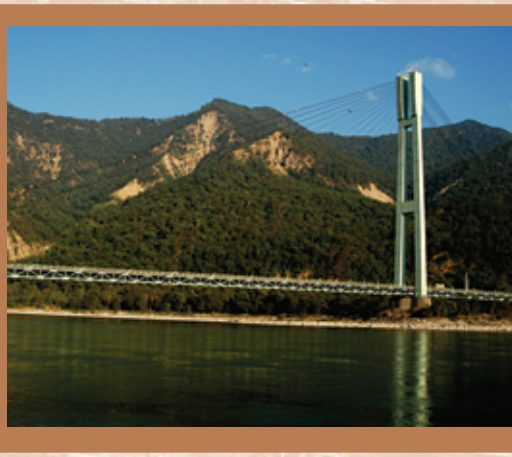
RESILIENCE AMIDST CONFLICT

AN ASSESSMENT OF POVERTY IN NEPAL, 1995-96 AND 2003-04





CENTRAL BUREAU OF STATISTICS
National Planning Commission Secretariat
Government of Nepal

September 2006

The World Bank

DFID Department For International Development

ADB Asian Development Bank
Fighting Poverty in Asia and the Pacific

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Acronyms and Abbreviations

ADB	Asian Development Bank
CBS	Central Bureau of Statistics
DDC	District Development Committee
DHS	Demographic and Health Survey
DFID	Department for International Development
DOLIDAR	Department of Local Infrastructure Development and Agricultural Roads
FCHV	Female Community Health Volunteer
FUG	Forestry User Group
GDP	Gross Domestic Product
GER	Gross Enrollment Rate
GoN	Government of Nepal
GSEA	Gender and Social Exclusion Assessment
HMGN	His Majesty's Government of Nepal
LSMS	Living Standards Measurement Study
MDG	Millennium Development Goal
MESI	Measuring Empowerment and Social Inclusion
NBL	Nepal Bank Limited
NDHS	Nepal Demographic and Health Survey
NER	Net Enrollment Rate
NGO	Non-Governmental Organization
NLSS	Nepal Living Standards Survey
NRB	Nepal Rastra Bank
ORS	Oral Rehydration Salts
PCE	Per Capita Expenditure
PMAS	Poverty Monitoring and Analysis System
PPP	Purchasing Power Parity
PRSP	Poverty Reduction Strategy Paper
PSU	Primary Sampling Unit
RBB	Rastriya Banijya Bank
RS	Rupees
RMDC	Rural Microfinance Development Center
RSRF	Rural Self Reliance Fund
SFDB	Small Farm Development Bank
TFR	Total Fertility Rate
VDC	Village Development Committee
WDR	World Development Report

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Preface and Acknowledgements

This report is a product of collaboration among the National Planning Commission (NPC), Government of Nepal (GoN), the Central Bureau of Statistics (CBS), GoN and the World Bank, with contributions from the Department for International Development (DFID) and the Asian Development Bank (ADB). An important element of the collaborative process in preparing this report involved strengthening the capacity of the CBS and local researchers to conduct economic analysis of survey data, particularly poverty analysis. The World Bank team conducted numerous training sessions at the CBS, and CBS staff attended training sessions in India, Thailand, and Washington DC. Building on the long-standing engagement between the World Bank and the CBS in the area of household survey data collection and analysis, the Bank and the CBS jointly carried out much of the analysis presented in this report. The poverty and inequality estimates presented in this report have also been published by CBS, along with other 2003-04 Nepal Living Standards Survey results. Various background papers were prepared by the World Bank, DFID, the ADB, the "Poverty Monitoring in Support of PRSP" unit in the NPC, and the Ministry of Forestry, GoN (on poverty trends, macroeconomic policies, remittances, microfinance, forestry user-groups, labor markets, agriculture and rural poverty, attaining the education and health MDGs, child malnutrition, and access to infrastructure, facilities and roads). These interim findings and papers were presented at a series of workshops in Kathmandu, where participants provided much useful feedback and guidance.

This report has been written by Elena Glinskaya, Senior Economist, in the South Asia Poverty Reduction and Economic Management Unit (SASPR) of the World Bank, under the guidance of Kenichi Ohashi, Nepal Country Director, and Kapil Kapoor, SASPR Sector Manager. Michael Lokshin spearheaded work on measurement and analysis of income poverty, Roshan Darshan Bajracharya was instrumental in facilitating in-country dialogue, and Mikhail Bontch Osmolovski and Dilip Parajuli provided major contributions to the data analysis presented in this report. The peer reviewers of the report were Martin Ravallion (DECRG) and Ana Revenga (EASHD). The report draws upon contributions of many people, including Ihsan Ajwad (education and health), Lynn Bennett (exclusion), Michael Lokshin and Mikhail Bontch Osmolovski (poverty, migration and remittances), Mona Sur and Paul Dorosh (agriculture), Quy-Toan Do and Lakshmi Iyer (conflict), Priya Shyamsundar, Sushenjit Bandyopadhyay and K.R. Kanel (forestry user groups), Pitamber Chettri and D.R. Khanal (access to services and infrastructure), Karen Macours (land and conflict), Dilip Parajuli (employment patterns and wages and inequality decompositions), Angelica Salvi (inequality decompositions), Shiva Sharma (macroeconomic policies and poverty), Forhad Shilpi (roads and connectivity), David Hotchkiss and Eva Silvestre (fertility and child nutrition), Sailesh Tiwari (macro), and Daniel Westbrook (access to financial services).

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FOREWORD

The report "Nepal: Resilience Amidst Conflict" focuses on determinants of consumption poverty, achievements and challenges in improving human capital (education, health, etc.) and on measuring inequality and exclusion. Though Nepal experienced all round improvement in economic and human development, it needs to make progress on multiple fronts to meet the Millennium Development Goals. There are still challenges for improving agriculture productivity, and reform financial sector and infrastructure development. This has necessitated the strengthening of the government's monitoring and evaluation mechanism.

This report depicts the analysis of living standard of the people in Nepal especially between 1995-96 and 2003-04 based on the results of Nepal Living Standard Surveys carried out by Central Bureau of Statistics. Data from the 1991 and 2001 Population Census and the 1996 and 2001 Nepal Demographic and Health Surveys were also used in the analysis.

This report covers growth and poverty, inequality and exclusion, economic and social sector situation including the various aspects of employment, migration and remittances. It also provides the policy options to address different dimensions of socio-economic bottlenecks in Nepal.

The report is prepared collectively by the World Bank, National Planning Commission, the Central Bureau of Statistics, Nepal with the contributions from various experts.

I appreciate the assistance provided by the World Bank, Department for International Development (UK) and Asian Development Bank. I would like to thank all the contributors of the report. I thank Central Bureau of Statistics for the coordination and providing the necessary information to the contributors for the analysis.

September 2006

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Executive Summary

Nepal experienced significant all-round improvements in economic and human development between 1995-96 and 2003-04. The incidence of poverty fell from 42 to 31 percent. Health and education outcomes improved, particularly for girls and people living in remote areas. Connectivity improved (a factor of crucial importance in a landlocked country), along with penetration of telephones, radio, and to some degree electricity. The government devolved education, primary health care, rural road maintenance, and some veterinary services to the local level. Social mobilization increased, with the number of user groups, especially forestry user group, growing significantly.

These achievements are all the more impressive given that they took place in a politically difficult and conflict-ridden environment. The combination of internal factors (macroeconomic stability, economic and financial sector reforms, better public expenditure management framework) and external factors (increase in remittances flows from 3 percent of GDP in 1995-96 to 12 percent in 2003-04) resulted in these unexpectedly strong development outcomes. On the political front, Nepal experienced a turbulent time during the last two decades. A multi-party democracy was established in the 1990s, and the country witnessed three general elections and fifteen changes in government since then (each averaging only about 11 months in duration). Ideology increasingly took a back seat as coalitions were made and broken along vested political and personal interests. Capturing the disenchantment with democracy as it was practiced since 1990, the Maoists took-up arms in 1996. The conflict was a low-grade insurgency until 2002, when it escalated disrupting the fabric of life particularly in the countryside. More recently, on February 1, 2005, King Gyanendra dismissed the coalition government (the third and broadest-based interim government since October 2002, when he had dismissed the elected cabinet on account of its inability to hold parliamentary elections) and formed a new Council of Ministers under his own chairmanship. This has polarized the political scene further.

If gains are to be sustained, Nepal needs to resolve the political stalemate and press ahead with the reform agenda. The gains are also threatened by the Maoist insurgency. Today, the conflict is jeopardizing the delivery of services, disrupting economic activities, and threatening Nepal as a nation state. While for now the inflow of remittances compensated to some degree for the lack of productive opportunities at home, reliance on these transfers is not a viable long-term development strategy. The full potential of these transfers will be realized only if households have the choice to invest these resources to create productive domestic human and physical assets which in-turn requires a good investment climate and an environment conducive for improved service delivery. The government's Second Progress Report on its PRSP (NPC 2005) indicates

that by-and-large progress is continuing to be made. However, there are also credible concerns that because of the security situation, service delivery has deteriorated and local economic activities have come to a halt in the countryside. Implementing an ambitious PRSP is a tall order even under normal circumstances—achieving the strategy's goals in a conflict environment represents an extraordinary challenge. As a contribution to this process, this report analyzes the most recent data on living standards in Nepal.

How Did Nepal's Development Outcomes Change between 1995-96 and 2003-04?

Poverty declined 26 percent

The incidence of poverty declined dramatically, falling from 42 percent in 1995-96 to 31 percent in 2003-04. All three measures of poverty -- the headcount rate, the poverty gap, and the squared poverty gap -- improved (table 1). Progress occurred in both rural and urban areas, although it was much greater in urban areas.

This decline in poverty was driven by growth in per capita consumption expenditure and income which, in turn, was driven by increases in remittances, higher agricultural wages, increased connectivity, urbanization, and a decline in dependency ratio

Household survey data show that real per capita expenditure increased in real terms by 42 percent between 1995-96 and 2003-04. Per capita income increased by 41 percent in real terms and the structure of income changed substantially with income from remittances, non-agricultural entrepreneurial activities and wages and property income rising.

Remittances increased dramatically. More than 1 million Nepalese were working abroad in 2003-04. Most of these migrants work in India, but an increasing number now go to the Persian Gulf or East Asia, where they earn much more than in South Asia. Migrant workers remitted $794 million in 2003-04, up from $203 million in 1995-96, an equivalent of 12 percent of Nepal's GDP. The increase in remittances is responsible for one-third to one-half of the overall reduction in headcount poverty rate between 1995-96 and 2003-04.

Agricultural wages rose 25 percent, nonagricultural unskilled wages rose 20 percent, and skilled wages more than doubled. Increases in aggregate demand (possibly due to increases in remittance income), improved connectivity and better access to markets stimulated entrepreneurial activities and allowed nonagricultural incomes to increase. Out-migration and availability of jobs outside of the agricultural sector tightened local labor markets and stimulated agricultural wages, improving the welfare of the agricultural laborers who tend to be the poorest in Nepal. Agricultural incomes stagnated because of the weak performance of the crop sector, but the decline in real prices of major staples (rice and wheat) benefited poor consumers.

Table 1: Poverty in Nepal, 1995-96 and 2003-04 (percent)

	Headcount rate (percent)			*Poverty gap (x100)*			*Squared poverty gap (x100)*		
	1995-96	*2003-04*	*Percentage change*	*1995-96*	*2003-04*	*Percentage change*	*1995-96*	*2003-04*	*Percentage change*
Nepal	41.8	30.9	- 26	11.8	7.5	- 36	4.7	2.7	- 42
Urban	21.6	9.6	- 56	6.6	2.2	- 67	2.7	0.7	- 73
Rural	43.3	34.6	- 20	12.1	8.5	- 30	4.8	3.1	- 37

Nepal's road network increased 6.7 percent a year between 1995-96 and 2003-04, with the largest expansion occurring in roads classified as "district or rural roads", which experienced annual average growth of 11 percent. This pro-poor expansion, as well as improved modes of transportation increased access to shops, markets, schools, and hospitals. Improvements in rural connectivity helped raise nonagricultural employment and incomes.

Urbanization moved workers from low-productivity jobs in rural areas to higher productivity activities in urban areas. Urban areas have significantly lower levels of poverty than rural areas (10 vs. 35 percent respectively in 2003-04). Urbanization was a powerful driver of poverty reduction: changes in the population shares across urban and rural areas

and across regions accounted for about one-fifth of the overall reduction in the poverty headcount rate. Urbanization was also important for changing social relations between advantaged and disadvantaged ethnic population groups, as discrimination is less entrenched in urban areas.

The dependency ratio declined. The number of nonworking people per working adult fell between 1995-96 and 2003-04, as a result of the decline in fertility that began in the 1980s. In urban areas the number of working males per household increased the most.

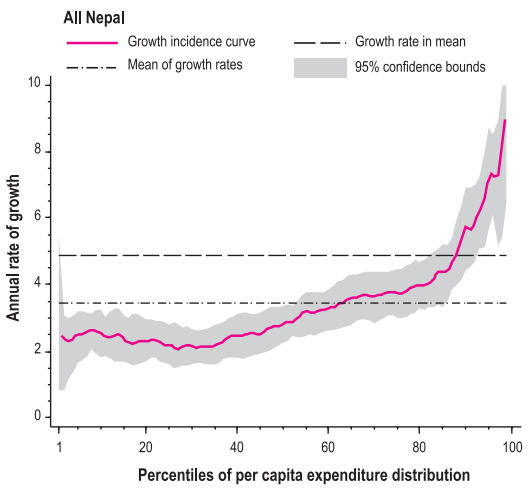
Growth rates were high, but inequality also increased

While income growth in Nepal was high between 1995-96 and 2003-04, with real average per-capita expenditures growing on average by 4.5 percent per year, the increase was greatest for the higher expenditure groups (figure 1). These patterns of growth were driven by the increasing returns to human and physical assets; since low-income groups lacked these assets, income inequality worsened, with Gini increasing from 34.2 to 41.4 during this period.

Most of the increase in inequality occurred because the gap between the "middle class" and the "rich" grew. Inequality increased along the expenditure distribution, except at the bottom, with most of the increase was concentrated in the upper half of the expenditure distribution (figure 1). In particular, between 1995-96 and 2003-04, the ratio of per capita expenditure between expenditure group declined 2 percent for the ratio p25/p10 (the ratio for "poor" and "very poor"), rose 6 percent for ratio p50/p25 (the ratio for "middle class" to "poor"), rose 8 percent for the ratio p75/p50 (the ratio for "upper middle class" to "middle class"), and rose 27 percent for the ratio of p90/p50 (the ratio for "rich" and "middle class").

Geographic disparities are evident. Economic and social outcomes are worse in rural areas, particularly in remote areas. Poverty levels are highest and access to services lowest in the remote Mid-west and Far-west. Good progress has been made in reducing poverty, and some human development outcomes have improved at above average rates in the Mid-west and Far-west. But these outcomes are still much worse than in the rest of Nepal. A variety of indicators reveals these disparities. The incidence of poverty in 2003-04 was 27 percent in Western region and 45 percent in Mid-western and 41 percent in the Far-western regions. The under-five mortality rate was 84 deaths per 1,000 live births in the Western region and 149 in the Far-western region. Infant mortality rates ranged from 60 per 1,000 live births in the West to 112 in the Far-west. The Maoist insurgency that started in Mid-west hills in 1996 imposed the heaviest toll in terms of human lives in the district with the highest poverty and the worse infrastructure and development indicators. Evidence suggests that lack of economic opportunity engendered grievances against the government and contributed to the spread of insurgency.

Figure 1 Growth incidence curve, Nepal



Households headed by agricultural wage laborers remain the poorest in Nepal. The incidence of poverty among agricultural wage laborers remained virtually unchanged (at about 55 percent), but their share of the population fell from 12 percent in 1995-96 to 6 percent in 2003-04 reflecting the availability of alternate employment opportunities in the economy. People who are self-employed in agriculture (63 percent of the population in 2003-

04) also tend to be poor. Unlike agricultural wage households, this group experienced a substantial decline in poverty, from 43 percent to 33 percent.

Education, family size, and ownership of too little land are all related to poverty. Both an increase in the number of young children and an increase in the number of household members are associated with an increase in the poverty headcount rate. Among rural households that own 1 hectare or less of land (two-thirds of all rural households), the incidence of poverty is almost 40 percent.

Poverty rates are highest among Hill and Terai Dalits (46 percent) and the Hill Janjatis (44 percent). Both groups experienced declines in poverty (by 21 and 10 percent, respectively) between 1995-96 and 2003-04, but these declines were more modest than the declines among the Upper Castes and the Newars (which declined by 46 and 28 percent, respectively), thereby widening inequality (see Chapter 2 for the definition of ethnic and caste groups). Differences in poverty levels between disadvantaged castes and the majority population are determined by both differences in the amount of human and physical assets they own (three-fourth of the total difference in 2003-04) and the differential returns to these assets (one-fourth of the difference). The differential changes over time in the levels of poverty, however, are mostly due to the increasing returns to assets.

There are some signs of decline in social exclusion, but a large agenda lies ahead. Younger Nepalese have a much more open attitude toward disadvantaged castes than the old generation, improvements in literacy have empowered women and disadvantaged castes, and participation in community groups has given the poor some voice. But the legal structure still fails to treat all groups equally and political representation of women and minorities is significantly lagging behind.

School participation rose 22 percent

More children are in school now than ever before in Nepal's history. The percentage of 6 to 15 year old children participating in school rose from 63 percent of the population in 1995-96 to 77 percent in 2003-04. The most impressive gains were registered among 6 to 10 year old girls, among whom school participation increased from 50 to 73 percent. Increases for girls 11-15 were also large, rising from 53 percent to 68 percent. Increases in school participation were pro-poor, but participation by the poor, particularly poor girls, still lags behind the rest of the population. School participation by the richest quintile is nearly universal, but nearly a half of all 6 to 10 year old girls from the bottom quintile were not in school in 2003-04. Major challenges in building human capital of the Nepalese remain, as the illiteracy rate is 50 percent among the adult population and 65 percent among women and some ethnic minorities.

Education expansion was brought about by increased public expenditures, as well as increased demand from the households who maintained their spending on public education, but increased their per pupil expenditures on private primary and secondary education by 50 percent in real terms. Commensurate with this increased demand, the number of private schools increased to more than 8,500 schools (about a quarter of all schools).

Good progress was made in reducing child mortality, but maternal mortality, infant mortality, and nutrition indicators remain weak

Child mortality rate fell from 40 to 29 deaths per 1,000 live births lowering the under-five mortality from 118 per 1,000 live births in 1996 to 91 in 2001. Child mortality in Nepal is about two-thirds what it would be projected to be based on per capita GDP alone.

Infant and maternal mortality remain high even relative to rates in other countries in the region. The decline in infant mortality, which fell from 79 to 64, was much more modest than the decline in child mortality. As a result infant mortality accounts for two-thirds of all under-five deaths in Nepal. Maternal mortality is estimated at 540 deaths per 100,000 live births (in 1996) and is the highest in the region. Notwithstanding, the increase in the proportion of assisted births (an indicator closely related with maternal mortality)

from 32 to 37 percent between 1996 and 2001, still more than 6 out of every 10 deliveries in Nepal are still not assisted.

Progress in reducing malnutrition has been mixed. The levels of child malnutrition in Nepal are among the highest in the world. Between 1995 and 2002, Nepal ranked last of 177 countries (tied with Bangladesh) in terms of the proportion of children classified as underweight and third to last (preceding Ethiopia and Burundi) in terms of the proportion of children classified as stunted (UNDP 2004). The prevalence of stunting among children under two dropped from 48.4 percent in 1995-96 to 42.7 percent in 2003-04, but no progress was made in reducing the incidence of underweight, which actually increased among urban children.

The overall gains in these health outcomes are a result of higher household incomes; the success of focused programs, such as immunization, vitamin A supplementation, and tuberculosis control programs; large increases in the number of health facilities and improvements in road networks; improvements in water and sanitation; increases in education levels and health awareness; and declining fertility rates. Public spending on health increased only slightly as a percentage of GDP (being around 1.5 percent of GDP), but a large number of health facilities have been built which, coupled with the expansion in road network, significantly improved access to health care facilities for the population. Improvements in access to schools and health centers were pro-poor, but huge differences between poor and non-poor remain.

Table 2: Nepal's progress toward meeting the Millennium Development Goals

Millennium Development Goal	*Nepal's current position*	*Prospects and issues*
Halve, between 1990 and 2015, the proportion of people living in extreme poverty.	As of 2003-04 the poverty headcount rate was 31 percent, down from 42 percent in 1995-96. Some progress occurred in reducing malnutrition, with the prevalence of stunting among children under three dropping 11 percent between 1996 and 2001.	Nepal needs to improve the developmental impact of remittances and jumpstart improvements in agriculture. The prevalence of stunting is still extremely high (42.7 percent). The prevalence of underweight (45-55 percent), and wasting (10-15 percent) has not fallen.
Achieve universal primary education by 2015.	The net enrollment rate of primary school-age children rose from 57 percent in 1995-96 to 72 percent in 2003-04. Youth literacy also rose, from 56 percent to 73 percent. Completion rates for primary school have risen only marginally since 1995-96.	The quality of primary education remains a concern. The system is characterized by high repetition rates, high dropout rates, and low completion rates. If current trends continue, universal education will not be attained. Although equity in education has improved, wide disparities remain across socioeconomic groups.
Make progress toward gender equity and empowering women.	The gender parity index for net enrollment (the ratio of net enrollment of girls to net enrollment of boys) increased from 70 in 1995-96 to 86 in 2003-04. Girls and women 1995-96 to 86 in 2003-04. Girls and women have been the biggest beneficiaries of the increase in literacy rates.	Growth in completion rates by girls has outpaced that for boys. If the trend continues, gender parity in primary education will be reached by 2010.
Reduce infant and child mortality rates by two-thirds between 1990 and 2015.	Child mortality fell 5 percent a year, falling from 118 deaths per 1,000 live births to 91, due mainly to greater coverage in immunization, and disease prevention and treatment. The infant mortality rate has been declining at a slower rate of 3.7 percent a year since the mid-1980s, dropping from 79 deaths per 1,000 live births in 1995-96 to 64 in 2001-02.	Given current trends, Nepal is likely to meet the child mortality target. Faster progress in reducing infant mortality will be needed to meet the MDG. Progress in reducing child mortality and infant mortality in the Eastern and Far-western regions has been slow and will not meet the target.
Reduce the maternal mortality rate by three-quarters between 1990 and 2015.	The maternal mortality rate remains high (539 per 100,000 live births in 1996). More than 6 out of every 10 deliveries are not assisted by skilled attendants.	The maternal mortality rate is the highest in the region. Prospects for achieving the maternal mortality MDG are unclear due to lack of comparable time series data.
Integrate the principles of sustainable development into country policies and programs, and reverse the loss of environmental resources.	Environmental sustainability remains a problem, but drinking water and forestry initiatives indicate progress. A national sustainable development strategy is being prepared.	Deforestation remains a serious local problem in many mountain and hill areas. There are also increasing commercial pressures on biodiversity resources. Community forestry has been successful, with limited impact on fuelwood extraction.

Sources: "Nepal Living Standards Survey 2003/04," Volumes I and II, Central Bureau of Statistics, "Nepal Demographic and Health Survey 2001" and "Family Health Survey 1996," Ministry of Health, New Era, ORC Macro; Draft MDG Progress Report, National Planning Commission

Despite progress, Nepal is not on track to reach all of the Millennium Development Goals

Nepal already achieved the PRSP goal to reduce poverty incidence to 30 percent by 2005-06. If current trends continue, Nepal will achieve the Millennium Development Goal of halving consumption poverty by 2015. It is likely to achieve universal primary enrollment by 2015, and it will achieve the goal of gender parity for primary education well before 2015. But it is not likely to meet the target for school completion. Nepal is likely to meet the target for reducing under-five mortality by two-thirds of its value in 1990, but it is not on track to meet the target for infant mortality. Moreover, not all regions are likely to achieve the child mortality goal, with the Eastern and Far-western regions at particular risk of falling far short.

What Can Policymakers Do to Improve Outcomes?

Nepal is at a critical crossroads with the conflict taking a mounting toll in lives and slower progress in development. Great strides have been made in reducing poverty, despite severe escalation of the civil conflict. However, growth has slowed to around 2-3 percent over the past few years as a result of the slowdown in private investment and capital formation in recent years. The government has succeeded in making timely adaptations to its service delivery strategy in response to the increasing intensity of the conflict. But if the violence continues unabated for a protracted period, the government will be hard pressed to devise alternative mechanisms to sustain the progress made during the first three years of PRSP implementation.

On the economic front, Nepal faces the dual challenges of accelerating domestic growth and sharing this growth more broadly across the population. To accelerate growth, Nepal needs to continue improving the investment climate, improve agricultural productivity and foster diversification toward high-value products, strengthen the financial system, continue to expand infrastructure, and sustain the inflow of remittances and improve their developmental impact. Policies to achieve these ends will help all Nepalese, including groups that were traditionally excluded, but such policies will not be sufficient to improve the well-being of disadvantaged groups. Targeted policies that build their human capital and help reduce social exclusion will be needed. The menu of reform options is large and implementing this agenda will require strong political will and scarce institutional capacity. The policy makers could consider this menu and attempt to prioritize and sequence the reform agenda. From the vantage point of the authors of the report, the pressing priorities are the following.

Improve agricultural productivity and foster diversification toward high-value products

Agriculture has made only a modest contribution to improved living standards in rural areas, in large part because of the poor performance of the crop sector (livestock incomes, on the other hand, grew 2.4 percent per year between 1995-96 and 2003-04). Given the declining profitability of cereal crops, emphasis should continue to be placed on promoting high-value agriculture, including horticulture and livestock production. Shifting to a more diversified agricultural production system can create jobs and off-farm income opportunities in agricultural processing and marketing, input supply and services, and related industries. Successfully expanding higher value agriculture will require improving technology, strengthening marketing infrastructure, and fostering the development of producer organizations. Research and extension services to promote high-value agriculture need to be reoriented to respond more effectively to the demands of diversified agriculture. Greater private sector participation in delivering services to farmers will also be essential. Post harvest systems-including storage, collection centers, packaging, transport, and quality control-need to be improved. Although access to rural markets and roads has improved since 1995-96, additional improvements in connectivity and infrastructure will be needed to link high-value crop areas and markets and attract greater private sector participation.

The productivity of irrigated agriculture remains low. Yields of the major cereal crops produced in Nepal are still well below potential in many areas

and need to be improved. Because of credit constraints, the poorest households are unable to benefit from existing technology and modern inputs. Access to irrigation, water use efficiency, and agricultural productivity are low in both the traditional farmer-managed irrigation schemes in the Hill region and the large public irrigation systems in the Terai.

Nepal's share of agricultural exports has increased dramatically, and there remains considerable scope for further expanding exports of horticultural and livestock products. Measures are needed to ensure compliance with food safety and agricultural health standards in Nepal's traditional export markets (India) as well as in new markets (i.e. the Middle East), in order to increase agricultural exports.

Reform the financial sector to increase access to credit

Part of the reason why the poor have so little access to institutional credit in Nepal is that the financial sector is weak. The very high rate of nonperforming loans in the banking system reflects politically directed lending, most of which benefits the better off. To increase efficiency in the sector, the government should completely restructure, sell, or privatize the Nepal Bank Limited (NBL) and Rastriya Banijya Bank (RBB). At the same time, it should facilitate lending to small businesses by allowing small businesses to borrow against movable collateral.

Still, the for-profit banking sector will not serve the poor or people in very remote areas, so microcredit institutions have an important role to play. To facilitate credit to poor borrowers, the government should focus on strengthening its role as regulator and facilitator of the sector, rather than providing microcredit directly. This role could include developing a realistic restructuring and privatization plan for Grameen-type institutions, transforming Rural Self Reliance Fund (RSRF) into a separate and majority privately owned fund, rationalizing the multiple laws governing microfinance, and strengthening supervision of the sector.

Increase the developmental impact of remittances

Policy actions can make it easier for Nepalese to work abroad and can increase the use of formal channels for remittances. As more Nepalese pursue work opportunities beyond South Asia, new bilateral initiatives are needed between Nepal and the new destination countries, particularly in the Middle East. Formal bilateral agreements encourage legal migration and the use of formal remittance channels. As migrant workers shift to new regions, language barriers and the complexity of banking systems may hinder them from using formal banking channels.

To keep Nepalese workers competitive with workers from Bangladesh, India, Pakistan, and Sri Lanka, the government must continually review its public policy framework for migration and remittances. Migration procedures, especially for women, must be reviewed periodically and procedures simplified where appropriate. This must be done in consultation with the private financial sectors, through which workers migrate and remit their earnings. In the long run, emphasis on English in the Nepali education system will increase the demand for Nepalese labor abroad.

Creating a sound financial system is particularly important given the large gains to be made from temporary migration. Of particular importance are the financial services that advance credit to undertake temporary migration, facilitate the transfer of remittances, and provide financial education programs that can help migrants deal with formal financing institutions and allow them to flexibly channel their remittances in order to increase their developmental impact. Government agencies, in partnerships with financial and nonfinancial institutions, could provide migrant communities with better information on transfer services and costs. Doing so could encourage competition, lowering the cost of transferring money, and make migrants aware of formal financial services as a viable alternative to the informal channels they may be using.

Ultimately, however, creating a conducive environment for investment in Nepal is necessary for increasing the development impact of remittances. Improving the investment climate is key, as is promoting long-term savings and facilitating credit with which to finance home purchases and start small businesses. Nongovernmental organizations could also play a role by promoting the productive use of remittances by poor households by providing technical assistance on development of small-scale enterprises and production projects.

Continue infrastructure investment

Investments in road construction and maintenance should continue receiving priority, with an emphasis on connectivity in rural areas. This would require strategic planning for the expansion of rural infrastructure in line with targets in the Agricultural Perspectives Plan and consolidation of institutional structures for the provision of infrastructure, particularly for sustainable road networks. The government has already made several key reforms in this direction, such as the creation of DOLIDAR, to strengthen the ability of local authorities in building and managing rural roads. Investments in markets, particularly in rural areas, should also be emphasized, including investments in physical structures, maintenance, and connectivity. Expansion of access to electricity is urgently needed as less than 30 percent of households in rural areas have access to electricity. This requires partnerships with the private sector and creation of an independent regulatory body.

Accelerate the erosion of barriers to inclusion

People from low castes, women, people living in remote areas, and the poor face multiple barriers to advancement in Nepal, but these barriers are slowly eroding. The decline in poverty, the expansion of roads and connectivity, urbanization, and increases in education have all benefited poor people, women, and people in remote areas. But these trends will take too long to bring excluded groups into the mainstream, however, Nepal cannot rely on the natural course of events to end exclusion. Public actions are needed to redress deep-seated inequalities. Policymakers need to capitalize on peoples' own initiative, to ensure that all policies are inclusive, and to create targeted programs to bring excluded groups into the mainstream.

Building human and social capital of excluded groups is the single most important way to bring prosperity to them. Providing educational stipends to girls, members of disadvantaged castes, and the poor would improve educational outcomes among these groups. Other policy actions include making schools more attractive to subgroups of out-of-school children by hiring women teachers and teachers who speak local languages and by ensuring that all schools have separate toilets for girls and boys. For women, increased economic opportunities are the key for economic and social advancement. On the labor supply side, raising women's education levels is key. On the labor demand side, new industries (i.e. garments) tend to pull women into the formal workforce. Participation in user, savings, and microcredit groups has the twin benefits of directly raising the incomes of women and the poor and empowering them by helping them coordinate collective action. Reducing the exclusion of people in remote regions will require targeted investments to bring water, electricity, and roads.

Changes are needed on the legislative front. To improve the well-being of its people, Nepal will have to abandon some of its historical legacies, such as the unequal inheritance rights of women and traditional practices that perpetuate differential treatment of Dalits. Changing long-held practices is not easy, and a delicate balance will need to be struck between historical traditions and the need for greater equality. But the experiences of many countries, including India, have shown that formerly excluded people can be brought into the development process. These experiences need to be studied and best practices applied in Nepal.

Make progress on multiple fronts in order to meet the education and health Millennium Development Goals

In the education sector, in addition to demand-side interventions to help enrolling large numbers of out-of-school children, there is a need for

increasing the quality of education by raising the capacity for teacher certification and training, upgrading school infrastructure and materials, and modernizing the curriculum; as well as facilitating greater private sector involvement (though contracting out and contracting in).

In the health sector Nepal will need to mobilize more resources to improve the quality of health care available to communities, address the shortages of skilled medical staff in parts of the country, engage the private sector, and strengthen monitoring and evaluation to ensure that available funds are being put to their best use. Improvements in other areas are also needed. Evidence from Nepal and international experience suggest that increases in income, food availability, literacy, access to roads, and access to water and sanitation have a significant impact on health outcomes.

The pattern of health spending needs to change. Annual public per capita health expenditures in Nepal are among the lowest in the region. To improve health outcomes Nepal needs to put these scarce resources to the best use by allocating them to regions lagging in health outcomes, and spend them on the prevention and cure of diseases that account for a large share of the disease burden. More trained medical practitioners are needed, especially in remote areas. Getting trained professional staff to relocate to rural and remote areas is a challenge, especially given the security situation in these regions. Incentives, both financial and nonfinancial, will have to be provided to qualified medical personnel. Nonmonetary incentives used in other countries include opportunities for training, better health infrastructure and residential facilities, and a staff transfer mechanism to ensure fair development to remote areas.

The role of the private sector needs to expand. The private sector already plays an important role in health care provision in Nepal, not only for the rich but also for poor households. The private sector could be leveraged further by fostering better public-private partnerships. As a start, the government could consider accrediting traditional birth attendants and provide traditional birth attendants with incentives to refer complicated cases to public medical facilities. Private for-profit health care providers could be given an incentive to provide primary health care, an area often dominated by the public sector. Pilot project in other countries, have shown that private provision of some aspects of primary health care can be more efficient than government provision (two hospitals have already been transferred to community management).

Community-based nutrition programs have an important role to play in reducing child malnutrition. To reduce the number of malnourished children in Nepal, interventions should target children in poor households, children of uneducated mothers, and children from remote areas with poor access to water and sanitation. Nutrition interventions are most needed in the dry seasons. Community-based programs may also play a part in mobilizing social demand for services and generating pressure for policy change. Community-based programs could offer a broad range of services, including routine growth monitoring and promotion and home visits by health/nutrition workers. The existence of a strong health volunteer program such as the FCHVs has been critical to the success of a number of health programs in Nepal and this nutrition interventions can capitalize on this strength.

Clear bottlenecks holding up decentralization and effective community management

The thrust of the government's effort to improve the quality of education and health services is to transfer schools and health facilities to community management. Working out the bottlenecks that have already emerged in the process of handing over facilities to communities is key. Clear guidelines need to accompany the proposed handover of facilities, funds need to flow smoothly from DDCs to village development committees (in case of health facilities), and schools, hospitals and health facility managers need to be trained to deal with their changing responsibilities.

Continue strengthening monitoring and evaluation system

Much progress has been made in establishing a comprehensive monitoring and evaluation system in

Nepal. The Poverty Monitoring and Analysis System (PMAS) has been established as part of the PRSP implementation process, complemented by Health Management Information System (HMIS) and the Education Management Information System (EMIS). Periodic national surveys are being conducted and GoN plans to maintain the following survey schedules: Nepal Living Standards Surveys (NLSS) and Demographic and Health Surveys (DHS) once very 2.5 years, HMIS, EMIS, and Public Expenditure Tracking Survey, annually, with PMAS coordinating, consolidating, harmonizing and analyzing these data (HMGN, NPC, 2005). These efforts provide a very good platform; to build upon these achievements, rigorous and frequent evaluations are needed to ensure that scarce public resources are being channeled to programs that deliver results, and that these programs are available in regions that need them the most.

CHAPTER-1

GROWTH AND POVERTY—ASSESSMENT OF OUTCOMES

CHAPTER-1

Growth and Poverty— Assessment of Outcomes

1.1 Introduction and Overview of the Report

Poverty reduction through inclusive growth is the goal of development. It is now widely acknowledged that poverty encompasses not only the material well-being, but also inferior outcomes in access to services and exclusion. Accordingly, this report focuses on determinants of growth and income poverty, achievements and challenges in improving human capital (education, health, and child nutrition) and on understanding inequality and exclusion. It uses data from the two rounds of the nationally representative Nepal Living Standards Survey carried out in 1995-96 and 2003-04. The surveys were conducted by the Central Bureau of Statistics (CBS) with technical assistance from the World Bank using the Living Standards Measurement Study (LSMS) methodology.[1] Data from the 1991 and 2001 population censuses and the 1996 and 2001 Nepal Demographic and Health Surveys were used to supplement the analysis.

Nepal experienced a turbulent time during the last two decades. A multi-party democracy was established in the 1990s, and the country witnessed three general elections and fifteen changes in government since then (each averaging only about 11 months in duration). Ideology increasingly took a back seat as coalitions were made and broken along vested political and personal interests. Capturing the disenchantment with democracy as it was practiced since 1990, the Maoists took-up arms in 1996. The conflict was a low-grade insurgency until 2002, when it escalated disrupting the fabric of life particularly in the countryside. More recently, on February 1, 2005, King Gyanendra dismissed the coalition government (the third and broadest-based interim government since October 2002, when he had dismissed the elected cabinet on account of its inability to hold parliamentary elections) and formed a new Council of Ministers under his own chairmanship. This has polarized the political scene further.

Nepal today is at critical crossroads. As this report shows, it experienced great strides in reducing poverty during the last decade and has also made headway towards improving human development outcomes. The improvements in development outcomes are due to a combination

[1] NLSS-I and II are nationally representative surveys of households and communities which include cross-sectional and panel components. Cross-sectional Primary Sampling Units (PSUs) were selected by a two-stage sample design selection method based, respectively, on the 1991 and 2001 Population Census frame and with probability proportional to size, while the panel PSUs in 2003-04 were randomly selected from all the PSUs visited in the NLSS I. The PSUs selected covered 73 districts (leaving off Rasuwa and Mustang). NLSS-I selected for enumeration 275 primary sampling units (PSUs) and 3,388 households, and 274 PSU and 3,373 households were actually interviewed. NLSS-II selected for enumeration 434 PSUs (100 of which were panel) and 5,240 households throughout the country. Out of these selected communities 421 (95 panel) PSUs and 5,072 households (1,160 panel) were actually enumerated. The 13 PSUs which were not enumerated could not be reached due to Maoist activities even after the second repeated attempt. Nine of these unreachable PSUs are located in the Far West Development region. The NLSS-II introduced some changes in terms of adding new questions and modules (e.g., new module on children away from home) and dropping others (e.g., anthropometric module). NLSS-II has also introduced additional questions in the consumption module (home produced non-food items), but they were not used in the construction of consumption aggregates for the purposes of comparison of changes in welfare.

of the internal and external conditions. On the domestic front, there were episodes of stabilization and liberalization in the mid-1980s and early 1990s, and agricultural liberalization in 1997. Later, in early 2000, Nepal witnessed a resurgence of economic and institutional reforms designed to address the underlying causes of poor governance, conflict and a disappointing development record. The reforms have been home-grown, innovative and wide-ranging, covering among other things, the financial sector, public expenditure management, and service delivery (especially in health and education). These reforms are embodied in the Tenth Plan/ Poverty Reduction Strategy Paper (PRSP), issued by the government in May 2003. On the external front, the surge in private remittances have helped households escape poverty, had a stabilizing influence on the current account and became the primary source of foreign exchange earnings (outstripping third-country exports).

But these gains are jeopardized by the political and security situations, which are beginning to constrain the public sector's ability to deliver services and ensure inclusive development. Before the conflict escalated, economic and social outcomes had been improving in Nepal. Today there are doubts about whether these improvements can be sustained. The government's Second Progress Report on its PRSP (NPC, HMGN, 2005) indicates that by-and-large progress is continuing to be made. However, there are also credible reports that because of the security situation, service delivery has deteriorated and local economic activities have come to a halt in the countryside. Implementing an ambitious PRSP under normal circumstances is a tall order. Achieving the strategy's goals in a conflict environment represents an extraordinary challenge. As a contribution to this process, this report analyzes the most recent data on living standards in Nepal.

The report is organized as follows. It starts with assessment of trends in growth, poverty, and inequality (Chapter 1). It notes that growth in disposable incomes of the population was quite high, leading to a decline in poverty, but to a worsening of inequality. Chapter 2 presents an in-depth analysis of changes in inequality and patterns of exclusion. To better understand the underpinnings of economic growth, the report examines patterns of employment and income in Nepal (Chapter 3). Two trends stand out—sharp increase in remittances and a relative stagnation of income from agriculture (which continues to be the most important sector for the poor in Nepal). Accordingly, Chapter 4 presents a detailed analysis of migration and remittances, while Chapter 5 focuses on the latent potential of the agricultural sector in Nepal. Noting that infrastructure constraints continue to be major impediments to improving incomes of the poor, Chapter 6 then discusses the policy agenda with regard to improving physical and financial infrastructure in Nepal. Chapters 7 and 8 examine trends, challenges and achievements in education and health (including child malnutrition) MDG targets. A number of annexes and the appendix to the report present supporting information.

1.2 Economic Trends

Nepal's economy performed well between 1995-96 and 2003-04, growing at an average annual rate of about 4 percent, so that real GDP increased by 34 percent over the period (figure 1.1). GDP per capita grew at an average of 1.6 percent a year, and real GDP per capita was 11 percent higher at the end of the period. This episode of high and sustained economic growth was unprecedented in Nepal's 40 years of recorded macroeconomic history and is attributable largely to the cumulative impact of numerous structural and policy reforms begun in 1985 (World Bank 2005).

Agriculture grew at 3.4 percent annually during the period, but it was the 4.3 percent annual growth in

Figure 1.1 **Annual Sectoral Growth in Nepal, 1996-2004**

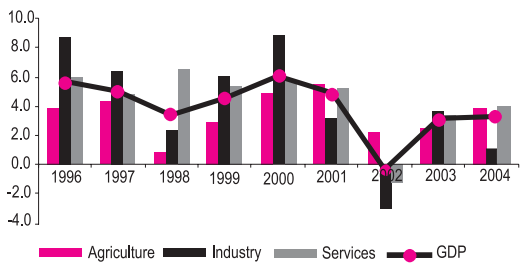
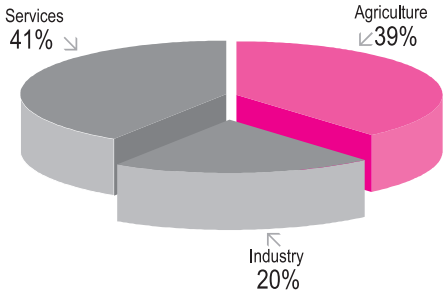


Figure 1.2 Nominal Shares in GDP, FY04

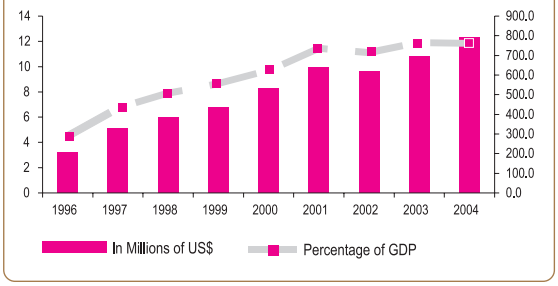


industry and services that drove Nepal's growth. The nonagricultural sectors contributed some three-fourths of the percent real growth in domestic production from 1995-96 to 2003-04. The major performers were manufacturing (3.6 percent), utilities (8.6 percent), and transport and communications (5.7 percent). Agricultural growth was less volatile, however, as reforms increased the availability and intake of fertilizers and accelerated the extension of irrigation services.[2] Overall, the importance of agriculture as the mainstay of the Nepali economy continued to decline. In 2003-04 agriculture accounted for 39 percent of GDP, while industry accounted for 20 percent (figure 1.2). The period also saw increased flows of credit and investment in the private sector. Although private investment declined as a share of GDP, it increased 15 percent in real terms between 1995-96 and 2003-04.

The inflow of private remittances almost quadrupled in dollar terms between 1995-96 and 2003-04, increasing from $203 million to $794 million. Migrant work is not a new phenomenon for the Nepalese. For centuries, large numbers of Nepali workers have crossed over into India during the dry season to engage in almost every form of productive employment. Nepalese holding formal jobs in the Indian or British Army have for many years been steady sources of private transfers from abroad. However, the volume of remittances really began to swell only after new markets for Nepali labor opened up in the Republic of Korea, Malaysia, Qatar, Saudi Arabia, and other countries in the Middle East and after reform of the Nepali administrative system in 2000-01 allowed district offices to issue travel documents. In dollar terms remittances grew an average of 20 percent a year between 1996 and 2004, and as a share of GDP they almost trebled from 4.5 percent to 12 percent.[3]

Private remittances have become the primary source of foreign exchange earnings (outstripping third-country exports) and have had a stabilizing influence on the current account. Private remittances have helped keep the current account and the overall balance of payments from plunging deep into the negative, despite shocks that affected the competitiveness of Nepali exports (textile and apparel exports, among others) and widened the trade deficit (see appendix table A1.1)[4]. Since the main external shocks that Nepal had during 1996-2004 were to the terms of trade, stability in the current account has been the cornerstone of economic stability.[5]

Figure 1.3 Remittances in Nepal, 1996-2004



Household survey data show a considerably higher rate of increase in real per capita expenditure than national accounts data between 1995-96 and 2003-04. Between 1995-96 and 2003-04 real per capita expenditure as measured by the Nepal Living Standards Survey (NLSS) grew at nearly twice the rate of per capita GDP and per capita private consumption as shown in the national accounts. NLSS-based per capita expenditure increased in

[2] Liberalizing measures included ending the fertilizer monopoly of Agricultural Inputs Corporation, decontrolling the retail and wholesale prices of fertilizers, phasing out fertilizer subsidies, enacting the Fertilizer Control Act of 1999, and listing fertilizers as essential commodities under the Essential Commodities Act of 1961.

[3] This estimate includes remittances entering Nepal through formal channels plus the central bank's estimate of what might be entering through informal channels (see NRB 2003).

[4] For example, the trade deficit averaged 10 percent of GDP during 1996-2004, yet the current account balance was about 1 percent of GDP in the positive.

[5] This has shielded the central bank from having to deplete its foreign exchange reserves. As a result the reserve position improved considerably from 1996 to 2004. It also allowed the central bank to pursue a fairly conservative monetary policy, making inflation targeting its primary objective.

nominal terms by 110 percent, while the national accounts statistics report an increase of 65 percent in nominal per capita GDP and 66 percent in nominal per capita private consumption. In real terms, too, the NLSS records a dramatically higher increase than the national accounts statistics: a 43 percent increase in per capita expenditure compared with a 12 percent increase in per capita GDP and real per capita private consumption (table 1.1).

Table 1.1: Different measures of per capita income and expenditure: Nepal Living Standards Survey and national accounts statistics

	Average		Change	
	1995-96	*2003-04*	*Eight-year period*	*Annual*
Nominal (in current rupees)				
NLSS, per capita expenditure	7,235	15,224	110	9.74
National accounts				
Per capita GDP	12,123	20,030	65	6.5
Per capita private consumption	9,326	15,521	66	6.6
Real (in 1995-96 rupees)				
NLSS, per capita expenditure	7,235	10,318	42	4.54
National accounts				
Per capita GDP	12,123	13,605	12	1.45
Per capita private consumption	9,326	10,542	13	1.54

Source: National Accounts: CBS (2005); NLSS-based statistics: staff calculations from the NLSS-I and II.
Note: The NLSS-based estimates were adjusted using the implicit poverty line deflator of 1.48, see Annex A for its derivation. The national accounts-based estimates were adjusted using the GDP deflator of 1.47.

Understanding how private consumption is estimated in the national accounts helps explain the apparent inconsistency between the two sources. The 1995-96 national accounts' estimate of private consumption used households' consumption estimated from the 1995-96 NLSS, adjusted upward to account for home-produced non-food goods such as clothing, amenities, furniture, and utensils that were not covered in the NLSS-I; in-kind transfers from the government to households, such as textbooks and medicine that are not captured in NLSS; and the private consumption of resident foreign households that are not covered by the NLSS. The national accounts private consumption estimates for 2003-04 are projected and therefore are not directly comparable to the survey-based estimates. Comparing the GDP growth rate with the NLSS-based consumption growth rate is also problematic because GDP does not accurately approximate personal income and personal consumption in an economy with a large inflow of remittances from abroad (see above).[6] The gross national income (GNI) growth series does not fully capture the growth in private consumption associated with remittances either, because the wages of workers who have been outside the country for a year or longer are counted as national savings not national income. There are no independently derived estimates of national savings in Nepal.

1.3 Trends in Consumption-based Poverty

Consistent with high overall growth, survey data show a significant improvement in consumption-based poverty between the mid-1990s and the mid-2000s. This report uses the cost-of-basic-needs[7] method and data from the 1995-96 and 2003-04

Table 1.2 Changes in poverty in Nepal, 1995-96 and 2003-04 (percent)

	Poverty headcount rate (percent)			Poverty gap (x100)			Squared poverty gap (x100)		
	1995-96	*2003-04*	*Change (percent)*	*1995-96*	*2003-04*	*Change (percent)*	*1995-96*	*2003-04*	*Change (percent)*
Nepal	41.76	30.85	-26	11.75	7.54	-36	4.68	2.69	-42
Standard error	1.09	0.93		0.4	0.3		0.21	0.14	
Urban	21.55	9.55	-56	6.55	2.17	-67	2.66	0.71	-73
Standard error	2.87	1.13		1.02	0.32		0.51	0.13	
Rural	43.27	34.62	-20	12.14	8.49	-30	4.83	3.05	-37
Standard error	1.15	1.06		0.43	0.35		0.23	0.17	

Note: The poverty gap and the squared poverty gap are measures of the depth and severity of poverty.
Source: CBS and World Bank staff calculations using NLSS-I and II.

[6] Leaving out remittances did not affect the 1995-96 estimates of private consumption in the national accounts as much as it did the 2003-04 estimates because growth in remittances really picked up in the late 1990s.
[7] The poverty line for Nepal is derived from the 1995-96 NLSS-I using the cost-of-basic-needs method. Changes in the cost of living have been taken into account using region-specific price indices developed on the basis of the 1995-96 and the 2003-04 NLSS. Technical Annex A presents various steps taken for deriving the poverty line and updating it for 2003-04.

household surveys (NLSS-I and II) to estimate the extent of poverty in Nepal in 2003-04 and the changes that have occurred since 1995-96, when the last poverty profile was developed.[8] The headcount poverty rate declined dramatically between 1995-96 and 2003-04, from 42 percent to 31 percent, a decline of 3.7 percent a year (table 1.2). The poverty gap (average per capita shortfall below poverty line as a proportion of that line aggregated for all poor) and the squared poverty gap (average of the individual poverty gaps weighted by the size of those gaps) declined even faster.

Poverty declined faster in urban areas than in rural areas. The incidence of poverty in urban areas was more than halved (from 22 percent to 10 percent, or a decline of 9.7 percent a year). While poverty also declined appreciably in rural areas (from 43 to 35 percent, or a decline of 2.7 percent a year), the incidence remained higher than in urban areas. P1 and P2 measures confirm that the incidence of poverty remained lower in urban areas than in rural areas throughout the eight-year period. They also suggest that urban areas experienced greater reductions than rural areas in the depth and severity of poverty.

Poverty incidence and reduction differ greatly by geographic regions. The incidence of poverty in 2003-04 varied considerably in different parts of the country, ranging from a low of 3.3 percent in Kathmandu to highs of 43 percent in rural Eastern Hills and 38 percent in rural Western Terai (table 1.3). Between 1995-96 and 2003-04 poverty declined by 23 percent in Kathmandu and 59 percent in other urban areas. In rural areas the fastest declines occurred in rural Eastern Terai (by 33 percent) and rural Western Hills (by 32 percent).

Table 1.3 Headcount poverty rate by regions in Nepal, 1995-96 and 2003-04

	Poverty headcount rate			*Distribution of the poor*			*Distribution of population*		
	1995-96	*2003-04*	*Change (percent)*	*1995-96*	*2003-04*	*Change (percent)*	*1995-96*	*2003-04*	*Change (percent)*
Urban	21.6	9.6	-56	3.6	4.7	30	6.9	15.0	117
Rural	43.3	34.6	-20	96.4	95.3	-1	93.1	85.0	-9
Total	41.8	30.9	-26	100.0	100.0	-	100.0	100.0	0
NLSS regions									
Kathmandu	4.3	3.3	-23	0.3	0.6	118	2.6	5.4	110
Other urban	31.6	13.0	-59	3.3	4.1	23	4.4	9.7	121
Rural Western Hill	55.0	37.4	-32	32.7	23.6	-28	24.8	19.4	-22
Rural Eastern Hill	36.1	42.9	19	19.4	29.4	51	22.4	21.1	-6
Rural Western Terai	46.1	38.1	-17	18.4	18.9	3	16.7	15.3	-8
Rural Eastern Terai	37.2	24.9	-33	25.9	23.5	-9	29.1	29.1	0
Total				100.0	100.0	-	100.0	100.0	-
Development regions									
Eastern	38.9	29.3	-25	21.0	23.4	12	22.5	24.7	10
Central	32.5	27.1	-17	26.9	32.2	20	34.6	36.6	6
Western	38.6	27.1	-30	18.7	16.7	-11	20.3	18.9	-7
Mid-western	59.9	44.8	-25	18.5	17.7	-4	12.9	12.2	-5
Far-western	63.9	41.0	-36	14.8	9.9	-33	9.7	7.5	-23
Total				100.0	100.0	-	100.0	100.0	-
Ecological belts									
Mountain	57.0	32.6	-43	10.7	7.5	-30	7.9	7.1	-10
Hill	40.7	34.5	-15	41.9	47.1	13	43.0	42.1	-2
Terai	40.3	27.6	-32	47.4	45.4	-4	49.2	50.8	3
Nepal	41.8	30.8	-26	100.0	100.0	-	100.0	100.0	-

Source: CBS and World Bank staff calculations using NLSS-I and II.

[8] See World Bank 2000. Several adjustments have been made to the derivation of consumption aggregates and region-specific price indices since this poverty assessment was completed in 2000. These adjustments left the estimate of overall incidence of poverty in Nepal in 1995-96 unaffected, but changed the regional estimates of the incidence of poverty. Consequently, some of the results for 1995-96 reported in this paper (for example, on the incidence of poverty at the regional level) are not directly comparable with the earlier results. These adjustments are discussed in G. Prennushi, 2004, "Nepal NLSS I consumption aggregates adjustments made since the publication of the CBS report and FY00 Poverty Assessment" and in the technical annex A.

By contrast, poverty in rural Eastern Hills increased from 36 percent to 43 percent. These changes affected the poverty rankings of the regions, with Eastern Hills undergoing the most dramatic shift: from the third lowest incidence of poverty in 1995-96 to the highest incidence in 2003-04.

Poverty rates declined across all development regions. At 27 percent, poverty rates in the Central and Western regions remained below the national average in 2003-04, while at 45 percent and 41 percent poverty rates in the Mid- and Far-western regions remained above the national average. By ecological belts the poverty rate was lowest in the Terai belt, at 28 percent, and highest in the Mountains (33 percent) and in the Hills (35 percent).

Decomposition of changes in poverty into the intraregional effect (which measures the contribution of within-sector change in poverty to the overall change in national poverty) and the regional population shift (which measures how much national poverty would have changed if population shifted across regions but poverty within regions remained unchanged) shows that almost 80 percent (or 8.6 percentage points) of the reduction in poverty at the national level can be attributed to the intraregional effect; table 1.4.

The regional population shift effect is quite substantial and accounts for 21 percent (or 2.29 percentage points) of overall poverty reduction. This means that in the absence of an increase in the proportion of population in areas with faster poverty decline, the decline in poverty would have been 21 percent lower.[9] The largest regional contributions to overall poverty reduction occurred in the rural Western Hills and rural Eastern Terai regions, driven by the pace of poverty reduction and by the large share of the population residing there. An increase in poverty in rural Eastern Hills more than outweighed the poverty reduction in rural Western Terai in its effect on the national poverty headcount level.

Table 1.4 Regional poverty decomposition in Nepal, 1995-96 and 2003-04 (percent)

	Absolute change in poverty headcount	*Share of total*
Change in poverty	-10.92	100
Total intraregional effect	-8.58	79
Population shift effect	-2.29	21
Interaction effect	-0.04	0.38
Intraregional effects		
Kathmandu	-0.03	0.23
Other urban	-0.82	7.47
Rural Western Hills	-4.36	39.93
Rural Eastern Hills	1.52	-13.89
Rural Western Terai	-1.32	12.13
Rural Eastern Terai	-3.58	32.75
Total intraregional effect	-8.58	78.62

Source: CBS and World Bank staff calculations using NLSS-I and II.

Inequality in expenditure distribution rose considerably, because of unequal growth in different income groups and regions. While real per capita expenditure increased by 42 percent between 1995-96 and 2003-04, the increase was higher in urban areas (42 percent) than in rural areas (27 percent).[10] The highest increase was in other urban areas (52 percent), followed by rural Western Terai (45 percent). Real average per capita expenditure increased by about 30 percent in Kathmandu, rural Western Hills, and rural Eastern Terai. Real average per capita expenditure increased only slightly (5 percent) in the rural Eastern Hills area (table 1.5). These regional trends closely mirror the trends in poverty headcount rates.

Real per capita expenditure increased for all expenditure quintiles, but the increase was greatest for the higher expenditure groups (table 1.5). Per capita consumption of the top two quintiles increased by 3.7 percent and 6.4 percent a year while that of the bottom three quintiles increased by less than 3 percent a year. While the growth in per capita consumption of the poorer population is substantial, growth in the richer population is remarkably high. These patterns allude to a sharp increase in inequality.

Growth-incidence curves, which plot the annualized rate of growth at percentiles of the per capita expenditure distribution,[11] show that real per capita expenditure increased for all

[9] A third component in this decomposition of poverty accounts for the interaction of the intraregional and interregional (population shift) effects. See Ravallion and Huppi (1991) for a description of the methodology. The third component effect was small.

[10] An average increase in per capita expenditure of 42 percent with increases of 42 percent in urban areas, 27 percent in rural areas, seems counterintuitive because the majority of the population resides in rural areas. These are internally consistent patterns, however, and they are driven by a twofold increase in the proportion of urban population between 1995-96 and 2003-04.

[11] See Ravallion and Chen (2003).

Table 1.5 Distribution of real per capita expenditure in Nepal, 1995-96 and 2003-04 (in real 1995-96 rupees)

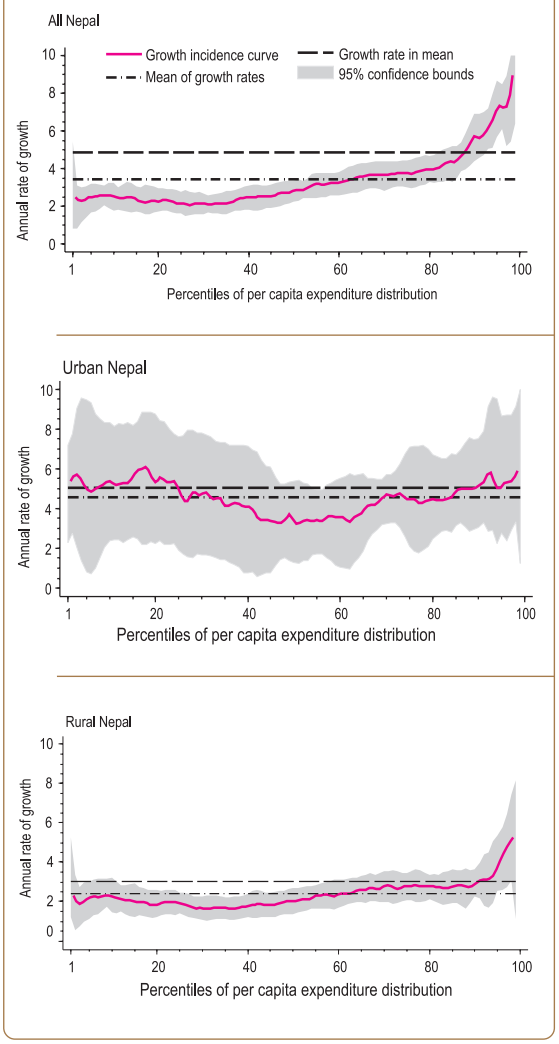
	Real mean per capita expenditure (rupees per year)		*Change (percent)*	
	1995-96	*2003-04*	*Eight-year period*	*Annual*
Kathmandu	20,130	26,832	33	3.66
Other urban	11,309	17,229	52	5.4
Rural Western Hills	5,953	7,774	31	3.39
Rural Eastern Hills	7,447	7,812	5	0.6
Rural Western Terai	6,190	8,976	45	4.76
Rural Eastern Terai	7,034	9,225	31	3.45
Urban	14,536	20,633	42	4.48
Rural	6,694	8,499	27	3.03
Lowest	2,898	3,524	22	2.47
Second	4,347	5,186	19	2.23
Third	5,687	7,121	25	2.85
Fourth	7,683	10,255	33	3.68
Highest	15,477	25,387	64	6.38
Nepal	7,235	10,318	42	4.54

Note: Outliers, 0.5 percentile at each tail of the distribution, excluded.
Source: CBS and World Bank staff calculations using NLSS-I and II.

expenditure deciles in both urban and rural areas, but the increase was skewed toward urban areas and higher expenditure groups. While growth was equally distributed across the lower and upper halves of the distribution in urban areas, in rural areas growth was higher among high-income households (figure 1.4). These patterns help to explain the patterns of poverty decline (higher in urban areas and lower in rural areas) reported in table 1.1.[12] Growth-incidence curves for 6 NLSS regions are presented in appendix figure A1.1. Gini coefficient increased from 34.2 to 41.4 between 1995-96 and 2003-04, indicating increased inequality.

