POVERTY ANALYSIS REPORT 2007

National Statistics Bureau
Royal Government of Bhutan

December 2007

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Foreword

The National Statistics Bureau (NSB), together with the then Department of Planning, and with the support of the United Nations Development Programme, came out with a Poverty Analysis Report (PAR) in 2004, the very first ever comprehensive examination of welfare conditions in the Kingdom of Bhutan. The PAR 2004 provided an assessment of consumption expenditure data sourced from the Bhutan Living Standard Survey (BLSS) 2003, a nationally representative and multi-topic household survey conducted by the NSB with the support of the Asian Development Bank (ADB). The BLSS 2003 followed the Living Standard Measurement Study (LSMS) methodology developed by researchers at the World Bank

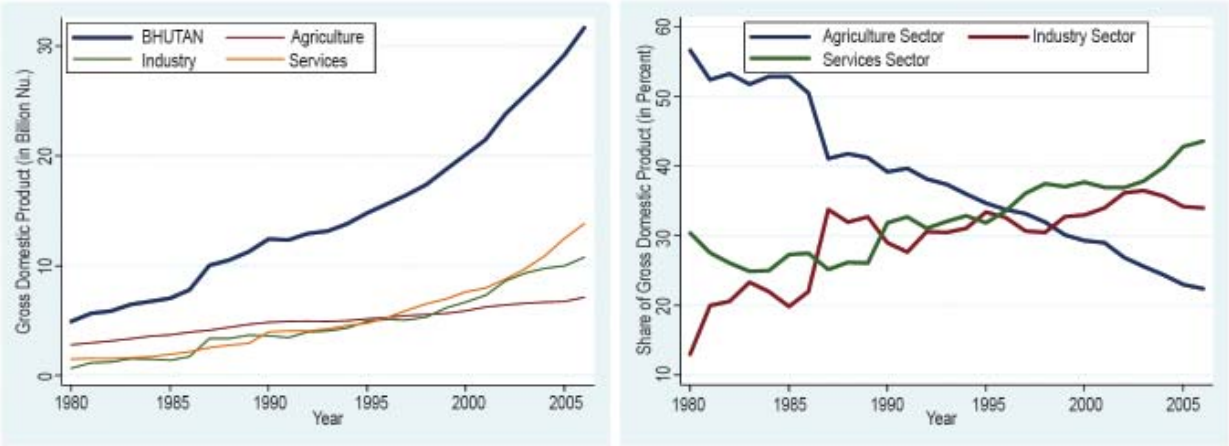
This publication presents an up-to-date appraisal of poverty patterns in Bhutan, down to the *Dzongkhag* level, based on the BLSS 2007, which now has more than double the sample size of the BLSS 2003, as well as a wider coverage. The BLSS 2007 was conducted by the NSB, with the support of the United Nations System in Bhutan, to continue the process of describing socio-economic conditions in the country, and monitoring various poverty and related indicators. The profile of consumption poverty and inequality presented in this report will undoubtedly cast light on a range of policy issues and subsequently help the Royal Government of Bhutan (RGoB) and other poverty stakeholders in identifying programs that will benefit the poor. As was pointed out in the BLSS 2007 Report, the consumption data are not fully comparable to the data of the previous survey round owing to increase in the number of food items collected and the wider coverage in this current round. Consequently, the results presented here provide a new baseline upon which further poverty monitoring could be developed.

The NSB would like to acknowledge with appreciation the support of the RGoB and the UN System for technical support, especially data analysis, in the preparation of the PAR 2007. It is hoped that this report gives realistic information about the plight of the poor, and provides poverty stakeholders necessary data for designing and implementing actions needed to improve the living standards of the poor in Bhutan.

DIRECTOR

1. Introduction

Since the 1980s, the Kingdom of Bhutan has displayed an outstanding economic growth, with an annual average growth rate of 7.5 percent in its Gross Domestic Product (Figure 1.1). The share of agriculture in GDP has dropped from the over 50 percent levels in 1986 (and before that) to 22% in 2006, with the most significant drops in 1987 and 1981 accompanied by phenomenal rises of GDP of 28.4 percent and 14.8 percent, respectively. The trends in the country's growth are undoubtedly affected by the development thrust of the Royal Government of Bhutan (RGoB) that is anchored on a policy of people's participation and balanced regional development.



(a) (b)

Figure 1.1: Trends in Bhutan's Economy From 1980-2006. (a) Gross Domestic Product by Sector (b) Sectoral Shares of Gross Domestic Product

The RGoB's development thrust has been further guided by Gross National Happiness (GNH), propounded by His Majesty King Jigme Singye Wangchuk in the late 1980s. The concept of GNH suggests that development has many more dimensions than those associated with GDP, and that development should actually be considered within the context of maximizing happiness rather than merely economic growth. Pursuing GNH essentially places the individual at the centre of development efforts, and recognizes that the individual has not only economic needs but also spiritual and emotional needs.

The RGoB's development policy was first articulated in the First Five Year Plan (FYP), and has been subsequently continued in all FYPs. Such a policy has pro-poor leanings as indicated by the expansion of social services, the push for rural development and the support for income generation activities. One concrete example of the pro-poor orientation is the public expenditures provided to education and health. The share of public expenditures on education and health increased from about 11.7 percent in the first FYP to a high of 17.1 percent in the Fourth FYP. While the proportion fluctuated thereafter, however, this percentage has been maintained at over 25 percent, suggesting the RGoB's concern to improve the welfare of its citizenry, especially the poor.

While the allocation of public expenditures in health and education suggests the pro-poor orientation of the RGoB, outcomes and impacts on poverty are even a better measure. Unfortunately, poverty data and poverty-related indicators in Bhutan are relatively scarce thereby making it difficult to monitor how far government has gone in improving the living standards of its people. However, initiatives by the RGoB since 2000 have substantially increased data availability, including the conduct of the pilot Household Income and Expenditure Survey, the Poverty Assessment and Analysis Study, the Bhutan Living Standard Survey (BLSS) 2003, and the Poverty Analysis Report (PAR) 2004. The BLSS was conducted largely with the objective of reconstructing the basket of consumer goods, but was subsequently used to get a baseline of the poverty conditions in the country. This BLSS, being modeled from the Living Standard Measurement Study (LSMS) surveys of the World Bank, collected basic information on a number of topics, including consumption expenditure, housing, employment, health status, fertility, education, access to public facilities, and assets ownership. The BLSS 2003 covered 4,007 sample households in 20 *Dzongkhags* but in two *Dzongkhags*, the rural areas were not covered.

The PAR 2004, based on the BLSS 2003, estimated that 31.7 percent of the Bhutanese population (or about 173.5 thousand of the 547 thousand extrapolated total number of persons from the sample) belonged to households who were consuming less than the national poverty line of Nu. 740.36 per person per month. Further, the PAR 2004 indicated that poverty in Bhutan was more of a rural phenomenon, i.e. 97.4 percent of the poor reside in rural areas.

Poverty, which may be thought of as a deprivation of the basics of life, is a multi-dimensional phenomenon. This deprivation includes not just insufficient consumption (and income) but also lack of opportunities and assets, inadequate education, poor health and nutrition, lack of sanitation, insecurity and powerlessness. Over the years, there has been much interest in poverty measurement across countries, including the Kingdom of Bhutan. Poverty reduction strategies have been developed that specify set of plans for improving the living standards of the needy. The Kingdom of Bhutan, as part of the global community of nations, committed itself to the Millennium Development Goals (MDGs), a series of 8 time-bound goals and 18 quantitative targets on economic and social development. The MDGs include goals and targets on reducing poverty and hunger, improving education, promoting gender equality, improving health and achieving environmental sustainability by 2015. Tracking the progress of Bhutan in meeting the MDGs has been a concern of the RGoB, its development partners and other poverty stakeholders.

The RGoB has addressed a wide range of poverty issues broadly through its development targets, as reflected in the Ninth FYP and in Bhutan 2020. These targets closely match the MDGs, and as such, stand as a testimony of Bhutan's strong national political commitment to socio-economic development and GNH which ensures that the Bhutanese people not only have per capita consumptions above the poverty line but also enjoy better quality of life. Poverty and related issues are being addressed nationally and have been an

important thematic subject at various national and international forums. The RGoB is also a party to a Poverty Reduction Partnership Agreement wherein the Government has committed itself to attainment of international development goals as enunciated in the World Summit for Social Development Declaration in 1995.

The PAR 2004, and other previous poverty studies, suggested that despite good governance and a remarkable progress in the economic development of the country, poverty is still a reality in contemporary Bhutan. The main purpose of the PAR 2007 is to provide a more focused picture of poverty in Bhutan down to the *Dzongkhag* level, based on consumption expenditure data and other poverty related indicators sourced from the BLSS 2007. The PAR 2007 covers living standard indicators covering both monetary and non-monetary dimensions of well-being, including health, education, economic activities, and physical infrastructure. These aspects of welfare demand policies and programs that deliberately target the poor and seek to bring them closer to the mainstream of the nation's development process with a view to maximize GNH in the country. Undoubtedly, this report will help give a sense of the impact of the policies that the RGoB has pursued till date in improving the quality of life in the country.

Although many resources have been allocated on development over the past four decades, the RGoB recognizes that much still needs to be done as poverty still persists. The changing scenario in international development assistance has also compelled the RGoB to make sure that its development focus is geared more toward assisting vulnerable groups. It is hoped that this report will become a valuable guide and tool for development planning in setting evidence-based priorities for helping those who need help the most.

2. Poverty Measurement Methodology

While the term poverty evokes various notions, its measurement is often operationalized by (a) selecting a monetary indicator, such as per capita consumption expenditure, to judge the well-being of households (b) setting a poverty line, i.e., the value of the selected welfare indicator which separates poor households from non-poor households, and (c) summarizing the poverty data. Monetary indicators for measuring living standard are preferred over non-monetary ones, especially because ultimately, poverty alleviation programs and projects have to be budgeted for, which is easier to monitor for monetary indicators than non-monetary ones. Moreover, monetary welfare indicators are often fairly closely correlated with non-monetary dimensions of welfare. The most commonly used welfare indicators are consumption-based and income-based measures. Income-based measures rely on aggregates of household income from all sources (employment, home production, informal support, income from rent, social transfers, etc.) while consumption/ expenditure-based measures involve aggregating household expenditures on all commodities consumed. These consumptions include expenditure for goods and services purchased, received as gifts, produced by the household itself, or results of assets and/or durables owned.

Results of a global survey done in 2004-2005 by the United Nations Statistics Division showed that among the 93 countries surveyed (62 having completing a "longer" questionnaire), there is much diversity in practices for poverty measurement. Of the 84 respondent countries, half reported using consumption expenditure, about thirty percent use income, and twelve percent use both. Some countries also collect data on "unmet basic needs." In the case of Bhutan, the PAR 2004 focused on an examination of consumption per capita sourced from the BLSS 2003. That is, a household, and all its members, are considered poor if the household per capita consumption level is insufficient to acquire a given level of goods and services regarded as essential for a minimum standard of living.

In most developing countries, consumption-based measures are the preferred monetary welfare indicators over income-based measures. For countries like Bhutan where self-employment, including farm and small business, is common, it may be difficult to gather accurate income data. Consumption may be more accurately measured than income. In fact, the pilot Household Income and Expenditure Survey conducted in 2000 did not yield reliable income data. In addition, consumption is also smoother and less-variable than income. Observing consumption over a relatively short period will provide a lot of information about living standards than will a similar observation on income. While consumption also faces seasonal fluctuations, just like income, the fluctuations in consumption are, by far, of much smaller amplitude than seasonal fluctuations in income.

The analysis of per capita household consumption as a welfare indicator is not without limitations: it is as though, on average, all members in the household are consuming the same amount of total household consumption. While adjustments could be made on the welfare indicator to incorporate differences in needs of household members and economies of scale, it has been noted that in a number of case studies using these adjustments, the broad conclusions on the poverty profiles are rather robust. Thus, it was deemed that the cost of such undertakings may be more than the resulting benefits. It was thus decided that for this report, as in the PAR 2004, analysis of welfare conditions in Bhutan will be focused on household per capita consumption.

A. DATA SOURCE

In this report, the source of the per capita consumption data examined is the BLSS 2007. An aggregate of household consumption was generated and subsequently analyzed. This aggregate excludes household expenditures on durables, irregular expenses, health expenses (on consultations and hospitalization) from the total household consumption expenditure data (found in the BLSS 2007 report), but includes expenses on medicine. Details on the computation of this consumption aggregate are provided in Technical Note 1 of Annex II.

The two rounds of the BLSS, conducted by the National Statistics Bureau thus far, collected comprehensive information on consumption expenditure, assets, housing, education, health, fertility, and prices of varying commodities. Unlike the BLSS 2003 which contained two sources of price data, viz., the households and the community, the BLSS 2007 only collected price data from the households. Respondents also provided their perceptions of public health and transport services, as well as their opinions about priority areas of concern for improving their welfare conditions.

The BLSS rounds were conducted with a broad objective of collecting detailed information about the social and economic conditions of households in Bhutan. Aside from gathering data on consumption expenditure and related information on living standards useful especially for generating a poverty profile of country and monitoring the MDGs, the surveys were also meant to provide:

- benchmark information for updating weights required in the estimation of the consumer price index (CPI);
- inputs for the compilation of national accounts of the household sector; and,
- a better reference point for basic data for socio economic policy planning, particularly the formulation of poverty reduction policies and strategies.

The BLSS 2007 had a wider coverage than the previous round BLSS. The BLSS 2007 was designed to generate selected statistical indicators for all the twenty *Dzongkhags* in the Kingdom of Bhutan. The survey collected information from 9,798 households between March 2007 and May 2007 out of a targeted sample of ten thousand households. The sample represented a total extrapolated population of about six hundred thirty thousand persons.

Sample selection was based on a stratified two-stage sampling design. Two levels of stratification of households were used:

- Primary stratum – made up of *Dzongkhags.*
- Secondary stratum - made up of the urban and rural areas.

