The Determinants and Consequences of Chronic and Transient Poverty in Nepal

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September 2006

CPRC Working Paper 66

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ISBN: 1-904049-65-6

Abstract

Although there is now a substantial international literature on poverty dynamics, both academic and policy discussions on poverty in Nepal continue to focus on static notions of poverty. This paper, for the first time, studies poverty dynamics in Nepal by analysing the determinants of chronic and transient poverty using data from a nationally representative panel of 962 households surveyed in 1995/96 and 2003/04. Suggesting that one of the consequences of poverty is its negative impact on asset accumulation, it also looks at how human capital accumulation differs between transient and chronically poor individuals.

The findings indicate that while the average per-capita consumption of households increased between 1995/96 and 2003/04, over 47% of the households were poor in at least one of those two years. Among them, around 43% were chronically poor and the remaining 57% were transient poor. In studying the determinants of poverty, we focus on three factors, namely ethnicity, human capital and wealth. Our multinomial logit regression results indicate that while household wealth and human capital have a significant association with both chronic and transient poverty, they are more strongly related to chronic poverty. Another important factor related to poverty is the intensity of violent conflict in the household's district. Ethnicity, on the other hand, does not have a significant relationship with either type of poverty. Our investigation of the effects of transient and chronic poverty on human capital accumulation reveals that, on average, the chronically poor have a lower level of human capital. This gap can be largely explained by the differences in the characteristics of the chronic and transient poverty groups. Our findings suggest that since both the transient and chronic poor occur in large numbers, the government should have concrete policies to address both types of poverty. In particular, emphasis on human capital development and rural asset enhancement could have a beneficial impact on both transient and chronic poverty.

Keywords: chronic poverty, human capital, multinomial logit, panel data, Nepal

Acknowledgements

This paper has benefited significantly from multiple rounds of discussion with Bob Baulch. We thank him for his helpful comments and suggestions. We would also like to thank the Chronic Poverty Research Centre, UK for funding this study. We are grateful to Nepal Central Bureau of Statistics for providing us with the NLSS data and to INSEC for sharing violence-related data with us.

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1. Introduction

As in most other developing countries, poverty reduction strategies and policies in Nepal are primarily informed by periodic cross-section household survey data that provide estimates of static poverty rates. Interestingly, however, the focus of these policies appears to be chronic or long-term poverty—poverty that is not necessarily reflected in cross-sectional survey data. While estimates of poverty at specific points in time might correlate with chronic poverty to some extent, such estimates are more representative of poverty that is transient in nature. Hence, an issue of interest is the extent to which there is an overlap between the factors that explain transient and chronic poverty. If the determinants of chronic and transient poverty are quite different, then different policy measures would be required to address these two aspects of poverty. An understanding of common determinants, on the other hand, could point to poverty reduction strategies that apply to both poverty types.

In the case of Nepal, however, a rigorous analysis of the determinants/correlates of chronic and transient poverty has never been performed. Hence, the main objective of this study is to explore the differential impacts of various poverty determinants on chronic versus transient poverty at the household level, with a special focus on three explanatory factors: wealth, human capital and ethnicity. The negative relationship between household wealth and poverty has been discussed widely in the literature (World Bank, 1996; Jalan and Ravallion, 1998). In particular, wealthier households are less likely to experience chronic poverty since they are capable of smoothing consumption over time even in the absence of large amounts of credit. Furthermore, they are in a better position to maintain their consumption by borrowing against their assets, especially after shocks (CPRC, 2004). Hence, it is expected that household wealth will be found to be an important determinant of both chronic and transient poverty in Nepal. At the same time, however, changes in household wealth should have a greater negative impact on transient poverty than on chronic poverty.

The extensive literature on human capital and earnings has established a near-causal relationship between education and income. It is, therefore, not surprising that investment in education or human capital is seen as a central poverty reduction strategy in many countries, including Nepal. It is, however, not clear whether human capital is a significant determinant of transient poverty. Jalan and Ravallion (1998), for example, report that educational levels of household members do not have a statistically significant association with transient poverty in the case of rural China. It should be pointed out that unlike wealth, a household's human capital is one of the potential determinants of poverty that can be significantly influenced by government intervention. Hence, the relationship between human capital and poverty is especially important from a policy perspective.

Another important potential determinant of poverty in Nepal from a policy perspective is ethnicity. Among the more than 100 ethnic groups living in Nepal, some marginalised groups have been historically discriminated against and excluded from the mainstream social, political, and economic life of the country. In addition there is some evidence that the poverty rates for such marginalised ethnic groups are much higher than those for *Brahmans, Chettris* and *Newars*-the three ethnic groups that comprise over 30% of the population and dominate the politics and economy of Nepal. Evidence based on prior research suggests that the situation in Nepal is similar to the higher poverty rates among ethnic minorities observed in other countries (see, for example, Hall and Patrinos, 2005; Borooah, 2005; Baulch and Masset, 2003; Gang *et al.*, 2002; Van de Walle and Gunewardena, 2001). The Chronic Poverty Report (CPRC, 2004) also identifies discrimination and social exclusion on the basis of ethnicity or other group characteristics as major maintainers of poverty in some countries. There is now a growing recognition among both policy-makers and the general public in Nepal that apart from absolute poverty, the relatively higher level of deprivation suffered by certain minorities is a major driver of the ongoing violent Maoist insurgency plaguing the

country.[1] But whether or not ethnicity and conflict can explain both transient and chronic poverty in Nepal, when other determinants are also taken into account, is an empirical question open to investigation.

Since human capital is a potential determinant of poverty, policy-makers view investment in human capital as a major long-term strategy for tackling both chronic and transient poverty. But an individual's level of human capital itself is influenced by her family's income and assets. In particular, poverty can have a significant negative impact on an individual's ability to accumulate human capital. Also given the importance of wealth in availing a household of credit both for consumption and investment, household wealth is another potential determinant of human capital at the individual level. Furthermore, as suggested earlier, the educational levels of marginalised ethnic groups are likely to be much lower than those of the privileged groups in Nepal. It is, however, not clear how wealth and ethnicity affect the level of human capital differently for individuals from chronically poor versus transient poor households. The second objective of this study is, therefore, to determine the extent to which differences in wealth and ethnicity can explain the difference in human capital between individuals from chronically poor and transient poor households. This study thus investigates not only the explanations behind chronic and transient poverty but also one of the consequences of poverty, namely the differential impacts of chronic verses transient poverty on human capital.

The main distinguishing feature of this paper is its geographical area of focus. Although there are a number of studies in the literature on the determinants of poverty and on the difference between chronic and transient poverty, we are not aware of other published studies on Nepal that analyse these issues using quantitative data. As one of the poorest countries of the world, Nepal is not only an appropriate place to study poverty dynamics, but it is also a country where a better understanding of poverty dynamics is very useful for policy purposes. Furthermore, the differential impacts of wealth, ethnicity and conflict on these two poverty types is an area that has remained largely unexplored.

As indicated earlier, the study also makes a contribution to the scholarship on poverty dynamics by exploring how human capital accumulation - an important strategy for long term poverty reduction - is affected differently by the poverty status of individuals. The role of wealth, in particular, in determining an individual's level of human capital has not yet been studied in the context of Nepal. The current study is an initial exploration in this direction.

It should be emphasised that problems of attrition and measurement errors can influence poverty estimates and estimates of other relevant variables in studies based on household panel data (Alderman *et al.*, 2000; Baulch and Hoddinott, 2000). In particular, non-random attrition can bias the estimates of individual variables (Alderman *et al.*, 2000) and measurement errors in the variables of regression models can lead to imprecise coefficient estimates, attenuation bias and omitted variable bias (Gujarati, 2003; Deaton, 1997). Recognising these potential problems, this study analyses the representativeness of the panel sample used and also attempts to account for one type of measurement error - errors in the dependent variable - using an approach based on McCulloch and Baulch (2000), Luttmer (2001) and others.

[1] Although a ceasefire between the Maoists and the government was declared in April 2006, a permanent peace settlement has not yet been reached. Furthermore, the Maoists have continued to abduct and kill opponents, and use the threat of extreme violence to extort money from civilians as well as local government bodies. Hence we use the term "ongoing conflict" in this paper to characterise the current political situation in Nepal.

The rest of the paper is organised as follows. Section 2 gives an overview of the poverty situation and poverty research in Nepal. Section 3 presents the methodology for analysing the determinants of chronic and transient poverty, and the determinants of human capital accumulation. It also discusses the approach we use to correct for measurement errors. Section 4 describes the Nepal Living Standards Survey panel data used in this study and discusses the representativeness of the panel sample. The results are presented in Section 5. This section first describes the changes in household welfare between 1995/96 and 2003/04, and then presents regression results that identify the determinants of chronic and transient poverty and the determinants of human capital accumulation. The final section presents some concluding remarks.

2. Poverty and human development in the Nepali context

2.1 Nepal's human development situation in the regional context

Nepal is one of the least developed countries in South Asia in terms of most socio-economic indicators. According to the global Human Development Report 2005, for example, Nepal ranks 136th in the Human Development Index (HDI) ladder, just below Pakistan (UNDP, 2005). While Nepal has made some progress in health and education during the past few decades and recently advanced to the group of Medium Human Development countries, it is still characterised by an HDI value of 0.526. Table 1 shows how Nepal compares with its South Asian neighbours in terms of some key socio-economic indicators. Nepal is second from the bottom in the HDI ranking, and lags behind most of these countries in terms of the other indicators as well. However, according to the World Bank (2006), two social indicators for Nepal – child malnutrition and access to improved water source – have values similar to the average figures for South Asia as a whole (see Appendix for details).

Table 1: Key development indicators for Nepal and her South Asian Neighbors, 2003

Country	HDI value	HDI rank	Life expectancy at birth (years)	Adult literacy (15+ years) (percent)	GDP per-capita (PPP US $)	Population below poverty line (%)	
						$1 day	National
Sri Lanka	0.751	93	74.0	90.4	3,778	7.6	25.0
Maldives	0.745	96	66.6	97.2	4,798	-	-
India	0.602	127	63.3	61.0	2,892	34.7	28.6
Bhutan	0.536	134	62.9	47.0	1,969	-	-
Pakistan	0.527	135	63.0	48.7	2,097	13.4	32.6
Nepal	0.526	136	61.6	48.6	1,420	37.7§	31
Bangladesh	0.520	139	62.8	41.1	1,770	36.0	49.8

Source: UNDP (2005).

§Note: the $1/day poverty rate computed by the Nepal Central Bureau of Statistics using the Nepal Living Standards Survey data is only 24.1 (NPC, 2005).

Given the high poverty rate and low level of human development in the country, poverty reduction has consistently been a major focus of Nepal's different national development plans. Surprisingly however, there has been little systematic work on poverty dynamics in the country. In particular, there is only one study (CBS, 2006) that has analysed changes in poverty using household panel data. Hence, the brief review of the poverty situation in Nepal presented below focuses primarily on poverty at specific points in time. Although the core

analysis in our study deals with chronic and transient poverty in monetary terms, this review also presents a brief assessment of the non-monetary aspects of poverty in Nepal.

2.2 Monetary poverty

Monetary poverty refers to quantitative measures of poverty computed using information on per capita consumption and income. A number of national level household surveys have been conducted in Nepal during the previous three decades to estimate monetary poverty. But since these surveys differ widely in the methodologies employed, it is difficult to discuss poverty trends with confidence. Nevertheless, based on these survey data (from 1977, 1984/85 and 1995/96), Prennushi (1999) concludes that the poverty rate has remained in the low 40s, without any substantial decrease in monetary poverty between the mid-70s and the mid-90s.

The Nepal Living Standards Surveys (NLSS I and II) from 1995/96 and 2003/2004 are the most systematic surveys aimed at gathering data on the living standards of Nepali households. Since they follow the same survey methodology, poverty estimates based on these two surveys can be compared with each other. According to NLSS I, the incidence of poverty in Nepal in 1995/96 was 42 percent (43 percent in rural areas and 22 percent in urban areas) with wide variations in poverty levels across geographical areas, genders and ethnicities. At the national level, the intensity and severity of poverty were estimated at 0.12 and 0.05, respectively (NPC, 1998).[2]

A recent analysis of NLSS II cross section data by the Nepal Central Bureau of Statistics (CBS, 2005) indicates that poverty incidence at the national level declined from 42% in 1995/96 to 31% in 2003/04. Their analysis shows a significant reduction in poverty in both rural and urban areas, and in the different geographical regions of the country. Considering that this period has been characterised by a notable increase in the destruction of physical infrastructure and disruption of business activities caused by the Maoist insurgents, the above finding appears surprising at first glance. But the decrease can be partly explained by the fact that a large percentage of the poor in the 1995/96 NLSS dataset was concentrated just below the poverty line. Hence, small improvements in the economic conditions of the borderline poor could have translated into a large reduction in the poverty rate over the years. According to the CBS, the probable reasons for the observed decrease in poverty rate include increased remittance income, increased agricultural labour income, growth of the economically active population and rapid urbanisation. The increase in remittances and its contribution to poverty reduction has also been substantiated by the findings of a joint study by DFID and the World Bank (DFID/WB, 2005). However, this study suggests that the benefits from remittances are not necessarily equitably distributed within households and can have a mixed effect on gender relations.