A decomposition of changes in the poverty rate into growth and distribution components indicates that, had the poverty distribution remained constant, the poverty rate would have declined by 24 percentage points (instead of 11 percentage points) in Nepal overall (table 1.6).[13] Had mean per capita expenditure remained unchanged while the per capita expenditure distribution (which worsened the inequality) changed, the poverty rate in Nepal would have increased by 13 percentage points. Thus the growth component dominated the redistribution component, so poverty fell. In urban areas, where per capita expenditure grew at comparable rates in lower and upper percentiles, the change in the per capita expenditure distribution had a negligible impact on poverty. In rural areas, where per capita expenditure grew faster in upper percentiles than

Figure 1.4 Growth incidence curves, all Nepal and urban and rural areas



[12] Figure 1.4 indicates that growth at the upper percentiles of the distribution in Nepal is higher than growth in urban or rural areas taken separately. This pattern is driven by an increase in the proportion of the population living in urban areas. It is straightforward to work out an arithmetic example of nonadditive growth rates between two sectors, two time periods, and a changing share of the sectors.

[13] Given that, in measurement terms, poverty is determined by the shape of the per capita expenditure distribution and the point in this distribution at which a poverty line is drawn, it is customary to decompose the change in headcount poverty into "growth" and "redistribution" components. The *growth component* is the difference between the two poverty indices, keeping the welfare distributions constant. The *redistribution component* is the change in poverty when the mean of the two distributions remains constant. (The third component in this decomposition, the *residual component*, shows the change in poverty as a result of the interaction of growth and inequality), see Datt and Ravallion (2002).

Table 1.6 Growth and redistribution decomposition of poverty changes in Nepal between 1995-96 and 2003-04

	1995-96	2003-04	Change in incidence of poverty (percentage points)		
			Actual change	Growth	Redistribution
Nepal	41.76	30.85	-10.92	-24.13	13.22
Urban	21.55	9.55	-12.00	-11.90	-0.10
Rural	43.27	34.62	-8.65	-17.25	8.57

Note: Taking 2003-04 as a base, residual component is not reported
Source: CBS and World Bank staff calculations using NLSS-I and II.

in lower percentiles and inequality increased, the change in the per capita expenditure distribution slowed the decline in poverty. (Further analysis of inequality is found in chapter 2.)

Trends in consumption poverty reduction are confirmed by other monetary indicators. The observed trend of substantial declines in poverty is surprising considering the backdrop of intensifying insurgency in Nepal. Evidence shows, however, that these estimates are robust (see technical annex B for a more detailed exposition).

■ *Self-reported information on the adequacy of consumption reveals improvements in all aspects of perceived standards of living.* Whereas almost half of NLSS households had responded that food consumption was inadequate in 1995-96, less than a third (30 percent) did so in 2003-04 (table 1.7). The share reporting inadequate housing declined even more (from 64 percent to 40 percent). Similar declining trends are observed for household consumption of clothing, health care, and child schooling. Respondents were most dissatisfied with their family's income, although the proportion reporting dissatisfaction is also decreasing.

A subjective poverty line and the incidence of poverty based on this line were estimated from these minimum-income questions. Responses to the food adequacy question were regressed on total consumption expenditure and on demographic and regional variables for 1995-96 and 2003-04 (table 1.8).[14] The results show that subjective estimates of poverty incidence and trends conform closely to estimates based on the cost-of-basic-needs method (see table 1.8). There are some perceptible differences for regional trends between the two methods, however. The basic-needs method shows an increase in poverty in rural Eastern Hills, while the subjective poverty estimates show a decline. In Kathmandu and Western and Eastern Terai, subjective poverty estimates show an increase in poverty, while the basic-needs method shows a decline. Both methods show a decline in poverty in other urban areas and rural Western Hills.

■ *Per capita consumption of nearly all major food groups increased substantially between 1995-96 and 2003-04.* Per capita consumption increased by almost 50 percent for fine rice and fish, by 19 percent for milk, by 13 percent for goat and buffalo meat, and doubled for chicken. Per capita consumption declined for a few main food groups, but the decline in wheat flour may have been offset by the increase in consumption of fine rice, while the large decline in maize consumption was partly compensated for by an increase in consumption of maize flour[15]. These trends are not specific to high-income groups. In fact, percentage increases in the consumption of fine

Table 1.7: Self-reported assessment of consumption adequacy in Nepal, 1995-96 and 2003-04

"I would like to ask your opinion of your family's standard of living"	"It was less than adequate for your family needs?"	
	1995-96	2003-04
Concerning your family's **food** consumption over the past one month, which of the following is true?	49	30
Concerning your family's **housing** consumption over the past one month, which of the following is true?	64	40
Concerning your family's **clothing** consumption over the past one month, which of the following is true?	57	36
Concerning the **health care** your family gets, which of the following is true?	59	28
Concerning your **children's schooling**, which of the following is true?	48	23
Concerning your family's **total income** over the past one month, which of the following is true?	71	66
Do you consider that you, or your family eats too little to live a healthy and active life? (percentage of respondents answering "yes"	90	87

Note: Since "not applicable" was a possible answer, there were naturally fewer responses of "less than adequate" on these questions than on others. "Adequacy" is defined by what the respondent considered to be the minimum consumption needs of their family.
Source: CBS and World Bank staff calculations using NLSS-I and II.

[14] See Pradhan and Ravallion (2000). This method corresponds in spirit to the widely used practice of setting the poverty lines at the level of total expenditure or income at which spending on food is sufficient to ensure a nutritionally adequate diet for good health and normal activity levels by some objective criteria, see Ravallion (1998).
[15] Both maize and wheat flour are inferior products to both fine and coarse rice. The unit prices of fine rice is substantially higher than that of coarse rice, see annex B.

Table 1.8: Subjective poverty estimates in Nepal, 1995-96 and 2003-04

	Poverty incidence	
	1995-96	*2003-2004*
Kathmandu	0.7	2.7
Other urban	30.5	10.1
Rural Western Hill	71.1	24.4
Rural Eastern Hill	66.7	24.5
Rural Western Terai	22.6	30.6
Rural Eastern Terai	31.5	32.2
Nepal	43.6	24.6

Source: Estimates for 1995-96 are from Ravallion and Pradhan 2000; estimates for 2003 04 are by the WB staff based on NLSS-II.

rice, vegetables, and animal proteins and fats were higher among low-income households than among high-income households (see annex B for more detailed information).

■ *Income increased and income-based poverty decreased.* Individual and household earnings from various sources collected in the NLSS and aggregated to construct per capita income appear to be comparable with per capita consumption expenditure data. Per capita income levels and income-based poverty are closely aligned with estimates of per capita expenditure and consumption-based poverty.[16] For instance, per capita income grew 41 percent in eight years in real terms-comparable to the 42 percent growth in per capita expenditure. Income poverty declined from 47 percent in 1995-96 to 35 percent in 2003-04 (by 12 percentage points)—close to the 11 percentage point decline in consumption poverty. Both consumption-based and income-based poverty estimates show that poverty is considerably higher in rural than in urban areas in both 1995-96 and 2003-04. Regional patterns are also broadly similar except for rural Eastern Hills, where income poverty declined whereas consumption poverty increased. (See annex B for more detailed information on income-based poverty levels and Chapter 3 for further insights on income trends and patterns.)

The pace of poverty decline in Nepal has been comparable to that in bordering regions of India. Nepal has a long border with India, and there are many similarities among people on each side of the border. Migration flows are large, and trade, both legal and illegal, is widespread. A comparison of poverty rates in the bordering regions of Nepal and India (the rural regions of Eastern and Central Uttar Pradesh and Northern Bihar)[17] shows remarkably similar levels and trends in poverty incidence (table 1.9).

Table 1.9: Incidence of poverty in bordering regions of India and Nepal, 1990s and 2000s

	1990s	*2000s*	*Percentage change*	*Annualized change*
Rural Terai Nepal	40.4	29.4	-27	-3.4
Rural India bordering Nepal	40.1	31.8	-21	-3.5
Central Uttar Pradesh	37.1	30.9	-17	-2.6
Eastern Uttar Pradesh	33.8	26.4	-22	-3.5
Northern Bihar	49.3	38.0	-23	-3.7

Note: For comparative convenience, rural India bordering Nepal is taken to be the simple average of three regions.
Source: For Nepal: World Bank staff calculations using NLSS-I and II; for India: World Bank staff calculations using 1993-94 and 1999-2000 India National Sampling Survey.

Dollar-a-day poverty rates declined substantially. Cost-of-basic-needs poverty lines are set with reference to living conditions within Nepal. International poverty lines such as the $1 per person per day rate (adjusted for purchasing power parity, PPP) are needed for international comparability.[18] By measure (calculated using the 1993 PPP conversion factor and consumer price indices for the two survey years and 1993), 34 percent of the Nepalese population was living below the $1 a day poverty line in 1995-96 and 24 percent in 2003-04. This decline of about 10 percentage points is internally consistent with the 11 percentage point decline (from 42 percent to 31 percent) using cost-of basic-needs-based national poverty lines. Doubling the international poverty line to $2 a day yields a poverty rate of 78 percent

[16] Estimates of income-based poverty are obtained by comparing year- and region-specific poverty lines with nominal aggregate per capita income (instead of with aggregate per capita expenditures, as in the cost-of-basic-needs method). Several components (imputed rent from the owner occupied housing and value of home produced noncrop consumption) enter both measures. However, that alone cannot account for these similar patterns, since they represent only 15 percent of income and 18 percent of expenditure aggregates. Further, correlation between income and expenditure for the whole sample is 0.72; excluding the common components from the income and consumption reduces the correlation to 0.58.

[17] The Indian Planning Commission develops urban and rural poverty lines. In 1999-2000 it set the urban poverty line at 454 Indian rupees (IRs) per person per month, and the rural poverty line at IRs 328 per person per month. At the prevailing exchange rate of NRs 1.6 for IRs 1, these poverty lines translate into NRs 726 for urban areas and NRs 524 for rural areas. Nepal's poverty line is NRs 642.3 per person per month (see Technical Annex A), which is remarkably close to these Indian lines. The two most recent available surveys for India which allow to measure poverty rates are the National Statistical Sampling Surveys 1993 and 1999, which are broadly comparable with the dates of NLSS-I (1995-96) and II (2003-04).

[18] In 1993 PPP prices, the international poverty line is $1.08 a day, referred to as the $1 a day line. See Ravallion and Chen (2003) for methodology and application.

Table 1.10: International poverty rates applied to Nepal, 1995-96 and 2003-04

International poverty line	1995-96	2003-04	Change (percentage points)
$1 a day	33.5	24.1	-9.4
$2 a day	77.6	65.8	-11.6

Source: CBS and World Bank staff calculations using NLSS-I and II.

in 1995-96 and 66 percent in 2003-04. The decline is again similar in magnitude to that of results based on a national poverty line.

The elasticity of poverty reduction to growth in Nepal is quite low by international standards. Real PCE grew by an estimated 42 percent, while poverty declined by 26 percent, during the 8 years between the two NLSS surveys. This implies that total elasticity of poverty reduction with respect to growth has been negative 0.6, i.e., every percent in growth of PCE resulted in 0.6 percent reduction in the number of the poor. The corresponding estimate for the growth-poverty-reduction elasticity is 1.33 for urban areas (where a 42 percent growth in PCE was accompanied by a 56 percent reduction in poverty). In rural areas the estimate is 0.74 (a 27 percent growth in PCE accompanied by a 20 percent reduction in poverty). Ravallion (2000) estimates the cross-national elasticity of poverty reduction to growth at about -2, indicating that for every 1 percent increase in mean income, poverty is reduced by 2 percent on average.

1.4 Poverty Profile

Who are the poor in Nepal? This section uses information on poverty characteristics from the 1995-96 and 2003-04 NLSS to draw a poverty profile for Nepal.

The poorest households in Nepal are those headed by agricultural wage laborers (table 1.11). The incidence of poverty among this group was almost 56 percent in 1995-96, and it remained high in 2003-04 at 54 percent. This group is a small and declining share of the population. It made up 12 percent of the population and 16 percent of the poor in 1995-96, and 6 percent and 11 percent in 2003-04. The second poorest group comprises households headed by someone who is self-employed in agriculture. Poverty in this group declined from 43 percent in 1995-96 to 33 percent in 2003-04. Two-thirds of poor people were in this employment category in 2003-04. Poverty declined even more for households whose heads were self-employed in trade (a decline of 66 percent) or services (decline of 43 percent). The incidence of poverty was relatively low for these groups (11 percent in trade and 14 percent in services) in 2003-04.The lowest incidence of poverty in 2003-04 was in households headed by wage-earning professionals (2.1 percent) or by the unemployed (2.9 percent). Households headed by people who are out of the labor force are less poor on average than those in all other employment categories, indicating that the unemployed and the economically inactive can afford to remain that way because they are more likely to have other sources of income.

Poverty declines with rising education. The highest poverty rate (42 percent in 2003-04) is found in households whose head is illiterate (table 1.12). Attending primary school brings the probability of being poor down to 28 percent, attending lower

Table 1.11: Poverty by employment sector of the household head in Nepal, 1995-96 and 2003-04

	Poverty headcount rate			Distribution of the poor			Distribution of population		
	1995-96	2003-04	Change (percent)	1995-96	2003-04	Change (percent)	1995-96	2003-04	Change (percent)
Self-employed									
Agriculture	43.1	32.9	-24	60.7	66.9	10	58.8	62.7	7
Manufacturing	41.4	31.2	-25	3.4	4.5	32	3.4	4.4	29
Trade	32.2	11.1	-66	4.3	1.6	-62	5.6	4.5	-19
Services	25.3	14.4	-43	1	1.5	53	1.6	3.2	99
Wage earner									
Agriculture	55.9	53.8	-4	15.7	10.9	-31	11.7	6.2	-47
Professional	8.3	2.1	-74	0.4	0.2	-53	2.2	2.9	35
Other	39.7	28.8	-28	10.6	10	-6	11.1	10.7	-4
Unemployed	9.5	2.9	-69	0.1	0	-68	0.3	0.2	-23
Nonactive	30.5	26.9	-12	3.9	4.4	14	5.3	5.1	-4
Total	41.8	30.8	-26	100	100	-	100	100	-

Source: CBS and World Bank staff calculations using NLSS-I and II.

Table 1.12: Poverty measurement by education level of household head in Nepal 1995-96 and 2003-04

Years of schooling	Poverty headcount rate			Distribution of the poor			Distribution of population		
	1995-96	2003-04	Change (percent)	1995-96	2003-04	Change (percent)	1995-96	2003-04	Change (percent)
Illiterate	50.9	42	-18	72.9	70.9	-3	59.8	52.1	-13
5 or less	35.7	28.2	-21	15.1	16.8	12	17.7	18.4	4
6-7	28.5	23.3	-18	6.7	8.1	21	9.8	10.7	9
8-10	19.8	8.4	-58	4.5	3.9	-14	9.6	14.5	52
11+	11.4	1.6	-86	0.9	0.2	-75	3.2	4.3	35
Total	41.8	30.8	-26	100	100	-	100	100	-

Source: CBS and World Bank staff calculations using NLSS-I and II.

secondary school brings it down to 23 percent, and attending upper secondary school brings it down to 8.5 percent. The lowest poverty rate is among households headed by someone with a higher education (1.6 percent).

The incidence of poverty declined between 1995-96 and 2003-04 for all education groups, with the most dramatic decline in households headed by someone with 8-10 years of schooling (upper secondary level) or 11 or more years (higher education level). Educational attainment increased in the general population between 1995-96 and 2003-04, and the proportion of the population living in households with illiterate heads declined from 60 percent to 52 percent (table 1.12).

Poverty is higher in larger households and in households with more small children. One reason for the higher level of poverty in such households (table 1.13) is that the definition of the poverty line in Nepal does not incorporate economies of scale in consumption. Still, slower than average poverty reduction among households with two or more small children or six or more family members may reflect structural factors that prevent these households from escaping poverty. The proportion of the population living in households with seven or more members declined from almost 50 percent to 40 percent (table 1.13). Since these households had the highest incidence of poverty in both 1995-96 and 2003-04, this development has contributed to the overall decline in poverty.

Poverty rates among Dalits and Hill Janjatis remained higher than on average. In 2003-04 poverty rates were highest among Hill and Terai Dalits (46 percent) and Hill Janjatis (44 percent), though poverty declined in both groups between 1995-96 and 2003-04 (table 1.14). The Tharu (Terai Janajati), with comparable poverty rates in 1995-96, experienced a much larger decline

Table 1.13: Poverty measurement by household demographic composition in Nepal 1995-96 and 2003-04

	Poverty headcount rate			Distribution of the poor			Distribution of population		
	1995-96	2003-04	Change (percent)	1995-96	2003-04	Change (percent)	1995-96	2003-04	Change (percent)
Number of children 0-6 years old									
0	23.5	13.7	-42	14.9	14.8	-1	26.5	33.3	26
1	39.9	29.3	-27	23.8	26.2	10	24.9	27.7	11
2	49.4	41.6	-16	32.6	31.6	-3	27.5	23.4	-15
3 or more	56.9	54	-5	28.8	27.4	-5	21.1	15.6	-26
Total				100	100	-	100	100	-
Household size									
1	7.7	7.2	-7	0.1	0.1	34	0.5	0.6	7
2	14.5	11	-24	0.8	1.1	35	2.3	3	31
3	22.9	11.7	-49	3	2.6	-15	5.6	6.9	24
4	28.1	19.3	-32	7.1	8.5	21	10.5	13.7	30
5	35.9	24.9	-31	13.5	14.5	8	15.7	18	15
6	43.8	33.5	-24	17.6	19.6	11	16.8	18	7
7 or more	49.7	41.4	-17	57.9	53.6	-7	48.6	39.9	-18
Total	41.8	30.8	-26	100	100	-	100	100	-

Source: CBS and World Bank staff calculations using NLSS-I and II.

Table 1.14: Poverty measurement by caste and ethnicity of household head in Nepal 1995-96 and 2003-04

Caste or ethnicity	Poverty headcount rate			Distribution of the poor			Distribution of population		
	1995-96	2003-04	Change (percent)	1995-96	2003-04	Change (percent)	1995-96	2003-04	Change (percent)
Brahman/Chhetri	34.1	18.4	-46	26.7	15.7	-41	32.7	26.3	-20
Terai middle caste (Yadavs)	28.7	21.3	-26	2.9	1.9	-33	4.2	2.8	-34
Dalits (Hill-Terai)	57.8	45.5	-21	10.6	10.9	3	7.7	7.4	-4
Newar	19.3	14	-28	2.5	3.4	35	5.5	7.5	38
Hill Janajati	48.7	44	-10	19.7	27.8	41	16.9	19.5	16
Terai Janajati (Tharu)	53.4	35.4	-34	10.4	9.2	-12	8.2	8.1	-1
Muslims	43.7	41.3	-6	5.7	8.7	53	5.4	6.5	19
Other minorities	46.1	31.3	-32	21.4	22.3	4	19.4	21.9	13
Total	41.8	30.8	-26	100	100	-	100	100	-

Note: The trends in poverty rates across caste-ethnic groups should be treated with caution, see Box 1.1 for details.
Source: CBS and World Bank staff calculations using NLSS-I and II.

Box 1.1 **Comparison of caste and ethnicity between NLSS-I and II and exclusion**

The trends in poverty rates across caste-ethnic groups should be treated with caution. Information on caste-ethnicity was collected differently in the NLSS I and NLSS II, with significant improvements in the second survey. The NLSS II used a longer and more detailed list of caste-ethnicity codes than the NLSS I, which used only 15 codes (14 group codes plus "other"). In order to make inferences about changes in welfare indicators across comparable caste-ethnic groups, the detailed grouping of NLSS-II has been collapsed in 8 categories comparable with NLSS-I. The caste-ethnic groups and corresponding codes are listed below. Because the proportion of population falling into each ethnic-caste group had changed significantly between 1995-96 and 2003-04 and these changes are unlikely to be explained by the differences in population growth, but rather by the differences in NLSS-I and NLSS-II.

	Grouping	Caste-Ethinc Groups
1	Brahman/Chhetri	Chhetri, Brahmin
2	Terai middle caste (Yadavs)	Yadav
3	Dalits (Hill-Terai)	Kami, Sarki, Damai
4	Newar	Newar
5	Hill Janajati	Magar, Tamang, Rai, Gurung, Limbu
6	Terai Janajati (Tharu)	Tharu
7	Muslims	Muslims
8	Other minorities	All other caste-ethnic groups

Source: G. Prennushi "Studying Caste and Ethnicity with the NLSS I and NLSS II Data"

of 34 percent in 2003-04. The poverty rate among the Muslim population declined only slightly, from 44 percent to 41 percent. The highest concentration of the poor in 2003-04 was among the Hill Janajati (second section of table 1.14). Brahman/Chhetri households went from the third lowest incidence of poverty in 1995-96 to the second lowest in 2003-04 after experiencing the most substantial decline in poverty (46 percent) of all the groups considered. Overall, three caste and ethnic groups-upper caste, Yadavs, and Newars—had below average poverty rates in 2003-04.

Land ownership reduces the probability of being poor in rural areas. The incidence of poverty among households that own 1 hectare or less of land (two-thirds of rural households) is close to 50 percent. The proportion of households with smaller landholdings increased over time, while the proportion with larger landholdings (2 or more hectares) declined substantially, from 16 percent to 11 percent. Poverty declined more for the households with larger landholdings, indicating increasing returns to land.

Table 1.15: Poverty measurement by land ownership in Nepal, 1995-96 and 2003-04 (rural areas only)

Landholdings (hectares)	Poverty headcount rate			Distribution of the poor			Distribution of population		
	1995 -96	2003-04	Change (percent)	1995-96	2003-04	Change (percent)	1995-96	2003-04	Change (percent)
Less than 0.2	48	39	-17	23	25	10	21	22	7
0.2-1	45	38	-15	44	51	17	42	47	11
1-2	39	27	-29	19	16	-14	21	20	-3
More than 2	39	24	-39	15	8	-49	16	11	-32
Total	43.3	34.6	-20	100	100	-	100	100	-

Source: CBS and World Bank staff calculations using NLSS-I and II.

CHAPTER-2

INEQUALITY AND EXCLUSION: PAST IMPEDIMENTS AND FUTURE PROSPECTS

CHAPTER - 2

INEQUALITY AND EXCLUSION: PAST IMPEDIMENTS AND FUTURE PROSPECTS

2.1 Introduction

Overall in the medium to long run, empirical regularities observed over the world show that poverty and inequality perpetuate each other impeding economic performance.[19] Yet important distinctions should be made between inequality and exclusion. Inequality (of outcomes) reflects individuals' ability and effort, together with the returns on individual's human and physical capital. Many would agree that these should be rewarded. Additionally, relatively higher returns to certain activities send important signals in the economy to reallocate human and physical capital to them. These signals are a necessary prerequisite for growth and prosperity. Exclusion restricts individuals' social and economic opportunities on the basis of their initial circumstances, not on the basis of merit or skills. The notion of exclusion is close to the notion of discrimination, which means unequal treatment and unequal application of laws (box 2.1).

Growth in Nepal has been strong lifting a quarter of the poor out of poverty. But income inequality has grown. Increases in inequality are particularly undesirable in a multiethnic country like Nepal, where they may reflect exclusion along ethnic and caste lines. The recently completed by the World Bank and DFID Gender and Social Exclusion Assessment "Unequal Citizens: Gender, Caste and Ethnic Exclusion in Nepal" (henceforth GSEA) shows that exclusion in Nepal has many dimensions and is significant. This report confirms the multiple dimensions of exclusion in Nepal and its consequences for the well-being of the population. This report finds that the increase in income inequality observed in Nepal between 1995-96 and 2003-04 was driven primarily by the dramatically higher returns to higher education and professional and entrepreneurial skills. Two caste/ethic groups -- Brahman/Chhetris and Newars - stand out from the rest of the population in terms of possession of these skills. Improvements in living standards were more modest among people from disadvantaged castes, who lack these and other productive assets. At the same time "discrimination" against minorities and disadvantaged castes -- measured as lower returns to their human and physical assets -- declined over the study period, and progress in such important indicators as school enrollment and child immunization was faster for some traditionally excluded groups than for the population as a whole.

[19] Poverty and inequality can be self-perpetuating as a result of credit market failures, which prevent poor people from exploiting growth-promoting opportunities for investment in physical or human capital. With declining marginal products of capital, the output loss from this market failure will be greater for the poor (who have less capital). Therefore, the higher the proportion of poor people in an economy, the lower the rate of growth (see Galor and Zeira 1993, Banerjee and Newman 1993, Benabou 1996, Bruno and others 1998, Aghion and others, 1999, and Bardhan and others 1999). In addition, high inequality can foster macroeconomic instability and impede efficiency-promoting reforms that require cooperation and trust (see Alesina and Rodrik 1994).

Box 2.1 **Definitions and concepts of inequality and exclusion**

Exclusion and inequality are different concepts, but one can cause the other, creating a vicious circle of poverty. Inequality is understood as differences in outcomes, such as poverty levels, income, consumption, health status, and educational attainment, etc.. Exclusion reflects inequality of opportunity. Equality of opportunities refers to the notion that predetermined circumstances (such as gender, ethnicity, or caste) should not help determine whether a person succeeds economically, socially, or politically. The *World Development Report 2006: Equity and Development* (World Bank 2005a) shows that around the world, the circumstances of one's birth still have a large influence on one's chances in life. That report defines five elements that determine one's opportunity in life: health, education, income/consumption, access to services, and agency power.

Exclusion is "a process and a state that prevents individuals from full participation in social, economic and political life and from asserting their rights" (2006 WDR). Dimensions of exclusion can be grouped into three broad categories:

- Economic exclusion exists when people lack equitable access to economic/financial, social, human, and natural resource assets.
- Excluded access to services exists when people do not have equal access to basic services (education, health, water, transport, power).
- Social exclusion restricts people from participating on fair terms in local and national social life. It is achieved by limiting or banning certain groups from decisionmaking within political and social organizations that affect their lives. Social inclusion removes institutional barriers to equal opportunities. Empowerment enhances assets and capabilities.

Measuring exclusion is difficult, for two main reasons. First, opportunities are potentials; like Sen's (1987) capabilities, they are sets of possible functionings rather than functionings themselves. Second, opportunities are multidimensional—they can relate to education, health, income, leisure, or other measures. *World Development Report 2006: Equity and Development* suggests a useful approach to measuring inequality of opportunities. It entails examining inequalities in economic and social outcomes as well as in access to opportunity-shaping services (health care, immunization, schooling) across population subgroups, defined so that differences between them are "morally irrelevant" (that is, gender, ethnicity, place of birth). Systematic differences in economic and social outcomes across such groups suggest the degree of inequality of opportunity in a society. This report employs this approach. It looks at differentials in income/consumption, assets, educational attainment and access, access to health services and health outcomes, and voice and participation in a policy/institutional environment across various groups.

2.2 Historical Roots of Exclusion in Nepal

The interaction of history and the country's geographic, ethnic, and linguistic diversity contributes to exclusion. Nepal is a geographically diverse country, divided into distinct zones, ranging from the lowland Terai plain in the south and rising hilly landforms in the middle part to the Himalayas in the north culminating in Tibetan plateau beyond the Himalayan range. The very difficult terrain in Mountains and Hills resulted in long inter-district distances. The geography is such that some villages are still accessible only by foot or by air and it takes days by foot to reach them. Population density varies widely across these regions with Mountains being the least populated and Terai being most densely populated regions. The difficulty of terrain along with varied density of population influence both costs and benefits of provision of infrastructure and many remote areas remain isolated from participation in the national economy. Nepal is extremely diverse, with more than 59 main ethnicities and 37 languages. The country is landlocked and heavily dependent on India for transit facilities to outside world (India borders Nepal on three sides and China is on the north). The Maoist insurgency that began about a decade ago has capitalized on this historical and geographic exclusion.

Nepal's caste structure also contributes to exclusion. The traditional Hindu philosophy and caste system, the code of conduct that governed economic and social matters in Nepal for centuries, is based on the concepts of ritual purity and division of labor. Under this system, people are born with certain privileges and obligations with respect to the education they can seek, the occupation they can pursue, and so forth (box 2.2). Different punishments are prescribed based

Box 2.2 **The caste pyramid in Nepal**

The unification of Nepal under Prithvi Narayan Shah in 1768 and its consolidation during the Rana regime from 1846 to 1951 was based on the ideology of the Hindu caste system. The Hindu system is based on a belief that certain groups due to their ancestry, occupations and practices have different levels of ritual purity. The system has four main varnas groups with the Brahman priestly caste at the apex and just beneath them the kingly/ warrior or *Kshetriya* group. In Nepal these two groups are the *Bahuns* and the Chhetris respectively. The *Vaishyas* who serve as merchants and producers were next in the hierarchy with the *Sudras* beneath them as laborers. Beneath them all were the "untouchables" who used to be called the sano jat or litereally "small caste" in Nepal. This later group now call themselves the *Dalit* or "oppressed". In the hills and mountain regions of Nepal, the middle ranking rungs of the system were allotted to the many indigenous Tibeto-burman speaking groups, most of whom had lived in the Himalyas long before the in-migrating Hindus.

As a unifying framework, the caste system was very inclusive, in the sense that it encompassed all the diverse social groups living in the territory of Nepal -- with their varied languages, customary laws, and religious, social, and cultural traditions -- into one overarching framework. But it was also exclusionary in that it classified all these groups in a pyramid. The 1854 National Code placed the Tagadhari (twice born), members of the Brahman and Chhetri castes and some high-caste Newars at the top. Beneath the Tagadhari were the Matwali (liquor drinkers), made up of Nepal's indigenous groups who now call themselves Janajati. Lower down were the Pani Nachalne (water-unacceptable or impure people), comprising Muslims and foreigners. The untouchable Dalits came at the very bottom and were accorded harsher punishments than others, forbidden to enter temples or to use watersources used by high caste groups.

Source: Gender and Social Exclusion Assessment: "Unequal Citizens: Gender, Caste and Ethnic Exclusion in Nepal", World Bank and DFID, 2005

on the castes of the perpetrator and the victim of a crime. The Muluki Ain, the national legal code of 1854, codified this system and accorded different privileges and obligations to each caste and subcaste within the system. Only in 1963, when the revised *Muluki Ain* was promulgated, was caste-based discrimination formally abolished.

The multi-party era of post-1990 established Nepal as a more inclusive state. Nepal's Constitution describes the country as multiethnic, multilingual, and democratic. It states that all citizens are "equal irrespective of religion, race, gender, caste, tribe or ideology" and gives all communities the right to preserve and promote their languages, scripts, and cultures; to educate their children in their mother tongues; and to practice their own religions.

The Poverty Reduction Strategy Paper (PRSP) completed in 2003 reinforced social inclusion as an important social objective. Social inclusion forms the third pillar of the PRSP, which seeks to address gender-, caste-, and ethnic-based disparities by bringing poor and marginalized groups into the mainstream of development and launching programs that target the most deprived and vulnerable groups. The PRSP recognizes that equitable access to economic opportunities and social services (education and health) requires empowering women and marginalized communities by removing socioeconomic and legal constraints that have historically excluded these groups from opportunities.

2.3 Trends in Income Inequality

Inequality increased between 1995-96 and 2003-04. Nepal enjoyed rapid growth during this period, with per capita income and expenditures growing over 4 percent per year. Per capita income and consumption grew for all quintiles of the population, pulling a quarter of the poor out of poverty (see chapter 1). But growth was not equal across groups and regions, exacerbating inequality. For the country as a whole, the Gini coefficient rose from 34.2 to 41.4. Per capita expenditure ratios, another inequality measure, also worsened over the period (table 2.1).

Box 2.3 **Measuring inequality**

Two measures of inequality—the *Gini coefficient* and the *percentile ratio*-provide insights on the evolution of inequality in Nepal.

The *Gini coefficient* is defined as $\text{Gini} = \frac{1}{2n^2\bar{y}}\sum_{i=1}^{n}\sum_{j=1}^{n}|y_i - y_j|$, where y is per capita expenditure for a particular household. It takes values between 0 and 1, where 0 indicates no inequality. The Gini coefficient is very widely measured and allows easy comparisons of inequality across time and space.

Percentile ratios are the ratios of values of per capita expenditure at various cut-off points of the distribution. Per capita expenditure of the poorest 10 percent of the population is identified as p10; of the poorest 25 percent of the population as p25, and so forth, so that the expenditure of the richest 90 percent of the population is identified as p90. As measures of inequality, p25/p10 measure inequality among the poor; p75/p50 measures inequality among the middle class; p50/p10 (or p25) measures inequality between the middle class and the poor, and p90/p50 measures inequality between the rich and the middle class.

Generalized Entropy Indexes are the measures of inequality that can be decomposed into population subgroups and the general formula for this class of measures is the following: $GE(\alpha) = \frac{1}{\alpha^2 - \alpha}\left[\frac{1}{n}\sum_{i=1}^{n}\left(\frac{y_i}{\bar{y}}\right)^{\alpha} - 1\right]$ where the parameter a represents the weight given to distance between welfare indicators at different parts of the distribution. Lower values of α make GE more sensitive to changes in the lower tail of the distribution; higher values of a make GE more sensitive to changes in the upper tail; α=0,1, and 2 are considered in this report. The decomposition of Generalized Entropy indexes into "within" and "between" group inequality and the interpretation of the results follow Bourguignon (1979).

Most of the increase in inequality occurred because the gap between the "middle class" and the "rich" grew. Inequality increased along the expenditure distribution, except at the bottom. Hence, most of the increase was concentrated in the upper half of the expenditure distribution (table 2.1). In particular, between 1995-96 and 2003-04, the ratio of per capita expenditure between expenditure group declined 2 percent for the ratio p25/p10 (the ratio for "poor" and "very poor"), rose 6 percent for ratio p50/p25 (the ratio for "middle class" to "poor"), rose 8 percent for the ratio p75/p50 (the ratio for "upper middle class" to "middle class"), and rose 27 percent for the ratio of p90/p50 (the ratio for "rich" and "middle class"), (see box 2.3 for the definitions of the inequality measures used here).

Inequality remains greater in urban areas than in rural areas, but inequality grew more in rural areas. The urban Gini coefficient (43.6) was higher than the rural coefficient (34.9) in 2003-04 (table 2.1). There was little change in urban Gini since 1995-96, a pattern primarily driven by the fact that there were little changes in inequality in the low tail and in the interquartile range of the per capita expenditure distribution. At the same time, inequality in the upper half of the distribution has increased. In rural areas, inequality increased along the entire range of per capita expenditure distribution (except the very low part of the distribution), and the Gini coefficient rose from 30.8 to 34.9. Per capita expenditure inequality in urban areas remained higher than that in the rural areas. As a result of these trends, inequality between urban and rural areas increased (see Appendix table A2.1).

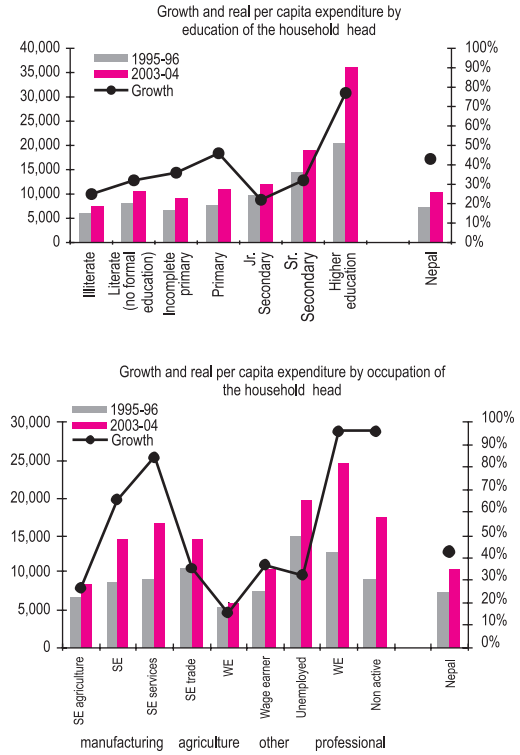
The widening in inequality was driven by dramatic increases in the returns to higher education, and to occupational skills in professional employment and self-employment in manufacturing and services. The 2 percent of the population with higher education earned very large premiums in 2003-04 (figure 2.1). In particular, per capita consumption by the population as a whole grew 42 percent between 1995-96 and 2003-04, while that by people with higher education rose 76 percent. People with such occupational skills as professional employment and self-employed in manufacturing and services also earned increased premiums. All together, these 3 groups represent slightly over 10 percent of the population and per capita consumption in these

Table 2.1: Inequality in per-capita expenditure distribution Nepal by urban and rural areas 1995-96 and 2003-04

	Bottom half of distribution		*Top half of distribution*		*Interquartile range*	*Tail of distribution*	*Gini coefficient*
	p25/p10	*p50/p25*	*p75/p50*	*p90/p50*	*p75/p25*	*p90/p10*	
Nepal							
1995-96	1.36	1.40	1.46	2.23	2.05	4.25	34.2
2003-04	1.33	1.48	1.57	2.75	2.32	5.4	41.4
Change in percent	-2	6	8	23	13	27	21
Urban areas							
1995-96	1.62	1.97	1.6	2.67	3.16	8.54	42.7
2003-04	1.53	1.76	1.77	3.01	3.12	8.13	43.6
Change in percent	-6	-11	11	13	-1	-5	2
Rural areas							
1995-96	1.36	1.39	1.43	2.05	1.98	3.87	30.8
2003-04	1.32	1.4	1.52	2.2	2.13	4.07	34.9
Change in percent	-3	1	6	7	8	5	13

Source: World Bank staff calculations based on NLSS-I and II.
Note: Statistics in this table are slightly different from that published in "Poverty Trends in Nepal (1995-96 and 2003-04)", HMGN, National Planning Commission Secretariat, CBS, September 2005. The reason for the discrepancy is that in the earlier publication the outliers, 0.5 percentile at each tail of the distributions, have been dropped for the urban and rural areas separately, but not for Nepal overall. The outliers have been dropped from all 3 distributions for the purposes of this table.

Figure 2.1 **Growth in real per capita expenditure in Nepal between 1995-96 and 2003-04 by background characteristics**



Source: World Bank staff calculations based on NLSS-I and II.

3 groups rose 66–96 percent over the eight-year period. Increasing returns to certain activities is an important signaling device that tells individuals where to reallocate their investments and efforts; it is not a problem that requires policy intervention, as long as all groups in the society have access to profitable opportunities. Unfortunately, there is evidence that some groups in Nepal continue to be excluded from opportunities.

2.4 Agents and Dimensions of Exclusion in Nepal

Multiple categories and dimensions of exclusion remain in Nepal. This section illustrates the extent of and trends in inequality and exclusion based on the framework shown in table 2.2. Following the World Development Report 2006: Inequality and Development, this section attempts to distinguish between inequality of opportunity and inequality of outcomes. Recognizing the inherent difficulties in measuring inequality of opportunity, it analyzes indicators of inequality in economic outcomes, social outcomes, and access to services, paying particular attention to opportunity-shaping indicators. The discussion

Table 2.2: Dimensions and basis of exclusion in Nepal

Excluded groups	*Economic status*	*Services*	*Social status*[20]
Caste/ethnicity (Dalits, Janajatis, other minorities)	Lower incomes and fewer opportunity-shaping human and physical assets (education, nutrition, land, livestock).	Language-based exclusion in educational system, isolation due to remote locations (for Janajatis), less ability to pay for private services when public services fail.	Lower self-perceived status (due to lack of respectful treatment or cooperation with other groups); restricted access to public places; very low representation in legislature, executive, judiciary, and civil service; lack of local political influence.
Gender (Women and girls)	Lower initial human capital, unequal asset ownership and property rights. Restrictions on rights to migrate for employment.	Households favor boys' education; female-specific services (maternal and reproductive health) often underfunded.	Limited rights in household decisionmaking (control over fertility, self-earned income); domestic violence; restricted mobility (need for permission to travel alone).
Location (those in remote areas)	Few economies of scale, few markets, high costs due to poor connectivity.	Higher unit costs of provision because of remoteness and low population density.	Poor representation (power is centralized in Kathmandu), effects of civil conflict.
Income poverty (the vicious circle)	Low assets, less ability to manage income volatility, less access to credit, fewer opportunities.	Poor publicly provided services, little purchasing power to buy services in the private markets.	High cost of political and judicial institutions.

builds on results in attempting to provide policy recommendations aimed at remedying exclusion and tailoring economic policies to help excluded groups, as well as providing underpinnings for well-targeted interventions that could remedy the old exclusion relations.

2.4.1 Caste- and Ethnicity-based Exclusion

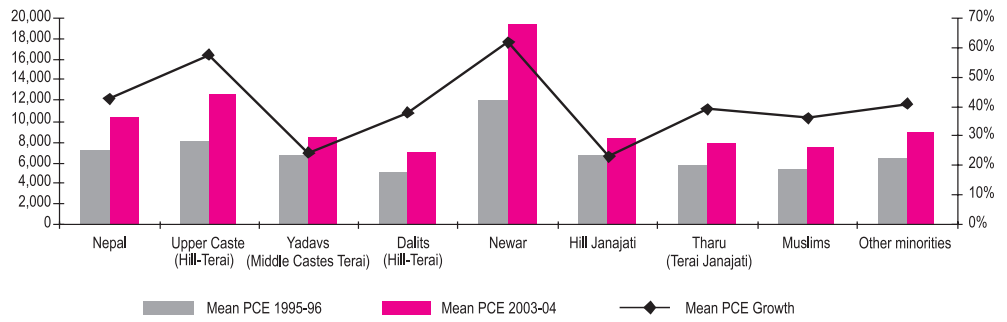
Nepal's population includes 103 social groups based on caste, ethnicity, religion, and language. Following the GSA, these groups are combined into eight categories: Brahmans and Chhetris, Hill Janajatis, Terai middle castes, Dalits, Terai Janajatis, Newars, Muslims, and other disadvantaged minority groups.[21] As mentioned above, the hierarchical relationship within social and economic institutions among these groups have been shaped by the centuries (see Box 2.2).

Persistent differences in poverty status based on caste and ethnic identity point to the economic exclusion of disadvantaged groups. Poverty headcount rates vary widely across castes, from a low of 14 percent among Newars and 18 percent among high-caste Brahmans/Chhetris to a high of 44 percent among Hill Janajatis and 46 percent among Dalits (table 1.14, Chapter 1). The poverty headcount declined for all castes and ethnic groups between 1995-96 and 2003-04, but the rate of decline in the poverty rate for upper caste households was considerably higher than in the country as a whole; poverty among Newars declined at the national rate. The two groups enjoyed the highest rate of per capita

[20] The dimensions of social exclusion are best understood in the context of the complementarity between *social inclusion* and *empowerment*. Both social inclusion and empowerment are ingredients in transformational social change. *Social inclusion* refers to the removal of institutional barriers and the enhancement of incentives to increase access development opportunities. *Empowerment* refers to the enhancement of the capabilities of individuals and groups to function, engage, and hold accountable the institutions that affect them. Empowerment occurs at the individual and group level; social inclusion occurs as system-level institutional reform and policy change in the external environment. (Adopted from Gender and Social Exclusion Assessment: *"Unequal Citizens: Gender, Caste and Ethnic Exclusion in Nepal" (GSEA)* World Bank and DFID, 2005.

[21] The GSEA considered several ways of grouping the 103 ethnic and caste groups. Initially, it collapsed information from the NLSS-II on caste and ethnicity into 35 groups. However, the sample sizes of many of the groups were too small to allow statistical inferences to be made. The GSEA next collapsed NLSS-II information into 7 main categories, similar to the categories indicated above but including Muslims/Relgious Minorities as a separate category and distinguishing between Hill Dalits and Terai Dalits and between Hill Brahman/Chhetri and Terai Brahman/Chhetri. Because these last distinctions were not made in the NLSS-I, this report includes all Dalits in one group and all Brahmans/Chhteris in another. Also, the population proportions of the caste/ethnic groups identified on the basis of NLSS-I and II are somewhat different from the population proportions in the 2000 census, largely because survey data are less able to identify smaller groups and therefore classify a larger category of individuals as "others."

Figure 2.2 **Level and trends in PCE by caste and ethnicity**



Source: World Bank staff calculations based on NLSS-I and II.

expenditure growth: spending rose 62 percent for Newars and 57 percent for Brahmans/Chhetris (figure 2.2). In contrast, per capita consumption among Hill Janajatis rose just 26 percent; consumption by Dalits, Terai middle castes, Terai Janajatis, Muslims, and other minority groups was slightly higher than among the Hill Janajatis. Large differences in the rate of poverty decline across caste and ethnic groups point to structural differences in assets, skills and opportunities.

Higher poverty and slower improvement in income and poverty among lower castes reflects lower levels of education, professional skills, and ownership of productive assets. Differences in education attainment between Newars and Brahman/Chhetri on the one hand and the rest of the population on the other are striking (table 2.3). While 45 percent of Newars completed at least eighth grade, only 12 percent of Dalits, 15 percent of Hill Janajatis, and 16 percent of Terai middle castes did so. The national illiteracy rate is 50 percent, but the rate is much lower among Brahmans/Chhetris (37 percent) and much higher among Dalits (59 percent) and Terai middle castes (64 percent).

Table 2.3: Educational attainment among Nepalese 15 and older, by caste/ethnicity 2003-04 (percent)

Caste/ethnicity	*Illiterate*	*Literate or completed grade 1-7*	*Completed at least grade 8*
Brahman/Chhetri	36.9	29.2	33.9
Terai middle caste	64.0	20.5	15.6
Dalits	59.0	28.7	12.3
Newar	31.2	23.7	45.1
Hill Janajatis	52.3	32.7	15.0
Terai Janajatis	54.2	28.0	17.7
Others	63.1	22.4	14.5
Nepal	50.1	27.2	22.7

Source: NLSS-II.

Decomposition of aggregate inequality by ethnicity and caste and by the level of education of the household head further confirm these findings. Following the methodology of Bourguignon (1979), inequality decompositions were performed into within- and between-group inequality for GE(0), GE(1) and GE(2) (box 2.3). In the case of ethnic and caste groups, between-group inequality accounts for 9 percent of total inequality at the upper half of the distribution (i.e. GE(2)) and 13-15 percent of total inequality at the low and middle range of the distribution (i.e. GE(0) and GE(1)), table 2.4. The share of total inequality attributable to between-group inequality increased between 1995-96 and 2003-04. In the case of education attainments of the household head, between-group inequality accounts for a fairly large proportion of total inequality-about 25 percent for GE(0) and GE(1), and 21 percent for GE(2). Similar to the trends in the between-group inequality across ethnic group, there has been an increase over time in the share of between-group inequality in the total inequality.

Participation in secondary and higher education is dominated by Brahmans/Chhetris and Newars. As it has been demonstrated earlier returns to high education and professional employment are very high and increasing in Nepal. Yet, the differences in participation in high education which are

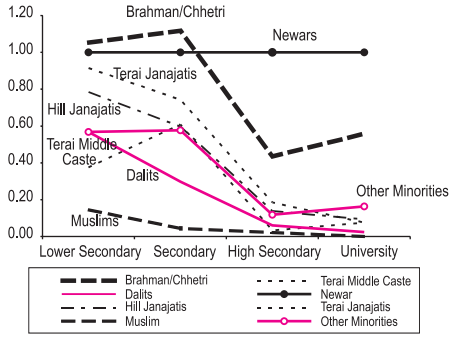
Table 2.4: Decomposition of inequality by caste/ethnicity and educational attainments of the household head 1995-96 and 2003-04 (percent)

	GE (0)	GE (1)	GE (2)
1995-96	19.0	21.8	32.7
2003-04	27.9	33.7	57.6
A. By ethnicity and caste			
Within group inequality			
1995-96	16.4	19	29.3
2003-04	23.7	29.2	52.6
Between group inequality			
1995-96	2.0	2.0	2.2
2003-04	4.1	4.5	5.0
Between group inequality as % of overall inequality			
1995-96	10.6%	9.7%	7.0%
2003-04	14.8%	13.3%	8.7%
B. By level of education of the household head			
Within group inequality			
1995-96	15.8	18.1	28.0
2003-04	20.8	25.0	45.6
Between group inequality			
1995-96	3.2	3.8	4.7
2003-04	7.0	8.7	12.0
Between group inequality as % of overall inequality			
1995-96	16.8%	17.3%	14.5%
2003-04	25.2%	25.9%	20.8%

Source: World Bank staff estimates based on NLSS I and NLSS-II data on distribution of per capita expenditures

prerequisite for acquiring these skills across ethnic groups are startling. Among low castes, less than 5 percent of 17- to 24-year-olds attend university; among high castes, the figure is more than three times as great. Newars have the highest of all groups rate of attendance of institutions of higher learning starting from higher secondary education, figure 2.3; primary enrollments of different ethnic/caste groups are discussed in chapter 7.

Figure 2.3 Gross enrollment in secondary and higher education, by caste and ethnic group (enrollment figures experessed as that of Newars)



Members of disadvantaged groups tend to be employed in low-paying sectors, such as agricultural wage employment. Two of the three highest-paying sectors (professional wage employment and self-employment in services) are dominated by Brahmans/Chhetris and particularly Newar groups (table 2.5). In a positive sign, Dalit workers are overrepresented in self-employment in manufacturing, the third high-paying sector in Nepal. Although most of them perform low-level traditional tasks, such as cobbling, sewing, leatherworking, and blacksmithing, increasing returns to these occupations have helped reduce poverty within this group.[22]

Muslims and other minorities own less land and livestock than other groups. Land is not only an

Table 2.5: Employment sector, by ethnicity, 2003-04

	Self-employment				Wage employment		
	Agriculture	Manufacturing	Trade	Services	Agriculture	Professional occupation	Unskilled
Brahman/Chhetri	78.9	1.6	3.8	3.3	1.5	4.4	6.6
Terai middle caste	87.2	1.5	2.5	0.5	2.4	0.5	5.5
Dalits	64.6	10.6	0.5	1.9	9.0	0.6	12.9
Newar	45.7	8.5	14.1	6.4	1.9	7.8	15.6
Hill Janajatis	80.3	2.3	3.0	1.6	4.0	1.2	7.5
Terai Janajatis	77.2	0.8	2.7	1.7	7.8	2.0	7.9
Others	56.0	3.4	5.5	2.6	20.1	2.0	10.4
Nepal	69.8	3.3	4.5	2.7	8.0	2.8	9.0

Source: NLSS-II.

[22] Traditionally, these and other "unclean" occupations were reserved for Dalits. With the increase in nonfood prices relative to food prices, the opening up of trade, and the increase in worldwide demand for leather goods, the returns to these occupations are increasing, helping overcome the economic exclusion of the Dalits.

Table 2.6: Ownership of land and livestock in rural areas of Nepal, 2003-04 (percent)

	Ownership of land					*Ownership of livestock (percent of households that own)*					
	Landless	*< 1 ha*	*1-2 ha*	*> 2 ha*	*Total*	*Cows*	*Buffaloes*	*Goats*	*Horses*	*Pigs*	*Poultry*
Brahman/Chhetri	6	69	19	6	100	70	64	70	1	0	43
Terai middle caste	11	47	26	15	100	77	70	62	1	0	8
Dalits	14	80	5	2	100	58	46	50	1	19	68
Newar	11	71	14	3	100	51	57	62	1	0	68
Hill Janajatis	8	73	14	5	100	64	46	65	3	30	77
Terai Janajatis	20	48	18	14	100	59	28	52	2	25	73
Muslim	37	45	12	5	100	36	22	41	1	0	28
Other minorities	34	51	9	6	100	55	29	46	2	5	26
Total	16	64	14	6	100	61	46	58	2	11	50

Source: NLSS-II.

important productive asset in Nepal, it is also a symbol of social status (chapter 5). Some 37 percent of Muslims and 34 percent of other minorities in Nepal are landless-nine times the rate among Brahmans/Chhetris (table 2.6). Only small percentages of Muslims and other minorities own livestock. Most Dalits own land and livestock, but 80 percent of them own less than one hectare of land.

Differences in endowments account for three-quarters of the difference in per capita expenditure between lower- and upper-caste groups. A framework of treating per capita expenditure as a product of human and physical assets and their returns is widely used to understand the nature of inequality between groups (box 2.4). Applying this framework to NLSS-II data shows that differences in productive characteristics explain two-thirds of the total difference in 2003-04. The remaining difference is due to different returns to these characteristics, a component often attributed to "discrimination" (table 2.7; see appendix table A2.2 for the full decomposition). Educational attainment explains by far the largest portion of the differential in endowments (49 percent), followed by demographics (14 percent), labor market sectors (8 percent), and accessibility (7 percent). Lack of adequate human and physical capital, not discrimination, appears to be responsible for the slower rate of improvement in the welfare of lower caste groups. (Although lack of human and

Box 2.4 **Understanding differences across groups through Oxaca-Blinder decomposition**

In seminal papers on regression-based subgroup decomposition, Oaxaca (1973) and Blinder (1973) analyzed gender-based wage differentials. They estimated wages for men and women, decomposing the mean wage difference into a component ascribed to differences in the characteristics determining earnings and a component ascribed to differences in returns to such characteristics. The first component is typically called the "explained" difference, because it arises due to differences in human capital. The second component is called the "unexplained" difference, because it could arise from unequal treatment of two groups in the market place or other factors, such as differences in the quality of human or physical capital, differences in the effort level, or other sociocultural factors (see Glinskaya and Mroz 2000; Van de Walle and D. Gunewardena 2001).

Several authors extended the Oaxaca-Blinder methodology and considered ethnic or caste groups in the place of gender groups and consumption or income in the place of wages. The extended methodology is based on a standard ordinary least squares estimate of consumption (y) as a function of a matrix of correlates X. Let the vector **b** contain the estimated parameters of the conditional distribution of y on X; the difference between average per capita expenditure ($\bar{y} = \bar{x}b$), according to the ordinary least squares properties of the two subgroups, can be written as: $Y_h - Y_l = X_h\beta_h - X_l\beta_l = (X_h - X_l)\beta^* + [X_h(\beta_h - \beta^*) + X_l(\beta^* - \beta_l)]$ where Y = log per capita expenditure, X = endowments, h = high caste, l = low caste, and B^* = pooled coefficient. The first term on the right-hand side represents differences in returns to characteristics (the "unexplained" difference), while the second term represents differences in the distribution of characteristics (the "explained" difference). The decomposition amounts to comparing $\bar{y}_A$ and $\bar{y}_B$ with the counterfactual distribution $\bar{x}_A b_B$.

Table 2.7: Factors explaining differences in per capita expenditure between upper- and lower-caste groups in Nepal, 1995-96 and 2003-04 (as a percentage of the total difference in per capita expenditure)

	1995-96			2003-04		
	All Nepal	Rural	Urban	All Nepal	Rural	Urban
Actual difference in ln PCE (real 1995-96 prices)	0.27	0.19	0.94	0.42	0.29	0.53
Differences in endowments (explained difference)	64	58	73	74	62	81
Demographics	8	7	19	14	16	18
Education	46	52	28	49	52	44
Labor market and sectoral participation	5	4	13	8	7	9
Landholdings	3	7	0	-1	2	0
Accessibility (within 30 minutes of facilities)	4	-1	0	7	1	0
Geographic location	-3	-12	14	-2	-15	10
Returns to productive characteristics (unexplained difference)	36	42	27	26	38	19

Source: World Bank staff calculations based on NLSS-I and II.

physical capital is likely due to the past exclusion and discrimination.) While the relative lack of human and physical assets represents a major impediment to development, these shortfalls are more amenable than "discrimination" to policy actions and individual effort, although the challenge is great.

"Discrimination" accounted for less of the differences in per capita expenditure across caste groups in 2003-04 than in 1995-96. The difference in per capita expenditure between higher and lower castes increased over time, from 27 percent to 42 percent (driven by the increase in rural areas). But the "discrimination" component of this difference declined, from 36 percent to 26 percent (table 2.7). This means that the increase in inequality is driven mostly by the increasing returns to assets and to some degree by faster accumulation of productive assets by the upper castes, not the discrimination.

"Discrimination" is less severe in urban than in rural areas and has declined faster, (table 2.7). Rural people are more subject to traditional behavioral norms; urban economic relations are more likely to reward effort and entrepreneurship. Growing urbanization in Nepal is thus likely to open up opportunities for lower caste groups. Members of lower castes appear to be taking advantage of better opportunities in urban areas by migrating from rural areas at above average rates. The percentage of Dalit and Hill Janajatis in urban areas nearly quadrupled (albeit from very low levels in 1995-96), increasing much more rapidly than the national rate (table 2.8).

Table 2.8: Rate of urbanization by ethnic group and caste, 1995-96 and 2003-04

	Percentage of population living in urban areas		
Group	1995-96	2003-04	Percentage change
Brahman/Chhetri	7.5	15.5	2.1
Terai middle caste	3.1	6.6	2.1
Dalits	2.5	9.5	3.8
Newar	29.0	53.1	1.8
Hill Janajatis	3.0	10.5	3.5
Terai Janajatis	0.4	1.5	3.6
Muslim	18.3	7.3	0.4
Other minorities	5.3	15.6	3.0
All	7	15	2.1

Source: NLSS-II.

Accumulating assets and human capital is the key to improving the welfare of disadvantaged castes. In this regard, lower outcomes of these groups in terms of youth literacy and child malnutrition are particularly worrisome (see chapters 7 and 8.)

Ethnicity-caste patterns of improvements in access to schools, hospitals, paved roads, and markets are mixed, but there are indications that disadvantaged groups have benefited. Median (typical) Brahman/Chhetri, Dalit, and Hill Janajati households are farther from a primary school than other groups. Mean time is the highest for Hill Janajatis, indicating that some households are very far away. Improvements in median time were greatest among Hill and Terai Janjatis and other minorities. Terai Janajatis also had the biggest improvements in mean time, followed by Brahmans/Chhetris (table 2.9).

Table 2.9: Access to schools, health centers, paved roads, and markets by rural people, by ethnic group and caste, 2003-04

	Time to reach in 2003-04 (hours)		*Improvement since 1995-96 (percent)*	
	Median	*Mean*	*Median*	*Mean*
Schools				
Brahman/Chhetri	0.25	0.35	0	28
Terai middle caste	0.17	0.20	0	23
Dalits	0.25	0.30	0	18
Newar	0.17	0.25	0	-6
Hill Janajatis	0.25	0.43	24	24
Terai Janajatis	0.17	0.22	32	32
Muslim	0.17	0.21	0	12
Other minorities	0.17	0.25	32	23
Health centers				
Brahman/Chhetri	0.5	0.78	33	36
Terai middle caste	0.33	0.47	39	43
Dalits	0.75	1.10	25	44
Newar	0.50	0.72	0	33
Hill Janajatis	1.00	1.36	15	20
Terai Janajatis	0.50	0.54	0	24
Muslim	0.25	0.45	50	38
Other minorities	0.33	0.50	34	44
Paved roads				
Brahman/Chhetri	2.00	5.28	20	-4
Terai middle caste	1.00	1.16	50	40
Dalits	3.00	7.62	14	-8
Newar	1.75	3.69	21	28
Hill Janajatis	3.5	7.53	18	-8
Terai Janajatis	1.00	1.49	0	-8
Muslim	0.75	1.16	25	41
Other minorities	1.00	3.13	33	-27
Markets				
Brahman/Chhetri	1.5	2.53	25	26
Terai middle caste	1.0	1.22	0	20
Dalits	2.0	3.51	0	22
Newar	1.5	1.76	14	38
Hill Janajatis	3.0	4.71	0	-14
Terai Janajatis	1.0	0.97	0	22
Muslim	1.0	1.2	0	6
Other minorities	1.0	1.7	20	3

Note: Table excludes the Far West.
Source: NLSS-I and II

While Hill Janajatis and Dalits are farther from health centers than are other groups, they have experienced significant improvement in access. Muslims had the largest improvement in median time (travel time declined from slightly under half hour to about quarter of an hour). Dalits and other minorities had the greatest improvements in mean time, a reduction of more than 40 percent. Dalits and Hill Janjatis remain at a disadvantage in access to paved roads—the least accessible of all facilities—despite larger improvements in access than the Brahmans/Chhetris. Terai middle caste groups and Muslims also gained improved access. Brahman/Chhetri and Newars had the largest improvements in access to markets (see more in chapter 6).

Social exclusion of low caste groups is intervened with the economic and opportunity-shaping outcomes and access to services. The fabric of social interactions at the local and national level is influenced by the social norms which accepted unequal treatment of lower castes. For decades low castes have lacked adequate representation in sociopolitical networks and decisionmaking institutions. Constitution and legal code in Nepal protect peoples' right to "traditional practices

that have been operating throughout history". Unfortunately, this is often interpreted by a conservative judiciary as sanctioning discrimination against Dalits.[23]

The Measuring Empowerment and Social Inclusion (MESI) study provides insights into social interactions by low-caste Nepali (box 2.5)[24]. According to the study, Dalits see their caste identity as holding them back from both social respect and economic opportunity. In contrast, Janajati groups tend to be proud of their ethnic identity, even though many feel that it has limited their economic opportunity and political influence. Dalits are also more likely to report being restricted in their use of public space, public intimidated, and affected by tacit restrictions on water tap use. Both Dalits and Janjatis perceive that they have less access to local institutions and are less effective in dealing with them than other groups. The secular trend though is clearly towards greater integration of Dalit and Janjati populations. There is a number of indications of this. While many older Dalits seemed to be resigned to their fate, there is a common language of change in their aspirations for their children, a hope that they will be provided opportunities the older generation had been deprived of. They see education a pathway to this. There are also changing attitudes towards low-caste people in the communities, especially among the younger generation (box 2.5), (see GSEA, chapter 5 for further elaborations).

Greater representation of low-caste groups is needed at all levels of government. Brahmans/Chhetris and Newars, who represent about 33 percent of Nepal's population, won 125 of 205 seats (61 percent) in the 1999 national elections (the most recent parliamentary elections held in Nepal); they held three-quarters of all cabinet positions. Dalits and Muslims have almost no representation. The civil service is even more heavily dominated by Brahmans/Chhetris and Newars, who held more than 90 percent of all positions in 2001/02.

2.4.2 Gender-based Exclusion

Girls and women in Nepal have fewer job opportunities, worse nutritional indicators, and less schooling than boys and men (chapters 3, 7, and 8). Twice as many women are illiterate and half as many have completed eight or more years of schooling (table 2.10).

Table 2.10: Educational attainment of men and women in Nepal, 2003–04 (percent)

Gender	Illiterate	Literate or completed 1-7 years of schooling	Completed 8 or more years of schooling
Men	33	36	31
Women	65	20	15
Total	50	27	23

Source: NLSS-II.

Box 2.5 **Voices from the measuring empowerment and social inclusion (MESI) study**

On restriction for Dalits to enter spaces: when asked if she had entered the homes of high-caste people in her village, a Dalit woman in the Tanahu district laughed. "Not once! I've watched functions of high-caste families from outside their windows."