Samples were drawn independently within each level of the secondary stratum. The primary sampling units (PSUs) were blocks for urban (towns) areas and *Chiwogs* for rural areas while the secondary sampling units (SSUs) were the households within the selected blocks/*Chiwogs.* The total number of urban blocks was 275. Of these, 196 sample blocks and 3,000 sample households were targeted to be selected in the BLSS 2007. In the rural areas the survey was designed to cover a sample of 659 *Chiwogs* and 7,000 sample households.

A set of household weights are needed when estimating statistics from the BLSS 2007 household data. These weights are needed to correct for the varying selection probabilities of areas and households in the survey design. They can be regarded as made up of three components: (a) correction for the differing sampling rates of PSUs used in the strata at the area stage of sampling; (b) correction for varying numbers of households selected in each PSU; and, (c) correction for non-response.

The survey population coverage included all households in the country except (a) diplomatic and expatriates households; (b) institutional households, i.e., residents of hotels, boarding and lodging houses, monasteries, nunneries, school hostels, orphanages, rescue homes, and under trails in jails and indoor patients of hospitals, nursing homes; and, (c) barracks of military and para-military forces, including the police.

Poverty stakeholders in Bhutan are cautioned that the BLSS 2007's sampling frame, geographic coverage, and questionnaires are not the same as those of BLSS 2003 (BLSS 2007 Annex II), thus the poverty indicators from the BLSS 2007, are strictly speaking, not directly comparable to those of the BLSS 2003. Consumption aggregates from the BLSS 2007 (even when put into constant prices of the second quarter of 2003) are much higher than those of the BLSS 2003, in large part because the BLSS 2007 collected information about 118 food items (as against only 83 food items in the BLSS 2003). Recall periods in the BLSS 2007 for food items were last 1 week, last 1 month, and last 12 months, and for non-food items last 12 months and last 1 month. On the other hand, the BLSS 2003 recall periods for food items were for the last 1 week, typical month, and last 12 months, while for non-food items, recall period was for the last 12 months. Some differences also exist between the non-food consumption modules of the BLSS 2007 and 2003 questionnaires. For details, see Annex II of the BLSS 2007 Report.

Readers are also advised that any estimates of averages, totals or ratios that are derived from the BLSS 2007 data (and any survey involving random selection of respondents) are subject to a margin of error because the estimates come from a sample rather than the full population of households in Bhutan. The extent of sampling error is measured by the "standard error", with smaller standard errors indicating that the estimate from the survey is more precise.

B. THE (TOTAL) POVERTY LINE

After selecting consumption per capita as the welfare indicator, we obtained a minimum acceptable standard of that welfare indicator that can be used to separate the poor from the non-poor. This minimum acceptable standard, called the poverty line, may be viewed as the level of the welfare indicator needed to assure a minimum standard of living. Poverty stakeholders are interested in ensuring that nobody in the country should have a standard of living that is below this minimum. Note that the notion of a poverty line

is country specific and reflects what the country's norm is of the minimum standard of living. In consequence, comparisons across countries, e.g., between Bhutan and India, may not be easily done unless welfare indicators and poverty lines are adjusted for cost of living differences, notwithstanding issues on differences in data capture methods, survey instruments and protocols across countries.

In practice, the poverty line is formed by (a) setting a food poverty line, which may be thought of as the cost of a bundle of goods attaining a pre-determined minimum food energy requirement, and then (b) adjusting this food threshold by adding some non-food requirements to obtain the total poverty line.

1. Food Poverty Line

The most commonly used methodology for constructing the food poverty line is the Cost of Basic Needs (CBN) approach; this method provides a readily understandable way of incorporating basic food and non-food consumption requirements in the poverty line. The CBN approach to calculating a poverty line involves (a) selecting some minimum nutritional requirement, typically in calories; (b) choosing some food basket and scaling the quantities in the basket to correspond the calorie requirements of individuals; (c) obtaining the cost of the basket, thus yielding the food poverty line; (d) obtaining a non-food poverty line by estimating the cost of consuming a basic set of non-food items for households whose food expenditure is at the food poverty line; and, (e) adding the non-food poverty line to the food poverty line to yield the total poverty line.

While calories are only one aspect of nutritional requirements, it is fair to assume, especially given the Bhutanese diet, that households fulfilling their calorie requirements will also fulfill their other nutritional requirements such as proteins, vitamins, and minerals, and so forth. Recommended energy requirements vary from country to country, and can even be provided for alternative activity levels, sex, age and body weight of individuals. Since no specific food energy requirement is available for the Bhutanese population, the nutritional norm applied in Nepal, i.e., 2,124 Kcal. per person per day, was used in this analysis (as in the PAR 2004).

A food basket consisting of 53 items (see Technical Note 2) was the artifice used for establishing the food poverty line. Country practices for the number of food items used vary: Bangladesh uses 11 items, Vietnam 40 items, Kenya around 100 goods. What is important is to make sure that the food basket resonates with prevailing consumption patterns and tastes, especially among the population. While there may be some interest in making the food basket vary across a society given varying tastes and preferences, it is best to work with a single nationally representative food basket to ensure consistency in setting the poverty line. That is, the welfare standard should be the same for any individual in the country. The food basket used in this report is representative of the diet of a reference population, namely the second to the

fourth deciles of the Bhutanese population (based on nominal per capita consumption). The selection of households in the second to the fourth deciles of the per capita expenditure distribution would ensure that expensive and cheap food items were not heavily represented in the basket. After all, prices even of the same items could differ across the population. Although food consumption patterns differ across the country, a single food basket was used to ensure consistency in the determination of the food poverty line, and in the measurement of welfare. Consistency in welfare means that the same standard of living is being treated the same way across different sub-groups of the population.

These food items were the most frequently consumed items by the reference population, and accounted for 80 percent of their food (and beverages) expenditures. The average quantities consumed per person of each of the items in the food basket was rescaled (keeping their relative share unchanged), in such a way that the food basket provides a total of 2,124 Kcal per day. Based on these rescaled quantities, the cost of the bundle was estimated using the median unit price of each item (paid by the reference population for the item). The cost of purchasing this bundle was estimated at Nu. 688.96 per person per month, which corresponds to the food poverty line. This is much higher than the food poverty line of Nu. 403.79 per person per month in 2003 owing to increased food consumption estimates generated in the BLSS 2007 (which are based on a larger set of food items). Table A-30 in Technical Note 2 of Annex II provides detailed information on the composition and the valuation of the food basket.

Households (and their members) consuming (in real terms) less than the **food poverty line**, of Nu. 688.96 per person per month are considered **subsistence poor.**

2. Non-Food Allowance and Total Poverty Line

Having set the food poverty line, a non-food allowance was added to obtain a total poverty line that incorporates both food and non-food needs. This was done by obtaining an average of non-food per capita consumption expenditures of households in the reference population that spent for food a value near the food poverty line. Details on this computation are available in Technical Note 3.

The non-food allowance was estimated at Nu. 407.98 per person per month. Adding the non-food allowance to the food poverty line yields the *total poverty line (TPL),* estimated to be *Ngultrum 1,096.94 per person per month,* at 2007 prices.

Households (and their members) consuming (in real terms) less than the **total poverty line (TPL)**, of Nu.1,096.94 per person per month are considered **poor.**

C. SPATIAL PRICE INDEX

Prices differ across the country. In consequence, per capita consumption expenditures (in nominal terms) are not directly comparable across space. An important staple like rice is found to be much more expensive in Gasa than in Wangdue, so that a household in Gasa can consume less with the same nominal consumption expenditure of rice than a household in Wangdue. To make the per capita consumption comparable, their values must be deflated using a cost of living index. No such index is available. The usual approach to controlling for spatial price differences is to use a price index formula that approximates the true cost-of-living index. One possible spatial price index is the Paasche index, which calculates the cost of buying a region's basket of goods with a base region's prices. Just as in the PAR 2004, a Paasche index was formed with food items using the BLSS 2007 median price data. No such index was constructed for non-food items owing to data constraints, so the food regional price deflators (in Table 1) are used as the overall regional price deflators. Details on these computations are provided in Technical Note 1 (d).

Table 1. ***Regional Price Deflator (Median of Household-level Paasche Indices), by Dzongkhag and Area***

Dzongkhag	Urban	Rural
Bumthang	1.21	1.07
Chhukha	0.98	0.99
Dagana	1.02	1.01
Gasa	1.14	1.07
Haa	1.03	0.97
Lhuntse	1.02	0.98
Monggar	1.05	0.98
Paro	1.06	1.01
Pemagatshel	0.99	0.97
Punakha	1.02	1.00

Dzongkhag	Urban	Rural
Samdrupjongkhar	0.96	0.96
Samtse	0.94	0.93
Sarpang	0.95	0.94
Thimphu	1.09	1.04
Trashigang	1.02	0.97
Trashiyangtse	1.01	0.96
Trongsa	1.11	1.01
Tsirang	0.98	0.98
Wangdue	1.03	1.00
Zhemgang	1.04	0.99
Bhutan	***1.04***	***0.99***

As a consequence, monthly household consumption for Bhutan was estimated at Nu.11,777 in real terms as a result of adjustments in differences in cost of living (and exclusion of some non-food expenditures on durable items and other irregular expenses). Average monthly per capita consumption in real terms was estimated at Nu. 2,745 per person per month.

3. Patterns in Consumption Poverty

Households with per capita real consumptions below the poverty line are said to be poor and those with per capita real consumption below the food poverty line are subsistence poor. Subsistence poverty may be viewed as extreme poverty, i.e., those whose standard of living is insufficient even to meet their basic food needs even if they devote their entire consumption expenditure to food alone.

Consumption poverty in this report is measured at the household level since data from the BLSS 2007 does not allow intra-household analysis. In consequence, if a household is considered poor, then all its members are considered poor. Similary, if a household is non-poor, then none of its members is poor.

Three aspects of consumption poverty are of particular interest:

- Poverty Incidence – the proportion of persons (or households) identified as poor;
- Poverty Gap (or Depth of Poverty) – the extent to which those identified as poor fall below the poverty line (in relation to the poverty line)
- Poverty Squared Gap (or Severity of Poverty) – a measure of the inequality among the poor.

These poverty measures are presented in this report for the country as a whole, and for certain groups of the population, such as urban and rural areas, *Dzongkhags*, sex of household head, among others. For more information on these poverty indices, see Technical Note 5.

A. POVERTY INCIDENCE

The food poverty line and total poverty line are used to compute for subsistence and poverty incidence, respectively. Figure 1 illustrates subsistence and poverty incidence, in terms of the percentage of the population, across urban and rural areas. The poverty head count, i.e., the percentage of the poor persons, in the country is estimated now at 23.2 percent. This means that, of the approximately 629,700 extrapolated population from the sample, there are about 146,100 poor persons who belong to households whose per capita real consumption is below the total poverty line of Nu. 1,096.94 per person per month. It can be observed that subsistence incidence, i.e. extreme poverty, is relatively small in the country: only six in a hundred persons throughout Bhutan belong to households that are spending per person less than the food poverty line. Around thirty seven thousand three hundred persons belong to such households with per capita consumption below the food poverty line of Nu. 688.96 per person per month. Poverty in Bhutan is a rural phenomenon. Three out of every ten persons in the rural areas are poor. In urban areas, less than two percent of the population are poor, and only one in a thousand persons are extremely poor. While the proportion of extremely poor persons in rural areas of about eight percent is quite small, this is quite large in relation to that of urban areas.

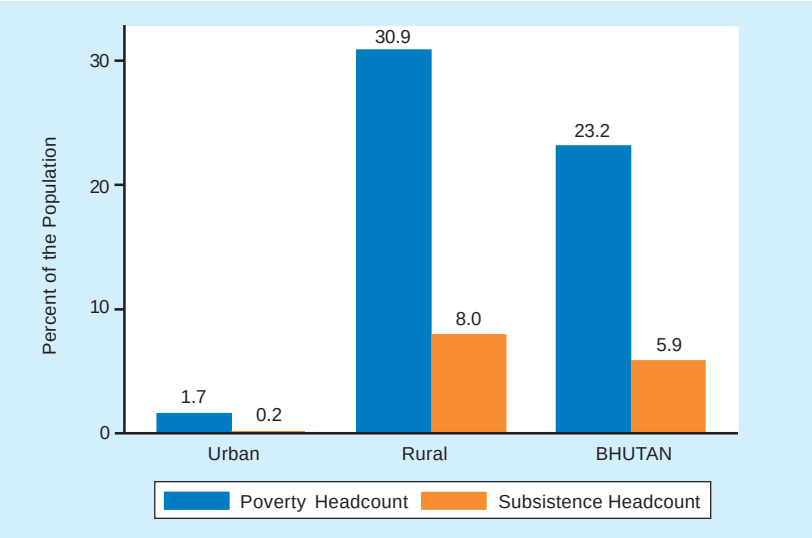


Figure 1. Poverty and Subsistence Headcount in Bhutan, 2007

The poverty and subsistence incidence statistics are shown in Table 2, together with their standard errors, as well as the contributions to national poverty and subsistence. Since the poverty incidence figures are estimates based on a sample survey, it is important to consider standard errors, to indicate the level of precision of these estimates. While our best estimate of poverty rate in Bhutan in 2007 is 23.2 percent, this estimate has a margin of error of 1.5 percentage points. That is, we are 95% confident that true poverty rate is between 21.7% and 24.7%. We are also confident that urban poverty (estimated at 1.7%, but which could range from 0.9% to 2.4%) is much lower than rural poverty (which is likely to be within 29.0% to 32.9%). In addition, we observe that forty nine out of fifty poor persons throughout the country reside in rural areas. Among the extremely poor, practically everyone resides in rural areas. Consequently, as was pointed out in the PAR 2004, efforts toward poverty reduction ought to be largely focused toward rural development.

Table 2. Poverty and Subsistence Incidences by Area (Percent of Population), 2007

Area	Poverty Headcount		Subsistence Headcount		*Population Share*
	Index	*Contribution to National*	Index	*Contribution to National*	
Urban	1.7 (0.4)	*1.9*	0.16 (0.10)	*0.7*	*26.4*
Rural	30.9 (1.0)	*98.1*	8.0 (0.5)	*99.3*	*73.6*
Bhutan	**23.2** **(0.8)**	***100.0***	**5.9** **(0.4)**	***100.0***	***100.0***

Figures in parentheses are the standard errors of the estimates.