The Nepal Central Bureau of Statistics has also performed an analysis of the panel households included in the NLSS datasets (CBS, 2006). Their estimates of the poverty rate for panel households are 39% for 1995/96 and 32% for 2003/04. While these figures are somewhat different from those obtained from the cross section data, they nevertheless provide further evidence of the decline in poverty during the eight years between the two surveys. As a first estimate of the level of chronic poverty in Nepal, CBS also reports that 18.5% of the households remained poor in both surveys. But they do not attempt to distinguish between transient and chronic poverty or delve into a discussion of their determinants.

[2] The intensity and severity of poverty were measured using the Foster-Greer-Thorbecke poverty gap and squared poverty gap indices, respectively

2.3 Non-monetary Poverty Indicators

There is an increasing awareness among researchers that focusing simply on monetary measures of welfare reveals only a partial picture of chronic poverty. Deriving appropriate non-monetary indicators of poverty, however, is a major challenge. Hulme and McKay (2005) propose three alternative sets of approaches to measuring non-monetary welfare: asset-based approaches, needs/capability-based approaches and human development approaches. While acknowledging the inherent difficulties in valuing different forms of capital including human and social, they nevertheless argue that it is possible to use the asset-based approach to develop a comprehensive assessment of assets for chronic poverty analysis. Similarly, they also explain that human development and related approaches too are multi-dimensional and can also be more participatory in understanding poverty dynamics. The Hulme and McKay approach provides a useful framework for organising the different non-monetary poverty indicators found in the literature.

As indicated above, monetary and non-monetary indicators can present different pictures of an economy's poverty situation. CPRC (2004), for instance, reports that when households are disaggregated in terms of assets (instead of expenditure), a bigger gap between the rich and poor emerges. Similarly, a study of chronic poverty in Vietnam by Baulch and Masset (2003) shows only a modest overlap between the monetary chronic poor and the non-monetary chronic poor when stunting, malnourishment and school attendance are used to measure non-monetary welfare. They also find that some of the non-monetary indicators of chronic poverty are more persistent in nature and complement the monetary ones.

In the case of Nepal, some of the indicators of non-monetary poverty include food insecurity, malnutrition, illiteracy and social exclusion (based on gender, ethnicity and geography). The main causes of food insecurity are high dependence on agriculture, small landholdings, inequality in land holdings, low productivity in agriculture and low levels of non-agricultural income. Lately, the problem of food insecurity has worsened in several parts of the country, particularly in the Hills and Mountains, due to an escalation of the conflict associated with the Maoist insurgency. Similarly, malnutrition, particularly among children, is another major indicator of non-monetary poverty. According to the Ministry of Health, 90% of all Nepali children suffers from some form of malnutrition (MOH, 1999). Inadequate access to food, insufficient basic health services, an unhealthy environment and low levels of education among mothers are some of the major causes of malnutrition in Nepal (NPC, 2005).

Subjective perceptions of households regarding consumption adequacy can also be used to obtain measures of non-monetary poverty. The NLSS dataset includes responses to minimum income questions (MIQs), which have been used by some researchers to assess Nepal's poverty situation. The responses capture perceptions of households on several aspects of their standard of living including family income and consumption of food, housing, clothing, health care, and children's schooling. Using the 1995/96 NLSS data, Pradhan and Ravallion (2000) have estimated poverty rates based on subjective poverty lines derived from these qualitative responses on perceived consumption adequacy. They conclude that the computed subjective poverty measures are quite consistent with the standard poverty estimates based on monetary welfare.

While subjective poverty lines and corresponding subjective poverty measures for 2003/2004 have not been calculated, the household responses to the MIQs in the NLSS panel dataset give some indication of the living standard changes experienced by households in recent years. Table 2 summarizes the perceptions of households regarding consumption adequacy in 1995/96 and 2003/04 (CBS, 2005). The households perceived an improvement in all aspects of consumption adequacy during the eight-year period, a finding that is largely consistent with the earlier finding of a decline in monetary poverty. For example, while almost half (44.4 %) of the panel households reported that their food consumption was less than

adequate in 1995/96, the figure dropped to 26.5% in 2003/04. Similar improvements are seen in the perception of adequacy of housing consumption, clothing consumption, family health care and children's schooling. Interestingly, however, there was almost no change in their perception regarding whether food intake was sufficient for a healthy and active life and only a small change in their perception of income adequacy. More than 60% of households stated their basic income was inadequate while, specifically, around 87% of the households found their food intake inadequate for healthy living in both rounds of the NLSS.

Table 2: Self-reported assessment of consumption adequacy by panel households, 1995-96 and 2003-04

Household's perception of consumption adequacy during past month	% of households with positive response	
	1995/96	2003/04
Family's food consumption was inadequate	44.4	26.5
Family's housing consumption was inadequate	59.1	38.4
Family's clothing consumption was inadequate	52.5	31.3
Family's health-care was inadequate	49.3	26.8
Family's children's schooling was inadequate	38.8	19.7
Family's total Income was inadequate	68.8	63.9
Family eats too little to live a healthy and active life	87.6	86.7

Source: CBS (2006)

Note: 'Adequacy' is defined as the minimum consumption needs of the respondent's family (CBS, 2005).

2.4 Determinants of Nepal's Poverty

While there is no literature on the determinants of chronic poverty in Nepal, past research indicates that most of the factors contributing to static poverty in Nepal are similar to those in other developing countries. As elsewhere, a household's poverty status is potentially related to factors such as household location, household composition, human capital and household wealth (CBS, 2005).

For example, as indicated earlier, rural households in Nepal are more likely to be poor than urban households. And since agriculture plays a central role in the lives of the rural population, agricultural production, land ownership and land quality can be considered important determinants of rural poverty (Prennushi, 1999). According to CBS (2005), households headed by agricultural wage labourers are the poorest while the second poorest group consists of households headed by people self-employed in agriculture. The study also suggests that household size and education are related to the economic status of households. More specifically, it finds that the poverty rate progressively declines as the level of education attained by the household head increases. The constructive role of education in reducing poverty is also documented by Prennushi (1999), who reports a positive correlation between agricultural incomes and the level of education.

However, there are also a number of other micro- and macro-level factors that might be contributing to Nepal's high poverty rate. These include low economic growth, weak social and economic infrastructure, deep-rooted exclusionary practices, absence of good governance, weak institutions, a relatively high population growth rate and limited access to non-agricultural income. In addition, the violence associated with the ongoing Maoist insurgency is also a factor that cannot be discounted (Seddon and Hussein, 2002).

The economic growth characteristics that directly affect the poverty situation in Nepal are low growth rate in general and low agricultural growth in particular. Between 1995/96 and 2003/04, for example, real GDP grew at an average annual rate of about 3.9% (3.4% in the agricultural sector and 4.2% in the non-agricultural sector).[3] Furthermore, this economic growth has largely been driven by the growth in the urban service sector, and has not been strong enough to have significant spillover effects on the rural areas. Hence the slow and lopsided economic growth experienced by Nepal has not had a significant impact on the majority of the population in this predominantly rural country.

The urban-based nature of growth can also be seen by examining the NLSS data on per capita expenditure (PCE). Between 1995/96 and 2003/04, increase in real PCE in urban areas was much more prominent (42 %) than the increase in rural areas (27%) (CBS, 2005). While it would be useful to compare these figures with those obtained from the National Accounts (NA), disaggregated NA-based PCE growth rates for the rural and urban sectors are not provided in published government documents. The available information does, however, indicate that real NA-based PCE at the national level increased by 12% between these two years, a figure significantly lower than the NLSS-based PCE estimate. The discrepancies between the NA and NLSS PCE growth rates can be largely attributed to a number of adjustments made in the computation of NA-based estimates (ibid).[4]

Further insights into the patterns of growth can be gained from an analysis of Growth Incidence Curves (GICs).[5] A GIC analysis based on the NLSS 1995/96 and 2003/04 data indicates that although real PCE increased for all consumption deciles in both urban and rural areas, the growth was skewed towards urban areas and higher expenditure groups (CBS, 2005). Interestingly, the growth was equally distributed across the lower and upper halves of the distribution in urban areas, while high-income households experienced higher growth in rural Nepal. These differing growth patterns across the urban-rural divide are consistent with the pattern of poverty decline (higher in urban areas and lower in rural areas).

The low agricultural growth in the nation is partly related to the low returns for the poor in the agricultural sector. The NLSS data indicate that low returns for the poor can be attributed mainly to factors such as smaller size of landholdings, lower share of good quality land, lower share of irrigated land, and lower access to technology and formal-sector credit (Prennushi, 1999). Given the slow growth in total food grain production and the high population growth rate, Nepal has, since the early 90s, changed from a net exporter to a net importer of food grains (Sharma, 2005).

The level of social and economic infrastructure in Nepal is low even by South Asian standards. The concentration of public infrastructure in and around urban areas and the lack of basic services in most rural areas are seen to be among the major determinants of poverty. For instance, Prennushi (1999) emphasises that the rural poor suffer not only from an insufficient level of educational and health services but also from their poor quality and relatively higher cost.

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[3] The average annual growth rate has been estimated from annual growth rates published by the Nepal Ministry of Finance (MOF, 2005).

[4] The 1995/96 NA estimate of private consumption was set at the level of household consumption estimated from the 1995/96 NLSS with an upward adjustment to account for certain items that were not captured in NLSS, such as home produced non-food items, in-kind transfers from government and private consumption of resident foreign households. Also, due to the overwhelming flow of undocumented remittance income in recent years, NA estimates for 2003/04 do not accurately reflect personal income and personal consumption (CBS, 2005).

[5] GICs are constructed by plotting the annualised rate of growth at percentiles of the per capita expenditure distribution.

The Nepali Government itself has recognised that its weak and inefficient institutions are partly to blame for the continuing high poverty in the country (NPC, 2003). Unresponsive and unmotivated administration at all levels and the over-centralisation of development activities have made most government agencies highly ineffective in delivering services to the poor and needy. These weaknesses also have a strong bearing on the quality of services delivered (ibid).

Politicians, academics and the general public in Nepal are increasingly recognising that social and economic exclusion based on gender and ethnicity continue to play an important role in exacerbating the poverty and deprivations faced by significant segments of the population. The discrimination against women (particularly rural) mostly covers domains of physical survival, health and educational opportunities, ownership of assets, mobility and overall status. Similarly, there are certain ethnic groups who have remained poor for generations due to certain socio-cultural norms that have led to inequities in access to resources and distribution of social and economic status (Panday, 1999).[6] For example, using 1995/96 NLSS estimates, NESAC (1998) reports that poverty incidence is higher among the people belonging to the lower caste groups and certain non-caste ethnic minorities. In contrast, they find that poverty incidence is lowest among the *Newars* followed by the *Brahmans*, the two most privileged groups in Nepal. Unfortunately, there has been little relative improvement in the economic status of the lowest caste groups (the *Dalits*[7]) and non-caste ethnic minorities (the *Janajatis*[8]) in recent years, as evidenced by the fact that the 2003/04 NLSS survey found them to have the lowest consumption levels among all ethnic groups (CBS, 2005).

One recent analysis suggests that social exclusion also plays an important role in determining a household's level of wealth (DFID/WB, 2005). Using a composite wealth ranking score (comprising of ownership of consumer goods, land and house), the study reports that *Janajatis* and the *Tarai* middle caste groups stand in second place, while the privileged group (*Brahmans, Chhetris* and *Newars*) and the *Dalits* are at the top and bottom, respectively.[9] Similarly, the study finds that ethnicity has a significant association with schooling as well. More specifically, it finds that members of the *Brahman-Chettri-Newar* group have, on average, completed twice as much schooling as the *Dalits*. The difference between the *Brahman-Chettri-Newar* group and the *Janajatis* is even greater. At the same time, the study also cautions that while *Brahmans* and *Chettris* are, on average, relatively privileged, a large number of the rural poor belong to these castes.

[6] The term "ethnic group" is used in this paper to denote different caste groups within the traditional Hindu caste structure as well as other culturally distinct population groups who are outside the caste structure.

[7] The word *Dalit* literally means a person immersed in a swamp. *Dalits* are the supposedly 'untouchable castes' and comprise around 11% of the population. They have traditionally worked in occupations considered "unclean" by the upper castes. For example, most blacksmiths, cobblers, tailors, washermen (women) and sweepers are *Dalits*.

