mechanisms are, in turn, a result of the Maoist insurgency. Young men left the villages to avoid the conflict, and many of them ended up abroad. This in turn led to lack of labor at home, and thus higher wages. In addition there is a direct effect of militant Maoist labor unions. So we note that not only has poverty declined almost everywhere, but also incomes above the poverty line has increased, and more so than higher incomes leading to a decline in inequality.

4.1.1 Five region model

As discussed above we will focus on four different federal models, the two proposals (six and 10 province models) from the State Restructuring Commission, the compromise 11-province model, and the present five development regions. As said, from 1995 to 2010 poverty has declined everywhere. In relative terms the decline is highest in the Eastern, Western and Mid-Western regions⁸. However, in 2010 poverty is still high in the Mid-Western region (32%), and even higher in the Far-Western region (46%). The combined poverty rate of these two western-most regions is 37.3%. A combined region will thus have an intermediate poverty rate. This has political implications, as within a larger region the richer parts can subsidize the poorer parts, while smaller poor provinces will depend on reallocations between provinces, which will have to be decided by the center, that is, by Kathmandu. So if Nepal ends up with many small provinces we shall expect to see more economic power in Kathmandu.

Table 4.6: Poverty by regions (%)

Region	Districts	1995-96	2003-04	2010-11
Eastern	16	38.9* [32.9; 44.9]	29.3* [22.5; 36.0]	21.4* [17.3; 25.6]
Central	19	32.5* [26.4; 38.6]	27.1* [22.4; 31.7]	21.7* [18.1; 25.3]
Western	16	38.6* [31.1; 46.0]	27.1* [19.9; 34.4]	22.2* [17.2; 27.3]
Mid-Western (ref)	15	59.9 [50.3; 69.4]	44.8 [37.7; 51.9]	31.7 [25.4; 38.0]
Far-Western	9	63.9 [51.6; 76.3]	41.0 [27.6; 54.3]	45.6* [38.3; 52.9]
Nepal	75	41.8 [38.1; 45.4]	30.8 [27.7; 34.0]	25.2 [23.0; 27.3]

Notes: 1) * indicates a significant difference from reference category within the same period at the 95%-level.
 2) Bold indicates a significant difference from first period at the 95%-level.
 3) Italics indicates a significant difference from previous period at the 95%-level.
 4) The figures in brackets are 95% confidence intervals.

⁸ The relative decline is the most useful measure, which we believe become clear if we compare different levels of poverty. An absolute decline of, let us say, 15 percentage points will remove all poverty in a region that has 15% poverty, but will only remove a quarter of the problem if the poverty rate is 60%. Intuitively we will say that the first region has done better, as there has been a 100% decline in poverty.

4.1.2 Six province model

The six-state model is basically the five regions model with the two western-most regions combined into one (which averages out the poverty rate as discussed above), and with two provinces in the terai. Since poverty is, in general, lower in the terai, this should imply higher poverty rates for the hill provinces as compared to the five-region model, and a low poverty rate for the terai provinces. This applies to Tharuwan, where the poverty rate is lower than in the adjacent hill province. However, in this particular model, the eastern hill province includes the three eastern-most terai districts, which pulls down the poverty rate of the eastern province to a level as low as 17%. So we have the eastern province below the national average and the western hills above, while the other provinces are basically at the national average, including the two terai provinces. Over time there has been a significant decline in poverty in all provinces in this federal model with the exception of Madhes. So, in this model only the western hills lose out, but this is to some extent counteracted by combining all mid- and far-western hill districts into one province.

Table 4.7: Poverty in the six province model (%)

Provinces	Districts	1995-96	2003-04	2010-11
Eastern (Province 1)	14	37.1 [30.3; 43.8]	29.7 [22.3; 37.0]	16.7* [12.5; 21.0]
Central (Province 2)	13	32.9 [24.3; 41.5]	26.5 [19.2; 33.8]	20.6 [15.5; 25.7]
Western (Province 3)	16	36.3 [27.7; 45.0]	24.2 [17.9; 30.5]	23.1 [18.0; 28.2]
Madhes (ref) (Province 4)	8	35.1 [27.4; 42.8]	27.9 [22.2; 33.6]	26.7 [22.3; 31.1]
Mid-Far Western (Province 5)	18	70.6* [61.8; 79.4]	44.3* [34.6; 54.1]	42.1* [35.8; 48.4]
Tharuwan (Province 6)	6	49.4* [40.8; 58.0]	42.3* [33.0; 51.6]	27.4 [20.7; 34.2]
Nepal	75	41.8 [38.1; 45.4]	30.8 [27.7; 34.0]	25.2 [23.0; 27.3]

Notes: 1) * indicates a significant difference from reference category within the same period at the 95%-level.

2) Bold indicates a significant difference from first period at the 95%-level.

3) Italics indicates a significant difference from previous period at the 95%-level.

4) The figures in brackets are 95% confidence intervals.

4.1.3 Ten province model

Compared to the six-province model there are two changes that affect the poverty rates. Madhes now includes more wealthy districts outside the core Madhes area. The implication is a lower poverty rate in 2010 and a significant decline in poverty since 1995. The second change as compared to the six-state model is that the Eastern province is here not only without terai districts, but is also further split into two hill provinces that are named as Kirat and Limbuwan. Limbuwan is a relatively wealthy province, even though it does not include the eastern-most terai districts in this particular model. In the west there is no particular change as compared to the six-state model, the western hills are still poor.

Having the Kathmandu valley as a separate province obviously increases the poverty rate of surrounding areas, so Tamsaling ends up with a higher poverty rate than the central region in the previous models. Since 1995 there has been a significant decline in poverty in six out of the ten provinces. As expected the four provinces with the lowest level of poverty in 1995 are without a significant change.

Table 4.8: Poverty in the ten province model (%)

Province	Districts	1995-96	2003-04	2010-11
Limbuwan	4	25.6* [10.7; 40.4]	29.9 [15.3; 44.6]	<i>13.5*</i> [7.7; 19.4]
Kirat	7	39.3 [31.3; 47.3]	52.6* [39.5; 65.6]	21.8 [14.6; 29.0]
Tamsaling	9	45.6 [35.6; 55.7]	46.5 [37.1; 55.9]	31.4 [22.7; 40.1]
Newa	3	7.2* [0.8; 13.5]	3.6* [1.4; 5.9]	<i>10.5*</i> [7.2; 13.8]
Narayani	3	26.6* [11.9; 41.3]	19.8 [7.5; 32.1]	21.3 [9.2; 33.3]
Tamuwan	5	23.2* [4.4; 42.1]	17.0* [5.9; 28.1]	16.4 [5.9; 26.9]
Magarat (ref)	7	52.1 [38.3; 65.9]	35.3 [25.1; 45.6]	28.9 [21.0; 36.8]
Karnali-Khaptad	17	72.6* [63.9; 81.3]	47.6 [36.9; 58.3]	43.8* [36.9; 50.8]
Madhes	12	37.1 [30.8; 43.5]	22.9* [18.5; 27.3]	22.0 [18.3; 25.6]
Tharuwan	8	45.9 [37.7; 54.1]	36.6 [28.3; 44.9]	26.4 [20.8; 31.9]
Nepal	75	41.8 [38.1; 45.4]	30.8 [27.7; 34.0]	25.2 [23.0; 27.3]

Notes: 1) * indicates a significant difference from reference category within the same period at the 95%-level.
 2) Bold indicates a significant difference from first period at the 95%-level.
 3) Italics indicates a significant difference from previous period at the 95%-level.
 4) The figures in brackets are 95% confidence intervals.

4.1.4 Eleven province model

With approximately the same number of provinces the eleven province model is not very different from the ten province model when it comes to poverty rates. The major difference between these models is the potentially important political element discussed above, that is, in the eleven province model more of the hill provinces have access to India.

Seven of the eleven suggested provinces have had a significant decline in poverty since 1995. Again the four provinces that have not had a significant decline are the ones that started out as the least poor provinces. In relative terms the decrease is especially noticeable in two terai-provinces. In Kochila poverty has declined 64% (from 41.1 to 14.7) and in Tharuwan 50% (from 45.9 to 22.8). Again we see that the western hill provinces are the poorest in 2010. This is so, despite the fact that the eastern-most province includes two terai districts.

Table 4.9: Poverty in the eleven province model (%)

Province	Districts	1995-96	2003-04	2010-11
Limbuwan	6	28.9* [15.8; 42.0]	36.9 [23.0; 50.7]	17.1* [11.1; 23.0]
Kochila	3	41.1* [30.7; 51.4]	14.4* [8.2; 20.7]	14.7* [8.3; 21.1]
Kirat	5	38.7* [30.2; 47.3]	54.2 [38.3; 70.0]	21.1* [12.3; 29.9]
Madhes	8	35.19* [27.4; 42.8]	27.9* [22.2; 33.6]	26.7* [22.3; 31.1]
Tamsaling	6	50.5 [36.0; 65.0]	43.2 [31.6; 54.9]	27.1 [18.9; 35.4]
Narayani	7	24.1* [14.5; 33.6]	19.6* [11.1; 28.2]	18.1* [11.7; 24.5]
Tamuwan	8	24.8* [12.8; 36.9]	18.4* [10.1; 26.6]	18.7* [10.8; 26.6]
Magarat	7	52.1 [38.3; 65.9]	35.3* [25.1; 45.6]	28.9 [21.0; 36.8]
Tharuwan	6	45.9* [37.5; 54.3]	35.3* [26.0; 44.6]	22.8* [16.3; 29.3]
Khaptad (ref)	10	68.9 [55.9; 81.9]	51.1 [39.4; 62.8]	37.7 [28.0; 47.3]
Karnali	9	63.9 [51.6; 76.3]	41.0 [27.6; 54.3]	45.6 [38.3; 52.9]
Nepal	75	41.8 [38.1; 45.4]	30.8 [27.7; 34.0]	25.2 [23.0; 27.3]

- Notes: 1) * indicates a significant difference from reference category within the same period at the 95%-level.
 2) Bold indicates a significant difference from first period at the 95%-level.
 3) Italics indicates a significant difference from previous period at the 95%-level.
 4) The figures in brackets are 95% confidence intervals.

4.2 Headcount poverty with panel data

Above we have reported on the random cross-section surveys that give the best estimates for poverty in Nepal. For research purposes the smaller panel survey may be of interest. Here a sub-sample of the 1995 survey was re-interviewed in 2003, which means that we can study changes in poverty status at the household level. The problem with panels is attrition. We have previously shown, in Hatlebakk (2007), that in particular the landless are not so easily found in the second round. This is not surprising as they have no land in the village, and thus may have moved to another place. Below we will see how this affects the poverty rates in the panel data. We only report on the six-province model.

The first column repeats the poverty data for 1995. The second and third columns contain the panel sub-sample, but from different sources (where we cannot fully explain the difference). However, both point-estimates are slightly below the estimate from the first column, which is as expected since we know that landless households are more likely not in this sub-sample. The decline in poverty is in the same range in the panel and the cross-section. In particular in the Eastern region there seems to be a decline in poverty in the panel, but not in the cross-section. This difference can be explained by migration of poor people into this region, as a random (cross-sectional) survey will include new households, while the panel excludes these.

Table 4.10: Poverty in the six province model (%)

Provinces	Districts	1995-96	Panel 1995-96	Panel 1995-96	Panel 2003-04	2003-04	2010-11
Eastern (Province 1)	14	37.1 [30.3; 43.8]	42.3 [30.5; 54.1]	42.6 [30.6; 54.5]	24.2 [16.3; 32.1]	29.7 [22.3; 37.0]	16.7* [12.5; 21.0]
Central (Province 2)	13	32.9 [24.3; 41.5]	28.3 [15.6; 41.1]	28.3 [15.6; 41.1]	30.7 [15.6; 45.8]	26.5 [19.2; 33.8]	20.6 [15.5; 25.7]
Western (Province 3)	16	36.3 [27.7; 45.0]	30.4 [14.0; 46.9]	30.4 [14.0; 46.9]	17.4 [9.3; 25.5]	24.2 [17.9; 30.5]	23.1 [18.0; 28.2]
Madhes (ref) (Province 4)	8	35.1 [27.4; 42.8]	29.5 [19.7; 39.4]	31.7 [22.3; 41.0]	20.2 [13.3; 27.0]	27.9 [22.2; 33.6]	26.7 [22.3; 31.1]
Mid-Far Western (Province 5)	18	70.6* [61.8; 79.4]	68.4* [50.1; 86.7]	69.3* [50.3; 88.2]	44.9* [33.5; 56.3]	44.3* [34.6; 54.1]	42.1* [35.8; 48.4]
Tharuwan (Province 6)	6	49.4* [40.8; 58.0]	54.8* [41.4; 68.3]	54.8* [41.4; 68.3]	41.1* [26.6; 55.6]	42.3* [33.0; 51.6]	27.4 [20.7; 34.2]
Nepal	75	41.8 [38.1; 45.4]	39.3 [33.1; 45.5]	39.9 [33.8; 46.1]	27.4 [22.6; 32.1]	30.8 [27.7; 34.0]	25.2 [23.0; 27.3]
N		3373	962	962	962	3912	5988

Note: 1) We use individual weights from NLSS1 (cross-section data) when estimating poverty in the second round with panel data.

2) We have two columns for the panel sub-sample for NLSS1 poverty levels because the released panel data was not consistent with the updated poverty data for NLSS1. The first column is the results from the updated poverty file, whereas the second column indicates results from the panel file. The deviation seems to be that some households are defined as poor in the panel file, but not in the updated NLSS1 file, and vice-versa.

3) * indicates a significant difference from reference category within the same period at the 95%-level.

4) Bold indicates a significant difference from first period at the 95%-level.

5) Italics indicates a significant difference from previous period at the 95%-level.

6) The figures in brackets are 95% confidence intervals.

4.3 Poverty across castes and ethnic groups

The main argument for a federal structure has been that excluded ethnic groups should be allowed to govern their own areas. It is thus of interest to investigate to what extent the local Janajatis benefit from each federal model. We report on poverty rates for the groups that traditionally belong to that area, so high castes in Madhes will include for example Yadavs, while high castes in the hills are Brahmin and Chettris of hill origin.

4.3.1 Six province model

In the eastern hills the Janajatis are poorer than the high castes, which is in accordance with general belief. It is also reported in the media that the high castes, mostly Chettris, in the western hills are as poor as their neighbors, which is also confirmed by the data. The same is the case in terai, where the Yadavs and other Madesh castes are as poor as their Tharu neighbors.