As was pointed out in the previous section, the poverty estimates in Table 2 are not comparable with previous estimates of 31.7 percent poor and 3.8 percent subsistence poor in the PAR 2004. Although the methodologies used to estimate poverty for the PAR 2004 and this report are quite similar, the food consumption estimates in the BLSS 2007 are much larger (than the BLSS 2003 consumption data) arising largely from the use of a more detailed list of food items (than those used in the BLSS 2003).

Table 3 presents poverty incidence and subsistence incidence as a percent of households. About seventeen percent of households are poor, and nearly four percent are subsistence poor households. In consequence, of the estimated 125,500 households, around 21,300 are poor, and about 4,800 are extremely poor.

Table 3. Poverty and Subsistence Incidences by Area (Percent of Households), 2007

Area	Poverty Incidence		Subsistence Incidence		*Population Share*
	Index	*Contribution to National*	Index	*Contribution to National*	
Urban	1.1 (0.2)	*1.9*	0.11 (0.06)	*0.8*	*30.1*
Rural	23.8 (0.8)	*98.1*	5.4 (0.4)	*99.2*	*69.9*
Bhutan	**16.9 (0.6)**	***100.0***	**3.8 (0.3)**	***100.0***	***100.0***

Figures in parentheses are the standard errors of the estimates.

A comparison of the poverty statistics in Table 2 and Table 3 indicates that poverty measures are larger in terms of population than those of households since poor households, on average, have larger household sizes than non-poor households.

Dzongkhag level estimates of poverty incidence and subsistence incidence for the population and for households are shown in Table 4 (together with their standard errors). Ranks in *Dzongkhags* are difficult to determine due to overlaps in confidence intervals of poverty rates, but it can be observed that poverty rates are high in Zhemgang, Samtse, Monggar, Lhuntse, and Samdrupjongkhar.

Table 4. Poverty and Subsistence Incidences by *Dzongkhag* (Percent), 2007

Dzongkhag	Population		Households	
	Poverty Incidence	Subsistence Incidence	Poverty Incidence	Subsistence Incidence
Bumthang	10.9 (3.3)	0.9 (0.9)	6.6 (2.1)	0.4 (0.4)
Chhukha	20.3 (2.4)	4.5 (1.2)	14.3 (1.8)	2.7 (0.7)
Dagana	31.1 (4.9)	9.7 (2.9)	21.9 (3.9)	5.8 (1.8)

Gasa	4.1 (1.9)	1.0 (1.0)	2.1 (0.9)	0.4 (0.4)
Haa	13.2 (5.1)	5.1 (2.9)	10.5 (4.3)	3.5 (1.9)
Lhuntse	43.0 (5.2)	11.2 (3.2)	32.2 (4.5)	6.9 (2.0)
Monggar	44.4 (3.5)	10.2 (2.4)	34.4 (3.1)	7.1 (1.7)
Paro	3.9 (1.4)	0.6 (0.6)	3.1 (1.2)	0.4 (0.4)
Pemagatshel	26.2 (3.3)	4.5 (1.5)	18.5 (2.3)	2.9 (1.0)
Punakha	15.6 (2.9)	1.9 (1.1)	9.8 (2.0)	1.1 (0.7)
Samdrupjongkhar	38.0 (3.8)	12.2 (2.5)	31.7 (3.3)	8.9 (1.8)
Samtse	46.8 (3.0)	17.6 (2.3)	36.0 (2.6)	11.5 (1.5)
Sarpang	19.4 (3.4)	3.3 (1.1)	11.8 (2.1)	1.7 (0.6)
Thimphu	2.4 (0.8)	0.1 (0.1)	1.4 (0.5)	0.1 (0.1)
Trashigang	29.3 (2.8)	7.0 (1.3)	21.8 (2.3)	4.2 (0.8)
Trashiyangtse	14.3 (2.6)	0.5 (0.5)	9.7 (1.9)	0.4 (0.4)
Trongsa	22.2 (4.5)	4.8 (2.1)	14.4 (3.5)	2.9 (1.4)
Tsirang	13.9 (3.8)	2.5 (1.8)	9.7 (2.9)	1.0 (0.8)
Wangdue	15.8 (2.5)	1.9 (0.9)	9.6 (1.6)	0.8 (0.4)
Zhemgang	52.9 (5.7)	17.8 (3.3)	43.6 (5.1)	13.2 (2.5)
Bhutan	***23.2*** ***(0.8)***	***5.9*** ***(0.4)***	***16.9*** ***(0.6)***	***3.8*** ***(0.3)***

Figures in parentheses are the standard errors of the estimates.

The estimated number of poor and extremely poor across the *Dzongkhags* are provided in Table 5, including the contribution of each *Dzongkhag* to the total poverty rates. The biggest proportion of the poor (and extremely poor) in Bhutan reside in Samtse.

Table 5. Magnitude of Poor and Subsistence Poor by Dzongkhag, 2007

Dzongkhag	Population				Households			
	Poor	***% of Total Poor***	**Subsistence Poor**	***% of Total Subsistence Poor***	**Poor**	***% of Total Poor***	**Subsistence Poor**	***% of Total Subsistence Poor***
Bumthang	1,800	*1.2*	100	*0.4*	200	*0.9*	-	*0.3*
Chhukha	13,700	*9.4*	3,000	*8.1*	2,000	*9.5*	400	*8.0*
Dagana	5,900	*4.0*	1,800	*4.9*	800	*3.6*	200	*4.2*
Gasa	200	*0.1*	-	*0.1*	-	*0.1*	-	*0.1*
Haa	1,700	*1.1*	600	*1.7*	200	*1.2*	100	*1.7*
Lhuntse	6,700	*4.6*	1,800	*4.7*	1,000	*4.5*	200	*4.4*
Monggar	17,000	*11.6*	3,900	*10.4*	2,500	*11.9*	500	*10.8*
Paro	1,400	*1.0*	200	*0.5*	200	*1.0*	-	*0.5*
Pemagatshel	6,200	*4.2*	1,100	*2.9*	900	*4.3*	100	*2.9*
Punakha	4,000	*2.7*	500	*1.3*	400	*2.1*	100	*1.1*
Samdrupjongkhar	13,300	*9.1*	4,300	*11.4*	2,200	*10.4*	600	*13.0*
Samtse	26,100	*17.8*	9,800	*26.3*	4,100	*19.3*	1,300	*27.5*
Sarpang	7,800	*5.3*	1,300	*3.6*	1,000	*4.5*	100	*3.0*
Thimphu	2,100	*1.4*	100	*0.2*	300	*1.2*	-	*0.3*
Trashigang	14,000	*9.6*	3,300	*8.9*	2,200	*10.5*	400	*9.0*
Trashiyangtse	2,600	*1.8*	100	*0.3*	400	*1.7*	-	*0.3*
Trongsa	3,200	*2.2*	700	*1.9*	400	*1.8*	100	*1.6*
Tsirang	2,600	*1.8*	500	*1.3*	400	*1.7*	-	*0.8*
Wangdue	5,700	*3.9*	700	*1.8*	600	*2.8*	100	*1.1*
Zhemgang	10,400	*7.1*	3,500	*9.4*	1,500	*7.0*	500	*9.4*
Bhutan	146,100	*100.0*	37,300	*100.0*	21,300	*100.0*	4,800	*100.0*

Note: Figures rounded off to nearest hundreds; totals may not add up due to rounding.
"-" indicates a sample estimate less than 100 persons/households.

B. DEPTH AND SEVERITY OF POVERTY

Poverty analysis is not limited to examining poverty rates and comparing the statistics across sub groups of the population. It is important to also look into the depth and severity of poverty. The poverty gap and poverty squared gap indices measure the depth of poverty and severity of poverty, respectively. For an individual, the poverty gap is the difference between the poverty line and actual per capita expenditure (and the gap is zero for all non-poor individuals). The poverty gap index adds up the extent to which individuals fall below the poverty line (if they do) and expresses it as a percentage of the poverty line. The poverty squared gap index is similar to the poverty gap index, except that it gives more weight to the very poor than those who are less poor. It is calculated as the weighted sum of poverty gaps (as a proportion of the poverty line), where the weights are the proportionate poverty gaps. More explanation on these indices is available in Technical Note 4.

For both the poverty gap and poverty squared gap indices, as well as for poverty incidence, the larger the value of the index, the greater the degree of poverty. These poverty measures are important for planning of poverty reduction programs. All things being equal, sub-groups of the population with higher indices should receive priority for poverty reduction programs. Figure 2 shows that poverty is deeper and more severe in rural areas than in urban areas.

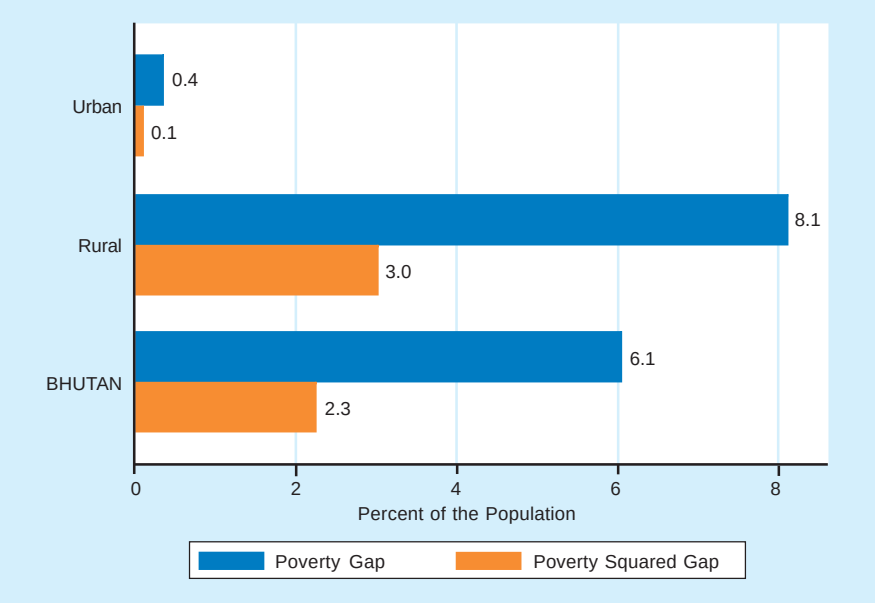


Figure 2. Depth and Severity of Poverty in Bhutan (based on Population and Total Poverty Line), 2007

The poverty gap and severity measures across *Dzongkhags* are listed in Annex I (Table A-1) together with their standard errors and contributions to the national poverty measure. Some Dzongkhags such as Zhemgang and Samtse, have very high poverty measures (whether in terms of poverty incidence, gap or severity). Samtse also has very high share of contributions to the poverty measures at the national level, partly because of its high population share.

We can readily derive from the poverty gap index, the minimum cost for eliminating poverty assuming perfect targeting of the poor and no targeting costs or distortion effects. It can be noted that a total of Nu. 502.2 million would be needed annually if the poverty situation needs to be eliminated. This aggregate consumption shortfall from the total poverty line is an amount equivalent to merely 1.2 percent of the gross domestic product. Note that perfect targeting is, of course, hardly realistic. In addition, a direct cash transfer to the poor is also neither sensible nor feasible: dole outs would only make the needy dependent. Poverty reduction can only be sustained if the poor are empowered. In addition, just as there is no single panacea for curing diseases, there is no single intervention that could be adopted for reducing poverty.

C. SENSITIVITY OF POVERTY MEASUREMENT

Poverty measures are often sensitive to the choice of the level of the poverty line. The extent to which the poverty incidence is sensitive to the choice of the poverty line could be seen by examining the poverty rates obtained from using different poverty lines. While a lot of effort has been exerted in this report for setting a poverty line using objective, transparent methodologies that are widely used in many developing

countries, some degree of arbitrariness is involved in the process of poverty measurement, from the use of a per capita consumption aggregate (over other possible indicators), to the choice of the reference population, to the nutritional norm used, to the items employed in the food basket for arriving at the food poverty line, to the adjustment for non-food requirements. Alternative poverty lines might certainly be equally appealing and well justified. Consequently, it is important to examine how sensitive the overall poverty profile is to the choice of the poverty line.

Table 6 shows the levels of poverty rates when the poverty line is scaled up and down. The poverty rates appear to be less sensitive to scaling up the poverty line than to scaling it down. When the poverty line is doubled, the incidence of poverty increases only about three times (from 23 to 62%), but when the poverty line is halved, the headcount decreases much more (from 23 to 2.5%).

Table 6. Poverty Headcount Index for Various Poverty Lines, 2007

Poverty Line	Poverty Incidence (% population)			Poverty Line	Poverty Incidence (% population)		
	URBAN	RURAL	NATIONAL		URBAN	RURAL	NATIONAL
400.00	-	0.7	0.5	1,100.00	1.7	31.2	23.4
450.00	-	1.2	0.9	1,200.00	2.3	37.5	28.2
500.00	0.1	2.1	1.5	1,300.00	3.1	42.8	32.4
550.00	0.1	3.4	2.5	1,400.00	4.1	48.1	36.5
600.00	0.1	4.7	3.5	1,500.00	5.3	53.3	40.6
650.00	0.1	6.4	4.8	1,600.00	7.4	58.1	44.7
688.96	**0.2**	**8.0**	**5.9**	1,700.00	8.9	62.1	48.0
700.00	0.2	8.8	6.5	1,800.00	10.9	66.0	51.4
800.00	0.7	14.2	10.6	1,900.00	13.1	69.1	54.3
900.00	0.9	19.2	14.4	2,000.00	15.5	71.8	57.0
1,000.00	1.3	25.2	18.9	2,250.00	22.3	78.6	63.8
1,096.94	**1.7**	**30.9**	**23.2**	2,500.00	30.0	83.1	69.1

D. POVERTY BY CHARACTERISTICS OF HOUSEHOLD

Households differ in their demographic composition and characteristics. Some households do not have children, some have a lot of members who are of the economically productive age, and some are comprised only of elderly people. Table 7 shows the composition of poor and non-poor households in terms of the number of children and the number of adults present in the household. A bigger proportion of non-poor household are without children (i.e., persons less than 15 years of age). There is also a bigger share of single-person-households among the non-poor than among the poor.