[8] The majority of the *Janajatis* come from the hill and mountain areas. The hill *Janajatis* comprise around 22% of the population (Gurung, 2006).

[9] The *Tarai* middle caste groups include people in the *Tarai* flatlands who are neither privileged nor are as deprived as the *Dalits* (e.g., caste groups such as *Yadav, Teli Kalwar, Koiri, Kurmi, Kanu, Kewat, Mallah,* etc.).

3. Methodological details

3.1 Determinants of transient and chronic poverty

Measuring transient and chronic poverty

Our analysis of poverty determinants focuses on monetary poverty computed using household per capita expenditure (or consumption) as the relevant welfare measure. Although household per capita income could also be used to measure welfare, per capita expenditure better captures the consumption smoothing behavior of households and is also less susceptible to measurement errors, especially within the context of developing countries (see Ravallion, 1992; McCulloch and Baulch, 2000; WBI, 2005). Hence it is common practice to use per capita expenditure as the preferred indicator of welfare when analysing poverty in developing countries.

The poverty status of a household in any particular year is determined by comparing its per capita expenditure with a year-specific poverty line derived by the Nepal Central Bureau of Statistics using the Cost-of-Basic-Needs (CBN) approach (CBS, 2005; Lanjouw *et al.*, 1999).[10] The CBS methodology takes into account differences in cost of living in different areas of the country by dividing the nation into six regions and deriving price indices for each region. Expressed in terms of 1995/96 prices in one of these six regions - rural eastern terai - the CBN poverty lines for NLSS I and NLSS II are Rs. 4655 and Rs. 4749 per year, respectively.[11]

The concepts of chronic and transient poverty can be operationalised by utilising household poverty status in the different years of the panel. One popular approach to measuring chronic and transient poverty is that of Jalan and Ravallion (1998) where a household's total poverty is defined as an inter-temporal average poverty measure that can be decomposed into transient and chronic components. Thus, any household that is poor in at least one wave of the panel can potentially have both transient and chronic poverty components. This way of measuring chronic and transient poverty, however, relies on the computation of inter-temporal mean consumption which cannot be properly captured using only two waves of panel data. Hence, in this study, we take the much simpler "spells approach" to defining chronic and transient poverty (McKay and Lawson, 2003). Within this framework, a household that is poor in only one period is classified as transient poor, while a household that is poor in both periods is considered to be chronically poor.[12]

[10] CBS uses 2,124 kcal per day as the minimum caloric requirement for the average Nepali household. The food poverty line is the cost of a food basket with 2,124 kcal caloric content. The Cost-of-Basic-Needs poverty line is derived by adding to the food poverty line the amount spent by the average borderline-poor household on non-food items.

[11] The poverty line for NLSS II is slightly different from the NLSS I poverty line because of changes in the demographic composition of the average Nepali household (CBS, 2005).

[12] Note that the spells approach to measuring chronic and transient poverty is problematic when there are many waves in the panel since it would classify as chronically poor only those households that were poor in every period. Another criticism of this approach is that its use of discrete welfare indicators (i.e., poverty status) results in a loss of information available in the underlying continuous measure of welfare (i.e., per capita expenditure).

Correcting for measurement error

As discussed above, we use household expenditure as the welfare measure for computing poverty. But as in the case of any other welfare indicator, the poverty level computed using expenditure can be contaminated by measurement errors.

One way to correct for measurement error is by adjusting the observed consumption measure by the reliability of the measure. If we model the observed per capita consumption of a household i at time t, C_{it}, as the sum of the true consumption, C^*_{it}, and a random measurement error m_{it}, then reliability can be simply defined as the percentage of the variance of C_{it} explained by the variance of the true measure C^*_{it}. In other words, reliability $r_C = \frac{Var(C^*)}{Var(C)}$. Hence, if it is possible to obtain an estimate of r_C, we can compute error-adjusted consumption, C^{adj}_{it}, as follows (see McCulloch and Baulch, 2000; Trochim, 2001):

$$C^{adj}_{it} = \bar{C}_i + \left(C_{it} - \bar{C}_i\right) r_C \qquad (1)$$

where $\bar{C}_i$ is the inter-temporal average consumption for household i. Using C^{adj}_{it} instead of C_{it} as the measure of welfare will then account for the influence of measurement errors without altering the mean value of consumption.

In theory, r_C is the correlation coefficient between two realizations of C_{it} (Trochim, 2001). In practice, however, we generally do not have two realizations of C_{it} to estimate r_C. It is, nevertheless, possible to estimate r_C by utilising instrumental variables that are correlated with true consumption, but which are uncorrelated with the measurement error associated with C_{it} (Luttmer, 2001). One instrumental variable we will use for this purpose is lagged consumption, C_{it-1}. The other instrument is lagged income, denoted by y_{it-1}.

Let us formally write down the relationship between C_{it}, C^*_{it} and m_{it} as $C_{it} = C^*_{it} + m_{it}$, and make the assumption that a household's observed income, y_{it}, is linearly related to true consumption C^*_{it} as follows:

$$y_{it} = \alpha_0 + \alpha_1 C^*_{it} + u_{it} . \qquad (2)$$

Let us also model true consumption as a simple linear function of the true consumption in the previous time period, i.e.,

$$C^*_{it} = \rho_0 + \rho_1 C^*_{i,t-1} + \varepsilon_{it} . \qquad (3)$$

Then a simple rearrangement of the above equations leads to the following three equations:

$$C_{it} = \rho_0 + \rho_1 C^*_{i,t-1} + v_{it} \qquad (4)$$

$$C_{it-1} = C^*_{it-1} + m_{it} \text{, and} \qquad (5)$$

$$y_{it-1} = \alpha_0 + \alpha_1 C^*_{it-1} + u_{it-1} \qquad (6)$$

where $v_{it} = \varepsilon_{it} + m_{it}$.

If we further assume that the expected values of and correlations among the error terms $m_{it}, \varepsilon_{it}, u_{it}$, and v_{it} are zero, then the instruments C_{it-1} and y_{it-1} are uncorrelated with the measurement error m_{it}. It can be shown that, under these assumptions, the reliability coefficient can be computed simply as (see Luttmer, 2001):[13]

$$r_C = \frac{Corr(C_{it}, C_{it-1}) \times Corr(C_{it-1}, y_{it-1})}{Corr(C_{it}, y_{it-1})} \quad (7)$$

The estimate of r_C from equation (7) is used in equation (1) to obtain an error-adjusted consumption measure.

Use of equivalence scales

Given the differing consumption needs of different household members and the existence of economies of scale in consumption, we would ideally want to use equivalized household per capita expenditure when analysing the determinants of poverty. The appropriateness of using adult equivalent per capita expenditure, however, is questionable in the case of Nepal since Nepal-specific equivalent scales have not been estimated. Hence, the current study focuses on non-equivalized per capita expenditure and presents results based on equivalized expenditure only as supplementary information. The equivalence scale used here is computed as $AE = (N_{adults} + \alpha N_{children})^{\theta}$, where AE refers to "adult equivalent", α represents the relative weight given to a child under 15, and $\theta \leq 1$ captures economies of scale in consumption (WBI, 2005). Following WBI (2005), we use $\alpha = .75$ for the supplementary analyses in this study and present results for two values of θ (1.0 and .85)

Determinants of poverty

As poverty outcome can only take three distinct values in our framework, it is necessary to use a discrete choice model to analyse the determinants of chronic and transient poverty. We use a multinomial logit model for this purpose. While ordered logit or probit models are also possible alternatives, they are less suitable for this study since poverty status is not necessarily an ordinal response variable. More specifically, although poverty status is based on an underlying welfare measure (per capita expenditure) defined on an interval scale, it is not always appropriate to assume that chronic poverty represents a higher level of deprivation than transient poverty, as would be implied by treating it as an ordinal variable. Hence, it is reasonable to view poverty status as a nominal variable and use a multinomial logit model for the analysis.

The dependent variable of the model can take one of three discrete values indicating the poverty status of a household (non-poor, transient poor and chronically poor). While a host of explanatory variables are included in the model, the study focuses on wealth, human capital and ethnicity. As the goal is to explore how initial socio-economic status of a household might affect the household's poverty status over time, the 1995/96 values of the explanatory

[13] r_C can also be estimated as the ratio $\frac{\rho_1^{OLS}}{\rho_1^{IV}}$, where ρ_1^{OLS} is the slope coefficient obtained by regressing C_{it} against $C_{i,t-1}$ and ρ_1^{IV} is the slope coefficient obtained by regressing C_{it} against $y_{i,t-1}$ (see McCulloch and Baulch 2000).

variables are used in the regressions. The probability (P_{ij}) that a household i is in a particular poverty state j is modelled as a function of explanatory variables $\mathbf{X}_i$ as follows:

$$P_{ij} = \text{Prob}(Poverty = j) = \frac{e^{\mathbf{X}_i'\boldsymbol{\beta}_j}}{1 + \sum_{k=1}^{2} e^{\mathbf{X}_i'\boldsymbol{\beta}_k}} \text{ for } j = 0,\ 1,\ 2, \quad (8)$$

where $\boldsymbol{\beta}_j$ represents a vector of coefficients, $\boldsymbol{\beta}_0$ is set to $\mathbf{0}$, and j can take the values 0 (non-poor), 1 (transient poor) and 2 (chronically poor). The non-poor state ($j = 0$) is used as the base category in the regressions based on Equation (8).

The NLSS surveys include a number of questions asking households to value their assets. We use home value, aggregate value of agricultural land and value of livestock owned as indicators of wealth. The level of a household's human capital is captured by three variables representing the percentage of adults with various levels of education and one variable representing the percentage of household members suffering from chronic illness.[14] Recall that there are over 100 ethnic groups in Nepal. For the purpose of this analysis, these ethnic groups are regrouped into four broad categories: the privileged group comprising primarily of the *Brahmans, Chettris* and *Newars*; the marginalized non-caste ethnic groups or *Janajatis*; the supposedly "untouchable" castes or *Dalits*; and other ethnic groups. Three dummy variables are used to represent these four broad categories.

The other explanatory variables used in the model include employment characteristics of household members, a number of household demographic and community characteristics, and three regional dummies denoting the survey stratum to which the household belongs. One of the important community characteristics included here is the intensity of the ongoing violent conflict in Nepal, proxied by the total number of Maoist and Government killings at the district level between 1996 and 2003. In terms of the number of casualties, the civil war in Nepal can be considered one of the highest intensity internal conflicts in the world (Murshed and Gates, 2005). This variable is expected to have a positive association with the probability of being poor. The complete list of explanatory variables can be found in Table 11 in the results section.

3.2 Poverty and human capital accumulation

The second objective of this study is to analyse the extent to which wealth and ethnicity differences can explain the gap in human capital accumulation between the transient poor and chronically poor individuals. We use educational attainment as the indicator of human capital accumulation by an individual. The most common measure of educational attainment in the literature is the number of years of education (excluding grade repetitions). We too use this measure.

A two-step approach is used to explain the gap in human capital accumulation between the transient and chronically poor groups. In the first step, we run a separate regression for each poverty group to investigate the influence of wealth, expenditure and ethnicity on human capital accumulation. These regressions model the educational attainment of individual i as

$$E_i = \mathbf{X}_i'\boldsymbol{\gamma} + e_i \quad (9)$$

[14] Chronic illness include diseases such as heart conditions, asthma, epilepsy, cancer, diabetes, cirrhosis of the liver and other long-term illnesses.

where $\mathbf{X}_i$ is a vector of explanatory variables, $\boldsymbol{\gamma}$ is a vector of coefficients, e_i is an error term and E_i is the number of years of education.

It should be pointed out that while a family's economic status can influence the educational level of household members, human capital itself is a determinant of economic status. Hence, in order to minimise potential endogeneity problems, we use 1995/1996 consumption and wealth indicators as explanatory variables and 2003/2004 educational attainment as the dependent variable.

Apart from indicators for consumption, wealth and ethnicity, the explanatory variables in Equation (9) include individual demographic characteristics (age, sex and ethnicity), household demographic characteristics, household employment situation, family's education background, district characteristics, household's access to electricity and proximity to school, and stratum dummies to indicate household location.[15] The decision to incorporate these variables in the model was based on a review of the literature.

In the second step, we use the standard Oaxaca-Blinder decomposition method (Oaxaca, 1973; Blinder, 1973) to analyse the extent to which wealth, ethnicity and other variables explain the gap in educational attainment between individuals from the two poverty groups.[16] The procedure basically involves comparing the OLS regression results from the two groups using one of the groups as the baseline.

