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## Measuring and Analyzing Poverty (with a particular reference to the case of Nepal)

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### Abstract

This paper makes an assessment of Nepalese poverty situation during 1977 - 1997 using a comparative static approach. Income and human poverty indices have been estimated using World Bank and UNDP methods, respectively. Moreover, it also makes exploratory analysis to study the causes and nature of Nepalese poverty. It concludes that Nepalese income poverty was drastically reduced during the period 1976/77 – 1984/85, but increased afterwards. However, human poverty has reduced in sustenance during the whole period. Poverty in Nepal is more pervasive, deep and uneven as compared to the rest of the South Asia. Comparing the income and human poverty indices, we conclude that income poverty is volatile as compared to the human poverty. Poverty in Nepal has some economic, demographic, and political origins; and more remote and occupational caste people are poorer as compared to the rest.

JEL Classification: D31, D63, I31, I32, O53

Keywords: income and wealth distribution, inequality, basic needs, measurement and analysis of poverty, Nepal and South Asia

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### 1. Introduction

This paper makes a comparative static analysis of the Nepalese poverty situation. The analytical approach in this paper is of a hybrid type. It joins a trend analysis of the poverty indicators of Nepal for the period 1977-1997 and a cross-sectional analysis comparing many poverty indicators of Nepal with the rest of South Asian countries. It also sheds some light on causes and nature of Nepalese poverty. In these efforts, this paper has followed both quantitative and qualitative analyses. The quantitative aspects are confined to the estimation of poverty and labour productivity indices whereas the qualitative aspects have been covered by the exploratory analysis of Nepalese poverty discourse in terms of its nature and causes.

Poverty can be measured through two different approaches: the income poverty approach and the human poverty approach. The income poverty measurement technique was developed first and human poverty measurement technique was developed later. Poverty measurement techniques logically follow from the definition of poverty. Although in theory, a utilitarian approach should enable the estimation of a poverty line corresponding to a minimum utility level, or again to an indifference curve, which separates the welfare level of a poor from the non-poor individual, determination of the poverty line is rarely formulated in utilitarian terms. Instead, we need a compensated expenditure function that determines, for any given price system, the minimum expenditure level required to reach this indifference curve (*Bibi, 1998, p. 181*).

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Rowntree in Britain used the idea of absolute poverty first in the 1890s. He defined absolute poverty in terms of a lack of 'means' in relation to ends or 'needs' of an individual or a household. This concept has not changed much over time and across countries (*New ERA, 1997, p.7*). Therefore, the measure of absolute poverty calculates the number of people below a specified minimum income level. Poverty lines are generally anchored to nutritional requirements for good health and physical activities. There are two common methods for setting absolute poverty lines: the "Food-Energy Intake" (FEI) method and the "Cost-of-Basic Needs" (CBN) method. The FEI method determines a minimum income or expenditure level required to meet basic food energy requirements. Therefore, there is no explicit bundle of goods specified in this method. The CBN method, however, sets specific poverty bundles of goods and services and determines their costs in each sub-group. In this method, non-food requirements which are people's basic requirements are also included in the bundle (*Ravallion, 2003, p. 4*). In the Nepalese context, the CBN method has been widely used for measuring poverty.

The comparative static approach has been adopted in this paper because of the lack of time series data on poverty indices and related variables for the Nepalese economy. The contents of this paper are as follows: Section 2 presents some salient features of Nepalese economy. Section 3 deals with the indices that have been used to estimate income and human poverty in this paper, and Section 4 with an analysis of the trend and nature of Nepalese poverty. Macroeconomic, microeconomic, demographic, and political/constitutional perspectives of Nepalese poverty are the subject matters of Section 5. Section 6 makes a longitudinal and cross-sectional comparison of selected poverty indicators in Nepal. Section 7 concludes the paper.

## 2. Overview of the Nepalese Economy

A small landlocked country in South Asia, Nepal remains as one of the 48 least developed countries in the world with per capita income 240 US dollars in 2003 (*World Bank, 2004*). The country has not so far been an example of either to any economic miracle or debacle. Low net economic growth rate (slightly over 2% over the last 10 years), growing unemployment and disguised unemployment, and intensifying poverty culminating into the vicious cycle of low income, low saving, low investment and low growth have led the country to a low level equilibrium. The macro economic stability observed in the recent years is the virtual outcome of such a low level of economic activities (*NSDD, 2000*). Further, inefficiency in resource management resulting in high incremental capital-output ratio (4.1:1 in an average during the last five years) has led to a high cost economy and retarded the country's relative market competitiveness. Very weak development administration to carry on programmes initiated in the Development Plans has resulted in undershooting of most of the plan targets. Moreover, structural and institutional barriers like a fragile industrial base, weak financial sector (although flourishing in terms of the number of financial institutions...), and inefficient public expenditures and state enterprises also explain the low economic growth.

Nepal's external sector is historically weak with a perpetually rising trade deficit. Exports continued to surge till now while there was a rebound in imports as well so that the trade deficit widened mainly due to the relatively larger volume of imports. From basically a primary goods exporting country till the mid 1980s, Nepal has now turned into a manufacturing goods exporting country. Notwithstanding the satisfactory performance in the recent years, the vulnerability of Nepal's export trade can be gauged from its continued concentration in a few commodities and countries. Readymade

garments, woolen carpets, and *Pashminas* account for more than 60% of the country's total exports and more than four-fifths of the overseas exports. The current account situation deteriorated due to higher trade deficit and lower income receipt from services sector. The structure of imports is continuously switching towards industrial raw materials and capital goods, which should help exports to increase. The exchange rate of the Nepalese Rupee has remained volatile with long term trend of depreciation.

Bilateral assistance is the major source of financing of development activities in Nepal both in the government and non-governmental levels. This has developed a dependency syndrome in the development process and eroded the policy autonomy of the government. Moreover, the debt service burden has been growing over the years, with old debts maturing and size of outstanding debt increasing from 15% of the regular expenditure in 1981/82 to 29% in 2001/02 (*MOF, 2001 and 2004*). The debt burden has further been aggravated by the continued depreciation of the Nepalese Rupee.

Interest rates have come down as a result of high liquidity in the economy and sharply decelerating price rises. Total investment of the country has slowed down in both public and private sectors in recent years because of the lack of security in investment climate due to the civil war since 1995. The investment to GDP ratio has gradually fallen to 23% in 2001/02 from more than 27% in 1995/96. There was a marked slowdown in public development spending of the government in the last few years resulting in low capital formation in the public sector. Repeated threats to business and industrial communities and growing industrial insecurity have added uncertainties to long term investment in the country. All these factors have pervasive impact on poverty as revealed by the declining level of industrial employment, in absolute term, after 1995.