Table 7: Composition of Poor and Non-Poor Households by Presence/Absence of Children (under 15 years) and by Number of Adults in Household, 2007

Adults in Household	Poor		Non-Poor		Total	
	With Children	Without Children	With Children	Without Children	With Children	Without Children
At least one adult of each sex	86.8	9.3	66.5	21.5	70.0	19.4
One man	0.1	0.0	0.5	3.1	0.4	2.6
More than one man	0.2	0.9	0.2	1.5	0.2	1.4
One woman	0.7	0.2	1.3	1.8	1.2	1.5
More than one woman	1.6	0.2	2.0	1.6	1.9	1.3
Total	**89.4**	**10.6**	**70.5**	**29.5**	**73.7**	**26.3**

Household sizes in Bhutan are, on average, larger in rural than urban areas (BLSS 2007 Report). Table 8 shows that a poor household is typically having a much larger size than a non-poor household, in both urban and rural areas. Poverty rates and subsistence poverty rates also increase with the size of the household (Table 9).

Table 8: Average Household Size by Area, Poverty Status and Sex of Head, 2007

Area	Poverty Status	Head of Household		Both Sexes
		Male	Female	
Urban	Poor	6.86	7.06	6.89
	Non-Poor	4.40	4.26	4.38
	Total	**4.44**	**4.28**	**4.40**
Rural	Poor	6.80	7.06	6.87
	Non-Poor	4.80	4.76	4.79
	Total	**5.33**	**5.19**	**5.28**
Bhutan	Poor	6.80	7.06	6.87
	Non-Poor	4.64	4.64	4.64
	Total	**5.03**	**5.00**	**5.02**

Table 9. Poverty and Subsistence Poverty Rates, by Area and Household Size (Percent of Households), 2007

Area	*Household Size*	Poverty Rate		Subsistence Rate		Share of Total Households
		Index	Contribution to National	Index	Contribution to National	
Urban	1	-	-	-	-	1.8
	2-3	0.3 (0.2)	*0.1*	-	-	7.7
	4-5	0.5 (0.2)	*0.4*	0.08 (0.08)	*0.27*	12.9
	6-8	2.4 (0.7)	*1.0*	0.31 (0.22)	*0.58*	7.0
	9+	8.2 (3.3)	*0.4*	-	-	0.7
	All	**1.1 (0.2)**	***1.9***	**0.1 (0.1)**	***0.8***	**30.1**

Rural	1	1.7 (0.8)	*0.2*	0.9 (0.6)	*0.5*	2.3
	2-3	5.8 (0.7)	*4.8*	0.6 (0.2)	*2.2*	13.9
	4-5	17.3 (1.0)	*24.7*	2.0 (0.3)	*12.9*	24.2
	6-8	34.4 (1.2)	*46.9*	8.6 (0.7)	*51.9*	23.1
	9+	57.2 (2.3)	*21.5*	18.9 (1.7)	*31.6*	6.4
	All	**23.8 (0.8)**	***98.1***	**5.4 (0.4)**	***99.2***	**69.9**
Bhutan	1	1.0 (0.5)	*0.2*	0.5 (0.4)	*0.5*	4.1
	2-3	3.8 (0.5)	*4.9*	0.4 (0.1)	*2.2*	21.6
	4-5	11.5 (0.7)	*25.1*	1.4 (0.2)	*13.1*	37.1
	6-8	26.9 (1.0)	*47.9*	6.6 (0.6)	*52.4*	30.1
	9+	52.0 (2.1)	*21.8*	16.9 (0.5)	*31.6*	7.1
	All	**16.9 (0.6)**	***100.0***	**3.8 (0.3)**	***100.0***	**100.0**

Figures in parentheses are the standard errors of the estimates.

Table 10 shows that there is practically no difference in the profile of extremely poor persons, poor persons and non-poor persons across marital status.

Table 10: Percentage of Poor and Non-poor Persons by Marital Status and Area, 2007

Area	Marital Status	Classification of Poor		Poverty Status		Total
		Subsistence Poor	Poor but not Subsistence Poor	Poor	Non-poor	
Urban	Married	55.3	42.2	39.8	42.2	42.2
	Never married	39.7	54.6	56.5	54.6	54.6
	Divorced	0.0	1.1	0.5	1.1	1.1
	Separated	0.0	0.4	0.5	0.4	0.4
	Widowed	5.0	1.7	2.7	1.7	1.7
	Living Together	-	0.1	-	0.1	0.1
Rural	Married	40.7	41.3	40.5	41.7	41.3
	Never married	53.9	51.2	53.8	50.4	51.5
	Divorced	0.8	1.9	1.3	2.1	1.8
	Separated	0.7	0.6	0.5	0.7	0.6
	Widowed	3.7	4.9	4.0	5.2	4.8

	Living Together	0.1	-	-	-	-
Bhutan	Married	40.9	41.6	40.5	41.9	41.5
	Never married	53.8	52.2	53.9	51.8	52.3
	Divorced	0.8	1.7	1.2	1.8	1.6
	Separated	0.7	0.5	0.5	0.6	0.5
	Widowed	3.7	4.0	3.9	4.0	4.0
	Living Together	0.1	-	-	-	-
	Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

"-" indicates a sample estimate less than 100 persons.

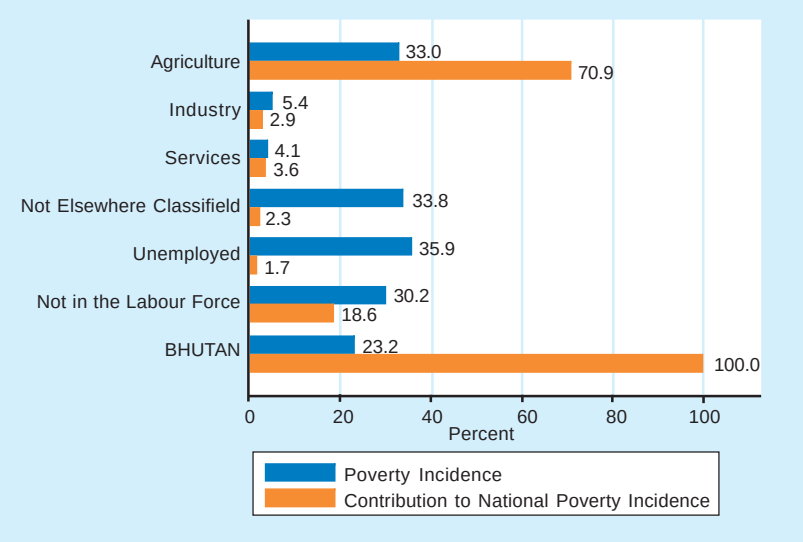
Typically, welfare and household demographic composition are observed to have a nexus with the characteristics of the household head, who in the BLSS 2007, is defined as the main economic decision maker and source of economic support within the household. Female headed households are observed to be, on average, less poor than their male headed households. This is particularly observed in rural areas, but not in urban areas (Table 11). The depth and severity of poverty is also observed to be higher among male-headed households. (See Table A-6 in Annex I).

Table 11. Poverty and Subsistence Poverty Rates, by Area and Sex of Household Heads (Percent of Households), 2007

Area	Sex of Household Head	Poverty Rate		Subsistence Rate		Share of Total Heads
		Index	Contribution to National	Index	Contribution to National	
Urban	Male	1.3 (0.2)	*1.6*	0.1 (0.1)	*0.8*	23.6
	Female	0.8 (0.3)	*0.3*	-	-	6.5
	Both Sexes	**1.1 (0.2)**	***1.9***	**0.1 (0.1)**	***0.8***	**30.1**
Rural	Male	26.6 (1.0)	*71.6*	6.4 (0.5)	*76.6*	45.7
	Female	18.5 (1.0)	*26.5*	3.5 (0.4)	*22.6*	24.2
	Both Sexes	**23.8 (0.8)**	***98.1***	**5.4 (0.4)**	***99.2***	**69.9**
Bhutan	Male	17.9 (0.7)	*73.2*	4.3 (0.3)	*73.2*	69.3
	Female	4.8 (0.8)	*26.8*	2.8 (0.3)	*26.8*	30.7
	Both Sexes	**16.9 (0.6)**	***100.0***	**3.8 (0.3)**	***100.0***	**100.0**

Figures in parentheses are the standard errors of the estimates.

Figure 3 combines information on poverty, participation on the labour force, and main sector of employment of the household head. Persons living in households where the head is currently working has higher living standards than those whose head is either unemployed or out of the labor force. Among the employed, poverty levels are higher in households whose head works in agriculture. About seventy percent of the poor live in households whose head engages in agriculture; and about twenty percent in households whose head is not actively participating in the labour force.



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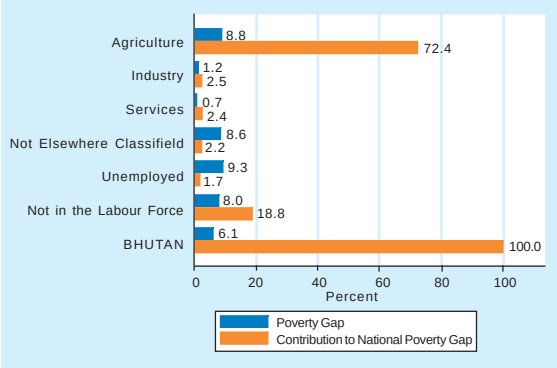

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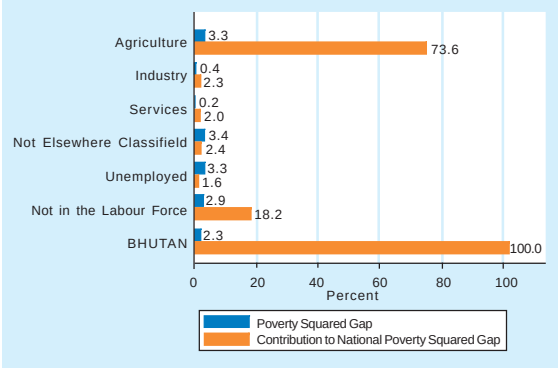


(iii)

Figure 3. Poverty Measures of the Population by Economic Activity of the Household Head: (i) Poverty Incidence (ii) Poverty Gap (iii) Poverty Squared Gap, 2007

Average monthly total and per capita consumption of households are provided in Table 12, together with average household sizes and dependency ratio for male and female headed-households. The dependency ratio, the ratio of the non-working age population to the number of working-age members in the household, is another indicator that captures the demographic composition of the families. While we can see some differences in average household consumption between male and female headed households, especially in urban areas, the pronounced disparities are between poor and non-poor households, as well as between urban and rural areas. Household size and dependency ratio vary also between the poor and the non-poor, as well as between urban and rural areas.

Table 12. Average Monthly Household and Per Capita Consumption, Average Household Size and Dependency Ratio by Area, Household Poverty Status and Sex of Household Heads, 2007

Area	Poverty Status	Sex of Head	Household Real Consumption (Nu.)	Per Capita Real Consumption (Nu.)	Household Size	Dependency Ratio
Urban	Poor	Male	6,025	884	6.86	0.79
		Female	5,390	760	7.06	1.19
		Both Sexes	**5,922**	**864**	**6.89**	**0.86**
	Non-Poor	Male	16,844	4,324	4.41	0.64
		Female	18,088	4,868	4.26	0.63
		Both Sexes	**17,164**	**4,430**	**4.40**	**0.64**
	Total	Male	16,720	4,285	4.44	0.65
		Female	17,986	4,835	4.28	0.64
		Both Sexes	**16,992**	**4,403**	**4.40**	**0.64**
Rural	Poor	Male	5,451	820	6.80	1.02
		Female	5,863	841	7.06	1.02
		Both Sexes	**5,600**	**825**	**6.92**	**1.02**
	Non-Poor	Male	10,303	2,350	4.80	0.75
		Female	10,716	2,518	4.76	0.83
		Both Sexes	**10,691**	**2,403**	**4.90**	**0.78**
	Total	Male	9,014	1,944	5.33	0.82
		Female	9,817	2,208	5.19	0.87
		Both Sexes	**9,292**	**2,035**	**5.28**	**0.84**
Bhutan	Poor	Male	5,464	821	6.80	1.01
		Female	5,858	840	7.06	1.03
		Both Sexes	**5,607**	**826**	**6.92**	**1.01**
	Non-Poor	Male	12,987	3,160	4.64	0.71
		Female	12,525	3,095	4.64	0.78
		Both Sexes	**13,056**	**3,143**	**4.72**	**0.73**
	Total	Male	11,641	2,742	5.03	0.76
		Female	11,538	2,761	5.00	0.82
		Both Sexes	**11,777**	**2,745**	**5.01**	**0.78**

Poverty rates are noticed to increase with the head's age (Table 13). An analysis of the standard errors for the poverty measures suggests that there is a real difference in the poverty measures between the three younger groups and two older groups. This may be indicative of the inability to accumulate wealth with age. We also notice that most household heads (55%) in Bhutan are aged 25 to 44 years, while less than 10% are below age 25, and less than 5% are 65 and above.

Table 13. Poverty and Subsistence Poverty Rates, by Age of Household Heads (Percent of Household Heads), 2007

Age of Household Head	Poverty Rate		Subsistence Rate		Share of Total Heads
	Index	Contribution to National	Index	Contribution to National	
< 25	9.4 (1.5)	*2.7*	***1.9 (0.7)***	*2.4*	*4.9*
25-34	10.5 (0.9)	*13.8*	*2.3 (0.3)*	*13.2*	*22.3*
35-44	14.8 (0.9)	*20.5*	*3.1 (0.4)*	*19.0*	*23.4*
45-54	18.7 (0.9)	*24.6*	***3.6 (0.4)***	*21.3*	*22.3*
55-64	21.1 (1.2)	*19.4*	*5.1 (0.6)*	*20.7*	*15.5*
65 +	28.0 (1.5)	*19.0*	*7.8 (0.9)*	*23.4*	*11.5*
All ages	***16.9 (0.6)***	***100.0***	***3.8 (0.3)***	***100.0***	***100.0***

Figures in parentheses are the standard errors of the estimates.