On self-perception of own caste: one Dalit man commented "Sometimes I hate my caste, because people hate us because of our caste. My caste is a barrier to progress. Once, in Class Nine, my teacher asked, "What do you have in your *tiffin* [lunchbox] Is it the flesh of a dead animal? I complained to my headmaster, but he, too, harassed me."

On the aspirations for the future: "To be listened to," commented a Dalit woman in the Dibya Nagar scheme, in Nawal Parasi. "we need more education or more money and power. If I ever got the chance to lead, I could not, as I am not educated and have never performed such duties. I think people would never listen to me due to my caste."

On changing attitudes toward Dalits: One Kumal girl reported that the two Dalit children in her class were treated just like the other children. "We all eat and play together." When asked whether their parents minded, she said, "They do, but we don't tell them!" In Jamune one old Brahman woman stated that there was no discrimination between men and women in her village and no touchability or untouchability. "I am old, so I do not want to eat food touched by Dalits. But I have never restricted my son or his children from taking food from Dalits or going into their houses," she noted.

Source: Bennett and Gajurel, 2004 as reported in GSEA.

[23] GSEA reports that this provision used to justify the ban of Dalit entry into certain temples or their use of public water taps frequented by the privileged castes.
[24] This section is drawn from Bennett and Gajurel (2004), also Chapter 5 of the GSEA.

Table 2.11: Percentage of women having final say alone or jointly, in selected household decisions

Item	Own health care	Making large purchases	Making daily purchases	Visits to family or relatives	What food to cook	All of the specified decisions	None of the specified decisions
All women	29.3	33.8	44.7	40.4	81.1	19.8	15.2
Educational status							
No education	29.0	33.4	44.3	40.9	83.3	19.8	13.3
Primary	28.8	32.5	43.3	38.8	75.1	19.7	20.7
Some secondary	28.1	33.8	45.3	37.0	73.6	17.9	22.0
SLC and above	39.6	46.4	54.9	46.0	81.0	23.7	12.5
Employment status							
Not employed	23.1	29.6	38.6	31.9	77.1	15.2	20.3
Employed for cash	45.5	54.2	67.7	56.4	88.8	32.7	5.7
Employed not for cash	28.2	31.5	42.4	39.9	80.8	18.8	15.5

Source: Demographic and Health Survey (2001).

Women, particularly women with little education, have very limited say in matters concerning their health, freedom of movement, or household finances (table 2.11). According to the 2002 Demographic and Health Survey, which polled some 10,000 women, less than 30 percent of adult women have a final say—either alone or jointly with their husband or other family member—in matters concerning their own health, only 40 percent have a say in decisions about visiting family or friends, and less than 45 percent have a say in financial matters. The ability of a Nepali woman to make choices rises with her education level and her standing in the labor market. These patterns indicate that whatever the reasons were for the specialization of the roles of women and men in Nepali society, they have resulted in a system of institutions that does not provide women with equality of opportunities.

Lack of women's education and decisionmaking power perpetuates inferior outcomes in child nutrition, child survival and school participation. Maternal education and child well-being are strongly correlated in Nepal, even after controlling for income and other measures of socioeconomic status. The prevalence of malnutrition falls with mother's education and with the mother's ability to make decisions within the household (chapter 8). These relationships are observed because households in which women have more influence over decisionmaking are more likely to provide more and better quality food and other inputs to health, and they are more likely to adopt hygienic technologies. Women's decisionmaking power also has a positive effect on the level of education of her children and whether or not the children enroll in school (Xiaomin and Bohara 2004).[25]

Women's ownership of land and other assets is limited in Nepal. Women's access to land has always been indirect and dependent on their relationships as the daughter, wife, or mother of a land-owning man (Acharya and Bennett 1981; Gurung 1998). The 2000 women's property rights bill gives equal inheritance rights to daughters and sons, but still does not grant daughters full inheritance rights, as women have to surrender their land rights once they get married. The bill also eases some restrictions on women's access to property in their marital household. Strong social norms continue to give preferential treatment to sons. Women's ownership of other property is also limited. According to the 2001 census, only 17 percent of households reported that at least one female member owned land, housing, or livestock and less than 1 percent of households reported female ownership of all three types of assets (GSEA). Although 84 percent of all households in Nepal own land, just 11 percent of women do so. Although more than 90 percent of Nepali households own their home, just 6 percent women do so. Eighty percent of Nepali households own livestock, but just 7 percent of women do so.

[25] The relationship between women's empowerment and enhanced child development is well established in the economic literature. A number of studies documented that women's empowerment (measured through subjective perceptions, mothers' share of property, mother's earned income, transfers, and so forth) has positive effects on various aspects of child welfare, such as allocation on child health and education, fertility, HIV prevention, and maternal and newborn health. The main pathway of this influence is through enhanced participation of women in decisions on allocating pooled household resources. See Portela and others (2003); Eswaran (2002); Kar, Pascual, and Chickering (1999); and Koolwal and Ray (2002).

Table 2.12: **Number of weekly hours worked by men and women in Nepal by expenditure quintile, 2003-04**

	Work outside home		*Work at home*		*Total*		*Percentage difference*
Quintile	*Men*	*Women*	*Men*	*Women*	*Men*	*Women*	*in total hours*
Poorest	41	34	0	16	42	50	20
Second	42	33	1	17	43	51	18
Third	44	32	1	18	45	49	10
Fourth	43	31	1	18	44	49	12
Richest	38	23	2	21	39	43	9
Average	42	30	1	18	42	48	14

Source: NLSS-II.

Women have less economic power than men. Differences in opportunity-shaping outcomes between boys and girls are driven by the traditional patterns of division of labor, which cause households to make larger investments in boys' education and nutrition. Both because their levels of education are lower and because of sociocultural norms, women are less likely to hold jobs in good-paying sectors; when they do find jobs in these sectors, they earn less than men. In rural areas, ninety percent of women who work outside the home are either self-employed or casual laborers in agriculture. In contrast, 75 percent of men are self-employed or work as casual laborers in agriculture (chapter 3). Both agricultural wages and unskilled non-agricultural wages for women are lower than for men, and women's unskilled nonagricultural wages declined in real terms over the decade. Many women do additional work such as fetching water and collecting firewood. These tasks are very important for household welfare, but they are poorly rewarded in economic terms. Overall, women, especially poorer women, work longer hours than men (table 2.12).

Box 2.6 **Women workers in Bangladesh's booming textile and apparel industries**

More than 1 million women work in Bangladesh's booming textile and apparel industries. These women make up about 85-90 percent of the workforce in the sector. Garment industry jobs have attracted thousands of migrant workers from rural areas, often from poor households (Hewett and Amin 2000). For these women, factory work has meant not only better pay, more status, and more responsibility relative to other work available in their home towns, it has also given them a sense of pride and empowerment at being able to provide for their families.

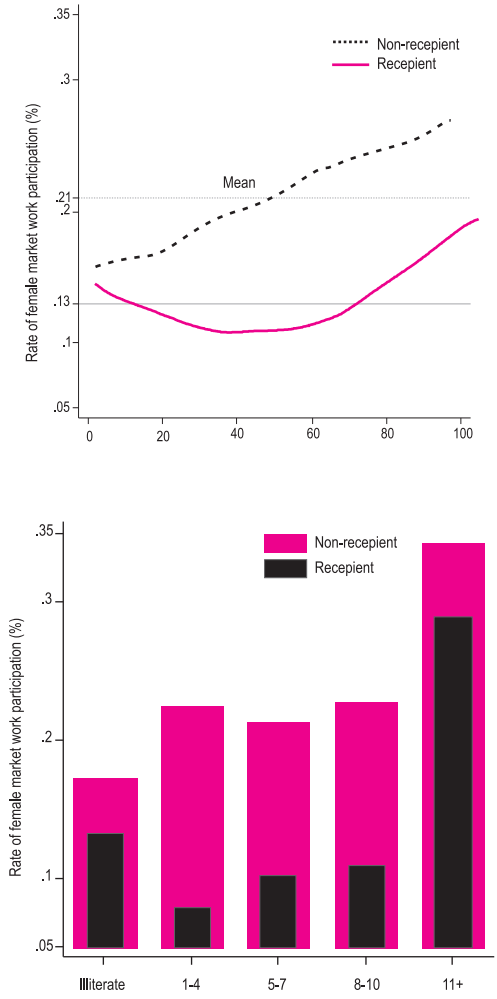
Source: Kabeer (2001).

What factors increases women's ability to exercise economic power? Gender disparities tend to shrink as social and economic institutions evolve. When institutions provide women with equality of opportunities (including equal rewards for equal work and equal access to human capital and other productive resources) and equality of voice (the ability to influence and contribute to the development process), women undertake a wide variety of activities. Their standing changes within the household, within the community, and within society at large. In the medium run, education enables women to exercise greater choice and voice and to access better paying jobs. Working outside the home and having more income increase women's decisionmaking power. The presence of profitable opportunities outside the home is critical (box 2.6). In the short run, improvements in access to water, sanitation, and electricity also have disproportionately large effects on women, since women tend to fetch water and collect firewood.

Increase in male migration is changing the roles of women in Nepali society. The incidence of poverty in female-headed households is lower than average, largely because these households receive remittances (chapter 1 and appendix table A2.1; chapter 4).

With the exception of women with higher education, women who receive remittances shift to work at home (including agricultural self-employment). Also, if these women work outside the home, they work fewer hours (figure 2.4). What drives these patterns? Several factors could be at play. It is possible that remittances provide income that allows women to buy complementary inputs to increase their productivity in self-employed agriculture. Alternatively, women heads of farm households have to oversee workers when their husbands are

Figure 2.4 Rate of female participation in market work and hours of work by status of remittance receipts



not available for such tasks as plowing, which is taboo for women in certain areas.

Remittances could also create an "income effect," allowing women to forgo working in agricultural wage jobs. Alternatively, with their husbands absent, women may find it easier to justify to their neighbors and relatives that they work at home.

The implications of these patterns on gender equality are ambiguous. Women could acquire managerial skills while their husbands are away, possibly increasing their decisionmaking power in the household. But it is also possible that having specialized within the family enterprise and failed to acquire skills that enable them to work outside the home will hurt them in the medium run.

Qualitative interviews also reveal that the migration of husbands can have a mixed effect on gender relations. Remittances raise household income and can empower women within the household (box 2.7). But the effect of migration on women's empowerment is not necessarily positive. If a man leaves his wife in an extended household, he is likely to send remittances to his parents (just 7 percent of women in extended families receive remittances from their migrant- worker husbands). In this case, the man's parents dominate household affairs, possibly leaving the wife in a precarious situation. Daughters-in-law in Nepal must be subservient and perform arduous tasks. The absence of a husband may represent the loss of an ally, someone to speak on the wife's behalf should her in-laws mistreat her or become too demanding. *More studies are needed to understand the effect of male migration on gender relations in Nepal. But one thing is clear: the availability of financial instruments that enable husbands to remit money to their wives would strengthen the relative position of women in extended households.*

Norms, beliefs, and behaviors in the home reinforce social exclusion of women and need to change. GSEA's qualitative interviews reveal that the most silent issue for Nepali women with respect to their empowerment are family relations, education,

Box 2.7 The migration of their husbands can empower wives

A 28-year-old woman from Shyauli Bazaar in the Gorkha district looks after her household and farm. Her husband, who works in Dubai, sends his earnings to her. Though she lives in an extended family with her two children and her husband's grandmother, father-in-law, and mother-in-law, she is the acting head of the household. The older women in the household are not well, so she has taken charge of all household and farm responsibilities. Her father-in-law helps with the household chores, but he leaves most decisionmaking to her. Though her family and productive demands are great, she has become involved in community groups and is the treasurer of a savings and credit program.

Source: Bennett and Gajurel, 2004 as reported in the GSEA

and income, which they see as closely related issues. Difficult relations with their in-laws, particularly their mothers-in-law are cited as an impediment to exercising their agency more fully. Gender-related violence and domestic abuse are the most egregious signs of gender inequality in the domestic sphere.[26] Outside the home, in the community, women perceive that they have much less ability to express their views or obtain assistance from local government than men.

Interviews with women reveal that education, wealth, and membership in a livelihood or service delivery group improve their position with respect to men and other household members (see GSEA, page 8). This finding confirms patterns observed in the Demographic and Health Survey data. In changing gender norms within her family, a woman can find critical support from women's self-help groups. In some conservative communities, participating in local mothers' groups or women's savings and credit groups may be the first opportunity women have to move beyond the family and kinship network and enter into the public sphere. In Nepal and across South Asia, local groups like these have been a core element in the empowerment process, for both women and other marginalized groups (see forthcoming Narayan and Glinskaya 2006 eds. for a discussion of self-help groups in Andra Pradesh). Women view gender-focused empowerment and inclusion efforts in terms of participation and use of development services, increased awareness and exercising of rights, and formation of group membership and economic networks (forest user groups and microcredit).

Strengthening women's rights in marriage and divorce, changing the law to give equal inheritance rights to women and raising women's education would increase inclusion and empower women in family and local spheres. Public policy actions can play a role in all three areas.

Empowering women politically is also critical. Women's representation in the legislature, executive branch, judiciary, and civil service is minimal. Women represent just 6 percent in the Parliament, 5 percent of the cabinet, and 7 percent of the civil service, mostly at low levels. Just 4 of 242 judges (1.6 percent) are women. There is substantial gender bias in recruitment and hiring in the public sector.

2.4.3 Region-Based Exclusion

Remoteness prevents people in the rural Mid-west and Far-west from actively participating in Nepal's economy. The deficiencies in both economic and access to services outcomes in Mid-and Far-west have been documented throughout the report. This region is very remote, and the terrain is mountainous and difficult. The region has very little cultivable land, low population density, and few markets. Some villages in the region are so remote that it takes 13 days to travel to the nearest road. Most people in the region are self-employed in subsistence agriculture. Economies of scale and scope are difficult to realize.

The incidence of poverty appears to have declined dramatically in these regions, from 63 percent of the population in 1995-96 to 46 percent in 2003-04 (table 2.12). This is a remarkably high decline, but as mentioned earlier, because of the fact that NLSS 2003-04 could not enumerate several PSUs in the Far-west due to insurgency and missing PSUs may be among the most disadvantaged, this might be an overestimation of the actual improvements in living standards in the region. One way of checking the validity of the decline is to impute a range of values for the poverty headcount in the missing PSUs and recalculate the resulting poverty rate in the region (table 2.13). Under the assumption that the poverty rate in the missing PSUs is 100 percent, the resulting poverty rate in rural Mid-and Far-west would be 51 percent in 2003-04. This check confirms that poverty did indeed decline significantly in the region, although it still remains much higher than elsewhere in Nepal.

A second check of the poverty rate in these regions is being conducted as part of the Poverty Mapping Exercise currently being prepared by the Central Bureau of Statistics, GoN, World Wood Program, the Department for International Development, and the World Bank. That exercise

[26] The 2001 Demographic and Health Survey reports that almost a third of all women consider it is normal for a husband to beat his wife for burning food, arguing with him, going out without him, neglecting children, or refusing sex.

Table 2.13: Sensitivity of headcount poverty rate with respect to poverty rates in missing PSUs

Poverty headcount (percent)	*Far West*	*Rural Far West*	*Rural Mid- and Far West*	*Rural Nepal*
Based on NLSS (excludes some PSUs in NLS-II)				
1995-96	63.9	67.2	62.5	43.3
2003-04	41.0	43.4	45.7	34.6
2003-04: based on imputing headcount in missing PSUs at various rates				
0	34.8	36.3	41.2	33.7
50 percent	42.3	44.5	46.2	35
64 percent	44.4	46.7	47.6	35.4
100 percent	49.8	52.6	51.1	36.4

Source: Word Bank staff calculations based on NLSS-I and II.

uses *small area estimation method* to gauge the relationship between the probability of being poor and various background characteristics. The relationship is estimated based on data from the NLSS-II and then applied to the 2001 census data, which includes information on the same background characteristics at a much more disaggregated level. Estimates from the Poverty Mapping Exercise also put the bound on the incidence of poverty in the region at 50 percent.

While performance of agriculture has been quite weak in the Mid-and Far-west, a surge in migrant labor and associated remittances helped. The productivity of land and labor among small farmers in the Western Hills is significantly lower than that of small farmers in the East or the Terai. Small farmers in the Western Hills are less likely to use irrigation or fertilizers, and they are less commercially oriented (see chapter 5). Perhaps because the locally available work opportunities are more scarce in Mid-and Far-west, and, consequently, the cost of migration for job seekers from this region is lower, the migration is higher than in the rest of the country (see chapter 4). In fact, almost half of all adult men are temporary migrants. The majority of these job seekers go to India, where wages are low. As a result, the average annual remittances they send back are less than half the national average. It is important to find out what prevents people from the Mid-west and Far-west from seeking more lucrative employment in countries other than India.

People in the Mid-west have less access to paved roads, health facilities, and market centers than people living elsewhere in Nepal. The average travel time to the nearest paved road is about 11.5 hours—almost seven times the distance in the Central region (1.7 hours). Lack of road networks results in prohibitive unit freight costs and discourages the transport of goods and services within and outside the region. Improvements in accessibility tend to be more modest than in other regions of the country (table 2.14). Somewhat surprisingly, median travel time to a primary school (25 minutes) is not significantly greater than in the Eastern, Central, and Western regions (17 minutes), and school participation rates are similar to those in the rest of the country.

Improvement in access to paved roads has been concentrated in the Central and Eastern development regions; access significantly decreased in the Midwest between 1995-96 and 2003-04. Access to markets by some very remote villages rose, however, and gains in access to schools and hospitals were distributed relatively evenly across regions.

Social exclusion of the Mid-and Far-west – conflict trap. The Maoist insurgency started in the Mid-west hills in 1996 and spread through other parts of the region. The conflict started as an ideological class conflict (demand to replace the constitutional monarchy with a republic) and as a protest against the exclusion of certain castes and ethnic groups. The intensity of the conflict remained low until 2002, when the scale and nature of the attacks increased. Some 12,585 lives—3.7 people a day between February 1996 and July 2005—have been lost and inestimable physical damage inflicted on private and public infrastructure. In addition, the conflict has compromised service delivery in remote areas, terrorized the countryside, increased the number of internally displaced people, and caused

Table 2.14: Access to facilities in rural areas by region in 2003-04 and improvements since 1995-96

	Travel time		Improvement since 1995/96	
Region	*Median hours*	*Mean hours*	*Median (percent)*	*Mean (percent)*
Travel time to nearest school				
Eastern	0.17	0.31	32	14
Central	0.17	0.34	32	6
Western	0.17	0.25	32	50
Mid-western	0.25	0.37	24	22
Travel time to nearest health center				
Eastern	0.50	0.78	33	37
Central	0.50	0.76	0	34
Western	0.50	0.94	50	22
Mid-western	0.75	0.97	25	29
Travel time to nearest paved road				
Eastern	1.50	5.17	50	17
Central	1.50	1.73	25	47
Western	1.50	4.86	36	-27
Mid-western	6.00	11.52	-100	-86
Travel time to nearest market center				
Eastern	1.50	2.58	0	-8
Central	1.50	1.64	0	32
Western	1.04	3.22	48	-18
Mid-western	2.00	4.44	0	19

Note: The Far-west region is excluded because 13 NSSL-II PSUs in this region could not be sampled because of the Maoist insurgency. Because these were the least accessible PSUs, their omission might bias the data on accessibility to services in the Far west.
Source: World Bank staff calculations based on NLSS-I and II.

enormous suffering. Local activists, social workers, and people from a wide variety of professions have become victims of the Maoist conflict, and the insurgency has shaken the confidence of people throughout Nepal.

Estimates from the "Nepal Development Policy Review: Restarting Growth and Poverty Reduction" World Bank (2005) show that GDP growth rates have fallen by 2 percentage points since the intensification of the conflict in 2002. These costs are due to falling investment, disruptions in economic activity and associated rising costs.

Lack of economic opportunity ignited the spread of the insurgency. A recent study (Do and Iyer, 2005) identifies the correlates of the civil conflict in Nepal.[27] It shows that its spread is positively correlated with the initial poverty level (table 2.15). Replacing measures of poverty with measures of literacy, or infant mortality, or number of banks, schools, health posts, post offices (normalized by the area of the district) shows that they are all highly significant predictors of the conflict. Concentration of advantaged castes also correlated with the increased intensity of conflict. Measures such as, caste fractionalization, and linguistic fractionalization do not significantly increase the intensity of conflict, after controlling for poverty. (After controlling for poverty the prevalence of higher castes also loses its significance.) In quantitative terms, these results indicate that a 10 percentage point increase in the district poverty rate is associated with an

[27] Do and Iyer (2005) adopt the theoretical framework for the spread of the conflict suggested by Collier and Hoeffler (1998). In their empirical specification they adopt several measures of conflict intensity, such as (i) number of deaths per 1,000 district population, (ii) an indicator for more than 100 persons killed, and (iii) number of abductions per 1,000 district population. Their explanatory variables include a set of geographic variables (maximum elevation, proportion of forested area, etc.), measures of economic development (lagged poverty rate; infant mortality rate, literacy rate, etc.), measure of infrastructure development (road length per sq km; number of post offices per 1000 population, etc.), and variables measuring caste and language diversity (caste fractionalization, caste polarization, proportion speaking Nepali, etc.).

Other studies suggest other sources of the conflict. Bray and others (2003) suggest that the Maoist conflict has found support from the oppressed lower castes because "inequality, landlessness, and a general lack of opportunity reinforced by complex systems of caste and related discriminatory patterns have provided sufficient motivation and support for the Maoist cause". Murshed and Scott (2005) find a significant correlation between landlessness and the number of fatalities in the conflict. Gersony (2003) finds that caste and ethnic divisions are not a major contributor to the conflict. Similarly with Do and Iyer (2005) Thapa (2004) attributes the conflict largely to poverty and underdevelopment.

Table 2.15: Correlates of conflict-related deaths in Nepal, 1996-2004

Dependent variable = district-specific number of conflict-related deaths between February 1996 and May 2004 divided by district population (in thousands) in 1991

Elevation	0.063***	0.058***	0.038	0.049**	0.072**	0.058**	0.067**	0.075***	0.036	0.028
Proportion of forested area	0.886***	0.803***	0.704*	0.664*	1.017***	1.095***	1.025***	0.837**	0.767**	0.621*
Poverty rate 1995-96	0.896***									
Literacy rate 1991		-0.024***								
Infant mortality rate				0.008***						
Road length per sq km			-0.879***							
Schools per 1000 population (1994)					-0.030					
Health posts per 1000 population (1994)						0.170				
Post offices per 1000 population (1992)							-0.023			
Banks per 1000 population (1994)								-5.453**		
Change in road length (1990-1997)									-1.488**	
Change in number of post offices (1992-1999)										-0.009***
Proportion of advantaged castes		0.738**	0.865*	0.226	0.561	0.601	0.567	0.515	0.886**	0.881**
Caste fractionalization										
Linguistic fractionalization	-0.188									
Observations	70	70	73	73	73	73	73	73	73	73
R-squared	0.40	0.45	0.31	0.38	0.27	0.27	0.27	0.30	0.33	0.36

All regressions exclude the districts of Rolpa and Rukum. * significant at 10%; ** significant at 5%; *** significant at 1%
Source: Do and Iyer (2005)

increase of 22-24 conflict-related deaths. An 11 percentage point (one standard deviation) increase in literacy rates is associated with a decrease of 65 conflict-related deaths, while an increase in the proportion of advantaged castes by 10 percentage points is associated with an increase of 18 conflict-related deaths.

The most plausible explanation for these patterns is that poverty and lack of infrastructure engender a sense of grievance against the government. The fact that the dominance of higher castes is a significant correlate of the civil conflict in Nepal suggests that their presence limits access to public goods or economic opportunities by members of disadvantaged castes. These findings suggest that not only absolute poverty may be important in fueling the insurgency, but also inequality or perceptions of inequality by already marginalized households that other households within the same district are benefiting more from economic growth than they are.[28] These results confirm the importance of building up public assets by improving human development and physical infrastructure and by helping disenfranchised groups build their private assets, so that incomes increase not only in absolute but also in relative terms.

2.4.4 Income-based Exclusion

Income poverty is both a cause and effect of exclusion. Socioeconomic indicators vary greatly across people with different income levels. More income is generally associated with more assets, better health and more education (chapters 3, 7 and 8). It is not surprising then that income growth would also be higher for those who have these physical and human assets. The poor tend to derive their income from small land plots and from agricultural wages, while the wealthy have more diversified income sources. Not surprisingly, employment sector too is limited for individuals from poor households: while self-employment in agriculture is the main sector

[28] In a recent paper, Macours (2005) investigates whether increasing differences in welfare among different socio-economic groups, i.e. relative deprivation instead of absolute deprivation, can help explain the seemingly puzzling coinciding trends of poverty reduction and conflict perseverance. The paper defines socio-economic groups in terms of their land ownership, to reflect the importance that is attributed to land in defining status in Nepali society. The paper analyzes the incidence of mass abductions, often of teachers and students in schools, which are an important recruitment mechanism of Maoists. One would expect that the Maoist in fact target these actions towards schools and localities where the potential of successful recruitment would be higher, i.e. towards the more disenfranchised population. Such groups are more likely to support, or at least less likely to resist, the Maoist movement. The empirical results show that the expansion of Maoist recruitment activities beyond their initial heartlands, occurred in districts where the relative deprivation of the (near) landless, had increased significantly in the preceding period. This paper shows that *changes in local inequality* over time plays an important role in explaining the geographic expansion and escalation of the conflict. The results are consistent with the hypothesis that perceptions of unfairness (discontent by already marginalized households who notice that other households are benefiting more from economic growth), fuels salient support for the Maoist insurgency.

Table 2.16: Child labor and school participation in Nepal, 1995-96 and 2003-04 (children 10-14 years old, percent)

	Males			Females		
	1995-96	*2003-04*	*change in percent*	*1995-96*	*2003-04*	*change in percent*
All Nepal						
School only	60.4	50.9	-16	45.4	46.5	2
School and work	17.1	34.2	100	10.1	25.2	150
Work Only	15.2	11.1	-27	28.5	20.0	-30
Idle	7.2	3.8	-47	16.0	8.3	-48
Total	100	100	-	100	100	-
Nonpoor						
School only	66.7	55.7	-16	58.1	53.6	-8
School and work	18.3	33.7	84	11.8	27.6	134
Work Only	10.5	8.4	-20	17.7	12.9	-27
Idle	4.4	2.2	-50	12.4	5.9	-52
Total	100	100	-	100	100	-
Poor						
School only	51.1	39.6	-23	28.9	32.7	13
School and work	15.4	35.3	129	7.9	20.5	159
Work Only	22.1	17.6	-20	42.5	33.7	-21
Idle	11.3	7.5	-34	20.6	13.0	-37
Total	100	100	-	100	100	-
For workers, work hours/week	27.4	19.6	-28	27.2	21.4	-21

Source: World Bank staff calculations based on NLSS-I and II.

for poor and non-poor, proportionally more poor are engaged in low-earning wage-agriculture.

The need to rely on child labor perpetuates poverty among the poor. While child labor is often necessary for the household, the missed educational opportunities reduce poor child's chances for enhancement of human capital and perpetuates the vicious cycle of poverty. Children 10-14 from poor households are more likely than nonpoor children to work and less likely to enroll in (table 2.16). Encouragingly, between 1995-96 and 2003-04, the percentage of children who work only (that is, do not also attend school at all) declined across the board. At the same time, the proportion of children who are in school only (that is, do not also work) declined for all groups except the poor girls. Increased school attendance attests to the increasing value that households place on education (chapter 7). At the same time, because of the substantial increase in agricultural wages, households are substituting child labor for increasingly expensive hired agricultural labor (nearly all working children work in self-employed agriculture sector, see appendix table A2.3).[29]

Services often fail the poor leading to perpetuating of poverty and inequality. The relationship between individual educational attainment and health status on the one hand and economic welfare on the other lies at the core of many of the arguments made about poverty and inequality traps. It is central to policy concerns about the perpetuation of poverty and inequality. Depriving the children of poor families of the health care and schooling they need to participate in the opportunities of a growing economy dooms all, but the lucky few, to remaining poor. The rest of this report presents ample evidence of poor's lower access to government-provided services. In addition, when the government services fail, the poor have less ability to opt out and use private services. Private schools which tend to offer better quality schooling, the participation is limited to students from upper quintiles (Chapter 7). Benefit incidence of public spending at secondary and tertiary levels of schooling is heavily skewed towards the rich. Access to health services is no different. Only 45 percent of the poor population reaches the nearest health post within 30 minutes, compared to 69 percent for the non-poor. Relative to poor, non-poor households are more likely to

[29] It appeared that children who combine work and school work fewer hours than their nonschool-participating counterparts. Accordingly, the number of hours worked per week per child worker between the two rounds of survey declined from 24 to 17 for boys and from 24 to 19 for girls.

use private sector facility. Disparities also exist in access to electricity and transport connectivity. Only 12 percent of the poor population use electricity as their lighting source, relative to 46 percent for non-poor. Likewise, 30 percent of the poor are within 30 minutes of nearest bus-stop; the comparable figure for non-poor is 62 percent. These indicators not only worsen the current welfare of the poor, but they also don't allow for better investment and they perpetuate poverty through generations.

Interviews reveal that the poor perceive education as crucial to empowerment. Poor people in Nepal value education very highly. Both women and men report that lack of education causes low self-esteem, which prevents them from moving ahead. Women who have taken literacy courses (and who still may be able only to sign their names) sometimes speak of the confidence the courses have given them. To overcome poverty, the poor said they need *"…more education, or more money and power". A Dalit woman in the Dibya Nagar scheme, in Nawal Parasi said "If I ever got the chance to lead, I could not, as I am not educated and I have never performed such duties before. I think people would never listen to me…"* (Bennett and Gajurel 2004 as reported in the GESA).

Box 2.8 **People's perception of poverty**

The concern of most people were not subsistence (as there were no reported experiences of severe seasonal shortages of food), but rather better opportunities to earn cash income. For many poor, lack of cash earning opportunities was cited as a reason for removing children from school or not being able to send a family member overseas for employment. Lack of cash income prevented some from seeking health care and from benefiting from development interventions, including the opportunity to attend training. Lack of cash income also prevented some from taking out loans because membership generally depends on being able to meet the group's decided level of weekly cash contributions to the saving pool.

Source: Bennett and Gajurel, 2004 as reported in the GSEA

Interviews also reveal that increasingly poor people in Nepal perceive the lack of opportunities to earn cash income as the greatest constraint. Despite the importance of land ownership for security and status, many villagers feel that agricultural work on their own land is inferior to wage work, because it is physically demanding and brings minimal rewards. Both men and women cite the lack of wage labor and other kinds of employment in their areas as a major concern for themselves and their children (box 2.8) and Bennett and Gajurel (2005).

Community management of common resources benefits the poor. Following passing of "Forest Act" by the government in 1993 which transferred nationalized forests from state control to local communities, over 13,000 "Forest User Groups" (FUGs) have been established in Nepal managing 25 percent of Nepal's forest land.[30] Community management of forests has resulted in the creation of community funds, which raise revenues from forest user fees, penalties and by obtaining donor assistance. Forest User Groups in Nepal are expected to contribute to household welfare by increasing local control over forests they empower communities to grow and make secure decisions over a capital asset, by increasing forest protection, they increase returns to the community and households in the form of fodder, leaf litter, fuelwood, timber and other forest products, and by using community funds to create roads, bridges, schools etc, they contribute to economic development. Further, authors such as Pokharel and others (2004) argue that community forestry also contributes to growth in social capital (by increasing participation of women and weaker castes in decision-making) and human capital (through training programs)

A recent study (S. Bandyopadhyay, P. Shyamsundar and K. Kanel, 2005) shows that FUGs indeed improved consumption and more so the consumption of the low-income households. In particular, the presence of FUGs increases per capita consumption expenditure, on average, by approximately 6 percent. The "asset poor" and the "land poor" gain more from FUGs relative to the "asset rich" and "land rich". In particular, the presence of FUGs has no impact

[30] Most of the FUGs are located in the mid-hills and middle-mountains.

on consumption expenditure of the "asset rich", on the other hand, for the "asset poor" households, the presence of FUGs increases household welfare by about 7 percent. Households who have some land but would be considered "land poor" obtain significant gains from FUGs (9 percent). At the same time, neither the landless nor the land-rich benefit (appendix table A2.1).

Poverty interacts with and reinforces other categories of exclusion. Poor girls are more likely to work and less likely to participate in school. Poor and less educated women are less empowered than their wealthier or more educated counterparts and their working hours longer. Poor people of lower castes lack access to education, health, and other services.

2.5 Summary and Policy Options

People from low castes, women, people living in remote areas, and the poor face multiple barriers to advancement in Nepal, but these barriers are slowly eroding. The decline in poverty, the expansion of roads and connectivity (chapter 6), and increases in education (chapter 7) have all disproportionately benefited poor people, women, and people in remote areas. But these trends will take too long to bring these groups into the mainstream. Nepal cannot rely on the natural course of events to end exclusion; public actions are needed to redress deep-seated inequalities. Policymakers need to capitalize on peoples' own initiative, to ensure that all policies are inclusive, and to create special programs (especially in education) to bring excluded groups into the mainstream.

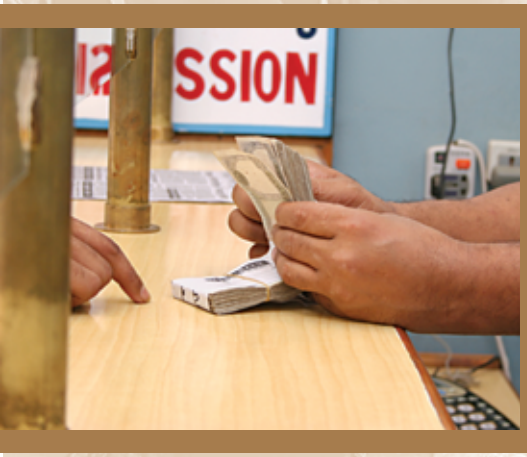
Building human capital is the single most important way to bring prosperity to the excluded. The poor talk about the importance of education for their advancement; they demonstrate their respect for education by making their children combine school and work and by increasing their spending on public and private schools. Education will bring multiple benefits, not only to poor people but to society at large. The education of women will improve not only their own productivity but also that of their children, creating a virtuous circle. Public policy can play a role in increasing demand for education. Well-targeted and monitored stipends to girls, children from disadvantaged castes, and the poor would improve opportunities for these children. Similarly, well-targeted nutrition interventions can improve the chances in life for the poor and disadvantaged children.

Access to financial services is very important for the poor and women. Not only does it allow them to weather shock, but it also allows them to make productive investments. Most of credit in Nepal is from informal sources which charge very high rates. Experience of Bangladesh, India, and other countries shows how micro-finance institutions can pool risks and afford to loan at lower rates. Evidence shows that being able to save and take loans is the road to empowerment, especially for women. Recently, husband's migration and remittances seems to have contributed to the empowerment of their wives. Improvements in the environment for micro credit sector and development of flexible financial instruments for sending remittances will be needed in Nepal.

Nepal will have to abandon some of its historical legacies, such as the unequal inheritance rights of women and traditional practices that perpetuate differential treatment of Dalits. Changing long-held practices is not easy; a delicate balance will need to be struck between historical traditions and the need for greater equality. But the experiences of many countries, including India, have shown that excluded people can be part of the development process. These experiences need to be studied and best practices applied in Nepal.

Greater representation of Dalits, disadvantaged Janajatis and women is needed at all levels of government.

CHAPTER-3



EMPLOYMENT, WAGES, AND INCOME SOURCES OF THE POOR

CHAPTER - 3

EMPLOYMENT, WAGES, AND INCOME SOURCES OF THE POOR

3.1 Introduction

Real per capita expenditures and income have grown rapidly in Nepal over the past decade, increasing at a rate of around 4.5 percent a year between 1995-96 and 2003-04 (see chapter 1). To what extent can changes in the pattern of employment, average wages, and sources of income of different socio-economic groups in the country help understand these trends of rise in average living standards in Nepal? This question constitutes the center of attention of this chapter, which sheds more light on these issues through examining evidence from several different data sources. It first compares changes in the overall pattern of employment between 1995-96 and 2003-04, looking especially at changes among the poorest two-fifths of the population. It profiles household income sources of different households ranked by per capita expenditures and examines changes in the relative importance of each income source for each group. Because wage labor is such an important source of income for the poor, the last section summarizes evidence on trends in wage earnings by socioeconomic groups across different parts of the country.

Two central findings emerge from the analysis: remittance income has been a key driver of improved living conditions in Nepali households over the past decade, and agriculture, despite its importance as a key source of income for the poor, has made only a modest contribution to the observed improvement in rural living conditions. These findings are examined in more depth in chapters 4 and 5.

3.2 Employment patterns

Labor force participation is high in Nepal. About 87 percent of men and 73 percent of women were working or looking for work in 2003-04, up slightly from 85 percent and 71 percent in 1995-96 (table 3.1). This translates into 5.6 million men and 5.5 million women in 2003-04, compared

Table 3.1: Employment sectors in Nepal, 1995-96 and 2003-04 (percent)

	Men		*Women*	
	1995-96	*2003-04*	*1995-96*	*2003-04*
Labor force participation rate				
All	84.6	86.9	71.4	72.9
Urban	76.3	78.8	45.9	52.5
Rural	85.4	88.7	73.4	76.9
Poorest 40 percent	87.2	89.7	74.2	77.7
Unemployment rate				
All	5.4	4.1	3.8	3.8
Urban	9.5	7.0	17.4	13.5
Rural	5.1	3.6	3.2	2.5
Poorest 40 percent	5.5	3.3	5.0	2.5
Underemployment rate				
All	14.2	15.4	24.3	25.7
Urban	9.1	9.3	22.5	26.1
Rural	14.6	16.6	24.3	25.7
Poorest 40 percent	13.3	16.3	22.6	24.1

Source: NLSS-I and II.

with 4.8 million men and 4.5 million women in 1995-96. Unemployment is low by international standards, at 4.1 percent for men and 3.8 percent for women in 2003-04. Unemployment rates improved in both urban and rural areas for both men and women between 1995-96 and 2003-04. Consistent with evidence from other low-income countries where poor people cannot afford to be out of work, the labor force participation rate is higher among the poor in Nepal, and the unemployment rate is lower, for both men and women, than the national average. Fifteen percent of all working men and 26 percent of working women in 2003-04 were underemployed--that is, working 20 or fewer hours per week.

Self-employed agricultural activities provide employment for the majority of Nepalese workers in rural areas and the majority of women in urban areas. In rural areas 65 percent of employed men and 85 percent of employed women were self-employed in agricultural activities in 2003-04 (table 3.2). In urban areas 52 percent of employed women were working in this sector whereas just 20 percent of employed men were so engaged. Unskilled nonagricultural wage occupations provided jobs to over 30 percent of working men in urban areas in 2003-04. For the poor, the rate of participation in agricultural self-employment is roughly the same as the rate for rural Nepal.

Wage employment in agriculture and in unskilled nonagricultural occupations are the two next largest sectors of employment. Among the poorest 40 percent of the population, 15 percent of working men are engaged in unskilled nonagricultural wage employment and 13 in agricultural wage employment (table 3.2). The largest share of poor women working for wages are engaged in agriculture (13 percent). There has been a small shift among the poor from wage employment in agriculture to self-employment activities. The

Table 3.2: Employment patterns in Nepal, 1995-96 and 2003-04 (percent)

	Men		Women	
	1995-96	2003-04	1995-96	2003-04
Urban				
Self-employment agriculture	13.8	19.9	42.7	51.8
Self-employment manufacturing	10.2	10.3	4.3	7.5
Self-employment trade	19.1	13.7	19.9	13.0
Self-employment services	5.3	10.3	1.9	5.5
Wage employment agriculture	4.1	1.0	7.5	2.8
Wage employment skilled nonagriculture	9.2	12.6	7.3	6.5
Wage employed unskilled nonagriculture	38.4	32.3	16.4	12.8
Total	100	100	100	100
Rural				
Self-employment agriculture	60.8	64.9	82.4	85.4
Self-employment manufacturing	2.5	3.8	1.2	1.1
Self-employment trade	5.1	3.7	2.8	2.5
Self-employment services	1.7	3.1	0.3	0.5
Wage employment agriculture	14.7	9.3	11.5	8.6
Wage employment skilled nonagriculture	2.4	2.6	0.5	0.7
Wage employed unskilled nonagriculture	12.7	12.7	1.5	1.0
Total	100	100	100	100
Poorest 2 quintiles				
Self-employment agriculture	58.4	63.5	79.4	83.4
Self-employment manufacturing	3	4	1.6	0.8
Self-employment trade	4	1.8	1.4	0.8
Self-employment services	1.2	1.9	0.1	0.4
Wage employment agriculture	18.3	13	15.7	13
Wage employment skilled nonagriculture	0.5	0.8	0.1	0
Wage employed unskilled nonagriculture	14.6	15	1.6	1.6
Total	100	100	100	100

Source: NLSS-I and II.

employment share of wage agriculture decreased from 18 percent to 13 percent for men and from 16 percent to 13 percent for women, with the difference largely being made up by the increase in agricultural self-employment.

One of seven working men from poor households commutes for at least one work activity. Many Nepalese seek employment away from their usual place of residence.[31] In 2003-04 the main job of 8 percent of adult working men required commuting from home (table 3.3). Women are considerably less likely than men to commute for their main job (less than 1 percent of them commutes for work). Extending commuting to mean at least one activity away from home, this proportion rises to 15 percent for men and 2 percent for women. The proportion of commuters in the male workforce ranges from 10 percent in urban areas other than Kathmandu to almost 20 percent in rural Eastern Terai. While there are no significant changes from 1995-96 to 2003-04 in the overall proportion of commuting men, regional patterns indicate that commuting declined in other urban areas and rural Western Hills, and increased in rural Eastern Hills over this period.

Table 3.3: Proportion of working adults whose job is away from usual place of residence (percent)

	Male		Female	
	1995-96	*2003-04*	*1995-96*	*2003-04*
Main activity	8	8	1	1
At least one activity	14	15	1	2
Region				
Kathmandu	12	12	6	5
Other urban	11	10	1	3
Rural Western Hills	16	13	1	1
Rural Eastern Hills	9	16	1	2
Rural Western Terai	13	15	1	3
Rural Eastern Terai	18	19	1	3
Poverty status				
Nonpoor	13	14	1	2
Poor	17	17	1	2

Note: Each worker can be employed in multiple activities. While the median number of activities per worker is 1, the average number of activities is 1.5 and the maximum is 8.
Source: NLSS-I and II.

Commuting offers more opportunities than the local labor market for finding unskilled nonagricultural jobs. While self-employment in agriculture still dominates as the primary occupation for workers who engage in commuting for work, unskilled nonagricultural wage employment is the second largest primary occupation of commuters (table 3.4), a pattern driven by rising wages (see below). While about half of short-term migration is to rural areas, urban areas are increasingly attracting commuters (often replacing migration to India) and have become the second most common destination.[32] The share of commutes from poor households who went to work in urban Nepal rose from 17 percent in 1995-96 to a quarter in 2003-04 (appendix table A3.1).

Table 3.4: Distribution of workers by primary economic activity, 2003-04

	Working at home	*Working away*
Self-employment agriculture	72.5	41.0
Self-employment manufacturing	3.3	3.5
Self-employment trade	4.5	4.2
Self-employment services	2.3	6.6
Wage employment agriculture	7.6	11.3
Wage employment skilled non-agriculture	2.5	5.9
Wage employed unskilled non-agriculture	7.2	27.6
Total	100	100

Source: NLSS-I and II.

The past decade has seen a boom in migration among Nepalese workers. The 2001 Population Census estimated that more than 760,000 Nepalese (10 percent of men and 1.2 percent of women) were abroad at the time, more than 80 percent of them seeking employment. Department of Labor and Employment Promotion statistics show that more than 1 million Nepalese were working abroad in 2004. What drives migration, the characteristics of migrants, and the remittances associated with migration are examined in chapter 4.

3.3 Profile of Income Sources

Agricultural activities are the most important, if declining, source of income in Nepal, accounting for 53 percent of income in 2003-04, on average. Both

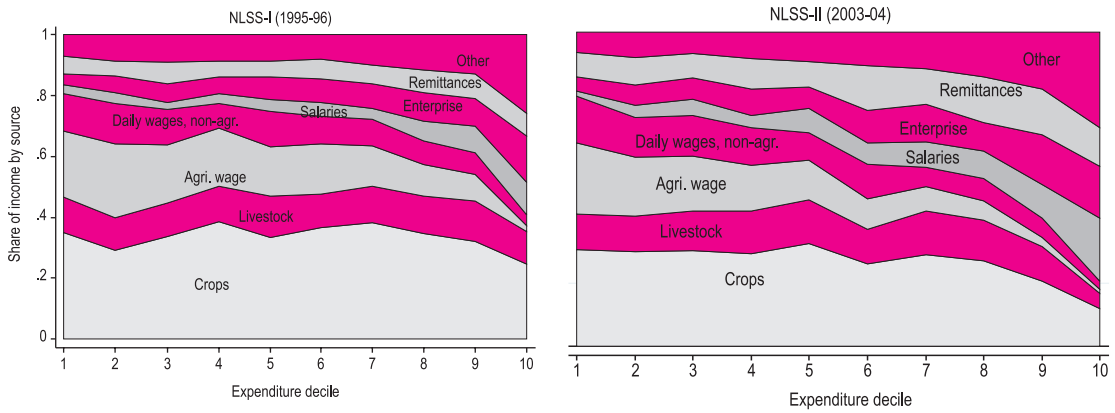
[31] Working way from the usual place of residence means working at VDC/Municipality other than the worker lives in.
[32] This is consistent with finding of Fafchamps and Shilpi (2005), who found that wards in and near cities have more diversified and more market-oriented activities.

Table 3.5: Sources of household income in Nepal, 1995-96 and 2003-04 (average per capita income in real 1995-96 rupees)

	Urban			Rural			Nepal		
	1995-96	*2003-04*	*Change (percent)*	*1995-96*	*2003-04*	*Change (percent)*	*1995-96*	*2003-04*	*Change (percent)*
Farm income	1,446	1,433	-1	3,246	3,252	0	3,122	2,983	-4
Agricultural wage income	151	121	-20	710	621	-13	672	547	-19
Nonagricultural wage income	3,543	5,234	48	829	1,298	57	1,016	1,880	85
Nonagricultural enterprises	3,688	4,778	30	649	917	41	859	1,489	73
Property income	300	493	64	36	44	22	55	111	103
Remittances income	499	1,944	290	548	1,306	139	544	1,401	157
Housing income	2,935	4,687	60	596	690	16	757	1,282	69
Other income	553	910	64	138	355	158	167	437	163
Total	13,115	19,601	49	6,753	8,484	26	7,191	10,129	41

Note: Outliers, 0.5 percentile at each tail of the distribution, excluded.
Source: NLSS-I and II.

Figure 3.1 **Structure of income by sources, 1995-96 and 2003-04**



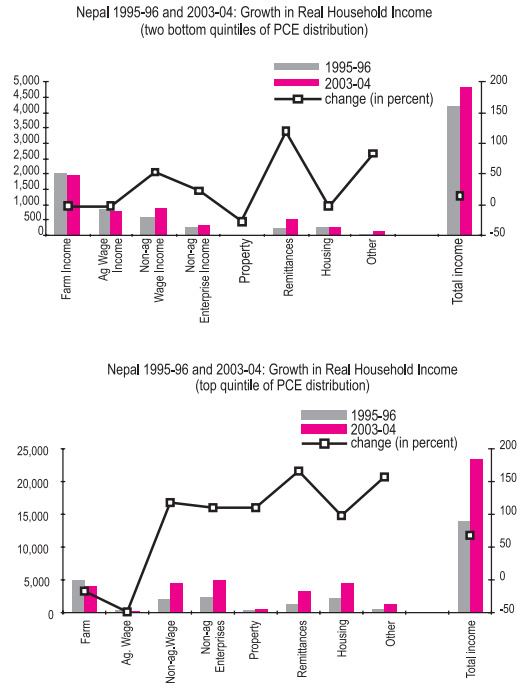
its contribution to overall income and the real amount of income from this source declined between 1995-96 and 2003-04 (figure 3.1 and table 3.5). The poor remained more dependent on income from crop agriculture and agricultural wages than other expenditure groups.

Average real per capita incomes rose 41 percent between 1995-96 and 2003-04, driven in large part by increases in nonagricultural wages, income from nonagricultural enterprises, and remittances (see table 3.5). Farm incomes declined, as did incomes from agricultural wages (because of the decreasing share of population working in this sector rather than because of declining wage rates). Remittances increased dramatically as a source of income (table 3.5 and figure 3.1), rising from 9 percent of rural income in 1995-96 to 11 percent in 2003-04. In absolute terms remittance incomes rose from less than a quarter of farm incomes in 1995-96 to nearly half in 2003-04.

Income grew faster in urban than in rural areas. In urban areas average real per capita income increased 49 percent between 1995-96 and 2003-04, driven by increases in nonagricultural wage incomes (which stood at 32 percent of total income in urban areas) and in housing and remittance income (table 3.5). Remittance income nearly tripled in real terms. In rural areas real per capita household incomes increased 26 percent on average, driven by increases in remittances, enterprise income, and nonagricultural wages. At 15 percent of total income in rural households, remittances are nearly equal in importance to the income from nonagricultural wages, or 40 percent of farm income. The farm income of rural households remained flat in real terms.

Incomes of the poorest 40 percent of households increased more slowly than average incomes or incomes of the richest 20 percent. In both low- and high-income households the growth in income

Figure 3.2 **Growth in real per capita income for the bottom and top quintiles of per capita expenditure distribution**



Source: World Bank staff calculations based on NLSS-I and II.

from nonagricultural activities (wages and entrepreneurial incomes) and remittances drove the increase in overall income (figure 3.2). The increase in incomes from nonagricultural wage and entrepreneurial activities reflects the shift from agricultural to nonagricultural activities and increasing rewards in these two sectors. Farm incomes and agricultural wage incomes have declined. The relatively lower real income gains among poorer households reflect the greater dependence of these households on agriculture-related incomes, which have actually declined. Farm and agricultural wage income account for 70 percent of household income for the poorest 40 percent of households, whereas nonagricultural sources make up 70 percent of the income of the wealthiest 20 percent.

3.4 Wage Earnings

Real wages rose rapidly between 1995-96 and 2003-04. Agricultural wage laborers are the poorest group in Nepal, therefore increase in agricultural wages have large bearing on the incidence of poverty. Average real daily agricultural wages increased 25 percent, nonagricultural unskilled wages 20 percent, and skilled wages nearly tripled (table 3.6). Agricultural wages remained roughly half those of unskilled nonagricultural wages, but the differential between skilled wages and agricultural and unskilled nonagricultural wages widened considerably.

Improved transportation and communications facilitated the convergence of agricultural and unskilled nonagricultural wages across regions. Roads and transportation technology improved dramatically in Nepal (chapter 6) between 1995-96 and 2003-04, as did communications. The coefficient of variation in agricultural wages across regions decreased from .13 to .07 and in unskilled nonagricultural wages from .13 to .11. Average agricultural wages, expressed in standard-of-living-adjusted rupees, were roughly the same across the three rural regions (Western Hills, Eastern Hills, and Eastern Terai) and only slightly higher in Western Terai (table 3.6).

"Labor market tightening" is evident in increased agricultural wages. The observed rise in real agricultural wages between 1995-96 and 2003-04 is a somewhat surprising finding, given that labor productivity in crop agriculture changed little during this period (chapter 5), while labor force participation increased among both men and women (see table 3.1). Increased opportunities for temporary migration and easier commuting to urban centers, as well as the development of the rural non-agricultural sector, may have resulted in lowering the supply of agricultural labor in local labor markets. There is anecdotal evidence in the form of various reports in the Nepali press of complaints by landowners about the difficulty of finding laborers to work in the fields. To explore the relationship between changes in agricultural wages and the availability of labor in the local markets, we correlated changes in the region-level real agricultural wages and changes in labor supply in the local labor market (represented by the change in days worked in the local labor market as a proxy for total available labor supply). The observed positive (and statistically significant) relationship between these two characteristics (figure 3.3) suggests that significant labor market tightening has taken place in Nepal in recent years.

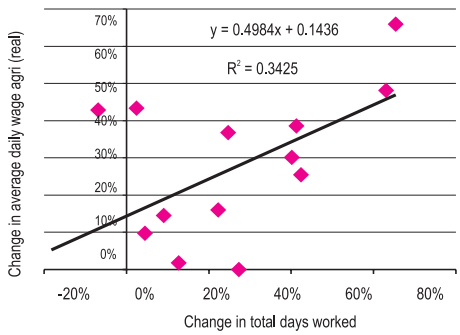
Table 3.6: **Average daily wages in Nepal, 1995-96 and 2003-04 (in real 1995-96 rupees)**

	Agriculture			*Nonskilled nonagriculture*			*Skilled nonagriculture*		
	1995-96	*2003-04*	*Change (percent)*	*1995-96*	*2003-04*	*Change (percent)*	*1995-96*	*2003-04*	*Change (percent)*
Urban	42	58	38	98	92	-6	138	461	234
Rural	44	55	25	79	98	24	81	135	67
Region									
Kathmandu	-	-	-	103	83	-19	173	672	288
Other urban	40	57	43	91	101	11	111	170	53
Rural Western Hill	49	54	10	75	91	21	72	111	54
Rural Eastern Hill	37	54	46	84	90	7	83	137	65
Rural Western Terai	50	63	26	81	94	16	97	126	30
Rural Eastern Terai	42	54	29	75	113	51	80	159	99
Education level (years)									
Illiterate	43	52	21	73	83	14	-	-	-
Less than 5	53	61	15	82	99	21	-	-	-
5-7	44	65	48	94	99	5	-	-	-
8-10	45	63	40	86	108	26	75	113	51
11+	-	-	-	121	142	17	121	426	252
Gender									
Male	48	63	31	84	104	24	102	351	244
Female	39	47	21	59	54	-8	65	126	94
Nepal, real prices	44	55	25	81	97	20	94	295	214
Nepal, current prices	44	82	86	81	143	77	94	436	364

- too few observations.
Source: NLSS-I and II.

Increased skill premia widened wage differentials across groups, and the gender gap in wages increased. The most dramatic increase in skill premia occurred among skilled workers. Thus while agricultural wages increased 25 percent and unskilled nonagricultural wages increased 20 percent, the wages of workers in skilled professions increased 51 percent for those with 8-10 years of schooling and 250 percent for those with 11 or more years of schooling. Skill premia generally increased within specific wage groups as well. The agricultural wages of workers with 5-7 years of schooling increased faster than those of illiterate workers, and among unskilled nonagricultural occupations the highest wage increases were among workers with 8-10 years of schooling. The gender gap in all three wage groups widened, and women in unskilled nonagricultural occupations are the only group whose real wages declined. Analysis of wages in the multivariate framework confirms the same trends (appendix table A3.2).

Figure 3.3 **Change in real agricultural wages and labor supply**



Despite the rise in agricultural wages, the decline in the proportion of agricultural workers has caused annual income from agricultural wages to stagnate. Annual income from agricultural wages has declined, on average and among poor workers, as workers moved into agricultural self-employment or have migrated (figure 3.2).

CHAPTER - 4

THE IMPACT OF MIGRATION AND REMITTANCES

CHAPTER-4

THE IMPACT OF MIGRATION AND REMITTANCES

4.1 INTRODUCTION

Migrant work is not a new phenomenon for the Nepalese (box 4.1). For centuries, large numbers of Nepali workers have gone to India during the dry season to seek employment. Additionally, Nepalese holding formal jobs in the Indian or British Army have for many years been steady sources of private transfers from abroad. Recently, however, migration has increased dramatically with the opening up of newer markets for Nepali labor in the Republic of Korea, Malaysia, Qatar, Saudi Arabia, and other Middle Eastern countries and with decentralization reforms in 2000-01 that allowed district offices to issue travel documents. Migrant workers went from 16 percent of the adult male population in 1995-96 to 25 percent in 2003-04 and from less than 2 percent to more than 2 percent of the adult female population.[33]

Table 4.1: Migrant workers as proportion of the population 15 years and older residing in Nepal, 1995-96 and 2003-04 (percent)

	Men		*Women*		*All*	
	1995-96	*2003-04*	*1995-96*	*2003-04*	*1995-96*	*2003-04*
Total migration						
Nepal	15.9	24.5	1.8	2.2	8.4	12.2
Kathmandu	10.6	7.4	1.9	1.2	6.4	4.2
Other urban	9.6	19.5	2.8	3.9	6.1	11.4
Rural Western Hills	25.6	45.1	2.5	1.5	12.5	19.0
Rural Eastern Hills	9.3	19.8	1.6	2.9	5.3	10.6
Rural Western Terai	12.1	21.6	1.6	1.5	6.6	10.7
Rural Eastern Terai	17.5	24.1	1.4	2.1	9.3	12.1
*Migration abroad**						
Nepal	7.6	14.4	0.3	0.3	3.7	6.6
Kathmandu	1.8	2.5	0.5	0.5	1.1	1.5
Other urban	2.4	9.1	0.4	0.6	1.3	4.7
Rural Western Hill	17.9	33.1	0.5	0.1	8.0	13.3
Rural Eastern Hill	1.7	6.7	0.0	0.2	0.8	3.2
Rural Western Terai	5.8	14.2	0.4	0.3	2.9	6.6
Rural Eastern Terai	6.9	14.5	0.3	0.4	3.6	*6.8*

*This includes migration to India and to other countries
Source: NLSS-I and II.

[33] Data on migrant workers in the NLSS I and II come from a section of the questionnaire on remittance senders. According to the definition of a household in LSMS-type surveys those people who habitually reside with the households, but have been absent for 6 months or longer (possibly for work), are not considered household members. Thus, the main sections on the NLSS collect no information on temporary migrants. However, a special section of the questionnaire asks about remittances sent by non-household members (i.e. those that did not reside with the household in the last 6 months). For the analysis in this chapter long-term migrants are defined as remittance senders who would have lived in the household had they not migrated i.e., spouse, child, grandchild, parent, or sibling of remittance recipients (92 percent of all relations).

4.2 Patterns of Migration

Work migration is highest in rural Western Hills, engaging 45 percent of men. Regional migration patterns reflect conditions in local markets. Kathmandu and other urban areas, as the most developed areas of the country, attract migrants from other parts of Nepal. In the poor areas of rural Western Hills and rural Eastern Terai jobs are scarce, inducing a large proportion of the population to migrate for work. Among rural areas Eastern Hills has the lowest proportion of migrants. Migration by men has increased in all rural areas and other urban areas. The picture is mixed for women.

Most remittance senders (72 percent) are the sons or husbands of household members, and almost all migrants abroad (97 percent) are men 15-44 years old. Brothers and fathers of remittance recipients are the next largest group, at about 10 percent (table 4.2). Husbands and sons constitute the largest share of migrants working abroad, and sons make up the largest share of internal migrants, followed by husbands and fathers. While the proportion of female migrants abroad is small (2-3 percent), 18 percent of all migrants working in Nepal are daughters, mothers, sisters, and wives of remittance recipients.

There have been large shifts in the destination of migrant workers. While internal migration still represented the largest share of all long-term migrant workers in 2003-04, the share of migrants within Nepal and to India had declined since 1995-96 (table 4.3). For the poorest 20 percent of the population, the proportion of

Box 4.1 **History of foreign employment in Nepal**

Nearly 200 years ago, the British began to recruit men from the hill areas of Nepal, known as Gurkhas, into their armed forces. The Indian military also began enlisting Nepali men after India's independence in 1947. Currently, about 3,500 Nepali soldiers serve in the British army and more than 50,000 in the India military forces. India was also the first country to attract civilian migrants from Nepal. The number rose sharply in the 1950s and 1960s, and today, India represents the largest market for foreign migration in Nepal (Seddon 2005).

The Labor Act of 1985 was the first official recognition of the benefits of foreign migration. At the time, foreign labor migration from Nepal extended from India to the Southeast and Far East, and later to Arab countries of the Middle East. Migrant workers totaled 750,000 in 1997 and accounted for Rs 35 billion in remittances (Seddon, Gurung, and Adhikari 2000). With the administrative system reform of 2000-01, district officials could issue passports and other travel documents, so that people no longer had to travel to the capital to obtain their travel documents. Migration increased rapidly after that.

Table 4.2: Relation of migrants to remittance recipient by destination of migrants, 2003-04 (percent)

Destination of migrants	*Husband*	*Son*	*Father*	*Brother*	*Wife*	*Daughter*	*Mother*	*Sister*	*Total*
Nepal	14	45	14	9	1	11	4	2	100
India	33	53	4	8	0	1	0	1	100
Other countries	31	48	8	9	2	2	0	1	100
Total	24	48	10	9	1	6	2	1	100

Source: NLSS-II.

Table 4.3: Destination of migration by expenditure quintiles, 1995-96 and 2003-04

	1995-96					*2003-04*				
Quintile	*Urban Nepal*	*Rural Nepal*	*India*	*Other countries*	*Total*	*Urban Nepal*	*Rural Nepal*	*India*	*Other countries*	*Total*
Lowest	13	37	49	1	100	15	22	57	5	100
Second	20	33	45	2	100	22	21	45	12	100
Third	27	27	45	1	100	20	22	42	15	100
Fourth	28	36	34	2	100	26	27	32	15	100
Highest	34	29	28	8	100	27	30	15	28	100
Total	26	32	39	3	100	23	25	36	16	100

Source: NLSS-I and II.

migrants to rural Nepal declined as well, but India remains the most popular destination for this group of migrants, with the share rising from 49 percent to 57 percent. For the richest households the proportion of migrants working in India declined by almost half. The proportion of migrants working in foreign countries other than India rose from 3 percent to 16 percent.

In 1995-96, 85 percent of Nepali migrants working outside Nepal worked in India, 11 percent in Malaysia, and the rest in Bhutan, Hong Kong, and China. In 2003-04 the geography of Nepali migration had changed, spreading over 10 countries, with 65 percent of international migrant workers living in India, 18 percent in Arab countries, about 2 percent in the United Kingdom, and some as far away as Japan and the United States.