### 3. Indices of Poverty

People whose per capita income does not cover the cost of a minimum specified calorie intake within the family are considered below the poverty line (PL). This gives the well-known Head-Count Ratio (HCR). There are three other most commonly used poverty indices in addition to HCR. The degree by which per capita incomes of the poor have to be raised in order to bring all poor people in a country out of the absolute poverty line is called the Poverty Gap (PG). Likewise, the severity of poverty (also called the squared poverty gap) is the measurement for the distribution of income among the poor, which is a measure based on the Foster, Greer, and Thorbecke Index (FGT Index). The Gini coefficient is the most commonly used index of relative poverty. Mathematically, the first three indices could be derived from the following formulation (*World Bank, 2000a, p. 207*):

$$P_{\alpha} = \frac{1}{N} \sum_{i=1}^Q (\bar{y} - y_i)^{\alpha} \dots\dots\dots(1)$$

where  $N$  = total population,  $\bar{y}$  = the poverty line,  $y_i$  = income of individual  $i$  who is below the poverty line, and  $Q$  = total population below poverty line. When  $\alpha = 0$ , it measures the well-known HCR; when  $\alpha = 1$ , we get PG; and when  $\alpha = 2$ , we get FGT index.

One approach for measuring inequality, without imposing a functional form of statistical distribution on the income graduation, is to use the Lorenz-based inequality measure. The Gini Index measures the average difference of all pair-wise comparisons

of income (*Gini, 1921*). Though it is frequently criticised for putting more weight on a transfer between middle-income earners than on lower end earners, it is the most frequently used inequality measure (*Slottje, 1997 and Kakwani, 1980*). This measure is bounded by 0 for perfect equality and 1 for perfect inequality.

Human poverty is a situation in which people lack resources to live a long and healthy life, to be educated, and to have access to resources needed for a decent standard of living (*UNDP, 1990*). Human poverty is estimated using the Human Development Index (HDI) and more specifically the Human Poverty Index (HPI) developed by the UNDP. The HDI index is estimated with the help of the Education Index (EI), the Gross Domestic Product Index (GDPI) and the Life Expectancy Index (LEI). HDI is the simple average of these three indices (*UNDP, 2000. pp. 269 - 273*). The three indices are calculated as follows:

$$EI = 2/3 (\text{adult literacy index}) + 1/3 (\text{gross school enrolment index})$$

where adult literacy index is calculated as the ratio of adults, 15+, who can read and write a simple letter. Likewise, gross school enrolment index for children is the actual enrolment rate of children irrespective of their age.

$$\text{The GDPI} = (\log y - \log y_{\min}) / (\log y_{\max} - \log y_{\min})$$

where  $y$  is the actual per capita income of the economy,  $y_{\max}$  and  $y_{\min}$  are the maximum and minimum per capita incomes under international standards, taken as US\$ 40,000 and US\$ 100, respectively (year 2000).

Similarly,

$$LEI = (\text{Actual value} - \text{Minimum value}) / (\text{Maximum value} - \text{Minimum value})$$

and life expectancy at birth is considered to be within the range 25 to 85.

Likewise, the Human Poverty Index (HPI) is estimated using the deprivations in three essential dimensions of human life already reflected in the HDI—longevity, knowledge, and a decent standard of living. But the HPI is more broadly calculated than the HDI index. Deprivation in longevity is represented by a percentage of people not expected to survive to age 40 ( $P_1$ ), and deprivation in knowledge by the percentage of adults who are illiterate ( $P_2$ ). The deprivation in living standards is represented by a composite ( $P_3$ ) of three variables—the percentage of people without access to safe water ( $P_{31}$ ), the percentage of people without access to health services ( $P_{32}$ ), and the percentage of moderately and severely underweight children under five ( $P_{33}$ ). The composite variable  $P_3$  is constructed by taking a simple average of the three variables  $P_{31}$ ,  $P_{32}$ , and  $P_{33}$ .

The HPI for a developing country (HPI-1) is calculated with the help of those variables explained above as follows (*UNDP, 1997, pp. 122 - 125*):

$$HPI-1 = [1/3(P_1^3 + P_2^3 + P_3^3)]^{1/3} \dots\dots\dots(3)$$

We will make small adjustment to this index for the estimation of Nepalese human poverty in Section 4.1.

## 4. Poverty in Nepal: the Trend and Nature

### 4.1 The Trend Analysis

Though there is not much difficulty in understanding poverty, there are various difficulties in measuring it because of the lack of a good database. The first attempt to estimate poverty in Nepal was in 1976/77 (Table 1). During that year, the National Planning Commission of Nepal (NPC/N) carried out a national survey on Employment, Income Distribution, and Consumption Pattern in Nepal. The poverty level was specified in terms of basic minimum calorie intake. This level was 2250 calorie per capita per day on average. The 1976/77 NPC survey specified the annual per capita income poverty line at Rs. 720<sup>2</sup> (Rs. 540 for food and Rs. 180 for non-food). The Nepal Rastra Bank (NRB) (the Nepalese central bank) carried out a Multipurpose Household Budget Survey (MPHBS) in 1984/85 using Rs. 1971 as a cut-off line to separate those falling below the poverty line. Later, the Central Bureau of Statistics (CBS) of the NPC/N conducted the Nepal Living Standard Survey (NLSS) in 1996. Though the CBS Survey in 1996 did not specify a poverty line, the World Bank study in 1999 specified it at Rs. 4404. Many researchers have used these three data sets and poverty lines to study Nepalese poverty for the last two decades. The income distribution patterns as revealed by these three surveys were as follows:

**Table 1: Income Distribution Pattern**

Share in population	% share of income during		
	1976/77	1984/85	1996/97
Lowest 20 %	5.86	10.12	5.3
Next 20 %	8.23	14.93	10.0
Next 20 %	9.05	18.25	14.0
Next 20 %	22.38	22.09	20.4
Top 20 %	59.88	34.61	50.3

Sources: NPC/N (1977), NRB (1985) and CBS (1997).

Table 1 shows that the income distribution pattern was moving towards more equality from 1976/77 to 1984/85; however, the situation deteriorated after 1984/85. Here, we are going to use these three sets of income distribution data to estimate Nepalese poverty for the respective years. For a better comparability of poverty indices, we have used the 1984/85 poverty line as a common denominator for all poverty estimates. GDP deflators available from the Ministry of Finance have been used for converting 1984/85 poverty line to the rest of the years.

**Table 2: Trend of Poverty (1976 - 1996)**

Survey year	Poverty line in*	Poverty indices using 1984/85 poverty line
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<sup>2</sup> Rs. means Rupees (Nepalese currency). US\$ 1 = Rs. 75 (approximately) in 2003.