Figure 4 displays the relationship between the poverty rate and the dependency ratio for urban and rural areas by age of the household head. Generally, across age-groups of the household head, the dependency ratio is higher among poor households than among the non-poor. A higher proportion of children and elderly people in relation to the total number of members in the household means that income earners have to support more people, and thus there is less consumption available to each household member.

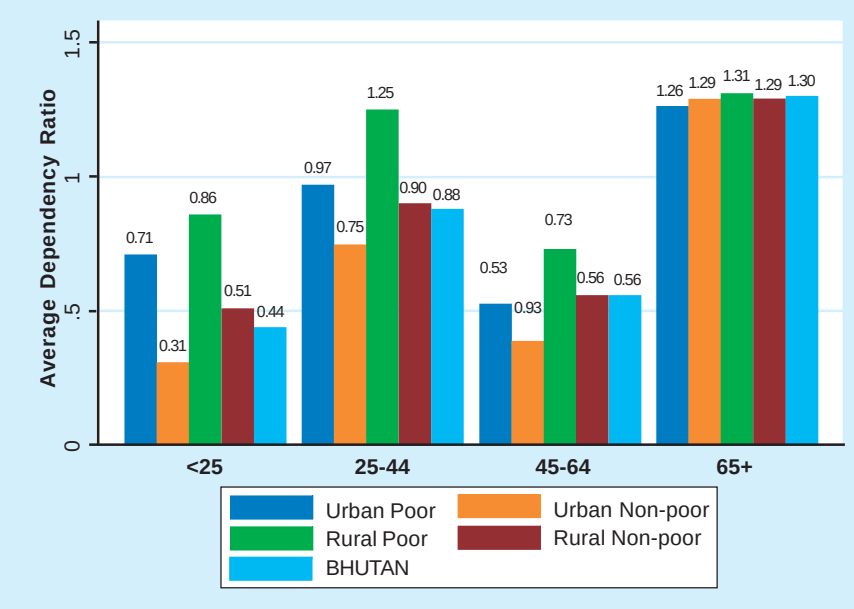


Figure 4. Dependency Ratio of Poor and Non-Poor Households in Urban and Rural Areas by Age of Household Head, 2007

E. AVERAGE TIME TO EXIT POVERTY

Very often, there are pronouncements on poverty reduction targets at the country-level, especially on time for the country to reduce poverty by half of the baseline levels. Such targets, however, have to take into account the trends in poverty reduction or other poverty data. One way of doing so is by simulating the time it takes for a poor person to exit poverty. It is well established that economic growth is necessary for poverty reduction, but it would be useful to quantify the effect of economic growth on poverty reduction. Assuming that economic growth is distributional neutral among the poor, that is, everyone would benefit from economic growth in the same proportion, then it is possible to come up with some idea about how long it would take for each poor person to exit poverty. For the jth poor person with consumption per capita , if this consumption were to grow at a constant rate of per year, then the time to exit poverty (that is, for her/his consumption to equal the poverty line) can be readily derived as:

$$t_g^j \approx \frac{\ln(z) - \ln(x_j)}{g}$$

from the equation

$$z = x_j(1+g)^{t_g^j}$$

Figure 5 shows the average time it takes for the poor and the extremely poor to exit poverty at varying rates of per capita consumption growth. In addition, we also display the time to exit poverty for the median poor person in Bhutan. Real gross domestic product (GDP) has been growing at around 8 percent since 2000. Assuming a population growth rate of about 2.5 percent annually, then this translates to per capita GDP growth rate of about 5.5 percent. If we assume that all the poor benefit from this growth rate, then it will take under five years for the median poor person to exit poverty.

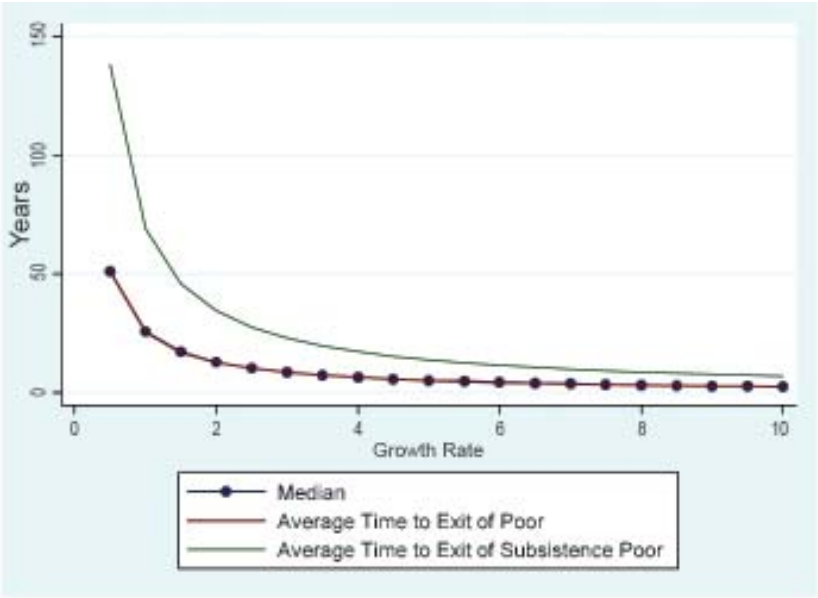


Figure 5. Time to Exit Poverty for Median Poor Person, Average Time to Exit Poverty of All Poor Persons and Average Time to Exit Poverty of All Subsistence Poor Persons (Years), 2007

In Bhutan, about 6 percent are estimated to be subsistence poor, in that they are not able to consume what should be spent for their basic food needs. The expected time for the subsistence poor to exit poverty a growth rate of 5.5 percent is about 12 and a half years. These results are similar to the simulation results done in the PAR 2004. Consequently, substantial pro-poor policies and programs are required. Economic growth may not be enough to help the extremely poor. Targeted interventions are required for ensuring that the poor, especially the subsistence poor, are empowered to exit poverty.

4. Inequality

While poverty indicators focus on the situation of the population or households at the bottom of the per capita consumption distribution, it is also important to look into inequality indicators that look into the spread of consumption over the entire population. There is much interest in measuring inequality since high levels of inequality may contribute to, if not exacerbate, poverty. Growth is known to be important for poverty reduction. High inequality may result to lower subsequent economic growth and, consequently, in less poverty reduction. A high level of inequality may make it difficult for the poor to have a substantial share of the benefits of subsequent economic growth. Inequality indicators attempt to measure the deviation of a given consumption distribution from the ideal distribution, called perfect equality.

A. INDICATORS ON CONSUMPTION QUINTILES

Consider the distribution of real per capita consumption. If the population is ranked by ascending order of per capita distribution, and the distribution is divided into fifths, i.e., 20 percent of the population, we yield the quintiles. The ideal distribution would have an equal share of consumption for the entire population. The share (9.6%) of the national consumption of the poorest quintile is only one fourth that of the share of the richest 20 percent of the population (Figure 6). This estimate of the share of the bottom 20 percent of national consumption is, however, smaller than the estimate in the PAR 2004.

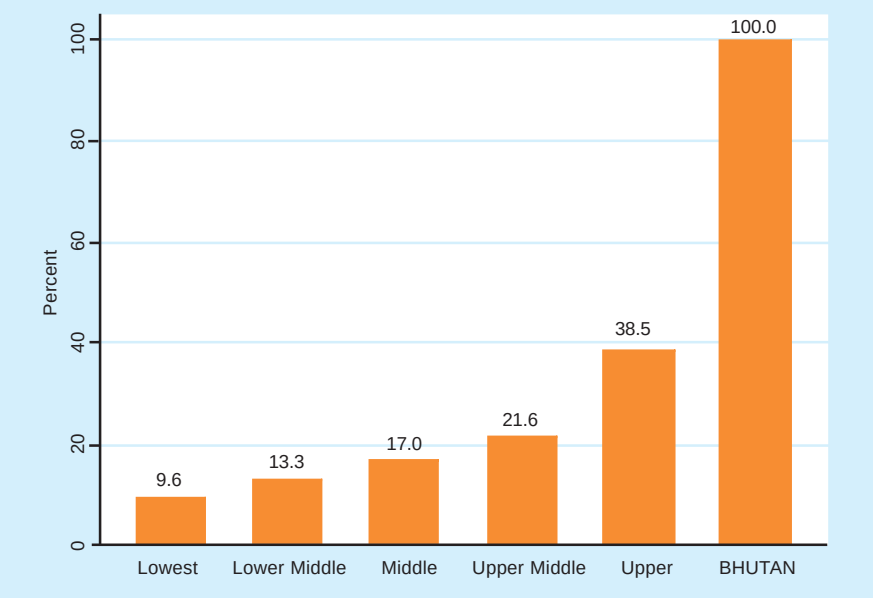


Figure 6. Shares of National Consumption by Population Per Capita Consumption Quintiles, 2007

Table 14 shows that, on the average, a person belonging to the richest 20% of the national population consumes 6.7 times more than a person belonging to the poorest 20% of the population. This is a decrease compared to the estimates in the BLSS 2003, suggesting improvements in consumption inequality. As is to be expected from Engel's Law, the proportion of total consumption allocated to food tends to decrease as the level of per capita real consumption increases. We also notice that, on average, household size and the dependency ratio are larger for the poor than for the rich.

Table 14. Mean Monthly Real Per Capita Consumption (Nu), Share in National Consumption, Mean Share of Food to Total Consumption, Mean Household Size and Dependency Ratio, by Population Per Capita Consumption Quintile, 2007

Indicator	Quintile of Per Capita Real Consumption					*Overall*
	Lowest	Lower Middle	Middle	Upper Middle	Upper	
Average Per Capita Consumption	771	1,249	1,771	2,562	5,217	***2,314***
Share of National Consumption	9.6	13.3	17.0	21.6	38.5	***100.0***
Average Share of Food Consumption to Total Consumption	66.4	62.6	56.3	50.5	37.4	***54.6***
Average Household Size	7.90	6.64	6.01	5.29	4.73	***6.12***
Dependency Ratio	1.04	0.97	0.88	0.83	0.61	***0.87***

B. GINI INDEX

Consumption inequality can also be examined using graphical tools, such as the Lorenz curve, which maps the cumulative consumption share on the vertical axis against the distribution of the population on the horizontal axis. If each household had the same consumption, the resulting curve would be a 45-degree line known as the line of perfect equality. Figure 7 illustrates the Lorenz curve of total household consumption in Bhutan. The further away is the Lorenz curve from the line of perfect equality, the higher is the level of inequality. The Lorenz curve for urban areas is very similar to that of rural areas. In many cases, inequality in urban and rural areas is very pronounced. This may be the result of within country remittances, or households residing in "rural" areas that have some members who are earning in "urban" areas. In addition, it may suggest the need to examine the current definition of urban and rural areas.

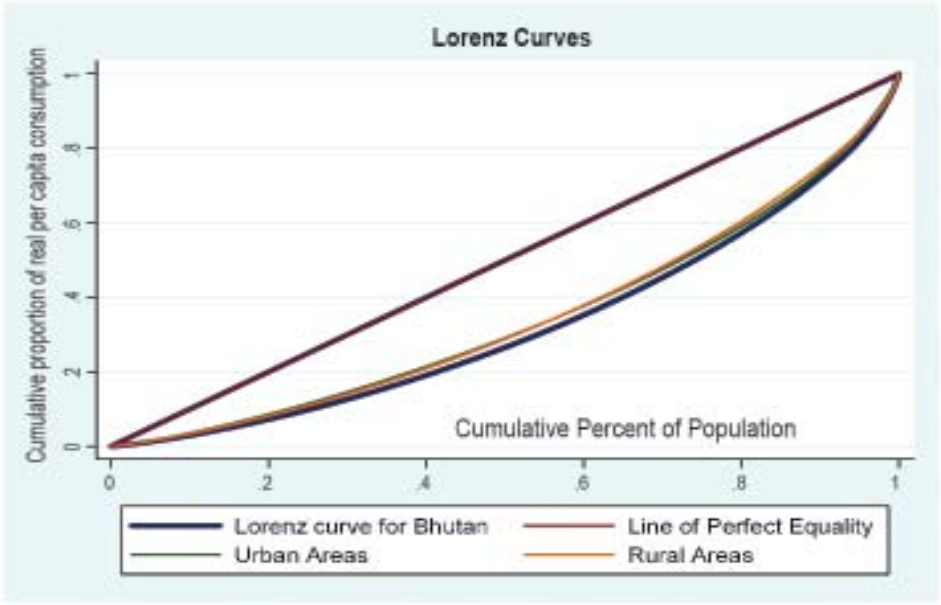


Figure 7. Lorenz Curve of Household Total Consumption, 2007

The Gini coefficient, representing the ratio of the area between the line of perfect equality to the Lorenz curve, to the area (of the triangle) under the line of perfect equality, is a commonly used measure of inequality. The Gini index could range from 0 to 1 (with zero meaning perfect equality and one meaning perfect inequality). The Gini typically ranges from 0.2 to 0.5. While comparisons with previous estimates and international comparisons may be done, such comparisons should be done with much caution. Comparisons are more meaningful across population groups within the country. Figure 8 provides the Gini index at the national level and within urban and rural areas. The Gini at the national level (0.35) is observed to be larger than those of urban (0.32) and rural areas (0.32) due to the inequality in consumptions between urban and rural areas.