As the estimated regression line goes through the mean values of the variables, we can compute the mean educational attainment for the two groups from equation (9) as:

$$\begin{aligned} \bar{E}_A &= \bar{\mathbf{X}}_A' \boldsymbol{\gamma}_A \\ \bar{E}_B &= \bar{\mathbf{X}}_B' \boldsymbol{\gamma}_B \end{aligned} \tag{10}$$

where the bars ($\bar{\bullet}$) denote sample means of the variables, *A* denotes the transient poverty group, and *B* denotes the chronic poverty group. If poverty status does not play a role in determining the returns to an individual's characteristics, then the coefficients on the variables should be the same for both groups, i.e., $\boldsymbol{\gamma}_B = \boldsymbol{\gamma}_A$, and the mean educational attainment of group *B* would be equal to $\bar{E}_B^* = \bar{\mathbf{X}}_B' \boldsymbol{\gamma}_A$. Hence, we can decompose the mean gap in educational attainment between the two groups as follows:

$$\bar{E}_A - \bar{E}_B = \left(\bar{E}_A - \bar{E}_B^*\right) + \left(\bar{E}_B^* - \bar{E}_B\right) \tag{11}$$

where $\left(\bar{E}_A - \bar{E}_B^*\right) = \left(\bar{\mathbf{X}}_A' - \bar{\mathbf{X}}_B'\right)\boldsymbol{\gamma}_A$ and $\left(\bar{E}_B^* - \bar{E}_B\right) = \bar{\mathbf{X}}_B'\left(\boldsymbol{\gamma}_A - \boldsymbol{\gamma}_B\right)$. The first component captures the contribution of differences in the levels of the different characteristics in explaining the educational attainment gap. The second represents the contribution of structural differences in returns to these factors; it basically shows what the difference in educational attainment would be for the two population groups even if they were endowed with the same characteristics. It should be noted that while the above decomposition uses returns to group A, $\boldsymbol{\gamma}_A$, as the reference, it is also possible to use the returns to group *B*, $\boldsymbol{\gamma}_B$, as the reference and the results using the two approaches could be significantly different in certain cases. In order to avoid this problem, we use the coefficients from a pooled

[15] A number of other potential explanatory variables such as the number of siblings, sibling order, and each parent's occupation have not been included since relevant data were not available in the NLSS dataset.

[16] Note that this decomposition method is typically used for pre-existing groups (e.g., ethnic groups, gender, etc.) rather than for groups constructed by the analyst as we have done here.

regression of the two groups as suggested by Oaxaca and Ransom (1994) and Neumark (1988).

4. Data and sample characteristics

The quantitative data used in this study are drawn mainly from the Nepal Living Standards Survey (NLSS) conducted by the Nepal Central Bureau of Statistics (CBS) in two rounds, first in 1995/1996 and then in 2003/2004 (CBS, 2004). The 1995/1996 round of this survey (NLSS I) includes a nationally representative cross-section sample of 3373 urban and rural households. The second round (NLSS II) includes a different nationally representative cross-section sample of 3912 households along with a panel component consisting of a sub-sample of 962 households from NLSS I. This is the first and only national level household living standard panel survey that has been conducted in Nepal.

One of the variables of interest to this study is the intensity of violent conflict in various parts of the country. As this information is not available in the NLSS datasets, relevant conflict-related data have been obtained from the Nepali non-governmental human rights organization Informal Sector Service Centre (INSEC) (INSEC, 2005). The INSEC data include district-level information on the total number of killings by the Maoist insurgents and the Government between 1996 and 2003.

The following paragraphs first briefly discuss the sampling methodology used in NLSS I and in the selection of the panel. It then analyses the representativeness of the panel households using simple descriptive statistics and studies the severity of attrition in the panel using a logistic regression model.

4.1 NLSS I sampling methodology and panel selection

The 3373 households in NLSS I were selected using a two-stage stratified random sampling design with four strata - mountains, urban hills, rural hills and the *Terai* (flatlands) - representing the natural geographical divisions of the country.[17] In the first stage, 275 primary sampling units (PSUs) were selected randomly from the four strata using probability proportional to size (PPS) sampling.[18] Then, in the second stage, a systematic random sample of 12 households was selected from each PSU. The sampling frame for this task was based on the population census of 1991 (CBS, 2004).[19]

The panel sample, which consisted of 100 PSUs and 1232 households, was drawn from the 275 PSUs comprising the NLSS I sample. In order to maintain the representativeness of the sample, the 100 panel PSUs were distributed across the four strata in the same proportions as the original 275 PSUs. The panel PSUs within each stratum were selected using simple random sampling. Among the 1232 panel households, 72 were located in five PSUs that were inaccessible in the NLSS II round because of the ongoing violent insurgency. A further 198 households could not be tracked. Hence, the final panel sample consisted of 962 households distributed over 95 PSUs. The distribution of panel households and the attrition

[17] The urban hills stratum, which includes the 3 cities of the Kathmandu Valley (Kathmandu, Patan and Bhaktapur), Pokhara, and around eight other relatively small towns, represents the politically most important urban centres in the nation. The remaining urban areas are located in the *Terai*.

[18] The PSUs were wards in urban areas and village development committees (VDCs) in rural areas.

[19] It should be noted that in NLSS I, 16 instead of 12 households were interviewed in PSUs from what is known as the Far-Western Development Region (FWDR) of the country.

rate in each stratum are summarized in Table 3. Note that approximately 22% of the original 1232 households in the sample dropped out of the panel.

Table 3: Geographical distributions of panel households

Stratum	(a) Originally selected panel	(b) Final panel (tracked HHs)	(c) Dropped HHs	% attrition
Mountains	156	108	48	30.8
Urban hills	216	152	64	29.6
Rural hills	408	327	81	19.9
Terai	452	375	77	17.0
Nepal	1232	962	270	21.9

The attrition rate in any panel survey depends partly on the household tracking rule. In the NLSS panel survey, the panel households were tracked using the name lists of household heads interviewed in 1995/96. If a household that could be located had not split between the two surveys, the enumerators were required to interview the household head. However, in the case of split households, the selection of panel households was based on the following set of rules (CBS, 2006):

a. If the household head who was interviewed in 1995/96 is present, include his/her household in the panel.
b. If the household head (interviewed in 95/96) is absent in all of the split households, then select the household which currently resides in the 1995/96 dwelling.
c. If both conditions in (a) and (b) are not met, and if all the split households have moved elsewhere within the same PSU, then select the household headed by a member who existed in 1995/96.
d. If none of the above conditions is satisfied, then select the household of the eldest head.

4.2 Representativeness of the panel

Most panel datasets suffer from some degree of attrition. Alderman *et al.* (2000) analyse the extent and implications of attrition for three developing countries and conclude that attrition does not generally affect the consistency of coefficient estimates in linear regressions and models with categorical dependent variables. Zabel (1998) and Ziliak and Kniesner (1998) also report similar findings in the case of panel data from the US. However, as mentioned earlier, non-random attrition can bias the estimates of individual variables.

Given the loss of approximately 22% of the original panel sample households, it is relevant to ask whether or not the results from our sample are generalisable to the larger population. In general, however, a higher percentage of drop-outs from the sample does not necessarily lead to a higher attrition bias even though it does, of course, result in loss of precision when estimating parameters (Fitzerald *et al.*, 1998). As a first step in answering this question, we study the representativeness of the panel by comparing the geographical distribution of households in the various samples of interest, namely the NLSS I cross section sample, the originally selected panel and the final panel.

Table 4 presents the percentage distribution of households in the different samples across the four strata used in the sampling design. The figures shown are weighted proportions that account for sampling weights. As can be seen from columns (a) and (b), the distribution of the original sample of 1232 panel households is very similar to that of the NLSS I cross

section. But it is instructive to statistically test whether the two distributions are different before drawing conclusions.

Table 4: Geographical distributions of samples

Stratum	% of households in each stratum		
	(a) NLSS I cross section	(b) Originally selected panel	(c) Final panel (tracked HHs)
Mountains	8.2	8.6	7.4
Urban hills	4.1	3.9	3.4
Rural hills	41.8	41.6	41.9
Terai	46.0	45.8	47.3
Nepal	100.0	100.0	100.0

Note: Sample sizes for (a), (b) and (c) are 3373, 1232 and 962, respectively.

A suitable test for this purpose is the Chi-squared test, which can be performed by comparing the frequencies (number of households) in the different strata for the panel households with the frequencies that would result if these households followed the distribution in the cross section sample. The Chi-squared test failed to reject the null hypotheses of no difference between the samples at the 5% significance level.

Column (c) presents the distribution of the final panel households across the four strata. Compared with the original panel in column (b), the final panel appears to have disproportionally more households in the Terai and disproportionally fewer households in the mountains. However, this difference is not statistically significant at the 5% level when a Chi-squared test is performed to compare the samples.

While the above results indicate that the final panel sample adequately represents the distribution of households across the different strata, they do not ensure that the panel sample is representative of the larger population in term of the key household characteristic of interest to us, namely household per capita consumption. Table 5 shows how the average real per capita consumption (expenditure) of households for each stratum differs among the three samples.

Table 5: Real household per-capita expenditures of samples in 1995/1996

Stratum	Real per-capita expenditure of households (Rs./year)			Per capita expenditure difference (%)		
	(a) NLSS I cross section	(b) Originally selected panel	(c) Final panel (tracked HHs)	(a)-(b)	(b)-(c)	(a)-(c)
Mountains	5341	5232	5299	2.0	-1.3	0.8
Urban hills	17082	19614	19520	-14.8	0.5	-14.3
Rural hills	5943	6149	6452	-3.5	-4.9	-8.6
Terai	5980	5966	6082	0.2	-1.9	-1.7
Nepal	6311	6437	6572	-2.0	-2.1	-4.1

Note: None of the differences in the last three columns is statistically significant at 5% level.

Observe from the last row that, at the national level, mean household per capita consumption of the NLSS I cross section (Rs. 6311) is around 2% lower than that of the originally selected panel households (Rs. 6437).[20] And the percentage difference between the originally selected panel households and the households that were tracked (final panel) is only slightly larger (2.1%). It is, therefore, not surprising that both these differences are statistically insignificant at the 5% level. When the per capita consumptions of the individual strata are compared, we see that the differences between the NLSS I cross section and the original panel ranges from 0.2% in the *Terai* to 14.8% in the urban hills. The corresponding per capita consumption difference in the urban hills between the original panel and the final panel is much smaller at .5%. None of the differences, however, is statistically significant at the 5% level.

Finally, the last column of Table 5 shows the difference in per capita expenditure between the NLSS I cross section and the 962 final panel households. Again, although the per capita expenditure difference in the nation as a whole is 4.1%, and is as large as 14% in one of the strata, none of the differences is statistically significant.

The results of the above analyses suggest that the panel sample represents the population fairly well in terms of geographical distribution and mean per capita expenditure. But they do not indicate whether or not the inclusion of a household in the final panel depends on other variables of interest to this study. Neither do they shed light on the potential influence of these variables on the attrition of panel households between the two surveys. A standard approach to addressing these issues is to use a logit model that relates the likelihood of inclusion in a group to a host of explanatory variables in the first survey. Table 6 summarizes the results of the relevant logit regressions. The names of the variables used in this table are self-explanatory.[21]

The first regression in Table 6 shows how different variables are related to whether or not an NLSS I cross-section household is included in the final panel of 962 households. The explanatory variables include household demographic characteristics, household human capital, household employment characteristics, household wealth and income, and certain district specific characteristics. The results indicate that none of the explanatory variables has a statistically significant relationship (at the 5% level) with the probability of a household being included in the final sample. Note that the insignificant coefficient on household per capita expenditure provides further support to our earlier finding that there is no significant difference in per capita expenditure between the final panel and the NLSS 1 cross section. Hence, we can conclude that the final panel represents the NLSS I cross section, and subsequently the national population of households, fairly well.

Regression (2) shows how a panel household's probability of dropping out of the panel between NLSS I and NLSS II is related to different household and community characteristics. As in regression (1), none of the coefficients is statistically significant at the 5% level.[22] These results indicate that attrition bias is not a major problem for studying poverty dynamics at the national level.

[20] Household per capita consumption refers to the household expenditure divided by household size.

[21] The variable "% of HH members with chronic illness" refers to long-term illnesses including heart conditions, asthma, epilepsy, cancer, diabetes and cirrhosis of the liver (CBS, 1996).

[22] It is somewhat surprising that the intensity of violent conflict, represented by the district-level number of insurgency-related killings, is not related to attrition.