Analysis of migration decisions shows that several factors influence migration decisions and destinations.[34] Household-level multivariate analysis was used to examine the effect of households' characteristics on five discrete choices of their members: not to migrate, to migrate to rural Nepal, to migrate to urban Nepal, to migrate to India or to migrate to countries other than India. An increase in household size has a positive marginal effect on the probability of not migrating and of migrating to India, and a negative effect on the probability of migrating to rural Nepal. A higher proportion of 0-to-6-year-old children in the household is associated with a decreased probability of not migrating, and an increased probability of migrating to countries other than India. A higher share of elderly people decreases the probability of not migrating and of migrating to India and increases the probability of migrating to rural areas in Nepal. (This way, an increase in the proportion of economically inactive household members is associated with the decreased probability of not migrating, reflecting the higher relative returns from migration for workers who need to support dependents.) Having an older head of household decreases the probability of not having a migrant household member, and increases the probability of migration abroad. A dominance of nonfarm self-employment occupations among household members is associated with reduced migration to rural Nepal and increased migration abroad. A dominance of agricultural wage employment is associated with an increased probability of not migrating and of migrating to India (appendix table A4.1 presents the full regression equation).

Table 4.4: Effects of explanatory variables on probability of labor migration

	No migration	*Migration to rural Nepal*	*Migration to urban Nepal*	*Migration to India*	*Migration abroad*
Household size	+	-		+	
Share of children 0-6	-				+
Share of elderly 65+	-	+		-	
Age of household head	-				+
Percent self-employed nonfarm	+				
Percent agricultural wage employment	+			+	
Percent nonagricultural wage employment	+	-			-
Percent completed 5-7 years schooling					+
Percent completed 8-10 years schooling				-	+
Percent completed 11+ years schooling	-	+	-	-	
Farm size less than 1 hectare		-		+	
Farm size 1-2 hectares		-	+		
Rural Western Mountains and Hills	-	+	-	+	
Rural Eastern Mountains and Hills		+			-
Rural Western Terai	-	+	-		-
Rural Eastern Terai	-	+	-		
Quintile 5: lagged asset index				-	

Note: Missing effects are not significant at 5 percent level.
Source: NLSS-II.

[34] It is also plausible that the conflict may have facilitated the out-migration from the poorest regions by lowering the benefits of staying there for workers. The associated monetary returns (that were higher than those in the local labor market) were passed to remaining family members in the form of remittances. More research needs to be done in this area.

Migration abroad is more likely in less educated households, while migration to rural areas is more likely among more educated households (possibly individuals from such households are migrating as government officials or nongovernmental workers). Members in the households with smaller land plots are more likely to migrate to India. After controlling for other characteristics, members of households in the rural Eastern Hills and Terai areas are more likely to migrate to rural Nepal, while those in rural Western Hills are more likely to send migrants to India.

4.3 Remittances

As migration has increased so has the average size of remittances and the proportion of households receiving them. Remittances from Nepalese abroad grew at 20 percent a year between 1995-96 and 2003-04 rising from less than 3 percent of GDP in 1995-96 to about 12 percent by the end of 2003-04. At the household level, the average size of remittances increased from Rs 3,500 (8.5 percent of mean per capita expenditure) in 1995-96 to nearly Rs 6,000 (15.8 percent of mean consumption) in 2003-04 (in real terms). The share of households receiving remittances rose as well, from 23 percent in 1995-96 to 32 percent in 2003-04. More than a quarter of recipient households reported receiving remittances from multiple senders. Higher remittances from foreign countries other than India accounted for most of the increase. Both increased migration and increased remittances have important implications for households, villages, and the state (see box 4.2 and chapter 2 for a discussion of the effect of remittances on women's work patterns).

The incidence and patterns of remittances depend strongly on the education of the household head. Households with illiterate household heads are more likely to receive remittances overall that an average household. For households whose heads are illiterate, India is the major source of remittances (table 4.5A). These households are almost three times as likely to receive money from India as households whose heads had received 11 or more years of schooling. Better educated households also receive a higher proportion of remittances from foreign countries other than India. In terms of the amount of remittances received, on average households whose heads have 11 or more years of education receive more than twice the remittances of households whose heads are illiterate (table 4.5B).

Box 4.2 **Remittances can affect economy-wide resource allocations.**

At the macro level remittances can affect the current account, foreign reserves, treasury bills, inflation, the exchange rate, and interest rates (Djajic 1986). Distributional patterns of remittances influence the rate of economic growth in the country. At the household level remittances help to smooth consumption, provide mutual insurance (Stark and Lucas 1988), and alleviate liquidity constraints. Remittances also influence decisions about the labor market activities of household members, investments in human and physical capital, and number of children (Rapoport and Docquier 2004). How remittances are used likely differs by household income and social position. Poor households are likely to spend remittance on basic subsistence needs, helping to alleviate poverty. If remittances are saved or invested, they contribute to future benefits. Some evidence suggests that by relaxing budget constraints for poor households, remittances could significantly increase children's school attainment. Remittances may have secondary benefits in the community if they are spent on locally produced goods or services. Anecdotal evidence suggests that the Nepalese spend a large part of remittances on new housing construction, a labor-intensive activity that can provide employment to low-skilled workers in the community.

The probability of receiving remittances varies by ethnicity and caste. Brahman/Chhetri, Terai middle caste and Dalit households have higher-than-on-average probability of receiving remittances (around 34-36 percent). Newars and Terai Janjatis have much lower incidence of remittances overall (22-23 percent). Dalits and Muslim households have the highest (25 percent and 23 percent) probability of receiving remittances from outside Nepal, with most migrants from these two groups sending remittances from India. For Dalits the high share of remittances from India and almost none from Nepal might indicate that Dalit households concentrate their job search efforts abroad since job opportunities at home are so poor. The caste differences in remittances receipt from within Nepal are not very large. The proportion of Hill Janajatis households receiving remittances from foreign countries other than India is the highest among all castes, with 10 percent of household

Table 4.5A: Households receiving remittances by characteristics of the recipient in Nepal, 1995-96 and 2003-04 (percent)

	Urban Nepal		*Rural Nepal*		*India*		*Other abroad*		*Any remittances*	
	1995-96	*2003-04*	*1995-96*	*2003-04*	*1995-96*	*2003-04*	*1995-96*	*2003-04*	*1995-96*	*2003-04*
Education of the head										
Illiterate	7	8	8	9	12	16	0	6	25	37
Primary	5	8	6	8	7	9	1	6	19	28
Secondary	6	8	9	5	7	5	2	7	23	24
High secondary +	7	6	7	9	5	4	1	6	20	22
Caste										
Brahman/Chhetri	6	9	8	10	11	14	0	5	24	36
Terai middle caste	3	5	10	10	11	16	0	5	24	34
Dalits	6	5	6	6	15	20	1	5	27	35
Newar	8	9	7	8	3	3	0	5	17	22
Hill Janajatis	6	9	5	8	10	7	2	10	22	32
Terai Janajatis	3	9	10	6	2	7	0	2	14	23
Muslim	7	7	8	6	13	16	1	7	26	33
Other minorities	7	5	7	9	10	13	0	4	24	30
Quintile										
Lowest	3	5	7	6	10	17	0	2	18	29
Second	5	6	8	5	11	12	0	3	22	25
Third	7	7	6	8	12	14	0	6	23	33
Fourth	7	10	8	10	9	13	1	6	25	36
Highest	9	9	8	11	8	6	2	11	25	33
Total	6	8	7	8	10	12	1	6	23	32

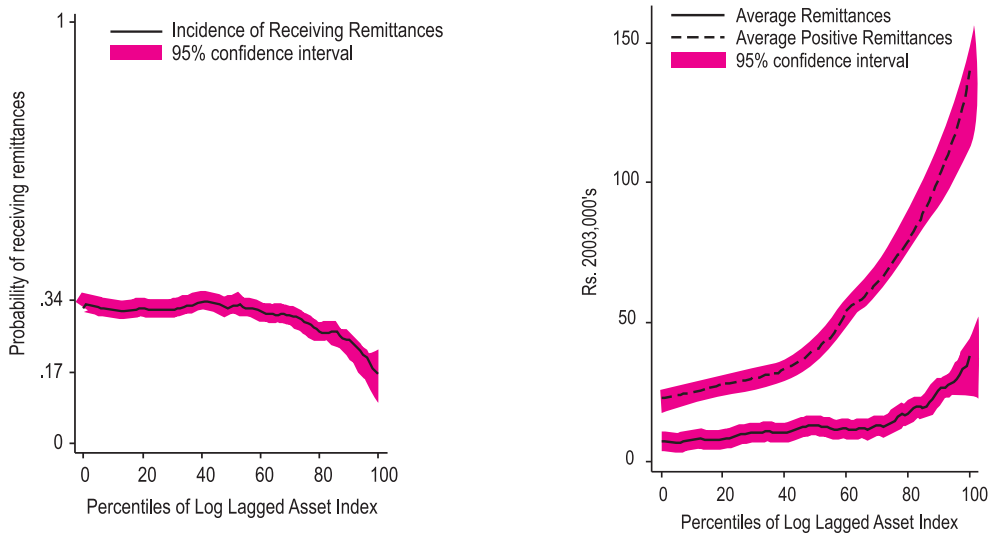
Source: NLSS-I and II.

Table 4.5B: Average per capita remittances received, if positive (in real 1995-96 rupees) by characteristics of the recipient Nepal, 1995-96 and 2003-04

	Urban Nepal		*Rural Nepal*		*India*		*Other abroad*		*Any remittances*	
	1995-96	*2003-04*	*1995-96*	*2003-04*	*1995-96*	*2003-04*	*1995-96*	*2003-04*	*1995-96*	*2003-04*
Education of the head										
Illiterate	3,376	3,287	1,259	1,986	2,835	2,951	-	12,634	2,853	4,484
Primary	3,049	3,795	1,064	3,283	1,799	3,815	-	13,468	4,238	5,921
Secondary	-	2,614	-	-	-	-	-	22,098	5,636	8,715
High secondary +	5,675	4,229	2,834	4,936	-	5,287	-	23,970	4,319	10,323
Caste										
Brahman/Chhetri	6,163	5,417	2,037	3,861	3,342	3,937	-	16,336	3,827	6,449
Terai middle caste	-	-	-	-	-	-	-	-	-	4,351
Dalits	-	-	-	-	2,070	2,238	-	-	1,780	4,683
Newar	3,286	2,695	-	4,669	-	-	-	-	3,789	5,750
Hill Janajatis	2,482	2,150	1,220	2,072	3,183	5,673	-	16,157	6,852	7,588
Terai Janajatis	-	-	-	-	-	-	-	-	1,138	2,577
Muslim	-	-	-	-	-	2,193	-	-	2,183	4,012
Other minorities	2,356	2,971	763	1,963	1,616	2,350	-	16,327	1,758	4,311
Quintile										
Lowest	-	792	694	564	1,100	1,250	-	-	1,028	1,405
Second	1,454	1,399	431	1,779	1,710	2,411	-	-	1,390	2,910
Third	1,872	2,137	536	1,186	2,019	3,398	-	10,545	1,756	4,087
Fourth	3,270	3,335	1,385	2,271	2,508	3,633	-	10,695	2,766	4,637
Highest	6,508	6,439	2,900	5,467	5,570	8,198	32,624	23,288	7,749	12,373
Total	3,637	3,459	1,360	2,756	2,595	3,297	26,941	15,574	3,427	5,713

Note: Total remittances reported in this table cannot be derived directly by adding up location-specific remittances, because some location-specific remittances could not be calculated due to the small cell sample sizes.
Source: NLSS-I and II.

Figure 4.1 **Nonparametric regression of the incidence and amount of remittances by a lagged-asset index in Nepal, 2003-04**



receiving money from third countries. The size of remittances is the highest among Brahman/Chhetri and Hill Janajatis and is the lowest among Terai Janajatis.

Ex ante, better-off households are less likely to receive remittances, but the remittances they receive are large. Households in lower per capita expenditure quintiles were shown to have a somewhat lower probability of receiving remittances (table 4.5A). This relationship is misleading in that current per capita expenditure is *endogenous* (i.e., is affected by the construction and because of the behavioral responses) to the remittances received. To overcome this problem, a two-year lagged asset index was constructed to proxy for income which is net of current remittances and not influenced by recent migration decisions.[35] The incidence of remittances (or migration) is found to be higher among asset-poor households (figure 4.1). Remittances reach 34 percent of the lowest quintile asset-poor households in Nepal, and the incidence of receipt of remittances declines monotonically to about 17 percent for the top quintile of asset-rich households. The amount of remittances received, however, is considerably higher for the asset-rich households than for the asset-poor households. It could be, however, that households receiving the largest remittances had been receiving them for a long time so that that would be reflected in the value of their assets.

Remittances from India and other foreign countries accounted for 76 percent of the volume of remittances in Nepal in 2003-04. The volume of internal remittances declined from 44 percent of total remittances in 1995-96 to 24 percent in 2003-04. In addition, the composition of volume of foreign remittances changed significantly between 1995-96 and 2003-04. Some 60 percent of foreign remittances came from India in 1995-96, but by

Table 4.6: Distribution of volume of incoming remittances to Nepal by origin, 1995-96 and 2003-04 (percent)

	1995-96	*2003-04*
From within Nepal	44	24
From outside Nepal	56	76
India	34	23
East Asian countries	17	13
Arab countries	2	27
West	4	14
Total	100	100

Source: NLSS-I and II.

[35] The lagged asset index is constructed as a total value (in 1995 prices) of assets owned by the households 2 years prior the survey.

2003-04 that share was cut in half, and the largest share of foreign remittances (35 percent) came from Saudi Arabia, Qatar, and United Arab Emirates, a tenfold increase over 1995-96.

Remittance from abroad (countries other than India) accounted for most of the growth in remittances between 1995-96 and 2003-04 (figure 4.2A). The share of households receiving remittance from within Nepal increased only marginally -- and even declined in Kathmandu -- between 1995-96 and 2003-04, while the share of households receiving money from other than India abroad countries increased uniformly across the country. For example, the rural Eastern Hills -- the poorest region in Nepal -- registered a fourfold increase in the number of households receiving remittances from abroad. While the share of households receiving remittances from within Nepal are similar across regions, for remittances from India and other countries, the share of households varies by region.

The Western and Far-western regions of Nepal have the highest incidence of remittances from India and registered largest increase in the number of household receiving such remittances (figure 4.2B). Households in the Central and Eastern regions are more likely than households elsewhere to receive remittances from other foreign countries than India. The Eastern region also experienced the fastest growth in number of households with migrants in foreign countries other than India, followed by the Central region.

The Central and Eastern regions receive the largest amounts of remittances from within Nepal (figure 4.2B). Growth in the average amount of internal remittances is also highest in these regions. Remittances from India are concentrated in the Central and Western regions of Nepal. The Far-western and Western regions experienced growth in the amounts of remittances from within Nepal and from other countries than India. Amounts from countries other than India rose in all parts of the country, with the biggest increase in the Eastern region.

Figure 4.2A **Change in the incidence of remittances for Nepal, by location of migrant from 1995-96 to 2003-04 (absolute percentage change)**

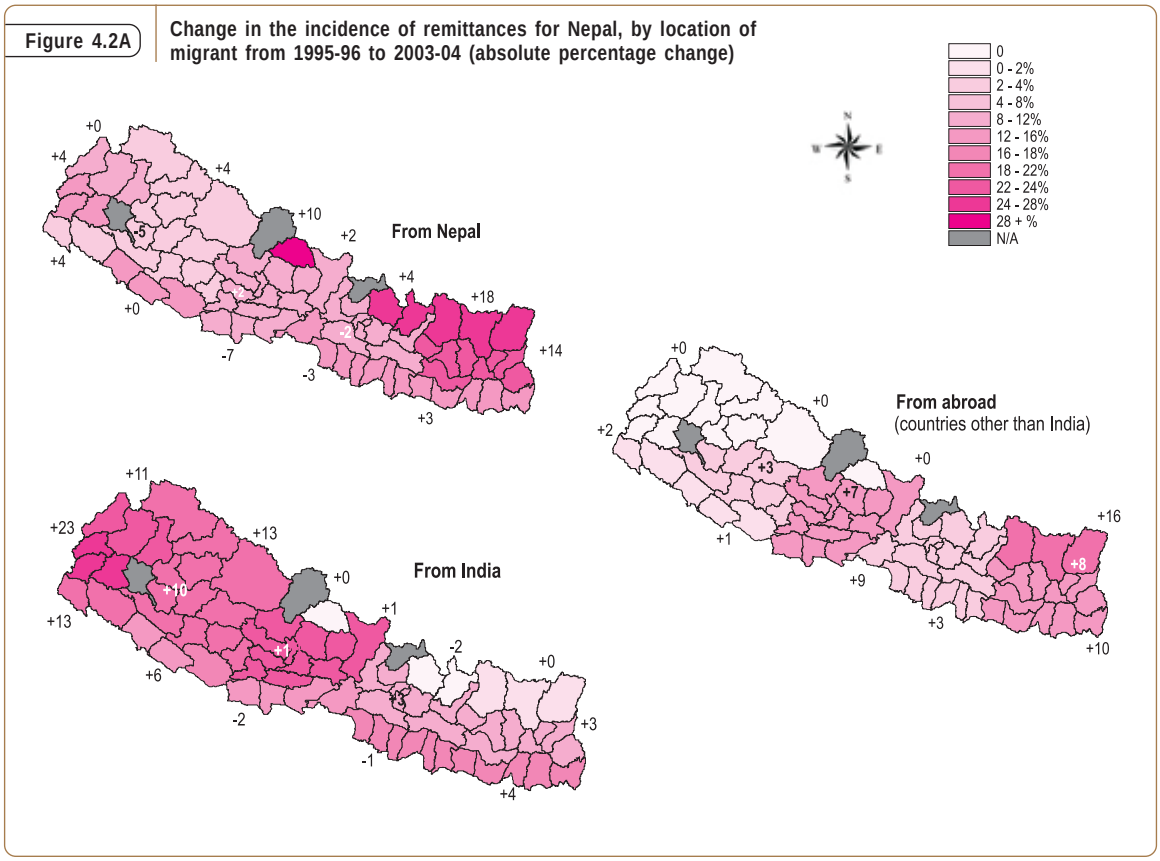
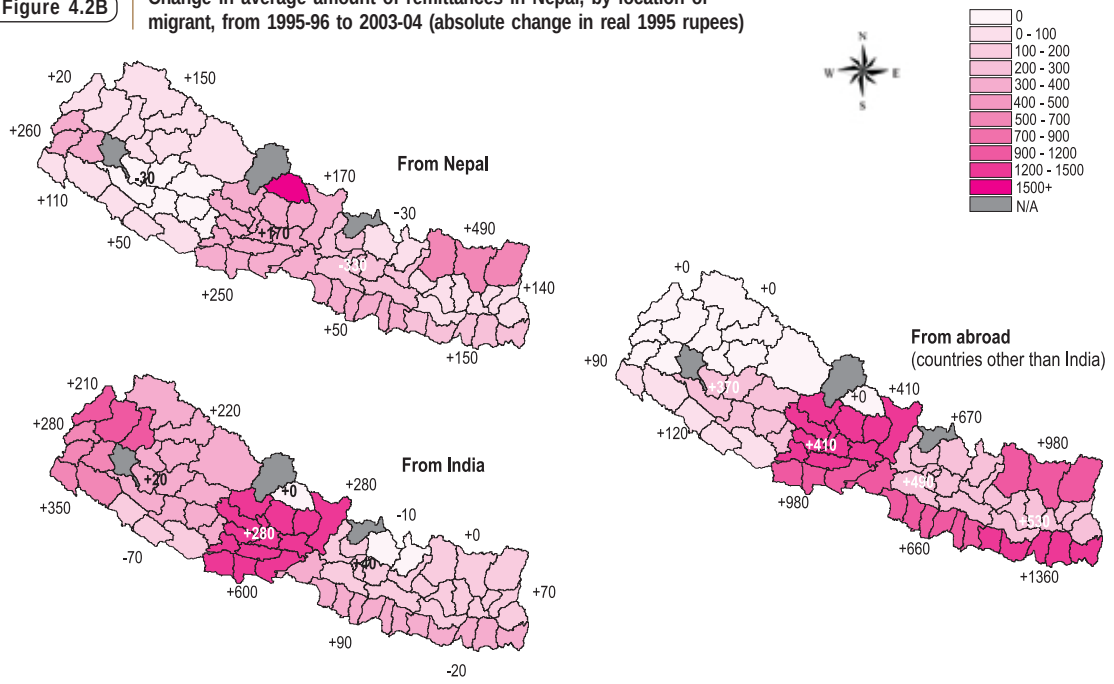


Figure 4.2B Change in average amount of remittances in Nepal, by location of migrant, from 1995-96 to 2003-04 (absolute change in real 1995 rupees)



4.4 Effect of Remittances on Poverty Reduction

Migration and remittances may affect consumption in a number of ways—through transfers, higher local wages, and higher demand for services or locally produced goods, among others. Three methods were used here to evaluate the effects of migration and remittances on household consumption and poverty: a household-level analysis of migration choices estimated jointly with household consumption in each of the states using simultaneous switching regression model; a panel analysis of 72 districts of Nepal; and a cross-country model relating growth, poverty, and remittances (following Maimbo and Adams, 2005).[36] Our preferred method is the simultaneous switching regression model, but all three methods are used in the literature.

Our preferred method based on the household-level analysis using the simultaneous switching regression model shows that poverty would have declined by 7.1 percentage points instead of the observed 11 percentage points if the incidence of remittances had remained unchanged between 1995-96 and 2003-04.[37] Table 4.7 presents the simulated effect of change in the incidence of received remittances between 1995-96 and 2003-04 on headcount poverty rate of different types of households according to their migration status in 2003-04. If the pattern of receiving remittances remained the same as in 1995-96, then poverty rate among households with internal migrants would have been higher than the observed one by 4.2 percentage points, whereas poverty rates among households with migrants abroad (including India) would have been higher than the observed one by 20 percentage points. Overall, the increase in the

[36] We do not present poverty and inequality measures constructed by taking remittances income out because they could be misleading due to the well-known problems of *endogeneity* (see for example, Docquier and Rapoport 1998, Aydemir 2003). In particular, the amount of remittances would be endogenous to the "pre-remittance" consumption or income because behavioral responses (such as work effort or alternative income in absence of remittances) would be ignored.

[37] These results are based on the following model. Households choose one of three migration states: no migration, migration within Nepal, and migration outside of Nepal and their consumption in each of these three states is determined jointly with the migration decisions. The model was estimated using simultaneous switching regression technique. The estimated parameters, such as the effect of observable characteristics on migration probabilities and household consumption, as well as the correlation between the unobservables in the migration states and consumption equations were estimated using Full Information Maximum Likelihood assuming joint 5-variate normal distribution. The level of migrant networks (constructed from 2001 Census) was used as an exclusion variable for the formal identification of the model. In particular, we assumed that migrant networks facilitated migration choices, but had no direct effect on household consumption. Correlations between unobservable variables affecting migration choices and household consumption were found to be statistically significant, providing further justification for this preferred method.

Table 4.7: Effect of change in the incidence of remittances on poverty rates

Household type (in 2003-2004)	Headcount poverty rate in 2003-04			Change in headcount poverty rate (percentage points)
	Actual	Estimated		
		Remittances are at the actual 2003-04 level	Remittances are at 1995-96 level	
No migrant(s)	32.2	31.3	31.3	0.0
With migrant(s) within Nepal	22.8	23.6	27.8	- 4.2
With migrant(s) outside Nepal	31.1	29.9	49.4	- 19.5
All households	30.9	30.1	34.0	- 3.9

Source: Staff estimates based on NLSS-I and II.

incidence of remittances accounts for a 3.9 percentage points decline in poverty rate, or over one third (Table 4.7). Importantly, increases in remittances coming from outside of Nepal have a much stronger impact on poverty than increases in internal remittances. (See forthcoming Lokshin, Bontch-Oslomovski and Glinskaya, ''Remittances and Poverty Reduction in Nepal'' for more details.)

An estimation based on the NLSS district panel data shows that poverty would have declined by 4.8 percentage points instead of the observed 11 percentage points if the amount of remittances had remained unchanged between 1995-96 and 2003-04.[38] The estimation, using data for 72 districts, indicates that the higher the increase in the average amount of remittances in a district, the faster is the decline in poverty. According to the predictions of this model, increases in remittances account for 6.2 percentage points of the decline in poverty, or more than half (see Lokshin, Bontch-Oslomovski and Glinskaya, forthcoming). Similar to the results based on the household-level analysis, remittances from abroad (i.e., from India and other countries) played an especially important role. Had the amount of remittances from abroad remained unchanged, the aggregate poverty rate would have declined by 3.9 percentage points rather than 6.2 percentage points.

A cross-country model relating growth, poverty, and remittances predicts that on average a 10 percent increase in total remittances should reduce poverty by 0.9 percent. As a cross-check to the previous methods, we apply elasticity of poverty reduction with respect to remittances inferred from a cross-country model, see Maimbo and Adams (2005). Interestingly, a cross-country model predicts a decline in the headcount poverty rate in Nepal by from 42 percent to 31 percent.[39]

4.5 Summary and Policy Options

Remittances play an important role in improving living conditions of household in Nepal. Given its importance to the economy, further research on economic migration in Nepal should be encouraged to ensure that government and financial sector strategies, policies and instruments maximize the full potential of remittances, a tool for development. Learning from countries that receive large remittances flows is beneficial (box 4.3). The following policy options should be considered in the public and financial sectors, as well as with respect to strengthening of the developmental impact of remittances.

Public sector: GoN acknowledges the importance of migrant workers to Nepal's development process and implemented measures to facilitate migration and encourage inward remittance flows. Notably, the reform of the Nepali administrative system in 2000-2001 which allowed district offices authority to issue passports and other travel documents seems to have facilitated migration to a great extent. However, more can be done to strengthen these measures. To be more effective the programs aimed at increasing the inflow of remittances should be designed with consideration of the factors governing migration patterns and

[38] These results are based on a regression estimates relating changes in poverty headcount to changes in the amount of remittances and the proportion of households receiving remittances as well as to such regional characteristics as proportion of different age and gender groups in the population, share of urban population, share of population employed in nonagricultural activities, and share of self-employed. District-level analysis of remittances and poverty rates allows capturing the general equilibrium effect of remittances on poverty in the reduced-form total effect.

[39] The model has been estimated using Nepal and other South Asia countries as the data points. Official Rastra Bank estimates show that remittances increased from Rs 200 million in 1995-96 to Rs 800 million in 2003-04, a 300 percent increase. According to the model prediction, therefore, the headcount poverty rate should have declined by (0.9* 30) or 27 percent which is equivalent to (41*0.27) or 11 percentage points or, in other words, from 42 to 31 percent.

Box 4.3 **Learning from other developing countries that receive large remittance inflows**

The Philippines and Mexico, both recipients of large remittances, developed pension plans or business ventures on matching or joint inputs for returning migrants. Mexican consulates in the United States now provide their migrant communities with information and identification cards to facilitate access to banking services. Pakistan offers a nonrepatriable investment scheme and investment, and business set-up advisory services are available through a foundation. India provides preferential access to capital goods and raw material imports for recent returnees. The Republic of Korea has a training program for returned migrants and Bangkok Bank in Thailand advises on investment opportunities. Bangladesh has taken active steps to attract more remittances through reduced commission rates on transfers and the opening of monitoring units in banks. In Indonesia, Micro Banking Division of Bank Rakyat Indonesia (BRI) is capturing remittance transfers and putting them to productive use in rural areas. Besides savings services, BRI also offers additional financial services. The bank also lends to immigrant workers' families whose repayments could be paid back with remittances sent by the migrant abroad. BRI offers credit to migrant workers at the time of departure, secured through solidarity groups.

individuals' decisions to migrate, to remit and to return back. For example:

- *Bilateral agreements:* More Nepalese are pursing work opportunities beyond India. This may call for fresh bilateral initiatives between Nepal and the new destination countries, particularly in the Middle East where 18% of all Nepali are now destined. Formal bilateral agreements encourage legal migration and the use of formal remittance channels.
- *Financial education:* As migrant shift to regions they are unfamiliar with, language barriers and the complexity of banking systems, especially where multiple currencies are in use, may hinder them from using formal banking channels. Carefully designed financial education programs can help migrants overcome some of the misperceptions and social conditioning regarding formal financing institutions.

Migration and remittance business should be viewed as an evolving area which constantly changes. Nepali workers are competing for employment with workers from Bangladesh, Sri Lanka, India and Pakistan. To remain competitive, the government must continually review its public policy framework for migration and remittances. Migration procedures, especially for women, must be reviewed periodically and procedures simplified where appropriate. This must be done in consultation with the private and financial sector through which workers migrate, and remit their earnings.

Financial sector: An important aspect of an effective migration and remittance environment is an effective domestic financial system capable of delivering remittances to both urban and rural communities. Equally important, however, is an awareness of the different remittance services available and their varying costs. Government agencies in partnerships with financial and non-financial institutions should provide migrant communities with better information on transfer services and costs, both for purposes of encouraging competition, and thus lowering prices in the money transfer business, as well as in making migrants aware of financial services as a viable alternative to informal channels they may be using. Besides lowering transfer costs significantly, this policy might also attract additional remittances currently being transferred through unofficial channels. Policies and financial instruments that directing remittances towards investments, and provide incentives for citizens abroad to contribute towards the development of their communities at home would bring benefits. Improving investment climate is a key in this regard.

Development impact: Overall, however, ensuring that the environment for migrant returnees is conducive is just as important as developing effective migration and remittance policies. By promoting long term savings and facilitating credit plans to finance home purchases and small-business start-ups, the government can encourage greater domestic investments from remittance earnings (see Chapter 6 further on these issues). NGOs too, could promote the productive use of remittances by poor households by providing technical assistants on development of the small-scale enterprises and production projects. More broadly, even policies that widen the choices in the educational system and facilitate the availability of high-quality education will help to direct remittances into education spending resulting in long-term human capital accumulation in the receiving households.

CHAPTER - 5

UNLOCKING THE POTENTIAL OF THE AGRICULTURE SECTOR

CHAPTER-5

UNLOCKING THE POTENTIAL OF THE AGRICULTURE SECTOR

5.1 Introduction

Agriculture's contribution to the improvement in rural living standards in Nepal over the past decade has been modest. To better understand why total incomes from agriculture stagnated in real terms between 1995-96 and 2003-04, this chapter examines agriculture-related components of income for rural Nepali households.

Despite the sector's sluggish performance, self-employment in agriculture continues to be the most important source of household income in Nepal, followed by agricultural wage employment. Together they account for well over half the income of the rural poor (see chapter 3 for details). Clearly, agricultural performance will be crucial in determining the future pace of poverty reduction. Following an in-depth review of recent performance, the chapter discusses the centrality of land in Nepal as an important productive asset and as an indicator of socioeconomic status. The chapter offers some policy recommendations on how to stimulate agricultural growth to provide added impetus to poverty reduction.

5.2 Review of Recent Performance

Of the three sources of agriculture-related incomes—crop production, livestock rearing, and agricultural wage incomes—**stagnation was a result mainly of the decline in income from crop production** (table 5.1). Real per capita crop income for the average rural households was 4 percent lower in 2003-04 than in 1995-96 (a negative growth rate of 0.5 percent a year). While income from agricultural wages also declined, that was due mainly to the decline in the proportion of time spent in this activity

Table 5.1: Agricultural incomes in rural Nepal, 1995-96 and 2003-04

	1995-96				*2003-04*				*Change (percent)*			
Quintile	*Crop*	*Livestock*	*Ag. wage labor*	*Total ag. income*	*Crop*	*Livestock*	*Ag. wage labor*	*Total ag. income*	*Crop*	*Livestock*	*Ag. wage labor*	*Total ag. income*
Lowest	1,056	317	789	2,162	1,063	360	804	2,227	1	13	2	3
Second	1,676	551	1,033	3,260	1,523	644	816	2,983	- 9	17	- 21	- 8
Third	2,284	653	890	3,826	2,019	835	670	3,525	- 12	28	- 25	- 8
Fourth	2,669	864	620	4,153	2,641	1,114	633	4,387	- 1	29	2	6
Highest	3,731	1,456	454	5,641	3,728	1,668	306	5,702	0	15	- 33	1
Total	2,276	765	759	3,800	2,195	924	646	3,766	- 4	21	- 15	- 1

Note "Ag.." stands for "agricultural".
Source: NLSS-I and II.

Table 5.2: Land and labor productivity in Nepal, 1995-96 and 2003-04

	1995-96				2003-04			
	Small farmers	*Medium farmers*	*Large farmers*	*All farmers*	*Small farmers*	*Medium farmers*	*Large farmers*	*All farmers*
Average gross cultivated area (per household)	0.86	2.23	6.62	2.11	0.95	2.45	5.90	1.81
Cropping intensity(number of seasons)	1.61	1.61	1.62	1.61	.80	1.81	1.78	1.80
Number of workers per hectare	4.1	1.8	0.8	3	3.5	1.8	1.0	2.8
Gross crop output per hectare	15,394	11,098	11,007	13,626	13,733	11,249	9,518	12,707
Real profits per hectare	12,335	9,270	8,712	11,001	10,707	8,495	7,427	9,841
Gross crop output per worker	4,913	8,033	17,414	7,862	4,911	8,728	14,306	6,785
Real profits per worker	3,919	6,333	13,689	6,076	3,768	6,168	10,172	4,997

Source: World Bank staff calculations based on NLSS-I and II data.

rather than because of lower wages (see chapter 3). On average, daily agricultural wages increased by about 25 percent in real terms between 1995-96 and 2003-04.

Despite rising cropping intensity, average returns to agricultural land, as measured by net returns per hectare or per worker, decreased between 1995-96 and 2003-04 (table 5.2; appendix table A5.1 disaggregates data by regions). Real profits per hectare declined for small, medium, and especially large farmers.[40] On average, real profits per hectare were 10 percent lower in 2003-04 than in 1995-96.

The stagnation in crop income was due to higher production costs and lower output prices. On the input side, farmers now use more purchased inputs, and the real prices of the main inputs rose between 1995-96 and 2003-04. Real expenditures per hectare of cultivated land increased, on average, from Rs 1,384 per hectare to Rs 2,026 per hectare, 1995-96 prices (table 5.3). The largest increases are evident in the Terai, where expenditure per hectare on hired labor increased substantially (appendix table A5.2). Total expenditures on variable inputs and on animal and machinery rent increased from 10 percent of gross crop output to 16 percent. Fertilizer costs and hired labor represented close to 70 percent of crop-related expenses in 2003-04. On average real per hectare expenditures on fertilizers increased almost 60 percent, while per hectare expenditures on hired labor increased by roughly 26 percent. The increase in fertilizer expenditures appears to be driven largely by increases in prices.

On the output side, the real prices of some major crops have fallen, depressing the ratio of output prices to input prices. Estimates from the NLSS data suggest a 12.2 percent drop in the real price of rice (using the median price for rice sales in the two rounds of the NLSS).[41] The decline in real prices would seem to suggest an overall increase in supply relative to demand. *More research needs to be done to further investigate this issue as the NLSS data do not permit further examination.* The data also suggest a slight decline in the real price of wheat (table 5.4).

Table 5.3: Cost of cultivation, 1995-96 and 2003-04 (1995-96 rupees)

	Share of the total cost of cultivation (percent)				*Costs per hectare*	*GCO per hectare*	*Costs as share of GCO (percent)*
	Seeds	*Fertilizer*	*Hired labor*	*Irrigation*			
1995-96	8	29	41	3	1,384	13,660	10
2003-04	7	32	35	3	2,026	12,720	16

Note: GCO is gross crop output. See appendix table A5.2 for a breakdown by farm type.
Source: World Bank staff calculations based on NLSS-I and II data.

[40] Small farmers are defined as those who have between 0.2 and less than 1 hectare of land, medium farmers as those have between 1 hectare and less than 2 hectares, and large farmers have more than 2 hectares. Small and medium farmers are further split by ecological zones and physiographic regions of the country, with four groups of small farmers: Mountains, Eastern Hills (includes Eastern and Central Hills), Western Hills (includes West, Midwest, and the Far West Hills), and Terai; and three groups of medium farmers: Terai, Eastern Hills and Mountains, and Western Hills and Mountains. Small farmers represent about half of all households in rural Nepal, medium farmers about 17 percent, large farmers about 8 percent with the rest made up of households of agricultural laborers and non-farm households.

[41] The 12.2 percent decline is based on prices reported in kilograms of main paddy sold. For sales reported in manna (local units) the decline in real price change was 9.13 percent.

Table 5.4: Change in output prices of major crops between 1995-96 and 2003-04 (percent)

Crop	*Change innominal prices*	*Change inreal prices*	*Change in real prices in panel data*
Main paddy	24.4	- 12.2	- 12.3
Wheat	50.0	- 0.1	- 4.1
Summer maize	50.0	12.5	n/a

Source: World Bank staff calculations based on NLSS-I and II data.

The decline in the real prices of rice and wheat is consistent with the increased availability of these grains. Food balance sheets indicate an increase in supply per capita of 12.7 percent for rice between 1996-97 and 2002-03. If the supply per capita in 2003-04 was similar to that in 2002-03, such a supply increase is broadly consistent (though perhaps a little too large) with a 12 percent price decline. If one assumes that the price elasticity of demand for rice is -0.5 (an elasticity observed in other countries), a 24 percent decline in price would be expected, all else remaining the same.[42]

Farms appear to be more diversified than in 1995-96, but crop production continues to be dominated by cereals. According to the 2001-02 Agricultural Census, cereal crops (paddy, maize, millet, wheat, and barley) accounted for 80 percent of total cultivated area. Similarly, the 2003-04 NLSS data reveal that these major cereal crops accounted for 69 percent of gross crop output, down from 76 percent in 1995-96. Across all ecological zones paddy remains the most important cereal crop, and revenues from paddy represent 45 percent of gross crop output. Next are wheat and maize in the Terai, while maize is relatively more important than wheat in the Hills and Mountains (appendix table A5.3 and National Sample Census of Agriculture Nepal 2001/02). The extent of diversification varies across ecological regions and farm sizes. Small farmers in the Mountains and small and medium farmers in the Western Hills are the most diversified among farm groups.[43] Farms in the Terai are the least diversified, with close to 50 percent of gross crop output from paddy.

Fruit and vegetable production has increased in importance for small and medium farmers in the Western Hills and Mountains and among small farmers in the Terai. Fruits and vegetables account for 15 percent of gross crop output in the Western Hills and Mountains and 7-8 percent for medium and small farmers in the Eastern Hills. Farmers in the Eastern Hills are considerably more dependent on paddy than their counterparts in the Western Hills. Sugarcane appears to have become a much more important crop among larger farmers in the Terai, at 8 percent of gross crop output compared with 2 percent in 1995-96. There has been a significant decline in the share of gross crop output from wheat (appendix table A5.3).[44]

Average holdings have decreased in size, and households are cultivating the smaller holdings more intensively using more inputs and growing multiple crops. Among farm households cropping intensities increased by about 12 percent, from 1.6 to 1.8 (appendix table A5.1).[45]

Use of chemical fertilizers increased across all farm household groups. Farm households reporting the use of some type of fertilizer rose from 55 percent in 1995-96 to 63 percent in 2003-04 (table 5.5). Use increased for small farmers, but more so for medium and large farmers. The proportion of farm households reporting being able to obtain all the fertilizer they needed rose to more than 90 percent, perhaps reflecting the increased availability of fertilizers since the end of the monopoly of the Agricultural Inputs Corporation in 1997 and the subsequent entry of private sector firms. The proportion of farm households using insecticides has also increased, from 15 percent to 24 percent (appendix table A5.4).

[42] There is very limited government procurement in Nepal. According to the 2002 food balance sheet for Nepal imports and stock changes are important determinants of supply in addition to changes in production, but information on imports and government procurement of rice was unavailable. *In addition, the extent to which formal and informal imports of rice from India are driving prices in Nepal warrants further analysis.* Lower prices in border towns in India indicate strong incentives for imports into Nepal.

[43] Agricultural diversification is measured using the Herfindahl index—this index is bound between 0 and 1, with a larger value indicating less diversification. The Herfindahl index is calculated as the sum of the squares of the shares of each crop in the total value of production. If only one crop is cultivated, the index takes a value of 1.0; if the value of production is evenly divided across n crops, the value of the index approaches 0 as *n* approaches infinity. The average Herfindahl index for all rural farm households was 0.38.

[44] Much of the decline in the importance of wheat is due to lower production among large farmers, approximately two-thirds of whom are located in the Terai. Wheat as a share of gross crop output from large farmers declined from 57 percent to 29 percent between the two survey rounds. However, there is a large discrepancy between wheat production estimates from the NLSS and those reported in FAO data for 2003-04.

[45] Cropping intensity is defined as gross cultivated area divided by net operated area.

TABLE 5.5: Proportion of farmers using agricultural inputs in Nepal, 1995-96 and 2003-04 (percent)

	1995-96				2003-04			
Input	*Small farmers*	*Medium farmers*	*Large farmers*	*All farmers*	*Small farmers*	*Medium farmers*	*Large farmers*	*All farmers*
Fertilizer	60	64	66	55	65	79	82	63
Purchased seeds	21	29	35	25	40	49	61	44
Irrigation	53	61	66	54	65	79	80	67
Tube wells	6	8	14	7	9	15	22	11
Canals	40	45	48	40	51	62	55	52
Other	11	13	12	11	9	14	18	10
Share of area irrigated	32	35	41	32	43	54	58	47

Source: World Bank staff calculations based on NLSS-I and II data.

Seed purchases among rural farm households in Nepal are also more common. While only 25 percent of households reported purchasing seeds in 1995-96, 44 percent did in 2003-04 (table 5.5). Farmers in Terai use more of all inputs, and the increase was higher there than elsewhere. Access to improved seed varieties is still quite limited, although there has been some improvement. On average 10 percent more farmers reported using improved seed varieties in 2003-04 than in 1995-96, with some 23 percent of households reporting use of improved seeds in 2003-04. Among the main crops, the increase was greatest for winter potatoes and winter and summer vegetables. For the main cereal crops (main season paddy, wheat, and summer maize), however, the proportion of households reporting using improved varieties remained virtually unchanged.[46] (Tables A5.4 and A5.5 present information disaggregated by the regions.)

Despite considerable improvement in access, irrigation remains a key constraint to agricultural growth. Rural households using irrigation increased from 54 percent in 1995-96 to 67 percent in 2003-04, and the share of irrigated area increased from 32 percent to 47 percent (table 5.5). Use of irrigation increased across all rural expenditure quintiles, although the gains among the poorest households have been considerably below those enjoyed by better-off households (appendix table A5.6). Most of the gains in irrigation appear to have come from the expansion of surface irrigation (canals), by far the most important source of irrigation (table 5.5). Increases are most noticeable among farmers in the Mountains and among small and medium farmers in the Terai (appendix table A5.7). The proportion of households using tube well irrigation also increased, from 8 percent to 12 percent, with virtually all the increase in the Terai. Water use efficiency remains low in both the traditional farmer-managed schemes in the Hills and the larger public irrigation systems in the Terai.

Commensurate with the increased intensification, yields of paddy, wheat, and maize have increased, but agricultural productivity remains low. Growth in yields has been relatively slow. Between 1995-96 and 2003-04 data from the FAO suggest that paddy yields increased by 2.2 percent, wheat yields by 4.4 percent, and maize yields by 1.6 percent a year (figure 5.1). Yields of most major

Table 5.6: Yields of major crops in Nepal and neighboring states in India and Bangladesh (metric tons per hectare)

Country or state	*Rice paddy*	*Wheat*	*Sugarcane*	*Pulses*	*Maize*
Nepal	2.7	1.8	37.2	0.77	1.8
India					
Uttar Pradesh	2.0	2.7	54.8	0.8	1.6
Bihar	1.5	2.1	42.4	0.8	2.3
West Bengal	2.3	2.5	67.9	0.7	2.5
Bangladesh	3.5	2.2	40	0.83	1.5

Source: World Bank 2005

[46] There is a large discrepancy between the proportion of households reporting using improved seeds varieties in the NLSS and the official data. According to the National Sample Census of Agriculture 2001/02, 25 percent of paddy-growers used improved seeds; according to the NLSS II only 5 percent did.

cereal crops in Nepal are considerably lower than in neighboring countries (table 5.6).[47]

Agriculture in Nepal is still largely subsistence or semi-commercial, but commercialization has increased somewhat in recent years. In 1995-96 sales of agricultural commodities by rural households averaged a modest 16 percent of gross crop output (table 5.7). By 2003-04 that value had risen to 25 percent. The share of households selling crops increased from 34 percent to 54 percent. Sales of crops such as summer potatoes, bananas, and winter vegetables increased noticeably. Despite these recent improvements, however, marketable surpluses of paddy, wheat, and maize remain low.

The extent of commercialization (measured as the share of production sold) varies. Farmers in Eastern Terai are more likely to sell a larger share of their production, and farmers in the Western Hills and Mountains are less commercially oriented. Larger and wealthier farmers (those with more agricultural assets) sell significantly higher shares of their production. Being located in a ward with agricultural input markets is associated with selling a larger share of output. Households with relatively more educated heads are more likely to sell a larger share of production. Use of improved seeds and of fertilizers increases the share of output sold (although these variables are potentially endogenous) (appendix table A5.8 and A5.9).

While the share of farmers with access to extension increased significantly, from 13

Figure 5.1 Yields and production of major cereal crops in Nepal, 1994-2004

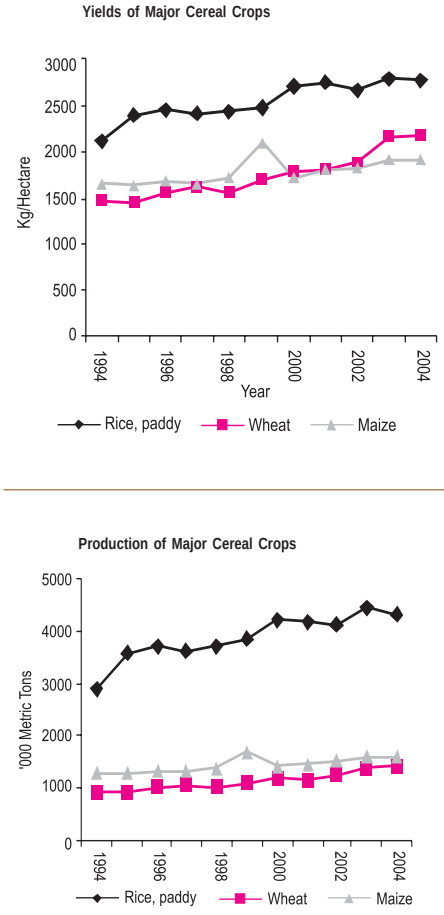


Table 5.7: Crop sales in Nepal, 1995-96 and 2003-04 (percent of gross crop output)

Crop	*1995-96*	*2003-04*	*Crop*	*1995-96*	*2003-04*
Paddy	13	21	Sugarcane	74	79
Wheat	10	26	Ginger	6	15
Summer maize	8	9	Cardamom	91	90
Lentils	27	32	Winter vegetables	30	43
Winter potato	19	34	Banana	24	59
Summer potato	17	51	Millets	11	12
Other	22	24	Total	16	25

Source: World Bank staff calculations based on NLSS-I and II data.

[47] Unfortunately, it is difficult to make inferences from the NLSS about the differences in productivity across different farms. The "yield" variable does not allow to separate the impact of land quality, crop prices and cropping patterns, since only "gross crop output" and "real crop profits" per hectare could be computed. The disaggregated data show that small farmers in the mountains and western hills are less productive than medium farmers in the Terai. Large farmers in the Terai are more productive than medium farmers in the Western Hills and mountains, see table appendix, A5.1

percent of agricultural households in 1995-96 to 20 percent in 2003-04, relatively few farmers are receiving extension services. It is not clear whether this is a problem of lack of availability or of services that do not meet the demands of farmers. Farmers in the Terai appear to have relatively better access to extension services than those in the Hills and Mountains.

There are striking regional differences in the performance of the crop sector across the country. Both land and labor productivity is significantly lower among small farmers in the Western Hills on average than among small farmers in the East or the Terai in 2003-04. The crop sector performed weakly across the country, but particularly so in the Western Hills. In 1995-96, productivity among small farmers in the Western Hills was on average among the highest for farmers of a similar size. Validation of these observed trends and understanding why small farmers in the west seem to be relatively worse off require further analysis. This region has been most affected by the Maoist conflict, and it is also particularly challenged in terms of infrastructure and market access. While the direction of causality is unclear, these findings suggest a strong correlation between relative deprivation of small farmers and conflict, which deserves further scrutiny.

Small farmers in the Western Hills appear to have the least access to irrigation, fertilizers, and technology. The proportion of small farmers in the Western Hills using irrigation is the lowest across all farm size groups. While average irrigated area increased among all farm household groups, average irrigated area on small farms in the Western Hills stagnated. Small farmers in the Western Hills are also considerably less likely to use fertilizers, with only 46 percent reporting using fertilizer in contrast with 70 percent in the Eastern Hills. The proportion of Western Hills small farmers reporting purchasing seeds is slightly higher than among small farmers in the Eastern Hills, but this is largely driven by the fact that farmers in the Western Hills are more likely to be growing crops for which purchasing seeds is common, such as winter and summer vegetables. The reverse is true for reported purchases of seeds for main paddy and wheat. Analysis of the determinants of commercialization also reveals that farmers in the rural Western Hills and Mountains are the least commercially oriented group, with significantly lower sales as a share of gross output.

While crop incomes have stagnated, incomes from livestock rearing have increased. Real incomes from livestock production grew 2.4 percent a year between 1995-96 and 2003-04. Growth in livestock incomes has helped to offset some of the decline in incomes from crop production. Overall, productivity levels appear to have improved considerably, with real incomes rising from Rs 242 per tropical livestock units in 1995-96 to Rs 320 in 2003-04, or by 32 percent[48] (appendix table A5.10). There are also signs that a larger number of livestock owners are selling livestock products and that a significantly larger proportion are now using veterinary services, indicating greater commercialization in the sector (table 5.8).

Livestock rearing represents an important part of the livelihood strategy of rural Nepalese

Table 5.8: Sales of livestock products in Nepal by farm size, 1995-96 and 2003-04 (percent of households)

	1995-96				2003-04			
Category	*Small farmers*	*Medium farmers*	*Large farmers*	*All farmers*	*Small farmers*	*Medium farmers*	*Large farmers*	*All farmers*
Sell milk	13	17	18	15	17	23	18	18
Sell eggs	4	6	6	5	4	7	12	6
Sell meat	6	9	8	7	9	12	17	10
Use veterinary services	7	12	16	9	20	27	32	23

Source: World Bank staff calculations based on NLSS-I and II data.

[48] Herd size is measured in tropical livestock units, with cattle=0.70, sheep and goats=0.10, pigs=0.20, and chicken=0.01.

Table 5.9: Livestock ownership in rural areas of Nepal by farm size, 1995-96 and 2003-04 (percent of households)

	1995-96				2003-04			
Category	*Small farmers*	*Medium farmers*	*Large farmers*	*All farmers*	*Small farmers*	*Medium farmers*	*Large farmers*	*All farmers*
Livestock owners	95	98	99	96	96	98	99	97
Herd size (TLU)	2.48	3.75	4.76	3.0	2.42	3.53	4.39	3.0
Cows	71	87	93	77	67	85	88	75
Buffaloes	56	63	59	58	54	63	60	57
Goats	53	62	65	56	64	71	74	67
Pigs	11	13	18	12	10	15	27	14
Poultry	51	56	56	53	55	61	69	59
Other	2	3	3	2	1	2	4	2

Note: TLU is tropical livestock unit.
Source: World Bank staff calculations based on NLSS-I and II data.

households. Virtually all farm households own livestock. Between 1995-96 and 2003-04 there appears to have been a shift in the composition of livestock herds owned by farm households. Farms shifted into raising more poultry (up 18 percent) and small ruminants (sheep and goats, up 29 percent) and away from cows (down 15 percent) and buffalos (down 10 percent) (table 5.9).

5.3 The Importance of Land

Land ownership in Nepal is not only a productive asset but also a broader indicator of socioeconomic status. The socioeconomic importance of land ownership is probably best illustrated by the fact that land titles are perceived to be a prerequisite to obtaining a citizenship certificate or to accessing a number of public services.[49]

Average land holdings have been decreasing rapidly, falling 25 percent between 1995-96 and 2003-04 (from 0.88 hectares to 0.66 hectares; table 5.10). The decline has been larger in the upper tail of the distribution (for example, the median fell 9 percent), resulting in a drop in the land Gini from 0.65 to 0.60.[50] In 2003-04, 57 percent of rural households owned less than 0.5 hectares and even the largest holdings were relatively modest. Only 0.5 percent of rural households owned more than 6 hectares. The share of landless households also increased slightly, from 15 percent to 16 percent.[51]

The decrease in land holdings is largely concentrated among farmers in the Terai. The holdings of medium-size farmers declined from 1.16 hectares on average to 0.92 hectares, while holdings of larger farmers declined from 3.63 hectares to 2.78 hectares. While the average holding among medium-size farmers in the Terai was 20 percent smaller, the area operated by this group declined only marginally by 2 percent, indicating that these households were renting land (area operated is defined as area owned plus area rented in minus area rented out). Average nonfarm households and agricultural wage laborers owned significantly smaller amounts of land; average land ownership among wage laborers is 0.05 hectares.

Returns to land ownership relative to per capita expenditure increased dramatically between 1995-96 and 2003-04 (appendix figure A5.2). At first sight, this appears to be at odds with the finding that returns to agricultural land in Nepal, measured in crop profits, have declined. There are several possible explanations. First, land is not just a productive agricultural asset. It may offer

[49] A number of sources indicate this. See "The Missing Piece of the Puzzle: Caste Discrimination and the Conflict in Nepal." Center for Human Rights and Global Justice (CHRGJ) at NYU School of Law (http://www.chrgj.org). See also "Unequal Citizens" Nepal Gender and Social Exclusion Assessment. 2005, World Bank. See Vidya Bir Singh Kansakar, Professor and Head of the Department of Geography, Tribhuvan University at http://www.ifa.org.np/talk/trade.php. See also an article quoting Dr. Krishna Bahadur Bhattachan at http://www.fesnepal.org/reports/2003/seminar_reports/fes_gender_report.htm

[50] These land Gini coefficients are higher than those usually reported for Nepal, which are based on the agricultural census. The calculations here, however, account for all households, while agricultural censuses typically include only cultivating households. If landless households are excluded, the Gini coefficient based on our data is 0.52 in 2003-04.

[51] NLSS panel data shows that 48 percent of rural households owned less land in 2003-04 than in 1995-96.

Table 5.10: **Land ownership in Nepal by farm size and region, 1995-96 and 2003-04 (hectares)**

	1995-96			2003-04		
	Area owned	*Net operated area*	*Gross cultivated area*	*Area owned*	*Net operated area*	*Gross cultivated area*
Small farmers, Mountains	0.48	0.52	0.79	0.52	0.54	0.94
Small farmers, Eastern Hills	0.49	0.53	0.89	0.47	0.51	0.89
Small farmers, Western Hills	0.51	0.53	0.81	0.52	0.54	0.93
Small farmers, Terai	0.46	0.55	0.92	0.43	0.53	1.00
Medium farmers, Terai	1.16	1.40	2.32	0.92	1.37	2.58
Medium farmers, Eastern Hills and Mountains	1.26	1.40	2.22	1.18	1.37	2.35
Medium farmers, Western Hills and Mountains	1.27	1.35	2.08	1.30	1.31	2.29
Large farmers	3.63	4.09	6.62	2.78	3.27	5.90
Agricultural wage laborers	0.04	0.05	0.08	0.05	0.04	0.11
Terai nonfarm	0.25	0.03	0.05	0.26	0.04	0.10
Other nonfarm	0.12	0.08	0.14	0.12	0.07	0.14
All rural	0.88	0.98	1.58	0.66	0.75	1.35

Note: Net operated area is defined as area owned plus area rented in minus area rented out. As net operated area varies by season, the maximum of the area operated in either season is used as the annual net operated area. Gross cultivated area is the sum of area cultivated in the wet and dry seasons. Agricultural laborer households are defined as households that operate less than 0.2 hectares of land and in which household heads spend more than 20 percent of their time in agricultural wage-related activities. Remaining rural households fall under the category of nonfarm rural households.
Source: World Bank staff calculations based on NLSS-I and II data.

potential gains in both the local labor market (for example, through increased bargaining power) and the international labor market (for example, as collateral to obtain a loan for migration). Land ownership may also be a proxy for other productive and entrepreneurial characteristics (both observed and unobserved) of individuals (Macours 2005). More work is needed to explore the links between land ownership and poverty in order to derive more robust policy prescriptions.

Land markets are underdeveloped, and inheritance is the main mechanism through which land ownership changes hands. In 1995-96, 85 percent of rural land was obtained through inheritance. Land sales activity in rural Nepal is limited, with little change between 1995-96 and 2003-04. In both years 50 percent of transactions involved 0.1 hectares or less, and only 0.1 percent of households bought more than 1 hectare. Households that participate in transactions tend to be richer, indicating a segmented market. Not surprisingly, the size of land holdings is positively correlated with being active in the land market.

In addition to inheritance and land markets, households may also have acquired land as a result of government policies. Nepal's Land Reform Act of 1962 attempted to address land access by establishing land ownership ceilings and securing tenancy rights. Nevertheless, only 1.5 percent of agricultural land was redistributed because of widespread evasion of land ceilings, and the redistribution occurred long before the period examined in this report. A 1995 amendment of the Land Act abolished dual ownership of land under tenancy by physically splitting up the land between tenants and landowners. The survey data suggest, however, that this legislative change did not result in a large shift from tenancy to ownership, which is consistent with anecdotal evidence related to lack of implementation of the Amendment. At the level of individual households, there is no significant correlation between 1995-96 tenancy status and 2003-04 ownership.

5.4 Summary and Policy Options

Agriculture's contribution to observed improvements in rural living standards has been modest, in large part because of the poor performance of the crop sector. The real prices of major agricultural commodities such as paddy have fallen and the ratio of output prices to input prices has also declined, contributing to the lower profitability of the crop sector. As a result, both land and labor productivity have declined in real terms. Several other factors have contributed to the sluggish performance of the crop sector. Yields for the major cereal crops (paddy, wheat, and maize), which account for 80 percent of total

cropped area and 66 percent of the gross crop output, have increased only slightly. At the same time, farm sizes have shrunk, with median land ownership among rural households down by 9 percent. Almost half of all rural households report smaller farm sizes from 1995-96. So even though yields appear to have increased slightly, smaller farm sizes have affected total output.

The declining profitability of cereal crops points to the need to continue to promote high-value agriculture, including horticulture and livestock production. There is evidence that production of high-value crops is already increasing in some parts of Nepal, particularly in the Western Hills and Terai. Although production is limited among the poorest farmers, there is evidence that even the poorest households are growing some high-value crops, including fruits and vegetables, albeit primarily for home consumption. A shift to a more diversified agricultural production system can create jobs and off-farm income in agricultural processing and marketing, input supply and services, and related industries.

Successfully expanding higher value agriculture will require efforts on a number of fronts, including improvements in technology and market infrastructure. Also important is fostering the development of producer organizations; to enable small farmers to more effectively manage their own resources, gain better access to services, and have more effective input into decisionmaking processes that affect their livelihoods. Since there are greater risks in shifting into higher value agriculture, measures are needed to ensure that small farmers are better able to manage the new risks. Research and extension services to promote high-value agriculture are weak and need to be reoriented to respond more effectively to the demands of diversified agriculture. Greater private sector participation in delivering services to farmers will also be essential. Post-harvest systems need to be improved in storage, collection centers, packaging, transport, and quality control. Although access to rural markets and roads has improved slightly since 1995-96, further improvements in connectivity and infrastructure will be necessary to link high-value crop areas and markets and invite greater private sector participation.

Safeguarding the safety and quality of the food supply is increasingly important, both to public health and to international trade, where food safety, plant health, and animal health issues are increasingly important. Nepal's share of agricultural exports has increased dramatically, but considerable scope remains for expanding exports of horticultural and livestock products. Measures are needed to ensure compliance with food safety and agricultural health standards in Nepal's traditional export markets (India and the Middle East) as well as in new markets that offer opportunities for agricultural exports.

Increased agricultural diversification and production of high-value crops have the potential to increase nonfarm employment opportunities in rural areas. Private investments in processing for many of the higher value agricultural commodities could generate new rural employment opportunities and contribute to higher rural incomes. However, an environment conducive to private sector participation is necessary, and this has been lacking.

Increasing yields in the major cereal crops requires attention to many inputs. Credit constraints prevent the poorest households from benefiting from existing technology and modern inputs. Access to irrigation also needs attention, and water use efficiency needs to be increased.[52] Physical rehabilitation and modernization of irrigation systems and improved water resources management are needed to increase the productivity of irrigated agriculture.

Increasing the asset base of the landless and near landless and improving their access to inputs and services will be key to raising their incomes in the long run. Rural poverty is increasingly concentrated among small farmers and agricultural laborers (see chapter 1). Interventions that target medium and large farmers may not raise the incomes of most poor households, except through increased demand for agricultural labor

[52] Nepal has tremendous unutilized groundwater potential in the Terai and tapping into this resource has great potential to expand the area under year-round irrigation.

or other multiplier effects. Projects and programs targeted at directly raising the real incomes of the poorest households, such as better access to education for children and vocational and business development skills training, deserve careful consideration. Moreover, it is crucial that small farmers and agricultural laborers be included in developing strategies for agricultural growth.

CHAPTER - 6

COMPLEMENTARY ASSETS: FINANCIAL AND PHYSICAL INFRASTRUCTURE

CHAPTER-6

COMPLEMENTARY ASSETS: FINANCIAL AND PHYSICAL INFRASTRUCTURE

6.1 Introduction

Financial, physical, and social infrastructure are necessary complements to the private efforts of the poor to better their lives. In India, differences in electricity, road density, and banking facilities explained most of the variation in industrial development across districts Joshi (1990). Well developed financial infrastructure is crucial for helping the poor invest, diversify, smooth consumption during hard times, and cope with risk. The development of physical infrastructure is especially important in Nepal because of its geography, which leads to high transport costs and low population density in the most disadvantaged regions. These characteristics impede the development of markets and make it difficult to remedy regional disparities in economic and human development. The lack of physical connectivity has also exacerbated social divisions, which together with social exclusion has been an important factor behind the decades-long conflict. This chapter discusses issues pertaining to financial and physical infrastructure; the social issues were discussed in chapter 2.