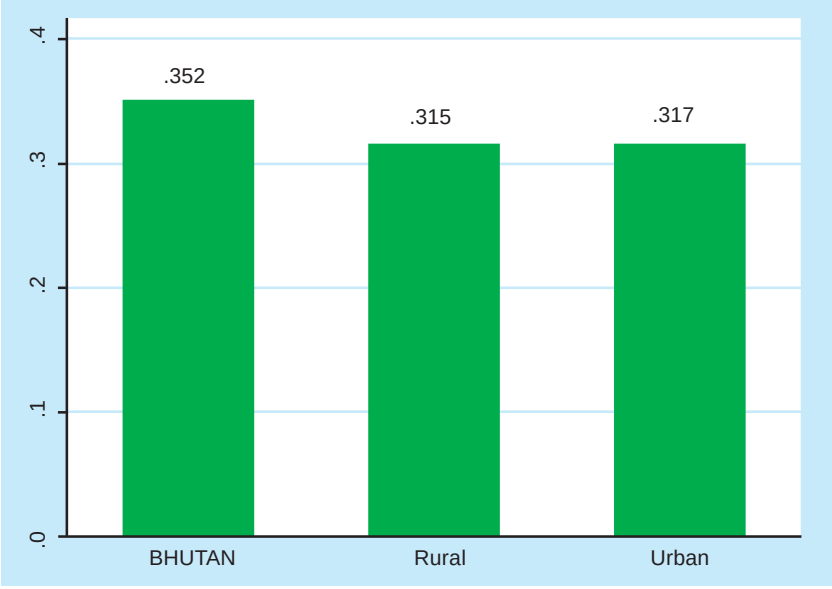


Figure 8. Gini Coefficient in Urban and Rural Areas, 2007

5. Basic Needs

Complementary to consumption poverty are other non-monetary dimensions of welfare, such as health and education that pertain to basic needs of households and the population. The health status of an individual undoubtedly determines her/his quality of life. Literacy and education are widely recognized to be important for increasing the living standards of the population. People with little or no education are likely to be unemployed, or if they do get employed, they often have low-paying labour-intensive occupations that are not economically productive. Such occupations often make them at risk of staying poor. More education provides individuals with the basic knowledge, skills and competence required for economic productivity, which, in turn, will provide her/him assets and other capabilities for further improving her/his living standards, and consequently some degree of social mobility.

According to Figure 9, poor persons have a much lower literacy rate than non-poor persons. Disparities persist in literacy between the urban and rural areas. Less than half of the poor in rural areas are literate, and slightly more than half of the non-poor are literate. In urban areas, literacy rate among the poor is around 32%, but three quarters of the non-poor are literate.

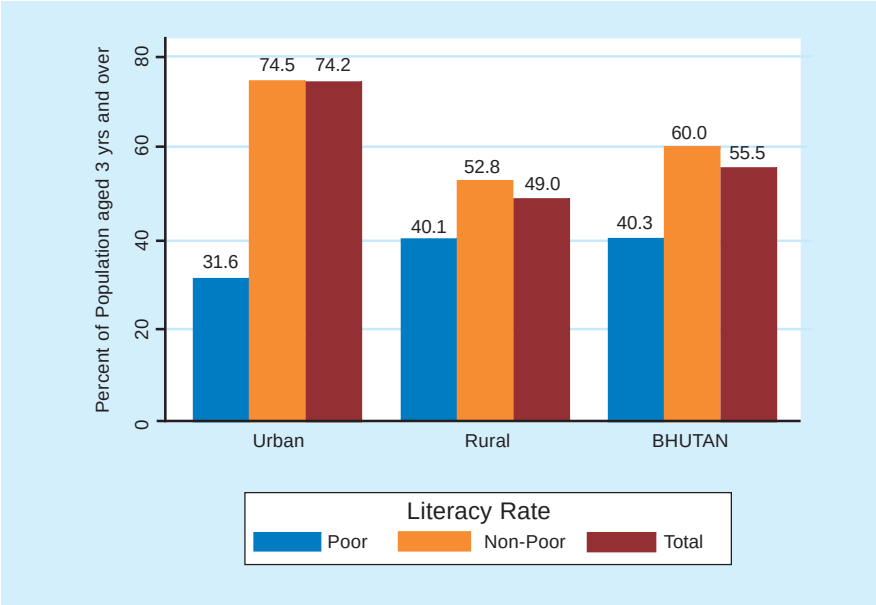


Figure 9. Literacy Rate in Urban and Rural Areas, 2007

Less than a third of the population three years and above are currently in school/institute with disparities between the rural (25%) and urban (34%) population. In both urban and rural areas, one in five poor persons three years and above is currently in school, with the corresponding rate among the non-poor population much higher. (Figure 10). Table 15 shows that the poor and non-poor give different major reasons why they are currently not in school/institute. The urban poor mention problems in the home or person not qualifying as the major reasons, and the rural poor mention money or age.

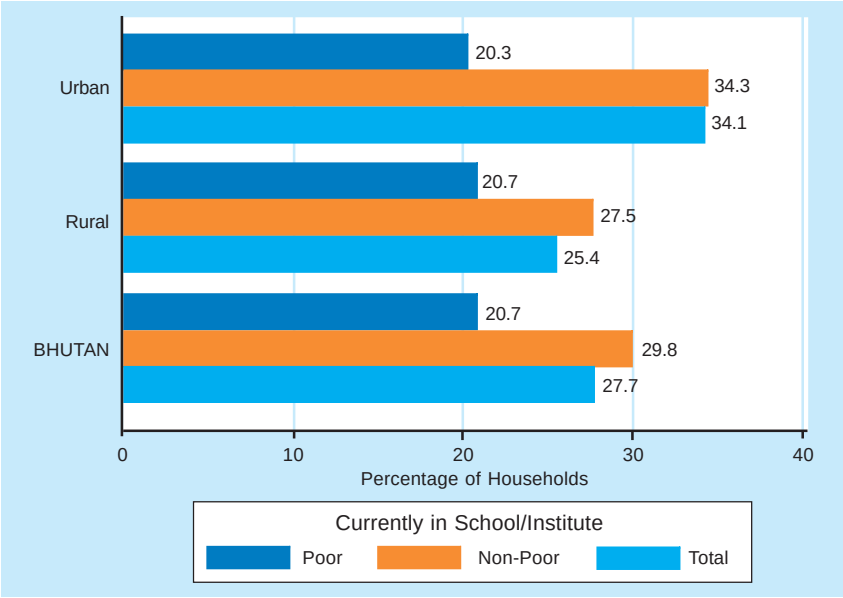


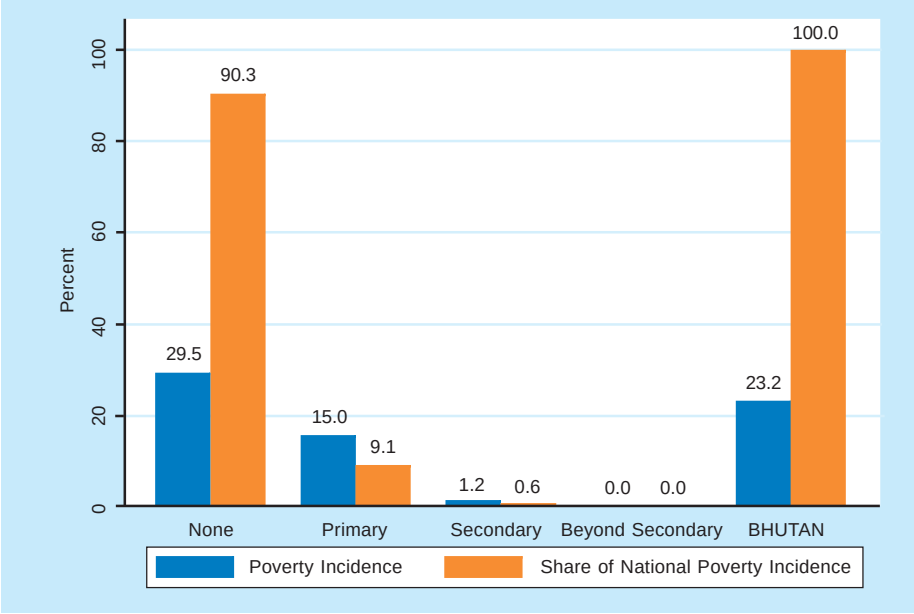
Figure 10. Proportion of Population Three Years and Older in Urban and Rural areas that are Currently In School/Institute, 2007

Table 15. Reasons for Not Attending School, by Poverty Status and Area (Percent), 2007

Reason for Not Attending School	Urban			Rural			Bhutan		
	Poor	Non-poor	Total	Poor	Non-poor	Total	Poor	Non-poor	Total
Not interested	-	4.7	4.5	9.2	9.8	9.5	9.1	8.7	8.9
Cannot afford	-	18.2	17.6	17.6	12.9	15.3	17.5	14.1	15.6
Needs to work	12.3	14.4	14.3	12.5	15.7	14.1	12.5	15.4	14.1
Did not qualify	36.9	10.1	11.0	6.4	9.7	8.0	6.7	9.8	8.4
School is too far	-	2.1	2.0	10.2	7.1	8.7	10.1	6.0	7.8
Illness	-	5.4	5.2	2.7	4.7	3.7	2.6	4.9	3.9
Poor teaching	-	-	-	0.1	0.1	0.1	0.1	0.1	0.1
Too young/old	13.4	11.5	11.5	19.4	18.5	19.0	19.4	17.0	18.0
Problems in home	37.4	16.2	16.9	9.2	7.2	8.2	9.5	9.2	9.3
Caring sick relative	-	0.4	0.4	0.4	1.1	0.7	0.4	0.9	0.7
Pregnancy	-	-	-	-	0.4	0.2	-	0.3	0.2
Other	-	17.1	16.5	12.4	12.8	12.6	12.3	13.8	13.1

Figure 11 displays information on poverty measures of the population by the highest level of educational attainment of the household head. Note that education levels in Bhutan are generally quite low, especially among household heads. As expected, the higher the level of learning completed by the household head,

the less the poverty experienced. The returns to education increase considerably if the individual has finished secondary levels. Data across urban and rural populations are provided in the Appendix.



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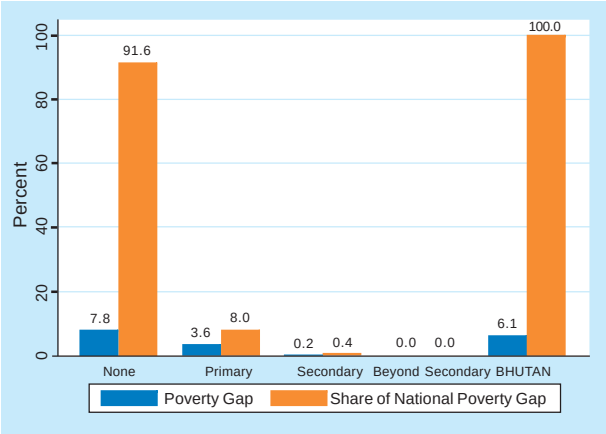

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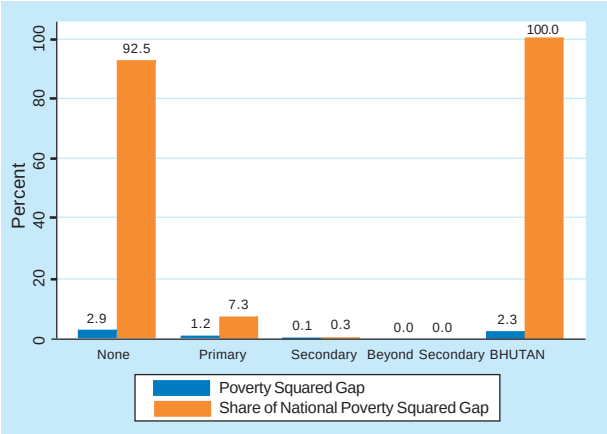


(iii)

Figure 11. Poverty Measures of the Population Three Yeas and Above by Educational Attainment of the Household Head: (i) Poverty Incidence (ii) Poverty Gap (iii) Poverty Squared Gap, 2007

Table 16 provides the distribution of the population by main income source of the household. In urban areas, the main source of income of the poor is wages and salaries (82%) while in the rural areas the major source of income is from own farm enterprises (64%). Among urban households, the proportion of the non-poor whose main source of income is from own business is about six times more than the poor. In the rural population, the percentage of the non-poor whose main source of income is from own business is about twice more than the poor.

Table 16. Distribution of Population by Poverty Status and Main Income Source of Household, 2007

Primary Source of Income of Household	Urban			Rural			Bhutan		
	Poor	Non-poor	Total	Poor	Non-poor	Total	Poor	Non-poor	Total
Wages (including religious fees)	2,300	107,100	109,400	25,100	77,700	102,800	27,400	184,800	212,200
Own business	100	34,900	35,000	8,400	30,700	39,100	8,500	65,600	74,100
Own farm enterprise	300	3,800	4,000	92,100	182,500	274,600	92,300	186,300	278,600
Remittances	-	900	900	2,800	5,000	7,800	2,800	5,900	8,700
Pensions	-	700	700	200	1,300	1,500	200	2,000	2,300
Rental/ Real estate	-	1,600	1,600	400	1,900	2,200	400	3,500	3,900
Inheritance	-	200	200	100	300	400	100	500	700
Charity	-	-	-	200	-	200	200	-	200
Scholarships	-	100	100	-	-	-	-	100	100
Selling of Assets	-	200	200	3,800	3,200	6,900	3,800	3,400	7,200
Others	100	13,900	13,900	10,200	17,500	27,800	10,300	31,400	41,700
Total	2,800	163,500	166,300	143,300	320,000	463,400	146,100	483,600	629,700

Note: Figures rounded off to nearest hundreds; totals may not add up due to rounding.

"-" indicates a sample estimate less than 100 persons.

The BLSS 2007 provides a number of information about the health conditions and access to health services of the surveyed population. Around fifteen percent of the surveyed population reported that they had suffered from sickness or an injury in the four weeks prior to the survey, with no significant difference between the poor and non-poor (Table 17). Access to health facilities is high across the country, but the time to reach such health facilities remains high in rural areas, especially for poor households.

Table 17: Selected Health Indicators by Area and Poverty Status, 2007

Indicator	Urban			Rural			Bhutan		
	Poor	Non-Poor	Total	Poor	Non-Poor	Total	Poor	Non-Poor	Total
Percentage of persons who were sick during the four weeks prior to the enumeration date	6.9	14.7	14.6	14.6	16.8	16.2	14.4	16.1	15.7
Proportion of Households with Access to Hospital or Basic Health Unit (BHU)	96.7	99.3	99.3	99.2	99.1	99.1	99.2	99.2	99.2
Average Time to reach BHU (Minutes)	21	19	19	111	76	84	109	56	65

Table 18 illustrates a disparity between the percentage of the poor (70%) and the non-poor (80%) who first consulted a health professional, dentist, hospital or Basic Health Units (BHU), when they suffered from sickness or injury four weeks before the interview.