Table 6: Logit regressions for evaluating the representativeness and attrition of the panel

Explanatory variables	(1) Representativeness Coeff.	P-value	(2) Attrition Bias Coeff.	P-value
Real per capita HH expenditure (Rs.)	0.023	(0.081)	-0.049	(0.071)
HH size	-0.015	(0.464)	-0.038	(0.499)
HH head is female	0.024	(0.887)	-0.137	(0.584)
Age of HH head	0.000	(0.982)	-0.010	(0.147)
% of individuals under 15 or over 59 years of age	0.384	(0.133)	-0.495	(0.349)
Ethnicity: Major Janjati	-0.094	(0.680)	-0.001	(0.999)
Ethnicity: Hill Dalit	0.346	(0.167)	-0.199	(0.710)
Ethnicity: Other	0.303	(0.278)	-0.994	(0.064)
% of HH adults who can read and write	-0.037	(0.893)	-0.004	(0.993)
% of HH adults with primary education	0.036	(0.896)	0.040	(0.941)
% of HH adults with secondary education	0.552	(0.248)	-0.108	(0.900)
% of HH members with chronic illness	0.055	(0.887)	-0.472	(0.469)
% of adults in HH who are unemployed	0.375	(0.318)	0.332	(0.523)
% adults in HH who primarily work in agricultural wage sector	0.217	(0.482)	-0.553	(0.267)
% of adults who are (primarily) self-employed in agriculture	0.333	(0.113)	-0.033	(0.922)
HH received remittance income	-0.049	(0.747)	-0.032	(0.907)
Value of home (with plot) owned (00000 Rs)	-0.030	(0.090)	0.042	(0.078)
Value of agricultural land owned (00000 Rs)	0.001	(0.878)	-0.093	(0.085)
Value of livestock owned (00000 Rs)	-0.494	(0.243)	0.227	(0.458)
No. of insurgency-related killings between 1996 and 2003 in district	-0.001	(0.559)	0.001	(0.462)
% of literate persons in district (age >= 15)	0.170	(0.900)	-1.412	(0.460)
District land gini	1.003	(0.440)	-1.950	(0.417)
District consumption gini	-1.150	(0.670)	2.328	(0.405)
Stratum: urban hills	-0.083	(0.898)	0.712	(0.434)
Stratum: rural hills	0.244	(0.619)	-0.667	(0.361)
Stratum: terai	0.074	(0.874)	-0.203	(0.808)
Constant	-1.924	(0.069)	1.384	(0.204)
Number of Cases	3373		1232	
Pseudo R2 (%)	1.47		7.9	

*significant at the 5% level, **significant at the 1% level; standard errors corrected for stratification and clustering

Dependent variable in model (1): whether household is a panel household (1=yes; 0=no)

Dependent variabe in model (2): whether panel household dropped from panel between 1995/96 and 2003/04 (1=yes; 0=no)

5. Results

5.1 Changes in welfare between 1995/96 and 2003/04

Utilizing per capita expenditure data for the 962 panel households, this section summarises the changes in welfare experienced by Nepali households between 1995/96 and 2003/04. As indicated in the methodology section, we use measurement-error corrected per capita expenditure figures in this paper. However, for reference, Table 7 presents observed as well as measurement-error corrected household average per capita expenditures for the two survey years. As is clear from Table 7, there was a statistically significant increase in household average real per capita expenditure between 1995/96 and 2003/04 in the nation as a whole, as well as in two of the four strata. It should also be pointed out that the two strata with statistically insignificant increases in household per capita expenditure are both rural areas. Hence, these results suggest that the increase in monetary welfare in the nation was primarily an urban phenomenon.

Table 7: Real household per capita expenditure (pcexp) by stratum, 1995/96 and 2003/2004

	1995/96 (NLSS I) pcexp (Rs/yr.)		2003/04 (NLSS II) pcexp (Rs./yr.)		(NLSS II - NLSS I) corrected pcexp (Rs./yr.)
Stratum	observed	corrected	observed	corrected	
Mountains	5299	5407	5880	5777	370
Urban hills	19520	20416	27484	26559	6143**
Rural hills	6452	6477	7260	7232	755
Terai	6082	6310	8216	7978	1668**
Nepal	6572	6731	8263	8096	1365**

*Significant at 5%; **Significant at 1%

Corrected = pcexp corrected for measurement error

The mobility of individual households in terms of their expenditures can best be described using poverty transition matrices. The transition matrix in Table 8 shows the changes in poverty status of households between the two survey years. In this table, a household is considered food-poor if its per capita expenditure is below the food poverty line. Similarly a household is defined as moderately poor if its per capita expenditure is between the CBS Cost-of-Basic-Needs poverty line and the food poverty line.

Table 8 shows that 53% of the households were non-poor in both years. On the other hand, the percentages of households that remained in the moderately poor and food poor categories in the two years were 9% and 3%, respectively. Hence, approximately 65% of the households did not change their poverty status between the two years, a fact captured by the immobility index value of 0.65.[23] The dependence of household poverty status in 2003/04 on the status in 1995/96 (and vice versa) is also confirmed by the high Chi-squared value, which allows us to reject the null hypothesis of independence between the two years at the 1% significance level.

[23] The immobility index is the sum of the cell frequencies on the main diagonal of the transition matrix divided by the total number of households in the panel.

The remaining 35% of households moved among the three poverty categories between the two waves of the survey. As indicated by the sum of the cell percentages below the leading diagonal of the transition matrix, 21% of the households experienced an improvement in their poverty status. In contrast, only around 14% of the households experienced a decline in their economic status during this period. Furthermore, compared with approximately 14% of the households moving from the moderately poor and food poor categories to the non-poor category, the percentage that fell into poverty was approximately 13%. These results are consistent with the overall increase in per capita expenditure shown in Table 7. Finally, it is also important to point out that there was some movement of households between the moderately poor and food poor categories during this period.

Table 8: Transition matrix in and out of poverty including food poverty, 1995/96 to 2003/2004

		2003/04 (NLSS II)			
		Non-poor	Moderately poor	Food poor	Total
1995/96 (NLSS I)	Non-poor	508	106	16	630
		(52.8)	(11.0)	(1.6)	(65.5)
	Moderately poor	104	88	17	210
		(10.8)	(9.2)	(1.8)	(21.8)
	Food poor	32	62	28	123
		(3.4)	(6.4)	(3.0)	(12.8)
	Total	645	256	61	962
		(67.0)	(26.6)	(6.4)	(100.0)

Note: Top number is cell frequency and bottom number is cell percentage (in parentheses)

Immobility index = .647; chi2(4) = 195.59; P-value < .001

The transition matrix in Table 9 is similar to Table 8 except that now the food-poor and moderately poor households are collectively referred to simply as poor households. Since this matrix does not show the transition between the moderately poor and food-poor households separately, a larger percentage (73%) of households appear to remain unchanged in terms of poverty status. Observe that the total poverty rate in 2003/04 (33%) is slightly lower than that in 1995/96.

Table 9: Transition matrix in and out of poverty, 1995/96 to 2003/04

		2003/04 (NLSS II)		
		Non-poor	Poor	Total
1995/96 (NLSS I)	Non-poor	508	121	630
		(52.8)	(12.6)	(65.5)
	Poor	137	196	332
		(14.2)	(20.4)	(34.5)
	Total	645	317	962
		(67.0)	(33.0)	(100.0)

Note: Top number is cell frequency and bottom number is cell percentage (in parentheses)

Immobility index = .732; chi2(1) = 154.60; P-value < .001

As explained in the methodology section, we define households that are poor in both surveys as chronically poor and those that are poor in only one period as transient poor. Hence, the figures in Table 9 indicate that the chronic poverty rate and transient poverty rate are 20% and 27%, respectively. This information is summarised in the last column of Table 10. In addition, Table 10 also shows the chronic and transient poverty rates for the four strata separately. A number of interesting observations can be made from this table. First, while the transient poverty rate is higher than the chronic poverty rate in each stratum, a substantial percentage (around one fifth) of the households across the nation suffers from chronic poverty. And of the total poor in the country, approximately 43% are classified as chronic poor. Second, both chronic and transient poverty rates are very low in the urban hills. Chronic poverty, in particular, is also relatively low in the *Terai*, a region that includes those urban centers not included in the urban hills. And third, around 46% of the poor in the populous rural hill area fall under the chronically poor category, suggesting that tackling poverty in this area would require a clear recognition of the chronic nature of poverty there.

Table 10: Percentage of households in each poverty category

Poverty Category	Stratum				
	Mountains	Urban hills	Rural hills	Terai	Nepal
Chronic poor	23.35	1.94	22.52	19.37	20.35
Transient poor	43.36	3.19	26.85	25.82	26.81
Non-poor	33.3	94.87	50.63	54.82	52.84
Total	100.0	100.0	100.0	100.0	100.0

5.2 Determinants of chronic and transient poverty

Descriptive evidence

Table 11 presents some descriptive statistics for the different explanatory variables used to analyse the determinants of chronic and transient poverty. The variables have been grouped into a number of broad categories including household demographics, human capital, occupational characteristics, household wealth and regional characteristics. The figures in this table suggest that the poor households, and in particular the chronically poor households, are at a disadvantage compared with the non-poor households in terms of most of these characteristics.[24]

Except for age of household head, all the demographic variables differ among the three poverty groups. As might be expected, household size gets progressively larger as we move from the non-poor to the chronically poor households. The percentage of individuals under 15 and above 59 years of age - the dependent population - also increases in the same manner. Interestingly, the percentage of female headed households is lower among the chronically poor than in the other two groups. Rather than indicating that female-headed households are better off, this observation could be pointing to differing labour migration patterns among these three groups. In particular, it suggests that compared with adult males

[24] While not presented in Table 11, it should be noted that chronically and transient poor households have distinctly lower per capita expenditures than non-poor households. More specifically, the error-adjusted 2003/04 real annual per capita expenditures for the chronically poor, transient poor and non-poor households are Rs. 3637, Rs. 5350 and Rs. 11206, respectively. The corresponding values for 1995/96 are Rs. 3338, Rs. 5056 and Rs. 9316.

Table 11: Mean values of the explanatory variables by poverty group

Variable name	Chronic poor		Transient poor		Non-poor	
Household demographics						
HH size	6.01	(1.85)	5.95	(2.99)	5.61	(2.71)
HH head is female	10.08	(30.20)	13.88	(34.65)	12.66	(33.28)
Age of HH head	42.36	(13.67)	43.30	(14.29)	44.94	(14.26)
% of individuals under 15 or over 59 years of age	55.02	(18.13)	47.44	(21.83)	45.33	(21.59)
Ethnicity: Brahman, Chettri, Newar	25.50	(19.00)	31.68	(21.64)	44.28	(24.67)
Major Janjati	23.23	(42.36)	20.41	(40.39)	19.25	(39.46)
Hill Dalit	18.74	(39.15)	9.64	(29.58)	5.70	(23.20)
Other	32.53	(47.00)	38.28	(48.72)	30.78	(46.20)
Human capital						
% of HH adults who can read and write	15.03	(23.30)	23.19	(27.53)	42.46	(32.68)
% of HH adults with primary education	6.07	(13.90)	10.69	(17.77)	21.35	(24.03)
% of HH adults with secondary education	1.20	(5.86)	2.22	(9.01)	7.61	(17.36)
% of HH members with chronic illness	5.41	(11.07)	8.20	(15.43)	8.49	(16.81)
Employment and occupation						
% of adults in HH who are unemployed	4.31	(16.29)	3.60	(11.82)	3.42	(12.97)
% adults in HH who primarily work in agricultural wage sector	15.77	(30.68)	12.84	(26.23)	7.40	(20.95)
% of adults who are (primarily) self-employed in agriculture	56.67	(38.79)	58.17	(36.33)	53.80	(36.02)
% adults in HH who primarily work in non-agricultural wage sector	5.07	(13.34)	5.86	(14.24)	8.32	(18.34)
% of adults who are (primarily) self-employed outside agriculture	5.97	(18.71)	3.83	(11.72)	7.69	(21.08)
HH received remittance income	18.95	(39.31)	24.76	(43.26)	24.18	(42.85)
Household wealth						
Value of home (with plot) owned (thousand Rs)	26.51	(34.01)	33.04	(58.67)	131.36	(439.38)
Value of agricultural land owned (thousand Rs)	79.20	(123.86)	107.40	(191.36)	369.73	(1203.11)
Value of livestock owned (thousand Rs)	18.60	(18.91)	21.78	(21.87)	29.40	(31.51)
Regional characteristics						
No. of insurgency-related killings between 1996 and 2003 in district	115.70	(218.09)	92.09	(184.07)	54.25	(60.96)
% of literate adults in district	31.12	(11.93)	30.97	(10.79)	39.98	(14.84)
District land gini	61.72	(12.55)	59.36	(12.67)	62.25	(13.29)
District consumption gini	28.11	(6.47)	27.93	(6.10)	28.89	(5.71)
Stratum: mountains	8.60	(7.86)	10.96	(9.76)	5.06	(4.81)
urban hills	0.38	(6.19)	0.38	(6.17)	5.72	(23.24)
rural hills	46.34	(50.02)	41.72	(49.42)	41.94	(49.39)
Terai	44.68	(49.87)	46.94	(50.02)	47.27	(49.97)
Number of observations (households) in *sample*[§]	159		223		580	

Note: Standard deviations in parentheses

[§]The number of observations shown here are different from the number of observations in Table 9. The reason for the difference is that while the numbers in Table 9 have been computed using sampling weights, the current table presents the actual number of observations in the sample.

from the non-poor and transient-poor households, the males of chronically poor households might be less capable of migrating in search of work. This speculation is consistent with the statistics on households receiving remittances, which shows a lower percentage of remittance households for the chronically poor group.