6.2 Improving Financial Infrastructure for the Poor

Access to financial services is an important means of helping the poor improve their livelihoods—to invest, diversify, smooth consumption during hard times, and cope with risk. In addition, studies find that access to credit has strengthened women's bargaining position with their husbands and increased their physical mobility, self-confidence, and participation in public life (Zeller and Meyer, 2002). But financial markets, because of asymmetric information and transaction costs, often serve the poor badly.

Overall, financial activities increased between 1995-96 and 2003-04, with more households taking and making loans. The proportion of households that borrowed increased from 61 percent to 69 percent (table 6.1). Borrowing is more prevalent in rural than in urban areas, and the poorest quintiles

Table 6.1: Proportion of households making and taking loans in Nepal 1995-96 and 2003-04 (percent)

	1995-96		*2003-04*	
	Taking loans	*Making loans*	*Taking loans*	*Making loans*
All purposes				
Total	61.3	10.6	68.8	15.7
Urban	37.6	7.8	46.2	15.3
Rural	63.1	10.8	73.2	15.8
Lowest quintile	61.0	6.3	74.5	7.8
Second	65.0	7.7	76.7	10.6
Third	67.0	8.9	72.4	14.1
Fourth	63.1	10.9	71.4	20.4
Highest quintile	51.7	17.2	52.1	22.5
Business purposes				
Total	22.2	3.7	21.6	4.3
Urban	14.4	3.3	19.7	5.2
Rural	22.8	3.8	22.0	4.1
Lowest quintile	12.8	2.2	14.1	1.4
Second	21.2	2.5	19.6	2.4
Third	24.2	3.2	22.6	3.2
Fourth	25.7	3.6	27.7	6.0
Highest quintile	24.9	6.2	22.2	7.2

Source: NLSS-I and II.

are more likely to borrow, especially for consumption purposes. Following a 50 percent increase in the proportion of households in rural areas that made loans between 1995-96 and 2003-04, urban and rural households are equally likely to lend, possibly a result of the increasing inflow of remittances to rural areas. While richer households are more likely to lend, even poor households do so.

Informal credit sources dominate for both business and consumption purposes. Nearly 55 percent of loans in 2003-04 came from relatives, 26 percent from moneylenders, and 15 percent from banks.[53] Nongovernmental organizations (NGOs) and others provide a small share of loans. The importance of the formal financial sector in providing loans is considerably lower than on average for poor households, with the difference being made up by a reliance on informal sources. Between 1995-96 and 2003-04 the reliance on moneylenders declined significantly for all income groups, while reliance on relatives and friends increased significantly (table 6.2).

Formal institutions are important sources of business loans, but their importance has been declining. Overall, 22 percent of households took out business loans in 1995-96 and in 2003-04 (see table 6.1). While 37 percent of these loans were provided by the formal sector, that share was down from 41 percent in 1995-96 (table 6.2). Households met their increased lending demand from relatives and friends, whose share of loans for business purposes increased from 30 percent in 1995-96 to 43 percent in 2003-04.[54] While the increasing financial activity of households is indicative of their increasing wealth, the increased borrowing from relatives and friends also suggests the lack of good savings institutions to provide alternative opportunities for investment and resource pooling in rural areas.

Box 6.1 **Many institutions serve the credit market in Nepal, but rural services are limited**

Credit institutions serving the poor in Nepal include credit cooperatives, commercial and specialized banks (which are directed to invest about 3 percent of their total portfolio in "deprived sectors," making loans smaller than $450 equivalent), five Grameen Bank replicators (one for each administrative region), microfinance nongovernmental organizations (NGOs), and microfinance development banks. There are also three apex institutions: the Rural Self-Reliance Fund (RSRF), which is managed by the central bank and onlends funds to NGOs and cooperatives; the Rural Microfinance Development Center (RMDC), which is owned jointly by the government and banks and onlends to microfinance NGOs; and the Small Farm Development Bank (SFDB), which onlends exclusively to small farmer cooperatives (created by the Agricultural Development Bank). All are de facto donor apex or single donor apex institutions—institutions that receive funds either from donors (RMDC) or from single sources (SFDB from the Agricultural Development Bank, RSRF from the central bank) at subsidized rates.

While banks and microfinance NGOs tend to focus on urban areas, cooperatives and Grameen Bank replicators focus more on rural areas. Rural areas also have a range of informal financial intermediaries, including local moneylenders, traders in agricultural input and output markets, shopkeepers, landlords, friends, and relatives.

Only a handful of nonbank microfinance institutions are regulated by the central bank. The government is establishing a new policy for microfinance that should streamline the regulatory framework and strengthen regulation.

In terms of average population served by bank, Nepal performed worse than the regional average with 66,220 inhabitants per branch, while in all other South Asian countries an average branch serves less that 30,000 people. Nepal's banking sector is also at the bottom also in terms of average area covered by each branch, which in 2003 amounted to 395 square kilometers. Almost half of all branches are located in the Central region (home to 36 percent of the population). In addition, branches in remote areas often provide very limited services, due to a combination of poor infrastructure, centralized decisionmaking, and the deteriorating security situation, which means that branches are often closed or offer limited services.

Source: Financial Performance and Soundness Indicators of South Asia, May 2005.

[53] The category "banks" combines agricultural development banks, commercial banks, Grameen Bank, and other financial institutions. Agricultural development banks provide 8 percent of loans. Commercial banks provide fewer than 2 percent of all loans in rural areas, but almost 7 percent in urban areas.

[54] Consistent with the increase in loans from relatives and friends, the proportion of households making loans increased from 10 percent to 15 percent. Increases in loan making are registered in both urban and rural areas and for all income groups, table 6.1.

Table 6.2: Distribution of loans in Nepal by source and expenditure quintile, 1995-96 and 2003-04

	1995-96						2003-04					
	Lowest quintile	*Second*	*Third*	*Fourth*	*Highest quintile*	*All*	*Lowest quintile*	*Second*	*Third*	*Fourth*	*Highest quintile*	*All*
All loans												
Bank	7	14	15	19	23	16	6	10	12	18	27	15
Relatives/friends	43	42	41	34	45	41	59	57	56	51	52	55
Moneylenders	47	40	42	42	28	40	32	30	27	26	16	26
NGOs/relief agencies	0	0	0	0	1	0	1	2	2	3	3	2
Others	3	3	2	4	3	3	1	1	3	3	2	2
Total	100	100	100	100	100	100	100	100	100	100	100	100
Business loans												
Bank	30	36	42	40	49	41	22	29	34	38	48	37
Relatives/friends	39	31	32	24	31	30	62	50	43	39	34	43
Moneylenders	25	29	25	33	15	25	14	16	14	17	14	15
NGOs/relief agencies	2	0	1	0	2	1	2	3	4	5	3	4
Others	4	4	1	4	3	3	1	2	4	2	1	2
Total	100	100	100	100	100	100	100	100	100	100	100	100

Source: NLSS-I and II.

Increased loans from relatives and friends, fueled by remittance income, seem to have lowered the rates charged by moneylenders in both urban and rural areas (table 6.3).[55] In 1995-96 interest rates charged by moneylenders were higher than interest rates charged by relatives and friends, but by 2003-04 these rates were converging, although interest rates remained higher in the informal sector than in the formal sector in both urban and rural areas. Informal sector interest rates are considerably lower in urban areas, however, possibly reflecting differences in risk. Formal sector interest rates are lower in rural areas than in urban areas, possibly reflecting government mandates for priority lending. In rural areas in 2003-04 formal banks charged 16-18 percent annual interest rates, reflecting a slight increase in rates for agricultural banks and a slight decline for commercial banks. In urban areas the interest rates charged by formal banks declined dramatically, by 25 percent in case of agricultural banks and by more than 50 percent in case of commercial banks.

Table 6.3: Interest rates paid to various sources in Nepal, 1995-96 and 2003-04 (percent)

	Rural			Urban		
	1995-96	*2003-04*	*Change*	*1995-96*	*2003-04*	*Change*
Formal						
Agricultural banks	17	18	3	22	16	-25
Commercial banks	17	16	-7	24	12	-51
Informal						
Relative or friend	30	30	0	22	21	-3
Moneylender	37	31	-16	32	20	-38

Source: NLSS-I and II.

While the formal sector accounts for a small proportion of loans, average and median loan sizes are large and rose considerably between 1995-96 and 2003-04. The average size of a formal sector loan in 2003-04 was about Rs 100,000 in 1995-96 prices, while the average size of an informal sector loan was Rs 25,000; the median size of loans was Rs 16,000 in the formal sector and Rs 9,000 in the informal sector. The average and median size of loans increased in both formal and informal sectors, but more so in the formal sector. The largest increase in the average and median size of loans was in loans from NGOs, although the volume of this lending remained small.

The decline in outreach by formal financial institutions could reflect the closing of bank branches in the past several years because of the Maoist insurgency. The two largest banks, Rastriya Banijya Bank (RBB) and Nepal Bank Limited (NBL), closed roughly a third of their branches

[55] Anecdotal evidence suggests that the distinction between friends or relatives and moneylenders in Nepal is blurred. In fact, the interest rates charged by friends/relatives and moneylenders were virtually the same in 2003-04 (but not in 1995-96).

Table 6.4: Average amount of loans in Nepal by source and expenditure quintile (thousands of 1995-96 rupees)

	1995-96						2003-04					
	Lowest quintile	*Second*	*Third*	*Fourth*	*Highest quintile*	*All*	*Lowest quintile*	*Second*	*Third*	*Fourth*	*Highest quintile*	*All*
Average												
Banks	—	9	11	12	47	23	—	12	22	34	247	98
Relatives/friends	9	7	8	7	28	13	8	15	18	20	53	23
Moneylenders	—	12	5	11	31	13	—	16	15	30	39	25
NGOs/relief agencies	—	—	—	—	—	5	—	—	—	—	—	16
Others	—	—	—	—	—	13	—	—	—	—	—	8
Total	10	9	9	10	37	17	9	14	17	27	142	50
Median												
Banks	—	6	7	9	13	8	—	9	13	17	43	16
Relatives/friends	3	4	5	4	11	5	5	7	8	10	21	9
Moneylenders	—	3	4	5	5	4	—	8	5	19	21	10
NGOs/relief agencies	—	—	—	—	—	4	—	—	—	—	—	10
Others	—	—	—	—	—	6	—	—	—	—	—	6
Total	4	5	5	6	11	6	5	8	9	13	26	12

— stands for small sample size
Source: NLSS-I and II.

because of the worsening security situation. Accessibility to banks deteriorated in rural areas and stagnated in urban areas. In rural areas the time to reach a bank increased from 3 hours to 3.5 hours, on average. This is particularly noteworthy since accessibility to other services has improved considerably (see section 6.3).

Table 6.5: Time to access a commercial bank in Nepal, 1995-96 and 2003-04 (hours)

	1995-96	*2003-04*	*Change (percent)*
Urban			
Mean	0.32	0.35	8
Median	0.25	0.25	0
Rural			
Mean	3.0	3.5	18
Median	2.0	2.0	0

Source: NLSS-I and II.

Public sector financial institutions (banks and public institutions created to target the poor, such as the Grameen Bank replicators) have had a poor record in savings mobilization and outreach to the poorer segments of the rural population (table 6.1 for Nepal and Zeller et. al., 2002 for international evidence). They also accumulated financial liabilities. Two out of five Grameen replicators had to be recapitalized and the most successful replicator is profit making only thanks to the interest earned on bank deposits, rather than on intermediation. Commercial bank directed lending to the "priority" and "deprived" sector is being, respectively, gradually phased out and reduced, as arrear rate on this portfolio segment was very high. Overall, there is a very high rate of non-performing loans in the banking system in Nepal which is the direct result of politically directed lending, which benefited mostly to the better-off (World Bank 2003). This, not only resulted in limited lending to the poor, but in the case of public sector banks, in diversion of public resources to the benefit of the better-off, who ultimately defaulted.

Good financial intermediation is particularly important today to help realize the large potential gains from temporary migration. Particularly important is improving the financial structure to provide credit to undertake temporary work migration, facilitate the transfer of remittances, and flexibly channel remittances into investment and consumption. There are clear shortcomings in all three areas. To improve the efficiency of fund transfers, the Central Bank began in 2004 to issue licenses to private operators to facilitate the remittance business. Operators in countries of origin receive a license to open a bank account on behalf of migrant workers (the accounts can be used only to transfer funds to commercial banks in Nepal). One operator has been licensed in Malaysia under this scheme. In a second model, private operators in Nepal link up with agents

(MoneyGram, Western Union, and so forth) and distribute the funds, undertaking the guarantee to pay. Roughly 30 operators have been licensed under this scheme. By routing remittances through commercial banks (at source and as the first recipient in Nepal), this licensing program ensures supervision of the remittance business by the financial sector regulator.

Despite these efforts, remittances still can take from 10 days to several weeks to reach remote areas, and remitting through the formal sector is still expensive. Usually two different banks are involved in the transaction, the receiving bank (which makes a good margin through foreign exchange) and the bank involved in physically delivering the remittances (which charges a commission). *Concrete recommendations on how to improve the efficiency of remittances transfer will come from a study being conducted by the Rastra Bank and the World Bank on the rapidly growing Middle East remittance corridor aimed at identifying bottlenecks in remittance transfers at the remitting point, the intermediate phase, and the receiving point to reduce time and costs.*

6.3 Improving Connectivity and Physical Infrastructure

More and better roads can contribute directly and indirectly to households' economic welfare. Roads can improve access to markets for agricultural and nonfarm products and services and open up more rewarding job opportunities. For a geographically diverse country such as Nepal, better roads may encourage work migration from remote regions, providing households with access to additional and often critical sources of income. Roads can also increase overall welfare by improving access to basic services such as schools and health facilities. Because of such all-encompassing effects, road and other infrastructure construction and rehabilitation can influence almost all measures of economic activity, including factor prices (land rent, land price, wages, interest rates), employment structure (for example, farm or nonfarm employment and women's participation in the labor force), specialization (agricultural diversification and commercialization, specialization in nonfarm activities), and household welfare (for example, per capita consumption and schooling). Infrastructure investment also entails large dynamic effects by generating important externalities.

Nepal's road network has expanded significantly since mid-1990s. Between 1995 and 2002, the total road network increased 6.7 percent a year, from about 11,000 kilometers to 17,000 kilometers (table 6.6). District and rural roads experienced the largest expansion, growing an average of 11 percent a year. In addition, decentralization of authority to local levels resulted in construction of a vast but unplanned network of rural roads using locally raised funds.

Accessibility remains a major constraint, especially in rural areas. As would be expected, both mean and median travel time to various facilities and markets are higher in rural areas, since urban areas tend to enjoy better infrastructure facilities. On average, the median (typical) household in rural areas is more than four and a half times as far from a given facility (such as a school, a paved road, or a commercial bank) as the typical urban household (table 6.7). Consider schools, the most accessible facility in Nepal. A child from a typical rural household would have to travel 25 minutes to school compared with 8 minutes for a child from a typical urban household. The typical urban household is located next to a paved road, whereas a member of the typical rural household

Table 6.6: Road length in Nepal by construction and type 1995 and 2002 (kilometers)

By construction type	1995	2002	Annual growth (percent)	By road type	1995	2002	Annual growth (percent)
Black top	3,533	4,781	4.4	Highway	2,831	3,029	1.0
Gravel	2,662	4,520	7.9	Feeder road	1,679	1,832	1.3
Earthen	4,529	7,534	7.5	District road	4,799	9,775	10.7
				Urban road	1,415	2,198	6.5
Total	10,724	16,835	6.7	Total	10,724	16,835	6.7

Source: Statistical Yearbook and Statistical Pocket Book, CBS

Table 6.7: Travel time to nearest facility from rural and urban areas of Nepal in 2003-04 and improvements since 1995-96

	Rural areas				Urban areas			
	Travel time (hours) 2003-04		Improvement since (percent) 1995-96		Travel time (hours) 2003-04		Improvement since (percent) 1995-96	
Facility	Median	Mean	Median	Mean	Median	Mean	Median	Mean
School	0.25	0.32	0	24	0.08	0.14	0	26
Health Center	0.50	0.86	50	33	0.25	0.36	0	-6
Bus stop	1.00	3.28	33	16	0.17	0.27	0	13
Paved road	2.00	4.87	20	0	0.00	0.18	-	-20
Local shop	0.17	0.57	32	18	0.00	0.05	-	67
Market center	1.50	2.65	25	15	0.25	0.33	0	0
Krishi center	1.50	2.43	25	4	0.50	0.58	-52	-23
Cooperative	1.50	2.82	14	-8	0.33	0.44	-32	0
Commercial bank	2.00	3.49	0	-18	0.25	0.35	-47	-9

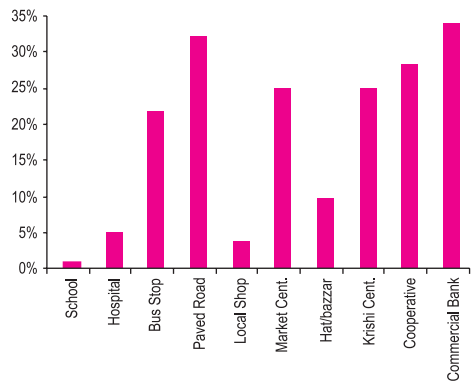
Note: Negative value indicates worsening access.
Source: World Bank staff calculations using NLSS-I and II.

has to travel two hours to reach a paved road. For rural households an hour or more of travel time is required to reach a paved road, bus stop, market center, krishi center, cooperative, or commercial bank. For urban households, the least accessible facilities are the krishi centers, but even those are within 50 minutes travel time for a typical urban household.

Travel times for the typical household, however, mask great disparities among households in accessibility. For instance, for rural households the average travel time is almost 5 hours to the nearest paved road, about 4 hours to the nearest commercial bank, 3.5 hours to the nearest bus stop, and about half an hour to the nearest school. More than a fifth of households are more than two hours away from the nearest bus, almost a quarter are two hours away from a market, and over a third are 2 hours away from a paved road or bank (figure 6.1).

Travel time to some facilities and markets declined between 1995-96 and 2003-04, especially in rural areas.[56] Estimates of median travel time show considerable improvement in access to hospitals, bus stops, local shops, market centers, krishni centers, and paved roads in rural, and virtually no gains in urban areas (table 6.7).[57] Estimates of mean travel times show more modest improvement in rural and some improvements in urban areas. The largest improvements were in access to schools in urban areas (a 26 percent drop in average travel time) and to hospitals in rural areas (a 33 percent drop). Contrary to estimates based on median travel time, average travel time to the nearest commercial bank in rural areas increased, indicating a decline in the density of commercial banks.[58]

Figure 6.1 Percent of households more than 2 hours from the nearest facility



[56] Accessibility could have improved because of improvements in roads, in modes of transportation, or in facility coverage and it is difficult to separate these effects using household data. However, to test what development could explain improved access to a certain facility, regressions were run explaining the changes in travel time to a facility as a function of initial travel time and change in travel time due to paved roads. In case of schools, most of the improvement in access originated from the construction of new schools in underserved areas. In case of hospitals and markets, improvements in access came largely from improvements in transportation networks and technology. See Shilpi 2005 for more details.

[57] The proportion of urban population in Nepal increased from 7 percent in 1995-96 to 15 in 2003-04. This trend has been driven by the increased migration to the established urban areas, but also by the transformation of the previously rural dwellings to urban settlements. It is reasonable to expect that these newly transformed urban settlements would have lower accessibility indicators relative to the established urban centers. This pattern may account for the absence of improvements in accessibility in rural areas between the two rounds of NLSS survey.

[58] There are also stark regional disparities. See Chapter 2 and Shilpi (2005) for details.

Although richer households have better access to facilities, road expansion has resulted in relatively pro-poor improvements in overall access. There is a strong relationship between wealth and access to various facilities, with wealthier households having shorter travel times to all facilities (table 6.8).[59] An important policy question, however, is whether the placement of infrastructure and facilities has been pro-poor. Two methods were used to determine whether the expansion was pro-poor: a simple calculation of changes in time traveled by expenditure quintile, and a regression of changes in travel time to a particular facility in a district on measures of headcount poverty, initial travel time in 1995-96, and a set of other variables using district-level panel data.

were targeted to areas that were underserved in 1995-96. To the extent that greater inaccessibility to these facilities reduces people's standard of living, this placement pattern suggests some pro-poor targeting.[60]

Marginal analysis indicates that future expansion of roads will be pro-poor. Average benefits analysis suggests some bias toward the nonpoor in access to facilities and infrastructure, possibly because of the capture of benefits by the nonpoor from early expansion of infrastructure. International evidence shows that often once the nonpoor are reasonably well served marginal expansion of programs tends to reach more and more poor

Table 6.8: Access to selected facilities by expenditure quintile in Nepal 2003-04 and improvements since 1995-96

	Travel time in 2003-04 (mean hours)				*Improvements since 1995-96 (percent)*			
Quintile	*School*	*Health Center*	*Paved Road*	*Market Center*	*School*	*Health Center*	*Paved Road*	*Market Center*
Lowest	0.38	1.07	5.59	3.64	34	32	23	32
Second	0.3	0.88	5.5	2.72	17	38	5	17
Third	0.3	0.77	4.92	2.31	28	34	-5	20
Fourth	0.29	0.69	4.23	2.02	15	27	-3	18
Highest	0.18	0.45	1.71	1.05	31	36	27	27

Source: World Bank staff calculations using NLSS-I and II.

Analysis of travel time showed that almost all expenditure quintiles experienced an improvement in access to schools and market centers, though the lowest and highest 20 percent of households benefited most. For hospitals, improvements were largest for the second and third expenditure quintiles. For paved roads only the lowest and highest 20 percent experienced improved travel time, while the other quintiles saw travel time increase slightly. Overall, at least for schools, paved roads, and markets, the gains appear to be concentrated in the upper and lower tail of the income distribution (table 6.8).

The regression results explaining the difference in travel time between 1995-96 and 2003-04 find that initial travel time is negative and statistically highly significant in determining where new roads and facilities are placed (appendix table A6.1). In other words, facilities and infrastructure

people (Lanjouw and Ravallion 1999). Thus average benefit analysis could underestimate the marginal benefit for the poor of future program expansion.

Marginal benefit analysis has been conducted indicating that a decline in regional-level travel

Table 6.9: Marginal benefits of improved access to facilities and infrastructure in Nepal (minute decline in travel time)

Facility	*Lowest quintile*	*Second*	*Third*	*Fourth*	*Highest quintile*	*Average*
School	1.19	1.33	1.19	1.03	0.88	1.13
Health Center	1.40	1.19	1.06	0.89	0.86	1.08
Paved road	1.68	1.81	1.77	1.64	1.29	1.64
Market center	1.46	1.39	1.33	1.01	1.04	1.25
Any market	1.40	1.56	1.38	1.19	1.08	1.32

Note: The table provides the instrumental variable estimates of regression coefficients of the quintile-specific travel times across districts on the average travel time at the regional level. The excluded mean is the instrument for the actual mean.
Source: World Bank staff estimates based on NLSS I and II

[59] Because of the predominance of rural households in the national sample, the overall picture that emerges from both national and rural samples are similar.

[60] Explanatory variables are the percentage of population that is poor and travel time to markets, paved roads, and facilities in 1995-96 and 2003-04. Other variables include change in travel time to paved road,population density, arable land, average elevation, and its standard deviation (to measure the expected costs and returns from placement of roads and facilities).

time will lead to a decline in quintile-specific travel time (table 6.9).[61] The coefficient estimates for all facilities indicate that at the margin future expansion in infrastructure that reduces travel time will be more beneficial to the poor than to the nonpoor.[62] For schools, a 10-minute decline in average travel time to schools at the regional level will result in about a 20-minute decline in travel time for the poorest 20 percent of households and about a 9-minute decline for the richest 20 percent. A decline in travel time to a paved road reaps the highest benefit at the margin, benefiting all quintiles, especially the second and the fist poorest quintiles. The next highest benefits at the margin are for reduced travel time to markets. Thus a pro-poor policy would also focus on expanding road networks, particularly paved roads, and improving access to markets in rural areas. For better access to schools and health facilities, the government could expand road networks and make greater use of the private sector (especially in health) to improve delivery of basic services.

The robust conclusion that emerges from the analysis is that both infrastructure and facilities were placed more frequently in districts that were underserved during 1995-96. To the extent that there is a positive correlation between poverty and lack of access to facilities and infrastructure, this implicitly ensured some mild pro-poor targeting. With respect to infrastructure's effect on poverty, the results suggest that the benefits of infrastructure are capitalized largely through increased shares of nonfarm employment and, to some extent, higher education level. These impacts were critical in influencing the rate of poverty reduction in Nepal. The regression results suggest that improvements in infrastructure measured in reduced travel time to markets has led to pro-poor growth even in the short run (appendix, table A6.2).[63]

Table 6.10: Share of households with an electricity connection in Nepal, 1995-96 and 2003-04

	1995-96	*2003-04*	*Change (percent)*
Region			
Kathmandu	99	99	0
Other urban	68	81	20
Rural Western Hills	4	26	518
Rural Eastern Hills	17	25	51
Rural Western Terai	10	32	216
Rural Eastern Terai	6	27	347
Poverty status			
Nonpoor	20	46	132
Poor	4	11	177
Quintile			
Lowest	3	9	201
Second	5	16	245
Third	8	27	237
Fourth	11	42	280
Highest	36	76	110

Source: NLSS-I and II.

Despite vast hydroelectric resources, less than 40 percent of Nepalese households have access to electricity, and those that do are mainly in urban areas. In Kathmandu all households report having electricity, and the situation is good and improving in other urban areas (coverage increased from 70 percent in 1995-96 to 80 percent in 2003-04). But access to electricity is very low in rural areas, and power costs are among the highest in South Asia. Rural Western Terai fares better than other rural areas (32 percent of households have access to electricity), while in the other three rural regions only about a quarter of households have access to electricity.

Some steps have been taken to improve access and services. The Power Development Fund was established to mobilize investments in small- and medium-size power development projects. To curtail leakages and increase efficiency, Nepal Electricity Authority has unbundled its

[61] Following the methodology of Lanjouw and Ravallion (1999), the marginal benefit incidence of facility and infrastructure improvement was estimated using both rounds of the NLSS surveys. The econometric estimation is based on a district-level database on travel time to five facilities by expenditure quintile. For each quintile the district-level mean travel time is regressed on average regional-level travel time using the excluded district-level mean as the instrument.

[62] This result holds for both 2003-04 and 1995-96 data (except for hospitals). Almost all estimates also imply a much more pro-poor marginal effect in 2003-04 data compared with 1995-96.

[63] This conclusion follows from the district-level regression analysis of the change in real per capita expenditure between 2003-04 and 1995-96 (dependent variable) and a set of explanatory variables indicating initial conditions (per capita expenditure, travel time to market, share of non-farm in total employment) and their changes over time. The initial remittance flow and relative level of non-farm employment caused some regional divergences in poverty reduction in the sense that regions with better remittances flow and higher share of non-farm employment experienced higher increase in per capita real expenditure. Once the divergences caused by non-farm employment and remittances are accounted for, overall growth in Nepal was regionally pro-poor in the sense that regions with relatively lower levels of per capita expenditure registered higher increase in per capita expenditure. Change in remittance flow, and change in level of non-farm employment all contributed significantly to an increase in per capita real expenditure. See Shilpi (2005) for details.

operations into generation, transmission, and distribution and has decentralized some of these functions to communities and cooperatives.

6.4 Policy Options

Improvements in servicing the financial needs of the poor require broader reform of the banking and microfinance system in the country, including consolidation and efficiency gains. The legal framework and supervision of the sector are also weak. To increase efficiency in the sector, the government should complete the restructuring and sale or privatization of NBL and RBB. Moreover, to facilitate lending to smaller borrowers, it could create a more comprehensive and effective system of movable collateral (for both physical and juridical persons), to allow small businesses to borrow safely against movable collateral.

Microfinance institutions will have to play an important role in serving the poor and very remote areas. The government should reconsider its position as direct provider of microfinance and focus instead on strengthening its functions as regulator and facilitator of the sector. This could include developing a realistic restructuring and privatization plan for the Grameen Bank replicators (sale to a strategic investor might prove more beneficial than sale to its borrowers), transforming RSRF into a separate and majority privately owned fund, reforming the confusing microfinance legal framework, and strengthening supervision of the sector. Other countries have shown how this could be done, Uganda, for example is often cited as one of a best practice cases (see box 6.2).

The government of Nepal should continue and even strengthen its investments in improving infrastructure and access to markets to boost economic development and improve the welfare of its people, especially the poor. Investments in road construction and maintenance should receive top priority, with an emphasis on connectivity in rural areas. This would require strategic planning for the expansion of rural infrastructure in line with targets in the Agricultural Perspectives Plan and consolidation of institutional structures for the provision of infrastructure, particularly for sustainable road networks. The government has already made several key reforms in this direction, such as the creation of DoLIDAR, to strengthen the ability of local authorities in building and managing rural roads. The Establishment of Roads Board with the objective to generate sustainable revenue flows through additional user's charges for the maintenance of strategic roads and rural roads is also an important step. Being a financing and monitoring agency with the mandate to oversee the work of road agencies, the Road Board

Box 6.2 **The Ugandan regulator a pioneer in developing a sound regulatory framework for the microfinance sector**

From 1996 to 2003, the Central Bank of Uganda and the association of microfinance institutions worked to create an enabling environment for the rural financial system. This included: formulation of a policy for microfinance deposit- taking institutions act and the regulations on capital adequacy, liquidity, asset quality, reporting and licensing. The key issues that the new legal regulatory framework tackled are:

- **Transformation from *donorship* to ownership**: institutions started with donor funding need appropriate ownership structure and the ability to raise funds beyond donors' contribution if they are to be sustainable. Giving the microfinance sector the ability to raise deposits and equity (to avoid overleveraging) is a step in this direction.
- **Minimum capital requirements**: should be maintained as without sufficient capital an institution will not have adequate capacity to organize deposit mobilization. At the same time a microfinance institution would need to have a lower capital requirement than a commercial bank to allow for entry of smaller local institutions and to be able to achieve reasonable return on equity.
- ***Tiered* approach to supervision**: microfinance institutions are quite different from one another, therefore different regulatory requirements will be needed depending on the type of the institution. For example, institutions that do not collect deposit from the general public do not necessarily need to be supervised. A regulator has to be practical and aim at supervising a practically *supervisable* number of institutions.

Source: D. Kalyango, May 2005 "Uganda Experience with the Regulatory and Supervisory Framework for Microfinance Institutions"

should be further strengthened so as to ensure that rehabilitation and maintenance are carried out in an efficient manner. Investments in markets, particularly in rural areas, should also be emphasized, including investments in physical structures, maintenance, and connectivity.

Expansion of access to electricity requires partnerships with the private sector. An independent regulatory body is needed to attract efficient private investments. Cross-subsidies will be needed to induce the private sector to deliver electricity to remote areas where population density is low and unit costs are high. Nepal also has the potential to trade electricity with India, whose power needs are large. That potential should help to attract more commercial and private sector-led power exchanges.

CHAPTER-7

BUILDING HUMAN CAPITAL: MEETING THE EDUCATION MDGs

CHAPTER-7

BUILDING HUMAN CAPITAL: MEETING THE EDUCATION MDGs

7.1 Introduction

Nepal made large gains in primary school enrollment between 1995-96 and 2003-04, especially among girls, people living in the remote regions, and the poor. If these trends continue, and policies to enroll the nearly 1.3 million out-of-school children are successful, Nepal will achieve the MDG for universal primary enrollment by 2015. Nepal will also reach gender parity at all levels of the education system and in literacy by 2015, if gains in secondary and tertiary enrollment and literacy continue. Efforts to increase the quality of education need to complement the impressive achievements in participation. The introduction of community-managed schools, which are expected to increase the accountability of the educational system to the community they serve, is a move in this direction. The success of this initiative will depend on the ability to reach agreements with teacher unions, to address the capacity constraints of institutions involved in the efficient functioning of schools, and to sustain the commitment by the government and NGOs. The political insurgency in Nepal poses a serious risk to progress. Although the conflict appears not to have hindered education gains so far (though the counterfactual is hard to establish), recent events (including reported kidnappings of students and teachers and the migration of children to urban areas) suggest that the insurgency poses risks to further improvements in education.

Following an in-depth review of education outcomes and sector policies, the chapter discusses the key issues and future priorities facing Nepal in meeting education MDG targets. The chapter offers some policy recommendations on how to increase school participation and the quality of education.

7.2 Education Outcomes: Current Status and Trends

More children are in school than ever before in Nepal's history. About 4.5 million children between the ages of 6 and 15 were enrolled in school in 2003-04 --a 22 percentage point increase (from 63 to 77 percent) since 1995-96 (table 7.1 and box 7.1). The most impressive gains were among 6 to 10 year-old girls, among whom school participation increased 43 percent, from 51 percent to 73 percent. The increase among girls 11-15 was also large, rising from 53 percent in 1995-96 to 67 percent in 2003-04.

Nepal has made impressive gains in net primary enrollment.[64] The net enrollment rate measures the extent to which children are enrolled at the age-

[64] The school participation rate reported in table 7.1 is the age-specific enrollment rate, which measures the proportion of children currently enrolled in school, regardless of the schooling level. The net enrollment rate (NER) is the ratio of enrollment by children of the official targeted age in a given level of schooling to the total number of children of the official targeted age. The NER excludes under-age and over-age children. The gross enrollment rate (GER) is the ratio of total enrollment for a given level of schooling to the total number of children of the official age. GER can be greater than 100 percent and is heavily influenced by the extent of under-age and over-age of enrolled children. All three measures—NER, GER, and school participation—have their advantage and shortcomings in characterizing schooling process, but the school participation rate captures best the aspect of schooling. The NER, however, is one of the indicators of progress identified in the MDGs, so this measure is reported here, together with the school participation rate.

Table 7.1: School enrollment and participation in Nepal, by age group and gender 1995-96 and 2003-04

Age	Boys			Girls			All		
	1995-96	*2003-04*	*Change (in percent)*	*1995-96*	*2003-04*	*Change (in percent)*	*1995-96*	*2003-04*	*Change (in percent)*
School enrollment (percent)									
6-10	73	85	16	51	73	43	62	79	27
11-15	74	82	11	53	67	26	64	75	17
Total	74	84	14	52	70	35	63	77	22
School participation (thousands)									
6-10	1,140	1,299	14	778	1,110	43	1,918	2,409	26
11-15	968	1,186	23	653	872	34	1,621	2,058	27
Total	2,108	2,485	18	1,431	1,982	39	3,539	4,467	26
Out of school (thousands)									
6-10	409	252	-38	741	444	-40	1,150	696	-39
11-15	290	224	-23	546	420	-23	836	644	-23
Total	699	476	-32	1,287	864	-33	1,986	1,340	-33

Source: World Bank staff estimates based on NLSS I and II

Box 7.1 **Nepal's school system at a glance**

More than 26,000 schools serve more than 3 million primary school students in Nepal. Nepal also has about 8,000 lower secondary schools and 4,500 secondary schools. The country has about 110,000 primary school teachers, 29,000 lower secondary school teachers, and 23,000 secondary teachers.

Summary statistics on schooling in Nepal, 2003-04

Item	*Primary*	*Lower secondary*	*Secondary*
Official age	6–10	11–13	14–15
Number of schools	26,638	7,917	4,541
Number of teachers	111,027	28,571	23,028
Number of students	3,074,000	1,188,000	496,000
Students per school	115.4	150.1	109.2
Students per teacher	27.7	41.6	21.5
Teachers per school	4.2	3.6	5.1

Note: Other levels of schooling may also be available at schools serving the primary level. As a result, the total number of schools in Nepal is smaller than the sum of the schools that provide primary, lower secondary, and secondary schooling.
Source: Government of Nepal (2004).

Students in primary school are supposed to begin grade 1 at age 6 and complete grade 5 by age 10. Lower secondary school is supposed to take three years; secondary and upper secondary schools are each supposed to take two years to complete. After completing 10th grade, students take the national School Leaving Certificate (SLC) examination. Students who pass the exam are eligible to attend higher secondary school.

appropriate level of schooling. Net primary enrollment rates have increased significantly in Nepal at all levels of the system. Primary school net enrollment increased from 57 to 72 percent between 1995-96 and 2003-04 (table 7.2).[65] If this rate of progress continues, Nepal is likely to achieve universal primary enrollment before 2015. Nepal's primary school net enrollment rate is higher than that of Pakistan (49 percent), India (53 percent), and Bangladesh (65 percent) but lower than that of Sri Lanka (96 percent) (World Bank 2005). The country's primary school enrollment and the increases in enrollment are higher than predicted by per capita GDP alone (appendix figure A7.1).[66]

Increases in access to schooling have reduced disparities by gender, income, caste and geography, but socioeconomic and regional disparities persist. School participation rates have increased sharply

[65] Official statistics from "School-Level Educational Statistics of Nepal," (Government of Nepal, Department of Education) give NER estimates of 70.5 percent in 1998, 82.3 percent in 2002, and 84.2 percent in 2004. Such discrepancy between official statistics and survey estimates is common and are usually explained by the fact that official enrollment statistics are collected at the beginning of an academic year, while survey figures refer to the time of the enumeration (throughout the year), when enrollments may have dropped. Surveys also capture the actual status of enrollment, while official figures are based on school records, which tend to be inflated. In many countries survey-based estimates are considered better measures of attendance, and these estimates are used as a check of official estimates.

[66] A regression of primary school enrollment against the linear and quadratic GDP per capita values indicates that Nepal's per capita GDP of about $220 predicts a net enrollment rate of about 65 percent.

for girls, for children in the most backward regions of the country (the Mid-west and in the Far-west), for children in all income groups, and for Dalit and Janajati children. But the gap between school participation of children 6-10 from the poorest quintile (59 percent) and that of children from the top quintile (96 percent) remains significant (figure 7.1). Regional disparities also remain, with school participation rates among children 6-10 ranging from 70 percent (in the Central region) to 92 percent (in the Western region).[67]

insights into the pattern of school enrollment. About 80 percent of 7-year-olds in Nepal attend school, and the proportion rises steadily until age 11, after which it declines, to less than 70 percent by age 15 (figure 7.2). Starting at age 11, more than half of all children attending school are at a level below than the targeted level for their age.[68] Enrollment in school at an early age is important because retention rates are high until age 11; a child who enrolls in school at age 6 (the target age for class one) and leaves at age 11 would

Table 7.2: Net primary and secondary enrollment rates for boys and girls in Nepal 1995-96 and 2003-04 (percent)

Level of education	Boys			Girls			All		
	1995-96	2003-04	Change (in percent)	1995-96	2003-04	Change (in percent)	1995-96	2003-04	Change (in percent)
Primary	66.8	77.9	17	46.5	66.9	44	56.8	72.4	72.4
Lower secondary	23.3	31.1	33	14.3	26.4	85	19.1	29.0	29
Secondary	12.9	16.8	30	6.0	13.4	123	9.3	15.1	15.1

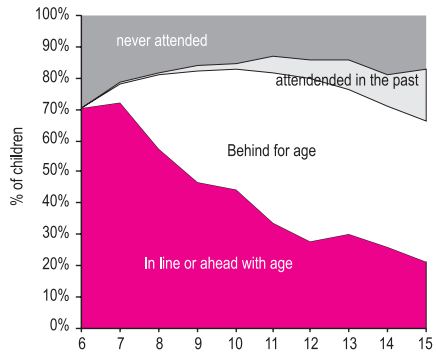
Source: World Bank staff estimates based on NLSS I and II

Despite a narrowing of the gender gap, school participation remains lower for girls than for boys. The participation rate for girls 6-10 (73 percent) is lower than that for boys the same age (85 percent); for girls 11-15, the participation rate is 67 percent which is also lower than the 82 percent participation rate of boys (Table 7.1). But the disparities have narrowed with the percentage of girls enrolled in primary school rose from 72 percent of the rate for boys in 1995-96 to 82 percent in 2003-04. Assuming that the gender gap continues to narrow at this rate, *Nepal will achieve gender parity for primary education by 2010.*

Increases in enrollment have been smallest among the Hill Janajatis. Enrollment among 6- to 15-year-old Hill Janajatis rose just 15 percent, far less than the 51 percent increase among Dalit children and slightly less than the 18 percent national average. Because they live in remote villages, Hill Janajatis have most difficulty accessing schools. In addition, the mother tongue of Hill Janajatis is neither Nepalese nor English, making it difficult for them to follow instruction in either language.

Starting school on time is critical. Analyzing school attendance by single-year age group provides

Figure 7.2 School enrollment by age



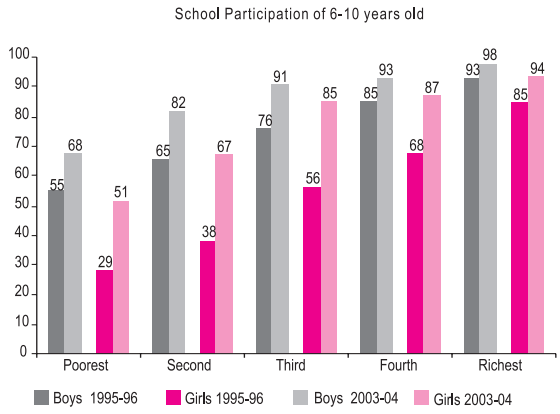
thus have completed primary education. Because late entry suppresses attainment levels in Nepal (as it does in other countries) promoting on-time entry into schooling would increase school attainment.

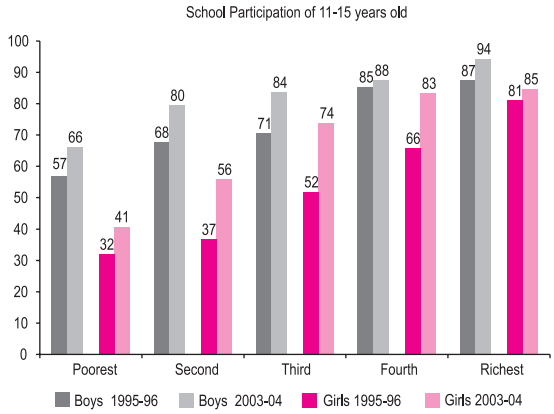
Multivariate analysis helps explain why children do or do not attend school. Notwithstanding the improvements that have taken place, 1.3 million children (700,000 of which are 6-to-10 years old and 600,000 are 11-to-15 years old) in Nepal are not

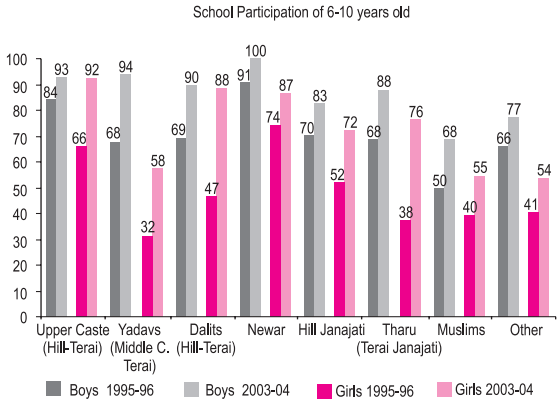
[67] Six PSUs in the Far Western region could not be reached in 2003-04; if these PSUs made less progress than the surveyed PSUs in the Far West, this figuremay overstate the rate of the progress. This does not appear to be the case. DHS data collected in 2001 show that net enrollment rates in the Far West were higher than those calculated on the basis of the NLSS-II (see Ministry of Health, HMGN, New Era, and ORC Macro, 2002).

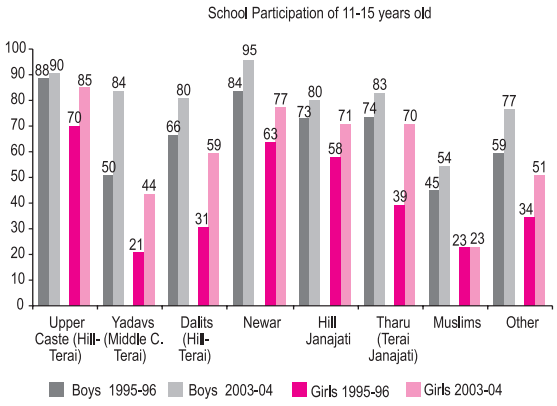
[68] For the purposes of this analysis, target-age grades were defined very liberally to be grade 1 or higher for 7-year olds, grade 2 or higher for 8-year olds, and so on.

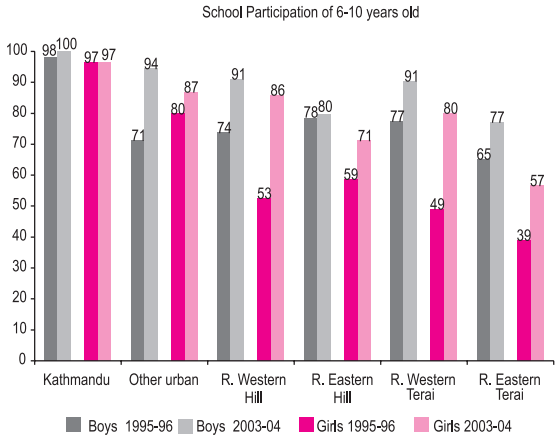
Figure. 7.1 **School participation of children 6-10 and 11-15 in Nepal, by background characteristics**

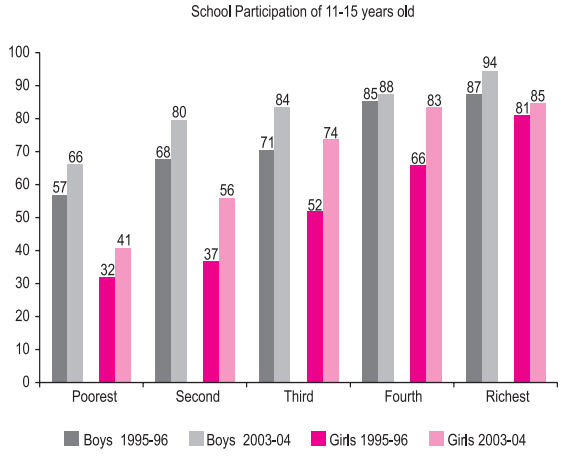












attending school. Understanding the characteristics of these children helps policymakers design policies that target their enrollment. Multivariate regression can isolate the factors that affect the probability of enrollment holding other factors constant. Results from the *probit* analysis of the probability of attending school for children 6-10 are summarized below (appendix table A7.1 presents the estimations).

From a supply perspective, households with easy access to schools are more likely to enroll their children in primary school. Unfortunately, the survey doesn't allow to measure for direct quality of schooling--quality of instruction, teacher's absenteeism. But international evidence show that these indicators matter greatly for encouraging attendance as well, and there is emerging evidence that there are large deficiencies in this regard in Nepal's education system.

From a demand perspective, several factors increase the probability that a child will enroll in school:

- Children from higher income households are more likely to attend school than poorer children. This is not surprising, as the direct and indirect costs associated with school attendance by poor children can far exceed the benefits, which are generally observable only in the longer term.
- Children of educated parents and children living in households in which the head is literate are more likely to attend school than children of uneducated parents or an illiterate household head.[69] This relationship attests to the low level of intergenerational socioeconomic mobility.
- Upper-caste children are more likely to be enrolled in school than middle-caste children, Dalits, Janajatis, or children from religious minorities.
- Intrahousehold dynamics play an important role in the decision to enroll a child in school. The presence of sisters appears to have a positive impact on the probability of school attendance by boys. The likely explanation is that daughters assist with household chores, thereby increasing the probability that their brothers attend school. The probability of girls attending school is not affected by the presence of a brother.
- After controlling for household income, children in the Central region are less likely to attend school than children in the Eastern region, while children in the Western region are more likely to attend school.
- Confirming the pattern of late enrollment observed above, probit results show that six- and seven-year-olds are less likely to be enrolled in school than older children.

Child labor is a significant issue in Nepal -- not necessarily for the 6- to 10-year-olds but certainly for 11- to 15-year-olds. Half of 6- to 10-year-olds in poor households are in school, and more than a quarter are idle (table 7.3). Only 10 percent of young children work only; another 13 percent combine school and work. Among 11- to 15-year-olds, 10 percent are idle; the rest are evenly divided among exclusively attending school, exclusively working, and combining school and work. The increase in the proportion of children who combine work and school from 13 percent in 1995-96 to 29 percent in 2003-04 is consistent with evidence that households are increasingly using child labor in agricultural production because of rising agricultural wages. Child labor becomes an important option for families as children age. Ensuring that children begin school earlier is thus key for improving education attainments. Devising strategies so that working children can participate in the education process is also important.

Many children never attend school, because they cannot afford the direct costs or because the opportunity cost of attending school is too high. The 2003-04 NLSS

Table 7.3: Activity status of children in poor households in Nepal, 1995-96 and 2003-04

	6 -10 year old	*11-15 year old*	
Status	*2003-04*	*1995-96*	*2003-04*
School only	50.9	35.5	29.4
School and work	13.1	12.9	28.7
Work only	10.2	37.9	31.9
Idle	25.8	13.8	10.1

Note: The NLSS-I (1995-96) does not include information on work activity for children under 10.
Source: NLSS-I and II.

[69] This finding is also documented in Filmer (2000), using the NLSS 1995-96 data.

identifies the self-reported reasons why children did not attend (table 7.4):

- Almost a quarter of parents of children who never attended school cite low family income as the primary reason. This reason is cited by both poor and nonpoor households. The high costs of education are cited as a deterrent in urban areas more often than in rural ones.
- More than a fifth of parents of children who never attended school cite parental objections to school attendance. Such objections are slightly more common for girls (23 percent) than for boys (19 percent), and they are cited more often for older children (32 percent) than for younger children (14 percent).
- About 18 percent of children do not attend school because of their own unwillingness to do so.
- About 20 percent of girls and 8 percent of boys do not attend school because they work at home. (It is likely that survey responses "parents not wanting" and "work at home" reflect the indirect opportunity cost of sending children to school.)
- Few households cite the absence of a school, its distance, or the belief that education is not useful as reasons for not sending their children to school.

Completion rates rose in the top three quintiles, but they remained stagnant or declined among the poorest 40 percent of the population.[70] Among the poorest households, completion rates for boys 11-13 years old fell from 15 percent in 1995-96 to just 10 percent in 2003-04. Completion rates for girls rose in all income quintiles. For all children 11-13, primary school completion rates increased from less than 30 percent to almost 40 percent; the primary school completion rate for children 14-17 rose from 71 to 80 percent (table 7.5).[71] Much of the increase in school completion is explained by the large increase in completion by girls 11-13 (from 26 to 36 percent) and girls 14-17 (from 64 to 78 percent). *Increase in the prevalence of child labor among the poor households (i.e., when children combine school and work) might be responsible for this decline in school completion. More studies need to be done to determine how to best accommodate needs of the working children.*

Completion rates for ever-enrolled girls have increased considerably since the mid-1990s and are now on a par with rates for ever-enrolled boys. Although the gender gap in primary school completion rate has been largely eliminated for ever-enrolled children, fewer girls complete school, because fewer girls enroll. These findings highlight the need to reduce the number of girls who never attend school.

Children drop out of primary school because of poor academic progress, high direct fees, and the need to work at home. Poor academic progress is the most often reason 6- to 10-year-olds cite for dropping out of school; 11- to 15-year-olds most often cite the need to work at home (table 7.6). Girls and boys tend to drop out for different reasons. For boys the most often cited reason is poor academic progress, followed by the high direct costs of schooling. For

Table 7.4: Self-reported reasons for not attending school among children who never attended, 2003-04

Group	Too costly	School too far away	Work at home	Parents not wanting	Children unwilling to attend	Other reasons
Nonpoor	21	4	19	23	16	18
Poor	24	7	14	21	19	15
Boys	26	7	8	19	22	18
Girls	21	5	20	23	16	15
Urban	37	0	7	20	14	22
Rural	22	6	16	22	18	16
Children 6-10	22	8	13	14	20	23
Children 11-15	24	2	20	32	14	7
All children 6-15	23	6	16	22	18	16

Source: NLSS-I and II.

[70] Completion rates are defined as the number of children who complete a given level of schooling divided by the number of children who began that level of schooling. Completion rates could best be measured using longitudinal data, as these data allow transitions to be followed. Since household surveys are essentially snapshots at a particular point in time, it is customary to define completion rates as the proportion of children of a certain age who have completed primary school divided by the proportion of children the same age who were ever enrolled in school. We define these measures for two age groups, 11-13 and 14-17.

[71] This ratio is the number of children who complete primary school divided by the number of children who were ever enrolled in school.

Table 7.5: Primary school completion rates among ever-enrolled children in Nepal 1995-96 and 2003-04 (percent)

	Boys		Girls		All	
Quintile	*1995-96*	*2003-04*	*1995-96*	*2003-04*	*1995-96*	*2003-04*
All ever-enrolled children 11-13	31	37	26	36	29	37
Lowest	15	10	10	17	13	13
Second	24	21	18	20	21	20
Third	34	42	16	30	27	37
Fourth	33	50	33	48	33	49
Highest	42	60	40	61	41	60
All ever-enrolled children 14-17	75	79	64	78	71	79
Lowest	63	58	37	54	53	57
Second	59	65	35	58	51	62
Third	72	80	61	78	67	79
Fourth	76	90	63	85	70	88
Highest	93	90	86	94	90	92

Source: World Bank staff estimates based on NLSS I and II

two-thirds of girls, the need to help at home or cultural factors (such as parental objections to school attendance) are the main reasons for dropping out of school. Urban children drop out primarily because of the high direct cost of education (fees, uniforms, textbooks). Rural children drop out mainly because they need to work at home or because they perform poorly at school.[72] Children from poor households are more likely than nonpoor to cite high direct fees, distance to school, and poor academic progress.

Multivariate analysis shows that proximate determinants of completion are broadly similar to patterns of enrollment. Children from higher income (and better educated) households are more likely to complete all levels of schooling than poorer children. Caste plays a vital role in school completion rates. The probability of primary school completion is significantly lower for Terai middle castes, Dalits, Janajatis, and religious minorities than for upper-caste children (see appendix table A7.2).

Repetitions also reduce completion rates. Twenty percent of 14- to 17-year-olds who ever enrolled in school do not complete primary school—because they drop out, start late, or repeat grades. Average repetition rates are about 22 percent, with the highest repetition rate in grade 1, which almost 40 percent of students repeat, and in grade 5 (Ministry of Education, HMGN, 2003). High repetition rates are caused in part by low readiness for school (particularly in grade 1) but also by low-quality instruction. High repetition rates strain the capacity of schools to absorb out-of-school children, and they increase dropout rates, because repeaters are more likely to drop out of school.

Table 7.6: Self-reported reasons for dropping out of school in Nepal, 2003-04

Group	*Too costly*	*School too far away*	*Work at home*	*Parents not wanting*	*Poor academic progress*	*Other reasons*
Nonpoor	13	2	30	13	23	19
Poor	15	9	27	9	29	11
Boys	17	8	19	6	32	17
Girls	11	3	38	15	19	14
Urban	36	4	17	8	19	17
Rural	12	5	30	11	26	15
Children 6-10	8	15	18	17	22	20
Children 11-15	15	4	30	10	26	15
All children 6-15	14	5	29	11	26	16

Source: NLSS-I and II.

[72] Almost 90 percent of students in Kathmandu and nearly 40 percent in other urban areas attend private schools (the national figure is 14 percent). The often cited response of high cost in urban areas possibly reflects parents' desire to send their children to private schools.

7.3 Education Sector Policies and Programs in the Public and Private Sector

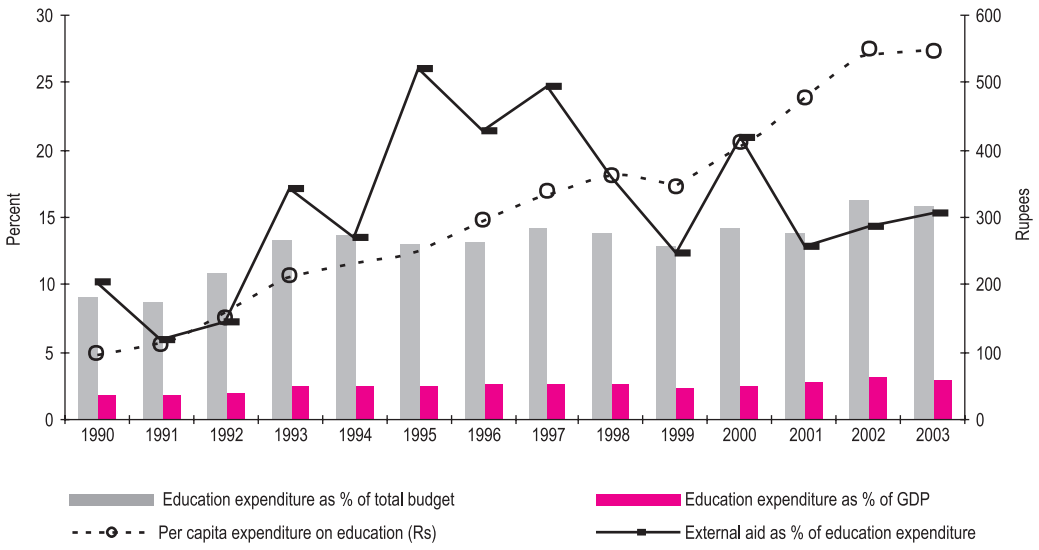
Education is a priority in Nepal. Priorities have been articulated and funding consistently increased over the past two decades. Education goals are presented in the government's Poverty Reduction Strategy Paper (PRSP), the 10th Five-Year Plan, and the National Plan of Action (2001-15). Education expenditure has increased from 9 percent of the national budget in the early 1990s to an estimated 15 percent in 2003. About 3.5 percent of GDP is allocated to the education sector (figure 7.3), making education the largest item in the government's budget (Government of Nepal 2002).[73] Education sector expenditures are a top priority in the government's Medium-Term Expenditure Framework, indicating its continuing commitment to education.

As a proportion of GDP, public spending on education in Nepal is comparable to that in other countries in the region. India allocates about 4.0 percent of GDP for education, Sri Lanka about 3.1 percent and Bangladesh about 2.5 percent. But because Nepal's GDP is lower than that of its neighbors, per capita expenditures are very low, however: at $21 a year in 1996/97, they are the lowest in the region, representing about half of per capita spending in India.

Basic education accounts for almost 60 percent of total education expenditures in Nepal.[74] The largest component of basic education is primary education, which accounts for 53 percent of the total education budget. Secondary education accounts for 23 percent and higher education for 20 percent of overall education expenditures. The rest of the budget is allocated to nonformal, technical, and vocational education.

Accessibility of schools has improved greatly, with the households from the lowest expenditure quintile benefiting most. This was a result of the increase in the number of schools and the number of

Figure 7.3 Public expenditure on education in Nepal, 1990-2003 (in '000)



Source: Economic Survey (2004).

[73] The government's commitment to education has also attracted considerable donor financing. A significant portion of all education expenditures is funded by donors, including the International Development Association, Denmark, Finland, Norway, and the Department for International Development. Until the Sector Wide Approach Program (SWAP) came into effect in 2005, many of the donor-supported projects were executed out of budget.

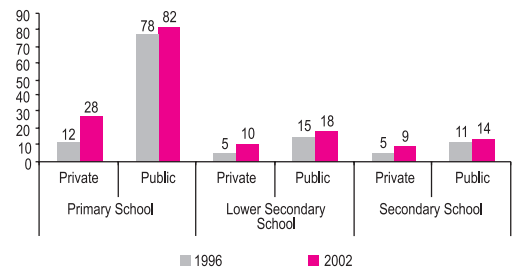
[74] Basic education includes primary education, technical and vocational education, the school feeding program, nonformal education, scholarship program, women's education, special education, population education, and distance education.

teachers in the public school system, improvements in roads, and growth of the private sector as an alternative education provider. The proportion of households living close to a school increased, with the average time to travel to a school falling 25 percent in both urban and rural areas (to about an hour in rural areas and 15 minutes in urban areas; see chapter 6). Expansion of access to schools was relatively pro-poor, with the lowest quintile benefiting most. Road networks and ownership of various types of transportation all increased, contributing to increased accessibility of schools. Moreover, further expansion of roads is expected to be pro-poor, but despite these improvements, differences in school accessibility between rich and poor remain (see table 6.8).

The number of teachers increased, particularly in the private sector. The number of public school teachers increased by about 10,000 (an increase of 9 percent) between 1995-96 and 2002 (see appendix table A7.3). The increase varied across regions, with the Central regions (excluding Kathmandu) and Western regions enjoying the bulk of the increase. The number of private school teachers rose from 21,000 to almost 50,000 in 2002.

The share of private schools in primary school enrollment more than doubled, rising from 6 percent to 14 percent for children 6-10 and from 4 percent to 10 percent for children 11-15 (table 7.7). By 2003-04 more than 8,500 private schools (about a quarter of all schools) were operating in Nepal.

Figure 7.4 **Number of public and private school teachers in Nepal, 1995-96 and 2002 (in '000)**



In Kathmandu enrollment is overwhelmingly in private schools, with nearly 90 percent of all children 6-10 and 70 percent of all children 11-15 in private schools. In other urban areas, 37 percent of all 6-to-10 year old students are enrolled in private schools. Private schools cater primarily to urban students and students from the top two expenditure quintiles.

Private schools are considerably more expensive than public schools and deliver better quality education: 85 percent of private school students and less than 30 percent of public school students pass the national examination given at the end of grade 10. Private schools cater mostly to children from better off families. Only 3 percent of 6- to 15-year-olds from the bottom two expenditure quintiles attended private school in 2003-04, while more than half of those from the top quintile did so (table 7.7).

Household expenditures for primary and secondary education in public schools remained constant in real terms, while spending on private schools rose significantly. The average household in Nepal spent about Rs 400 per year (in 1995-96 prices) on education for each child in public primary school in 2003-04 (table 7.8). These expenditures represented about 5 percent of total per capita household expenditures for households with children in public primary schools (4.2 percent for the richest households, 5.2 percent for the poorest households). These expenditures remained roughly constant in real terms, and they declined as a proportion of total household expenditure. In contrast, real household expenditures on private primary and secondary schooling rose more than 50 percent.