Table 4.11: Poverty across castes in the six province model (%)

Provinces	Districts	Janajati	High caste	All
Eastern (Province 1)	14	20.5 [14.3; 26.6]	6.2* [3.1; 9.4]	16.7* [12.5; 21.0]
Central (Province 2)	13	25.7 [18.2; 33.1]	8.2* [4.9; 11.5]	20.6 [15.5; 25.7]
Western (Province 3)	16	28.0 [18.7; 37.3]	12.6* [7.6; 17.7]	23.1 [18.0; 28.2]
Madhes (Province 4) (ref)	8	33.5 [22.9; 44.0]	24.8 [19.2; 30.3]	26.7 [22.3; 31.1]
Mid-Far Western (Province 5)	18	26.5 [13.6; 39.4]	38.7* [31.6; 45.7]	42.1* [35.8; 48.4]
Tharuwan (Province 6)	6	27.7 [17.7; 37.6]	43.2* [27.8; 58.5]	27.4 [20.7; 34.2]
Nepal	75	24.8 [21.4; 28.3]	21.4 [18.7; 24.1]	25.2 [23.0 ; 27.3]

- Notes: 1) Caste classification according to Das and Hatlebakk (2010).
 2) We use reported caste/ethnicity for all household members, which implies that we use household weights in contrast to the other tables where we use household data and individual weights.
 3) Janajati refers to local ethnic groups (such as Newar, Magar and Tamang in the hills, and Tharu in terai). For Madhes and Tharuwan high caste means middle and upper Madhes castes (such as Yadav and Teli).
 4) * indicates significant difference from the reference category at the 95%-level
 5) Bold indicates significant different from Janajati at the 95%-level
 6) The figures in brackets are 95% confidence interval.

4.3.2 Ten province model

The 10-state model shows the same pattern as the six-state model.

Table 4.12: Poverty across castes in the ten province model (%)

Province	Districts	Janajati	High caste	All
Limbuwan	4	17.9 [9.3 ; 26.4]	6.1* [1.5; 10.7]	13.5* [7.7; 19.4]
Kirat	7	28.7 [18.2 ; 39.2]	7.8 [1.7; 13.9]	21.8 [14.6; 29.0]
Tamsaling	9	38.9 [27.3 ; 50.4]	12.4 [5.6; 19.2]	31.4 [22.7; 40.1]
Newa	3	12.2* [7.9 ; 16.4]	5.8* [2.9; 8.6]	10.5* [7.2; 13.8]
Narayani	3	31.4 [9.8 ; 53.0]	11.7 [3.4 ; 19.9]	21.3 [9.2; 33.3]
Tamuwan	5	19.3 [-1.2 ; 39.8]	5.7 [-3.1 ; 14.6]	16.4 [5.9; 26.9]
Magarat (ref)	7	33.3 [20.0 ; 46.6]	18.6 [9.3; 28.0]	28.9 [21.0; 36.8]
Karnali-Khaptad	17	24.4 [11.5 ; 37.3]	41.8* [34.2 ; 49.3]	43.8* [36.9; 50.8]
Madhes	12	26.3 [18.3; 34.3]	25.3 [19.8 ; 30.7]	22.0 [18.3; 25.6]
Tharuwan	8	26.8 [18.2 ; 35.4]	38.8* [26.1; 51.6]	26.4 [20.8; 31.9]
Nepal	75	24.8 [21.4; 28.3]	21.4 [18.7; 24.1]	25.2 [23.0 ; 27.3]

Notes: 1) Caste classification according to Das and Hatlebakk (2010).

2) We use reported caste/ethnicity for all household members, which implies that we use household weights in contrast to the other tables where we use household data and individual weights.

3) Janajati refers to local ethnic groups (such as Newar, Magar and Tamang in the hills, and Tharu in terai). For Madhes and Tharuwan high caste means middle and upper Madhes castes (such as Yadav and Teli).

4) * indicates significant difference from the reference category at the 95%-level

5) Bold indicates significant different from Janajati at the 95%-level

6) The figures in brackets are 95% confidence interval.

4.3.3 Eleven province model

In the 11-state model there are some discrepancies as compared to the two other models. It appears that the two western-most terai districts have a higher poverty rate among the Tharus in this data set, so when these two districts are excluded in this model we find that the terai Janajatis of Tharuwan are less poor than their neighboring Madhes castes. And at the other end of the terai, we have a similar finding. There we have focused on the hill Janajatis as these terai districts have more hill Janajatis than terai Janajatis due to the heavy migration from the hills. But in contrast to the eastern hills, these

Janajatis who have migrated to the terai are not significantly poorer than their hill high caste neighbors.

Table 4.13: Poverty across castes in the eleven province model (%)

Province	Districts	Janajati	High caste	All
Limbuwan	6	23.9 [14.7; 33.1]	5.3* [1.5; 9.2]	17.1* [11.1; 23.0]
Kochila	3	11.2 [3.9; 18.6]	5.2* [0.6; 9.8]	14.7* [8.3; 21.1]
Kirat	5	25.7 [13.2; 38.2]	9.6* [1.3; 17.8]	21.1* [12.3; 29.9]
Madhes	8	33.5 [22.9; 44.0]	24.8* [19.2; 30.3]	26.7* [22.3; 31.1]
Tamsaling	6	30.9 [20.1; 41.7]	17.0* [7.4; 26.6]	27.1 [18.9; 35.4]
Narayani	7	23.7 [14.2; 33.2]	5.3* [2.7; 7.9]	18.1* [11.7; 24.5]
Tamuwan	8	25.2 [10.0; 40.3]	8.7* [2.6; 14.7]	18.7* [10.8; 26.6]
Magarat	7	33.3 [20.0; 46.6]	18.6* [9.3; 28.0]	28.9 [21.0; 36.8]
Tharuwan	6	18.5 [10.0; 27.0]	39.3 [26.2; 52.3]	22.8* [16.3; 29.3]
Khaptad (ref)	10	25.3 [12.0; 38.7]	39.2 [28.5; 50.0]	37.7 [28.0; 47.3]
Karnali	9	32.2 [0.5; 63.9]	36.9 [28.2; 45.6]	45.6 [38.3; 52.9]
Nepal	75	24.8 [21.4; 28.3]	21.4 [18.7; 24.1]	25.2 [23.0 ; 27.3]

Notes: 1) Caste classification according to Das and Hatlebakk (2010).

2) We use reported caste/ethnicity for all household members, which implies that we use household weights in contrast to the other tables where we use household data and individual weights.

3) Janajati refers to local ethnic groups (such as Newar, Magar and Tamang in the hills, and Tharu in terai). For Madhes and Tharuwan high caste means middle and upper Madhes castes (such as Yadav and Teli).

4) * indicates significant difference from the reference category at the 95%-level

5) Bold indicates significant different from Janajati at the 95%-level

6) The figures in brackets are 95% confidence interval.

4.4 The poverty gap index

While the headcount counts the number of poor people, the poverty gap is the average income that is necessary to remove poverty, measured as a percentage of the poverty line. The poverty gap has declined from 11.7% in 1995/96 to 7.5% in 2003/04 and finally to 5.5% in 2010/11. So on average an annual tax of 2 000 rupees for the 50% of the population having incomes above the median income of 27 600 rupees will lift everyone above the poverty line⁹.

There is a larger decline in poverty than what is measured by the headcount, which means that there has been an increase in average income also below the poverty line. As for the headcount poverty is highest in the western hills, but this time at 10-11% independently of how the provinces are drawn. A poverty gap in the range of 5-11% of the poverty line is not very high, but representative for most poor countries, and is in the same range as for India and Bangladesh.

4.4.1 Six province model

The poverty gap confirms the results from the headcount poverty measure. As we can see, the poverty gap has declined significantly in all provinces except in Madhes (which also is the province that started out with the smallest poverty gap). Between 1995/96 and 2003/04 the reduction is significant for only the Western and Mid-Far Western provinces, and between 2003/04 and 2010/11 it is significant for the Eastern and Tharuwan provinces only. The decline in the poverty gap is largest in the Eastern province (which also confirms the result from the headcount poverty rates).

⁹ Note that this is a back-of-the-envelope calculation that among other factors does not take into account that the poverty line for Kathmandu is actually above the median income. But the calculation indicates that even in a poor country like Nepal one can in theory solve the poverty problem using domestic resources. The main problem is thus not resources, but effective ways to intervene that take into account the incentive problems that may follow different types transfer mechanisms.

Table 4.14: Poverty gap in the six province model (%)

Provinces	Districts	1995-96	2003-04	2010-11
Eastern (Province 1)	14	9.8 [7.3; 12.2]	8.1 [5.5; 10.7]	2.8* [1.9; 3.7]
Central (Province 2)	13	9.7 [6.4; 13.1]	7.9 [4.8; 11.0]	5.7 [3.6; 7.7]
Western (Province 3)	16	11.1 [7.5; 14.7]	5.6* [3.7; 7.5]	4.4 [3.2; 5.6]
Madhes (Province 4)	8	6.9* [4.5; 9.2]	5.6* [4.3; 7.0]	4.9 [3.9; 5.9]
Mid-Far Western (Province 5)	18	24.9* [20.3; 29.5]	<i>10.5</i> [7.5; 13.5]	10.5* [8.1; 12.8]
Tharuwan (ref) (Province 6)	6	12.5 [9.3; 15.8]	9.5 [6.5; 12.5]	5.9 [4.0; 7.7]
Nepal	75	11.7 [10.3; 13.2]	7.5 [6.5; 8.6]	5.5 [4.8; 6.1]

Notes: 1) The poverty gap equals any positive difference between the price adjusted poverty line and consumption per capita, divided by the same poverty line. In a few cases in NLS3 (maybe due to rounding errors) there was a positive poverty gap for households defined as non-poor in the data; we have rounded these poverty gaps down to zero.

2) * indicates a significant difference from reference category within the same period at the 95%-level.

3) Bold indicates a significant difference from first period at the 95%-level.

4) Italics indicates a significant difference from previous period at the 95%-level.

5) The figures in brackets are 95% confidence intervals.

4.4.2 Ten province model

The reduction in the poverty gap for the ten-province model is significant for five of the provinces (one less than in the results for headcount poverty). From 1995/96 to 2003/04 the reduction is significant for Magarat, Karnali-Khaptad and Madhes, and from 2003/04 to 2010/11 it is significant for Kirat and Newa. The reduction in the poverty gap is largest in Magarat (72%) and Kirat (64%) which also confirms the results from headcount poverty.

Table 4.15: Poverty gap in the ten province model (%)

Province	Districts	1995-96	2003-04	2010-11
Limbuwan	4	5.1* [1.0; 9.2]	6.7 [1.9; 11.5]	2.4* [1.0; 3.8]
Kirat	7	10.8* [7.0; 14.7]	16.8* [11.6; 22.0]	3.9 [2.2; 5.6]
Tamsaling	9	14.7 [9.7; 19.7]	14.2 [9.3; 19.1]	8.9 [5.0; 12.8]
Newa	3	1.3* [-0.1; 2.7]	0.8* [0.3; 1.4]	2.5* [1.6; 3.3]
Narayani	3	5.1* [1.0; 9.2]	4.0 [0.6; 7.4]	4.0 [1.7; 6.2]
Tamuwan	5	4.8* [0.3; 9.3]	4.4 [0.8; 7.9]	3.6 [0.4; 6.7]
Magarat (ref)	7	19.7 [13.9; 25.4]	8.6 [5.5; 11.7]	5.5 [3.6; 7.4]
Karnali- Khaptad	17	26.2 [21.3; 31.0]	11.5 [8.2; 14.8]	11.0* [8.4; 13.6]
Madhes	12	8.2* [6.2; 10.3]	4.6* [3.6; 5.6]	4.0 [3.2; 4.8]
Tharuwan	8	11.7* [8.8; 14.6]	8.1 [5.6; 10.6]	5.6 [4.1; 7.1]
Nepal	75	11.7 [10.3; 13.2]	7.5 [6.5; 8.6]	5.5 [4.8; 6.1]

Notes: 1) The poverty gap equals any positive difference between the price adjusted poverty line and consumption per capita, divided by the same poverty line. In a few cases in NLSS3 (maybe due to rounding errors) there was a positive poverty gap for households defined as non-poor in the data; we have rounded these poverty gaps down to zero.

2) * indicates a significant difference from reference category within the same period at the 95%-level.

3) Bold indicates a significant difference from first period at the 95%-level.

4) Italics indicates a significant difference from previous period at the 95%-level.

5) The figures in brackets are 95% confidence intervals.

4.4.3 Eleven province model

The poverty gap has significantly declined in 7 out of 11 provinces since 1995/96. The provinces that do not have a significant reduction are again those starting with the lowest poverty gap. Between 1995/96 and 2003/04 there is a significant reduction in Kochila, Magarat, Khaptad and Karnali, and between 2003/04 and 2010/11 the reduction is significant for Limbuwan, Kirat, Tamsaling and Tharuwan. The poverty gap has declined the most in Kochila (80% reduction from 11.3 to 2.3).

Table 4.16: Poverty gap in the eleven province model (%)

Province	Districts	1995-96	2003-04	2010-11
Limbuwan	6	5.4* [2.1; 8.8]	9.6 [4.8; 14.5]	3.3* [1.4; 5.3]
Kochila	3	11.3* [7.5; 15.1]	2.8* [1.5; 4.0]	2.3* [1.1; 3.6]
Kirat	5	11.8* [7.2; 16.4]	17.6 [11.2; 24.1]	3.5* [1.9; 5.0]
Madhes	8	6.9* [4.5; 9.2]	5.6* [4.3; 7.0]	4.9* [3.9; 5.9]
Tamsaling	6	17.9 [10.4; 25.4]	12.3 [7.2; 17.4]	6.1 [3.8; 8.4]
Narayani	7	5.6* [3.3; 7.9]	6.1* [2.4; 9.8]	5.5* [2.7; 8.3]
Tamuwan	8	4.9* [1.9; 8.0]	4.2* [1.7; 6.7]	3.8* [1.8; 5.7]
Magarat	7	19.7 [13.9; 25.4]	8.6 [5.5; 11.7]	5.5* [3.6; 7.4]
Tharuwan	6	11.5* [8.4; 14.7]	8.0 [4.9; 11.2]	4.5* [2.9; 6.9]
Khaptad (ref)	10	25.1 [18.3; 31.8]	12.6 [8.4; 16.8]	10.4 [6.4; 14.4]
Karnali	9	21.1 [15.3; 26.9]	8.9 [5.7; 12.0]	10.7 [8.2; 13.2]
Nepal	75	11.7 [10.3; 13.2]	7.5 [6.5; 8.6]	5.5 [4.8; 6.1]

Notes: 1) The poverty gap equals any positive difference between the price adjusted poverty line and consumption per capita, divided by the same poverty line. In a few cases in NLSS3 (maybe due to rounding errors) there was a positive poverty gap for households defined as non-poor in the data; we have rounded these poverty gaps down to zero.