The statistics on ethnicity indicate that the most underprivileged ethnic group, the *Dalits*, comprise a distinctly larger percentage of the chronically poor compared with the non-poor. Their presence in the transient poor group is also relatively strong. A similar pattern can be observed for the next underprivileged ethnic group, the *Janajatis*. The privileged *Brahman-*

Chettri-Newar group, on the other hand, has a disproportionately larger representation among the non-poor households.

All three human capital variables representing the educational attainment of household members show that chronically poor households are particularly disadvantaged. On average, only 15% of the chronically poor household adults can read and write, while the percentage is 42 in the case of the non-poor households. The transient poor households fare better than the chronically poor, but are nevertheless far behind the non-poor households. A similar pattern is observed when we look at the percentage of adults with primary and secondary education. However, the fourth human capital variable - the percentage of household members with chronic illness - does not indicate much difference between the non-poor and poor groups.

In terms of the employment and occupational structure of household members, the chronically poor households have, on average, the largest percentage of unemployed adults. Similarly, a larger percentage of adults from poor households is engaged in agriculture compared with adults from non-poor households. Also note that even in the case of non-poor households, over 60% of the adults work in the agriculture sector, indicating how strongly the majority of Nepali households depend on agriculture-related work.

We use three indicators of household wealth in this study - home value, value of agricultural land owned, and value of livestock owned. As might be expected, both the transient and chronically poor household groups have substantially lower levels of wealth compared with the non-poor. For example, the average home value of the non-poor households is approximately four and five times higher than that of the transient poor and chronically poor households, respectively. Similarly, the average value of agricultural land owned by non-poor households is 4.5 times larger than that owned by chronically-poor households.

This study includes four regional characteristics among the explanatory variables. The first is the level of violent political conflict between the two waves of the survey in the household's district. On average, compared with the non-poor households, the transient and chronically poor households come from districts that have experienced higher levels of political violence. More specifically, the average number of insurgency-related killings at the district level was 54, 92 and 116 for the non-poor, transient poor and chronically poor groups, respectively. This observation suggests that the poor in the country might have suffered disproportionately from the ongoing conflict.

The second and third regional characteristics considered here are the percentage of literate adults in the district and the level of economic inequality in the district, respectively. The latter is represented by two variables - a land gini coefficient and a consumption-based gini coefficient.[25] While the non-poor households have a much higher district-level literacy rate than the poor households, there is surprisingly little difference in district-level inequality among the three groups of households. The fourth regional variable is the locational characteristic of the household as represented by the stratum to which it belongs. While the three poverty groups do not differ much in terms of this characteristic, we do observe a higher percentage of the non-poor and a very low percentage of the chronically poor in the urban hill area.

The above descriptive evidence on the differences between the three poverty groups suggests that a household's welfare is potentially related to most of the characteristics listed in Table 11. A multivariate investigation of the relationship between these characteristics and a household's poverty status is presented in the discussion that follows.

[25] The land gini coefficient is computed using the value of agricultural land owned by each household.

Multinomial logit results

Table 12 presents the multinomial logit regression results for the determinants of chronic and transient poverty. In model (1), non-equivalized household per capita expenditure is used to estimate the poverty status of households. Models (2) and (3) present supplementary regression results based on equivalized per capita expenditures computed using the equivalence scale discussed in the methodology section. The scale economy parameter, θ, is set equal to 1.0 in model (2) and 0.85 in model (3) to illustrate how the results change when modifications in the equivalence scale are made.[26] Apart from reporting whether the different explanatory variables have statistically significant associations with the two poverty outcomes, the table also presents the relative risk ratios (RRR) associated with these variables. The RRR shows how the predicted odds favouring an outcome (compared with the base outcome - being non-poor) are multiplied per unit increase in the value of the associated explanatory variable, when we control for the other variables in the model. Hence, an RRR value greater than one indicates a positive association between the explanatory variable and the outcome under consideration, while an RRR smaller than one represents a negative relationship.

Recall that in this study, we are particularly interested in how ethnicity, human capital and wealth are related to the two types of poverty. Surprisingly, the results from model (1) indicate that there is no statistically significant association between ethnicity and poverty (either transient or chronic). More specifically, the odds that a *Dalit* or *Janajati* household is chronically or transient poor (rather than non-poor) are not significantly higher than the odds that a *Brahman-Chettri-Newar* household is chronically or transient poor, when we control for the characteristics represented by the other explanatory variables. Models (2) and (3) too show similar results, although *Dalit* households have higher relative odds of experiencing chronic poverty in model (2) (albeit only at the 10% significance level).

Among the education-related human capital variables, the percentage of adults with primary education and the percentage with secondary education do not show a statistically significant relationship with either transient or chronic poverty.[27] However, the percentage of literate household adults has a negative and significant (at the 1% level) relationship with chronic poverty in model (1). As shown in models (2) and (3), the relationship becomes significant for transient poverty as well, when adult equivalence scales are used. It is interesting to note that, in the case of this variable, the estimated RRRs for chronic poverty are substantially smaller than those for transient poverty, suggesting that a unit increase in human capital decreases the odds of being chronically poor more than the odds of being transient poor.[28]

The fourth human capital variable - percentage of household members with chronic illness - is not a significant determinant of either form of poverty in any of the specifications.

[26]We ran a number of regressions using a range of values for θ. Here, we present results only for the above two θ values for illustrative purposes.

[27]We also tried using the household's average years of education in place of these two human capital variables. But there was little qualitative difference in the results.

[28]When interpreting relative risk ratios, it is useful to remember that an RRR value of 1 indicates a lack of association between the explanatory variable and the outcome. Hence, the strength of the relationship is reflected in how far the RRR deviates from 1.

Table 12: Multinomial logit results for the determinants of transient and chronic poverty

	(1) Non equivalized pcexp				(2) Equivalized pcexp, theta=1				(3) Equivalized pcexp, theta=.85			
	Chronic poor		Transient poor		Chronic poor		Transient poor		Chronic poor		Transient poor	
Explanatory variables	RRR	P-value	RRR	P-value	RRR	P-value	RRR	P-value	RRR	P-value	RRR	P-value
HH size	1.185	(0.047)*	1.155	(0.089)	1.138	(0.097)	1.172	(0.036)*	1.222	(0.023)*	1.144	(0.045)*
HH head is female	0.572	(0.135)	1.205	(0.588)	0.781	(0.536)	0.967	(0.936)	0.716	(0.576)	1.716	(0.269)
Age of HH head	0.998	(0.857)	0.996	(0.592)	1.007	(0.516)	1.014	(0.098)	0.980	(0.129)	1.004	(0.657)
% of individuals under 15 or over 59 years of age	3.797	(0.024)*	0.514	(0.251)	1.713	(0.440)	0.739	(0.615)	2.298	(0.433)	1.138	(0.770)
Ethnicity: Major Janajati	1.427	(0.331)	1.254	(0.522)	1.261	(0.606)	1.099	(0.774)	0.654	(0.700)	1.330	(0.303)
Ethnicity: Hill Dalit	2.309	(0.122)	1.051	(0.918)	2.973	(0.067)	0.833	(0.751)	3.486	(0.143)	1.006	(0.989)
Ethnicity: Other	1.128	(0.760)	1.367	(0.422)	1.416	(0.458)	0.917	(0.843)	1.489	(0.689)	1.268	(0.491)
% of HH adults who can read and write	0.116	(0.003)**	0.515	(0.284)	0.115	(0.009)**	0.165	(0.008)**	0.046	(0.034)*	0.100	(0.002)**
% of HH adults with primary education	0.338	(0.201)	0.44	(0.298)	0.405	(0.366)	0.460	(0.399)	0.388	(0.604)	1.023	(0.983)
% of HH adults with secondary education	1.404	(0.820)	0.657	(0.730)	0.636	(0.790)	2.251	(0.555)	0.193	(0.618)	0.685	(0.843)
% of HH members with chronic illness	0.380	(0.241)	1.427	(0.598)	0.264	(0.218)	0.760	(0.721)	0.308	(0.420)	1.781	(0.457)
% of adults in HH who are unemployed	2.291	(0.299)	1.504	(0.619)	0.536	(0.625)	3.371	(0.137)	1.214	(0.872)	1.790	(0.528)
% adults in HH who primarily work in agricultural wage sector	1.915	(0.225)	2.306	(0.051)	1.566	(0.440)	1.528	(0.419)	2.072	(0.327)	1.380	(0.580)
% of adults who are (primarily) self-employed in agriculture	1.885	(0.133)	1.355	(0.324)	1.024	(0.960)	0.890	(0.787)	0.822	(0.778)	1.240	(0.606)
HH received remittance income	0.708	(0.309)	1.207	(0.528)	0.463	(0.076)	0.877	(0.648)	0.468	(0.152)	0.477	(0.045)*
Value of home (with plot) owned (thousand Rs)	0.550	(0.090)	0.863	(0.576)	0.538	(0.044)*	0.439	(0.040)*	0.586	(0.259)	0.853	(0.547)
Value of agricultural land owned (thousand Rs)	0.845	(0.208)	0.913	(0.227)	0.762	(0.095)	0.910	(0.457)	0.438	(0.018)*	0.636	(0.010)*
Value of livestock owned (thousand Rs)	0.052	(0.002)**	0.118	(0.001)**	0.148	(0.026)*	0.115	(0.003)**	0.389	(0.441)	0.154	(0.022)*
No. of insurgency-related killings in district, 1996-2003	1.004	(0.011)*	1.004	(0.014)*	1.004	(0.007)**	1.004	(0.003)**	1.002	(0.009)**	1.001	(0.000)**
% of literate persons in district (age >= 15)	0.004	(0.001)**	0.005	(0.000)**	0.001	(0.001)**	0.004	(0.000)**	0.009	(0.053)	0.010	(0.003)**
District land gini	65.84	(0.011)*	0.899	(0.923)	273.8	(0.007)**	3.208	(0.403)	269.0	(0.012)*	6.732	(0.143)
District consumption gini	7.116	(0.456)	5.838	(0.405)	4.797	(0.600)	55.34	(0.087)	4.546	(0.579)	72.71	(0.012)*
Stratum: urban hills	0.254	(0.179)	0.184	(0.041)*	0.821	(0.874)	0.577	(0.553)	1.293	(0.849)	0.305	(0.279)
Stratum: rural hills	2.006	(0.170)	1.132	(0.724)	3.658	(0.044)*	2.084	(0.161)	4.006	(0.046)*	2.746	(0.020)*
Stratum: terai	0.354	(0.066)	0.401	(0.034)*	0.475	(0.291)	0.523	(0.240)	0.282	(0.158)	0.474	(0.119)
Number of observations	962				962				962			
Pseudo R2 (%)	21.5				23.6				25.9			

Dependent variable: poverty status (0=non-poor, 1=transient poor, 2= chronic poor), with base category poverty status = 0

* significant at 5%; ** significant at 1%

Note: The relative risk ratio (RRR) shows how the odds of being transient poor or chronic poor (compared to being non-poor) are multiplied per unit increase in the explanatory variable..

While all three wealth indicators considered here show a negative association with both chronic and transient poverty, the coefficient on home value is statistically significant only in model (2). On the other hand, an increase in the value of the household's livestock is associated with a statistically significant decrease in the odds of being transient poor in all three models and in the odds of being chronically poor in the first two models. The value of the household's agricultural land holdings has a statistically significant negative relationship with both forms of poverty in model (3) and with chronic poverty in model (2).

The remaining explanatory variables deal with household demographics, employment and occupational characteristics, and regional characteristics. The results indicate that household size is the only demographic variable that has a consistently statistically significant relationship with transient and chronic poverty in all three models. More specifically, they show that the odds of a household's being either chronically poor or transient poor increase with household size, a result that is consistent with the findings in the literature on other countries (e.g., Haddad and Ahmed, 2003). The sex and age of the household head, on the other hand, do not appear to have a significant association with poverty when the other household characteristics are accounted for. In model (1), a larger percentage of household members below 5 and above 59 years of age is associated with higher odds of being chronically poor. But this relationship is not consistent across the three models.

The percentage of unemployed adults in the household, the percentage of adults working primarily in the agricultural wage sector, and the percentage of adults who are self employed in the agricultural sector have statistically insignificant relationships with both forms of poverty in all three specifications. Similarly, the odds of being poor (either chronically or transient) are not related to whether or not the household receives remittances in model (1). But there is a statistically significant negative relationship (albeit only at the 10% significance level) between remittances and chronic poverty in model (2), and between remittances and transient poverty in model (3). Hence, there is some indication that the remittance economy might be playing a role in reducing poverty.