Public expenditures for primary education are increasingly captured by poor households, but spending on higher levels of schooling still disproportionately benefits richer households. Public primary education outlays are strongly pro-poor, while secondary education outlays are weakly pro-poor in 2003-04 (table 7.9). Tertiary education is not pro-poor. In 2003-04, 48 percent of public expenditure in primary school and 21 percent of secondary expenditures went to the bottom two expenditure quintiles. In contrast, just 3 percent of tertiary expenditures went to the poorest 40 percent of the population. Overall, distribution

Table 7.7: Participation in public and private schools in Nepal, by region and expenditure quintile, 1995-96 and 2003-04 (percentage of all children in age group)

	6-10 year old						11-15 year old					
	Public schools			Private schools			Public schools			Private schools		
	1995-96	2003-04	Percentage change	1995-96	2003-04	Percentage change	1995-96	2003-04	Percentage change	1995-96	2003-04	Percentage change
Region												
Kathmandu	32	12	-65	65	87	34	47	24	-50	44	70	58
Other urban	47	51	9	25	37	51	60	56	-6	14	29	113
Rural Western Hills	61	85	39	2	2	28	65	76	16	2	1	-25
Rural Eastern Hills	63	64	2	6	12	112	69	66	-5	2	6	171
Rural Western Terai	52	69	33	6	13	125	54	74	37	2	8	381
Rural Eastern Terai	46	52	14	5	11	101	50	57	15	3	5	84
Quintile												
Lowest	39	54	39	2	3	12	42	50	17	1	2	56
Second	49	69	41	1	3	147	49	67	36	2	1	-34
Third	59	78	33	3	8	160	60	73	22	1	5	297
Fourth	68	68	-1	7	21	181	73	78	7	2	7	207
Highest	65	38	-41	24	55	131	73	53	-27	12	36	212
Nepal	54	63	15	6	14	122	60	64	8	4	10	162

Source: World Bank staff estimates based on NLSS I and II

Table 7.8: Per student household expenditures in Nepal, 1995-96 and 2003-04 (in 1995-96 rupees)

	Public school		Private school		All	
Level of education	1995-96	2003-04	1995-96	2003-04	1995-96	2003-04
Primary	326	387	2,688	4,144	521	979
Secondary	455	415	4,281	6,785	590	848
Tertiary	6,601*	3,657	5,769	15,756	6,396	6,715
All levels	458	466	3,203	5,407	641	1,056

**Note*: based on 17 observations.
Source: World Bank staff estimates based on NLSS I and II

of public education outlays is still weakly pro-poor (transferring 36 percent of all education outlays to the households in the two lowest expenditure quintiles, while only 17 percent of the overall per capita expenditure belongs to these households) and it has improved with respect to primary and secondary education. These improvements reflect the fact that poor households tend to have more children and are more likely to enroll their children in public primary school (richer households tend to send their children to private schools). But the opting out of the better off from the public system is not a positive sign and may further compromise the quality of the public education system. Results from the marginal benefit incidence analysis show that households in the 2rd, and 3d, quintiles benefited disproportionately more than the other households from the increase in education spending between 1995-96 and 2003-04 (table 7.10).

Parliament's recent amendment of the Education Act in 2001 paved the way for the transfer of school management to communities, the government's main strategy for improving the quality of education. Community management is a process of devolving management functions by creating school management committees and parent-teacher associations and rerouting funds directly to schools (box 7.2). The premise is that oversight by the school management committee will lead to greater effort by teachers and administrators,

Table 7.9: Benefit incidence of public expenditure on education in Nepal 1995-96 and 2003-04 (percent of total spending)

		Per capita consumption quintile					
		Lowest	*Second*	*Third*	*Fourth*	*Highest*	*Total*
1995-96							
	Primary	18	19	23	23	17	100
	Secondary	6	10	17	26	41	100
	Tertiary	0	4	0	11	86	100
	All levels	11	14	17	21	37	100
Per capita expenditure		8	12	16	21	44	100
2003-04						100	
	Primary	22	26	23	20	8	100
	Secondary	7	14	21	33	26	100
	Tertiary	2	1	5	6	86	100
	All levels	16	20	21	22	21	100
Per capita expenditure		7	10	13	19	51	100

Source: World Bank staff calculations based on NLSS-I and II.

Table 7.10: Marginal benefit incidence of public education expenditures in Nepal (shows changes in the distribution of all education expenditures between 1995-96 and 2003-04)

	Per capita consumption quintile					
	Lowest	*Second*	*Third*	*Fourth*	*Highest*	*All*
Primary	19	23	17	12	-1	70
Secondary	2	5	8	12	3	31
Tertiary	0	-1	1	-1	0	0
All levels	22	27	26	23	2	100

Source: World Bank staff calculations based on NLSS-I and II.

thereby improving educational outcomes for the community at large. Under the initiative, communities that choose to participate in the program receive block grants of Rs 100,000 (about $1,500) to shift to community management. By early 2005 more than 2,200 public primary schools (about 10 percent of all primary schools) had shifted to community management. The PRSP target is to have 8,000 schools (about a third of all schools) managed by communities by 2007.

Government officials, NGOs, parents, and development partners appear optimistic about the prospects for community management, but challenges remain. Community management of schools has a long history in Nepal. Between 1851 and 1972, schools in Nepal were primarily community run. The common perception is that teacher attendance and some other aspects of quality were higher during this period. Schools were managed by school management committees, made up of local social workers, parents, teachers, and representatives of development partner agencies (UNDP 2004). The government's role included registering schools, developing curricula, and administering the grade 10 examinations.

Effective community management of schools will require enhancing the capacity of school management committees and helping the District Education Office change its function from one of delivering services to one of facilitating delivery of services by schools. It will also require support from teachers, who fear that the new policy may hurt their interests. The Third Amendment of the Education Regulations tries to address their fears. Success also depends on clarifying the roles and establishing a good working relationship between school management committees, on one side and, village development committees, and municipalities, on the other, which will be bypassed as funds flow directly from the district education offices to schools.

Scholarship programs for poor and excluded groups have been introduced to increase their enrollment and attendance.[75] Since 2004 the government has introduced stipends for children from disadvantaged families. Children from households in which no other member has completed primary school should receive Rs 500 a year if they enroll in primary schools; Dalit children should receive Rs 250 a year. Free

[75] HMGN, MoE, 2004d.

Box 7.2 **Community management of schools in Nepal**

Under the community management system government support to community-managed schools will come in the form of grants, which schools will be allowed to spend in line with their priorities. These grants are linked to accreditation to promote performance. Three types of grants are awarded: basic grants, level 1 grants, and level 2 grants, with higher level grants awarded to better performing schools. Grants are expected to cover more than 60 percent of the nonsalary costs of the program. The government will continue formulating service conditions for teachers, but teachers will be recruited by communities. The hiring and firing of teachers and appointment of head teachers will continue to rest with the Ministry of Education. Teacher salaries will be determined by a formula based on the number of students. They will be paid by the Ministry of Education.

School management committees are expected to undertake the day-to-day management and supervision of schools. Schools will prepare school improvement plans, which will serve as the basis for funding schools; decide how to spend the funds provided as school grants; and evaluate the performance of teachers. Their evaluation will have a bearing on contracting, continuation, promotion, and assignment of teachers (a school management committee may, for example, recommend the reassignment of a nonperforming teacher or a headmaster). Community-managed schools are also encouraged to enter into partnerships with NGOs. Two types of relationship is envisaged: NGOs bearing their overheads or NGOs providing services for fees.

The process of devolution to the school management committees differs conceptually from the decentralization process of handing over planning, allocation, and monitoring activities as well as funds to village development committees and municipalities that is taking place in Nepal in other sectors. In education sector, funds will continue to be provided by the central Department of Education, according to a nationally applicable formula based on data on enrollments, class size, structure, level, and other measures as well as on indicators of performance. The District Education Office and District Development Committees (DDC) will facilitate, monitor, and evaluate; village development committees participate in the management of schools through their representation on school management committees.

schooling is extended past the primary level for all girls and for boys from disadvantaged, oppressed, or poor families. Government intends to set up a Rural Education Development Fund to fund the education of marginalized communities. Funds for this program will come from a levy of 1.5 percent of the income of private and boarding schools. Emerging evidence shows, however, that scholarships currently available to families "to help pay for educational expenditures" are not well targeted. NLSS 2003-04 indicates that education stipends were received by 384 thousand Dalit students, out of a total of 527 thousand eligible Dalit pupil. Among non-Dalit, half of the stipends were allocated to males; and almost 60 percent were received by the students in nonpoor families.[76] Sustained monitoring and evaluation is needed to ensure the effective targeting of these stipends.

7.4 Summary and Policy Options

Nepal has made tremendous strides in providing access to basic education to its population in the past decade, but quality remains a concern. Since the mid-1990s, primary school enrollment has increased significantly, especially for girls, people living in the poorest regions, and the poor. If these trends continue, and policies to enroll the 1.3 million out-of-school children are successful, Nepal will achieve the MDG for universal primary enrollment by 2015. If gains in secondary and tertiary enrollment and literacy continue, Nepal should also reach gender parity at all levels of the education system, as well as in literacy. Although school completion rates have increased, the level and pace of increase is not sufficient to meet the MDG on school completion.

To achieve the universal primary education MDG, Nepal will have to reduce the number of out-of-school children, improve the quality of the education system, and continue to reduce disparities across socioeconomic groups. Enrolling out-of-school children will be difficult, as easy gains in enrollment have likely

[76] This evidence should be treated with caution. The main limitation of the above analysis is that the NLSS provides information on whether a stipend is received and the amount of the stipend, but no information on the source of the stipend.

already been achieved. Moreover, between 2000 and 2015 the population of 6 to 10 year-olds is projected to increase 14-44 percent, making universal enrollment more challenging.[77] Key actions in the following areas are likely to help reduce the number of out-of-school children:

- **Strengthen demand-side programs,** such as the stipend program, to ensure that all children, including the poorest, have the opportunity to participate.
- **Facilitate greater private sector involvement.** Private schools largely serve the nonpoor, but they free up public resources for children who remain in public schools. Production and delivery of textbooks by the private sector has been piloted in Nepal, but little is known about the effectiveness of the program or ways to replicate good practices. International evidence has been mixed, reinforcing the need to assess the textbook pilot.
- **Make schools more attractive to subgroups of out-of-school children.** Schools are often perceived as institutions reserved for the elite. Small steps can make children feel welcome at schools. Measures could include hiring women teachers and teachers who speak local languages, ensuring that all schools have separate toilets for girls and boys, and ensuring a cordial and interactive relationship between school administrators/teachers and the community. These measures can help induce girls, poor children, and children from low castes to enroll in school.

School quality needs to improve. Low completion rates and low pass rates in public schools on national examinations indicate that public school quality remains an obstacle to progress. Interventions to increase the quality of primary schools could include the following:

- **Continue the shift toward community-managed schools.** Shifting from a centrally managed system to community management has the potential to improve school quality by improving provider incentives to better serve households and communities. This shift can motivate school teachers and administrators to provide high-quality teaching. School administrators can play a vital role in establishing educational goals, matching teachers to classrooms, evaluating and motivating staff, distributing school materials, and developing close relationships with community members.
- **Increase the capacity for teacher certification, and ensure that effective teaching techniques are passed on to future teachers during certification programs.** Less than half of Nepal's teachers are trained; the need to boost the numbers of certified teachers is thus great. This is especially true if the current growth in enrollment continues and class sizes are to be maintained at manageable levels. School administrators can also benefit from training. In Sri Lanka, for example, a school principal training center is being developed to provide leadership and management training. Changes in teacher training also need to be made, to ensure that modern teaching techniques are taught.
- **Upgrade infrastructure and materials.** International experience suggests that infrastructure and instructional materials play an important role in improving attendance by both pupils and teachers and enhancing the learning experience. Textbooks in Nepal are often in poor condition, and distribution is often delayed. The pilot project of privatized production and delivery of textbooks needs to be monitored to determine whether it will improve the condition and delivery of textbooks.
- **Modernize the curriculum to improve learning and increase the link to the labor market.** The curriculum across levels is fragmented, emphasizes the acquisition of facts rather than the development of thinking skills, and includes irrelevant and outdated materials. A comprehensive review and revision of the curriculum is crucial if Nepal is to harness the gains from increased educational attainment.

[77] Population projections for 5- to 14-year-olds are derived from World Population Prospects: The 2002 Revision and World Urbanization Prospects: The 2001 Revision, United Nations Secretariat, Population Division, Department of Economic and Social Affairs, February 17, 2005, available at http://esa.un.org/unpp. The population of 6- to 10-year-olds is assumed to be half the population of children 5-14.

- **Streamline efforts to increase enrollment and improve school quality, and increase monitoring and evaluation.** Rigorous and frequent evaluations are needed to ensure that scarce public resources are being channeled into programs that deliver and are available in regions that most need them. Monitoring and evaluation could be used to assess the targeting effectiveness of the stipend program and the ability of the program to attract out-of-school children, to resolve bottlenecks emerging in the move toward community-managed schools, and to determine how best to ensure better functioning production and delivery of textbooks.

The Maoist insurgency poses a major challenge to achieving the Millennium Development Goals for education, threatening progress already made and potentially hindering further progress. Although the Maoists have not expressed any interest in interfering in the public schools, there are already signs of problems. Security problems are disrupting the normal functioning of schools, and children and families have moved to avoid being abducted. The Maoists have allegedly abducted children and teachers, whom they indoctrinate and force into their army in nonmilitary roles.[78] Teachers have been made to alter their teaching to suit Maoist ideology. Taxes to fund Maoist cause have been extorted from teachers and administrators. The insurgency has also exacerbated the problem of teacher absenteeism.[79] The security situation has weakened the role of district administration in supervising and monitoring schools. District Education Offices are increasingly unable to visit schools and interact with school management committees and teachers because of fear of being targeted by the Maoists. With little communication between school management committees, it is difficult to monitor school performance or share data or ideas for improving the school system.

78 Kathmandu Post, Kathmandu Chaitra 24, 2058.
79 World Bank (2005).

CHAPTER-8

IMPROVING HEALTH OUTCOMES: MEETING THE HEALTH MDGs

CHAPTER-8

IMPROVING HEALTH OUTCOMES MEETING THE HEALTH MDGs

8.1 Introduction

Nepal has made significant improvements in the health status of its people in recent years. Major declines in child mortality and improvements in the detection and treatment of tuberculosis have helped increase life expectancy at birth by more than five years in the past decade, to almost 61 in 2001 (Ministry of Health, HMGN, 2005d). The gains in these health outcomes are a result of higher household incomes; the success of focused ("vertical") programs, such as immunization, vitamin A supplementation, diarrhea and acute respiratory illnesses and tuberculosis control programs; large increases in the number of health facilities and improvements in road networks; improvements in water and sanitation; increases in education levels and health awareness; and declining fertility rates. Given current trends, Nepal is likely to achieve the child mortality MDG by 2015. But maternal and infant mortality in Nepal remain high relative to other countries and child malnutrition is among the highest in the world, making attainment of the infant and maternal mortality goals unlikely. Differences in outcomes by region and household welfare point to entrenched inequalities, which will require directed action that targets the most vulnerable groups.

This chapter explores the status and determinants of access to health services and health outcomes, such as child mortality and malnutrition. It also outlines key challenges and issues in the health sector. Policy options include increasing access, particularly for marginalized groups, through targeted interventions, community awareness programs and decentralized service delivery with greater community ownership; improving the quality of care, through greater accountability of providers to clients; fostering public-private partnerships; and improving health system management capability and creating monitoring and evaluation systems to track feedback and outcomes.

8.2 Access to Health Care Services

Per capita public spending on health is very low. As a percentage of GDP, Nepal's public health spending is comparable to that of other countries in the region. About 1.76 percent of GDP or 5.8 percent of total government expenditures go toward public health expenditures (Ministry of

Table 8.1: Health facilities under the Ministry of Health, 2003

Type of facility	*Number of facilities*
Specialized/central and regional hospitals	6
Subregional hospital	1
Zonal hospital	9
District hospital	67
District health office	75
Primary health care center	180
Health post	711
Subhealth post	3,179
Primary health care outreach clinic	15,548

Source: Ministry of Health, GoN.

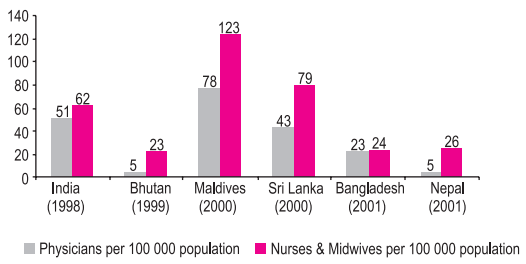
Health, HMGN, 2005d). This share has increased only slightly in recent years. The figure is roughly comparable to spending in Bangladesh (1.5 percent of GDP), China (2.0 percent), India (0.9 percent), and Sri Lanka (1.8 percent), while Bhutan spends more (3.6 percent), (WHO 2003). In per capita terms, however, government on health expenditures is low, at about $3 a year, while Bangladesh spends 1.7 times, Bhutan 2.7 times, and Sri Lanka 5.0 times as much as Nepal.

The number of government health facilities has increased. Despite low government spending on the health sector, Nepal has come a long way in terms of increasing access to health services. Just a few decades ago, health services were available primarily in urban areas. In the last decade the number of health care institutions quadrupled, rising from 1,098 in 1991-92 to 4,439 in 2001-02 (Ministry of Health, HMGN, 2004). Public health facilities also expanded at the subnational and community levels, with the establishment of 3,179 subhealth posts and 711 health posts as of 2003 (table 8.1). In addition, there are more than 15,000 primary health care outreach clinics—extensions of health posts and subhealth posts staffed by volunteer health workers and maternal and child health workers who travel once a month to a prearranged place.

The commute time to health care services has declined sharply. The median commute time to a health facility in rural areas fell to 50 minutes between 1995-96 and 2003-04 (a fifty percent decline), table 6.7, chapter 6. Both improvements in roads and the increased number of public and private health establishments contributed to the decline. Despite overall improvements in access, however, a large proportion of poorer households continue to live far from health facilities (see chapter 6).

The shortage of doctors in Nepal remains severe. Nepal has 5 physicians for every 100,000 people—one-fifth the ratio in Bangladesh and one-tenth the ratio in India (figure 8.1). The density of nurses and midwives is also among the lowest in the region. Nepal's 26 nurses and midwives per 100,000 people is about a third the level in Sri Lanka and significantly less than India's 62 per 100,000 people (WHO estimates). Shortages of health professionals are particularly acute in

Figure. 8.1 **Distribution of health care professionals in South Asian countries**



remote regions (table 8.2). The Central region (including the Kathmandu valley), where 34.5 percent of the population lives, has 70.0 percent of the country's doctors. In contrast, the Far-western region, where 9.5 percent of the population lives, has just 2.0 percent of the country's doctors.

Table 8.2: Geographic distribution of health care professionals in Nepal, 2001 (percent)

Region	*Population*	*Doctors*	*Nurses and ANM*	*Retail pharmacies*
Eastern	23	14	23	17
Central	35	70	40	64
Western	20	11	26	13
Mid-western	12	3	8	4
Far-western	10	2	3	3
All	100	100	100	100

Source: Ministry of Health (2005) (www.moh.gov.np).

The government is in the process of decentralizing the provision of primary health care. As part of the transition brought about by the Local Self-Governance Act of 1999, primary public health facilities will be gradually transferred to village development committees and hospital management committees by 2007. Over 1,420 health facilities including subhealth posts have already been handed over to local health management committees. Community management has demonstrated an increase in health care providers' accountability to clients and increase in utilization of services. Communities will be able to tailor the services provided to the needs of the community, empower local residents, and give them a voice in the provision of public health. Residents of the community are in the best position to monitor the

progress of their health. It is too early to evaluate whether community management has improved the functioning of health facilities. A monitoring and evaluation system is being put in place to allow improvements to be measured. Bottlenecks, already evident in the ongoing decentralization efforts, need to be addressed.

Nepal has a large private health sector. More than half of all health consultations in 2003-04 took place in private institutions (table 8.3). The majority of these consultations are with a paramedic or other health professional, rather than a doctor. Pharmacies and clinics are the most frequently visited private facilities, accounting for almost 90 percent of all private visits.[80] In the pubic sector subhealth posts are the most frequently visited facility. Between 1995-96 and 2003-04, the proportion of visits to private facilities increased in both urban and rural areas.

The tendency to seek health care and the type of medical personnel and facility visited differ across households with different income levels. In 2003-04, 51 percent of the households in the poorest expenditure quintile and 76 percent in the richest quintile sought care when suffering from an acute illness. Wealthier people were more likely to use private facilities for consultations, and the wealthiest were more likely to see doctors, rather than paramedics. The poor tended to visit public facilities and when visiting either public or private facilities tend to see paramedics (table 8.3).

Household spending on health care has risen in real terms. As a percentage of total expenditure, household out-of-pocket spending remained flat over the past decade, at about 4.5 percent, but rising consumption levels meant that average spending on health rose. The percentage of spending on health care by the poorest quintile was about 4 percent in 1995-96 and about 3 percent in 2003-04. Spending by the richest households is slightly higher as a proportion of the total per capita expenditure, at about 5 percent. Out-of-pocket expenses for health care visits also vary with the level of household consumption. Average per person spending was Rs. 678 per visit, but the richest quintile spent 10 times as much as poorest quintile spent (table 8.4). For the population as a whole, more than 70 percent of total health care spending is on medicines; for the poorest quintile, more than 90 percent of health care spending goes to medicines.

Table 8.3 : Access to health care and facility in Nepal, by expenditure quintile, 2003-04 (percent)

Quintile	Proportion of people reporting acute illness seeking health care	Share of public facilities		Share of private facilities	
		Doctor	Paramedics	Doctor	Paramedics
Lowest	51	7	53	7	33
Second	62	12	35	11	43
Third	67	17	33	18	32
Fourth	68	18	22	22	38
Highest	76	25	12	38	25
Nepal	66	17	27	22	34

Source: NLSS- II.

Table 8.4: Per visit cost of health care in Nepal, by expenditure quintile, 2003-04 (nominal rupees)

Quintile	Diagnostic services	Medicine	Transportation	Total
Lowest	11	154	3	168
Second	17	191	11	220
Third	51	247	28	326
Fourth	45	351	34	430
Highest	340	1133	164	1,637
Nepal	119	497	62	678

Note: Health care expenditure as reported for last consultation for an acute illness.
Source: World Bank staff calculations based on NLSS-I and II

8.3 Health Outcomes

This section is mostly based on the 1996 and 2001 Nepal Demographic and Health Surveys (DHS) which are conducted as a part of the worldwide Demographic and Health Surveys (DHS) program. DHS focus on collecting information regarding fertility, the practice of family planning, infant and child mortality, and maternal and child

[80] Patients in Nepal often go to pharmacists for diagnosis.

health. As such they provide a richer database for analysis of health outcomes as compared to the NLSS I and II which are multipurpose surveys and collect only limited health data although, some of the NLSS-I and II data are used to supplement the analysis.

8.3.1 Child Mortality

Under-five mortality fell 23 percent, from 118 per 1,000 live births in 1996 to 91 in 2001. The decline in child mortality (deaths of children older than one and below 5), which fell from 40 to 29 deaths per 1,000 live births, was the main contributor to the decline. This rate is lower than the rate in countries with comparable GDP level, and it is about two-thirds what it would be based on per capita GDP alone (appendix figure 8.1).[81]

The reduction in infant mortality, which fell from 79 to 64 deaths per 1,000 live births, was more modest (table 8.5). Infant mortality accounts for two-thirds of all under-five deaths in Nepal, with neonatal deaths (deaths within the first 28 days) constituting about 60 percent of infant deaths. This means that 40 percent of all under-five deaths in Nepal occur within the first month of birth.

Large variations in mortality rates are evident across regions. Under-five mortality rates in rural areas were almost twice those in urban areas in 2001 (see table 8.5). There was also considerable variation across regions, with rates ranging from 84 deaths per 1,000 live births in the Western region to 149 in the Far-west. Infant mortality rates also varied dramatically. Urban rates were about two-thirds those in rural areas. Regionally, rates ranged from about 60 per 1,000 live births in the Western region to 112 in the Far-west.

Gender differences are also evident. Infant mortality rates for boys and girls were roughly comparable, with 79 boys and 75 girls per 1,000 live births dying before age one in 2001 (see table 8.5).[82] But child mortality rates were quite different, with 28 boys and 40 girls per 1,000 live births dying between the ages of 1 and 5. This reflects an increased gender disparity over time. Internationally, gender disparities in under-five mortality are attributed to the fact that girls receive less attention, less curative care in case of illness, and inferior nutrition than boys as a result of cultural preferences for boys. It seems that in Nepal these factors are also at play, the fact being corroborated by the worse nutritional outcomes among girls (see section 8.3.3, table 8.11).

The literature on infant and child mortality from around the world has shown that education, child care practices, prenatal care, access to water and sanitation,

Table 8.5: Infant and child mortality rates in Nepal, 1996 and 2001 (per 1,000 live births)

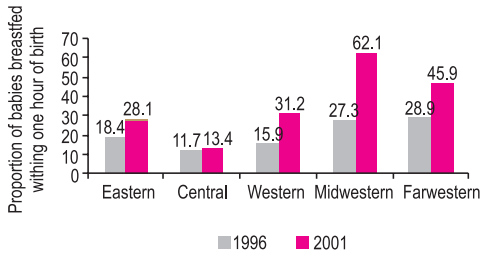
	1996			2001		
	Infant mortality ($_1q_0$)	Child mortality ($_4q_1$)	Under-5 mortality ($_5q_0$)	Infant mortality ($_1q_0$)	Child mortality ($_4q_1$)	Under-5 mortality ($_5q_0$)
Urban	61	23	82	50	17	66
Rural	95	53	143	79	35	112
Eastern	79	36	113	78	30	105
Central	86	56	138	77	36	111
Western	84	38	119	60	25	84
Mid-western	115	71	178	73	41	111
Far-western	124	62	179	112	42	149
Boys	102	46	143	79	28	105
Girls	84	57	136	75	40	112
Nepal	79	40	118	64	29	91

Note: Total figures are based on data for 5 years preceding the surveys; region- and gender-disaggregated figures are based on data for 10 years preceding the surveys.
Source: DHS (1996, 2001).

[81] Based on a sample of all countries with per capita GDP of less than $1,000, a model estimates that Nepal's per capita GDP of $230 should be associated with an under-five mortality rate of about 157 deaths per 1,000 live births.

[82] Biologically, infant girls have higher chances of survival. In 1996, 82 infant girls died for every 100 boys, reflecting this biological advantage. Following faster declines in infant mortality for boys than for girls, this figure rose to 95 in 2001.

Figure. 8.2 **Proportion of babies in Nepal breastfed within one hour of birth 1996 and 2001**



immunization, and availability of medicines are important determinants of child mortality. In particular:

- **Education level of mothers.** Children of more educated mothers are less likely to die in infancy. This is because they are more likely to be delivered by a skilled birth attendant and also possibly due to better information about pregnancy and postpregnancy hygienic practices. Education also increases the average maternal age at birth, decreasing the risk of pregnancy complications.
- **Breastfeeding practices.** Between 1996 and 2001, the proportion of children breastfed within an hour of birth increased from 18 to 31 percent, with significant increases in both urban and rural areas. In both the Western and Midwestern regions, the percentage of babies breastfed within an hour more than doubled (figure 8.2).
- **Knowledge about family planning methods.** Preventing unwanted pregnancies is a means of avoiding unsafe abortions. Between 1996 and 2001, mothers reported a 20 percentage point increase (from 57 to 77 percent) in knowledge about preventing or spacing pregnancies.
- **Prenatal care.** The proportion of mothers reporting receiving prenatal care during their last pregnancy rose from 26 percent in 1995-96 to 57 percent in 2003-04. Effective prenatal care can benefit mothers and unborn children by detecting problems early and avoiding complications during delivery; helping mothers, especially first-time mothers, learn about safe delivery; and administering tetanus toxoid vaccines.
- **Access to water and sanitation.** The proportion of households reporting piped water into their homes increased from 26 percent in 1995-96 to more than 34 percent in 2003-04. The proportion of the population that lived in a home with no flush toilet decreased from 79 to 62 percent, with progress even in rural areas. The proportion of the population reporting an underground drain, open drain, or soak pit rose from 9 to 12 percent.
- **Access to immunization.** The proportion of children fully immunized by 12 months increased from 37 percent in 1991 to 79.5 percent in 2004, with much of this increase in immunization coverage occurring between 1996 and 2001 (HMIS, HMGN, 2004/05). During this period the proportion of children receiving the DPT3 vaccine increased from 54 percent to 72 percent, those receiving the third dose of the polio vaccine increased from 50 percent to more than 90 percent, and the proportion receiving the measles vaccine increased from 57 percent to 71 percent (appendix table A8.2). Immunization has spread to some parts of the country that had very low rates of immunization coverage. In the Far-west, for example, DPT3 and polio3 coverage rose from about a third of the population in 1996 to 63 percent for DPT3 and 85 percent for polio3. The immunization rate increased in every region, and the gap between the lowest coverage and highest coverage areas narrowed.
- **Increased availability and use of ORS has reduced the mortality due to diarrhea.** Between 1995-96 and 2003-04, the number of children suffering from the symptoms of diarrhea has decreased from 270,000 to 250,000 (NLSS-I and II). Child deaths due to diarrheal diseases - a leading cause of child mortality in Nepal - have also declined considerably over the last decade from almost 1,800 in 1991 to less than 250 in 2001 (Table 8.6). The decline in diarrhea incidence is likely due to better sanitary practices, access to water and toilets, better breastfeeding and nutritional practices. While the sharp reduction in mortality due to diarrhea

Table 8.6: **Under-five deaths due to acute diarrheal diseases, 1991-2002**

Year	*Number of deaths*
1991	1,795
1992	1,049
1994	448
1998	742
1999	384
2000	94
2001	247

Source: Ministry of Health: Annual Report of Epidemiology and Disease Control Division (2001).

is likely due to increased awareness and use of oral rehydration solutions as a treatment for diarrhea. In addition, the spread of the vitamin A supplementation program has likely reduced the incidence and severity of diarrhea and hence, the associated child mortality.[83]

The multivariate analysis of determinants of infant mortality for Nepal reveals that literacy, age at the time of birth, pre-natal care practices, and area of residence of the mother are important factors for reducing infant mortality. 2001 DHS survey is used to estimate a *logit* model of infant mortality rate to help understand the net impact of a particular factor (appendix, table A8.1). It appears that literate mothers are less likely to experience an infant death, possibly because they have better information about pregnancy and post-pregnancy practices. Older mothers are less likely to experience an infant death than mothers under the age of 19. Mothers who receive prenatal care and the tetanus toxoid vaccine are less likely to have their infants die. Prenatal care can provide mothers with information about pregnancy and birthing, but also alert them to possible complications in risky cases. Finally, mothers in the Mid-Western and far Western regions of the country are more likely to experience an infant death compared with mothers in the Eastern region.

To reduce infant mortality, these results argue for increased education of mothers, inducements for better prenatal care, and a focus on the Mid-Western and Far Western regions. Discouraging early marriage, to avoid young pregnancies, is also desirable.

Nepal is likely to meet the MDG target for reducing under-five mortality. The MDG target for infant mortality is not likely to be met at the current rate of progress. If the under-five mortality rate continues to fall at the current rate of about 5 percent a year, Nepal is likely to reduce its under-five mortality to 61 deaths per 1,000 live births by 2015, meeting the MDG. The Eastern and Far-western regions may not meet the goal, however. To meet the goal for infant mortality, Nepal needs to reduce infant mortality by 4.3 percent a year; the current rate of decline of 3.7 percent a year is insufficient to meet the MDG by 2015. The Eastern, Far-western, and Central regions are likely to fall far short of meeting the millennium challenge. Reducing infant mortality will be much more difficult than reducing child mortality. In addition to increasing immunization coverage and improving disease prevention and treatment, Nepal will have to improve nutritional practices of mothers and increase the number of pre- and post-natal visits and deliveries assisted by skilled birth attendants and occurring in institutions.

8.3.2 Maternal Mortality and Fertility

Figures on maternal mortality are inconsistent, making it difficult to know whether Nepal is on track to meet the MDG by 2015. WHO–based estimates put the figures at 1,500 per 100,000 live births in 1990, 830 in 1995, and 740 in 2000. The Nepal PRSP projects 415 maternal deaths per 100,000 live births in 2001/02. (This estimate was made by the government and has not been validated by the survey data). The most recent NDHS survey-based estimate was 540 per 100,000 live births in 1996. Nepal's maternal mortality ratio seems to be the highest in the region, comparing unfavorably with rates in Bangladesh (440), India (410), Pakistan (340), and Sri Lanka (60).

The data for Nepal do not permit analysis of the determinants of maternal mortality.[84] But global evidence indicates that maternal mortality ratios tend to be higher when mothers are poor, too young or too old, malnourished or anemic; have low levels of education; fail to space their births.

83 Ministry of Health (2001), Annual Report of Epidemiology and Disease Control Division.
84 The next Demographic and Health Survey is planned for 2006 complemented by a Maternal Mortality Survey to be carried out by Ministry of Health and Population and the CBS. The survey is expected to provide adequate data on maternal mortality.

Maternal mortality is also higher when women are less likely to use contraception or when expectant mothers don't have assisted deliveries. All these risk factors are present in Nepal.

Notwithstanding the recent increase, too few deliveries are assisted by a professional. The proportion of professionally assisted births (births assisted by doctors or other health professionals) increased from 9.6 to 14.1 percent between 1996 and 2001 (table 8.7). This means that one out of every seven deliveries are still not professionally assisted. Around 23 percent of all deliveries are conducted by traditional birth attendants, with the proportion essentially remaining constant between 1995-96 and 2003-04. Use of prenatal care is associated with the improvements in maternal mortality. Complicated pregnancies can sometimes be flagged during these visits, thereby averting complications during delivery. The proportion of mothers seeking out prenatal care has increased tremendously in the last decade. According to the NLSS-I and II, between 1995-96 and 2003-04, the proportion of mothers reporting that they received prenatal care during their last pregnancy has risen from 26 percent to 57 percent.[85] Effective prenatal care can benefit both mothers and unborn children. In addition, these visits help mothers, especially first time mothers, learn about what they should and should not do to ensure a safe delivery. Also, the tetanus toxoid vaccines are generally administered during these prenatal care visits.

In an encouraging sign, the Far-western and Eastern regions have made substantial gains in the proportion of assisted deliveries. In the Far-western region, the proportion of assisted births increased from 5 to 8.7 percent; in the Eastern region the proportion increased from 10 to 19 percent. Still, large discrepancies remain along urban-rural, education and regional lines.

Table 8.7: Assisted deliveries in Nepal, 1996 and 2001 (percent)

	1996			2001		
	Doctor	*Other health professional*	*Traditional birth attendant*	*Doctor*	*Other health professional*	*Traditional birth attendant*
Place of residence						
Urban	30.3	16.2	12.1	40.4	13.3	9.3
Rural	4.1	3	23.4	6.4	5.1	23.9
Educational level						
No education	3	2.1	24.1	4.1	3.3	25.3
Primary	8.8	6.1	20.2	9.8	7.9	19.1
Secondary +	26.6	16.1	13.3	31.5	15.9	14.5
Region						
Eastern	6.3	4.1	25.3	9.1	9.5	23.8
Central	8.9	4.1	27.1	11.2	4.8	28.6
Western	5.0	4.7	13.6	8.6	5.6	18.1
Mid-western	1.7	2.9	28.5	3.1	3.6	19.7
Far-western	2.7	2.3	11.6	6	2.7	16.9
Total	5.8	3.8	22.7	8.5	5.6	23

Note: Figures are based on live births in five years preceding the survey.
Source: DHS (1996, 2001).

Improvements in education and empowerment, nutrition, institutional deliveries, contraception, and use of health care services for women are critical to reducing maternal mortality. Much of the improvement in maternal mortality in Europe and North America has been attributed not to high-technology health care equipment but to the near universal use of skilled birth attendants at delivery and the availability of emergency obstetrics for referral.[86] The Malaysian and Sri Lankan experiences highlight the importance of

[85] The question in the NLSS is posed to all women who have given birth during the last 36 months and refers to at least one visit to a health center for prenatal consultation.
[86] Gelband et.al. (2001).

midwives and nurse-midwives in reducing maternal mortality ratios. In both countries the midwife provides the first point of contact for mothers with the formal health system, providing care or referring the mother to alternate channels in the health system as necessary. Promoting late marriage (to prevent pregnancies in young women) and creating a culture of hospital/ clinic-assisted deliveries are also important.

Although the Millennium Development Goals do not include fertility or contraceptive prevalence targets, a number of recent studies suggest that high population growth rates make it harder for countries such as Nepal to achieve poverty reduction targets. Low birth spacing and, consequently high fertility also increases the chances of maternal mortality. There is a number of potential mechanisms in which lower fertility can influence poverty rates.[87]

Both NLSS and DHS show decline in fertility rates during the last decade. According to NLSS 1995-96 and 2003-04, Nepal has made considerable progress in recent years in lowering the level of fertility. The total fertility rate (TFR) declined from 4.5 in 1995-96 to 3.4 in 2003-04, a reduction of 24 percent (table 8.8), according to the NLSS. Fertility has dropped faster in urban areas than in rural areas. However, as indicated in table 8.8, the NLSS-II estimate of total fertility rate of 3.4 is substantially lower than the estimate of 4.1 from the 2001 DHS. The difference is attributable to the much lower level of estimated fertility among rural women (3.7 among in the NLSS-II sample vs. 4.4 in the DHS sample). *More research is needed to resolve the apparent discrepancies in these two datasets.* Despite the decline, fertility levels in Nepal remain higher than those in other South Asian countries such as India (2.8 in 1998-99) and Bangladesh (3.3 in 1999-00), but lower than in Pakistan (4.9 in 1990-91).

These and the earlier decline in fertility lead to a decline in dependency ratio. The dependency rate measures the number of household members of non-working age (children and elderly) that have to be supported by the household's working members. Two measures similar to an inverse of the dependency ratio (the number of adults 16 to 64 years old as a proportion of household size, and the number of adult men who worked 20 hours a week or more as a proportion of household size) show that dependency ratio in fact declined, in particular in urban areas. On average, the proportion of adults in a household increased from 54 to 56 percent and the proportion of adult male workers increased from 21 to 22 percent. Urban NLSS region had experienced the most dramatic decline in the incidence of poverty and it is where the number of working males per household increased the most (the share of working age adults have

Table 8.8: Total fertility rates in Nepal for the three years preceding the survey by urban/rural status

	1990's			*2000's*			*Change in percent*		
	Total	*Rural*	*Urban*	*Total*	*Rural*	*Urban*	*Total*	*Rural*	*Urban*
DHS	4.6	4.8	2.9	4.1	4.4	2.1	-10.9	-8.3	-27.6
NLSS	4.5	4.6	2.8	3.4	3.7	2.1	-24.0	-20.3	-25.2

Note: refers to NLSS 1995-96 and 2003-04, DHS 1996 and 2002
Source: 2001 DHS and Hotchkiss and Silva 2005 "Briefing Paper: Poverty, Fertility and Contraceptive Use in Nepal"

[87] The relationship between fertility and poverty has been a source of controversy among social scientists and policy makers over the past forty years. As pointed out by Merrick (2002), "the popular view in the 1960's and 1970's – that fertility decline would slow population growth in developing countries and thus reduce poverty – came in for a great deal of controversy during the 1980's, and by the 1990's, it was no longer in vogue." The alternative perspective that emerged was that demographic considerations are largely irrelevant to poverty reduction. However, a recent reconsideration of the relationship between fertility and poverty and new research findings suggestthat the "magic bullet" solutions offered by both perspectives are overly simplistic, and that slower rates of population growth, combined with sound and equitable economic development policies, are likely to have a substantial effect on alleviating poverty in developing countries (Birdsall, Kelley and Sinding, 2001; Bloom and Canning, 1999). Lower fertility can influence poverty in a number of ways. First, lower fertility can facilitate the pace of economic growth through changes in age structure (Bloom and Canning, 1999). As countries move through the demographic transition from high to low rates of fertility and mortality, the age structure of the population also changes. When fertility begins to decline, this ratio of the population of working age to non-workers increases. This expands the productive capacity of the economy on a per capita basis because persons of working age tend to earn more income, and as a result, save and invest more, than either children or the aged. Second, household-level research studies suggest that when couples are able to control the number and timing of their births, they are more likely to invest more per child and educate each child better. Because they are better educated, the children of women who are better able to avoid unwanted births are they themselves more likely to do a better job in managing their own fertility and investing more in education and health-related inputs for the next generation (Montgomery and Lloyd 1999).

Table 8.9: Inverse dependency ratio in Nepal 1995-96 and 2003-04, (percent)

	Share of working age adults (16-64)			Share of male workers, aged 16-64		
	1995-96	*2003-04*	*change (in percent)*	*1995-96*	*2003-04*	*change (in percent)*
Kathmandu	66	69	4	24	27	15
Other urban	55	63	14	20	24	18
Rural Western Hill	52	53	2	17	19	10
Rural Eastern Hill	55	53	-4	24	23	-5
Rural Western Terai	52	55	7	21	20	-5
Rural Eastern Terai	56	55	-3	21	21	-2
Nepal	54	56	2	21	22	3

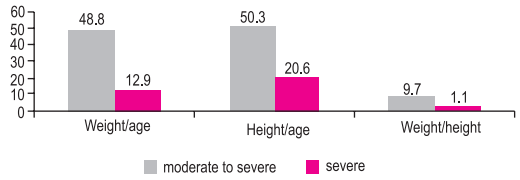
Source: World Bank staff calculations based on NLSS-I and II.

increased from 55 to 63 percent and the share of male workers from 20 to 24 percent). Similarly, across rural areas, poverty decline in rural Western Hill was quite substantial, which is mirrored in the increase in the proportion of working men there (by 11 percent, on average).

8.3.3 Child Malnutrition

Malnutrition causes enormous human suffering and has profound social and economic consequences. A number of studies on the relationship between nutrition and labor productivity suggest that improved nutrition increases productivity directly (by making workers stronger and more energetic) and indirectly (by increasing the productivity of time spent in school), which in turn increases long-run productivity growth (Behrman 1993). Better nutrition contributes to the welfare of the poor, thus improving equity.

Figure. 8.3 **Prevalence of child malnutrition in Nepal, 2001, children 0-59 months**



The levels of child malnutrition in Nepal are among the highest in the world. During 1995-2002, Nepal ranked last among 177 countries (tied with Bangladesh) in terms of the proportion of children classified as underweight; it ranked third to last, preceding Ethiopia and Burundi, in terms of the proportion of children classified as stunted (UNDP, 2004).[88] The Demographic and Health Survey reveals that about half of all children under

Table 8.10: Prevalence of malnutrition among children 0-36 months, by urban-rural status 1996-2001, (percent)

	1996			*2001*		
Malnutrition Indicator	*Urban*	*Rural*	*Total*	*Urban*	*Rural*	*Total*
Underweight						
Moderate or severe	30.0	48.5	47.3	32.8	47.8	46.8
Severe	6.8	16.7	16.1	8.0	15.0	14.6
Stunting						
Moderate or severe	36.2	48.8	47.9	29.5	43.6	42.7
Severe	10.2	19.9	19.2	7.7	16.2	15.6
Wasting						
Moderate or severe	6.1	11.9	11.6	10.6	12.0	11.9
Severe	0.6	1.8	1.7	1.1	1.7	1.7

Source: World Bank staff calculations based on DHS (2001).

[88] The exact role that malnutrition plays in the burden of disease in Nepal is not known. But malnutrition is estimated to account for about a third of all lost disability-adjusted life years in developing countries (Mason, Musgrove, and Habicht 2003).

four were underweight or stunted in 2001. About half of children under four were moderately to severely underweight or moderately to severely stunted, and about 10 percent were moderately to severely wasted. About 13 percent of children under four were severely underweight, 21 percent were severely stunted, and 1 percent was severely wasted (figure 8.3).[89]

Substantial progress in child nutritional outcomes occurred between the mid-1970s and the mid-1990s. Since then progress has been mixed (see appendix table A8.3 for historical data). Reductions in chronic malnutrition occurred in children under two between 1996 and 2001, with the prevalence of stunting dropping from 48 to 43 percent (table 8.10). The prevalence of underweight and wasting stagnated during this period, however. In urban areas the prevalence of underweight and wasting increased, there was a large decline in stunting. In rural areas, there was a slight reduction in underweight prevalence, a large dip in stunting prevalence, and no change in wasting prevalence. Rural-urban gaps in malnutrition are large, with moderate to severe stunting rates among children less than four about 15 percentage points higher in rural areas than in urban areas. (Because the 1996 Demographic and Health Survey did not collect anthropometry data on children older than 36 months, the results presented here are based only on children 36 months old and younger.)

Stunting and underweight are more prevalent among girls than boys, but the disparities are smaller than in other South Asian countries. Prevalence of underweight and stunting is higher among girls than among boys, (table 8.11) these patterns are especially pronounced if one looks at the prevalence of severe malnutrition rather than moderate to severe malnutrition. Differences between boys and girls emerge after 12 months of age, when most children are no longer breastfed, before converging by 48-69 months (see Hotchkiss and Silva 2005). These gender patterns are consistent with the stylized fact observed in many South Asian countries that household allocation of food resources is skewed toward boys. (Multivariate analysis confirms that the prevalence of stunting and underweight is significantly higher among girls than boys, even after controlling for other factors that determine nutrition outcomes appendix table A8.3).

Table 8.11: Prevalence of malnutrition in boys and girls under five in Nepal 2001, (percent)

Malnutrition indicator	*Boys*	*Girls*
Underweight		
Moderate or severe	46.6	51.0
Severe	11.3	14.4
Stunting		
Moderate or severe	49.5	51.0
Severe	18.9	21.9
Wasting		
Moderate or severe	10.7	8.8
Severe	1.4	0.9

Source: World Bank staff calculations based on DHS (2001).

Table 8.12 Prevalence of stunting and underweight in children under five in Nepal 2001, (percent)

	Unconditional		*Multinomial probit results*	
Group	*Stunting*	*Under weight*	*Stunting*	*Underweight*
Brahman/Chhetri	49.7	49.1	Reference group	Reference group
Terai middle caste	50.1	56.5	Significantly higher than reference group	Significantly higher than reference group
Dalits	56.8	58.1		
Newar	33.9	25.5	Reference group	Reference group
Hill Janajatis	52.3	38.1	Same as reference group	Same as reference group
Terai Janajatis	46.6	53.8	Significantly higher than reference group	Significantly higher than reference group
Muslim	50.2	53.8		
Other minorities	41.2	59.4		
Nepal	50.3	48.8		

Note: See appendix table A8.3 for the probit model regression results.
Source: World Bank staff calculations based on DHS (2001).

[89] *Moderately to severely malnourished* was defined as being less than two z-scores below the mean of the U.S. National Center for Health Statistics (NCHS) standards; *severely malnourished* was defined as being less than three z-scores below the mean NCHS standards. The standards are based on a reference population defined by NCHS and accepted by the World Health Organization. *Stunting* measures longer term chronic undernutrition, while *underweight* captures suffering from short-term acute food deficits.

Malnutrition is particularly widespread among Dalit and other minority children and Terai middle castes. The prevalence of stunting (a long-term measure of malnutrition) and underweight (a short-term measure of nutritional adequacy) is much lower among Newar children than other groups (table 8.13). In an encouraging sign, the prevalence of underweight among Hill Janajati children is 38 percent, considerably lower than the national average. Dalit and Hill Janajati children score the lowest of all groups with respect to the prevalence of stunting, however, and Dalit children have the second highest prevalence of underweight (after "other minorities").[90] Even after controlling for income and other confounding effects, Dalit, Terai middle-caste, and other minority children have higher prevalences of both stunting and underweight (table 8.13).[91] Nutrition programs, water and sanitation projects, and education in local languages need to target these groups in order to reduce child malnutrition.

Large regional differences in child malnutrition are apparent. While the prevalence of stunting in Nepal dropped 9.4 percent, its prevalence fell 15.7 percent in the West and 11.5 percent in the Far-west (table 8.12). Wasting remained unchanged nationally but fell 20.2 percent in the West and 13.7 percent in the Far West. The Mid-west experienced more moderate declines in stunting and wasting, while progress in the Eastern and Central areas lagged that of the other regions. For underweight prevalence, the increase was greatest among children in the Eastern region. Wasting declined most in the Central and the Western regions. Reductions in stunting were greatest in the Central and Western regions. Malnutrition is particularly high in the mountains — an unsurprising finding given the effects of high altitudes on growth and body size.

Table 8.13: Prevalence of malnutrition among children 0-36 months by region and ecological Zone, 1996 and 2001, (percent)

	1996			2001		
Region	*Underweight*	*Stunting*	*Wasting*	*Underweight*	*Stunting*	*Wasting*
Eastern Mountain	35.1	44.0	6.7	30.7	41.6	3.5
Eastern Hill	39.1	41.2	8.9	35.2	39.3	4.0
Eastern Terai	39.2	34.1	11.6	41.6	33.0	13.8
All Eastern	38.9	37.4	10.3	38.9	35.6	10.1
Central Mountain	49.2	53.4	12.8	39.3	51.4	6.6
Central Hill	39.5	44.2	7.7	42.0	45.7	4.7
Central Terai	54.4	54.5	12.2	56.7	43.8	20.3
All Central	48.6	50.7	10.6	50.8	44.9	14.5
Western Mountain	69.4	64.6	17.6	63.8	60.8	11.7
Western Hill	43.1	48.4	6.8	37.4	41.3	4.6
Western Terai	54.1	51.4	17.9	46.3	41.2	14.8
All Western	47.6	49.7	11.4	41.5	41.3	9.4
Mid-western Hill	51.5	56.7	11.4	56.3	54.2	9.3
Mid-western terai	41.2	38.9	11.7	37.8	27.4	12.0
All Mid-western	49.2	50.7	12.1	51.6	47.5	10.1
Far-western Hill	64.4	58.7	19.8	54.9	49.5	15.0
Far-western Terai	46.2	44.2	14.1	46.6	37.3	14.5
All Far-western	57.1	53.1	16.8	53.5	46.3	14.5

Source: World Bank staff calculations based on DHS (2001).

[90] Changes by ethnic and caste groups could not be assessed because of important differences between the questions on ethnicity and caste used in the 1996 FHS and the 2001 DHS

[91] Factors such as wealth, maternal education, and gender are generally found to be associated with child nutritional status; and these factors tend to be correlated. For example, better educated women tend to come from wealthier households, which have a greater ability to purchase food and other inputs that affect nutritional status. To examine the proximate determinants of malnutrition, multivariate statistical analysis was conducted to estimate the effects of key variables on child nutritional status controlling for other relevant factors. The results are presented in appendix table A8.3.

Malnutrition is strongly linked to household wealth.[92] The prevalence of underweight children in the poorest quintile is 80 percent higher than in the richest quintile, the prevalence of stunting is 70 percent higher, and the prevalence of wasting 66 percent is higher (table 8.14). Income remains an important determinant even after controlling for other factors. Simulations suggest that increases in household wealth would significantly improve child nutrition, with the impact greater among poorer households than better off households. But even with substantial increases in wealth, the prevalence of malnutrition would still be very high.

Table 8.14: **Prevalence of malnutrition in children under five in Nepal, by wealth quintile 2001, (percent)**

Malnutrition indicator	*Lowest*	*Second*	*Middle*	*Fourth*	*Highest*
Underweight					
Moderate or severe	57.3	52.8	49.8	44.7	31.8
Severe	16.9	15.6	11.9	11.0	5.2
Stunting					
Moderate or severe	61.3	53.3	46.8	46.4	36.1
Severe	27.9	22.0	19.7	17.5	11.0
Wasting					
Moderate or severe	10.8	11.6	9.2	9.2	6.5
Severe	1.7	1.5	0.8	0.7	0.6

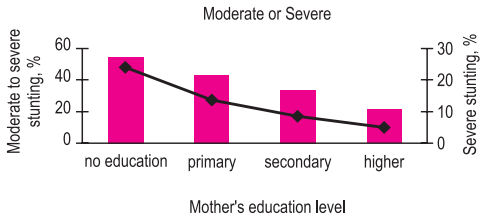
Source: World Bank staff calculations based on DHS (2001).

The association between maternal education and child well-being is very strong in Nepal. All three indicators of child malnutrition decline sharply with mother's education. Among children of women without any formal schooling, the prevalence of underweight is 78 percent higher and the prevalence of stunting 62 percent higher than among children of women with secondary education (figure 8.4). The fact that average educational attainment levels are very low in Nepal means that investments in schooling of girls should lead to substantial improvements in child nutrition.

Women's decisionmaking power is associated with better nutrition outcomes for children. The lowest rates of malnutrition are found in households in which the woman reports making the decision herself; the highest rates of malnutrition are found when decisions are made jointly by the husband and wife (table 8.15).[93] Households in which women exercise more influence on intrahousehold decisionmaking may be more likely to demand more and better quality foods and other inputs to health that yield better child health outcomes. Women's decisionmaking power is also significantly associated with reduced stunting and underweight prevalence.

Access to good water sources and sanitation is strongly associated with child nutritional status. The prevalence of child malnutrition was significantly higher among the three-fourths of sample households that reported not having a flush toilet or latrine (table 8.16). The rate of stunting was 54 percent among households without a flush toilet or a latrine, 44 percent among households with a latrine, and 33 percent among households with a flush toilet.

Figure. 8.4 **Relationship between mother's education level and child malnutrition 2001**



[92] Wealth quintiles are defined following Filmer and Pritchett (1999).
[93] To measure the role of women in household decisionmaking, the survey asked each woman who in the household has the final say on making a variety of purchasing decisions, including decisions on large household purchases and daily household purchases. Women could characterize the decision as being made by the respondent alone, jointly by the respondent and a spouse or other relative, or by a husband or other relative. Decisionmaking may be an endogenous variable in the model.

Table 8.15: Relationship between decisionmaking about household purchases and prevalence of malnutrition in children under five in Nepal 2001 (percent)

	Who has final say over large household purchases			*Who has final say over daily household purchases*		
Malnutrition indicator	*Wife*	*Joint*	*Husband/other*	*Wife*	*Joint*	*Husband/other*
Underweight						
Moderate or severe	41.8	51.4	49.4	45.4	50.9	49.7
Severe	9.6	15.4	12.8	11.4	15.0	12.9
Stunting						
Moderate or severe	48.7	55.3	49.4	49.5	54.3	49.6
Severe	17.9	23.2	20.5	18.2	24.3	20.7
Wasting						
Moderate or severe	7.6	10.2	10.0	8.1	11.6	9.9
Severe	0.6	1.1	1.3	0.8	1.5	1.2

Source: World Bank staff calculations based on DHS (2001).

Table 8.16: Prevalence of malnutrition in children under five in Nepal by type of toilet facility used by household 2001

Malnutrition indicator	*Flush toilet*	*Latrine*	*No facility*
Underweight			
Moderate or severe	28.0	38.5	53.5
Severe	4.8	7.0	15.0
Stunting			
Moderate or severe	33.1	43.8	54.1
Severe	10.8	15.0	23.1
Wasting			
Moderate or severe	5.6	5.2	11.0
Severe	1.0	0.3	1.4

Source: World Bank staff calculations based on DHS (2001).

Access to health care facilities reduces the rate of child malnutrition. Several types of preventive and curative services affect child growth. Facility-based immunization programs may diminish the incidence of key childhood infectious diseases. Prenatal care may increase maternal weight gain during pregnancy and improve early parenting skills. These parenting skills may improve dietary intake and decrease the incidence, severity, and duration of illness. Growth monitoring of young children provides early identification of growth faltering and is intended to trigger remedial actions by health workers and mothers. Many maternal and child health programs provide food supplements to pregnant and lactating women and children under five, which may improve dietary intake.

Curative health services affect growth by decreasing the duration and severity of illness. For each of the indicators of malnutrition, the lowest rates are found among children in households closest to health care facilities (proxied here by travel time to the nearest family planning service) (table 8.17). The highest rates of underweight are among children in areas 11-30 minutes and 31-60 minutes from family planning services. For stunting, the rates go up as the travel time to the facility increases, with a low of 33 percent among children 0-10 minutes from a facility and a high of 60 percent among children more than an hour from a facility.

Table 8.17: Prevalence of malnutrition in rural children under five in Nepal by distance to family planning services 2001 (percent)

	Minutes to closest facility			
Malnutrition indicator	*0-10*	*11-30*	*31-60*	*>60*
Underweight				
Moderate or severe	32.1	49.8	50.9	45.2
Severe	7.7	13.0	14.1	11.7
Stunting				
Moderate or severe	33.2	49.9	52.2	60.4
Severe	10.9	20.8	21.9	25.7
Wasting				
Moderate or severe	6.7	9.8	10.1	6.1
Severe	0.0	1.0	1.5	0.0

Source: World Bank staff calculations based on DHS (2001).

Infant feeding practices are one of the most important determinants of child nutritional status. Feeding practices are particularly important in the days and weeks following birth, when growth is fastest and protection is needed against infections that can lead to sickness and death. Breastfeeding is nearly universal in Nepal (more than 98 percent of children born in the five years before the survey had been breastfed). Early initiation of breastfeeding is important to nutritional status, because the first breast milk contains colostrum, which is rich in antibodies and very nutritious. Breastfeeding guidelines recommend that breastfeeding be initiated immediately after birth for optimal health, but there is variation in this practice. In 2001 about one-third of children 0- to 59-months-old were reported to have breastfed within one hour of birth; this percentage doubled between 1996 and 2001. The prevalence of each of the anthropometric measures of malnutrition is higher among children who did not begin breastfeeding within the first day of birth (table 8.18). Differences in the prevalence of malnutrition among those who initiated breastfeeding immediately after birth, within the first hour, or within the first day were small. There are also concerns of weaning practices with introduction of adequate quality supplementary feeding for children after six months of age.

Malnutrition is worse during the dry season. All three measures of moderate to severe malnutrition were higher among children surveyed in the April to June dry period than among those surveyed between January and March. This pattern points to the timing of possible nutrition interventions.

8.4 Summary and Policy Options

Nepal must make progress on multiple fronts in order to meet the health MDGs. Nepal will need to engage the private sector, improve the quality of health care available to communities, address the shortages of skilled medical staff in parts of the country, and strengthen monitoring and evaluation to ensure that available funds are being put to their best use. But improvements in other areas are also needed. Evidence from Nepal and international experience suggests that increase in income, literacy, access to roads, and access to water and sanitation have a significant impact on health outcomes.[94]

Expand public-private partnership. The private sector already plays an important role in health care provision in Nepal, not only for the rich but also for poor households. The private sector could be leveraged further by fostering better public-private partnerships. As a start, the government could consider accrediting traditional birth attendants and provide traditional birth attendants with incentives to refer complicated cases to public medical facilities. (Currently,

Table 8.18: Prevalence of malnutrition in children under five in Nepal by initiation of breastfeeding 2001 (percent)

Malnutrition indicator	*Immediately after birth*	*First hour after birth*	*First day after birth*	*Later than first day after birth*
Underweight				
Moderate or severe	47.5	42.4	45.3	57.1
Severe	11.9	10.4	10.2	17.6
Stunting				
Moderate or severe	50.5	48.2	49.5	51.9
Severe	20.1	20.1	20.2	21.6
Wasting				
Moderate or severe	8.4	6.6	7.9	14.7
Severe	0.9	1.1	0.9	1.7
Number of observations	1,950	1,175	1,608	1,411

Source: World Bank staff calculations based on DHS (2001).

[94] See World Bank 2004 "Nepal Health Sector Strategy: An Agenda for Change" for the coverage of issues related to HIV/AIDS (which is already in a concentrated epidemic form in Nepal and can have a substantial impact on mortality, morbidity and health budgets); as well as the coverage of issues related to control of communicable diseases; and a discussion of issues related to building of management and implementation capacity in the public health sector in Nepal.

traditional birth attendants receive a fee for delivering babies and as a result, they have an incentive to conduct deliveries themselves rather than refer women to health facilities or doctors.) More referrals are likely to reduce maternal and neonatal mortality. Private for-profit health care providers could be given an incentive to provide primary health care, an area often dominated by the public sector. Pilot project in other countries, including India, have shown that private provision of some primary health care can be more efficient than government provision (Loevinsohn and Harding 2005). *Detailed recommendations on how to engage the private sector and how to obtain better value from the out-of-pocket expenditures are expected from a private health sector assessment that is underway with the support from the World Bank economic sector reform TA.*

The pattern of health spending needs to change. To improve health outcomes Nepal needs to put scarce resources to the best use by allocating them to regions lagging in health outcomes, and spend them on the prevention and cure of diseases that account for a large share of the disease burden. Recent evidence from nine Asian countries suggests that Nepal has the strongest pro-rich bias in health resource allocations in the region (EQUITAP 2005). This finding highlights the need for a change in allocation patterns.

More trained medical practitioners are needed, especially in remote areas. Getting trained professional staff to relocate to rural and remote areas is a challenge, especially given the security situation in these regions (Ministry of Finance, HMGN, 2004). Incentives, both financial and nonfinancial, will have to be provided to qualified medical personnel. Nonmonetary incentives used in other countries include opportunities for training, improved physical infrastructure of health facilities and residential facilities, and a staff transfer mechanism to ensure fair deployment to remote areas.

Bottlenecks in the ongoing decentralization effort need to be addressed. Decentralized health care provision is likely to increase accountability of health care professionals, reducing provider absenteeism and increasing commitment. In addition, provider-patient relationships are likely to improve if communities have a greater say in hiring and firing decisions. But bottlenecks already appearing need to be addressed. First, the flow of funds between the different levels of government has been erratic, and technical assistance has not been provided during the transition to the decentralized model of service delivery. Second, health facilities are unclear about the roles and responsibilities of the health committees and what decentralization means in practice. Clear guidelines on the proposed handover of facilities need to be provided. Third, funds are not flowing efficiently. District Development Committees are not comfortable transferring funds to village development committees that have no elected officials.[95] Fourth, hospital and health facility managers received only limited training to deal with their new responsibilities. Monitoring and evaluation must be part and parcel of the program if Nepal is to successfully move to a decentralized system of health care provision.

To reduce the number of malnourished children in Nepal, interventions should target children in poor households, children of uneducated mothers, and children from remote areas with poor access to water and sanitation. Nutrition interventions would be most effective in the dry seasons. Attempting to combat malnutrition solely with policies that aim to improve household income is unlikely to be sufficient to substantially reduce the malnutrition problem, even though such policies would be pro-poor.