2) * indicates a significant difference from reference category within the same period at the 95%-level.

3) Bold indicates a significant difference from first period at the 95%-level.

4) Italics indicates a significant difference from previous period at the 95%-level.

5) The figures in brackets are 95% confidence intervals.

5. Landholdings and demography

Land is still the main asset in Nepal, both in rural and urban areas. In rural areas agriculture is the dominating economic activity, and land also has value as collateral for loans, which can be used to invest in other businesses, and land has social value, both intrinsic as the family is tied to their ancestor's land, and in form of social status. In urban areas land has become the main investment as land-values increase rapidly. So people buy land in stead of investing in shares or placing the money in banks.

We will report on average landholdings in hectare. Now it is problematic to compare across regions as land has different qualities, and values, in different regions. However, since urban land values are so inflated due to the savings function, we find it even harder to interpret variation in land values. So since land is such an important asset we want to report on this indicator, but the reader should keep in mind that a hectare of land will have different value in urban and rural areas, and within the rural the value will differ in particular between hills and terai.

It is also problematic to compare holdings over time in the same region, first of all due to population growth. Most households split land between sons as they separate from their father. So the number of households increases with time, and the average land holding thus decline. Furthermore, some of these households will migrate so that a stable and high average may actually indicate a region with less economic development as people move away. This is why we have named this section as "Landholdings and demography", since the development in average landholdings, for a given total land area, is the flip side of population dynamics.

Keeping these caveats in mind we note that the average landholding has gone down 40% from 0.85 hectare in 1995 to 0.51 hectare in 2010. Population has increased from approximately 20 million in 1995 to approximately 28 million in 2010, and the household size has declined from 5.5 in 1995 to maybe 4.7 in 2010. This implies that the number of households have increased from approximately 3.6 million in 1995 to approximately 6 million in 2010. Although the population and land information is from different sources the numbers are in fact consistent over time, and thus consistent with a fixed total amount of 3.06 million hectares of land in Nepal that is owned by households. So the decline in average land holding is fully explained by the increase in number of households. We know that agricultural production has increased during the same period and many people have left agriculture, so land per farmer and in particular farm income per farmer have probably not declined.

5.1 Six province model

There is a larger decline in the west, both hills and terai, than elsewhere. This indicates less out-migration of households. This should not be mixed up with labor migration, where household members work, for example in India, but the rest of the household is still living in the villages. We also know that fertility rates are higher in the west, which may lead to a faster increase in the number of households, and thus a larger decline in land per household. The smallest decline we find in Madhes, where average land holdings even increased from 2003 to 2010. This indicates out-migration, but preliminary census data indicates, in fact, in-migration to these districts. If this is correct, then the only explanation can be a de-facto increase in total land-holdings in Madhes. The National sample census of agriculture report, in fact, an increase of 1.6% in the terai from 1991 to 2001. And as only 41% of the total area was actually owned by someone there is still a potential for such an increase in land holdings. So there is room for this slower decline in per household land holdings in Madhes.

Table 5.1: Landholdings in the six province model (hectare)

Provinces	Districts	1995-96	2003-04	2010-11
Eastern2 (Province 1)	14	1.015 [0.809; 1.220]	<i>0.743*</i> [0.641; 0.844]	0.608 [0.522; 0.693]
Central2 (Province 2)	13	0.581* [0.450; 0.712]	0.434* [0.354; 0.514]	0.361* [0.314; 0.409]
Western2 (Province 3)	16	0.699* [0.590; 0.809]	0.586 [0.511; 0.661]	0.489* [0.439; 0.540]
Madhes2 (Province 4)	8	0.743* [0.591; 0.895]	<i>0.547</i> [0.435; 0.659]	0.569 [0.459; 0.680]
Mid-Far Western (Province 5) (ref)	18	1.147 [0.849; 1.445]	<i>0.599</i> [0.523; 0.675]	0.574 [0.510; 0.638]
Tharuwan2 (Province 6)	6	1.152 [0.942; 1.362]	<i>0.797</i> [0.590; 1.004]	0.543 [0.458; 0.627]
Nepal	75	0.850 [0.773 ; 0.928]	<i>0.603</i> [0.557 ; 0.650]	0.513 [0.482 ; 0.545]
N		3373	3912	5988

- Notes: 1) * indicates a significant difference from reference category within the same period at the 95%-level.
 2) Bold indicates a significant difference from first period at the 95%-level.
 3) Italics indicates a significant difference from previous period at the 95%-level.
 4) The figures in brackets are 95% confidence intervals.

5.2 Ten province model

In the ten-state model, the small province of Narayani, in the hills west of Kathmandu, has not had a significant change in landholdings, in contrast to most other provinces, where it has declined. One explanation can be out-migration to Kathmandu. The same may be the case for Limbuwan where the decline has also been limited. And again we find the largest decline in the west. There is a larger decline in the Madhes state than in the previous model, which is because the eastern-most terai districts are included. The larger decline there is most likely explained by in-migration from the hills.

Table 5.2: Landholdings in the ten province model (hectare)

Province	Districts	1995-96	2003-04	2010-11
Limbuwan	4	1.220 [0.725; 1.714]	0.928 [0.711; 1.144]	0.989* [0.775; 1.204]
Kirat (ref)	7	1.053 [0.750; 1.357]	0.818 [0.649; 0.986]	0.706 [0.595; 0.816]
Tamsaling	9	0.770 [0.585; 0.954]	0.690 [0.587; 0.794]	<i>0.539*</i> [0.470; 0.607]
Newa	3	0.235* [0.132; 0.337]	<i>0.114*</i> [0.073; 0.155]	0.161* [0.113; 0.209]
Narayani	3	0.456* [0.350; 0.562]	<i>0.702</i> [0.527; 0.877]	<i>0.475*</i> [0.389; 0.561]
Tamuwan	5	0.556* [0.446; 0.666]	<i>0.401*</i> [0.324; 0.478]	0.395* [0.294; 0.497]
Magarat	7	0.787 [0.607; 0.968]	0.661 [0.548; 0.775]	0.563* [0.478; 0.648]
Karnali-Khaptad	17	1.121 [0.796; 1.445]	<i>0.552*</i> [0.488; 0.616]	0.554* [0.491; 0.618]
Madhes	12	0.787 [0.653; 0.920]	<i>0.573*</i> [0.488; 0.657]	0.515* [0.437; 0.594]
Tharuwan	8	1.143 [0.971; 1.316]	<i>0.762</i> [0.595; 0.928]	0.546* [0.473; 0.619]
Nepal	75	0.850 [0.773 ; 0.928]	<i>0.603</i> [0.557 ; 0.650]	0.513 [0.482 ; 0.545]
N		3373	3912	5988

- Notes: 1) * indicates a significant difference from reference category within the same period at the 95%-level.
 2) Bold indicates a significant difference from first period at the 95%-level.
 3) Italics indicates a significant difference from previous period at the 95%-level.
 4) The figures in brackets are 95% confidence intervals.

5.3 Eleven province model

The larger decline in the eastern terai districts of Kochila is shown in the eleven-state model. Furthermore, we again find the slowest decline in the hills west of Kathmandu, which can be explained by migration to urban areas, whether that is Kathmandu, Pokhara or the terai.

Table 5.3: Landholdings in the eleven province model (hectare)

Province	Districts	1995-96	2003-04	2010-11
Limbuwan	6	1.282 [0.887; 1.676]	0.917 [0.713; 1.121]	0.928* [0.773; 1.083]
Kochila	3	0.903 [0.605; 1.201]	0.639 [0.495; 0.783]	0.449* [0.329; 0.568]
Kirat (ref)	5	0.938 [0.592; 1.285]	0.784 [0.613; 0.955]	0.660 [0.530; 0.791]
Madhes	8	0.743 [0.591; 0.895]	<i>0.547*</i> [0.435; 0.659]	0.569 [0.459; 0.680]
Tamsaling	6	0.910 [0.624; 1.196]	0.786 [0.640; 0.932]	0.585 [0.491; 0.678]
Narayani	7	0.418* [0.315; 0.520]	0.293* [0.220; 0.366]	0.273* [0.223; 0.324]
Tamuwan	8	0.507* [0.425; 0.590]	0.537* [0.434; 0.659]	0.433* [0.367; 0.499]
Magarat	7	0.787 [0.607; 0.968]	0.661 [0.548; 0.775]	0.563 [0.478; 0.648]
Tharuwan	6	1.045 [0.854; 1.236]	<i>0.719</i> [0.528; 0.911]	0.547 [0.465; 0.628]
Khaptad	10	0.885 [0.548; 1.222]	<i>0.533*</i> [0.445; 0.621]	0.566 [0.478; 0.655]
Karnali	9	1.421 [1.075; 1.768]	<i>0.752</i> [0.564; 0.940]	0.542 [0.456; 0.628]
Nepal	75	0.850 [0.773 ; 0.928]	<i>0.603</i> [0.557 ; 0.650]	0.513 [0.482 ; 0.545]
N		3373	3912	5988

- Notes: 1) * indicates a significant difference from reference category within the same period at the 95%-level.
 2) Bold indicates a significant difference from first period at the 95%-level.
 3) Italics indicates a significant difference from previous period at the 95%-level.
 4) The figures in brackets are 95% confidence intervals.

6. Landlessness

We have already discussed how average landholding per household will tend to decline over time as the number of households increases, mainly because of population growth. So average landholdings do not contain information on the distribution of land. The proportion of landless households, on the other hand, is a measure of land distribution. But also for this measure we must keep in mind that as average landholding declines as a result of population growth we shall expect landlessness to increase as well. And this is exactly what we find in Nepal, the proportion of landless households increased from 18% in 1995 to 23% in 2003 and 2010, so the increase happened between the two first surveys. This corresponds with the decline in average land, where also the largest decline came before 2003. This indicates that more new households were formed before 2003 than after. There can be many reasons for this. Labor migration is one, young men may leave the country for work in stead of setting up their own household, possibly even leaving their wife and children with either her parents or his own parents.

6.1 Six province model

The only significant change in landlessness is found in the central hills, which is probably explained by urbanization, as many migrants to the Kathmandu valley will not need land as they survive from non-farm work. There has also been an apparent increase in landlessness in the western terai and hills, but these changes are not statistically significant. There is also an apparent bump in landlessness in Madhes in 2003, but although significant, this may still be a statistical coincidence related to the random selection of villages in each survey, because landlessness in Madhes is back down to the 1995 level in 2010.

Table 6.1: Landlessness in the six province model (%)

Provinces	Districts	1995-96	2003-04	2010-11
Eastern ² (Province 1)	14	24.9* [17.7; 32.0]	24.3* [19.2; 29.3]	25.4* [20.4; 30.4]
Central ² (Province 2)	13	20.0* [14.2; 25.8]	29.9* [24.0; 35.7]	35.4* [31.2; 39.7]
Western ² (Province 3)	16	10.3* [7.1; 13.6]	13.5* [9.8; 17.1]	13.6* [9.7; 17.5]
Madhes ² (Province 4)	8	28.4* [21.2; 35.6]	37.2* [31.0; 43.4]	27.2* [22.3; 32.2]
Mid-Far Western (Province 5) (ref)	18	2.4 [0.2; 4.6]	4.2 [0.8; 7.5]	5.3 [2.7; 7.8]
Tharuwan ² (Province 6)	6	13.5* [7.6; 19.4]	17.2* [11.3; 23.1]	20.1* [13.9; 26.2]
Nepal	75	17.9 [15.4 ; 20.4]	23.2 [21.1 ; 25.3]	22.9 [21.1 ; 24.7]
N		3373	3912	5988

Notes: 1) * indicates a significant difference from reference category within the same period at the 95%-level.
 2) Bold indicates a significant difference from first period at the 95%-level.
 3) Italics indicates a significant difference from previous period at the 95%-level.
 4) The figures in brackets are 95% confidence intervals.

6.2 Ten province model

In the proposed ten-state model there are significant increases in landlessness in the hill regions of Tamsaling and Tamuwan. Again this can be due to urbanization as Pokhara is a part of Tamuwan, and Tamsaling includes districts near Kathmandu. When it comes to levels of landlessness, it is very high in the provinces that include Kathmandu (Newa) and Pokhara, but also in the Madhes region where there are many landless people even in villages.

Table 6.2: Landlessness in the ten province model (%)

Province	Districts	1995-96	2003-04	2010-11
Limbuwan	4	5.2 [0.3; 10.0]	13.2 [4.2; 22.2]	2.4 [-0.3; 5.0]
Kirat	7	4.4 [1.5; 7.4]	6.5 [1.4; 11.6]	4.8 [1.3; 8.3]
Tamsaling	9	2.5 [0.7; 4.3]	4.4 [1.1; 7.8]	8.5 [4.6; 12.3]
Newa	3	51.3* [38.9; 63.7]	63.7* [52.9; 74.5]	65.5* [58.3; 72.8]
Narayani	3	12.5 [4.2; 20.7]	9.5 [3.5; 15.5]	9.1 [4.1; 14.1]
Tamuwan	5	12.7* [5.4; 20.1]	23.0* [12.4; 33.6]	29.5* [18.4; 40.6]
Magarat	7	6.0 [2.2; 9.8]	9.0 [3.7; 14.3]	4.8 [-0.8; 10.4]
Karnali-Khaptad (ref)	17	2.6 [0.2; 5.0]	2.9 [0.1; 5.7]	4.9 [2.1; 7.6]
Madhes	12	32.6* [26.8; 38.4]	36.2* [31.9; 40.6]	33.1* [29.1; 37.0]
Tharuwan	8	12.7* [8.0; 17.4]	16.5* [11.7; 21.2]	18.8* [13.9; 23.7]
Nepal	75	17.9 [15.4 ; 20.4]	23.2 [21.1 ; 25.3]	22.9 [21.1 ; 24.7]
N		3373	3912	5988

- Notes: 1) * indicates a significant difference from reference category within the same period at the 95%-level.
 2) Bold indicates a significant difference from first period at the 95%-level.
 3) Italics indicates a significant difference from previous period at the 95%-level.
 4) The figures in brackets are 95% confidence intervals.