Table 18: Distribution of Persons that Suffered from Sickness/Injury four weeks prior to the survey with Health Seeking Behaviour by Area and Poverty Status (Percent), 2007

Health Service Provider Consulted	Urban			Rural			Bhutan		
	Poor	Non-Poor	Total	Poor	Non-Poor	Total	Poor	Non-Poor	Total
Private doctor/nurse	-	1.9	1.9	0.5	1.1	0.9	0.5	1.3	1.2
Hospital or BHU	100.0	78.7	78.9	67.7	74.1	72.3	68.0	75.5	73.9
Pharmacist	-	5.1	5.1	0.6	1.7	1.4	0.6	2.8	2.3
Dentist	-	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3
Indigenous centres	-	0.8	0.8	0.4	0.5	0.4	0.4	0.6	0.5
Traditional practitioner	-	1.7	1.7	8.8	6.6	7.2	8.7	5.1	5.9
Others	-	0.8	0.8	3.7	1.8	2.3	3.7	1.5	1.9
None	-	10.7	10.6	18.0	14.0	15.1	17.8	13.0	14.0
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

Note: "-" indicates a sample estimate less than 100 persons.

When examining women who gave birth during the 12 months prior to the BLSS 2007 interview, we find no difference between poor and non-poor women (Table 19). However, in rural areas, a smaller proportion of poor women received pre-natal care than non-poor women. A considerable proportion of women received pre-natal care in urban areas, especially among the poor (Figure 12).

Table 19: Percentage Distribution of Women of Reproductive Age who gave Birth by Age Group, Area and Poverty Status, 2007

	Urban			Rural			Bhutan		
Age Group	Poor	Non-poor	Total	Poor	Non-poor	Total	Poor	Non-poor	Total
15-19	-	6.9	6.8	14.7	11.9	13.0	14.5	10.1	11.3
20-29	82.4	68.8	69.1	54.1	57.0	55.9	54.7	61.4	59.5
30-39	17.6	21.3	21.2	22.3	25.4	24.2	22.2	23.9	23.4
40-49	-	3.0	2.9	8.8	5.7	6.9	8.7	4.7	5.8
Total Number of Women	**3,900**	**100**	**4,000**	**6,700**	**4,100**	**10,900**	**10,600**	**4,200**	**14,800**

Note: Figures rounded off to nearest hundreds; totals may not add up due to rounding.

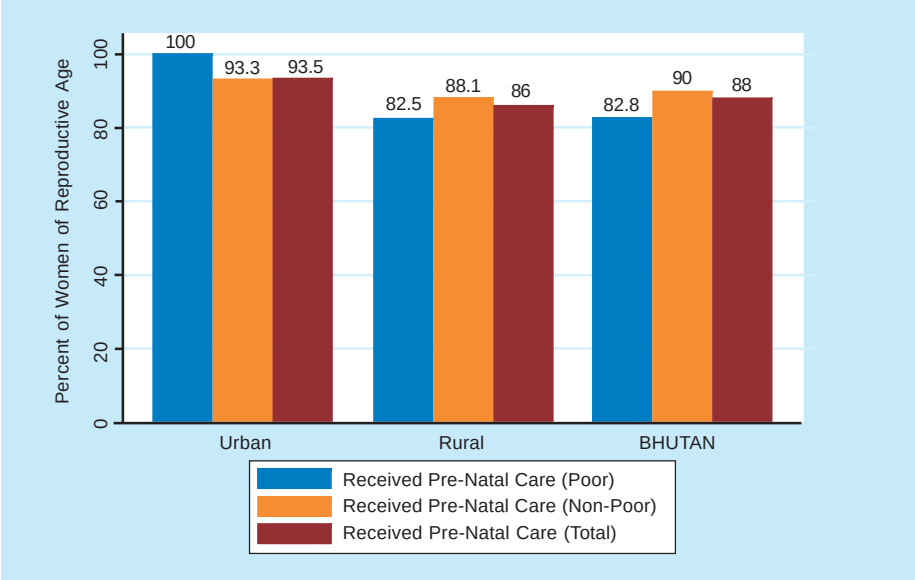
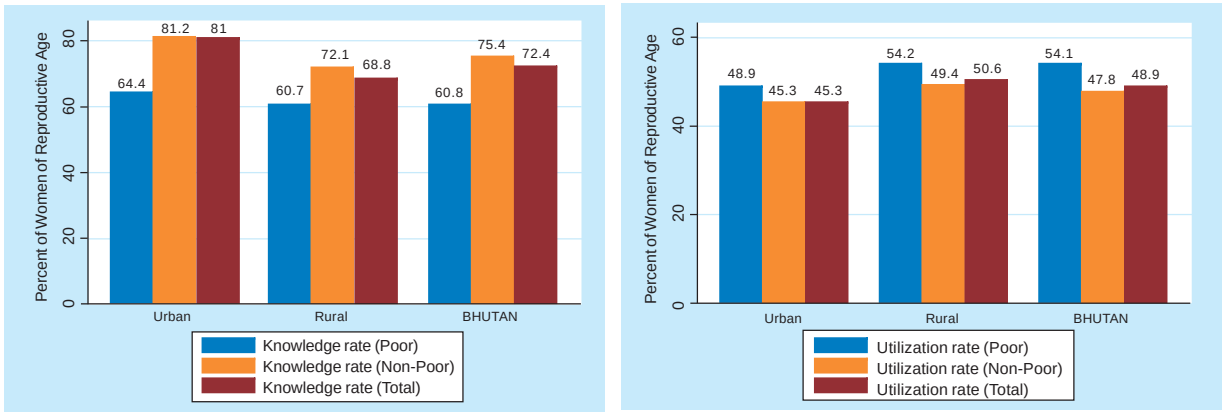


Figure 12. Women Who Received Pre-Natal Care in Urban and Rural Areas, 2007

Figure 13 shows that knowledge about contraceptives is much higher among the non-poor than among the poor. There is also a lower knowledge rate in rural areas than in urban areas. Use of contraceptives is roughly the same across the poor and the non-poor, with the poor slightly having more use than the non-poor.



(i) **(ii)**

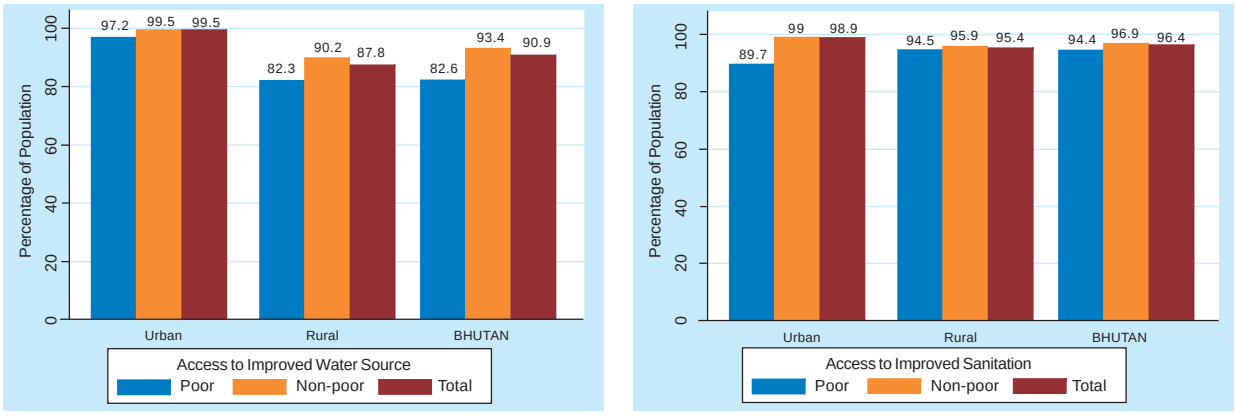
Figure 13. Rate of (i) Knowledge on and (ii) Utilization of Contraceptives in Urban and Rural Areas among Women of Reproductive Health, 2007

6. Household Amenities, Assets, and Access to Services

The living conditions of a household are often highly correlated with its amenities, assets and access to services. Household amenities, including suitable sanitation facilities, and access to safe water sources, are not only wealth indicators, but also improve the welfare conditions of the household. Lack of safe water or basic sanitation affects an individual's health by increasing her/his chances of contracting illnesses that are transmitted in unsanitary environments. Access to electricity and ownership of telephone facilities such as

landlines or mobiles have effects on education and investment prospects. Some assets may allow households to cope with the risks brought about by seasonal variations in incomes from farming, or other sources of vulnerability. If the head of the household suddenly gets unemployed, or dies, or if a natural disaster occurs, the household could use its assets to smooth their consumption. Consequently, it is important to look into the amenities and assets of a household as well as their access to basic social services to get a comprehensive portrait of their welfare conditions.

The BLSS 2007 shows that across the country, about nine in ten Bhutanese belong to households that have access to an improved water source, i.e., piped water, public tap, pump, protected wells, protected spring, with the proportions of access to improved water source higher in urban (99.5) than in rural (88%) areas. However, there is a disparity in access to improved water source between the poor and the non-poor, both in urban and rural areas. Regarding access to improved sanitation, almost all (96%) of the population belong to households that have sewers or septic tanks, flush-latrines, simple pits or ventilated improved pit latrines in their dwellings.



(i) (ii)

Figure 14. Percentage of Population in Urban and Rural Areas with Access to (i) Improved Water Source and (ii) Improved Sanitation, 2007

Table 20 shows the availability of basic utilities in Bhutan. The main source of lighting for households throughout the country is electricity (69%). Nearly all (97%) households in urban areas, even among the poor draw their lighting from electricity. In rural areas, however, only slightly more than half (56%) have electricity as their source of lighting, with the proportion much less among the poor (37%) than among the non-poor (62%). Three-fourths of households in Bhutan have used wood (41%) and electricity (34%) as their main sources for cooking; while about a fourth of households uses gas for cooking. In urban areas, electricity and gas are widely used for cooking among the non-poor (95%), but among the poor, about half use electricity and gas, while two fifth of the urban poor use wood. In rural areas, wood is predominantly used, especially by the poor (83%) and even by the non-poor (49%). About two fifths of households in the country do not have heating sources in their dwellings, with the proportion higher among the poor (54%) than among the non-poor (40%)

Table 20. Distribution of Households by Poverty Status, Area and Use of Fuel for Lighting, Cooking and Heating (Percent), 2007

Utilities	Urban			Rural			Bhutan		
	Poor	Non-poor	Total	Poor	Non-poor	Total	Poor	Non-poor	Total
Lighting									
Electricity	96.9	97.4	97.4	36.6	62.2	56.1	37.7	74.8	68.5
Kerosene or gas lamps	3.1	1.9	1.9	55.4	31.7	37.3	54.4	21.0	26.7
Candles	-	0.2	0.2	0.7	0.7	0.7	0.7	0.5	0.6
Others	-	0.5	0.5	7.3	5.4	5.8	7.2	3.6	4.2
Cooking									
Gas	22.4	45.0	44.8	2.1	16.4	13.0	2.5	26.7	22.6
Electricity	26.5	50.3	50.1	12.4	32.0	27.4	12.7	38.6	34.2
Wood	41.4	1.8	2.3	83.1	49.1	57.2	82.3	32.2	40.7
Coal	-	-	-	0.3	0.1	0.2	0.3	0.1	0.1
Kerosene	6.4	1.4	1.5	0.7	0.6	0.6	0.8	0.9	0.9
Dung cake	-	0.1	0.1	0.7	0.4	0.5	0.7	0.3	0.3
Others	3.4	1.2	1.3	0.8	1.4	1.3	0.8	1.4	1.3
Heating									
No heating	57.0	36.9	37.2	53.9	41.1	44.1	53.9	39.6	42.0
Electric heater	7.0	36.5	36.1	0.3	4.3	3.4	0.4	15.8	13.2
Kerosene heater	-	2.7	2.7	0.5	0.5	0.5	0.5	1.3	1.2
Straw/brush/manure stove	-	0.7	0.7	4.9	3.1	3.5	4.8	2.2	2.7
Bukhari (wood/coal stove)	29.5	21.2	21.3	16.9	33.9	29.8	17.1	29.3	27.3
Others	6.5	2.0	2.0	23.6	17.2	18.7	23.3	11.7	13.7

"-" indicates a sample estimate less than 100 households.

Figure 15 illustrates that access to electricity is substantially high in urban areas, but in rural areas, only three out of five persons belong to households with electricity, with the proportions much smaller among the poor (43%) than among the non-poor (67%). We also see that less than half of the poor have access to or own telephones (whether landlines or mobiles), but the corresponding proportions for the non-poor are much higher.

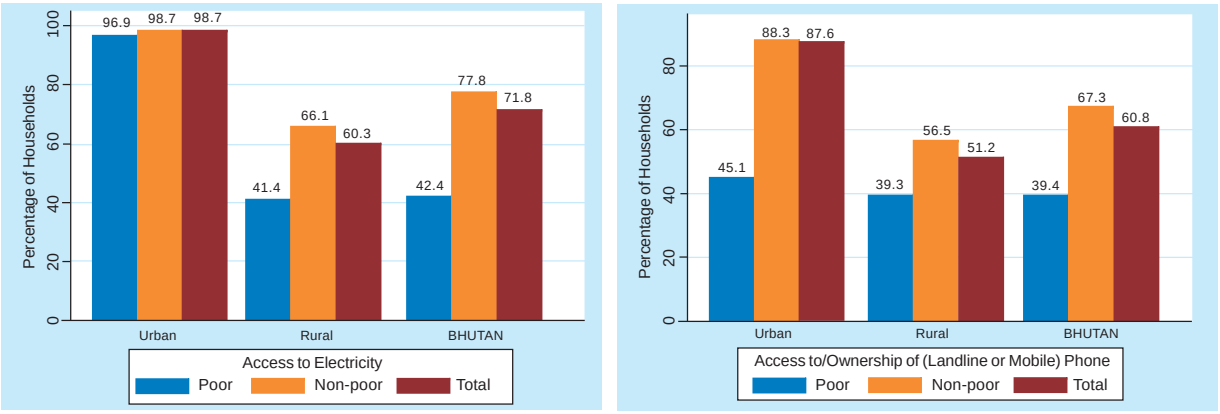


Figure 15. Percentage of Population in Urban and Rural Areas (i) with Access to Electricity and (ii) Access to or Ownership of Landlines/Mobiles, 2007

About three in five households own lands, with the proportion of land ownership in the household larger among rural households (82%) than urban households (18%). Within rural and urban areas, the proportion of poor who own lands is higher than the corresponding proportion among the non-poor. The disparity between the poor and the non-poor is also evident in ownership of livestock as is to be expected, given that most of the poor are dependent on agriculture for their incomes and consumptions (Figure 16).