	Nepalese Rs.	US\$ <sup>3</sup>	HCR	PG	FGT index	Gini
1976/77	720	57.6	0.64	0.31	0.17	0.51
1984/85	1,971	110.7	0.35	0.08	0.03	0.24
1996/97	4,560	80.3	0.40	0.14	0.07	0.45

Data sources: Table 1, \* Sharma (1998).

HCR, PG, FGT and Gini indices are the author's own estimation using POVCAL.

Note: While calculating HCR, PG and FGT, we have used the poverty line and the average per capita income in Nepalese Rupees.

This indicates that poverty was on the increase in Nepal (both in absolute and relative terms) after mid 1980s. UNDP (2002) shows an even higher level of HCR in Nepal, 42% for the year 2000 (Table A2 in the Appendix).

Regarding human poverty, the UNDP estimates are available only for the years after 1990. The Human Development Index (HDI) of Nepal was 0.273 in 1990 and 0.490 in 2000 (UNDP, 1990 and 2002). International ranking in terms of the HDI shows that Nepal was 17<sup>th</sup> from the bottom among the group of 130 countries in 1990 and 32<sup>nd</sup> among 173 in 1998.

We believe that the variables used in the UNDP method for estimating human poverty should be better modified in the Nepalese context because of its unique nature in poverty. The Human Poverty Index for Nepal (HPI-N) should include low birth attendance by skilled health staff—it better explains the high rate of maternal mortality rate in Nepal (Table A3 in the Appendix), under-weight children, low school enrolment and lack of access to sanitation/safe water/health services. In fact, these variables, except the enrolment rate of children, themselves explain the low life expectancy of the Nepalese people, which is an important indicator to be included in the human poverty index. Therefore, our proposed model for estimating the Nepalese human poverty index is as follows:

$$\text{HPI-N} = [1/3\{(1/2 \text{ lack of birth attendance by skilled health staff} + 1/2 \text{ under weight children})^{1.5} + (2/3 \text{ illiterate adults} + 1/3 \text{ combined net school non-enrolment})^{1.5} + (1/3 \text{ lack of access to safe drinking water} + 1/3 \text{ lack of access to health services} + 1/3 \text{ lack of access to sanitation})^{1.5}\}]^{1/1.5}$$

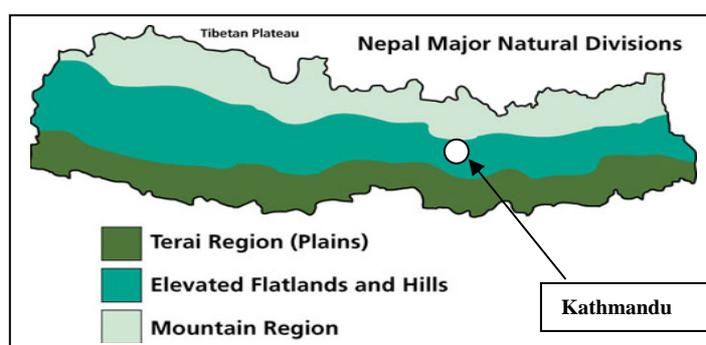
We have lowered the power of each of the components used in this model from 3 (as adopted by UNDP) to 1.5 for two reasons. First, the variables have high degree of substitutability among themselves as compared to the variables used by the UNDP. In this case, we need to lower the power of the variables (UNDP, 1997, p. 121). Second, the proposed model has increased the number of variables within it; therefore, we had to scale down their power for credible estimation. Our longitudinal estimates of HPI-N along with head-count income poverty index (HCR) for Nepal are presented in section 6.

The values of income poverty and human poverty of Nepal and the rest of South Asia using the UNDP method have been presented in the Appendix.

<sup>3</sup> Decline in the absolute poverty line as measured in US\$ stems from the gradual depreciation of Nepalese currency in terms of US\$ over the years. In other words, approximately US\$ 80.3 in 1996 could buy the same amount (the poverty line) as that of \$110.7 in 1984/85 and \$57.6 in 1976/77.

## 4.2 The Nature of Nepalese Poverty

Nepal is a South Asian country surrounded by India on the east, west, and south and bordering the Tibetan plateau of China is on the north. Nepal's difficult topography can be divided into three ecological regions: the upland mountain in the north which ranges from 4,800 to more than 8,800 meters including the top of the world, the Mount Everest; the middle hills, a rugged region with trails and with river valleys (1,500 – 4,800 meters); and the southern Terai, a plain with sub-tropical climate, very fertile and densely populated. These three regions have 8, 44, and 48% of the total population of the country, respectively (CBS, 2002a). The expansion of transportation service and subsequent integration of poor people in the market is the main problem facing mountain and hill areas.



The sparse development infrastructure and difficult livelihood in upland mountains and hills have caused a high rate of migration of people to the low land (Terai) annually. This region constitutes the northern part of the Gangetic Plain of south Asia and has more than one million hectares of paddy fields.

*Spatial Distribution of Poverty:* Table 3 shows that poverty is more prevalent, severe, and uneven in mountain region than in hills and the Terai; whereas in terms of latitude, is more widespread in rural western hills followed by the rural western Terai and rural eastern Terai, respectively. Moreover, poverty in Nepal is predominantly a rural phenomenon, where the poverty incidence is 44% as compared to 23% in urban centres (it is lowest in the Kathmandu valley). The poverty gap and severity also follow a similar order.

**Table 3: Poverty Incidence, Gap, and Severity in Different Regions**

Geographical Area	Poverty indices		
	HCR	PG	FGT
Mountain	0.56 (0.059)	0.19 (0.027)	0.08 (0.015)
Hill	0.41 (0.031)	0.14 (0.014)	0.06 (0.008)
Rural-Eastern	0.33 (0.033)	0.09 (0.014)	0.04 (0.007)
Rural -Western	0.57 (0.041)	0.21 (0.020)	0.09 (0.011)

Terai	0.42 (0.025)	0.10 (0.009)	0.03 (0.004)
Rural-Eastern	0.39 (0.032)	0.09 (0.010)	0.03 (0.005)
Rural-western	0.46 (0.041)	0.11 (0.015)	0.04 (0.006)
Urban	0.23 (0.058)	0.07 (0.025)	0.03 (0.012)
Rural	0.44(0.020)	0.13(0.008)	0.05(0.004)
Kathmandu valley	0.04(0.015)	0.04(0.002)	0.001(0.0004)

Note: Values at the parentheses represent the corresponding standard errors.

Source: World Bank (1999).

*Feminisation of Poverty:* Lack of adequate data has made the estimation of gender specific poverty rather difficult in Nepal. However, it is generally concluded that the incidence of poverty is greater in female-headed households than in male-headed households in underdeveloped societies. In the context of Nepal, violent clashes between government troops and Maoist insurgent groups have escalated during the last eight years and more than 10,000 people have already lost their lives in this civil war. Male members of rural western mountains and hills, where a majority of the poor live as shown by Table 3, have either joined the insurgent groups or left their homeland in search of employment in other territories. Consequently, the war-affected regions have an overwhelming majority of female-headed households living in poverty.