6.3 Eleven province model

According to the eleven-state model there has been a significant increase in landlessness in Narayani, Karnali and Tamsaling. Again Narayani includes Kathmandu, and Tamsaling districts near Kathmandu, and the increase can be explained by urbanization. In most Karnali districts there were no landless households in 1995, while there were landless people in 2010, again maybe because some people switched to non-farm occupations.

Table 6.3: Landlessness in the eleven province model (%)

Province	Districts	1995-96	2003-04	2010-11
Limbuwan	6	4.7 [0.8; 8.6]	12.5 [4.9; 20.1]	3.2 [0.9; 5.6]
Kochila	3	45.8* [36.5; 55.0]	38.6* [32.4; 44.7]	43.3* [35.7; 50.8]
Kirat	5	4.8 [1.3; 8.4]	4.5 [1.0; 8.0]	4.8 [0.4; 9.3]
Madhes	8	28.4* [21.2; 35.6]	37.2* [31.0; 43.4]	27.2* [22.3; 32.2]
Tamsaling	6	1.7 [-0.2; 3.6]	1.4 [0.0; 2.7]	7.6 [2.7; 12.4]
Narayani	7	29.0* [20.6; 37.4]	41.3* [33.1; 49.4]	46.4* [40.7; 52.1]
Tamuwan	8	12.6 [7.1; 18.1]	16.9* [10.6; 23.3]	19.9* [13.7; 26.1]
Magarat	7	6.0 [2.2; 9.8]	9.0 [3.7; 14.3]	4.8 [-0.8; 10.4]
Tharuwan	6	14.6* [9.3; 19.9]	19.0* [13.4; 24.7]	21.0* [14.9; 27.0]
Khaptad (ref)	10	4.5 [0.3; 8.7]	3.2 [-0.8; 7.3]	2.3 [-0.1; 4.6]
Karnali	9	2.4 [-0.8; 5.6]	5.6 [1.2; 9.9]	9.4* [5.2; 13.5]
Nepal	75	17.9 [15.4 ; 20.4]	23.2 [21.1 ; 25.3]	22.9 [21.1 ; 24.7]
N		3373	3912	5988

Notes: 1) * indicates a significant difference from reference category within the same period at the 95%-level.
 2) Bold indicates a significant difference from first period at the 95%-level.
 3) Italics indicates a significant difference from previous period at the 95%-level.
 4) The figures in brackets are 95% confidence intervals.

7. Wages for casual farm laborers

Farm laborers are among the lowest paid and farm labor is the last option for many poor people. The daily wage as a farm laborer is thus what economists call the reservation wage, that is, the income that a poor person will get if he cannot take another job. The daily wage of a village is normally well known, and if a person earn more, or less, than the going wage there is normally some specific explanation that applies to that person, whether he is particularly skillful, or strong, or he may have some physical problem. Since the wage is well known it can be measured by a higher degree of accuracy than other income measures. And since this is the reservation wage for the poorest segments of society it is also a good poverty measure, that is, the variation in agricultural wages over time, and between districts, indicate how poverty vary over time and between districts. We do, however, have to adjust for price changes. In this report we use two price indexes. One is the poverty lines used in the NLSS surveys, they take into account a number of prices. The second is the price of the main staple good for poor people, that is what is named as coarse rice in the NLSS survey. In our mind the rice price is the best price index, even though the NLSS poverty line is supposed to be based on a basket of goods consumed by the poor. Our judgment is based on the fact that if we use the NLSS poverty line as the index we actually get a decline in real wages from 2003 to 2010, which based on our observations in the field do not seem realistic. The nominal increase in agricultural wages from 75 rupees in 2003 to 168 rupees in 2010 is in fact a real increase based on our observations, these poor workers can now buy goods that they previously could not afford.

When we, in stead, adjust for rice prices, we find a real increase in agricultural wages of 13% from 2003 to 2010. And this is for the national average. If we, in stead, look at the region with most landless people, who really depend on farm labor, the wages have increased with 28% from 2003 to 2010. In 2010 it seems like the market rate for agricultural labor is around 160 rupees for most provinces, while in 2003 there were more variation between regions, but with main areas for agricultural labor having a market wage (converted to 2010 values) of 125 rupees, while in 1995 it was (again at 2010 prices) 90 rupees. This is a doubling of real wages for the poorest among the poor over 15 years, which allows for real improvements in economic well-being, as is also reflected in the reduction in poverty. In reality this means that fewer children will have to work, that people can invest in a tin roof in stead of thatched roof on their bamboo huts, and that they can eat more fish and a more varied diet of vegetables.

Below we will report nominal agricultural wages, as well as real wages adjusted to the 2010 price level using the price index applied in the NLSS poverty estimates as well as the median price for course rice paid by the households in each survey strata. In the discussion of regional differences we will focus on the rice-price adjusted wages.

7.1 Six province model

As mentioned we find the largest increase in real wages in the areas where there are in fact most people who depend on agricultural work as a main source of income, that is, the Madhes and Eastern regions. This indicates that farm laborers are gradually shifting to other work, which in turn gives an upward shift in agricultural wages. So while these workers previously were forced to accept low wages, there is now no significant difference between the six provinces.

Table 7.1: Real agricultural (rice-price adjusted) wage rate in the six province model

Provinces	Districts	1995-96	2003-04	2010-11
Eastern2 (Province 1)	14	84.9* [75.2; 94.7]	<i>129.9*</i> [117.1; 142.7]	156.9 [144.2; 169.6]
Central2 (ref) (Province 2)	13	106.1 [90.5; 121.8]	<i>160.3</i> [143.2; 177.4]	153.6 [133.6; 173.6]
Western2 (Province 3)	16	97.7 [85.4; 110.1]	<i>161.5</i> [149.9; 173.1]	162.1 [142.7; 181.6]
Madhes2 (Province 4)	8	82.1* [72.0; 92.2]	<i>115.8*</i> [107.0; 124.5]	154.1 [140.3; 167.9]
Mid-Far Western (Province 5)	18	111.2 [83.2; 139.2]	<i>151.9</i> [128.2; 175.6]	157.3 [137.4; 177.2]
Tharuwan2 (Province 6)	6	99.5 [86.0; 112.9]	<i>174.9</i> [149.9; 199.8]	162.8 [146.8; 178.7]
Nepal	75	91.0 [85.2; 96.7]	<i>139.3</i> [132.0 ; 146.6]	157.1 [150.2; 164.1]
N		1817	1796	1809

- Notes: 1) Price of coarse rice as the price index with rural eastern terai in 2010/11 as the reference.
 2) * indicates a significant difference from reference category within the same period at the 95%-level.
 3) Bold indicates a significant difference from first period at the 95%-level.
 4) Italics indicates a significant difference from previous period at the 95%-level.
 5) The figures in brackets are 95% confidence intervals.

As mentioned, we also report on the NLSS poverty line adjusted wages, and below also on the nominal wages.

Table 7.2: Real wage rate in agriculture in the six province model

Provinces	Districts	1995-96	2003-04	2010-11
Eastern2 (Province 1)	14	120.5* [105.8; 135.1]	<i>172.6</i> [154.5; 190.8]	170.0 [155.1; 184.8]
Central2 (Province 2)	13	146.9 [124.5; 169.3]	<i>204.6</i> [181.0; 228.2]	<i>159.2</i> [139.5; 179.0]
Western2 (ref) (Province 3)	16	147.7 [128.8; 166.6]	<i>183.5</i> [170.4; 196.7]	170.9 [151.2; 190.7]
Madhes2 (Province 4)	8	118.9* [104.3; 133.6]	<i>160.5*</i> [148.4; 172.7]	148.9 [135.6; 162.3]
Mid-Far Western (Province 5)	18	166.5 [121.3; 211.8]	172.6 [145.7; 199.5]	176.8 [152.7; 200.9]
Tharuwan2 (Province 6)	6	160.7 [138.9; 182.5]	<i>198.7</i> [170.3; 227.0]	<i>154.0</i> [138.5; 169.5]
Nepal	75	113.8 [125.1; 142.6]	<i>177.8</i> [169.1; 186.4]	160.8 [153.6; 168.0]
N		1817	1796	1809

- Notes: 1) NLSS poverty lines as the price index with rural eastern terai in 2010/11 as the reference.
2) * indicates a significant difference from reference category within the same period at the 95%-level.
3) Bold indicates a significant difference from first period at the 95%-level.
4) Italics indicates a significant difference from previous period at the 95%-level.
5) The figures in brackets are 95% confidence intervals.

Table 7.3: Nominal wage rate in agriculture in the six province model

Provinces	Districts	1995-96	2003-04	2010-11
Eastern ² (Province 1)	14	36.2* [32.6; 39.8]	70.6* [64.0; 77.2]	172.1 [157.6; 186.6]
Central ² (Province 2)	13	48.4 [41.7; 55.1]	93.4 [84.3; 102.6]	177.9 [156.5; 199.3]
Western ² (ref) (Province 3)	16	44.1 [38.3; 49.9]	91.9 [85.4; 98.4]	180.0 [159.8; 200.3]
Madhes ² (Province 4)	8	32.8* [28.8; 36.9]	57.9* [53.5; 62.3]	154.1* [140.3; 167.9]
Mid-Far Western (Province 5)	18	51.0 [39.5; 62.4]	87.8 [75.6; 99.9]	180.6 [156.8; 204.5]
Tharuwan ² (Province 6)	6	39.8 [34.4; 45.2]	87.4 [75.0; 99.9]	155.6 [140.5; 170.6]
Nepal	75	38.5 [36.0; 40.9]	74.9 [70.8; 79.0]	167.7 [160.3; 175.1]
N		1817	1796	1809

- Notes
- 1) * indicates a significant difference from reference category within the same period at the 95%-level.
 - 2) Bold indicates a significant difference from first period at the 95%-level.
 - 3) Italics indicates a significant difference from previous period at the 95%-level.
 - 4) The figures in brackets are 95% confidence intervals.

7.2 Ten province model

In the ten-state model we find the largest increase in real wages in Kirat, Limbuwan and again in Madhes. These increases in the eastern hills and terai may be linked through a common labor market, but not necessarily so, since the wages in 2010 are much lower in Limbuwan than in the two other eastern regions. It is in particular Panchtar that pulls down the average for Limbuwan.

Table 7.4: Real agricultural (rice-price adjusted) wage rate in the ten province model

Province	Districts	1995-96	2003-04	2010-11
Limbuwan	4	59.1* [50.5; 67.8]	<i>116.8</i> [91.8; 141.8]	109.6* [86.5; 132.8]
Kirat (ref)	7	80.5 [64.3; 96.8]	<i>118.1</i> [90.7; 145.5]	165.0 [148.4; 181.6]
Tamsaling	9	93.8 [82.8; 104.9]	<i>144.2</i> [125.8; 162.6]	134.8* [117.5; 152.1]
Newa	3	164.3* [145.9; 182.7]	<i>195.5*</i> [181.8; 209.3]	236.5* [182.0; 291.0]
Narayani	3	112.9* [101.2; 124.7]	<i>176.8*</i> [152.9; 200.7]	153.8 [115.9; 191.6]
Tamuwan	5	100.7* [90.6; 110.9]	<i>143.4</i> [120.3; 166.4]	168.3 [127.8; 208.7]
Magarat	7	86.8 [75.2; 98.4]	<i>156.3*</i> [136.7; 176.0]	139.3 [117.4; 161.1]
Karnali-Khaptad	17	101.5 [79.5; 123.5]	<i>139.7</i> [118.2; 161.2]	159.7 [137.8; 181.6]
Madhes	12	88.3 [79.3; 97.3]	<i>125.7</i> [116.1; 135.3]	160.7 [149.3; 172.1]
Tharuwan	8	102.6* [88.3; 116.9]	<i>176.5*</i> [157.8; 195.2]	167.8 [151.3; 184.4]
Nepal	75	91.0 [85.2; 96.7]	<i>139.3</i> [132.0 ; 146.6]	157.1 [150.2; 164.1]
N		1817	1796	1809

- Notes: 1) Price of coarse rice as the price index with rural eastern terai in 2010/11 as the reference.
 2) * indicates a significant difference from reference category within the same period at the 95%-level.
 3) Bold indicates a significant difference from first period at the 95%-level.
 4) Italics indicates a significant difference from previous period at the 95%-level.
 5) The figures in brackets are 95% confidence intervals.

Table 7.5: Real wage rate in agriculture in the ten province model

Province	Districts	1995-96	2003-04	2010-11
Limbuwan	4	81.1* [69.3; 93.0]	<i>146.4</i> [115.1; 177.7]	131.6* [103.5; 159.8]
Kirat (ref)	7	110.5 [88.1; 132.8]	148.0 [113.7; 182.4]	198.1 [177.3; 218.9]
Tamsaling	9	128.7 [113.6; 143.9]	<i>180.7</i> [157.7; 203.8]	<i>143.9*</i> [125.4; 162.4]
Newa	3	225.4* [200.1; 250.6]	245.1* [227.9; 262.3]	241.4 [178.9; 304.0]
Narayani	3	166.1* [148.8; 183.4]	<i>200.9*</i> [173.7; 228.1]	167.6 [126.3; 208.9]
Tamuwan	5	148.1* [133.2; 163.1]	162.9 [136.7; 189.1]	182.2 [138.6; 225.7]
Magarat	7	127.7 [110.6; 144.8]	<i>177.6</i> [155.3; 200.0]	<i>153.7*</i> [129.8; 177.5]
Karnali-Khaptad	17	149.3 [116.9; 181.7]	158.7 [134.3; 183.1]	184.1 [158.5; 209.8]
Madhes	12	127.9 [114.9; 141.0]	<i>174.3</i> [161.0; 187.6]	155.6* [144.6; 166.6]
Tharuwan	8	165.8* [142.7; 188.8]	<i>200.6*</i> [179.3; 221.8]	<i>160.1*</i> [143.7; 176.4]
Nepal	75	113.8 [125.1; 142.6]	<i>177.8</i> [169.1; 186.4]	160.8 [153.6; 168.0]
N		1817	1796	1809

- Notes: 1) NLSS poverty lines as the price index with rural eastern terai in 2010/11 as the reference.
2) * indicates a significant difference from reference category within the same period at the 95%-level.
3) Bold indicates a significant difference from first period at the 95%-level.
4) Italics indicates a significant difference from previous period at the 95%-level.
5) The figures in brackets are 95% confidence intervals.