Among the regional characteristics under consideration, two show a consistent and statistically significant relationship with both chronic and transient poverty. They are the number of insurgency-related killings in the district and the percentage of literate adults in the district. On average, a higher level of political violence in the district is associated with higher relative odds of being both chronically poor and transient poor. It is, however, not possible to infer whether this relationship is stronger for chronic poverty or transient poverty. Similarly, there is a statistically significant negative association between district-level human capital (percentage of literate adults) and both forms of poverty.

The RRRs associated with district land gini are smaller than unity for the chronically poor, indicating that higher inequality in terms of land holding is associated with higher odds of being chronically poor. This variable is not, however, significantly related to transient poverty. The district consumption gini, on the other hand, does not show a significant relationship with either form of poverty. As for the locational characteristics represented by the stratum of the household, there is some indication that, on average, the odds of being poor are higher in the rural hills and lower in the urban hills and the *terai* compared with the mountains. Also observe that, in each of the three models, the RRR associated with rural hills is larger for chronic poverty than for transient poverty. Hence, being in the rural hills increases the odds of being chronically poor more than the odds of transient poor.

To summarise, the following findings regarding the determinants of chronic and transient poverty are highlighted by the results presented above. First, contrary to observations and speculations in the literature based on descriptive statistics (DFID/World Bank, 2005), ethnicity is not a significant determinant of either form of poverty in Nepal. While it is true that *Dalits* in particular have a substantially larger percentage of their population in the two

poverty categories compared with the *Brahman-Chettri-Newar* group, their higher poverty rates can largely be explained by other household and regional variables.

Second, as per our expectations, human capital - both at the household level and at the district level - is an important determinant of transient as well as chronic poverty. However, this variable has a stronger association with chronic than with transient poverty, highlighting the strong role of human capital development in raising the long-term welfare of households. Our findings also suggest that poverty status is more strongly related to adult literacy rate than to higher educational attainment. This finding is consistent with research outcomes on the returns to education in Nepal that show higher returns to primary education compared with secondary and tertiary education (Parajuli, 1999), and is not surprising given the low level of educational attainment in the nation.

Third, wealth – as represented by livestock possession – too has a significant negative association with both forms of poverty. Land ownership is also significant in one of the models and appears to negatively affect chronic poverty more than transient poverty.[29] The importance of agricultural land holding in determining the welfare of the economically weaker segments of society is also illustrated by the positive relationship between land inequality and chronic poverty. Hence, these findings support the widely held view among scholars and development agencies in Nepal that poverty alleviation programmes must focus on rural livelihood strategies related to farming and agriculture (Prennushi, 1999; NPC, 2003; NPC, 2005).

Fourth, the ongoing violent insurgency is strongly related to both chronic and transient poverty. The insurgency has resulted in the killing of over 13,000 individuals, destruction of public infrastructure, displacement of families, diversion of manpower to military activities, increase in violent crime and an out-migration of able-bodied adults from rural areas. While it is difficult to establish a causal link between the level of conflict and poverty, we can speculate that the above mentioned outcomes of the insurgency must have had a negative impact on the economic welfare of the population. Currently, both the government of elected people's representatives and the Maoist rebels have suspended their military operations, and are working out a peace process that will enable the Maoists to join the government and end the civil war. This temporary suspension of hostilities has prompted many displaced families and working adults to return to their homes even though the rebels continue to restrict these people's movements. Hence, there are grounds to assume that a permanent peace settlement will have an overall positive impact on the welfare of Nepali households.

And fifth, a larger number of coefficients for chronic poverty are statistically significant compared with the coefficients for transient poverty in models (1) and (2). This result, which indicates that our model is better able to predict chronic poverty compared with transient poverty, is consistent with the findings discussed in Haddad and Ahmed (2003) and Baulch and Hoddinott (2000).

5.3 Poverty and human capital accumulation

Determinants of human capital accumulation

The previous subsection has established that human capital is an important determinant of both chronic and transient poverty. We now investigate the extent to which ethnicity, wealth

[29] Interestingly, Haddad and Ahmed (2003) observe a positive relationship between transient poverty and land holding in Egypt, and explain this finding by suggesting that the holding of cultivable land might open the owner to higher income risk.

and other factors explain the gap in human capital accumulation between the transient poor and chronically poor individuals.

As discussed in the methodology, an analysis of the determinants of human capital accumulation using Equation (9) is the first step in this process. The descriptive statistics for the variables used in the human capital regressions are listed in Table 13. Horizontal lines are used to organize the variables into broad categories. The figures are for individuals who were 7 years or older (i.e., at least of school-going age) in 2003/2004. Observe that the average years of education for the transient poor individuals is around .244 (or 26%) higher than that for the chronically poor.

The regression results for both chronically and transient poor individuals are presented in Table 14. Let us first look at the ethnicity and household economic status variables. The results indicate that ethnicity is clearly an important determinant of human capital accumulation, especially for chronically poor individuals. As can be seen from the statistically significant negative coefficients on the ethnicity dummies for the chronically poor, all three ethnic groups - *Janajatis, Dalits* and Others - have significantly fewer years of education than the *Brahmans, Chettris* and *Newars*. In the case of the transient poor group, the negative relationship is significant only for the *Dalits*, who constitute the most underprivileged group.

Household wealth, as represented by home value and land value, has a significant positive association with educational attainment only for the transient poor. This finding suggests that the level of wealth among the chronically poor is too low for variations in wealth to have an impact on the household's ability to educate its members. On the other hand, the transient poor appear better able to leverage their greater wealth for human capital accumulation purposes. Similarly, the coefficient on per capita expenditure is insignificant for both groups, again perhaps because the per capita expenditure levels are so low. Although not presented here, it is relevant to point out that per capita expenditure does have a statistically significant relationship with educational attainment in the case of non-poor individuals.

Among the age-sex characteristics of the individual, only sex has a statistically significant relationship with educational attainment. As might be expected, males have more years of education than females in both poverty groups. However, the relationship is stronger for the transient poor. None of the household demographic characteristics are significantly associated with the educational attainment of the transient poor individuals. The coefficients on the demographic characteristics for the chronically poor regression too are insignificant except for the one on household size. Surprisingly, this coefficient is positive, indicating that individuals from larger households have more years of education.

The coefficients on the two household human capital variables - father's education and household head's health - are insignificant for the transient poor group, although the positive sign of the coefficient on father's education is consistent with the evidence in the literature on the beneficial impact of parental education on the education of children (e.g., see Prennushi, 1999). But father's education does have a statistically significant positive relationship with the educational attainment of chronically poor individuals. Among the household employment characteristics, a larger percentage of adults working in the agricultural sector is associated with lower educational attainment. This relationship, however, is not significant in the case of the chronically poor group. On the other hand, individuals from chronically poor households that receive remittance income have significantly fewer years of education. This last finding suggests that out-migration of earning members of the chronically poor households might be having a negative impact on the education of their dependents.

Table 13: Mean values of variables used in education level regressions

Variable name	Chronic poor		Transient poor		Non-poor	
Years of education completed by individual by 2003/04	0.928	(2.14)	1.172	(2.54)	2.721	(3.91)
Sex of individual	0.400	(0.49)	0.399	(0.49)	0.387	(0.49)
Age of individual in 2003/2004	37.83	(18.44)	38.92	(18.69)	39.73	(18.72)
Square of individual's age	1771	(1522)	1863	(1590)	1929	(1602.23)
Household demographics						
HH size	6.28	(1.92)	6.20	(3.04)	6.026	(2.91)
HH head is female	0.10	(0.30)	0.14	(0.34)	0.118	(0.32)
Age of HH head	43.23	(13.57)	43.95	(14.28)	44.95	(14.21)
% of individuals under 15 or over 59 years of age	0.56	(0.18)	0.48	(0.21)	0.454	(0.21)
Ethnicity: Brahman, Chettri, Newar	0.239	(0.02)	0.338	(0.02)	0.429	(0.01)
Major Janajati	0.248	(0.43)	0.206	(0.41)	0.198	(0.40)
Hill Dalit	0.183	(0.39)	0.088	(0.28)	0.059	(0.23)
Other	0.330	(0.47)	0.368	(0.48)	0.315	(0.46)
Household human capital						
Years of education completed by father	0.469	(1.60)	0.579	(1.76)	1.432	(3.00)
HH head sufferes from chronic illness	0.152	(0.36)	0.163	(0.37)	0.158	(0.36)
Household employment						
% of adults in HH who are unemployed	0.044	(0.16)	0.032	(0.11)	0.035	(0.13)
% adults in HH who primarily work in agricultural wage sector	0.138	(0.28)	0.122	(0.26)	0.066	(0.20)
% of adults who are (primarily) self-employed in agriculture	0.569	(0.38)	0.593	(0.35)	0.545	(0.35)
HH received remittance income	0.197	(0.40)	0.263	(0.44)	0.280	(0.45)
Household wealth						
Value of home (with plot) owned (00000 Rs)	0.267	(0.34)	0.377	(0.72)	1.381	(4.31)
Value of agricultural land owned (00000 Rs)	0.844	(1.26)	1.184	(1.97)	3.828	(11.59)
Real per capita expenditure (corrected) in 1995/96 (000 Rs)	3.328	(0.74)	4.928	(2.04)	9.605	(7.81)
Electricity and school access						
HH has electricity for lighting	0.009	(0.09)	0.051	(0.22)	0.195	(0.40)
Time taken to travel to nearest primary school (min.)	24.91	(39.71)	25.00	(52.70)	18.56	(21.07)
District characteristics						
No. of insurgency-related killings in district, 1996-2003	117.28	(221.39)	91.43	(183.60)	55.82	(64.54)
% of literate persons in district (age >= 15)	0.305	(0.12)	0.302	(0.11)	0.394	(0.15)
District consumption gini	0.280	(0.06)	0.273	(0.06)	0.286	(0.06)
Stratum: mountains	0.080	(0.01)	0.117	(0.01)	0.048	(0.01)
urban hills	0.004	(0.06)	0.004	(0.06)	0.057	(0.23)
rural hills	0.464	(0.50)	0.405	(0.49)	0.392	(0.49)
Terai	0.453	(0.50)	0.474	(0.50)	0.503	(0.50)
Number of observations	457		630		1619	

Note: Standard deviations in parentheses.

Table 14: Determinants of educational attainment by poverty group

Explanatory variables	Chronically poor Coeff.	P-value	Transient poor Coeff.	P-value
Sex of individual	0.9714	(0.000)**	1.4708	(0.000)**
Age of individual in 2003/2004	-0.0323	(0.076)	-0.0217	(0.302)
Square of individual's age	-0.0001	(0.677)	-0.0003	(0.191)
HH size	0.1120	(0.046)*	-0.0166	(0.703)
HH head is female	0.7904	(0.139)	0.0479	(0.877)
Age of HH head	0.0077	(0.424)	0.0087	(0.274)
% of individuals under 15 or over 59 years of age	-0.6844	(0.138)	0.5809	(0.209)
Ethnicity: Major Janajati	-0.9296	(0.003)**	-0.0731	(0.800)
Ethnicity: Hill Dalit	-0.5505	(0.051)	-0.7774	(0.002)**
Ethnicity: Other	-0.9382	(0.039)*	-0.0290	(0.906)
Years of education completed by father	0.1985	(0.019)*	0.0256	(0.598)
HH head sufferes from chronic illness	0.1253	(0.630)	-0.3360	(0.163)
% of adults in HH who are unemployed	0.4982	(0.282)	-0.0522	(0.962)
% adults in HH who primarily work in agricultural wage sector	-0.2103	(0.504)	-0.9817	(0.028)*
% of adults who are (primarily) self-employed in agriculture	-0.2375	(0.413)	-0.7455	(0.031)*
HH received remittance income	-0.5809	(0.048)*	0.0995	(0.624)
Value of home (with plot) owned (00000 Rs)	0.3197	(0.112)	0.9745	(0.001)**
Value of agricultural land owned (00000 Rs)	0.1775	(0.172)	0.1250	(0.008)**
NLSS I real adjusted per capita expenditure (000 Rs)	0.0505	(0.725)	-0.0021	(0.962)
HH has electricity for lighting	2.9844	(0.000)**	0.1664	(0.755)
Time taken to travel to nearest primary school (min.)	0.0007	(0.546)	-0.0018	(0.035)*
No. of insurgency-related killings in district, 1996-2003	0.0003	(0.445)	0.0009	(0.053)
% of literate persons in district (age >= 15)	0.2723	(0.870)	1.6086	(0.105)
District income gini	-3.1152	(0.216)	-0.0160	(0.993)
Stratum: urban hills	-0.5330	(0.491)	-1.2686	(0.537)
Stratum: rural hills	0.8189	(0.003)**	-0.0728	(0.769)
Stratum: terai	0.5478	(0.129)	-0.5736	(0.064)
_cons	1.6495	(0.056)	1.3520	(0.131)
Adjusted R-Squared	0.273		0.293	
Number of Cases	457		630	

Dependent variable: years of education completed by individual by 2003/04

* significant at 5%; ** significant at 1%

The availability of electricity for lighting purposes and access to a primary school within a reasonable distance should have a beneficial impact on educational attainment of both categories of poor individuals. The obtained results are largely consistent with this expectation. Although the coefficient on electricity availability is insignificant for the transient poor group, it does have a strong positive and significant association with educational attainment of the chronically poor individuals. The distance of the closest primary school from the household, however, has a significant relationship with educational attainment only for the transient poor.