*Poverty by Social Classes:* There are large disparities in income poverty among different socio-economic groups in Nepal. Poverty incidence is higher among the people belonging to the lower caste groups like *Sarki* (cobblers), *Damai* (traditional tailors), *Kami* (traditional blacksmiths), etc. These three are called the occupational castes and in traditional Nepalese societies they are considered to be untouchable. They and some other Terai-based occupational castes constitute about 16% of the total population of the country (CBS, 1995, as cited by I-PRSP, 2000, p. 5). Members of these lower castes are mostly landless and the income/property gap between them and the rest of the population is very wide. Inter-group inequality and landlessness play a central part in motivating and sustaining the conflict in Nepal. The concept of horizontal or inter-group inequality, which is highly relevant in explaining the Nepalese civil war, has both an ethnic and caste dimensions (Mursbed and Gates, 2003, p.3).

*Characteristics of the Poor in Nepal:* As compared to the non-poor, the Nepalese poor have larger household size with many children; a higher illiteracy rate, especially among females, and smaller per capita land holdings; as a result—a lower per capita consumption expenditure; and a higher propensity to spend on food (Table 4):

Table 4: Characteristics of Poor and Non-poor Households

Characteristics	Region					
	Mountain		Hill		Terai	
	Poor	Non-poor	Poor	Non-poor	Poor	Non-poor
Household size (Number)	6.76	6.10	6.45	5.86	5.98	5.56
Children per household (Number)	2.25	1.54	1.94	1.35	1.97	1.33
Illiterate per household (Number)	5.21	3.55	4.21	2.72	4.42	3.02
Literate females per 100 literate males	31	45	40	50	27	49
Per capita consumption (in Rs.)	2064	4021	2459	4799	2560	4864
Land per capita (in ha.)	0.12	0.23	0.13	0.21	0.12	0.25
Food expenditure income ratio (in %)	75.6	72.8	74.0	69.2	77.5	70.2

Source: NRB (1992).

NRB (1992) also shows, more specifically, the lower caste groups severely deprived of all dimensions of human life—cultural, social, political, and economic. The lower level of human development among them is evident with a low literacy rate (18%), especially among females (7%), as compared to the upper caste groups (47%) and the national average (39%). Similarly, life expectancy at birth is 51 and 57 years among lower and upper caste groups, respectively.

## 5. Causes of Poverty

Factors causing human and income poverty can be broadly explained from economic, demographic, and political/constitutional perspectives:

### 5.1 Economic Causes

#### 5.1.1 Micro Perspective

*Landlessness and Dependency:* In traditional agrarian societies, land is the single most important asset. In Nepal, poor people have not only smaller landholdings but the productivity of their land is also lower than that of the non-poor (Table 5). This is because they often own marginal land, lack resources for fertilisers, lack irrigation facilities, etc. Those without land are even poorer, working as sharecroppers for the landholders.

**Table 5: Per Capita Average Landholding and Land Productivity of Poor and Non-poor Households**

Household	Ecological Region					
	Mountain		Hill		Terai	
	Per capita landholding (ha.)	Productivity (Rs. per ha.)	Per capita landholding (ha.)	Productivity (Rs. per ha.)	Per capita landholding (ha.)	Productivity (Rs. per ha.)
Poor	0.1162	7568	0.1320	7802	0.1197	7271
Non-poor	0.2502	16387	0.2059	15258	0.2301	13900

Source: NRB (1992).

*Caste System:* The elaborate cast system in Nepal, rooted in the Hindu religion, has a perverse impact on poverty. The caste system is primarily hierarchical and creates distances among people. The lower occupational castes, treated as untouchable by the traditional society, are very poor. Table 6 shows the level of human development by cast/ethnicity.

**Table 6: Human Development Situation by Cast/Ethnicity**

Cast/Ethnicity	HDI		Life Expectancy		Adult Literacy Rate		PPP GDP Per Capita	
	Index	Gap	Years	Gap	%	Gap	Rupees	Gap
All Nepal	<b>0.325</b>	%	<b>55</b>	%	<b>36.72</b>	%	<b>1186</b>	%
Brahmin	0.441	135.87	60.8	98	58		1533	83
Chhetri	0.348	107.31	56.3	91	42	72	1197	65
Newar	0.457	140.73	62.2		54.8	94	1848	
Hill ethnic minorities*	0.299	92.21	53	85	35.2	61	1021	55
Muslim	0.239	73.67	48.7	78	22.1	38	979	53
Terai-specific	0.313	96.28	58.4	94	27.5	47	1068	58

ethnic groups**	0.239	73.62	50.3	81	23.8	41	764	41
Occupational castes	0.295	90.94	54.4	87	27.6	48	1130	61
Others								
Gap with		Nepal		Newar		Brahmin		Newar

\* includes Gurung, Magar, Sherpa, Rai and Limbu.

\*\* includes Rajbanshi, Yadav, Tharu, Abir.

Source: UNDP (1998).

The greater incidence of income as well as human poverty among the lower castes, especially the occupational ones, is due to the lower-paid occupations bound to these groups. Brahmin, the highest hierarchical group, does more intellectual work followed by Chhetries and others. The occupational groups serve the upper castes for very low remunerations.

*Poor people depend on more non-institutional credit:* Lack of sufficient assets for collateral has caused poor people's dependence on informal credit markets with very high interest rates generally ranging from 24 to 36%, and sometimes up to 60%, per annum.

Traditional cultural practices of high spending, far beyond income, on frequent festive occasions, living in fragile and marginal lands that are more disaster prone, and lacking education are additional characteristics of the Nepalese poor.

#### 5.1.2 Macro Perspective

*Lack of productive change in employment and income-generating activities:* During 1981-2001, we can see radical change in the economic and employment structure; contribution of agriculture declining and that of industrial and service sectors increasing. However, the contribution by the industrial sector is improving only marginally (Table 7). The trend of average daily wage also shows poor performance of the manufacturing sector. Though the dualistic nature of the underdeveloped Nepalese economy is obvious due to the existence of mutually exclusive traditional rural agriculture and modern urban manufacturing sectors (Lewis, 1954); however, the latter is not absorbing the disguised-unemployed agriculture labour to a significant extent because of the lower manufacturing wage rate. The marginal transfer is, however, because of the many workdays available in the manufacturing sector so that the wage bill may be larger than in the agriculture even at lower wage rates. However, the service sector is growing faster in all respects.