Table 7.6: Nominal wage rate in agriculture in the ten province model

Province	Districts	1995-96	2003-04	2010-11
Limbuwan	4	26.6* [23.6; 31.6]	70.1 [55.1; 85.1]	131.7* [104.5; 158.9]
Kirat	7	37.6* [30.0; 45.2]	70.9 [54.4; 87.3]	199.4 [180.6; 218.2]
Tamsaling	9	43.8 [38.6; 48.9]	86.5 [75.5; 97.6]	162.2 [141.2; 183.3]
Newa	3	76.7* [68.1; 85.3]	117.3* [109.1; 125.6]	277.5 [214.9; 340.1]
Narayani	3	53.2 [47.7; 58.8]	106.1* [91.7; 120.4]	184.3 [138.9; 229.6]
Tamuwan (ref)	5	47.5 [42.7; 52.3]	86.0 [72.2; 99.9]	201.3 [153.0; 249.7]
Magarat	7	40.9 [35.5; 46.4]	93.8 [82.0; 105.6]	166.0 [139.7; 192.3]
Karnali- Khaptad	17	47.8 [37.5; 58.2]	83.8 [70.9; 96.7]	187.6 [162.2; 212.9]
Madhes	12	35.3* [31.7; 38.9]	62.8* [58.0; 67.6]	160.7 [149.3; 172.1]
Tharuwan	8	41.0 [35.3; 46.8]	88.3 [78.9; 97.6]	159.6 [144.2; 175.0]
Nepal	75	38.5 [36.0; 40.9]	74.9 [70.8; 79.0]	167.7 [160.3; 175.1]
N		1817	1796	1809

Notes: 1) * indicates a significant difference from reference category within the same period at the 95%-level.
2) Bold indicates a significant difference from first period at the 95%-level.
3) Italics indicates a significant difference from previous period at the 95%-level.
4) The figures in brackets are 95% confidence intervals.

7.3 Eleven province model

Again we find the highest real-wage increase (in relative terms) in Kirat, Limbuwan and Madhes, despite a slightly different composition of those provinces as compared to the ten-state model. However, we note a lower increase in the three eastern-most terai districts of the Kochila province, since the wages there were already relatively high in 1995. And we note that wages in Limbuwan are still low in 2010. Panchtar is also here pulling down the mean, and Taplejung even more so.

Table 7.7: Real agricultural (rice-price adjusted) wage rate in the eleven province model

Province	Districts	1995-96	2003-04	2010-11
Limbuwan	6	62.6* [55.1; 70.1]	<i>112.1*</i> [91.4; 132.8]	113.1* [97.7; 128.5]
Kochila	3	103.0 [91.8; 114.2]	<i>141.4*</i> [126.6; 156.3]	164.2 [145.5; 182.8]
Kirat	5	87.9 [51.2; 124.5]	<i>127.3*</i> [93.0; 161.6]	178.8 [163.9; 193.8]
Madhes	8	82.1 [72.0; 92.2]	<i>115.8*</i> [107.0; 124.5]	154.1 [140.3; 167.9]
Tamsaling	6	90.1 [78.8; 101.3]	<i>130.3*</i> [116.0; 144.6]	141.8 [117.4; 166.2]
Narayani	7	<i>128.6*</i> [103.2; 154.0]	<i>183.0</i> [159.7; 206.4]	165.3 [134.4; 196.2]
Tamuwan	8	106.8 [98.7; 115.0]	<i>157.3</i> [137.2; 177.3]	163.9 [133.2; 194.5]
Magarat	7	86.8 [75.2; 98.4]	<i>156.3</i> [136.7; 176.0]	139.3* [117.4; 161.1]
Tharuwan (ref)	6	98.7 [84.2; 113.3]	<i>176.6</i> [156.5; 196.7]	172.7 [152.2; 193.1]
Khaptad	10	103.4 [87.2; 119.6]	<i>155.6</i> [128.6; 182.7]	159.2 [142.7; 175.7]
Karnali	9	119.0 [94.4; 143.6]	<i>158.9</i> [125.2; 192.5]	152.4 [129.0; 175.8]
Nepal	75	91.0 [85.2; 96.7]	<i>139.3</i> [132.0 ; 146.6]	157.1 [150.2; 164.1]
N		1817	1796	1809

- Notes: 1) Price of coarse rice as the price index with rural eastern terai in 2010/11 as the reference.
 2) * indicates a significant difference from reference category within the same period at the 95%-level.
 3) Bold indicates a significant difference from first period at the 95%-level.
 4) Italics indicates a significant difference from previous period at the 95%-level.
 5) The figures in brackets are 95% confidence intervals.

Table 7.8: Real wage rate in agriculture in the eleven province model

Province	Districts	1995-96	2003-04	2010-11
Limbuwan	6	85.9* [75.5; 96.2]	<i>140.5</i> [114.6; 166.5]	134.4* [115.9; 153.0]
Kochila	3	149.2 [133.0; 165.4]	<i>196.1</i> [175.5; 216.7]	<i>160.9</i> [142.5; 179.3]
Kirat	5	120.5 [70.2; 170.9]	159.6 [116.6; 202.6]	215.8* [197.5; 234.2]
Madhes	8	118.9* [104.3; 133.6]	<i>160.5</i> [148.4; 172.7]	148.9* [135.6; 162.3]
Tamsaling	6	123.6* [108.2; 139.0]	<i>163.3</i> [145.4; 181.2]	152.5 [126.5; 178.5]
Narayani	7	179.5 [143.5; 215.5]	<i>235.8*</i> [203.4; 268.2]	<i>165.8</i> [136.4; 195.2]
Tamuwan	8	157.1 [145.2; 169.1]	178.7 [155.9; 201.4]	177.7 [144.6; 210.9]
Magarat	7	127.7 [110.6; 144.8]	<i>177.6</i> [155.3; 200.0]	153.7* [129.8; 177.5]
Tharuwan	6	159.5 [136.0; 183.1]	<i>200.7</i> [177.8; 223.5]	<i>166.0</i> [145.7; 186.2]
Khaptad (ref)	10	152.1 [128.3; 176.0]	176.8 [146.1; 207.6]	184.7 [165.4; 204.1]
Karnali	9	186.1 [144.6; 227.6]	180.5 [142.3; 218.7]	147.5* [121.9; 173.1]
Nepal	75	113.8 [125.1; 142.6]	<i>177.8</i> [169.1; 186.4]	160.8 [153.6; 168.0]
N		1817	1796	1809

- Notes: 1) NLSS poverty lines as the price index with rural eastern terai in 2010/11 as the reference.
2) * indicates a significant difference from reference category within the same period at the 95%-level.
3) Bold indicates a significant difference from first period at the 95%-level.
4) Italics indicates a significant difference from previous period at the 95%-level.
5) The figures in brackets are 95% confidence intervals.

Table 7.9: Nominal wage rate in agriculture in the eleven province model

Province	Districts	1995-96	2003-04	2010-11
Limbuwan	6	29.2* [25.7; 32.7]	67.3* [54.9; 79.7]	138.7* [119.9; 157.5]
Kochila	3	41.2* [36.7; 45.7]	70.7* [63.3; 78.1]	164.2 [145.5; 182.8]
Kirat	5	41.0 [23.9; 58.1]	76.4 [55.8; 97.0]	214.0 [196.5; 231.6]
Madhes	8	32.8* [28.8; 36.9]	57.9* [53.5; 62.3]	154.1* [140.3; 167.9]
Tamsaling	6	42.0* [36.8; 47.3]	78.2* [69.6; 86.7]	173.5 [144.0; 202.9]
Narayani	7	57.3 [45.9; 68.7]	105.0 [92.3; 117.7]	182.2 [151.3; 213.1]
Tamuwan (ref)	8	50.4 [46.5; 54.2]	94.4 [82.3; 106.4]	196.2 [159.5; 232.8]
Magarat	7	40.9* [35.5; 46.4]	93.8 [82.0; 105.6]	166.0 [139.7; 192.3]
Tharuwan	6	39.5* [33.7; 45.3]	88.3 [78.3; 98.4]	163.4 [144.3; 182.4]
Khaptad	10	48.8 [41.1; 56.4]	93.4 [77.1; 109.6]	184.9 [165.1; 204.7]
Karnali	9	50.7 [41.3; 60.1]	82.6 [66.8; 98.5]	157.2 [131.4; 183.0]
Nepal	75	38.5 [36.0; 40.9]	74.9 [70.8; 79.0]	167.7 [160.3; 175.1]
N		1817	1796	1809

- Notes: 1) * indicates a significant difference from reference category within the same period at the 95%-level.
2) Bold indicates a significant difference from first period at the 95%-level.
3) Italics indicates a significant difference from previous period at the 95%-level.
4) The figures in brackets are 95% confidence intervals.

8. Education

Education is a measure of social wellbeing as well as a prerequisite for economic development and may lead to political mobilization. To understand the political and economic changes that are likely to follow the restructuring of the state it may be useful to know how the level of education depends on the choice of federal model. Based on our previous knowledge of the data, we focus on three measures, the mean years of schooling, which is most commonly used, and two measures that we have found useful, that is, whether the household head is literate, and whether the household has at least one person who has completed the SLC.

The education level in Nepal has gradually increased since 1995/96. This is reflected in all three indicators. Mean years of schooling for all persons above 14 years have a significant increase for all provinces in all three models. The literacy rate for the household head has also increased significantly since 1995/96. However, as opposed to mean years of schooling, this increase is not significant for all provinces. Finally the proportion of household with at least one member having completed SLC has also a significant increase over the whole sample, but the increase is not significant for all provinces.

8.1 Mean years of schooling

We report the mean years of completed schooling for all people above 14 years. There has been a slight increase from 2.3 years in 1995/96 via 3.4 years in 2003/04 to 4.3 years in 2010/11, but we note that this is still a very low number.

8.1.1 Six province model

We find the best improvement in the western hills as they have been catching up. The Madhes region, on the other hand, has had much slower progress and is ranked at the bottom in 2010.

Table 8.1: Mean years of schooling in the six province model

Provinces	Districts	1995-96	2003-04	2010-11
Eastern (ref) (Province 1)	14	2.5 [2.2; 2.9]	3.7 [3.3; 4.1]	4.5 [4.2; 4.9]
Central (Province 2)	13	2.9 [2.5; 3.4]	4.3 [3.8; 4.9]	5.6* [5.2; 5.9]
Western (Province 3)	16	2.7 [2.3; 3.0]	3.7 [3.3; 4.2]	4.3 [4.0; 4.7]
Madhes (Province 4)	8	1.9* [1.5; 2.2]	2.3* [1.8; 2.7]	3.0* [2.7; 3.3]
Mid-Far Western (Province 5)	18	1.4* [1.1; 1.6]	2.6* [2.1; 3.0]	3.8* [3.4; 4.1]
Tharuwan (Province 6)	6	2.0 [1.5; 2.5]	3.1 [2.6; 3.7]	4.3 [3.9; 4.8]
Nepal	75	2.3 [2.1; 2.5]	3.4 [3.2; 3.6]	4.3 [4.2; 4.5]
N		11162	12500	18422

- Notes: 1) Mean years of schooling is calculated for all persons (15 years and above) in the sample.
 2) * indicates a significant difference from reference category within the same period at the 95%-level.
 3) Bold indicates a significant difference from first period at the 95%-level.
 4) Italics indicates a significant difference from previous period at the 95%-level.
 5) The figures in brackets are 95% confidence intervals.

8.1.2 Ten province model

The good increase in the western hills turns up also in the ten-state model. Furthermore we note that the Kathmandu valley have a relatively high level of schooling, but of course the 7.7 years in the proposed Newa province is still a low number for a metropolitan area. The Tamuwan province also has a high level of education, which may be explained by Pokhara being part of this region.

Table 8.2: Mean years of schooling in the ten province model

Province	Districts	1995-96	2003-04	2010-11
Limbuwan	4	2.7 [2.1; 3.3]	3.6 [2.5; 4.7]	4.1 [3.6; 4.7]
Kirat	7	1.9 [1.5; 2.4]	2.8* [2.1; 3.4]	3.9* [3.4; 4.3]
Tamsaling	9	1.6* [1.2; 1.9]	2.3* [1.9; 2.7]	3.5* [3.0; 3.9]
Newa	3	5.1* [4.4; 5.9]	6.6* [6.0; 7.2]	7.7* [7.2; 8.2]
Narayani	3	3.2 [2.3; 4.1]	3.6 [3.2; 4.0]	4.6 [3.9; 5.3]
Tamuwan (ref)	5	2.9 [2.0; 3.7]	4.4 [3.3; 5.4]	5.1 [4.3; 6.0]
Magarat	7	2.5 [2.0; 3.0]	3.4 [2.7; 4.1]	3.8* [3.3; 4.4]
Karnali- Khaptad	17	1.4* [1.0; 1.7]	2.4* [1.9; 2.9]	3.6* [3.2; 3.9]
Madhes	12	2.2 [1.9; 2.5]	3.0* [2.7; 3.4]	3.8* [3.5; 4.1]
Tharuwan	8	2.0 [1.6; 2.5]	3.3 [2.8; 3.7]	4.4 [4.0; 4.7]
Nepal	75	2.3 [2.1; 2.5]	3.4 [3.2; 3.6]	4.3 [4.2; 4.5]
N		11162	12500	18422

- Notes: 1) Mean years of schooling is calculated for all persons (15 years and above) in the sample.
 2) * indicates a significant difference from reference category within the same period at the 95%-level.
 3) Bold indicates a significant difference from first period at the 95%-level .
 4) Italics indicates a significant difference from previous period at the 95%-level.
 5) The figures in brackets are 95% confidence intervals.

8.1.3 Eleven province model

Again we have the best progress in the western hills, but also Tamsaling has had a good growth in mean years of schooling, that is the hill districts located north and for the largest part east of the Kathmandu valley. And again the highest level of schooling in 2010 is found in the province that includes the Kathmandu Valley, which in this model is named as Narayani.