Community-based programs can increase contact between trained workers and households most in need. Community-based programs aim to alleviate malnutrition by improving access to technology and resources through a package of services, by fostering behavior change, and by supporting child care practices. They may also play a part in mobilizing social demand for services and generating pressure for policy change. Community-based programs offer a broad range

[95] Tenure of the elected district officials expired in 2003.

of services, including routine growth monitoring and promotion and home visits by health/nutrition workers. The existence of a strong health volunteer program such as the FCHVs has been critical to the success of a number of health programs in Nepal. By 2003 more than 48,000 FCHVs were operating in all of Nepal's 75 districts.

Monitoring and evaluation with respect to the MDG outcomes is critical. Reliable time series data at the subnational level are not readily available, making it difficult to quantify the effectiveness of health interventions. Routine monitoring of health outcomes can lead to political momentum and resources from the government and donors. Rigorous and frequent evaluations are needed to ensure that scarce public resources are channeled into programs that deliver and that the programs are available in the regions that need them most.

Nepal's civil conflict is disrupting service delivery. Reports of insurgents raiding pharmacies to procure medicines and first aid kits are increasing. Government employees are afraid to be posted to certain areas and reluctant even to conduct field visits there.[96] The conflict is causing disruptions in the distribution of essential immunizations and vitamin A.[97] If this disruption spreads, under-five mortality rates are likely to increase.

[96] According to INSEC, a local human rights organization, more than 40 rural health posts were destroyed between January 2002 and December 2004 (IRIN, February 28, 2005)
[97] "Himalayan Horrors," The Economist, April 15, 2005.

TECHNICAL ANNEX A

THE METHODOLOGY USED TO DERIVE POVERTY LINES (1995-96 AND 2003-04)

This technical annex documents the main steps and procedures followed by the poverty assessment team to construct poverty lines for the 2003-04 Nepal Living Standards Survey (NLSS-II) data. In constructing these poverty lines, it is important to highlight upfront that our overriding concern was to maintain comparability with the methodology employed in the 2000 World Bank report "Nepal: Poverty at the Turn of the Twenty-First Century", that utilized data from the 1995-96 NLSS (NLSS-I). Thus, we have taken the 1995-96 poverty line developed by the Cost-of-Basic-Needs (CBN) method and derived indices (in case of the NLSS-I we re-derived these indices) to adjust it for regional differences in cost-of-living. We also derived region-specific inter-temporal indices. We then used these indices to estimate the cost of poverty lines in 6 regions in 2 time periods. We did not revisit the calculation of the poverty line itself. The main advantage of not revisiting the calculation of poverty line is to keep the "yardstick" intact, and to preserve the continuity and comparability of the 2003-04 results with the earlier estimates of poverty in Nepal.

A.1 An Overview of the Methodology

Taking as a starting point the 1995-96 rural Eastern Terai poverty line (denoted P_{11}) derived by the earlier 2000 Poverty Assessment team (henceforth 2000 PA; see Box 1a for a summary of

Box: 1a **Deriving the 1995-96 rural Eastern Terai poverty line: a brief synopsis**

The poverty line for 1995-96 NLSS was derived using the Cost-of-Basic-Needs (CBN) method. In short, the method entailed 5 main steps:

- First, a nutrition norm of per capita 2,124 kcal per day was determined based on the minimum caloric requirements for different age and gender groups and the composition of an "average" Nepali household.
- Second, 37 food items for which units and prices were available were selected and their quantities consumed by the households in the second to fifth decile of per-capita consumption distribution were determined. Expenditure on these 37 goods represented, on average, 85 percent of all food expenditures of households, so it was assumed that these foods provided 85 percent of all requisite caloric requirements. The average actual caloric content of this food bundle was found to be 1,736 kcal. To ensure that the food basket yielded the requisite calories, all quantities were scaled up uniformly by the ratio of 1,805/1,736 (1,805 is 85 percent of 2,124 kcal).
- Third, the cost of this bundle was determined using mean unit values for these goods in rural Eastern Terai region. Unit values were calculated as "plutocratic" averages across the entire population of rural Eastern Terai. This basket turned out to cost Rs. 2,647 per person per annum.
- Fourth, assuming that all other foods have the same price per calorie, the food basket that would provide 100 percent caloric requirement would cost 15 percent more or Rs 3,114.1per person per annum.
- Fifth, the final step was to determine the share of non-food consumption of the households whose food consumption was around the requisite food poverty line (i.e. the upper poverty line in the terminology of Ravallion 2000). Adding the average amount for non-food items (Rs. 1,540.5), the final poverty line was calculated as Rs 4,654.6 per person per annum in rural Eastern Terai prices.

See Lanjouw, Prennushi and Zaidi (1999) for more details.

how this line was derived), our objective was to construct comparable poverty lines for each of the six main regions-of-interest,[1] and for both survey periods 1995-96 and 2003-04. In other words, our goal was to derive 12 poverty lines ($\boldsymbol{P}_{it}$: i=1, 2, 3, 4, 5, 6 and t = 1, 2) for each region/time-period, each of which represented exactly the same standard-of-living or welfare, and differed in rupee terms only to the extent necessary to make allowances for differences in cost-of-living over time and across regions.

Recall that the poverty line for any given region (in this case, the rural Eastern Terai region) includes provision for a minimum bundle of goods comprising essential food and non-food items. The issue of updating P_{11} across time and space therefore essentially boils down to deriving appropriate price indices for these food and non-food components (i.e. that take into account intertemporal and spatial price differences) and then applying them to the corresponding parts of the poverty line to derive the P_{it} for each of the respective 12 domains of interest.

The above overall process was carried out by following three main steps:

Step 1: Derive the spatial and inter-temporal food price indices to ascertain the corresponding food poverty line components of each of the 12 main domains of interest.

Step 2: Derive the spatial and inter-temporal non-food price indices for the corresponding non-food poverty line components of each of the 12 main domains of interest.

Step 3: Aggregate the food and non-food poverty line components to obtain the respective P_{it} i.e. the 12 overall poverty lines of interest.

Having thus determined the overall total poverty lines in prices of the six regions-of-interest in 1995-96 and 2003-04, we then compared them with nominal consumption aggregates derived from the survey data to categorize the population into poor and non-poor groups.

A.2 Deriving the Poverty Lines: A More Detailed Exposition[2]

Following the brief outline above of the steps followed to construct the 12 poverty lines of interest; this section provides a more thorough account of the procedures followed in deriving the poverty lines. While steps 1 and 2 outlined above could in-principle have been combined by deriving a composite price index for the food and non-food bundles taken together,[3] we instead derived these two sets of price indices separately, and then applied these to the food and non-food components of the poverty line respectively to eventually arrive at the overall poverty lines for the 12 domains. The exact steps followed in carrying out these procedures are elaborated below.

Deriving the Food Price Indices

In deriving price indices to update poverty lines, literature on this topic suggests an estimation strategy that (i) utilizes prices faced by the poor, and (ii) uses quantities consumed (or budget shares) that are aligned with the consumption patterns of the poor. In particular, several authors (recently Deaton and Tarozzi, 2000) suggest deriving both quantities and unit values of consumed foods from the household survey(s) data to form baskets of consumer goods in different locations (time periods), which in turn are then used to derive the food price indices.[4]

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1 The regions were (1) Kathmandu; (2) other urban areas; (3) Rural West Hills and Mountains (i.e. Western, Mid-west, and Far-west Development Regions); (4) Rural Eastern and Central Hills and Mountains; (5) Rural western Terai (i.e. the Western, Mid-west, and Far-west Development Regions); and (6) Rural Eastern and Central Terai.

2 An alternative approach for deriving the poverty lines for 2003-04 would be to use the same methodologyas in 1995-96 to compute poverty lines in 2003-04. However, this approach is not well-suited for inter-temporal comparisons: a major drawback is that if living standards in a country improve over time, even poor households improve the composition of their consumption basket. As a result, reapplying the CBN methodology would no longer reflect basic-needs bundles of constant value in real terms. Assessing trends in absolute poverty over time presumes that the same yardstick was used at all points in time, a condition that is violated by the application of the same methodology to the derivation of poverty line in 2003-04. See Ravallion (1994) for a discussion of these issues.

3 Indeed, this was the procedure followed in the earlier Poverty Assessment; however, since we departed from this earlier practice, the poverty lines derived in this paper for the five other regions (i.e. other than the rural Eastern Terai) are in-fact slightly different from those used for the earlier Poverty Assessment.

4 See Deaton and Tarozzi "Prices and Poverty in India" in "The Great Indian Poverty Debate", Deaton and Kozel eds. (2005). This paper also provide guidance on methodology for calculating unit values and quantities and on the merits of selecting particular price indices — Laspeyres, Paasche, Tornquist, Fisher, etc.

We calculated food prices indices in the 12 domains of interest using a Laspeyres index—i.e. as the relative costs of the 1995-96 fixed food basket in two time periods and across the 6 main regions of interest. We chose Laspeyres index for two main reasons: (i) to maintain comparability with earlier analysis (i.e. the 2000 PA), and (ii) this index, which is constructed in such a way that weights attached to each food item are the same for all regions and time periods, satisfies *base-independency and transitivity* properties, in other words the relative prices across regions and time periods do not depend on the choice of the base-region, or the sequence in which spatial and inter-temporal indices are combined.[5]

To construct the Laspeyres index, the quantities of 37 food items for a fixed food basket were chosen using the 1995-96 national average quantities consumed by the population in the 2nd to 5th deciles of nominal per capita consumption.[6] The region and time period-specific prices of each food item were calculated as the average "democratic" unit values taken over the entire population of that region in 1995-96 and in 2003-04.[7] To obtain total quantities, quantities of purchased, home-produced and received-in-kind food were added up for each household and food item.

Computed quantities and prices were checked for the presence of outliers, which were subsequently removed from the analysis. In addition, a household-level unit value was considered to be an outlier if it was either less then 0.1 times or greater than 10 times the median unit value of a particular food item. Conversion factors for converting local units to metrics units are presented in tables 7a and 8a (at the end of technical annex A). Region-specific unit prices, as well as their changes over time are presented in tables 9a and 10a (at the end of technical annex A). The cost of each basket was computed as the sum of expenditures on each food from the food basket, using the region and time period-specific prices. Results are presented in table 1a.

Table 1a: Nepal 1995-96 and 2003-04, regional food price indices

	Cost of a Reference Food Basket (in current local prices)		*Implied Food Poverty Line adjustment coefficient*		*Implied region specific food inflation rate*
	1995-96	*2003-04*	*1995-96*	*2003-04*	
	(1)	(2)	(3)	(4)	(5)
Kathmandu	3,361	5,550	1.29	2.14	165.1
Other urban	2,950	4,062	1.14	1.56	137.7
Rural Western Hill	3,178	4,634	1.22	1.79	145.8
Rural Eastern Hill	3,289	4,385	1.27	1.69	133.3
Rural Western Terai	2,458	3,557	0.95	1.37	144.7
Rural Eastern Terai	2,596	3,570	1.00	1.38	137.5
All-Nepal	2,908	4,101	1.12	1.58	141.0

* Column 5 is calculated as column 4 divided by column 3, multiplied by 100

[5] The Laspeyres index also has its disadvantages vis-à-vis such superlative indices as Tornquist and Fisher, the main disadvantage being that it is not derived from a demand system or an expenditure function. Unfortunately, however, superlative indices are not transitive and in case of multilateral (i.e., across space and time) comparisons the result depends on the order by which regional and intertemporal indices are combined. For instance, when calculating the relative price difference between Kathmandu in 1995-96 and Rural East Hill (REH) in 2003-04 one would want the result to be independent of whether one first applies regional price index to convert 1995-96 Kathmandu prices to 1995-96 REH prices and then intertemporal index to convert 1995-96 REH prices to 2003-04 REH prices, versus when one first applies intertemporal price index to convert 1995-96 Kathmandu prices to 2003-04 Kathmandu prices, and then regional price index to convert 2003-04 Kathmandu prices to the 2003-04 REH prices. If one adopts Tornquist or Fisher indexes, these procedures give different results, depending on the order followed. This lack of transitivity of superlative indices could also be understood in terms of base-dependencyor the dependency of the relative prices on the choice of a base region. In this case, if one were to use superlative indices, the relative prices would 've depended on the choice of a base region, be it Kathmandu, Rural East Hills or the other region. See Hill (2004) for further discussion of properties of superlative indices.

[6] The quantities were calculated as "democratic" rather than "plutocratic" means; the difference between the two is that the latter uses aggregate consumers' expenditure on each commodity divided by the aggregate consumers' expenditure on all commodities which is an average of the individual households ratios weighted by the total expenditure. As a result, "plutocratic" average gives bigger weight to households which consume more of a particular product (usually richer households). Democratic method is preferred for calculating price indexes faced by the poor, as it places equal weights on consumption of each household, irrespective of the quantity consumed. See Deaton and Tarozzi 2000 for a more detailed discussion of these two methods.

[7] It would've been preferable to take prices faced by the "poor" and calculate unit values only over the population in the 2-5 deciles. But since these calculations had to be done at the regional level, the sample sizes were too small.

As a cross-check, we compared inter-temporal change in prices calculated from the survey data with the official CPIs. According to the Rastra Bank, the urban CPI for "food and beverages" in 2003-04 was 148.8 compared to 100 in 1995-96 (i.e. 1995-96 is the base year for the urban CPI). The NLSS-based estimated all-Nepal food price index is 141.0, or quite comparable to the official CPI estimate (that it is slightly on the lower side could be explained by the fact that the NLSS-based estimates are heavily drawn from the rural areas, and are based on foods generally consumed by the poor).

Deriving the Non-Food Price Indices

In case of non food price indices, we estimated relative costs of renting a typical housing unit to account for regional differences in prices, but used the urban CPI collected by the Rastra Bank to approximate the inter-temporal change in non-food prices. We believe that while differences in rental values are reasonable proxies for regional differences in price level, inter-temporal changes in rental prices are a poor approximation for the changes in non food prices.[8] This is because the inter-temporal trajectory of prices of non-food items (mostly services and tradable goods) is also influenced by changes in world prices (most notably, the prices of fuel) and changes in the demand and supply of these goods and services; changes in the price of rental housing is a poor proxy for such price changes.[9] We therefore used a combination of a single inter-temporal non-food all urban Nepal CPI provided by the Rastra Bank and regional housing price indices calculated on the basis of NLSS 2003-04 survey.[10] Details pertaining to how this procedure was implemented are provided below.

Similar to calculation of non-food price indices by the 2000 PA team for the 1995-96 survey, we calculated the cost of renting a reference house (an average house in terms of facilities affecting rent) in 6 regions in 2003-04. The cost function was estimated using a hedonic housing regression model to predict the rental values for those households in the sample that had not paid rents (the similar model was estimated to infer housing consumption in the construction of consumption aggregates). We then calculated regional non-food price indices both in 1995-96 and in 2003-04 relative to the year-specific Rural Eastern Terai prices (table 2a, columns 2 and 5).

Table 2a: Nepal 1995-96 and 2003-04, regional non-food price indices

Region	1995-96			2003-04			2003-04 index relative to1995-96 all-Nepal *	2003-04 index relative to 1995-96 R-E Terai (implied non-food poverty line adjustment coefficient)**	Implied region-specific non-food inflation rate***
		Regional Price Index			Regional Price Index				
	Cost of renting reference house	relative to R-E Terai	relative to all-Nepal	Cost of renting reference house	relative to R-E Terai	relative to all-Nepal			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Kathmandu	3,620	1.72	1.65	4,441	2.47	1.59	2.57	2.67	156
Other urban	2,619	1.24	1.20	3,055	1.70	1.09	1.77	1.84	148
Rural Western Hill	2,177	1.03	0.99	3,369	1.87	1.20	1.95	2.02	196
Rural Eastern Hill	2,448	1.16	1.12	2,826	1.57	1.01	1.64	1.70	146
Rural Western Terai	1,676	0.79	0.77	3,186	1.77	1.14	1.84	1.91	241
Rural Eastern Terai	2,109	1.00	0.96	1,799	1.00	0.64	1.04	1.08	108
All-Nepal	2,191	1.04	1.00	2,796	1.55	1.00	1.62	1.68	162

Columns (2) and (8) present implied non-food poverty line adjustment coefficients for 1995-96 and 2003-04 respectively
* Column (7) equals to column (6) multiplied by the urban non-food CPI =1.618
**column (8) equals to column (7) multiplied by 1.04 – the 1995-96 price adjustment coefficient for all-Nepal relative to rural Eastern Terai
***column (9) equals to column (8) divided by column (2) and multiplied by 100

[8] Bangladesh Poverty Assessment (2002) used a similar approach of combining a survey-based index and an official CPI into an overall price index. Since regional non-food CPIs were available for Bangladesh, these indices were used to approximate both regional and inter-temporal differences of the non-food items.

[9] On examination of the data, we found that survey-based estimates of change in the housing prices showed a considerably smaller increase than the increase in prices of several non-food items that were also collected in the survey. For example, in rural Eastern Terai the NLSS-based rental housing prices had actually declined, even in nominal terms. By contrast, the increase in prices of kerosene and chappals (footwear) show increases comparable with the increase in the urban non-food CPI.

[10] Alternatively, we could have applied the average inter-temporal price index to the regional price indices in 1995-96. This method, however, would've imposed the regional differences prevailing in 1995-96 onto the 2003-04 regional indexes. We believe our method which actually estimates the regional price difference in 2003-04 is a superior one.

The non-food regional price indices for all regions in 2003-04 were then developed relative to 1995-96 Rural Eastern Terai by adjusting for changes over time in the cost-of-living. Our preferred inter-temporal non-food index was the official non-food CPI which equals to 161.8 for urban Nepal. Since Rural CPI data are not collected in Nepal, we had to use the urban CPI instead to approximate the change in non-food prices in the countryside. Taking the official non-food CPI as a measure of the change in non-food prices in Nepal, on average, and using 1995-96 and 2003-04 regional differences in costs of rental housing as regional non-food price indices in respective time periods, we then calculated the region-specific inter-temporal change in non-food prices, and then further the changes in non-food prices relative to 1995-96 rural Eastern Terai.[11] Specifically, first, we calculated change in prices in all regions in 2003-04 relative to 1995-96 Nepal average. Second, knowing the ratio of Rural Eastern Terai prices in 1995-96 to the average Nepal prices in 1995-96, we re-calculated all requisite price indices relative to the 1995-96 rural Eastern Terai (which were needed to adjust the poverty line).[12] Table 2a presents all resulting coefficients.

Aggregating the Food and Non-food Poverty Line Components

Once regional and inter-temporal food and non-food indices (table 1a columns 3 and 4, and table 2a

Box: 2a **Adjusting for changes over time in Nepal's demographic composition**

The 1995-96 poverty line was anchored in the caloric requirement of the "average" Nepali household in 1995-96. However, the demographic composition of the average Nepali household changed between 1995-96 and 2003-04; the requisite number of calories must have changed accordingly (see table 3a below). To account for this change in the calculation of the 2003-04 poverty line, we created a "synthetic" poverty line on the basis of 1995-96 NLSS that provided the requisite number of calories for this "new average" household. This synthetic poverty line to be used with the 2003-04 data turned out to be Rs. 4,768 (Rs. 3,143.7 food and Rs. 1,624.3 non-food) in 1995-96 rural Eastern Terai prices, or 2.4 percent higher than the 1995-96 poverty line

Table 3a: Caloric requirement of different demographic group

		Household Composition		*Total caloric requrememrnt*	
Demographic group	*Caloric requirement (per person per day)**	*1995-96*	*2003-04*	*1995-96*	*2003-04*
0-12 months	n/a	0.15	0.13	n/a	n/a
1-3 years	1200	0.45	0.41	543	495
4-6 years	1500	0.57	0.45	859	670
7-9 years	1800	0.49	0.42	877	764
10-12 years	2100	0.48	0.44	1,005	916
Boys: 13-15 years	2500	0.20	0.19	489	470
Girls: 13-15 years	2200	0.19	0.19	424	407
Boys: 16-18 years	3000	0.18	0.16	544	488
Girls: 16-18 years	2200	0.19	0.18	429	398
Men 19 yr. old and above	2800	1.31	1.23	3,659	3,454
Women 19 yr. old and above	2200	1.47	1.48	3,237	3,248
Household size		5.68	5.27		
Recommended Per Capita Calorie Consumption				2,124	2,144

Source: Gopalan, C., Rama Sastri, B.V., and Balasubramanian (1976) "Nutritive Value of Indian Foods", National Institute of Nutrition of the Indian Council of Medical Research, Hyderabad

[11] Note that it is important to maintain that the average Nepal non-food prices increased by 61.8 percent; it would be questionable to assume that the rural Eastern Terai non-food prices had increased by that much and then infer changes in prices between the 6 regions in 2003-04 and rural Eastern Terai in 1995-96 on the basis of this coefficient and 2003-04 regional differentials. More discussion about combining regional and inter-temporal indexes is presented in Hill (2004).

[12] The following example will further clarify the procedure implemented. Let us say one wants to express prices in Kathmandu in 2003-04 relative to prices in rural Eastern Terai in 1995-96, provided that the average inflation between 1995-96 and 2003-04 was 1.618. One needs to multiply 1.59 (which is an index of relative prices in Kathmandu in 2003-04 relative to all-Nepal average in that year, column 6, Table 2a) by 1.618 (average inflation index) which will give a change in price in Kathmandu in 2003-04 relative to 1995-96 average Nepal prices (column 7, Table 2a).The next step is to divide this number by 0.96 (the index of relative prices in rural Eastern Terai in 1995-96 relative to all-Nepal average prices in that year) to obtain the requisite relative price index (column 8, Table 2.3.2). One can see then that prices in Kathmandu in 2003-04 were 2.67 times higher than prices in rural East Terai in 1995-96.

columns 2 and 8, respectively) had been calculated, we applied these to the corresponding parts of the 1995-96 Rural Eastern Terai poverty line (i.e. P_{11}) in order to derive the other poverty lines (i.e. P_{it}). However, before this last step could be carried out, we made one more adjustment in the case of the 2003-04 poverty lines to take into account the change in demographic composition of the population between 1995-96 and 2003-04 (see Box 2a).

In case of the 1995-96 survey we used the food (Rs. 3,114.1) and non-food (Rs. 1,540.5) poverty lines calculated by the 2000 PA for Rural Eastern Terai and adjusted these for other regions using the derived food and non-food price indices. In case of the 2003-04 survey, we used the synthetic food and non-food lines (see Box 2a for a description) to derive the corresponding poverty lines for all the regions. These procedures yielded us the nominal costs of poverty lines in the 6 locations and in 2 time periods (i.e. 12 domains of interest overall).

Region and time-specific poverty lines and overall price index

The resultant poverty lines are presented in table 3a. Subsequently, consumption of various goods and services (food, housing, stream of services from durables, etc.) in the last 12 months was added up for every household to arrive at total household expenditure.[13] Per capita expenditure (PCE) was then defined by dividing the total consumption by the household size.[14] These consumption aggregates were then compared with the derived nominal poverty lines (table 4a: columns 3 and 6) to infer whether a household should be deemed poor or non-poor.

It is also useful to determine the overall price indices to enable us to compare monetary variables across space and time. The overall regional and intertemporal price indices are determined as implicit poverty line deflators and calculated by dividing the total poverty line (food plus non-food)

Table 4a: Nepal 1995-96 and 2003-04, poverty lines in current prices per person per year

	1995-96			2003-04		
	Food	Non-Food	Total	Food	Non-food	Total
	(1)	(2)	(3)	(4)	(5)	(6)
Kathmandu	4,032.5	2,643.4	6,675.9	6,722.0	4,334.8	11,056.8
Other urban	3,539.2	1,912.6	5,451.8	4,919.2	2,981.9	7,901.1
Rural Western Hill	3,813.0	1,590.0	5,403.0	5,613.0	3,288.5	8,901.5
Rural Eastern Hill	3,946.1	1,787.9	5,734.0	5,311.2	2,758.5	8,069.6
Rural Western Terai	2,949.5	1,223.9	4,173.4	4,308.4	3,110.0	7,418.4
Rural Eastern Terai	3,114.1	1,540.5	4,654.6	4,323.2	1,755.6	6,078.8
All-Nepal	3,488.9	1,599.8	5,088.7	4,966.4	2,729.4	7,695.7

Note: columns 1, 2 and 3 are based in the 1995-96 poverty line; columns 4, 5, and 6 are based on 1995-96 synthetic poverty line – i.e., are adjusted for the change in the demographic composition of an "average" household (see Box 2a for details).

Table 5a: Nepal 1995-96 and 2003-04: overall price indices (relative to 1995-96 rural Eastern Terai and relative to 1995-96 all-Nepal average)

	Relative to 1995-96 rural Eastern Terai		Relative to 1995-96 all-Nepal average	
	1995-96	2003-04*	1995-96	2003-04*
	(1)	(2)	(3)	(4)
Kathmandu	143	231	131	212
Other urban	117	165	107	151
Rural Western Hill	116	186	106	171
Rural Eastern Hill	123	169	113	155
Rural Western Terai	90	155	82	142
Rural Eastern Terai	100	128	91	117
All-Nepal	109	161	100	148

[13] Aggregation methodology is based on guidelines in Deaton and Zaidi (2002).
[14] A detailed description of the construction of consumption aggregates is presented in "Nepal Living Standards Survey" Volume 2, Central Bureau of Statistics, HMGN, 2004.

in current prices by the reference poverty line. Results are presented in table 5a. Note that while the 1995-96 synthetic poverty line is the appropriate base to establish the poverty line in 2003-04, the actual 1995-96 poverty line (i.e., the one unadjusted for the change in demographic composition, and reflecting only the change in prices of reference goods) is the appropriate base to establish the overall price index. Thus overall price indices presented in table 5a could not be directly inferred from table 4a. We calculate indexes both relative to the Rural Eastern Terai 1995-96 (columns 1 and 2) and relative to the 1995-96 "Nepal average" (columns 3 and 4).

Table 6a: Nepal, food composition of poverty basket, NLSS-I and NLSS-II

S.N.	Food item	NLSS-I	NLSS-II
		Grams per day	Grams per day
1	Fine rice	26.15	26.40
2	Coarse rice	217.3	219.35
3	Beaten rice	3.472	3.50
4	Maize	58.55	59.10
5	Maize flour	40.07	40.45
6	Wheat flour	91.77	92.64
7	Millet	35.57	35.91
8	Black Pulse	1.903	1.92
9	Masoor	8.172	8.25
10	Rahar	1.02	1.03
11	Gram	0.72	0.73
12	Eggs	0.487	0.49
13	Milk	30.77	31.06
14	Baby milk	0.01	0.01
15	Curd	1.212	1.22
16	Ghee	1.174	1.19
17	Vegetable Oil	0.221	0.22
18	Mustard	7.35	7.42
19	Potatoes	28.88	29.15
20	Onions	5.842	5.90
21	Cauliflower	4.063	4.10
22	Tomatoes	2.41	2.43
23	Bananas	3.704	3.74
24	Citrus fruit	0.846	0.85
25	Mangoes	4.989	5.04
26	Apples	0.374	0.38
27	Pineapple	0.096	0.10
28	Papaya	1.697	1.71
29	Fish	1.717	1.73
30	Mutton	1.64	1.66
31	Buffalo	1.789	1.81
32	Chicken	1.083	1.09
33	Salt	13.31	13.44
34	Sugar	3.547	3.58
35	Gur	0.773	0.78
36	Sweets	1.911	1.93
37	Tea	0.253	0.26

Note: Food composition of the NLSS-II poverty basket is obtained by adjusting the NLSS-I basket for the change in the demographic composition of an average Nepali household.

Table 7a: Nepal, food quantity conversion factors from "manna" to grams[15]

Food item	Food Code	Grams in 1 "manna"
Fine rice	11	452
Coarse rice	12	452
Beaten rice	13	276
Maize	14	395
Maize flour	15	281
Wheat flour	16	281
Millet	17	454
Black Pulse	21	444
Masoor	22	432
Rahar	23	443
Gram	24	458
Milk	32	568
Curd	35	514
Ghee	41	494
Vegetable oil	42	538
Mustard oil	43	538
Potatoes	51	375
Salt	81	500

Source: Agriculture Marketing Information Bulletin (Special Issue - 2004)

Table 8a: Nepal, food quantity conversion from units to grams

Unit	Gram
Eggs	60
Bananas	127
Pineapples and papayas	500
Citrus and Apples	175
Mangoes	400

Source: Central Bureau of Statistics estimates

[15] As mentioned above, for each of the 37 food items, the amount of grams purchased annually and produced at home was calculated as the sum of grams purchased and grams produced at home, as reported by the household. The household unit value for each food item was computed as the ratio of the annual value of purchased and home produced food produce to the annual amount of grams consumed. The conversion of the non metric and volume units of consumed foods into the metric units (grams and liters) was done applying the following rules: 1 Maund = 37,324 grams; 1 Muri = 72,000 grams. Since these indigenous units are the measures of volume (as opposite to measures of mass) and different food items have different densities (e.g., rice and milk), we incorporated the relevant conversions of volume units. Conversion of other volume units was more straightforward, and implemented as following: 1 Kuruwa = 1.2 Manna; 1 Pathi = 8 Manna; 1 Litre = 1.76 Manna.

Table 9a: Nepal 1995-96 and 2003-04 NLSS-I and NLSS-II-based food unit prices and quantities consumed[16]

	NLSS-I		Mean unit prices (nominal NRS per kg)											
			NLSS-I						NLSS-II					
	Percent of total expenditure	Quantity Consumed*	KTM	OU	RWH	REH	RWT	RET	KTM	OU	RWH	REH	RWT	RET
Coarse rice	39%	6,393	16	14	16	17	11	12	27	17	21	21	14	15
Wheat flour	11%	2,487	11	10	12	12	8	9	18	15	18	16	13	13
Maize	5%	1,599	11	8	8	9	6	7	20	12	12	12	10	10
Milk	5%	944	15	14	13	13	11	11	22	21	22	19	18	19
Maize flour	3%	863	13	9	10	11	7	8	19	14	16	15	12	12
Potatoes	3%	806	12	10	9	9	7	8	11	11	12	11	9	9
Fine rice	5%	799	18	16	17	17	13	14	25	22	24	23	18	17
Salt	1%	401	6	5	7	7	4	4	9	9	10	10	7	6
Mangoes	1%	242	19	11	10	13	11	9	31	22	23	21	18	14
Masoor	3%	235	30	30	26	30	23	27	42	39	39	39	34	37
Mustard oil	6%	194	72	68	71	75	64	67	98	98	108	99	97	99
Onions	1%	171	12	10	12	13	8	8	19	17	18	19	14	15
Cauliflowers	1%	117	15	9	12	13	7	7	18	13	16	15	11	10
Bananas	0%	109	10	9	10	8	8	6	14	12	18	11	15	10

*Gram per person per month;
Note: KTM- Katmandu; OU- "Other urban areas"; RWH – "Rural Western Hill"; REH – "Rural Eastern Hill"; RWT – "Rural Western Terai"; RET- "Rural Eastern Terai"

Table 10a: Nepal, Changes between 1995-96 and 2003-04 in NLSS-I and NLSS-II-based food unit prices and quantities consumed

			Change in nominal unit price (percent)						
	Change in average expenditure share (%)	Change in average quantity consumed (%)	KTM	OU	RWH	REH	RWT	RET	All Nepal
Coarse rice	- 9%	4%	69	23	34	25	29	22	29
Wheat flour	- 26%	- 15%	67	56	51	33	61	48	47
Maize	- 43%	- 36%	90	50	49	37	54	54	53
Milk	15%	28%	42	49	61	48	61	66	58
Maize flour	39%	56%	42	47	54	42	55	47	49
Potatoes	28%	41%	- 7	2	45	13	27	11	20
Fine rice	64%	85%	39	38	40	35	36	24	34
Salt	- 7%	7%	47	77	39	49	92	50	51
Mangoes	- 2%	9%	62	91	127	58	63	53	77
Masoor	- 6%	5%	37	30	50	33	49	39	41
Mustard oil	- 6%	6%	36	44	52	33	52	48	45
Onions	14%	29%	53	68	55	45	69	74	58
Cauliflowers	41%	59%	23	38	36	13	49	45	32
Bananas	34%	52%	43	38	85	37	78	61	61

[16] The region and time period-specific prices of each food item were calculated as the average "democratic" unit values taken over the entire population of that region in 1995-96 and in 2003-04. To obtain total quantities, quantities of purchased, home-produced and received-in-kind food were added up for each household and food item. Computed quantities and prices were checked visually for the presence of outliers, which were subsequently removed from the analysis. In addition, a household-level unit value wasconsidered to be an outlier if it was either less then 0.1 times or greater than 10 times the median unit value of a particular food item. Prices of foods representing the significant shares of the household's expenditure are presented in Table 9a.

TECHNICAL ANNEX B

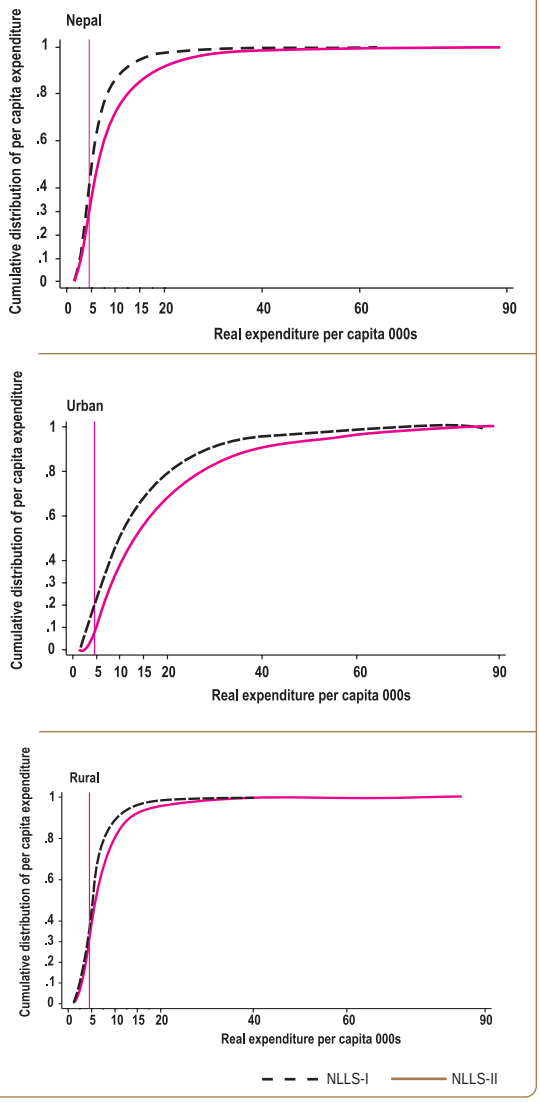
SENSITIVITY AND ROBUSTNESS OF POVERTY ESTIMATES

Poverty estimates depend critically on the comparability of surveys on which poverty numbers are based, on the way the poverty line was defined and updated, and also on the choice of welfare measure. In this technical annex we check the robustness of poverty trends with respect to several measures. First, we examine cumulative distribution functions for real PCE in 1995-96 and 2003-04 to infer whether the choice of poverty line affects the estimates of trend in headcount poverty. Second, we examine how the fact that the 8 Primary Sampling Units (PSUs) that were selected for the cross-sectional sample of NLSS-II, but could not be enumerated, might have affected estimates of poverty incidence. Finally, we explore alternative approaches to updating and defining poverty lines.

B.1 Poverty Incidence Curves

A standard methodology for checking the robustness of poverty estimates is to examine cumulative distributions of real PCE. As mentioned earlier, we use implied poverty line deflators to express the NLSS-I and NLSS-II consumption aggregates in 1995-96 "average Nepal" prices. Plotted cumulative distributions for PCE at the national, urban, and rural levels (figure 1b) show that trends in poverty between 1995-96 and 2003-04 are robust in the choice of the poverty line over the range of virtually all other possible poverty lines. This is true for both the urban and rural sectors – the cumulative distributions for real PCE in 2003-04 are everywhere below and to the right of the cumulative distributions for 1995-96, indicating first-order stochastic dominance.

Figure 1b Cumulative Distributions of annual real PCE: National, Urban, and Rural



To provide an additional illustration of the robustness of the estimated incidence of poverty and poverty trends with respect to the choice of a poverty line, we increased and decreased the poverty line by 5, 10, and 20 percent. Having done so, we observed that poverty rates increased or decreased by a correspondingly higher percentage, indicating population clustering around the poverty line. While increasing the poverty line obviously raises the proportion of the population deemed poor in both years, it leaves the magnitude of the decline in headcount poverty virtually unchanged. Decreasing the poverty line indicates that a smaller proportion of the population would have been deemed poor and that poverty headcount rates would have

Figure 2b

Cumulative Distributions of annual real PCE for 6 NLSS regions of Nepal

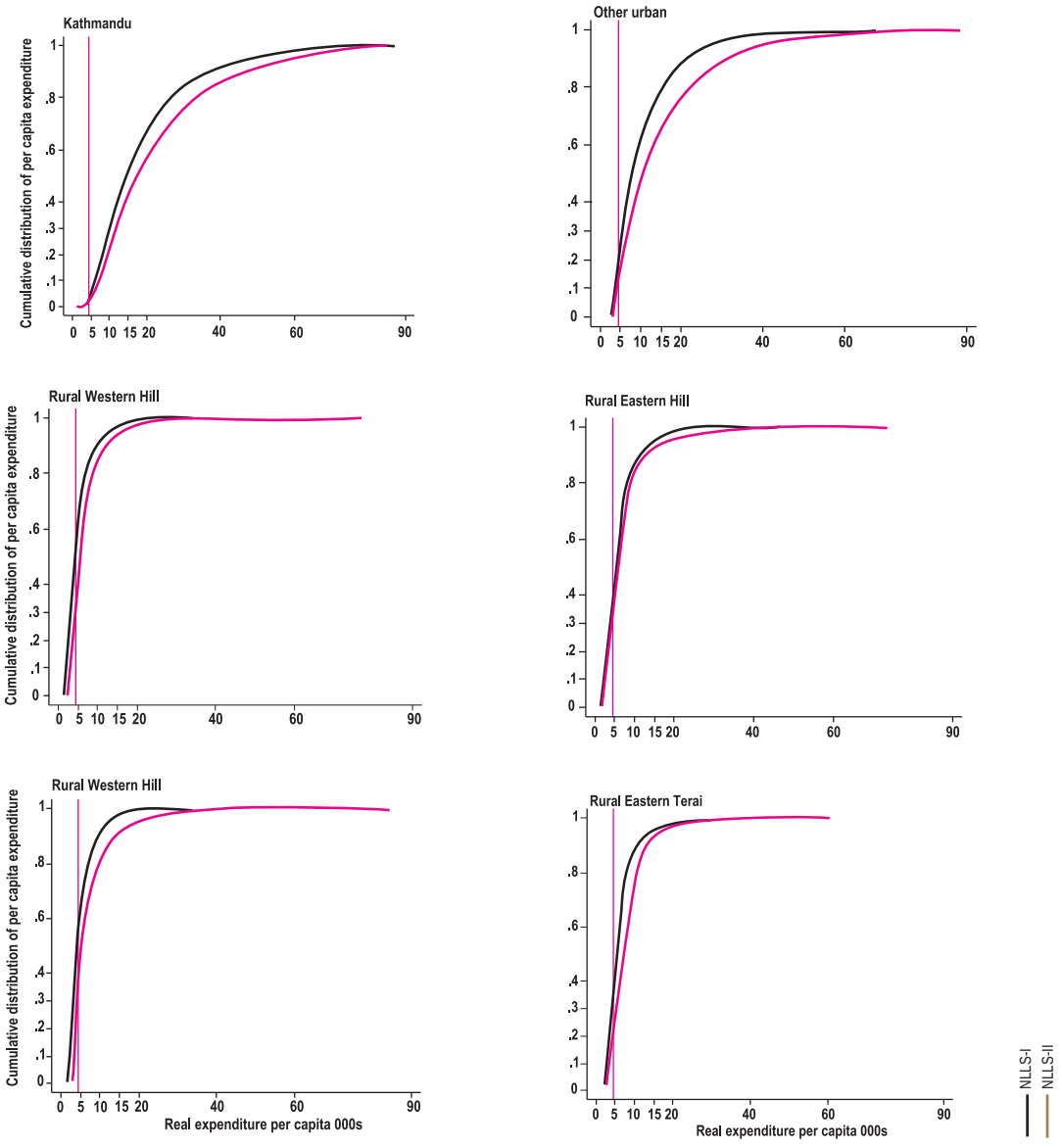


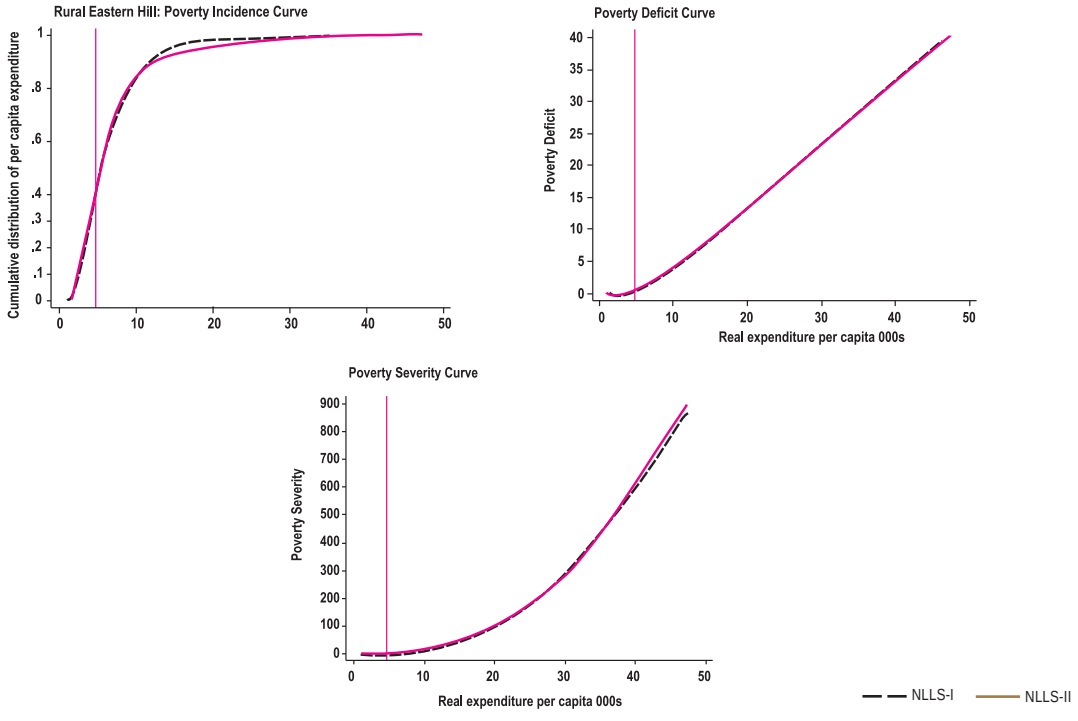
Table 1b: Nepal 1995-96 and 2003-04 sensitivity of headcount poverty rate with respect to the choice of poverty line

	1995-96		*2003-04*		*Change between 1995-96 and 2003-04*	
Poverty Lines	*Poverty Incidence (P0)*	*Change from the actual (%)*	*Poverty Incidence (P0)*	*Change from the actual (%)*	*Percentage points*	*Percent*
Actual	41.8	0	30.8	0	-10.9	-26.14
+ 5%	45.0	7.82	34.2	10.77	-10.9	-24.12
+ 10%	48.9	16.99	37.0	19.89	-11.9	-24.3
+ 20%	56.1	34.3	42.3	36.97	-13.8	-24.67
- 5%	38.1	-8.8	27.1	-12.01	-10.9	-28.73
- 10%	33.6	-19.58	23.3	-24.44	-10.3	-30.6
- 20%	25.8	-38.15	17.0	-44.93	-8.8	-34.24

declined at a faster rate. These estimates further confirm that the trend of a substantial decline in poverty in Nepal is robust with respect to a wide choice of poverty lines.

To examine the robustness of poverty estimates at the regional level, we plotted cumulative distributions of PCE for 6 NLSS regions. These distributions are presented in figure 2b. They further indicate that first-order stochastic dominance holds for estimates of poverty in Kathmandu and in other urban areas, as well as for estimates in both parts of Terai (Eastern and Western) and in Western Hill. For estimates in rural Eastern Hill, however, the cumulative PCE for 1995-96 and 2003-04 cross indicating that inferences about trends in poverty are ambiguous. Examination of a higher order stochastic dominance (P_1 and P_2, see figure 3b) confirms the ambiguity of inferences about poverty trends in rural Eastern Hill.

Figure 3b **Rural Eastern Terai, Poverty Incidence, Poverty Deficit and Poverty Severity Curves**



B.2 Updating Poverty line Relying on food price index alone

The methodology used to derive poverty lines for 6 regions in 1995-96 and 2003-04 was to take the 1995-96 rural Eastern Terai poverty line, which included provision for a minimum bundle of goods comprising essential food and non-food items, and to adjust it using the regional and inter-temporal coefficients that account for differences in cost-of-living. Separate coefficients were developed for food and non-food parts of the poverty line. The coefficient for food prices was developed by costing out a bundle of goods in different locations and at different times. The coefficient for non-food items was proxied by the rental cost of housing combined with an inter-temporal urban CPI.

Rather than use separate food and non-food adjustment coefficients, one could take the food adjustment coefficient and apply it alone to the overall poverty line. The argument for taking this approach is that the food coefficient is calculated on the basis of an actual bundle consumed by the poor, while the non-food coefficient relies on proxies. In fact Deaton (see Deaton 2001) took this approach and used only the differences in prices of food items (plus fuel and wood) to adjust for differences in cost of living across Indian states and over time. The drawback, of course, is that the prices of only a sub-set of the total consumption bundle (which is also declining over time as the proportion of food in the consumption bundle declines) are used to adjust the poverty line. Nevertheless, as a check for sensitivity of poverty estimates, we performed calculations based solely on the food price index.[17] [18]

Table 2b shows that estimates in 1995-96 and in 2003-04 obtained by this method are very close to the preferred estimates of poverty incidence. Regional rankings stay the same, while estimates for 1995-96 and 2003-04 are on the high and low sides, respectively, of the preferred estimates for those years. Consequently, the estimates of decline in poverty rate are even higher than if one utilizes both food and non-food adjustment coefficients for the respective parts of the poverty line.

Table 2b: Nepal 1995-96 and 2003-04, poverty headcount rate across regions (based on food price adjustment indices alone)

	1995-96	*2003-04*	*change (percentage points)*	*change (percent)*
Kathmandu	1.9	2.2	0.4	20
Other urban	29.4	11.3	-18.1	-61
R. Western Hill	58.5	33.0	-25.5	-44
R. Eastern Hill	37.1	42.9	5.8	16
R. Western Terai	50.5	26.1	-24.4	-48
R. Eastern Terai	37.2	30.3	-6.9	-19
Nepal	43.4	29.5	-13.9	-32

B.3 Estimating "Food Poverty"

One criticism of constructed consumption aggregates is that survey-based consumption estimates contain many "noisy" measures such as imputed rental income, imputed flow of services from durables, etc. Clearly, if these noisy measures bias estimates of consumption (or bias them more in one survey than in another), this will have implications for estimated poverty rates and trends. To address this criticism, we compute "food poverty" rates based on comparing food consumption with the food poverty line. Food consumption aggregates do not contain imputed values and are calculated directly by adding expenditures on purchased goods and self-evaluation of the cost of home-produced and received-in-kind food. International evidence shows that food consumption is measured more accurately than other types of consumption in household surveys (Lanjouw and Lanjouw, 2001). Of course the drawback of this approach (and this

Table 3b: Nepal 1995-96 and 2003-04, "food poverty" headcount rate across regions

	1995-96	*2003-04*	*change (percentage points)*	*change (percent)*
Kathmandu	11.5	16.7	5.3	46
Other urban	39.8	21.2	-18.6	-47
R. Western Hill	66.2	36.0	-30.3	-46
R. Eastern Hill	39.4	41.1	1.7	4
R. Western Terai	54.2	32.3	-21.9	-40
R. Eastern Terai	38.3	30.4	-7.9	-21
Nepal	47.5	32.4	-15.1	-32

[17] Another possibility would be to use the Rasta Bank CPI for the purpose of inter-temporal adjustment. Recall, however, that only urban CPI is available and, in case of food items, it is very close to the estimated survey-based coefficient. Because of this, we do not examine the sensitivity of poverty estimates with respect to the official CPI.

[18] Food price adjustment coefficients alone are applied to adjust for the regional and inter-temporal differences in prices. Consequently, poverty estimates for 1995-96 are also different from the preferred poverty estimates.

is why it is not selected as the preferred estimate) is that different households make different choices with respect to their consumption patterns and there might be compelling reasons why households cut their food consumption in order to spend on something else. These households would be deemed poor by the definition of "food poverty" while not being truly poor as defined by CBN method.

Results with respect to incidence of "food poverty" are presented in table 3b. Estimates of food poverty are higher than estimates of CBN poverty in both years. The incidence of "food poverty" is higher than CBN poverty for all regions, but especially so in urban areas. For example, the incidence of poverty in Kathmandu in 2003-04 is 3 percent using the CBN method and 17 percent using the "food poverty" method. An additional difference between "food poverty" and CBN estimates is that "food poverty" estimates show less progress in poverty reduction in urban than in rural areas. In rural areas, and in Nepal overall, however, "food poverty" estimates show a faster decline in poverty than do CBN estimates.

B.4 Examining Trends in Quantities of Foods Consumed

Improvements in the composition of the food bundle consumed would provide independent evidence of improvements in the standard of living. Analysis of the average quantities of different food items consumed reveals that per capita consumption of virtually all major food groups (with the notable exceptions of maize, wheat flour and eggs) increased substantially between 1995-96 and 2003-04 (table 4b). For instance, per capita consumption of fine rice increased by almost 50 percent, milk by 19 percent, fish by almost 50 percent, mutton and buffalo by 13 percent, while the consumption of chicken doubled.

Per capita consumption of wheat flour declined, perhaps compensated for by the increase in consumption of fine rice. Per capita consumption of maize dropped considerably as well, but this was partly compensated for by an increase in consumption of maize flour. (Both maize and wheat flour are inferior products to both fine and coarse rice, with unit prices of the latter being substantially higher than the former).

Table 4b: Nepal 1995-96 and 2003-04, consumption of selected foods (grams, per person, per month)

	1995-96	*2003-04*	*change in percent*
Fine rice	1,852	2,697	46
Coarse rice	6,239	6,157	-1
Maize	2,045	911	-55
Maize flour	822	1073	31
Wheat flour	2,235	1,920	-14
Masoor	250	267	7
Eggs	63	63	0
Milk	2,065	2,455	19
Potatoes	1,096	1,431	31
Fish	62	92	47
Mutton	99	112	13
Buffalo	90	101	13
Chicken	51	102	102
Tea	29	29	1

Figure 4b

Nepal 1995-96 and 2003-04, consumption of selected foods by deciles of PCE

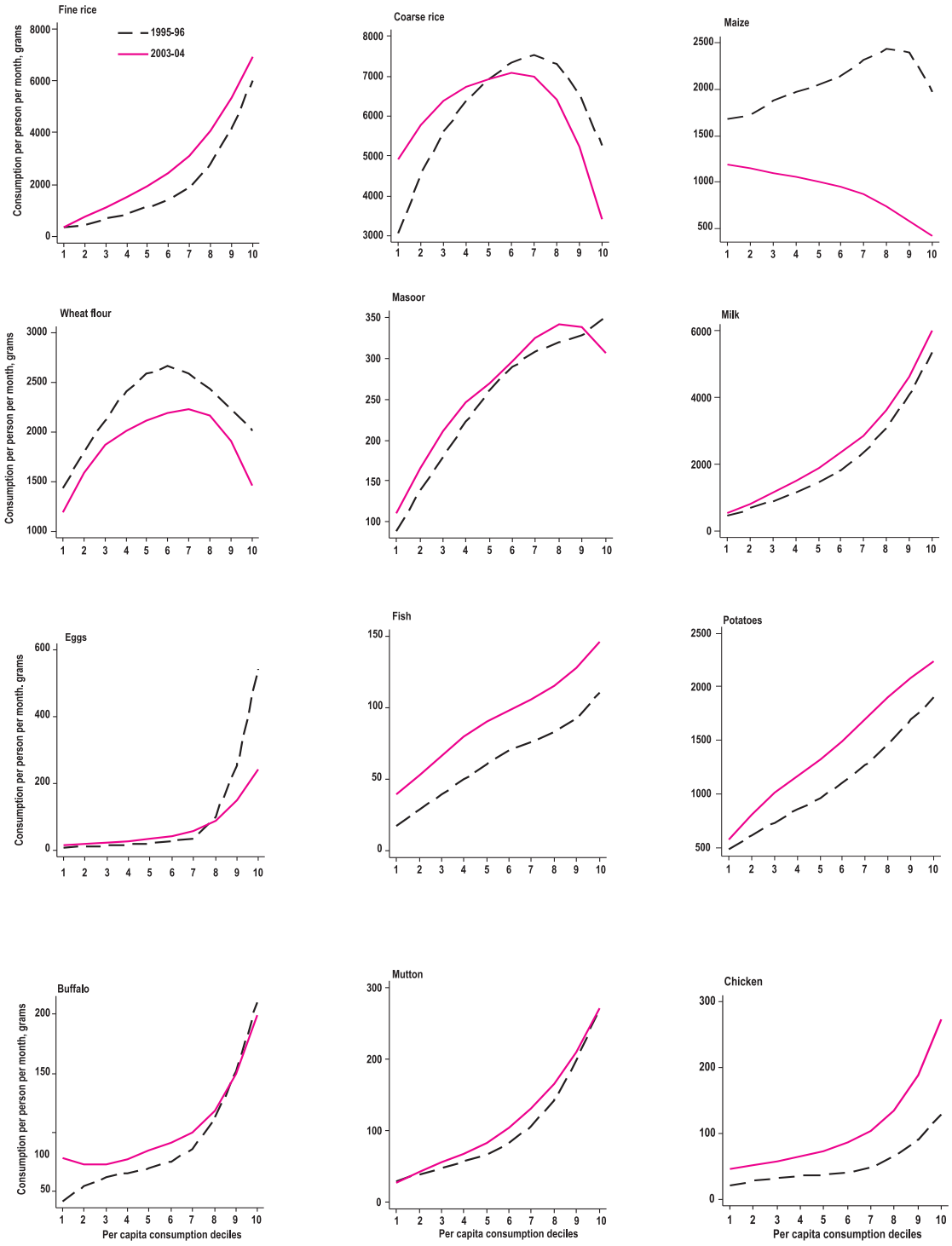


Figure 4b depicts per capita consumption of selected foods by deciles of PCE distribution in 1995-96 and 2003-04. It shows that the trends reported above are not confined to high-income groups. In fact, percentage increases in the consumption of fine rice, as well as in all groups of vegetable and animal proteins and fats, were higher among low-income households than among high-income households.

B.5 Estimating Poverty Rate from a Panel Sample

The poverty estimates discussed above are based on NLSS-I and a cross-sectional component of NLSS-II. These two samples are representative of the population of Nepal in 1995-96 and 2003-04, respectively. In addition, NLSS-II attempted to collect data from about 1,200 NLSS-I-surveyed households. Nine hundred and sixty-two of them were located, comprising a panel component of NLSS-I and NLSS-II.

We examined this panel component to gain further insight into the dynamics of poverty between 1995-96 and 2003-04. Table 5b presents a transition matrix with respect to poverty status for the households in the panel sample.

The CBN poverty rate for the panel sample in 1995-96 was estimated at 38.8 percent, while for 2003-04 it was estimated at 32.0 percent. These estimates are quite close to the estimates obtained from the main cross-sectional samples, confirming the trend of substantial poverty decline in Nepal. (Note that the 2003-04 panel sample doesn't represent the 2003-04 population of Nepal, while the 2003-04 cross-sectional sample does. Therefore, 2003-04 poverty estimates obtained from the cross-sectional sample are the preferred ones.) In urban areas, the poverty rate in 1995-96 was 32.2 percent. It dropped to 19.9 percent in 2003-04. These estimates are considerably higher than the 21.55 and 9.55 percent poverty rates estimated from the cross-sectional NLSS-I and II. This most likely indicates that the panel failed to follow the most-wealthy households in urban areas. This is a standard problem in panels, especially when the time between the surveys is as long as 8 years, as was the case here.

In the rural panel, the poverty rate in 1995-96 was 39.1 percent. It dropped to 32.5 percent in 2003-04. These estimates are close to the estimates obtained from the cross-section sample. Estimates from the panel in both urban and rural areas confirm the trends of a substantial drop in poverty. While these trends show that many households moved out of poverty, they also attest to the downward variability in expenditures and a household's non-negligible chances of falling into poverty.

B.6 Income-based Poverty Estimates

Both NLSS-I and II contain extensive modules on total earnings from different income sources – wage employment, non-agricultural enterprises, agricultural enterprises, remittances, and other income. For each individual in the household (aged 10 years and older in NLSS-I, and aged 5 years and older in NLSS-II), information on time worked, sector of employment (occupation and industry), and amount earned from each economic activity is collected. This enabled the construction of comparable per-capita income measures, which in turn can be used to estimate the incidence of income-based poverty (table 6b.)

Table 5b: Nepal 1994-95 and 2003-04, Transition Matrix in and out of Poverty (Panel sample)

		2003-04								
		Non-poor	Poor	All	Non-poor	Poor	All	Non-poor	Poor	All
		All			Urban			Rural		
1995-96	Non-poor	47.6	13.6	61.2	60.4	7.4	67.9	46.8	14.1	60.9
	Poor	20.4	18.5	38.8	19.7	12.4	32.2	20.7	18.5	39.1
	Total	68.0	32.0	100.0	80.1	19.9	100	67.5	32.5	100

Estimates of income-based poverty are obtaining by comparing year and region-specific poverty lines with nominal aggregate per-capita income (instead of aggregate per-capita expenditures as in the CBN method). These estimates are very closely aligned with estimates of poverty based on consumption expenditures.[19] For example, for 1995-96, poverty estimates based on income are about 5 percentage points higher than those based on per capita consumption (47 percent versus 42 percent); for 2003-04 the difference is 4 percentage points (31 percent versus 35 percent). Estimates of poverty decline (11 percentage points in the case of consumption poverty, and 12 percentage points in the case of income poverty) are also quite close.

As with consumption-based poverty estimates, income-based poverty estimates show that rural poverty is considerably higher than urban poverty both in 1995-96 and 2003-04. Regional patterns are also broadly similar. Other urban areas and rural Western Hill had a greater-than-average decline in income-based poverty similar to that of consumption-based poverty. Contrary to the trend of increasing consumption-based poverty in rural Eastern Hill, income-based poverty estimates show a decline.

Table 6b: Nepal 1995-96 and 2003-04 Income-based Poverty Estimates

	1995-96	*2003-04*	*change (percentage points)*	*change (percent)*
Urban	26.2	12.5	-13.7	-52
Rural	48.8	38.8	-10.0	-20
Kathmandu	6.8	4.7	-2.1	-31
Other urban	37.4	16.8	-20.6	-55
Rural Western Hill	62.0	43.6	-18.5	-30
Rural Eastern Hill	54.1	45.7	-8.4	-16
Rural Western Terai	41.8	33.8	-8.0	-19
Rural Eastern Terai	37.4	33.3	-4.1	-11
Nepal	47.2	34.9	-12.4	-26

[19] Note that several components (imputed rent from the owner occupied housing and value of home produced non-crop consumption) enter both measures. However, this fact alone cannot account for these similar patterns. The common components represent only 15(18) percent in income and expenditure respectively. (For the households in the lowest and second lowest PCE quintiles, the common component represents 11(14) and 13(14) percent, respectively). Correlation between income and expenditure for the whole sample is 0.72; excluding the common components from the income and consumption reduces the correlation to 0.58.