**Table 7: Production, Employment and Wage Trends during 1981-2001**

Sectors	% share of total workforce			% share in GDP			Average daily wage in Rs. (1981 price)		
	1981	1991	2001	1981	1991	2001	1981	1991	2001
Agriculture	91	81	66	63	51	41	11.87	18.40	26.47
Manufacturing	3	4	9	5	6	9	9.85	14.43	20.84
Service	7	15	26	32	43	50	23.09	39.14	50.51

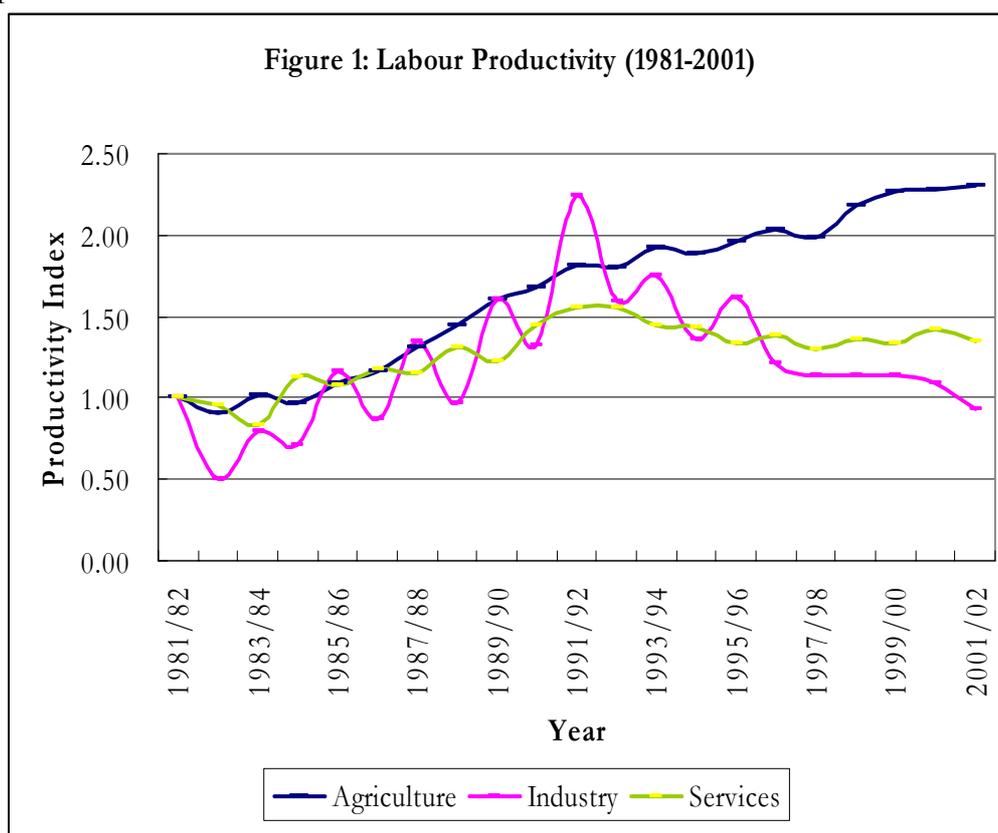
Source: CBS (1982, 1992, 2002b), MOF (2004), NRB (2002).

Note: Conversion to the constant price 1981 has been made using deflator series available in Ministry of Finance (2004).

Our productivity index is the ratio between an output index and a labour input index (Black *et. al*, 2003, p. 8):

$$A_t = \frac{Q_t}{I_t}$$

where  $A_t$  is a labour productivity index,  $Q_t$  is an output index and  $I_t$  is a labour input index.



Source: Author's own calculations based on data from MOF (2002 and 2004).

This figure reveals the improvement of Nepalese agricultural labour's productivity (index from 1 to 2.31) during 1981-2001 due mainly to the partial transfer of excessive workforce to service and manufacturing sectors (Table 7). During the same period, however, labour productivity in the services has increased marginally from 1 to 1.35, whereas that of manufacturing sector increased till 1991/92 but declined thereafter with fluctuations in both of the phases. The increase of agriculture labour productivity is not strong enough to reduce rural poverty because it is eroded by a higher population growth rate, approximately 2% annually, over the period. On the other hand, urban poverty has fallen (Table 3) because of the net improvement in service and manufacturing labour productivities.

*Sluggish economic growth, especially in agriculture, and high population growth:* Though growth potentiality is relatively higher in developing over industrialised countries, the former are not attaining a higher rate of economic growth relative to their population

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growth. Nepal is not an exception in this regard. During 1980-90, Nepalese economy grew by an annual average rate of 4.6% and during 1990-2001 by 4.9% (*World Bank, 2000b, pp. 294-95*, and *World Bank, 2003, p. 239*). During these periods, annual average population growth rates were 2.6 and 2.4%, respectively (*Ibid, pp. 278-79 and 235, respectively*). Thus net economic growth rates per capita have been less than 3% per annum during the last two decades. To be more specific, the Nepalese poor are basically dependent on agriculture; therefore, the growth rate of this sector deserves special attention in poverty alleviation efforts. However, during the last two decades, its growth rate was 4.0 and 4.6%, respectively with almost 2% of the annual population growth in the rural areas.

*High inequality in asset and income distribution:* High inequality in asset distribution, especially land in agrarian economies, is the basic reason for wide income inequality in these economies. Based on CBS (1992b) data, the Gini Index of land distribution in Nepal was 0.52. Likewise, the World Bank (2003) shows a wide income inequality in Nepal, the top 10% and lowest 10% of the population are enjoying 29.8% and 3.2% of the national income, respectively.

*Disguised unemployment and underemployment in agriculture:* Nepalese agriculture employs approximately 66% of the economically active population (*CBS, 2002a*), which contributes only about 40% of GDP, signifying a high level of disguised unemployment in this sector because of the lack of alternative rural employment opportunities. Moreover, under utilisation of the rural agriculture labour force, less than 40 hours per week, is most common.

*Challenging macroeconomic policy environment:* Since the mid-1980s when Nepal entered the International Monetary Fund (IMF) and the World Bank's Structural Adjustment Programme (SAP), its industrial environment has become more outward looking along with a free trade policy and competitive devaluations of the domestic currency. These strategies were also common among many other countries, which were under SAP. But these policies in underdeveloped markets are now believed to have contributed significantly to the length and severity of the depression (*Krueger, 1998, p. 1984*). Trade liberalisation has not helped Nepal to expand markets; rather, it has led to the loss of its previous markets both within and outside the country because of the weak competitiveness in the industrial products. Consequently, some industrial firms have recently closed-down; for example, Hetaunda Textile Industry, Himal Cement Company, Bansbari Leather and Shoe Industry, etc. All these are causing spread of unemployment and poverty in the country.