Table 8.3: Mean years of schooling in the eleven province model

Province	Districts	1995-96	2003-04	2010-11
Limbuwan	6	2.7 [2.2; 3.2]	3.7 [2.8; 4.5]	4.1* [3.7; 4.5]
Kochila (ref)	3	2.8 [2.3; 3.3]	4.3 [3.7; 4.9]	5.0 [4.5; 5.5]
Kirat	5	1.8* [1.2; 2.3]	2.4* [1.8; 2.9]	3.8* [3.2; 4.4]
Madhes	8	1.9* [1.5; 2.2]	2.3* [1.8; 2.7]	3.0* [2.7; 3.3]
Tamsaling	6	1.5* [1.2; 1.9]	2.4* [1.9; 2.9]	3.5* [2.9; 4.0]
Narayani	7	3.6 [3.0; 4.3]	5.1 [4.4; 5.7]	6.3* [5.9; 6.8]
Tamuwan	8	3.0 [2.4; 3.6]	4.0 [3.4; 4.6]	4.9 [4.3; 5.4]
Magarat	7	2.5 [2.0; 3.0]	3.4 [2.7; 4.1]	3.8* [3.3; 4.4]
Tharuwan	6	2.1* [1.7; 2.5]	3.3* [2.8; 3.9]	4.2* [3.8; 4.7]
Khaptad	10	1.4* [0.9; 2.0]	2.4* [1.9; 2.9]	3.4* [2.9; 3.8]
Karnali	9	1.5* [1.0; 2.0]	2.8* [2.2; 3.4]	4.3* [3.8; 4.7]
Nepal	75	2.3 [2.1; 2.5]	3.4 [3.2; 3.6]	4.3 [4.2; 4.5]
N		11162	12500	18422

- Notes: 1) Mean years of schooling is calculated for all persons (15 years and above) in the sample.
 2) * indicates a significant difference from reference category within the same period at the 95%-level.
 3) Bold indicates a significant difference from first period at the 95%-level .
 4) Italics indicates a significant difference from previous period at the 95%-level.
 5) The figures in brackets are 95% confidence intervals.

8.2 Literacy rate for household head

The literacy rate of household heads has increased from 40% in 1995 to 56% in 2010. Although it is an improvement, it is still quite limited, and 46% of households having a main decision maker than cannot read and write is a major problem.

8.2.1 Six province model

There has been some progress in all proposed provinces, but the Tharuwan province stands clearly out with a doubling of the literacy rate with most of the progress between 1995 and 2003. This may indicate some successful literacy programs in the western terai during that period. This is in strong contrast to the Madhes area in eastern terai where the literary rate is at the lowest.

Table 8.4: Literacy rate for household head in the six province model (%)

Provinces	Districts	1995-96	2003-04	2010-11
Eastern (Province 1)	14	45.4 [40.0; 50.8]	51.0 [45.7; 56.2]	60.3 [56.4; 64.3]
Central (Province 2)	13	47.3 [40.5; 54.0]	53.0 [47.4; 58.5]	65.2 [61.5; 69.0]
Western (ref) (Province 3)	16	46.4 [41.0; 51.8]	52.2 [47.0; 57.4]	60.1 [56.1; 64.0]
Madhes (Province 4)	8	31.1* [25.6; 36.5]	31.4* [25.8; 37.1]	39.2* [34.1; 44.3]
Mid-Far Western (Province 5)	18	33.8* [27.9; 39.8]	47.4 [39.9; 54.8]	49.3* [44.1; 54.5]
Tharuwan (Province 6)	6	27.5* [19.5; 35.6]	52.7 [45.7; 59.6]	56.4 [51.2; 61.7]
Nepal	75	39.7 [37.0; 42.4]	47.7 [45.2; 50.2]	55.8 [54.0; 57.7]
N		3344	3911	5987

- Notes:
- 1) Literacy is defined as someone that can read and write a letter.
 - 2) * indicates a significant difference from reference category within the same period at the 95%-level.
 - 3) Bold indicates a significant difference from first period at the 95%-level.
 - 4) Italics indicates a significant difference from previous period at the 95%-level.
 - 5) The figures in brackets are 95% confidence intervals.

8.2.2 Ten province model

In the ten-state model we do not see the same progress in Tharuwan as the province here also includes Nawalparasi¹⁰ and Kanchanpur that had a higher literacy rate already in 1995. However, Tharuwan still has the second best progress. The three districts of Narayani has the best improvement in literary, while the Kathmandu valley has the highest literacy rate of 82% in 2010.

Table 8.5: Literacy rates for household head in the ten province model (%)

Province	Districts	1995-96	2003-04	2010-11
Limbuwan	4	48.2 [38.1; 58.4]	48.9 [35.5; 61.7]	65.0 [57.9; 72.0]
Kirat	7	40.9 [31.5; 50.2]	41.6 [32.5; 50.8]	53.7* [47.0; 60.5]
Tamsaling	9	34.2 [26.5; 42.0]	37.4* [30.8; 43.9]	48.9* [43.4; 54.4]
Newa	3	70.7* [64.6; 76.8]	69.0* [62.1; 76.0]	81.7* [77.9; 85.4]
Narayani (ref)	3	41.0 [29.8; 52.2]	51.2 [44.2; 58.3]	70.7 [63.4; 78.1]
Tamuwan	5	48.1 [32.4; 63.7]	52.5 [39.4; 65.5]	63.9 [55.0; 72.7]
Magarat	7	48.1 [40.2; 55.9]	50.7 [42.6; 58.8]	55.8* [50.4; 61.1]
Karnali- Khaptad	17	32.5 [26.3; 38.7]	45.2 [38.0; 52.4]	48.3* [42.6; 54.0]
Madhes	12	36.5 [31.5; 41.5]	42.0* [37.1; 46.9]	49.5* [45.4; 53.6]
Tharuwan	8	33.0 [26.0; 40.0]	54.1 [48.0; 60.3]	55.3* [50.9; 59.7]
Nepal	75	39.7 [37.0; 42.4]	47.7 [45.2; 50.2]	55.8 [54.0; 57.7]
N		3344	3911	5987

- Notes: 1) Literacy is defined as someone that can read and write a letter.
 2) * indicates a significant difference from reference category within the same period at the 95%-level.
 3) Bold indicates a significant difference from first period at the 95%-level.
 4) Italics indicates a significant difference from previous period at the 95%-level.
 5) The figures in brackets are 95% confidence intervals.

¹⁰ Nawalparasi is in fact split between two provinces in both models, but a close inspection of the proposed maps indicates that a larger part belong to Tharuwan in the 10-state model, so we have included Nawalparasi in that model, but not in the 6-state model.

8.2.3 Eleven province model

Again we find the best progress in Tharuwan, this time without both Kanchanpur and Kailali districts, but including (the full district of) Nawalparasi. There has also been a good progress in Tamuwan, which includes Pokhara and hill districts west of Kathmandu.

Table 8.6: Literacy rate for household head in the eleven province model (%)

Province	Districts	1995-96	2003-04	2010-11
Limbuwan	6	46.7 [38.1; 55.2]	51.1 [41.4; 60.7]	59.1 [51.6; 66.5]
Kochila	3	46.9 [38.9; 55.0]	<i>57.4</i> [50.9; 64.0]	62.8 [57.1; 68.4]
Kirat	5	40.8 [29.4; 52.1]	35.8* [24.9; 46.8]	55.6* [47.9; 63.4]
Madhes	8	31.1* [25.6; 36.5]	31.4* [25.8; 37.1]	39.2* [34.1; 44.3]
Tamsaling	6	33.9 [23.7; 44.2]	36.9* [27.5; 46.3]	46.7* [39.9; 53.4]
Narayani	7	53.9 [45.7; 62.2]	59.4 [53.0; 65.7]	72.6 [68.5; 76.7]
Tamuwan (ref)	8	44.6 [34.9; 54.3]	51.9 [44.1; 59.7]	67.1 [61.1; 73.1]
Magarat	7	48.1 [40.2; 55.9]	50.7 [42.6; 58.8]	55.8* [50.4; 61.1]
Tharuwan	6	30.4* [23.1; 37.7]	54.2 [47.4; 61.0]	55.3* [50.2; 60.5]
Khaptad	10	34.1 [24.6; 43.7]	48.6 [39.4; 57.9]	51.7* [44.1; 59.3]
Karnali	9	35.0 [26.7; 43.4]	47.2 [37.8; 56.5]	49.1* [42.7; 55.5]
Nepal	75	39.7 [37.0; 42.4]	47.7 [45.2; 50.2]	55.8 [54.0; 57.7]
N		3344	3911	5987

- Notes: 1) Literacy is defined as someone that can read and write a letter.
 2) * indicates a significant difference from reference category within the same period at the 95%-level.
 3) Bold indicates a significant difference from first period at the 95%-level.
 4) Italics indicates a significant difference from previous period at the 95%-level.
 5) The figures in brackets are 95% confidence intervals.

8.3 Households with at least one member with SLC

A critical level of education in Nepal is completion of the SLC exam. With one household member with SLC the household's economic options are normally significantly improved. The proportion of households with at least one member with SLC doubled from 15% in 1995 to 30% in 2010. This is a major improvement and may indicate that households have given priority to those children that have a chance of completing SLC, which in turn may reflect the economic value of this exam.

We shall see that the federal model matters, there is in particular lack of progress in the Madhes when the eastern-most terai districts are not included, and similarly lack of progress in Magarat and Limbuwan when they are carved out as separate provinces and not included in larger provinces. These differences between federal models are more noticeable for SLC, which measures (relatively) higher levels of education, than for the lower levels.

8.3.1 Six province model

While the proportion of households with a SLC graduate have doubled at the national level it has more than tripled in the western hills, while is lacking behind. The highest rate we find in the central hills where Kathmandu is located.

Table 8.7: Households with at least one member with SLC in the six province model (%)

Provinces	Districts	1995-96	2003-04	2010-11
Eastern (ref) (Province 1)	14	16.7 [12.6; 20.7]	16.9 [12.9; 20.9]	30.8 [26.8; 34.8]
Central (Province 2)	13	21.5 [16.5; 26.5]	27.4* [22.1; 32.6]	42.6* [38.5; 46.8]
Western (Province 3)	16	15.8 [10.7; 20.8]	17.3 [13.0; 21.5]	26.5 [21.7; 31.3]
Madhes (Province 4)	8	14.2 [10.3; 18.0]	15.1 [10.6; 19.5]	20.7* [17.2; 24.2]
Mid-Far Western (Province 5)	18	7.0* [4.1; 10.0]	10.4* [6.7; 14.1]	23.7* [19.3; 28.2]
Tharuwan (Province 6)	6	13.4 [6.8; 19.9]	17.6 [12.6; 22.5]	28.4 [23.3; 33.6]
Nepal	75	15.4 [13.5; 17.3]	18.3 [16.5; 20.1]	29.8 [28.0; 31.5]
N		3373	3912	5988

- Notes: 1) * indicates a significant difference from reference category within the same period at the 95%-level.
 2) Bold indicates a significant difference from first period at the 95%-level.
 3) Italics indicates a significant difference from previous period at the 95%-level.
 4) The figures in brackets are 95% confidence intervals.

8.3.2 Ten province model

The western hills progress is the same in the more disaggregated model, but we also find some progress in Tamsaling, the districts north and in particular east of Kathmandu, and Tharuwan also has had a good progress. Again we find the highest rate in the Kathmandu valley where 63% of the households have a person with SLC. What is more surprising is the lack of progress in Limbuwan and Magarat provinces. As in particular Magarat, but also Limbuwan, are core Maoist areas it may be that the conflict affected people's ability to complete SLC, and we find that in both provinces there has been an improvement from 2003 to 2010, which adds evidence for the conclusion that the conflict can be an explanation as the armed conflict ended in 2006.

Table 8.8: Households with at least one member with SLC in the ten province model (%)

Province	Districts	1995-96	2003-04	2010-11
Limbuwan	4	18.6 [7.7; 29.6]	17.0 [6.8; 27.3]	22.4 [15.8; 29.0]
Kirat	7	13.5 [7.6; 19.4]	10.1* [5.2; 15.0]	26.3 [19.9; 32.6]
Tamsaling	9	9.6 [5.2; 13.9]	9.5* [6.0; 13.1]	24.2 [19.3; 29.0]
Newa	3	44.7* [34.9; 54.4]	50.1* [41.3; 58.9]	63.0* [57.0; 69.0]
Narayani	3	13.1 [3.2; 23.0]	14.1 [7.7; 20.6]	28.0 [17.9; 38.1]
Tamuwan (ref)	5	18.4 [8.9; 28.0]	23.6 [13.7; 33.6]	30.4 [21.0; 39.9]
Magarat	7	17.9 [9.1; 26.7]	14.9 [7.9; 21.8]	22.3 [14.1; 30.6]
Karnali- Khaptad	17	7.1* [4.0; 10.2]	9.2* [5.5; 12.9]	22.7 [17.8; 27.5]
Madhes	12	15.1 [12.0; 18.2]	17.5 [14.2; 20.8]	27.3 [24.0; 30.6]
Tharuwan	8	12.2 [6.7; 17.5]	17.6 [13.3; 21.8]	29.0 [24.5; 33.4]
Nepal	75	15.4 [13.5; 17.3]	18.3 [16.5; 20.1]	29.8 [28.0; 31.5]
N		3373	3912	5988

- Notes: 1) * indicates a significant difference from reference category within the same period at the 95%-level.
 2) Bold indicates a significant difference from first period at the 95%-level.
 3) Italics indicates a significant difference from previous period at the 95%-level.
 4) The figures in brackets are 95% confidence intervals.

8.3.3 Eleven province model

Again the western hills have had a good progress, followed by Tharuwan, and with lack of progress in the conflict ridden Magarat and Limbuwan. There has also been lack of progress in Madhes in this model where Madhes is in fact the core Madhes area excluding the eastern-most terai districts.