Among the district characteristics, none of the variables has a statistically significant relationship with educational attainment at the 5% level. However, it should be pointed out that the coefficient on conflict intensity is significant at the 5.3% level. We would expect schooling disruptions in conflict areas to have a negative impact on education. However, interestingly, this coefficient is positive in value, indicating a slightly higher educational attainment in areas with more insurgency-related killings. Finally, the statistically insignificant coefficients on the stratum dummies suggest that when all the other variables are taken into account, location is not related to educational attainment in the case of the transient poor

individuals.[30] But there is evidence that chronically poor individuals from the rural hills have more years of education than those from the mountains.

Explaining the difference in human capital accumulation

Table 15 presents the decomposition analysis based on the regression results from Table 14. For convenience, the variables have been grouped into broad categories consistent with the discussion in the previous subsection. As indicated in the table footnote, the gap in years of education between the two poverty groups is 0.244 years. The second column of the table shows the portion of this gap explained by the differences in the levels the different variables, while the third column shows the unexplained portion. The last column shows the combined contribution of each variable.

The totals row indicates that 0.164 (or 67.3%) of the total educational attainment gap of 0.244 years is explained by the differences in the characteristics of the two groups. The remaining 0.08 (or 32.7%) is the unexplained portion of the gap and can be attributed to structural differences in returns to these characteristics.

Let us again look at the contributions of ethnicity and economic status towards explaining the observed education gap. The difference in ethnic composition accounts for .05 more years of education for the transient poor group. This is consistent with the statistics in Table 13, which shows a higher percentage of *Brahmans, Chettris* and *Newars* among the transient poor compared with the chronically poor. Similarly, differences in the levels of household wealth and per capita expenditure respectively explain .125 (or 51%) and 0.029 (or 12%) of the gap in years of education. In other words, the higher levels of wealth and expenditure of the transient poor group appear to have positively contributed to their higher educational attainment. Note that household wealth contributes more to the explained portion of the decomposition than any of the other factors.

The contributions of the differences in the levels of most of the remaining variables are negative, indicating that these characteristics put the transient poor at a disadvantage in terms of educational attainment. The exceptions are household human capital and access to schooling and electricity. The positive contributions of these two factors arise mainly from the higher levels of parental education and electricity access for the transient poor group (see Table 13).

When we look at the combined effects of the explained and unexplained contributions, district characteristics and household location rank at the top in explaining the educational attainment gap. They are followed by ethnicity and household wealth. It should be pointed out that in the case of ethnicity and wealth, both the explained and unexplained contributions are positive. Thus, the higher average educational attainment of the transient poor is explained not only by the more favourable ethnic composition and higher wealth levels of the transient poor, but also by more favourable returns to these factors.

[30] A joint significance test for the coefficients on the stratum dummies also indicated that there is no statistically significant association between location and educational attainment.

Table 15: Decomposition of educational attainment gap between the transient and chronic poor

	Explained	Unexplained	Combined
Individual age and sex	-0.0455	0.1759	0.1304
Household demographics	-0.0006	-0.1221	-0.1227
Ethnicity	0.0506	0.3653	0.4160
Household human capital	0.0097	-0.1145	-0.1048
Household employment	-0.0154	-0.1971	-0.2125
Household wealth	0.1252	0.0954	0.2206
Household per capita expenditure	0.0290	-0.1349	-0.1059
Electricity and school access	0.0403	-0.0670	-0.0267
District characteristics	-0.0152	0.9739	0.9587
Location (strata)	-0.0139	-0.6765	-0.6904
Constant		-0.2187	-0.2187
Total	0.1641	0.0798	0.2439
% of combined total	67.3	32.7	100.0

Note: Gap in years of education = 1.172-.928=.244

6. Conclusions

Nepal at the turn of the twenty-first century continues to be one of the poorest countries in the world. It also suffers from an ongoing violent political conflict, which is fueled in part by the high level of poverty characterising the country. There is thus an urgent need to gain a better understanding of the persistence of poverty and poverty dynamics at the household level in Nepal. This paper is the first attempt at rigorously studying poverty dynamics in Nepal. It has analysed the determinants of chronic and transient poverty using a nationally representative panel dataset of 962 households that is part of the Nepal Living Standards Surveys (NLSS) of 1995/96 and 2003/2004. Suggesting that one of the consequences of poverty is its negative impact on asset accumulation, it has also looked at how human capital accumulation differs between chronically and transient poor individuals.

The full panel sample in the NLSS originally included 1232 households, and the 962 households in our dataset consist of only those households that did not drop out of the sample between the two years. But our analysis reveals that, in spite of the 22% attrition rate in the sample, the 962 households represent the nation fairly well. We have used measurement error-adjusted real per capita expenditure figures in the computation of poverty rates and in all the regressions. Our findings suggest that, on average, households in Nepal experienced a significant increase in economic welfare during the period under consideration. However, this increase favoured urban areas more than rural areas. Also while there was a small decrease in the poverty rate from 34.5% in 1995/96 to 33% in 2003/04, over 47% of panel households were poor in at least one of those two years. Among them, around 43% were poor in both years and the remaining 57% were transient poor. It is also interesting to note that the poverty status remained unchanged for 65% of panel households indicating little mobility across consumption groups.

We have used a multinomial logit model to analyse the determinants of chronic and transient poverty, paying special attention to three factors - ethnicity, human capital and wealth. Contrary to expectations, ethnicity does not have a significant association with either form of poverty, suggesting that observed differences in poverty status between ethnic groups can largely be explained by other household and community characteristics. Human capital, as represented by the percentage of household adults who can read and write, is a significant determinant of both chronic and transient poverty, though it is more strongly related to the former. Evidence on the importance of human capital is also provided by the significant relationship between district literacy rate and both transient and chronic poverty. Among the indicators of wealth, livestock value has a particularly strong and significant association with both forms of poverty. Another indicator of rural wealth - agricultural land value - is also significantly related to poverty in one of the models considered. Like human capital, agricultural land holding has a stronger relationship with chronic poverty than with transient poverty. As might be expected, the ongoing violent insurgency has a significant positive association with both forms of poverty. Finally, it should be emphasised that most of the factors that are associated with chronic poverty also have a significant association with transient poverty.[31]

While a household's initial level of human capital is an important determinant of both chronic and transient poverty, we also find that current educational levels of individuals differ according to their poverty status. Recognising the gap in the average education level between the chronically and transient poor individuals, we have used a version of the Oaxaca-Blinder decomposition technique to analyse the extent to which ethnicity, wealth and other factors explain the educational attainment gap. As a first step in this process, we investigated the determinants of human capital accumulation. The findings suggest that, for both chronic and transient poverty, the level of education is significantly higher for individuals belonging to the privileged *Brahman-Chettri-Newar* ethnic group compared with the other ethnic groups. Similarly, males have significantly more years of education than females for both poverty groups. The remaining factors, however, are either not significant or are significant for only one of the poverty groups. Decomposing the educational attainment gap between the transient and chronically poor individuals, we find that 67.3% of the gap is explained by the differences in the characteristics of the two groups. In particular, differences in wealth levels and differences in ethnic composition explain approximately 51% and 20%, respectively, of the educational attainment gap between the transient and chronically poor individuals.

The above findings have a number of important implications for anti-poverty policy in Nepal. First, note that the total chronic plus transient poverty rate of 47% during the 1995/96-2003/04 period is considerably higher than the 2003/04 static poverty rate of 31% published by the government of Nepal (CBS, 2006). This suggests a need for policy-makers to take a dynamic view of the poverty situation in the country so that they can better understand the magnitude of the problem.

Second, the fact that the chronically poor and the transient poor constitute 43% and 57% of the total poor (chronically plus transient poor), respectively, means the government should have concrete policies to address both types of poverty. In the case of the transient poor, policies are needed to help households smooth their consumption over time. While the actual interventions for achieving this goal would be context specific, they would generally encompass measures to encourage insurance schemes and safety nets (Haddad and Ahmed 2003).[32] On the other hand, tackling chronic poverty would require policies that assist households in increasing their assets.

[31] McCulloch and Baulch (1999) report a similar finding for Pakistan.

[32] Examples of relevant interventions include crop insurance, health insurance, mirco-credit, and food price stabilisation schemes (McCulloch and Baulch, 2000).

Third, the regression results also emphasise the importance of asset accumulation in reducing poverty, especially chronic poverty. The significance of human capital, agricultural land value, and livestock value support arguments for further government investments in education, agricultural development, and general rural development. They also call for macro-polices that promote rural-centred broad-based growth, further the development of markets for agricultural products and expand safety-net measures in the agriculture sector.

Fourth, the significant relationship observed between violent conflict and both forms of poverty highlights the urgency of finding a permanent solution to the Maoist insurgency in Nepal. Analysing the linkage between conflict and poverty, a number of scholars note that long-term conflict causes chronic poverty and chronic poverty itself contributes to violent conflict (Goodhand, 2003; Justino, 2006). Goodhand (2003) also suggests that transient poverty probably has a more significant impact on conflict and peace than chronic poverty. Following this logic, it can be argued that in order to fight chronic poverty, the government of Nepal needs to aggressively pursue polices for reducing transient poverty while seeking a permanent peace settlement with the Maoist insurgents.

Fifth, the high degree of overlap between the significant variables in the chronic and transient poverty regressions suggests that most of the poverty reduction policies recommended above would have a positive impact on both poverty groups. For example, while investments in human capital and agricultural development may be expected to have a significant impact on chronic poverty, they would also have some impact on transient poverty.

Sixth, while ethnicity does not have a significant association with either form of poverty, it is important to remember that it is significantly associated with human capital accumulation. Given that one of the major policy measures for reducing chronic poverty is investment in human capital accumulation, targeted policies aimed at enhancing the educational levels of *Dalits* and *Janajatis* are quite relevant for tackling chronic poverty.

In closing, we would like to reemphasise that this study is based on just two waves of a panel survey. This fact, along with the relatively long time gap between the two surveys, means that we have been able to obtain only a partial picture of the economic fluctuations experienced by households over time. Another limitation of this study is the absence of data on shocks experienced by households between the two surveys.[33] In many cases, households might not have been able to escape poverty or might have fallen into poverty because of unexpected natural and personal disasters. In spite of these limitations, we believe that the findings presented here should give readers a much better understanding of poverty dynamics in Nepal.

[33] Shocks can be either covariant (same for everyone, as in the case of natural disasters) or idiosyncratic (personal).

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Appendix

Table A1 : Poverty and social indicators for Nepal, South Asia and low income countries

	Nepal	South Asia	Low Income	Data year
Population, mid-year (millions)	25.2	1,448	2,338	2004
GDP (US $ billions)	6.7	902	1,103	2003/04
GNI per capita (Atlas method, US$)	260	590	510	2004
GNI (Atlas method, US$ billions)	6.6	860	1,184	2004
Population average annual growth rate (%)	2.3	1.7	1.8	1998-04
Labor force average annual growth rate (%)	2.3	2.1	2.1	1998-04
Head-count Poverty Index				
National figure	30.8	-	-	Most recent estimate (latest year available, 1998-04)
$1 a Day	24.1	31.9	-	
Urban population (% of total population)	15	28	31	Most recent estimate (latest year available, 1998-04)
Life expectancy at birth (years)	60	63	58	Most recent estimate (latest year available, 1998-04)
Infant mortality (per 1,000 live births)	61	66	79	Most recent estimate (latest year available, 1998-04)
Child malnutrition (% of children under 5)	48	48	44	Most recent estimate (latest year available, 1998-04)
Access to improved water source (% of population)	84	84	75	Most recent estimate (latest year available, 1998-04)
Literacy (% of population age 15+)	44	59	61	Most recent estimate (latest year available, 1998-04)
Gross primary enrollment (% of school-age population)	119	97	94	
Male	126	105	101	Most recent estimate (latest year available, 1998-04)
Female	112	92	88	

Source: World Bank (2006); UNDP (2005)