*Landlockedness:* It is the most significant barrier in Nepal's international trade. It has a long land transportation route (more than 500 kilometres to reach the nearest seaport, which also requires high storage costs); because of this special friction Nepal's export competitiveness is very low. Lives of the poor also have become very difficult because of high prices of basic importable—for example, petroleum products, medicines, clothing, etc.

## 5.2 The Demographic Change

The absolute population growth is quite high in Nepal. During the last four decades, the average annual growth of Nepalese population remained approximately 2.3%, a high growth rate among many developing countries including South Asia. Low infrastructural development (see Appendix tables) coupled with high population growth has made the lives of many poor people very difficult.

The population growth to the southern plain area is remarkably higher, due primarily to the internal migration from the high land. This region has about 17% of the total land of the country but now accommodates more than 50% of the population (*CBS, 2002a*). Till 1950s, this region was infested with high prevalence of Malaria; therefore, migration from the uplands to the southern lowland was quite limited. However, after the successful control of malaria and implementation of the resettlement plan during mid 1960s, migratory movement got momentum causing increasing fragmentation of landholdings. Moreover, concentration of industrial establishments is also dense in this region. Consequently, declining agricultural land with increasing fragmentation is the major reason behind the lack of improvement of the living conditions of the majority of the farmers living in this region.

During the last 40 years, Nepal's urban population has increased from 3.6 to 14.2% of the total population (*MOPE, 2002*). Urbanisation has intensified during the last decade because of the intensified civil war between the government and Maoist rebels in the country side. It has caused the shortage of farm labour in rural/backward areas and abundance of cheap and unskilled workforce in the urban centres, which is further pulling down the wage rates of urban labour in recent years. This misallocation of unskilled workforce has not only made the whole labour market distorted, but it has also increased poverty in the country.

### 5.3 Political and Constitutional Factors

There are many political and constitutional changes in Nepal since 1980 that have direct impact in the labour market and, consequently, on poverty. A strong and violent student movement in 1979 demanding the openness in the political environment and end of the one party political system led by the king led to the national referendum in 1980. Though there was not a big political change in 1980, the student wings created political awareness among the working class for the establishment of organisations to struggle for their welfare. A popular movement in 1990 succeeded in establishing democracy in the country; and a new constitution was also promulgated that year. It legalised all the political parties and labour unions. Now, there are four major labour union federations in the country with respective affiliation to four major political parties, two leftists and two rightists.

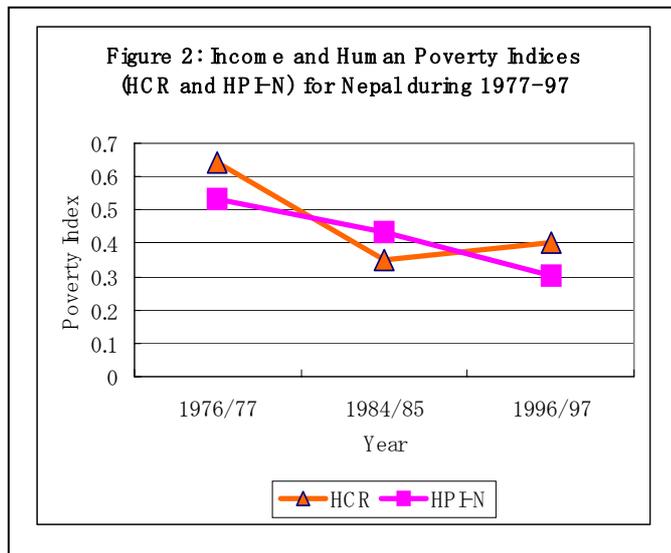
Since 1995, the pro-republic political party, Nepal Communist Party (Maoist) has been struggling to overthrow the present parliamentary system in the kingdom and establish a republican state. This is an armed movement and more than 10,000 people have lost their lives in this civil war so far. At present neither the central government nor local government bodies are elected; and the constitutional system has almost collapsed. The royal palace, supported by the nominated government and army, is battling the Maoist party with its own armed force and the parliamentarian parties with support from the people for political power. The parliamentarians and Maoists have their separate movements from the street and the jungle, respectively. These political movements have affected the industrial, educational and transportation sectors very badly with series of strikes, lockouts and threats for the support of the movement.

These political changes have some positive impact in the labour market in raising the socio-political and humanitarian awareness among the labours and also have some adverse impact in the livelihood of the poor people. On the other hand, huge subscriptions demanded by the Maoist party from the manufacturing sector and attack on the multinational companies have also compelled many firms close or scale down

their businesses, leading to unemployment, particularly of women. Therefore, many industries are moving towards higher capital intensity to fend off the industrial unrest. The capital output ratio in large scale manufacturing sector has increased from 4.9:1 to 8.1:1 during 1987 to 2001 (CBS, 1987b and 2002b). These factors have adverse impact on the livelihood of the working class, thus, increasing the income poverty. On the other hand, so long as the disturbances in the educational sector persist, it will definitely turn human poverty also in upward trend in coming years.

## 6. Longitudinal and Cross-sectional Comparison of Nepalese Poverty

During the last two decades (1977 – 1997), the income poverty in Nepal revealed a declining trend at the beginning; however, it has started increasing after mid-1980s, and the total number of persons below the poverty line has increased remarkably. More importantly, some basic macroeconomic indicators have deteriorated in Nepal (Appendix Table A5). The proportion of the working age population and the unemployment rate are on the increase.



Source: as per the definitions of HCR and HPI-N, sections 3 and 4.1.

Moreover, industrial labour productivity has been declining after 1995 and that of the service sector has been increasing marginally which is not enough to compensate the former. These factors along with the demographic and political factors explained in the previous section might be the basic reasons for the increasing income poverty in Nepal after the mid-1980s. Though the income poverty level has fluctuated, our own estimate shows that human poverty is under a sustainable reduction during this period. Our comparison of income and human poverty, however, has shown that the former declines faster but not monotonically, and the latter falls slowly but more steadily. Figure 2 also gives an important message that income poverty reduces human poverty, but the opposite may not be true, at least, in the short-run.

A stable reduction in human poverty in Nepal is due to the steady rise of some human development indicators. Among them, improvements on the literacy of adults, the enrolment of school children, maternal and child health care facilities, basic health care and sanitation services/practices are outstanding (Table A3, A4 and A5 in the

Appendix). The involvement of many non-governmental organisations in social sectors since the beginning of 1990s (more than 8,000 in the year 2000 as compared a handful before 1990) may have good impact in this regard as most of them work in health and education sectors (*Social Welfare Council, 2001*).