Table 8.9: Households with at least one member with SLC in the eleven province model (%)

Province	Districts	1995-96	2003-04	2010-11
Limbuwan	6	17.0 [8.1; 25.9]	16.4 [8.8; 24.1]	24.5* [19.2; 29.8]
Kochila (ref)	3	17.7 [12.0; 23.5]	21.0 [14.8; 27.2]	35.6 [29.5; 41.7]
Kirat	5	14.0 [7.0; 21.0]	7.8* [3.0; 12.7]	25.5 [17.2; 33.7]
Madhes	8	14.2 [10.3; 18.0]	15.1 [10.6; 19.5]	20.7* [17.2; 24.2]
Tamsaling	6	11.6 [5.9; 17.4]	9.0* [4.4; 13.6]	24.0* [18.2; 29.7]
Narayani	7	26.4 [19.4; 33.4]	34.7* [27.8; 41.6]	50.0* [44.7; 55.3]
Tamuwan	8	15.8 [8.9; 22.8]	19.3 [13.1; 25.6]	29.2 [22.6; 35.9]
Magarat	7	17.9 [9.1; 26.7]	14.9 [7.9; 21.8]	22.3* [14.1; 30.6]
Tharuwan	6	11.8 [6.6; 16.9]	18.1 [13.2; 23.0]	28.5 [23.2; 33.8]
Khaptad	10	7.1* [1.9; 12.3]	6.7* [2.5; 10.9]	18.5* [12.5; 24.6]
Karnali	9	9.4 [3.3; 15.6]	14.6 [9.2; 20.1]	28.6 [23.1; 34.0]
Nepal	75	15.4 [13.5; 17.3]	18.3 [16.5; 20.1]	29.8 [28.0; 31.5]
N		3373	3912	5988

Notes: 1) * indicates a significant difference from reference category within the same period at the 95%-level.

2) Bold indicates a significant difference from first period at the 95%-level.

3) Italics indicates a significant difference from previous period at the 95%-level.

4) The figures in brackets are 95% confidence intervals.

9. Remittances

The Nepalese have always migrated for work, with the British Gurkha soldiers being most famous, but there has been migration to East-Asia and in terms of numbers India has been the most important destination. However, during the last decade there has been a rapid increase in migration to Malaysia, and in particular to the Gulf countries, with Qatar being the main destination (Nepalese workers constitute around 20% of the population of Qatar) and Saudi-Arabia the second. This increase in migration to higher paid destinations has led to a substantial increase in remittances, and to some pressure on domestic labor markets, which has contributed to the increase in wages discussed above. There is thus a direct, as well as an indirect, effect of labor migration that together has contributed to the reduction in poverty in Nepal.

Annual remittances per households measured in 2010 rupees have increased from 12 000 rupees in 1995 via 24 000 in 2003 to 40 000 in 2010, where we include households with zero remittances, the median level of remittance in 2010 was in fact only 1200 rupees. But on average we have a doubling from 1995 to 2003, and nearly a doubling from 2003 to 2010. We know from the wage section that a daily wage rate in agriculture is 160 rupees, and a normal factory wage was in the range of 200 rupees. So 40 000 in remittances is basically equivalent to a full year pay at home. Now remember that 40 000 is an average, meaning that some few people pull up this average, while the nearly 50% of the households with no migrants pull down the average. However, a manual labor in Qatar will probably send home the double of this amount every year, calculated as the average over a 3 years period.

Below we will report nominal remittances, as well as remittances adjusted to the 2010 price level using the price index applied in the NLSS poverty estimates. In the discussion we focus on the real values, and not the nominal.

9.1 Six province model

While real value remittances have increased with 243% on average from 1995 to 2010 they have increased with 460% in Tharuwan and the Eastern provinces. However, remittances are still at the highest in the Western province. The district of Nawalparasi in particular pulls up this average.

Table 9.1: Remittances received by households in the six province model (2010 rupees)

Provinces	Districts	1995-96	2003-04	2010-11	Median 2010/11
Eastern (Province 1)	14	6169.2* [2327.1; 10065.3]	23,814.0* [16883.7; 30744.2]	34,280.0* [27504.3; 41055.7]	801
Central (Province 2)	13	11,209.7 [3740.0; 18679.5]	20,407.7* [13054.0; 27761.4]	38,980.3* [25300.0; 52660.7]	0
Western (ref) (Province 3)	16	23,668.7 [12939.2; 34398.2]	36,863.5 [29209.1; 44518.0]	59,743.6 [45805.3; 73681.8]	6403
Madhes (Province 4)	8	12,550.4 [7904.6; 17196.2]	28,278.0 [16925.7; 39630.3]	37,012.6* [29001.7; 45023.5]	1196
Mid-Far Western (Province 5)	18	4430.1* [2994.9; 5865.3]	9353.2* [7004.7; 11701.7]	18,221.1* [13075.8; 23366.3]	0
Tharuwan (Province 6)	6	8058.6* [4053.5; 12063.6]	19,949.8* [10162.5; 29737.2]	45,495.3 [32056.5; 58934.2]	3601
Nepal	75	11,578.7 [8746.6; 14410.8]	24,455.8 [20859.9; 28051.7]	39,658.9 [34965.2; 44352.7]	1082
N		3373	3912	5987	5988

- Notes:
- 1) The price index is based upon nominal poverty lines.
 - 2) * indicates a significant difference from reference category within the same period at the 95%-level.
 - 3) Bold indicates a significant difference from first period at the 95%-level.
 - 4) Italics indicates a significant difference from previous period at the 95%-level.
 - 5) The figures in brackets are 95% confidence intervals.
 - 6) One outlier dropped from Kailali district that received 50 million rupees in 2010 from a brother in Kathmandu.

Table 9.2: Remittances received by households in the six province model (rupees)

Provinces	Districts	1995-96	2003-04	2010-11	Median 2010/11
Eastern ² (Province 1)	14	1,769.9* [698.0; 2841.8]	<i>10,055.5*</i> [7166.8; 12944.1]	<i>36,177.8*</i> [29042.6; 43313.1]	700
Central ² (Province 2)	13	3,944.5 [1388.8; 6500.2]	<i>10,606.3*</i> [6821.3; 14391.3]	<i>53,807.1</i> [38150.3; 69463.9]	0
Western ² (ref) (Province 3)	16	7,480.0 [4021.2; 10938.8]	<i>18,354.5</i> [14613.2; 22095.8]	<i>64,514.0</i> [49430.9; 79597.0]	7,000
Madhes ² (Province 4)	8	3,489.8* [2206.6; 4773.0]	<i>10,338.8*</i> [6241.0; 14436.7]	<i>38,912.4*</i> [30289.0; 47535.7]	1,200
Mid-Far Western (Province 5)	18	1,400.4* [942.8; 1858.1]	<i>4,739.5*</i> [3592.9; 5886.1]	<i>19,123.0*</i> [13467.9; 24778.1]	0
Tharuwan ² (Province 6)	6	2,029.3* [1032.5; 3026.1]	<i>8,867.8*</i> [4537.8; 13197.7]	<i>47,170.6</i> [33848.9; 60492.3]	3,700
Nepal	75	3,552.6 [2651.7; 4453.6]	<i>11,074.4</i> [9498.4; 12650.4]	<i>44,817.7</i> [39652.7; 49982.7]	1200
N		3373	3912	5987	5988

Notes: 1) * indicates a significant difference from reference category within the same period at the 95%-level.

2) Bold indicates a significant difference from first period at the 95%-level.

3) Italics indicates a significant difference from previous period at the 95%-level.

4) The figures in brackets are 95% confidence intervals.

5) One outlier dropped from Kailali district that received 50 million rupees in 2010 from a brother in Kathmandu.

9.2 Ten province model

In the ten-state model there has been a tremendous increase (relative to the initial value) in Limbuwan, where there were basically no remittances in 1995. There has been a similar increase in Kirat. However, in both cases the initial level was very low, so even in 2010 the remittances are relatively low in the eastern hills. In absolute terms the increase has been at the highest in Tamuwan, where we now find the largest remittances. In particular Kaski district, which includes Pokhara, is pulling up this average.

9.3 Eleven province model

In the eleven-state model we again find the large relative increase in Limbuwan and Kirat, and a large absolute increase in Tamuwan where remittances are the highest in 2010. But in this model also Tharuwan (which is here only a six-district province) has had a large absolute increase and ended up with large remittances. In this province both Nawalparasi and Rupandehi are pulling up the average.

Table 9.3: Remittances received by households in the ten province model (2010 rupees)

Province	Districts	1995-96	2003-04	2010-11	Median 2010-11
Limbuwan	4	913.0* [-639.7; 2465.7]	<i>24,706.3</i> [13861.9; 35550.6]	25,959.1* [17080.1; 34838.2]	0
Kirat	7	2406.2* [493.3; 4319.1]	<i>12,653.2*</i> [7376.3; 17930.1]	31,572.9* [19117.4; 44028.4]	0
Tamsaling	9	14,322.6 [1554.2; 27090.9]	<i>8670.6*</i> [3791.1; 13550.0]	25,826.8* [19168.6; 32485.0]	0
Newa	3	9673.2 [4888.6; 14457.7]	<i>26,039.1</i> [14183.1; 37895.1]	44,664.2 [15967.5; 73360.9]	0
Narayani	3	17,323.3 [9462.1; 25184.5]	<i>44,207.7</i> [32723.0; 55692.3]	57,032.0 [38775.5; 75288.5]	7318
Tamuwan (ref)	5	32,364.3 [9228.0; 55500.6]	42,719.9 [25536.5; 59903.4]	82,726.2 [36977.1; 128475.4]	7684
Magarat	7	27,723.2 [5399.3; 50047.2]	<i>24,976.6</i> [13933.1; 36020.0]	41,983.4 [30372.6; 53594.3]	4999
Karnali-Khaptad	17	4576.1* [3060.1; 6092.2]	<i>8623.6*</i> [6549.2; 10698.0]	18,335.6* [12545.0; 24126.3]	0
Madhes	12	11,167.2 [7421.7; 14912.7]	<i>30,752.0</i> [22350.9; 39153.1]	40,302.2 [33654.7; 46949.8]	1442
Tharuwan	8	8013.7* [4846.0; 11181.4]	<i>24,311.0</i> [15407.5; 33214.6]	47,642.0 [36008.4; 59275.6]	3601
Nepal	75	11,578.7 [8746.6; 14410.8]	<i>24,455.8</i> [20859.9; 28051.7]	39,658.9 [34965.2; 44352.7]	1082
N		3373	3912	5987	5988

- Notes: 1) The price index is based upon nominal poverty lines.
2) * indicates a significant difference from reference category within the same period at the 95%-level.
3) Bold indicates a significant difference from first period at the 95%-level.
4) Italics indicates a significant difference from previous period at the 95%-level.
5) The figures in brackets are 95% confidence intervals.
6) One outlier dropped from Kailali district that received 50 million rupees in 2010 from a brother in Kathmandu.

Table 9.4: Remittances received by households in the ten province model (rupees)

Province	Districts	1995-96	2003-04	2010-11	Median 2010-11
Limbuwan	4	310.6* [-217.6; 838.7]	<i>11,811.7</i> [6624.1; 16999.4]	26,022.6* [17353.3; 34692.0]	0
Kirat	7	818.5* [167.8; 1469.2]	<i>6,035.3*</i> [3514.4; 8556.3]	32,477.3* [20113.1; 44841.5]	0
Tamsaling	9	4,864.8 [521.4; 9208.3]	<i>4,138.9*</i> [1805.4; 6472.4]	29,138.5* [21739.1; 36538.0]	0
Newa	3	3,697.1 [1817.9; 5576.4]	<i>15,488.2</i> [8458.7; 22517.7]	73,425.9 [40629.1; 106222.8]	0
Narayani	3	5,552.6 [3032.9; 8072.4]	<i>22,845.2</i> [17100.5; 28589.9]	63,242.3 [42969.5; 83515.2]	8,000
Tamuwan (ref)	5	10,412.0 [2955.8; 17868.3]	21,163.0 [12820.0; 29506.0]	92,818.2 [42659.2; 142977.3]	8,400
Magarat	7	8,886.2 [1730.7; 16041.7]	13,066.1 [7299.4; 18832.7]	45,547.8 [32431.7; 58664.0]	5,000
Karnali- Khaptad	17	1,466.9* [980.9; 1952.8]	<i>4,496.4*</i> [3419.7; 5573.0]	19,134.0* [12768.8; 25499.2]	0
Madhes	12	3,099.7 [2065.3; 4134.1]	<i>11,675.6*</i> [8489.1; 14862.0]	43,103.1 [35922.9; 50283.3]	1,500
Tharuwan	8	2,008.7* [1221.0; 2796.4]	<i>10,778.4*</i> [6846.3; 14710.6]	48,519.1 [37079.5; 59958.7]	3,700
Nepal	75	3,552.6 [2651.7; 4453.6]	<i>11,074.4</i> [9498.4; 12650.4]	44,817.7 [39652.7; 49982.7]	1200
N		3373	3912	5987	5988

- Notes: 1) * indicates a significant difference from reference category within the same period at the 95%-level.
2) Bold indicates a significant difference from first period at the 95%-level.
3) Italics indicates a significant difference from previous period at the 95%-level.
4) The figures in brackets are 95% confidence intervals.
5) One outlier dropped from Kailali district that received 50 million rupees in 2010 from a brother in Kathmandu.

Table 9.5: Remittances received by households in the eleven province model (2010 rupees)

Province	Districts	1995-96	2003-04	2010-11	Median 2010-11
Limbuwan	6	761.9* [-456.3; 1980.0]	24,216.4* [15656.1; 32776.6]	23,626.9* [16475.1; 30778.6]	0
Kochila	3	10,779.1 [3404.5; 18153.8]	30,363.9 [18434.0; 42293.8]	38,067.1* [28172.9; 47961.3]	1500
Kirat	5	2969.1* [629.1; 5309.0]	8101.3* [5009.4; 11193.2]	36,229.4* [19889.2; 52569.7]	0
Madhes	8	12,550.4 [7904.6; 17196.2]	28,278.0 [16925.7; 39630.3]	37,012.6* [29001.7; 45023.5]	1196
Tamsaling	6	12,002.2 [-1859.6; 25863.9]	11,035.7* [3136.4; 18934.9]	31,590.8* [23204.1; 39977.4]	2122
Narayani	7	10,816.5 [2035.0; 19598.0]	24,152.9* [14524.8; 33781.0]	41,892.5 [23168.6; 60616.4]	0
Tamuwan (ref)	8	25,005.8 [12654.7; 37357.0]	43,390.7 [32641.8; 54139.7]	70,628.4 [44521.3; 96735.5]	7663
Magarat	7	27,723.2 [5399.3; 50047.2]	24,976.6* [13933.1; 36020.0]	41,983.4* [30372.6; 53594.3]	4999
Tharuwan	6	9231.5* [5484.1; 12978.9]	27,905.0* [16913.7; 38896.3]	53,203.8 [38825.7; 67581.9]	3893
Khaptad	10	2543.9* [1285.3; 3802.4]	6310.2* [4281.4; 8339.0]	17,365.7* [10000.7; 24730.6]	0
Karnali	9	5543.2* [3579.1; 7507.3]	12,625.0* [8395.8; 16854.2]	23,667.7* [15306.7; 32028.8]	2371
Nepal	75	11,578.7 [8746.6; 14410.8]	24,455.8 [20859.9; 28051.7]	39,658.9 [34965.2; 44352.7]	1082
N		3373	3912	5987	5988

- Notes: 1) The price index is based upon nominal poverty lines.
2) * indicates a significant difference from reference category within the same period at the 95%-level.
3) Bold indicates a significant difference from first period at the 95%-level.
4) Italics indicates a significant difference from previous period at the 95%-level.
5) The figures in brackets are 95% confidence intervals.
6) One outlier dropped from Kailali district that received 50 million rupees in 2010 from a brother in Kathmandu.