APPENDIX TABLES AND FIGURES

Table A1.1: Nepal Balance of Payments Summary, 1996-2004 (all numbers in millions of US $)

	1996	*1999*	*2000*	*2001*	*2002*	*2003*	*2004*
Trade Balance	-748.3	-703.1	-830.7	-765.1	-694.0	-927.3	-1108.2
Exports	601.7	612.1	847.1	944.9	754.2	643.8	733.4
Imports	1350.0	1315.2	1677.8	1709.9	1448.3	1571.1	1841.7
Services (net)	177.0	225.7	172.8	123.4	64.1	86.1	128.4
Current transfers (net)	192.0	670.5	797.1	888.5	887.0	971.1	1152.8
Remittances	203.0	435.0	533.1	639.5	618.4	696.9	793.8
Recorded private transfers	78.0	72.3	97.3	129.9	165.0	233.7	380.4
Estimated Remittances	125.0	362.7	435.8	509.6	453.4	463.2	413.4
Current Account Balance (excld grants)	-379.3	81.4	40.0	161.7	105.9	-13.3	9.8
Official grants	137.0	136.7	133.4	108.2	143.3	134.6	140.8
Current Account Balance (incld grants)	-242.3	218.1	173.4	269.9	249.2	121.3	150.5
Capital Account	0.0	143.1	114.4	83.6	74.1	69.4	19.7
Financial Account	141.0	-198.7	-196.1	-415.5	-425.9	-180.4	-343.9
Errors and Omissions	61.3	-7.9	107.4	100.4	64.3	83.1	416.4
Overall balance	**-40.0**	**154.6**	**199.1**	**38.4**	**-38.3**	**93.3**	**242.7**
Gross Official Reserves in Months of Imports	3.7	4.9	5.6	7.2	6.9	6.5	8.0
Nominal GDP	4521.6	5033.6	5494.3	5589.0	5561.7	5850.8	6707.0

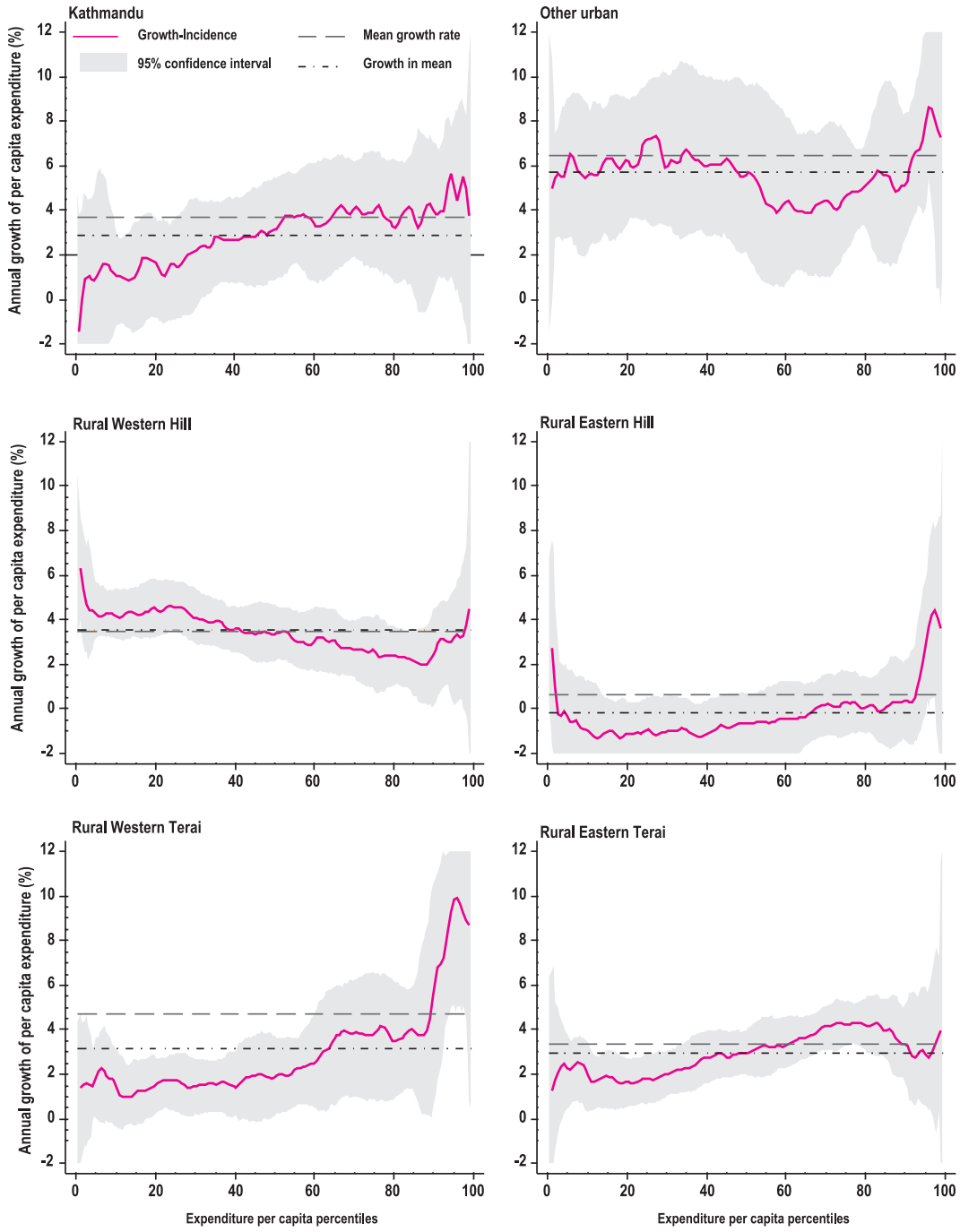
Source: IMF, 2005

Table A1.2: Nepal Balance of Payments Summary, 1996-2004 (as a percent of GDP)

	1996	*1999*	*2000*	*2001*	*2002*	*2003*	*2004*
Trade Balance	-16.5	-14.0	-15.1	-13.7	-12.5	-15.8	-16.5
Exports	13.3	12.2	15.4	16.9	13.6	11.0	10.9
Imports	29.9	26.1	30.5	30.6	26.0	26.9	27.5
Services (net)	3.9	4.5	3.1	2.2	1.2	1.5	1.9
Current transfers (net) /a	4.2	13.3	14.5	15.9	15.9	16.6	17.2
Remittances	4.5	8.6	9.7	11.4	11.1	11.9	11.8
Recorded private transfers	1.7	1.4	1.8	2.3	3.0	4.0	5.7
Estimated Remittances	2.8	7.2	7.9	9.1	8.2	7.9	6.2
Current Account Balance (excld grants)	**-8.4**	**1.6**	**0.7**	**2.9**	**1.9**	**-0.2**	**0.1**
Official grants	3.0	2.7	2.4	1.9	2.6	2.3	2.1
Current Account Balance (incld grants)	**-5.4**	**4.3**	**3.2**	**4.8**	**4.5**	**2.1**	**2.2**
Capital Account	0.0	2.8	2.1	1.5	1.3	1.2	0.3
Financial Account	3.1	-3.9	-3.6	-7.4	-7.7	-3.1	-5.1
Errors and Omissions	1.4	-0.2	2.0	1.8	1.2	1.4	6.2
Overall balance	**-0.9**	**3.1**	**3.6**	**0.7**	**-0.7**	**1.6**	**3.6**
Gross Official Reserves in Months of Imports	3.7	4.9	5.6	7.2	6.9	6.5	8.0

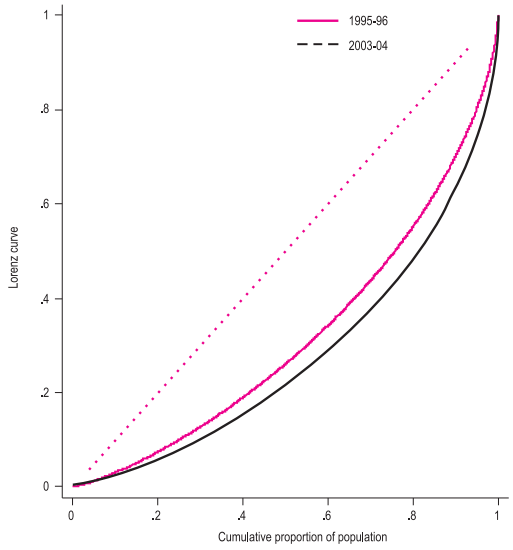
Source: IMF, 2005

Figure A1.1 Growth Incidence Curves for 6 "NLSS regions" of Nepal



Source: World Bank staff calculations using NLSS-I and II.

Figure A2.1 **Lorenz curves, Nepal 1995-96 and 2003-04**



Source: World Bank staff calculations using NLSS-I and II.

Table A2.1: Nepal 1995-96 and 2003-04, PCE at selected percentiles in Urban Areas over the same PCE percentile in Rural Areas

	p10	*p25*	*p50*	*p75*	*p90*
1995-96	1.19	1.42	2.01	2.26	2.62
2003-04	1.51	1.76	2.21	2.57	3.01
Increase (in percent)	26%	24%	10%	14%	15%

Source: World Bank staff calculations using NLSS-I and II.

Table A2.2: Decomposing difference in (ln) PCE between upper and lower caste groups, 2003-04

	(Log differential)			(In percent)		
Contribution to Total Differential	*Endowment*	*Coefficient*	*Total*	*Endowment*	*Coefficient*	*Total*
	[E]	*[C]*	*[E+C]*	*[E]*	*[C]*	*[E+C]*
Aggregate Effect	**29.70**	**12.70**	**42.40**	**70**	**30**	**100**
Demographics	**5.50**	**23.10**	**28.60**	**13**	**54**	**67**
Household size = 2	0.00	0.50	0.50	0	1	1
Household size = 3	-0.20	1.30	1.10	0	3	3
Household size = 4	-0.60	3.10	2.50	-1	7	6
Household size = 5	-1.30	3.30	2.00	-3	8	5
Household size = 6	-0.70	3.80	3.10	-2	9	7
Household size = 7	2.20	5.10	7.30	5	12	17
Household size = 8	3.50	5.70	9.20	8	13	22
Share of children 0-15	1.80	1.00	2.80	4	2	7
Share of elderly 65+	0.20	1.00	1.20	0	2	3
Household head aged 30-39	0.20	-0.40	-0.20	0	-1	0
Household head aged 40-49	-0.10	-0.90	-1.00	0	-2	-2
Household head aged 50-59	0.00	0.50	0.50	0	1	1
Household head aged 60+	0.10	-1.00	-0.90	0	-2	-2
Female-headed household	0.40	0.10	0.50	1	0	1
Education	**18.40**	**-1.70**	**16.70**	**43**	**-4**	**39**
Literate or 1-4 years completed, % of all adults	-0.10	-1.50	-1.60	0	-4	-4
5-7 yrs schooling completed, % of all adults	0.80	0.40	1.20	2	1	3
8-10 completed, % of all adults	7.80	-0.60	7.20	18	-1	17
11+ completed, % of all adults	9.90	0.00	9.90	23	0	23
Labor Market and Sectoral participation	**4.70**	**-10.60**	**-5.90**	**11**	**-25**	**-14**
% of adult men working besides self-agriculture	-1.10	3.20	2.10	-3	8	5
Self Employment Agri, % of all adults	-1.50	-7.50	-9.00	-4	-18	-21
Self Employment Manufac, % of all adults	0.00	0.40	0.40	0	1	1
Self Employment Trade, % of all adults	-0.20	-0.30	-0.50	0	-1	-1
Self Employment Services, % of all adults	-0.40	-0.80	-1.20	-1	-2	-3
Wage Employment Agri, % of all adults	7.70	-4.00	3.70	18	-9	9
Wage Employment Profes/Techni, % of all adults	-0.70	-0.20	-0.90	-2	0	-2
Wage Employment Others, % of all adults	0.90	-1.40	-0.50	2	-3	-1
Landholdings	**-0.40**	**-5.40**	**-5.80**	**-1**	**-13**	**-14**
Farmsize small(<1hectares)	0.00	-2.60	-2.60	0	-6	-6
Farmsize medium(>=1&<2ha)	0.20	-0.90	-0.70	0	-2	-2
Farmsize large(>=2ha)	-0.60	-1.90	-2.50	-1	-4	-6
Accessibility (within 30 min of reach to facilities)	**3.40**	**8.20**	**11.60**	**8**	**19**	**27**
Geographic location	**-1.90**	**7.80**	**5.90**	**-4**	**18**	**14**
Kathmandu	0.30	-0.40	-0.10	1	-1	0
Rural West Mt./Hill	-1.70	0.40	-1.30	-4	1	-3
Rural East Mt./Hill	-0.30	5.00	4.70	-1	12	11
RW Tarai	0.40	3.00	3.40	1	7	8
RE Tarai	-0.60	-0.20	-0.80	-1	0	-2
Constant	**0.00**	**-8.70**	**-8.70**	**0**	**-21**	**-21**

Source: World Bank staff calculations using NLSS-I and II.

Table A2.3: Sector of child employment (age 10-14 years), 1996 and 2004

	Males		*Females*	
	1995-96	*2003-04*	*1995-96*	*2003-04*
Nepal				
Self-employment Agriculture	84.8	93	90.3	93.1
Self-employment Manufacturing	0.9	1	0	0.6
Self-employment Trade	4.7	2.9	1.2	1.4
Self-employment Services		0.8	0.1	0.8
Wage-employment Agriculture	6.6	1.2	7.6	3.1
Wage-employment Unskilled Non-agri	3	1	0.7	1
Total	100	100	100	100
Urban				
Self-employment Agriculture	59.6	72	58.2	64.5
Self-employment Manufacturing	8.9	3.9	1.4	6.6
Self-employment Trade	12.7	16.4	27.9	14.6
Self-employment Services		3.7	2.9	3.2
Wage-employment Agriculture	1.8		9.5	
Wage-employment Unskilled Non-agri	17.1	3.9		11.1
Total	100	100	100	100
Rural				
Self-employment Agriculture	85.6	94.3	90.9	94.9
Self-employment Manufacturing	0.6	0.8		0.2
Self-employment Trade	4.4	2.1	0.7	0.6
Self-employment Services		0.6		0.6
Wage-employment Agriculture	6.8	1.3	7.6	3.3
Wage-employment Unskilled Non-agri	2.6	0.9	0.8	0.4
Total	100	100	100	100

Source: World Bank staff calculations using NLSS-I and II.

Table A3.1: Distribution of place of primary work for those working away from home.

	1995-96				*2003-04*			
	Rural Nepal	*Urban Nepal*	*India*	*Abroad*	*Rural Nepal*	*Urban Nepal*	*India*	*Abroad*
Males	49.8	26.8	23.3	0.2	50.8	37.1	11.2	0.9
Females	65.0	30.2	4.8	0.0	76.8	23.2	0.0	0.0
Urban	39.1	56.7	4.3	0.0	45.1	54.2	0.7	0.0
Rural	52.4	24.4	23.1	0.2	55.6	31.4	12.0	1.0
Non-Poor	52.1	33.8	14.0	0.0	53.1	38.9	7.0	1.1
Poor	50.0	17.0	32.7	0.3	55.7	24.9	19.4	0.0
Nepal	51.3	27.1	21.5	0.1	53.7	35.5	10.0	0.8

Note: For each year and for each population group, percentages of four destinations add to 100.
Source: World Bank staff calculations using NLSS-I and II.

Table A3.2: Determinants of daily wages and wage-sector participation, Nepal 2003-2004 (Heckman selection model)

	Males		*Females*	
	Log-wages	*Participation*	*Log-wages*	*Participation*
Independent Variable	(1)	(2)	(3)	(4)
Age (years)	0.041	0.035	0.014	0.012
	(6.19)***	(10.85)***	(2.35)**	(4.17)***
Age-Squared	-0.000	-0.001	-0.000	-0.000
	(5.26)***	(13.76)***	(2.55)**	(5.94)***
<5 yrs of schooling	0.176	-0.109	0.065	-0.047
(omitted: illiterate dummy)	(5.10)***	(5.03)***	(1.36)	(2.38)**
5-7 yrs completed	0.216	-0.152	0.103	-0.116
	(5.46)***	(6.41)***	(1.72)*	(5.73)***
8-10 yrs completed	0.252	-0.247	0.167	-0.124
	(5.62)***	(11.23)***	(2.40)**	(6.06)***
11+ yrs completed	0.608	-0.132	0.702	0.037
	(10.04)***	(4.05)***	(7.34)***	(0.87)
Unskilled Non-Agriculture	0.104		-0.178	
(omitted sector: agriculture)	(3.80)***		(3.46)***	
Skilled Non-Agriculture	0.384		0.339	
	(6.99)***		(4.18)***	
Accessibility Index	0.201	-0.010	0.067	-0.037
	(4.08)***	(0.32)	(1.18)	(1.50)
Other Urban	-0.298	-0.158	0.020	-0.128
(omitted region: Kathmandu)	(5.22)***	(4.35)***	(0.25)	(4.17)***
Rural West Mt./Hill	-0.117	-0.091	0.161	-0.093
	(1.80)*	(2.09)**	(1.83)*	(2.52)**
Rural East Mt./Hill	-0.232	-0.041	-0.026	0.037
	(3.95)***	(0.98)	(0.33)	(0.96)
RW Tarai	-0.301	-0.006	0.189	0.003
	(5.30)***	(0.14)	(2.29)**	(0.07)
RE Tarai	-0.512	0.018	-0.117	0.121
	(9.83)***	(0.48)	(1.57)	(3.21)***
Married (0,1)		0.145		-0.104
		(6.38)***		(5.92)***
Number of children 0-6		0.023		0.007
		(3.63)***		(1.39)
Farmsize small(<1hectares)		-0.113		-0.189
(omitted: landless)		(5.07)***		(12.06)***
Farmsize medium(>=1&<2ha)		-0.237		-0.248
		(9.59)***		(16.31)***
Farmsize large(>=2ha)		-0.360		-0.246
		(13.04)***		(14.94)***
Remit Received(0,1)		-0.045		-0.003
		(2.51)**		(0.21)
Constant	3.891	-0.739	3.808	-0.067
	(27.45)***	(4.24)***	(27.51)***	(0.32)
Observations	2506	5186	1304	5107
Sample Selection P-value (Chi-2)	.59		0.71	

Absolute value of z statistics in parentheses, * significant at 10%; ** significant at 5%; *** significant at 1%
Source: World Bank staff calculations using NLSS-I and II.

Table A4.1: Determinants of migration decision, Nepal 2003-04

Marginal Effects from multimonial logit regressions (those in bold fonts are statistically significant at 5% level)

Explanatory variables	*No Migration*	*Migrate to Rural Nepal*	*Migrate to urban nepal*	*Migrate to India*	*Migrate Abroad*
Household size	**0.103**	**-0.009**	0.000	**0.010**	0.000
Share of children 0-6	**-0.933**	0.037	-0.063	0.051	**0.087**
Share of children 7-15	-0.199	-0.016	0.009	0.062	0.048
Share of elderly 65+	**-0.419**	**0.071**	0.002	**-0.215**	-0.019
Age of Household Head	**-0.012**	0.000	0.000	0.000	**0.001**
Self Employment Agri, % of adults	**1.294**	-0.022	0.009	0.024	-0.006
Self Emp non-farm, % of I	**0.890**	**-0.058**	-0.001	-0.085	-0.036
Wage Employment Agri, % of	**1.492**	-0.049	-0.043	**0.124**	-0.061
Non-farm wage, % of	1.492	**-0.066**	-0.046	0.053	**-0.089**
Lit,1-4, % of all adults	0.089	-0.007	0.021	-0.051	0.015
5-7 comp, % of all adults	0.207	-0.034	0.030	-0.052	**0.062**
8-10 comp, % of all adults	-0.200	0.016	0.002	**-0.118**	**0.046**
11+ comp, % of all adults	**-0.510**	**0.084**	**-0.098**	**-0.208**	0.024
farmsize small(<1hectares)	0.039	**-0.037**	-0.001	-0.003	0.002
farmsize medium(>=1&<2ha)	0.038	**-0.047**	0.018	-0.010	0.000
farmsize large(>=2ha)	-0.019	-0.017	0.035	-0.030	0.031
Urban Other	**-0.252**	0.028	0.031	0.196	-0.003
Rural West Mt./Hill	**-0.334**	0.052	-0.029	**0.321**	-0.010
Rural East Mt./Hill	-0.168	**0.127**	0.025	0.024	-0.008
RW Tarai	**-0.286**	**0.080**	-0.029	0.256	-0.020
RE Tarai	**-0.250**	**0.098**	-0.008	0.156	0.004
Access Index	**-0.302**	0.024	-0.005	-0.051	0.018
Base Probability (%) (N=4069)	67.0	7.6	7.5	12.4	5.5

Source: World Bank staff calculations using NLSS-I and II.

Table A5.1: Land and labor productivity in Nepal (1995-96 and 2003-04)

1995-96	*Gross Cultivated Area/HH*	*Cropping Intensity*	*Workers/ Ha*	*GCO/Ha*	*Real Profits/Ha*	*GCO/ Worker*	*Real Profits Worker*
Small Farmers-Mountains	0.79	1.52	4.4	13,048	10,388	3,793	3,076
Small Farmer-E-Hills	0.89	1.67	3.8	15,367	12,291	4,800	3,871
Small Farmers-W. Hills	0.81	1.55	4.0	15,140	14,184	4,590	4,071
Small Farmers-Terrai	0.92	1.65	4.3	16,351	11,312	5,618	4,073
Medium Farmers Terrai	2.32	1.67	1.9	13,823	11,577	9,811	7,504
Medium Farmers -E. Hills and Mtns	2.22	1.58	1.6	9,170	7,100	6,935	5,471
Medium Farmers-W. Hills and Mtns	2.08	1.54	1.7	8,165	7,543	5,899	5,122
Large Farmers	6.62	1.62	0.8	11,007	8,712	17,414	13,689
All Farmers	2.11	1.61	3.0	13,626	11,001	7,682	6,076

2003-04	*Gross Cultivated Area/HH*	*Cropping Intensity*	*Workers/ Ha*	*GCO/Ha*	*Real Profits/Ha*	*GCO/ Worker*	*Real Profits Worker*
Small Farmers-Mountains	0.94	1.77	3.4	12,342	10,003	4,383	3,557
Small Farmer-E-Hills	0.89	1.77	3.8	14,756	11,327	4,594	3,510
Small Farmers-W. Hills	0.93	1.73	3.4	11,162	9,415	3,959	3,338
Small Farmers-Terrai	1.00	1.89	3.3	15,534	11,546	6,015	4,330
Medium Farmers Terrai	2.58	1.88	2.0	13,405	9,885	10,676	7,072
Medium Farmers -E. Hills and Mtns	2.35	1.73	1.6	10,149	7,538	7,233	5,367
Medium Farmers-W. Hills and Mtns	2.29	1.75	1.4	7,452	6,395	6,000	5,057
Large Farmers	5.90	1.78	1.0	9,518	7,427	14,306	10,172
All Farmers	1.81	1.80	2.8	12,707	9,841	6,785	4,997

Note: GCO is Gross Cultivated Output
Source: World Bank staff calculations using NLSS-I and II.

Table A5.2: Cost of cultivation (cultivation expenditure)

1995-96	*Seeds*	*Fertilizer*	*Hired labor*	*Irrigation*	*Costs/ha*	*GCO/ha*	*Costs as % of GCO*
Small Farmers-Mountains	4%	23%	44%	0%	1,286	13,048	10%
Small Farmer-E-Hills	5%	24%	39%	0%	2,042	15,367	13%
Small Farmers-W. Hills	13%	18%	47%	1%	1,167	15,140	8%
Small Farmers-Terai	9%	42%	28%	7%	1,541	16,393	9%
Medium Farmers Terai	9%	40%	40%	7%	1,319	13,939	9%
Medium Farmers -E. Hills and Mtns	7%	19%	45%	1%	1,114	9,170	12%
Medium Farmers-W. Hills and Mtns	4%	17%	60%	0%	680	8,165	8%
Large Farmers	5%	29%	53%	3%	1,324	11,081	12%
All Farmers	8%	29%	41%	3%	1,384	13,660	10%

2003-04	*Seeds*	*Fertilizer*	*Hired labor*	*Irrigation*	*Costs/ha*	*GCO/ha*	*Costs as % of GCO*
Small Farmers-Mountains	6%	39%	39%	0%	1,129	12,342	9%
Small Farmer-E-Hills	5%	40%	40%	0%	2,530	14,756	17%
Small Farmers-W. Hills	13%	22%	38%	2%	1,115	11,192	10%
Small Farmers-Terai	8%	31%	28%	4%	3,126	15,567	20%
Medium Farmers Terai	8%	32%	37%	4%	2,327	13,405	17%
Medium Farmers -E. Hills and Mtns	5%	43%	39%	1%	1,367	10,149	13%
Medium Farmers-W. Hills and Mtns	5%	19%	60%	1%	755	7,452	10%
Large Farmers	6%	32%	41%	4%	1,677	9,518	18%
All Farmers	7%	32%	35%	3%	2,026	12,720	16%

Note: GCO is Gross Cultivated Output
Source: World Bank staff calculations using NLSS-I and II.

Table A5.3: Cropping patterns in 1995-96 and 2003-04

1995-96	*Small Farmers-Mountains*	*Small Farmer-E-Hills*	*Small Farmers-W. Hills*	*Small Farmers-Terai*	*Medium Farmers Terai*	*Medium Farmers - E. Hills and Mtns*	*Medium Farmers-W. Hills and Mtns*	*Large Farmers*	*All Rural Households*
paddy	30%	32%	32%	54%	57%	38%	38%	51%	47%
wheat	11%	6%	14%	13%	11%	5%	12%	22%	15%
maize	19%	23%	19%	4%	3%	26%	20%	5%	10%
millet	14%	8%	9%	0%	0%	8%	6%	1%	3%
winter potato	3%	2%	8%	2%	3%	2%	2%	2%	3%
mustard	1%	3%	2%	5%	4%	2%	3%	4%	3%
other cereals	5%	2%	1%	0%	0%	1%	2%	0%	1%
soya beans	1%	1%	1%	0%	0%	1%	1%	0%	0%
pulses	3%	3%	4%	9%	9%	2%	4%	5%	6%
other potatoes	4%	2%	1%	0%	0%	2%	1%	0%	1%
oilseeds/cash crops	1%	0%	0%	2%	2%	0%	0%	2%	1%
chillies	2%	1%	0%	0%	1%	0%	0%	0%	0%
onions	0%	0%	0%	1%	1%	0%	0%	1%	1%
garlic/ginger	0%	1%	1%	0%	0%	2%	2%	0%	1%
spices	2%	1%	1%	0%	1%	3%	1%	1%	1%
winter veg	1%	2%	2%	2%	1%	2%	3%	1%	2%
summer veg	2%	10%	1%	1%	1%	2%	1%	1%	2%
fruits	0%	2%	1%	2%	4%	3%	2%	1%	2%
sugarcane	0%	0%	0%	3%	3%	0%	0%	2%	2%
Herfindahl index	0.29	0.39	0.32	0.47	0.47	0.35	0.32	0.43	0.40

2003-04	*Small Farmers-Mountains*	*Small Farmer-E-Hills*	*Small Farmers-W. Hills*	*Small Farmers-Terai*	*Medium Farmers Terai*	*Medium Farmers - E. Hills and Mtns*	*Medium Farmers-W. Hills and Mtns*	*Large Farmers*	*All Rural Households*
paddy	24%	39%	24%	51%	57%	39%	29%	50%	45%
wheat	9%	7%	11%	11%	11%	6%	11%	12%	10%
maize	21%	21%	21%	6%	3%	24%	19%	6%	11%
millet	10%	6%	6%	1%	1%	6%	7%	1%	3%
winter potato	2%	6%	4%	3%	4%	3%	2%	2%	3%
mustard	1%	1%	2%	3%	3%	2%	3%	3%	3%
other cereals	4%	0%	1%	0%	0%	0%	2%	0%	0%
soya beans	2%	1%	2%	0%	0%	1%	2%	0%	1%
pulses	4%	2%	6%	8%	7%	2%	5%	6%	6%
other potatoes	5%	5%	3%	0%	0%	3%	2%	1%	2%
oilseeds/cash crops	0%	1%	1%	1%	1%	1%	0%	2%	1%
chilies	1%	1%	1%	1%	0%	0%	0%	1%	1%
onions	0%	0%	0%	1%	1%	0%	1%	1%	0%
garlic/ginger	1%	2%	2%	1%	1%	1%	3%	2%	1%
spices	6%	1%	2%	0%	0%	6%	0%	1%	1%
winter vegetables	3%	4%	7%	5%	3%	4%	6%	1%	4%
summer vegetables	4%	3%	4%	2%	1%	2%	5%	1%	2%
fruits	2%	1%	4%	4%	2%	1%	5%	4%	3%
sugarcane	0%	0%	0%	3%	4%	0%	0%	8%	3%
Herfindahl index	0.27	0.36	0.28	0.45	0.47	0.35	0.26	0.38	0.38

Source: World Bank staff calculations using NLSS-I and II.

Table A5.4: Use of fertilizers and insecticides

1995-96	proportion using Fertilizer	proportion using Urea	proportion using DAP	Adequacy of Fertilizers	proportion using insecticides
Small Farmers-Mountains	44%	43%	4%	67%	0%
Small Farmer-E-Hills	61%	58%	8%	77%	7%
Small Farmers-W. Hills	51%	42%	15%	83%	2%
Small Farmers-Terai	73%	72%	43%	84%	22%
Medium Farmers Terai	71%	71%	49%	72%	27%
Medium Farmers -E. Hills and Mtns	64%	62%	11%	70%	5%
Medium Farmers-W. Hills and Mtns	49%	43%	17%	80%	13%
Large Farmers	66%	65%	41%	68%	24%
All Farmers	55%	52%	23%	77%	15%

2003-04	proportion using Fertilizer	proportion using Urea	proportion using DAP	Adequacy of Fertilizers	proportion using insecticides
Small Farmers-Mountains	47%	46%	14%	87%	9%
Small Farmer-E-Hills	70%	68%	31%	93%	32%
Small Farmers-W. Hills	46%	46%	12%	91%	9%
Small Farmers-Terai	83%	81%	62%	91%	24%
Medium Farmers Terai	89%	85%	68%	91%	27%
Medium Farmers -E. Hills and Mtns	72%	71%	40%	96%	25%
Medium Farmers-W. Hills and Mtns	63%	61%	26%	90%	10%
Large Farmers	82%	82%	64%	89%	32%
All Farmers	63%	62%	36%	91%	24%

Source: World Bank staff calculations using NLSS-I and II.

Table A5.5: Use of seeds (percentage of households that purchased seeds)

1995-96	Purchased Seeds	Main Paddy	Wheat	Summer Maize	Winter Potato	Onions	Winter Vegetables	Summer Vegetables	Other
Small Farmers-Mountains	16%	2%	7%	2%	25%	0%	4%	1%	7%
Small Farmer-E-Hills	16%	2%	4%	5%	21%	14%	11%	10%	5%
Small Farmers-W. Hills	17%	2%	7%	4%	9%	23%	9%	4%	7%
Small Farmers-Terai	29%	7%	12%	3%	19%	28%	29%	12%	11%
Medium Farmers Terai	36%	4%	14%	4%	21%	25%	29%	5%	16%
Medium Farmers -E. Hills and Mtns	27%	3%	12%	3%	31%	15%	9%	7%	8%
Medium Farmers-W. Hills and Mtns	18%	3%	5%	4%	6%	14%	7%	7%	9%
Large Farmers	35%	6%	12%	3%	22%	31%	21%	9%	15
All Farmers	25%	4%	10%	4%	19%	25%	17%	7%	10%

2003-04	Purchased Seeds	Main Paddy	Wheat	Summer Maize	Winter Potato	Onions	Winter Vegetables	Summer Vegetables	Other
Small Farmers-Mountains	28%	2%	6%	3%	24%	10%	3%	3%	13%
Small Farmer-E-Hills	30%	6%	9%	7%	20%	14%	11%	9%	8%
Small Farmers-W. Hills	34%	3%	4%	2%	38%	21%	22%	6%	8%
Small Farmers-Terai	55%	9%	23%	9%	48%	45%	42%	14%	20%
Medium Farmers Terai	61%	11%	24%	8%	50%	31%	36%	17%	14%
Medium Farmers -E. Hills and Mtns	39%	6%	8%	7%	19%	6%	13%	8%	12%
Medium Farmers-W. Hills and Mtns	33%	2%	7%	1%	29%	23%	16%	14%	6%
Large Farmers	61%	12%	13%	4%	40%	37%	33%	13%	21%
All Farmers	44%	7%	13%	5%	38%	28%	25%	10%	13%

Note: The first column "Purchased seeds" refers to the proportion of all farm households that reported purchasing seeds. The figures in the remaining columns are the proportion of households purchasing seeds among the households growing each type of crop.
Source: World Bank staff calculations using NLSS-I and II.

Table A5.6: Use of irrigation by consumption quintiles

1995-96	Use Irrigation	Use STW DTW	Use Canal	Use Other	Share of area irrigated	Average Gross Cultivated Area (Ha)	Share of gross cultivated area	Average Irrigated Area (Ha)	Share of total irrigated area
Lowest	50%	4%	37%	11%	23%	1.64	16%	0.45	12%
Second	52%	8%	36%	12%	32%	1.84	18%	0.58	16%
Third	54%	10%	40%	9%	34%	1.68	18%	0.69	21%
Fourth	53%	9%	40%	10%	33%	1.88	22%	0.52	17%
Highest	58%	6%	46%	11%	37%	1.93	26%	0.89	34%
All	54%	7%	40%	11%	32%	1.81	100%	0.64	100%

2003-04	Use Irrigation	Use STW DTW	Use Canal	Use Other	Share of area irrigated	Average Gross Cultivated Area (Ha)	Share of gross cultivated area	Average Irrigated Area (Ha)	Share of total irrigated area
Lowest	53%	4%	42%	10%	31%	1.11	12%	0.37	8%
Second	64%	10%	52%	9%	43%	1.37	16%	0.65	14%
Third	66%	14%	48%	9%	44%	1.59	20%	0.81	19%
Fourth	74%	11%	59%	11%	53%	1.59	23%	0.93	25%
Highest	74%	16%	56%	13%	56%	1.99	29%	1.20	34%
All	67%	11%	52%	10%	47%	1.56	100%	0.82	100%

Source: World Bank staff calculations using NLSS-I and II.

Table A5.7: Access to irrigation among farm households

1995-96	Use Irrigation	Use STW/ DTW	Use Canal	Use Other	Share of area irrigated	Share of canal irrigated area	Share of STW/DTW irrigated area	Average Gross Cultivated Area (Ha)	Share of gross cultivated area	Average Irrigated Area (Ha)	Share of total irrigated area
Small Farmers-Mountains	57%	4%	46%	14%	23%	41.8%	3%	0.79	2.31%	0.19	2%
Small Farmer-E-Hills	54%	1%	48%	7%	29%	46.4%	1%	0.89	5.74%	0.24	4%
Small Farmers-W. Hills	61%	3%	47%	15%	29%	44.9%	3%	0.81	6.91%	0.24	6%
Small Farmers-Terai	45%	13%	28%	8%	39%	26.5%	10%	0.94	8.87%	0.38	10%
Medium Farmers Terai	47%	11%	33%	8%	39%	31.7%	9%	2.33	12.43%	0.83	12%
Medium Farmers -E. Hills and Mtns	76%	6%	60%	15%	30%	57.7%	5%	2.22	8.04%	0.67	7%
Medium Farmers-W. Hills and Mtns	70%	6%	52%	22%	33%	46.9%	6%	2.08	5.38%	0.62	5%
Large Farmers	66%	14%	48%	13%	41%	45.0%	13%	6.68	48.73%	2.59	53%

2003-04	Use Irrigation	Use STW/ DTW	Use Canal	Use Other	Share of area irrigated	Share of canal irrigated area	Share of STW/DTW irrigated area	Average Gross Cultivated Area (Ha)	Share of gross cultivated area	Average Irrigated Area (Ha)	Share of total irrigated area
Small Farmers-Mountains	72%	1%	65%	10%	34%	62.6%	0%	0.94	3.45%	0.32	2%
Small Farmer-E-Hills	62%	2%	53%	10%	38%	51.2%	1%	0.90	7.34%	0.33	5%
Small Farmers-W. Hills	58%	1%	52%	6%	25%	50.3%	1%	0.94	9.73%	0.24	5%
Small Farmers-Terai	71%	24%	46%	10%	64%	42.9%	20%	1.01	13.16%	0.62	15%
Medium Farmers Terai	80%	26%	54%	15%	70%	49.7%	21%	2.59	16.73%	1.79	22%
Medium Farmers -E. Hills and Mtns	74%	3%	65%	15%	43%	60.3%	2%	2.35	8.64%	1.00	7%
Medium Farmers-W. Hills and Mtns	82%	3%	77%	10%	31%	74.1%	0%	2.29	5.98%	0.69	3%
Large Farmers	80%	22%	55%	18%	58%	49.3%	18%	5.92	32.72%	3.62	38%

Source: World Bank staff calculations using NLSS-I and II.

Figure A5.2 **Relationship between land holdings and total real per capita expenditure (PCE)**

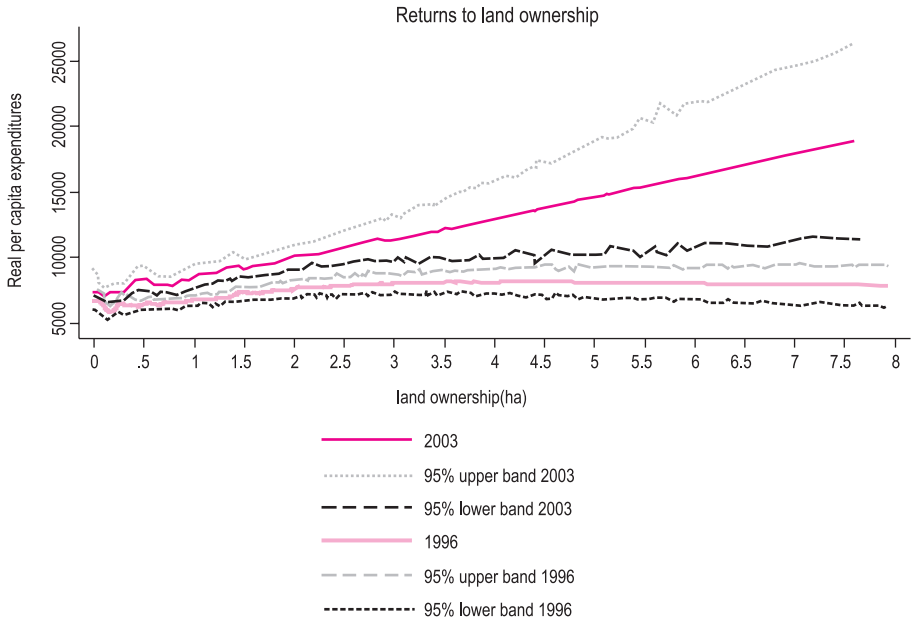


Table A5.8: Correlates of share of gross crop output sold (Tobit model), Dependent variable 2003-04 share of GCO sold

Log operated area (Ha)	0.090	0.009	9.88	0.000	0.072	0.107
Time to paved road	-0.001	0.002	-0.47	0.636	-0.005	0.003
Time to market	-0.006	0.005	-1.11	0.265	-0.016	0.004
Ward has input market	0.070	0.033	2.14	0.032	0.006	0.134
Household size	-0.013	0.003	-4.17	0.000	-0.019	-0.007
Log value of agr. Assets	0.028	0.006	4.91	0.000	0.017	0.040
HH sharecrops	-0.029	0.016	-1.86	0.063	-0.060	0.002
RW Mt./Hill	-0.205	0.037	-5.51	0.000	-0.278	-0.132
RE Mt./Hill	-0.042	0.036	-1.14	0.252	-0.113	0.030
RE Terai	0.109	0.030	3.67	0.000	0.051	0.167
Head primary school	0.052	0.019	2.75	0.006	0.015	0.088
Head middle school	0.063	0.016	3.90	0.000	0.031	0.094
Use improved seeds	0.077	0.017	4.49	0.000	0.043	0.111
Use fertilizer	0.077	0.025	3.13	0.002	0.029	0.126
Share of rice area	-0.258	0.041	-6.21	0.000	-0.339	-0.176
Constant	0.027	0.061	0.45	0.653	-0.092	0.147

Note: GCO is Gross Cultivated Output
Source: World Bank staff calculations using NLSS-I and II.

Table A5.9: Share of GCO sold among farmers producing select crops by expenditure quintiles

	1995-96	2003-04	1995-96	2003-04	1995-96	2003-04	1995-96	2003-04	1995-96	2003-04
	Paddy		Winter vegetables		Wheat		Sugarcane		Winter Potatoes	
Lowest	6.84%	10.15%	11.48%	7.55%	3.63%	11.95%	48.23%	76.71%	27.47%	15.70%
Second	6.74%	13.47%	15.71%	31.15%	6.48%	17.59%	66.59%	98.38%	6.61%	20.40%
Third	17.57%	16.02%	28.31%	27.74%	9.11%	21.69%	38.03%	46.69%	10.20%	42.31%
Fourth	12.59%	23.64%	27.93%	50.91%	10.42%	29.13%	99.87%	89.42%	12.04%	28.53%
Highest	15.41%	28.53%	41.76%	58.38%	19.67%	40.51%	79.06%	88.31%	26.72%	41.39%
Total	12.97%	20.64%	30.15%	43.18%	10.25%	25.98%	73.75%	78.74%	18.79%	34.35%

Note: GCO is Gross Cultivated Output
Source: World Bank staff calculations using NLSS-I and II.

Table A5.10: Productivity of Livestock: Income per Herd

	1995-96	2003-04	% change
	Rs/TLU		
Small Farmers-Mountains	225.77	306.23	36%
Small Farmer-E-Hills	429.75	411.68	-4%
Small Farmers-W. Hills	311.51	351.48	13%
Small Farmers-Terai	343.42	504.79	47%
Medium Farmers Terai	257.51	404.89	57%
Medium Farmers -E. Hills and Mtns	356.20	351.51	-1%
Medium Farmers-W. Hills and Mtns	240.42	322.38	34%
Large Farmers	205.25	302.00	47%
All Farmers	242.22	320.16	32%

Table A6.1: Targeting of Placement of Roads, Markets and Facilities

	Difference in travel time to nearest				
	School	*Health Center*	*Paved Road*	*Market Center*	*Any market*
Regression 1					
% population poor in 1995/96	-0.38	-1.37	-8.76	-7.04	-3.09
	(2.03)*	(2.59)*	(2.09)*	(1.93)	(1.63)
R-squared	0.07	0.11	0.07	0.06	0.04
Regression 2					
% population poor in 1995/96	0.05	0.07	-1.30	2.86	1.69
	(0.42)	(0.17)	(0.37)	(1.30)	(1.20)
Travel time to respective facility in1995/96	-0.85	-0.78	-0.40	-0.76	-0.61
	(9.29)**	(8.85)**	(6.04)**	(11.39)**	(8.26)**
R-squared	0.63	0.63	0.44	0.72	0.57
Regression 3					
% population poor in 1995/96	0.04	0.20	-1.30	2.76	1.53
	(0.28)	(0.57)	(0.37)	(1.44)	(1.36)
Travel time to respective facility in1995/96	-0.84	-0.69	-0.40	-0.53	-0.31
	(9.01)**	(8.02)**	(6.04)**	(6.87)**	(4.00)**
Decline in travel Time to paved road	0.00	0.03		0.32	0.25
from 1995/96 to 2002/03	(0.39)	(3.26)**		(4.34)**	(5.67)**
R-squared	0.63	0.69	0.44	0.79	0.73
Regression 4					
% population poor in 1995/96	0.06	0.19	0.56	3.78	2.26
	(0.48)	(0.53)	(0.17)	(2.14)*	(2.15)*
Travel time to respective facility in1995/96	-0.95	-0.72	-0.58	-0.67	-0.56
	(9.15)**	(8.36)**	(6.54)**	(7.73)**	(6.04)**
Decline in travel Time to paved road	0.00	0.04		0.26	0.18
from 1995/96 to 2002/03	(0.52)	(3.45)**		(3.71)**	(4.42)**
Log(Population in 1991)	-0.18	-0.15	-1.58	-0.84	-0.75
	(2.19)*	(0.70)	(0.71)	(0.78)	(1.17)
Log(Arable Land in the district)	0.03	0.14	1.99	0.34	0.50
	(0.48)	(0.77)	(1.10)	(0.37)	(0.91)
Mean Elevation of the district	-3.2E-05	2.1E-04	3.9E-03	5.4E-04	1.2E-03
	(0.41)	(1.04)	(1.94)	(0.52)	(1.91)
Standard deviation of elevation	7.79E-05	-5.8E-05	-2.4E-03	1.7E-03	-7.9E-04
	(0.61)	(0.17)	(0.71)	(0.94)	(0.76)
R-squared	0.69	0.74	0.56	0.85	0.80
Observations	59	59	59	59	59

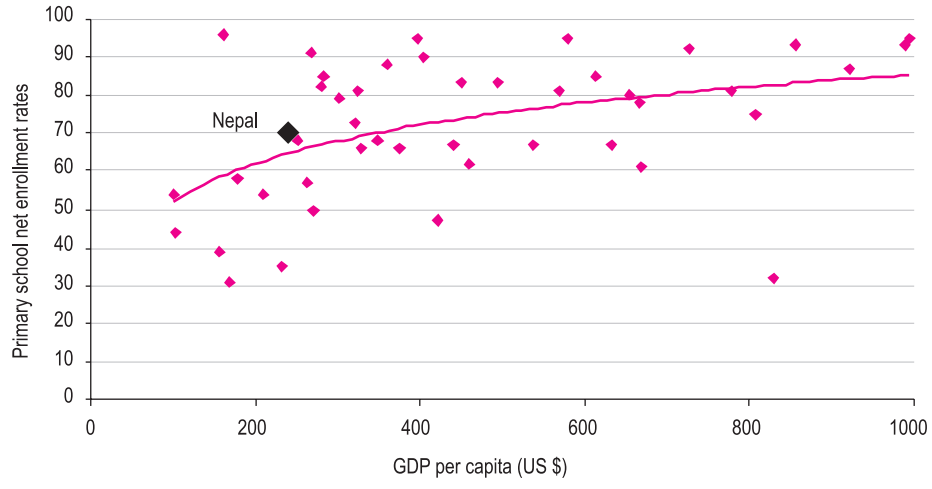
Absolute value of t statistics in parentheses
* significant at 5%; ** significant at 1%
Source: World Bank staff calculations using NLSS-I and II

Table A6.2: Change in real per capita expenditure between 2002/03 and 1995/96
Dependent Variable =Change in real per capita expenditure between 2002/03 and 1995/96

	1		2		3		4		5	
	OLS	*IV*	*OLS*	*IV*	*OLS*	*IV*	*OLS*	*IV*	*OLS*	*IV*
Initial condition (1995/96)										
Per Capita Expenditure	0.22	0.19							-0.30	-0.31
	(2.91)**	(2.09)*							(3.06)**	(3.09)**
Travel time to market			-191	-326	-262	-414	-80	-189		
			(1.56)	(1.63)	(2.23)*	(2.21)*	(0.69)	(1.02)		
Average years of education (Adult)			434	374			-197	-216		
			(1.76)	(1.44)			(0.67)	(0.73)		
Remittances			0.99	0.98	1.15532	1.11575	1.10	1.08	1.55	1.54
			(3.52)**	(3.42)**	(4.28)**	(4.00)**	(4.16)**	(4.05)**	(5.56)**	(5.50)**
Share of non-farm in total employment							7982	7643	12043	12032
							(3.31)**	(3.07)**	(5.35)**	(5.34)**
Change between 1995/96 and 2002/03										
Travel time to market	-11	263	-236	-453	-278	-535	-162	-333	-76	-36
	(0.10)	(0.70)	(1.60)	(1.55)	(1.89)	(1.87)	(1.2)	(1.26)	(0.91)	(0.35)
Year of Education (Adult)	1486	1491	1471	1447	1244	1253	825	835	811	819
	(5.43)**	(5.22)**	(5.31)**	(5.11)**	(4.99)**	(4.91)**	(2.74)**	(2.74)**	(3.59)**	(3.61)**
Remittances	0.08	0.03	0.51	0.51	0.62	0.59	0.64	0.63	0.78	0.77
	(0.41)	(0.15)	(2.13)*	(2.07)*	(2.58)*	(2.41)*	(2.89)**	(2.79)**	(3.85)**	(3.76)**
Share of non-farm in total employment							12064	11513	13793	13648
							(3.81)**	(3.50)**	(5.43)**	(5.35)**
Observations	71	71	71	71	71	71	71	71	71	71
R-squared	0.37	0.32	0.54	0.52	0.52	0.49	0.63	0.62	0.67	0.67

Absolute value of t statistics in parentheses
* significant at 5%; ** significant at 1%
Source: World Bank staff calculations using NLSS-I and II

Figure A7.1 **Primary school net enrollment rates across countries**



Source: World Bank for NERs in all countries except Nepal. Note: NER for Nepal is computed from NLSS-II.

Table A7.1: Probit regression of school participation rates (by age groups)
Dependent variable =1 if a child is in school and 0 otherwise

6 – 10 years old children			*11 - 15 years old children*			*All 6 – 15 years old children*		
Independent Variables			*Independent Variables*			*Independent Variables*		
central	-0.0786	***	central	-0.0891	***	central	-0.0824	***
western	0.0694	***	western	0.0897	***	western	0.0788	***
midwes~n	0.0099		midwes~n	-0.0574	*	midwes~n	-0.0155	
farwes~n	-0.0221		farwes~n	-0.0707	*	farwes~n	-0.0408	*
urban	0.0344	**	urban	0.0474	**	urban	0.0434	***
age7	-0.0481	**	age12	0.1463	***	age7	0.0715	***
age8	0.0209		age13	0.1325	***	age8	0.1150	***
age9	0.0309	*	age14	0.0735	***	age9	0.1212	***
age10	0.0537	***	age15	0.0570	**	age10	0.1328	***
age11	0.0449	**	female	-0.0828	**	age11	0.1310	***
age12	0.0335	*	hindum~e	-0.3348	***	age12	0.1187	***
female	-0.0978	***	hindud~s	-0.2671	***	age13	0.1038	***
hindum~e	-0.2342	***	janaja~r	0.0128		age14	0.0600	***
hindud~s	-0.1507	***	janaja~l	-0.0953	***	age15	0.0468	**
janaja~r	0.0416		janaja~i	-0.1501	***	female	-0.1057	***
janaja~l	-0.0623	***	religi~s	-0.5755	***	hindum~e	-0.2713	***
janaja~i	-0.1184	***	other	-0.0997		hindud~s	-0.2001	***
religi~s	-0.3719	***	logc2_~p	0.1414	***	janaja~r	0.0152	
other*	-0.0661		male_m~s	0.0040		janaja~l	-0.0772	***
logc2_~p	0.1308	***	male_f~s	0.0407	***	janaja~i	-0.1291	***
male_m~s	-0.01300	**	female..	-0.0034		religi~s	-0.4399	***
male_f~s	0.0156	**	f~fema~s	0.0054		other	-0.1060	
female..	-0.0042		headli~e	0.0830	***	logc2_~p	0.1418	***
f~fema~s	0.0007		spouse~e	-0.0347		male_m~s	-0.0110	*
headli~e	0.0674	***	timeto~y	-0.0015	***	male_f~s	0.0206	***
spouse~e	0.0222					female..	-0.0048	
timeto~y	-0.0018	***				f~fema~s	-0.0002	
						headli~e	0.0810	***
						spouse~e	0.0026	
						timeto~y	-0.0017	***

Notes: * - significant at 10%; ** - significant at 5%; *** - significant at 1%
Source: World Bank staff calculations using NLSS-I and II

Table A7.2: Probit of completion rates across age groups
Dependent variable =1 if a child completed primary school and 0 otherwise

11–13 years old children			*14 –17 years old children*		*All 11–17 years old children*	
Independent Variables						
central	0.0008		-0.1375	***	-0.0817	***
western	-0.0292		0.0529		-0.0014	
midwes~n	-0.0780	*	-0.1394	***	-0.1061	***
farwes~n	-0.0358		-0.0645		-0.0613	
urban	0.0693	**	0.1040	***	0.0872	***
female	-0.1750	***	-0.1604	***	-0.1370	***
hindum~e	-0.1217	***	-0.4434	***	-0.2697	***
hindud~s	-0.1963	***	-0.3316	***	-0.2561	***
janaja~r	0.0281		-0.2345	***	-0.0437	
janaja~l	-0.1617	***	-0.1813	***	-0.1589	***
janaja~i	-0.1801	***	-0.2565	***	-0.1930	***
religi~s	-0.2299	***	-0.6052	***	-0.4036	***
other	-0.0003		-0.3932	**	-0.1584	
logc2_~p	0.1947	***	0.1521	***	0.2098	***
male_m~s	-0.0433	**	-0.0101		-0.0272	**
male_f~s	0.0135		0.0155		0.0148	
female..	0.0037		-0.0065		-0.0086	
f~fema~s	0.0159		0.0099		0.0040	
headli~e	0.0923	***	0.1255	***	0.1051	***
spouse~e	0.0225		0.0359		0.0014	
timeto~y	-0.0006		-0.0011	**	-0.0008	*
pvt	-0.1197	***	0.2252	***	-0.0933	**

Notes: * - significant at 10%; ** - significant at 5%; *** - significant at 1%
Source: World Bank staff calculations using NLSS-I and II

TableA7.3: The evolution of teaching strength across schooling levels and regions

	1996					
	Primary School		*Lower Secondary School*		*Secondary School*	
	Total Teachers	*Public Teachers*	*Total Teachers*	*Public Teachers*	*Total Teachers*	*Public Teachers*
Eastern	21,199	19,668	4,790	3,848	3,943	2,454
Central	19,274	17,561	3,304	2,810	2,831	2,424
Kathmandu	8,533	4,066	3,406	1,367	2,988	1,079
Western	21,283	18,898	4,497	3,561	3,980	3,134
Mid Western	10,910	10,153	2,036	1,621	1,645	1,423
Far Western	8,179	7,518	1,671	1,421	1,036	918
Nepal	89,378	77,864	19,704	14,628	16,423	11,432

	2002					
	Primary School		*Lower Secondary School*		*Secondary School*	
	Total Teachers	*Public Teachers*	*Total Teachers*	*Public Teachers*	*Total Teachers*	*Public Teachers*
Eastern	23,853	19,284	5,730	4,202	4,413	3,091
Central	23,721	19,573	4,771	3,497	3,819	2,827
Kathmandu	11,054	4,276	6,112	2,653	5,826	1,889
Western	28,642	20,561	6,539	4,306	5,452	3,368
Mid Western	13,107	10,530	2,808	1,837	1,877	1,437
Far Western	9,796	7,483	2,200	1,402	1,366	952
Nepal	110,173	81,707	28,160	17,897	22,753	13,564

Source: Ministry of Education.

Table A8.1: Determinants of infant mortality in Nepal (logit model)
Dependent Variable= 1 if a child died within one year since birth, 0 otherwise

Independent variables		*Coefficient*	*St. Error*
Region (ref: Eastern)	Central	0.318	0.361
	Western	0.113	0.439
	Midwestern	1.143 ***	0.430
	Far Western	1.169 ***	0.441
Urban/Rural (ref=urban)	Rural	0.701	0.579
Mother's education (ref: not literate)	Literate	-0.669 **	0.335
Mother's age (ref: below 19 years old)	20-24 years	-1.317 ***	0.417
	25-34 years	-1.285 ***	0.439
	35+ years	-1.049 **	0.494
Sex of child (ref: male)	Female	-0.356	0.437
(ref: no previous births)	24-35	0.578	0.433
	>36	0.214	0.457
Mother had at least one prenatal visit	Prenatal	-0.424 *	0.250
Wealth quintile (ref: poorest)	Quintile 2	-0.353	0.328
	Quintile 3	0.022	0.341
	Quintile 4	0.350	0.325
	Richest quintile	0.017	0.499
Mother's caste (ref: upper caste)	Middle Castes	0.971 **	0.462
	Dalits	-0.272	0.365
	Newar	-0.703	1.052
	Hill Janajati	0.005	0.406
	Terai Janajati	-0.728	0.503
	Minorities	0.933 *	0.490
	Others	1.213 **	0.478
Constant		-3.942 ***	0.314

Notes: Logit model of child mortality before the age of 1 year using DHS 2001.
*** - significant at the 1% level; ** - significant at the 5% level; and * - significant at the 10% level.
Source: World Bank staff calculations using NLSS-I and II

Table A8.2: Immunization rates for 12-23 months old, 1996 and 2001

	1996				*2001*			
	DPT 3	*Polio 0 (at birth)*	*Polio 3*	*Measles*	*DPT 3*	*Polio 0 (at birth)*	*Polio 3*	*Measles*
				Type of place of residence				
Urban	77.4	-	77.4	77.2	78.2	6.2	95.4	80.6
Rural	51.9	-	49.2	55.2	71.7	1.7	91.2	69.9
				Highest educational level				
No education	48.4	-	45.3	52	64.3	1.1	89	63.2
Primary	68.3	-	68	65	87.8	3.2	96.5	84.6
Secondary or higher	81.4	-	80.7	87.1	94.5	5.1	98.9	92.9
Sex of child								
Male	54.7	-	52	59	74.2	2.9	92.1	72.9
Female	52.2	-	49.8	54	70.2	1.2	90.9	68.5
				Region				
Eastern	57.7	-	54.5	63.3	81	3.6	96.5	78.6
Central	52.1	-	50.7	54.8	67.3	0.9	91.7	64.9
Western	62.4	-	61.5	56.8	73.1	3.2	93.2	68
Midwestern	50.9	-	44.2	55.8	74	1.2	86.4	76.1
Farwestern	37.2	-	34.9	49.1	63.2	1	85.3	66.5
Total	53.5	-	50.9	56.6	72.1	2	91.5	70.6

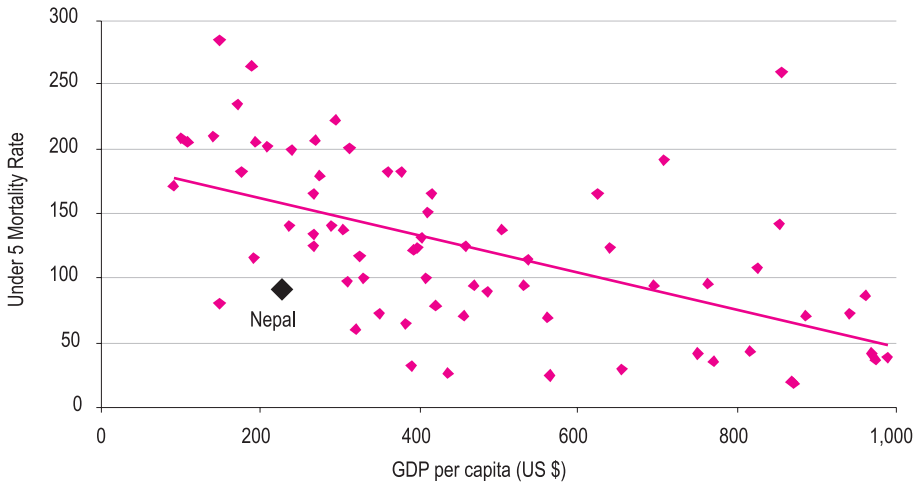
Source: DHS (1996, 2001).
Notes: Percent of children 12-23 months who receive vaccines any time before the survey (according to the vaccination card or mother's report).

Table A8.3: Summary of major nutrition surveys in Nepal

Survey	*Year*	*Sample*	*Age (months)*	*Under-weight*	*Stunting*	*Wasting*
National Nutrition Survey	1975	National	6-59	69.1	69.4	13.0
Joint Nutrition Support Project	1986	Five districts	6-36	-	37.4	4.9
NMIS-Cycle 1	1995	National	6-36	48.5	63.5	6.0
Nepal Family Health Survey	1996	National	0-36	47.3	47.9	11.6
			6-36	54.7	54.4	13.0
NMIS-Cycle 4	1997	National	6-36	-	53.3	16.5
Nepal Micronutrient Status Survey	1998	National	6-59	47.1	54.1	47.1
Nepal DHS	2001	National	0-59	48.8	50.3	9.7
			0-36	46.8	42.7	11.9
			6-36	54.6	49.1	13.8

Source: Hotchkiss and Silva, 2005

Figure A8.1 **Under 5 mortality rate (U5M) against GDP per capita (US $)**



Source: U5M for all countries except Nepal are from World Bank, World Development Indicators for 2002.
U5M data for Nepal is from DHS (2001)

Table A8.4: **Probit model results for moderate to severe malnutrition in Nepal**

	Underweight		Stunting		Wasting	
Variable	**Parameter**	**Z**	**Parameter**	**Z**	**Parameter**	**Z**
Age of child (reference=0-5 months)						
6-11 months	**1.2411**	10.66	**0.6983**	6.45	**0.5340**	3.54
12-23 months	**1.8886**	17.55	**1.4454**	15.05	**1.1766**	8.72
24-35 months	**1.7963**	16.66	**1.5633**	16.2	**0.3929**	2.79
35-47 months	**1.7076**	15.84	**1.7278**	17.91	**0.3321**	2.33
48-59 months	**1.5922**	14.76	**1.6409**	16.93	**0.3830**	2.69
Female child	**0.1339**	3.46	**0.0809**	2.09	-0.1002	-1.85
Wealth quintile (reference=poorest quintile)						
Quintile 2	**-0.2394**	-4.11	**-0.2659**	-4.51	-0.0579	-0.73
Quintile 3	**-0.2451**	-3.87	**-0.3172**	-5.07	**-0.2909**	-3.27
Quintile 4	**-0.3022**	-4.90	**-0.3274**	-5.24	**-0.1420**	-1.65
Quintile 5	**-0.4066**	-4.58	**-0.4126**	-4.70	**-0.2545**	-2.00
Ethnic/caste (reference=religious minorities and other groups)						
Upper caste	**-0.2124**	-2.07	**-0.3037**	-2.92	-0.0594	-0.43
Middle caste	-0.0844	-0.80	-0.1331	-1.24	0.1389	1.06
Dalits	-0.0559	-0.56	-0.1109	-1.10	0.0774	0.59
Newar	**-0.8029**	-5.45	**-0.6387**	-4.53	**-0.5772**	-2.40
Hill Janajati	**-0.5542**	-5.30	**-0.3051**	-2.90	**-0.4079**	-2.83
Terai Janajati	-0.1508	-1.59	**-0.2283**	-2.38	0.0879	0.74
Mother's education (reference= no education)						
Primary	**-0.1682**	-2.82	**-0.2486**	-4.18	0.0044	0.05
Secondary and higher	**-0.3954**	-5.34	-0.3012	-4.13	**-0.3824**	-3.26
Women has a say in purchasing decisions	**-0.1196**	-2.59	**-0.0871**	-1.90	-0.1034	-1.53
Water source (reference=surface)						
Piped	**0.1874**	1.91	**0.2003**	2.10	**0.3750**	2.45
Neighbor/public tap	0.0182	0.31	**0.1442**	2.45	-0.0071	-0.08
Well	-0.0409	-0.44	**-0.1572**	-1.72	-0.0759	-0.61
Flush toilet	-0.1270	-1.31	-0.1518	-1.59	-0.0347	-0.22
Distance to family planning (reference = 10 minutes or less)						
11-30 minutes	0.0409	0.37	0.0007	0.01	0.0858	0.45
31-74 minutes	0.0246	0.21	0.0180	0.16	0.1518	0.78
Rural	0.1003	1.24	0.0740	0.92	-0.1527	-1.30
Ecological zone (reference= mountains)						
Hill	0.0644	1.02	**-0.1589**	-2.44	0.0487	0.49
Terai	**0.2415**	2.69	**-0.1541**	-1.68	**0.6167**	4.78
Season	**0.3469**	7.67	**0.0869**	1.95	**0.2766**	4.44
Development Region (reference = Far-Western)						
Eastern region	-0.0379	-0.57	-0.0943	-1.41	-0.0181	-0.21
Central region	**0.1659**	2.54	**0.1187**	1.82	**0.0276**	0.33
Western region	-0.0311	-0.45	0.0502	0.72	-0.1487	-1.53
Mid-western	0.0584	0.85	0.0175	0.25	-0.0789	-0.82
Wald chi2	679.30		723.96		329.84	
Prob>chi2	0.000		0.000		0.000	
Pseudo R2	0.1351		0.1300		0.1344	

* Coefficients in bold font are significant at the 10% level or lower
Source: Hotchkiss and Silva, 2005

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