In comparison of Nepalese poverty with the rest of South Asia, both income and human poverty are higher in Nepal. According to recent figures, the head count poverty index is greater in Nepal (42%) as compared to the rest of South Asia (32%) (Table A2 in Appendix). Moreover, the nature of poverty in Nepal is relatively rural biased (47%) as compared to the rest (38%). The depth of poverty (the poverty gap) is also greater in Nepal (9.7%) compared to the rest of South Asia (6.27%). The HDI index comparison also reveals a similar picture, with Nepal's 0.49 as against the rest of the South Asia's 0.56. Of the total 173 countries with HDI data available, Nepal's position is 142 against the average of South Asian countries 127. Because of the lower level of human development, human poverty is more pervasive in Nepal (index 43) against 34 of South Asia for the year 2000. In overall comparison with the rest of the south Asian countries, both income and human poverty are more widespread, severe, and uneven in Nepal.

Though the total fertility rate has gradually declined from 6.1 to 4.8 between 1980 and 2000, it is still higher in Nepal than the rest of South Asia (4.33). Literacy and the employment drive for women are essential for smoothing the transition to lower fertility that must have good impact in reducing the poverty (*Dasgupta, 1995, p. 1899*).

## 7. Summary and Conclusion

This paper concludes that income poverty has increased in Nepal over the last 20 years despite a marginal increase in per capita income. A distinct progress in the social aspects of life, especially the education and health care has taken place over the same period. For these reasons, human poverty has steadily declined. A comparison between income and human poverty indices has shown that income poverty is more volatile than human poverty.

Spatial distribution of Nepalese poverty reveals that it is deeper, more pervasive, and uneven among mountain people and in western hills. Moreover, it is more concentrated among the lower caste people. While making a comparative study of poverty indicators between Nepal and the rest of the South Asian countries, the gap is significantly wider for economic over social indicators. Per capita income and the employment rate are quite lower in Nepal as compared with the rest of the South Asia.

Although the causes of poverty and characteristics of the poor are similar in many developing countries, their degrees are different across regions and over time. The causes of Nepalese poverty are mixed; they have both economic and socio-cultural origins. The structure of Nepalese society shows a persistent gender gap coupled with a widespread caste system based on hierarchical and occupational differences. The effect of globalisation may, hopefully, eradicate these traditional norms over a span of time; they have sadly become barricades to economic development. Articulating tangible economic factors, therefore, would be a better strategy now for curbing the problem in an effective way. The available comparative static data among South Asian countries show a higher proportion of working age population in Nepal coupled with a higher rate of unemployment over the years. In this context, restructuring the Nepalese labour market for promoting overall employment might be an effective strategy for addressing the problem of widespread poverty in the country during these years.

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## Appendix

**Table A1: Sectoral GDP and Wage Bills** (values in million Rupees at 1981/82 prices)

Years	Shares in GDP			Wage Bills		
	Agriculture	Industry	Service	Agriculture	Industry	Service
1981/82	17715.0	2424.0	7838.4	13374.3	568.7	3005.1
1982/83	16933.0	1347.9	9611.3	14008.2	632.8	3842.9
1983/84	19755.7	2362.7	10111.0	14642.1	696.9	4680.6
1984/85	19604.3	2309.7	16208.3	15276.0	760.9	5518.4
1985/86	22936.2	4103.8	17840.0	15909.8	825.0	6356.2
1986/87	25398.4	3310.2	21963.6	16543.7	889.1	7194.0
1987/88	29871.2	5491.4	24161.0	17177.6	953.1	8031.7
1988/89	34023.1	4198.6	30214.3	17811.5	1017.2	8869.5
1989/90	39345.9	7390.1	31045.3	18445.4	1081.3	9707.3
1990/91	42420.7	6442.1	39775.4	19079.3	1145.3	10545.1
1991/92	47511.1	11570.3	46083.8	19713.2	1209.4	11382.8
1992/93	49768.1	10792.8	55371.0	20841.1	1588.3	13663.8
1993/94	55834.5	14690.3	60168.4	21969.0	1967.2	15944.8
1994/95	57783.9	13567.9	68084.1	23096.9	2346.1	18225.7
1995/96	63091.9	18830.9	71541.8	24224.8	2725.0	20506.7
1996/97	68196.2	16077.6	82171.7	25352.7	3103.8	22787.7
1997/98	69638.9	16957.9	84633.2	26480.6	3482.7	25068.7
1998/99	79654.1	18821.9	97349.9	27608.5	3861.6	27349.6
1999/00	86126.8	20574.6	103438.2	28736.4	4240.5	29630.6
2000/01	90233.6	21511.4	117901.0	29864.3	4619.4	31911.6
2001/02	94651.5	19898.0	120221.7	30992.2	4998.3	34192.5

Sources: Ministry of Finance (2002 and 2004) and CBS (1982, 1992, 2002)

**Table A2: Poverty Indices**

Indicators	Unit	Nepal's statistic		SAC*
		1980s	2000 <sup>5</sup>	2000 <sup>4</sup>
Poverty line (definition of each country)	Daily calorie intake	2,250 <sup>6</sup>	-	-
	%			
Total population below the poverty line (PL)	%	42.5 (85) <sup>6</sup>	42.0	32.4 <sup>11</sup>
Proportion of the urban population below the PL	%	19.2 <sup>7</sup>	18.0 (95/96)	24.26
Proportion of the rural population below the PL	%	43.2 <sup>8</sup>	47.0 (95/96)	37.8
Squared poverty gap (\$1 per day)	%	NA	9.7	6.27
Population below \$1 a day per capita income	Index	53 <sup>9</sup>	37.7	27.73
HDI	Rank among 174 countries	NA	0.490	0.56
Ranking for Human Development Index		113 <sup>10</sup>	142	127
Human Poverty Index (HPI-I)		NA	43.4	33.53
Ranking for Human Poverty Index		NA	76	50

\* SAC means South Asian Countries excluding Nepal (India, Pakistan, Bangladesh, Sri Lanka, Bhutan, Maldives).

<sup>4</sup> UNDP (2002).

<sup>5</sup> UNDP (2002).

<sup>6</sup> UNDP (1998).

<sup>6</sup> UNDP (1998).

<sup>7</sup> UNDP (1998).

<sup>8</sup> World Bank (1999).

<sup>9</sup> Mahbub ul Haq Human Development Centre (2000). The figure represents the average poverty incidence during the period 1989 - 94.

<sup>10</sup> UNDP (1990)

<sup>11</sup> Data refers to Bangladesh, Pakistan and India only.