Table 9.6: Remittances received by households in the eleven province model (rupees)

Province	Districts	1995-96	2003-04	2010-11	Median 2010-11
Limbuwan	6	259.1* [-155.2; 673.5]	11,563.4* [7467.7; 15659.1]	24,612.6* [17161.1; 32064.1]	0
Kochila	3	2,977.7* [941.5; 5013.8]	11,968.5* [7044.3; 16892.8]	41,023.5* [30280.3; 51766.6]	1500
Kirat	5	1,010.0* [214.0; 1805.9]	3,869.3* [2391.1; 5347.6]	36,484.5* [20430.4; 52538.6]	0
Madhes	8	3,489.8* [2206.6; 4773.0]	10,338.8* [6241.0; 14436.7]	38,912.5* [30289.0; 47535.7]	1200
Tamsaling	6	4,079.4 [-636.0; 8798.8]	5,275.9* [1495.7; 9057.2]	35,779.1* [26499.5; 45054.8]	2500
Narayani	7	3,877.6 [858.1; 6897.0]	12,736.4* [7734.8; 17738.0]	60,911.7 [39538.9; 82284.4]	0
Tamuwan (ref)	8	8,034.7 [4056.9; 12012.5]	21,921.5 [16639.4; 27203.6]	78,892.7 [50229.2; 107556.3]	8400
Magarat	7	8,886.2 [1730.7; 16041.7]	13,066.1* [7299.4; 18832.7]	45,547.8* [32431.7; 58664.0]	5000
Tharuwan	6	2,285.6* [1357.8; 3213.4]	12,340.9* [7492.7; 17189.0]	53,641.8 [39625.6; 67658.1]	4000
Khaptad	10	815.4* [412.0; 1218.8]	3,297.0* [2242.6; 4351.4]	17,332.6* [10107.5; 24557.6]	0
Karnali	9	1,733.1* [1097.8; 2368.4]	6,091.1* [4091.4; 8090.9]	25,624.4* [16470.7; 34778.0]	2500
Nepal	75	3,552.6 [2651.7; 4453.6]	11,074.4 [9498.4; 12650.4]	44,817.7 [39652.7; 49982.7]	1200
N		3373	3912	5987	5988

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4) The figures in brackets are 95% confidence intervals.

5) One outlier dropped from Kailali district that received 50 million rupees in 2010 from a brother in Kathmandu.

10. Conclusions

Nepal is still discussing what federal model to implement. A number of essential issues have not been decided, including issues that are barely discussed in the public domain. This report focuses on one of these issues, the borders of the federal provinces. We show how the average province poverty levels, and related economic and social indicators, will depend on those borders. The federal map will have implications for public policy, in the sense that redistribution from rich to poor provinces will require a strong center in Kathmandu. There are many other issues that we have not discussed here, in particular the distribution of powers between different levels of government with respect to taxes, government expenditures and social policies. These issues were to some extent discussed in a previous report by us, Aalen and Hatlebakk (2008).

A number of federal maps have been presented, Sharma and Khanal (2009) present 18 maps, and later many more have been suggested. This report examines the proposals from the CA itself. That is, the two proposals from the State Restructuring Commission, as well as the compromise that was formulated only days before the May 2012 deadline for a new constitution. We now know that the deadline was not met, and the CA dissolved, so what federal model, if any, will be the final outcome is still undecided. At the time of writing even the process ahead is not clear. The caretaker prime minister announced elections for November 2012, but it is now far from clear when the elections will happen. This means the discussion of the federal maps will continue and we hope this report will contribute.

Poverty has declined by around forty percent everywhere in Nepal, from a poverty rate of 42% in 1995 to 25% in 2010. We find the same relative decline in the rural western hills, but there poverty was as high as 55% in 1995, and thus down to only 32% in 2010. By the western hills we here mean the rural hill areas of all three western regions. But there is variation within this area, so the poverty rate of a particular province will depend on how the map is drawn. Furthermore, the poverty rate will be lower if the province also includes the richer terai districts.

So while the poverty rate of the rural western hills is 32%, the poverty rate of the far-western region (which also includes two terai districts and some urban areas) is as high as 46%. Similarly in the six-state model the mid-far-western province has a poverty rate of 42%, as this province is basically rural hill districts, but excluding the western region where we find the city of Pokhara. In the ten-state model the Kharnali-Khaptad province has a poverty rate of 44%, as this province basically includes the same districts as the mid-far-western province of the six-state model. In the eleven-state model the poverty rate of the Karnali region is 46%, which is the same as for the far-western region of the five-region model, again because the two provinces are defined by the same districts. As we can see, all models imply a high poverty rate for the western-most province, and the explanation is the size of the province. If the western-most hill districts join the neighboring districts to the east, as well as adjoining terai districts, then the poverty rate of the larger province will be lower. One choice will be to combine the present day mid- and far-western regions into one large province. In that case the joint poverty rate will be 37%.

There is a similar, although not as serious, situation in the east. The poverty rate here is 24% for the rural hills, 22% for the central region, 21% for the eastern region, and with similar rates for the eastern provinces in the six-state model. So in general poverty is much lower than in the western hills. Still, in the ten-state model we find a poverty rate of 31% in the Tamsaling province. The Tamsaling province is basically all central region hill districts excluding the Kathmandu valley. With these rural districts surrounding the valley, and to a large extent depending on the valley economically it cannot be a good solution to make a separate province that does not include the valley.

Further east we do not find a higher poverty rate than 22%, so it appears that it does not matter how the provinces are formed. But there is still variation, in the six-state model the eastern province has a poverty rate of 17%, but if this province is split as in the ten- and eleven-state models, we have a Kirat

province with 21-22% poverty, and a Limbuwan with very few districts in the ten-state model where poverty is only 14%, or a larger Limbuwan with 17% poverty and a small Kochila state with 15% poverty in the eleven-state model. So although poverty is lower in the east, there will be differences between provinces if the larger area is split.

In the terai the Madhes province will have 27% poverty in the six- and eleven-state models, but only 22% poverty in the ten-state model. The difference is that in the ten-state model Madhes also includes the richer Kochila districts and Chitwan. So if Madhes is made a separate province it makes sense to make it a larger one, that is, if our focus is on the distribution of poverty. But since both Chitwan and Jhapa are so dominated by hill migrants this may not be a politically feasible solution. But on the other hand Morang district with Biratnagar is a district with a mixed population, and one may imagine Biratnagar as the capital of such a larger Madhes province.

In the western terai, the poverty rate of Tharuwan is 27% in the six-state model, 26% in the ten-state model, and 23% in the eleven-state model. The lower poverty rate in the eleven-state model is basically because the district of Kailali is not included in Tharuwan in that particular model. But Kailali will pull up the poverty rate in any province, so it is actually better to include the district in Tharuwan, where it belong based on the ethnic composition of the district, rather than including it in a hill-based province, at least as long as a Tharuwan is formed anyhow. The best solution is, however, to make a large province in the west that includes all terai and hill districts in the mid- and far-western regions, as we discussed above.

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Appendix 1: Districts vs. models

	Regions	SRC: 6 provinces	SRC: 10 provinces	Final model
Taplejung	Eastern	Eastern	Limbuwan	Limbuwan
Panchthar	Eastern	Eastern	Limbuwan	Limbuwan
Ilam	Eastern	Eastern	Limbuwan	Limbuwan
Jhapa	Eastern	Eastern	Madhes	Kochila
Morang	Eastern	Eastern	Madhes	Kochila
Sunsari	Eastern	Eastern	Madhes	Kochila
Dhankuta	Eastern	Eastern	Kirat	Limbuwan
Terhathum	Eastern	Eastern	Limbuwan	Limbuwan
Sankhuwasabha	Eastern	Eastern	Kirat	Limbuwan
Bhojpur	Eastern	Eastern	Kirat	Kirat
Solukhumbu	Eastern	Eastern	Kirat	Kirat
Okhaldhunga	Eastern	Eastern	Kirat	Kirat
Khotang	Eastern	Eastern	Kirat	Kirat
Udayapur	Eastern	Eastern	Kirat	Kirat
Saptari	Eastern	Madhes	Madhes	Madhes
Siraha	Eastern	Madhes	Madhes	Madhes
Dhanusa	Central	Madhes	Madhes	Madhes
Mahottari	Central	Madhes	Madhes	Madhes
Sarlahi	Central	Madhes	Madhes	Madhes
Sindhuli	Central	Central	Tamsaling	Tamsaling
Ramechhap	Central	Central	Tamsaling	Tamsaling
Dolakha	Central	Central	Tamsaling	Tamsaling
Sindhupalchok	Central	Central	Tamsaling	Tamsaling
Kavre	Central	Central	Tamsaling	Tamsaling
Lalitpur	Central	Central	Newa	Narayani
Bhaktapur	Central	Central	Newa	Naryani
Kathmandu	Central	Central	Newa	Narayani
Nuwakot	Central	Central	Tamsaling	Narayani
Rasuwa	Central	Central	Tamsaling	Tamsaling
Dhading	Central	Central	Tamsaling	Narayani
Makwanpur	Central	Central	Tamsaling	Narayani

	Regions	SRC: 6 provinces	SRC: 10 provinces	Final model
Rautahat	Central	Madhes	Madhes	Madhes
Bara	Central	Madhes	Madhes	Madhes
Parsa	Central	Madhes	Madhes	Madhes
Chitawan	Central	Central	Madhes	Narayani
Gorkha	Western	Western	Tamuwan	Tamuwan
Lamjung	Western	Western	Tamuwan	Tamuwan
Tanahu	Western	Western	Narayani	Tamuwan
Syangja	Western	Western	Narayani	Tamuwan
Kaski	Western	Western	Tamuwan	Tamuwan
Manag	Western	Western	Tamuwan	Tamuwan
Myagdi	Western	Western	Magarat	Magarat
Parbat	Western	Western	Narayani	Tamuwan
Baglung	Western	Western	Magarat	Magarat
Gulmi	Western	Western	Magarat	Magarat
Palpa	Western	Western	Magarat	Magarat
Nawalparasi	Western	Western	Tharuwan	Tharuwan
Rupandehi	Western	Tharuwan	Tharuwan	Tharuwan
Kapilbastu	Western	Tharuwan	Tharuwan	Tharuwan
Arghakhanchi	Western	Western	Magarat	Magarat
Pyuthan	Mid-Western	Western	Magarat	Magarat
Rolpa	Mid-Western	Western	Magarat	Magarat
Rukum	Mid-Western	Mid-far Western	Karnali/Khaptad	Khaptad
Salyan	Mid-Western	Mid-far Western	Karnali/Khaptad	Khaptad
Dang	Mid-Western	Tharuwan	Tharuwan	Tharuwan
Banke	Mid-Western	Tharuwan	Tharuwan	Tharuwan
Bardiya	Mid-Western	Tharuwan	Tharuwan	Tharuwan
Surkhet	Mid-Western	Mid-far Western	Karnali/Khaptad	Khaptad
Dailekh	Mid-Western	Mid-far Western	Karnali/Khaptad	Khaptad
Jajarkot	Mid-Western	Mid-far Western	Karnali/Khaptad	Khaptad
Dolpa	Mid-Western	Mid-far Western	Karnali/Khaptad	Khaptad
Jumla	Mid-Western	Mid-far Western	Karnali/Khaptad	Khaptad
Kalikot	Mid-Western	Mid-far Western	Karnali/Khaptad	Khaptad
Mugu	Mid-Western	Mid-far Western	Karnali/Khaptad	Khaptad

	Regions	SRC: 6 provinces	SRC: 10 provinces	Final model
Humla	Mid-Western	Mid-far Western	Karnali/Khaptad	Khaptad
Bajura	Far-Western	Mid-far Western	Karnali/Khaptad	Karnali
Bajhang	Far-Western	Mid-far Western	Karnali/Khaptad	Karnali
Achham	Far-Western	Mid-far Western	Karnali/Khaptad	Karnali
Doti	Far-Western	Mid-far Western	Karnali/Khaptad	Karnali
Kailali	Far-Western	Tharuwan	Tharuwan	Karnali
Kanchanpur	Far-Western	Mid-far Western	Tharuwan	Karnali
Dadeldhura	Far-Western	Mid-far Western	Karnali/Khaptad	Karnali
Baitadi	Far-Western	Mid-far Western	Karnali/Khaptad	Karnali
Darchula	Far-Western	Mid-far Western	Karnali/Khaptad	Karnali

Appendix 2: Map of the SRC-proposals



Appendix 3: Map of the compromise proposal



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INDEXING TERMS

Federalism

Poverty

Social indicators

Nepal

Nepal is in the process of forming a federal state, where the borders of the provinces is one essential, but disputed, issue. The report discusses underlying economic and social conditions that should be taken into account when the provinces are formed. More precisely, we describe how the average province poverty levels, and related economic and social indicators, will depend on how the federal map is drawn. The general finding is straight forward, if there is variation in poverty between districts in a specific area, then a large province that includes both poor and rich districts will have the average poverty level of those districts. Since poor and rich districts tend to be geographically clustered, one can end up with poor districts in one province and richer districts in another one if the larger province is split in two. As a result models with a large number of provinces will tend to have a more unequal distribution of poverty between provinces than models with few provinces. The report shows how this argument applies in particular to western Nepal where one may end up with a very poor province in the Karnali region.