Note: The first-ever national poverty survey of income/consumption in Nepal was conducted by NPC in 1977. The sample size was 4969 households (4,037 rural households and 932 urban households), covering 37 districts. The NPC had fixed Rs. 60 (at 1977 prices) per capita per month as the minimum national subsistence level. The minimum level of expenditure per capita was derived by identifying the composition of cereals and pulses considered as sufficient to acquire 2,256 calories per capita per day, the minimum calorie requirement based on the recommendations of FAO/WHO. This amounted to 605 grams of cereals (rice, maize, millet, or wheat) and 60 grams of pulses. These quantities were multiplied by the average prevailing prices in four development regions (eastern, central, western, and far-western). The average daily minimum consumption expenditure of the rural households and the urban households in the lowest income quintile was calculated by adding the necessary expenditures on cereals and pulses with other bare necessities like cooking oil, salt, firewood/kerosene, etc. This gave Rs. 2 per person per day as the bare subsistence expenditure and formed the cut-off point for defining the poor. Though minimum calorie requirement was specified in 1977, the poverty lines have been adjusted in subsequent surveys in terms of the current year's prices to afford the same minimum calorie requirement.

**Table A3: Education Indicators**

Indicators	Unit	Nepal's Statistic		SAC* 2000 <sup>12</sup>
		1980s	2000 <sup>13</sup>	
Illiteracy rate <sup>14</sup>	%	76.7 (81) <sup>17</sup>	58.2	47.84
Male		66.0	40.4	34.3
Female		88.0	76	57.7
Primary school net enrolment rate <sup>15</sup>	%	65.6 (81) <sup>18</sup>	80.4	72 <sup>20</sup>
Male		92.9	86.0	
Female		36.5	74.6	
Secondary school net enrolment rate <sup>16</sup>	%	20.3 (81) <sup>19</sup>	26.7	34.66 <sup>21</sup>
Male		30.4	31.4	
Female		8.6	22.0	

\* SAC means South Asian Countries excluding Nepal (India, Pakistan, Bangladesh, Sri Lanka, Bhutan, Maldives).

**Table A4: Health Indicators**

Indicators	Unit	Nepal's Statistic		SAC 2000 <sup>22</sup>
		1980s	2000 <sup>23</sup>	
Life expectancy at birth	Years	52 (87) <sup>24</sup>	58.6	63.8
Male		NA	58.1	62.5
Female		NA	57.3	64.3
Maternal mortality rate	Per 1000 births	NA	5.40	3.36 <sup>31</sup>
Infant (<12 months) mortality rate	Per 1000 live-births	132 (80) <sup>25</sup>	72	60.16
< 5 yrs. children mortality rate	Per 1000 children	180 (80) <sup>26</sup>	100	81.16
Immunised rate (Tuberculosis & Measles)	% of <1 yrs. Childr.	NA	(86), (73)	(87), (72) <sup>32</sup>
Total fertility rate (TFR)	Birth per women	6.1 (80) <sup>27</sup>	4.8	4.33
Population having access to safer water	%	29 <sup>28</sup>	81	80.25
Intake of calorie per day per person		2,093 <sup>29</sup>	2,366 (97)	2,467 (97)
Birth attended by skilled health staff		NA	12	24.67
Physician (per 100,000 population)		3 (80) <sup>30</sup>	4	35.4
Under-nourished population	% of total	NA	23	24.25
Under-weight children		NA	47	37

<sup>12</sup> UNDP (2002).

<sup>13</sup> UNDP (2002).

<sup>14</sup> 15+ years age group.

<sup>15</sup> Net Primary Enrollment Rate = (Number of children 6 - 10 years attending primary schools / Number of children 6 - 10 years) \* 100

<sup>16</sup> Net Secondary Enrollment Rate = (Number of children 13 - 15 years attending primary schools / Number of children 13 - 15 years) \* 100

<sup>17</sup> CBS (1981).

<sup>18</sup> Ministry of Education (1982).

<sup>19</sup> DOE (1982).

<sup>20</sup> Bangladesh, Bhutan and Sri Lanka only.

<sup>21</sup> Bhutan, India and Sri Lanka only.

<sup>22</sup> UNDP (2002).

<sup>23</sup> UNDP (2002).

<sup>24</sup> UNDP (1990).

<sup>25</sup> World Bank (2000a).

<sup>26</sup> World Bank (2000a).

<sup>27</sup> World Bank (2000a).

<sup>28</sup> UNDP (1990).

<sup>29</sup> NPC(1987). This is the average figure for the period during 1984 - 1986.

<sup>30</sup> UNDP (1990).

<sup>31</sup> During the period 1985-89.

**Table A5: Macroeconomic Indicators**

Indicators	Unit	Statistic		SAC 2000
		1980s	2000	
GDP growth rate	% (Annual)	2.1 (75-00) <sup>35</sup>	2.4 (90-00) <sup>42</sup>	3.5 <sup>48</sup>
GNP per capita	US \$	160 (83) <sup>36</sup>	240 <sup>43</sup>	952 <sup>49</sup>
Gini coefficient	% index	53.0 (67-84) <sup>37</sup>	37.0 <sup>44</sup>	34.25 <sup>50</sup>
Public expenditure on:				
Health sector	% of GDP	0.8 (90) <sup>38</sup>	1.3 (98)	2.2
Education	% of GNP	2.2 (85-87)	3.2 (95-97)	3.66
Defence	% of GDP	0.9 (90)	0.9	3.175 <sup>51</sup>
Debt servicing	% of GDP	1.9 (90)	1.8	3.0
Unemployment rate <sup>33</sup>				
Men	%	3.1 (85) <sup>39</sup>	5.2 (96) <sup>45</sup>	
Women		2.6	4.1	
		3.6	6.3	
Total labour participation rate <sup>34</sup>	%	65.8 (81) <sup>40</sup>	72.4 (01) <sup>46</sup>	51.5 <sup>52</sup>
Female labour participation rate	% of total	47.2	56.7	
Labour participation in:	%			
Agriculture sector		90.4 (81) <sup>41</sup>	65.9 (01) <sup>47</sup>	
Industrial sector		2.5	9.0	
Service sector		7.1	25.1	

<sup>32</sup> Year 1999.<sup>33</sup> 10+ years age group.<sup>34</sup> It is the proportion of the working age population that is economically active. In this case 10+ years age group population has been considered.<sup>35</sup> UNDP (2002).<sup>36</sup> WDR (1985).<sup>37</sup> UNDP (1990).<sup>38</sup> Whole data in this public expenditure section is from UNDP (2002).<sup>39</sup> NRB (1988) and CBS (1987).<sup>40</sup> CBS (1981).<sup>41</sup> CBS (1981).<sup>42</sup> World Bank (2003).<sup>43</sup> World Bank (2004).<sup>44</sup> UNDP (2002).<sup>45</sup> NPC (1998) and CBS (1996).<sup>46</sup> CBS (2002).<sup>47</sup> CBS (2002).<sup>48</sup> World Bank (2003).<sup>49</sup> UNDP (2002).<sup>50</sup> UNDP (2002).<sup>51</sup> Except Maldives and Bhutan.<sup>52</sup> UNDP (2002).