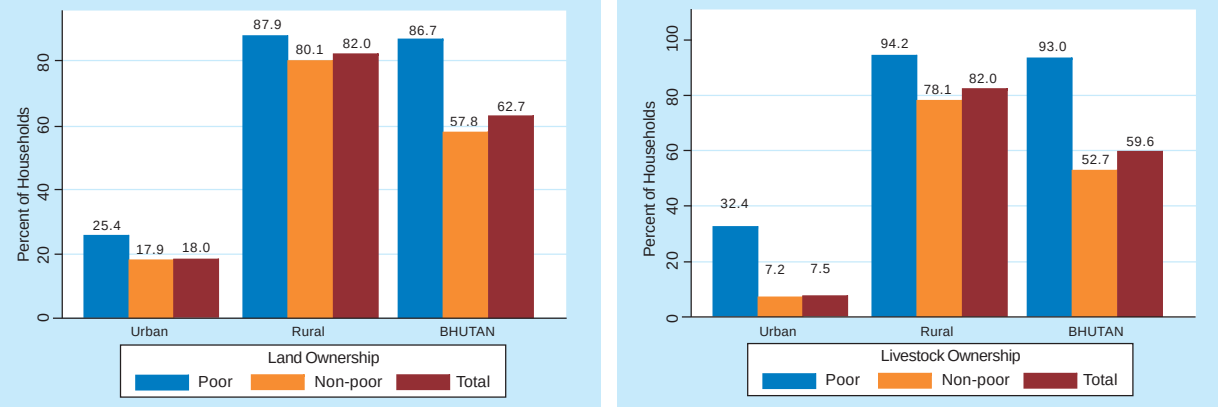


Figure 16. Percentage of Households in Urban and Rural Areas (i) that own lands and (ii) that own livestock, 2007

A fairly large proportion of the population belongs to households with access to credit (Figure 17). These sources of credit are, however, mostly from relatives or friends rather than formal institutions, such as banks.

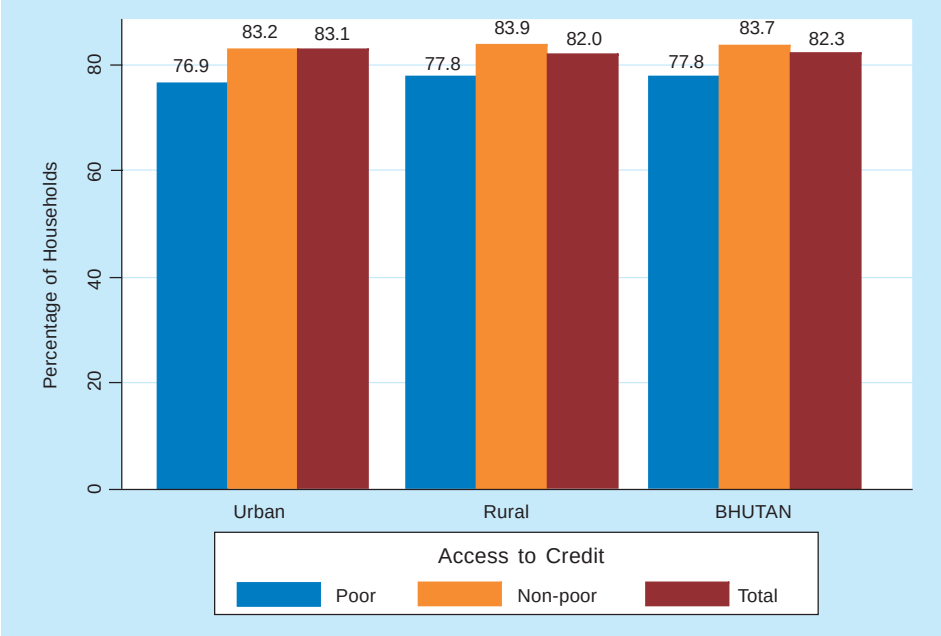


Figure 17. Percentage of Population in Households with Access to Credit in Urban and Rural Areas, 2007

BLSS 2007 respondents were asked to identify action agenda that government should consider for improving their welfare. Most of the poor, especially in the rural areas, suggest that road infrastructure and bridges, and electrification should be the priorities of government for improving their living conditions. In urban areas, households specify land and resettlement, labour and employment creation, and housing as priority concerns (see Table A-29a for details).

7. Concluding Remarks

The Kingdom of Bhutan has been fortunate to receive a lot of support from development partners, particularly in implementing its FYPs. Such support reflects the development community's respect for strong governance in the country. However, in every part of the world, including Bhutan, poverty exists. The Millennium Declaration, signed by the global community in 2000 at the United Nations, was a commitment to ensuring that poverty is reduced to half their levels (in 1990) by 2015.

The PAR 2004 was the first attempt to measure the poverty situation in Bhutan based on consumption data from the BLSS 2003. Although the BLSS 2003 is a rich source of information on living conditions of the population, the survey was, however, not specifically designed for measuring consumption poverty. The PAR 2004 highlighted the poverty conditions in the country and has unquestionably contributed to putting poverty on the development policy agenda, even though the FYPs have always had a pro-poor focus.

With the growing interest in poverty measurement and monitoring, the BLSS 2007 was designed to provide a portrait of the poverty conditions down to the *Dzongkhags*. This report examined the enriched set of information from the BLSS 2007, coming up with two poverty lines: a food poverty line of Nu. 688.96 per person per month for measuring subsistence (or extreme) poverty, and a total poverty line of Nu. 1,096.94 per person per month for measuring absolute poverty. Using these poverty lines, we find that there are about 146,100 poor persons (or 23.2 percent of the approximately 629,700 extrapolated population) who belong to households whose per capita real consumption is below the total poverty line. The rate of subsistence (or extreme) poverty is estimated at 5.9 percent. That is, about three in fifty Bhutanese belong to households that are considered extremely poor, in that their (per capita) consumption is not even able to meet their food needs. Unfortunately, these poverty figures can not be fully compared to the PAR 2004, owing to changes in the survey design, questionnaire and coverage of the BLSS 2007. In other words, poverty trends cannot be developed, despite the similarities in poverty estimation methodologies adopted for the PAR 2007 and the PAR 2004.

This report showed that poverty is very much a rural phenomenon in Bhutan, and that living standards vary considerably across the Dzongkhags. Efforts in rural and regional development will thus have to be continued, and even expanded and accelerated. Improving access to credit in rural areas, assisting farmers in bringing their produce to vegetable markets in the towns, training farmers in becoming entrepreneurs to transform their rural products should enable farmers to reap the fruits of their labour.

Estimated literacy rates and inequality measures in this report appear to be improvements from the PAR 2004 levels, giving a sense of the successes in the public investments in basic social services, especially in education programs in the rural areas. Such efforts must be continued and intensified, especially given the gender disparities in education.

Dependency ratios were found to be higher among the poor, suggesting that government may have to look deeper into the nexus between population and poverty, especially given the wide gap between knowledge and utilization of reproductive health tools.

A simulation on the time to exit poverty among the poor suggests that the poverty rates can be reduced by half their current levels within five years if consumptions were to constantly increase in real terms for each poor person by about 5.5 percent per year.

Improving the plight of the vulnerable in Bhutan entails partnerships by government with the private sector and the development community, but the roadmap will have to be based on poverty data. Development plans will have to take into consideration all the variations in living standards across the different sub groups of the Bhutanese population. There will be no single cure-all in the task of poverty alleviation. There will be a need to look into the successes and failures in poverty reduction in other countries, and customize plans for the country. It is hoped that this report will help poverty stakeholders to understand the living conditions of the poor, and to listen to their often unheard voices.

Annex I: Additional Statistical Tables

Table A-1. Poverty Incidence, Poverty Gap, Poverty Squared Gap, by *Dzongkhag* (Percent of Population), 2007

Dzongkhag	Poverty Incidence		Poverty Gap		Poverty Squared Gap		*Share of Population*
	Index	*Contribution to Total*	Index	*Contribution to Total*	Index	*Contribution to Total*	
Bumthang	10.9 (3.3)	*1.2*	1.9 (0.8)	*0.8*	0.5 (0.3)	*0.6*	*2.5*
Chhukha	20.3 (2.4)	*9.4*	4.9 (0.8)	*8.6*	1.7 (0.4)	*8.1*	*10.7*
Dagana	31.1 (4.9)	*4.0*	8.8 (2.0)	*4.4*	3.6 (1.0)	*4.8*	*3.0*
Gasa	4.1 (1.9)	*0.1*	0.7 (0.4)	*0.1*	0.2 (0.2)	*0.1*	*0.6*
Haa	13.2 (5.1)	*1.1*	3.5 (1.8)	*1.1*	1.6 (0.9)	*1.4*	*2.0*
Lhuntse	43.0 (5.2)	*4.6*	11.9 (2.1)	*4.9*	4.6 (1.0)	*5.1*	*2.5*
Monggar	44.4 (3.5)	*11.6*	11.8 (1.2)	*11.8*	4.1 (0.6)	*11.0*	*6.1*
Paro	3.9 (1.4)	*1.0*	0.7 (0.4)	*0.7*	0.2 (0.2)	*0.5*	*5.6*
Pemagatshel	26.2 (3.3)	*4.2*	5.8 (1.0)	*3.6*	1.8 (0.4)	*3.0*	*3.8*
Punakha	15.6 (2.9)	*2.7*	3.2 (0.8)	*2.1*	1.0 (0.3)	*1.8*	*4.0*
Samdrupjongkhar	38.0 (3.8)	*9.1*	11.0 (1.6)	*10.0*	4.6 (0.8)	*11.2*	*5.5*
Samtse	46.8 (3.0)	*17.8*	14.7 (1.3)	*21.4*	6.2 (0.7)	*24.2*	*8.9*
Sarpang	19.4 (3.4)	*5.3*	4.8 (1.0)	*5.0*	1.5 (0.3)	*4.3*	*6.4*
Thimphu	2.4 (0.8)	*1.4*	0.5 (0.2)	*1.0*	0.1 (0.0)	*0.7*	*13.8*
Trashigang	29.3 (2.8)	*9.6*	7.1 (0.9)	*8.9*	2.6 (0.4)	*8.8*	*7.6*
Trashiyangtse	14.3 (2.6)	*1.8*	2.2 (0.6)	*1.1*	0.5 (0.2)	*0.7*	*2.9*
Trongsa	22.2 (4.5)	*2.2*	6.2 (1.5)	*2.4*	2.3 (0.6)	*2.3*	*2.3*
Tsirang	13.9 (3.8)	*1.8*	2.8 (1.0)	*1.4*	0.9 (0.5)	*1.2*	*3.0*
Wangdue	15.8 (2.5)	*3.9*	3.0 (0.7)	*2.8*	0.9 (0.3)	*2.3*	*5.7*
Zhemgang	52.9 (5.7)	*7.1*	15.2 (2.0)	*7.8*	5.7 (0.9)	*7.9*	*3.1*
Bhutan	***23.2 (0.8)***	*100.0*	***6.1 (0.3)***	*100.0*	***2.3 (0.1)***	*100.0*	*100.0*

Figures in parentheses are the standard errors of the estimates.

Table A-2. Subsistence Poverty Incidence, Subsistence Poverty Gap, Subsistence Poverty Squared Gap, by *Dzongkhag* (Percent of Population), 2007

Dzongkhag	Poverty Incidence		Poverty Gap		Poverty Squared Gap		***Share of Population***
	Index	***Contribution to Total***	Index	***Contribution to Total***	Index	***Contribution to Total***	
Bumthang	0.9 (0.9)	*0.4*	0.1 (0.1)	*0.2*	0.0 (0.01)	*0.1*	*2.5*
Chhukha	4.5 (1.2)	*8.1*	0.8 (0.3)	*7.2*	0.2 (0.1)	*6.1*	*10.7*
Dagana	9.7 (2.9)	*4.9*	2.2 (0.7)	*5.8*	0.8 (0.3)	*6.7*	*3.0*
Gasa	1.0 (1.0)	*0.1*	0.1 (0.1)	*0.0*	0.0 (0.00)	*0.0*	*0.6*
Haa	5.1 (2.9)	*1.7*	1.3 (0.7)	*2.2*	0.4 (0.3)	*2.5*	*2.0*
Lhuntse	11.2 (3.2)	*4.7*	2.5 (0.8)	*5.4*	0.7 (0.3)	*5.0*	*2.5*
Monggar	10.2 (2.4)	*10.4*	1.5 (0.3)	*7.9*	0.3 (0.1)	*6.0*	*6.1*
Paro	0.6 (0.6)	*0.5*	0.1 (0.1)	*0.6*	0.0 (0.0)	*0.4*	*5.6*
Pemagatshel	4.5 (1.5)	*2.9*	0.7 (0.3)	*2.2*	0.1 (0.1)	*1.5*	*3.8*
Punakha	1.9 (1.1)	*1.3*	0.3 (0.2)	*1.2*	0.1 (0.1)	*0.9*	*4.0*
Samdrupjongkhar	12.2 (2.5)	*11.4*	2.9 (0.7)	*14.2*	1.1 (0.3)	*17.2*	*5.5*
Samtse	17.6 (2.3)	*26.3*	3.8 (0.6)	*29.9*	1.3 (0.3)	*32.5*	*8.9*
Sarpang	3.3 (1.1)	*3.6*	0.3 (0.1)	*1.9*	0.1 (0.0)	*1.3*	*6.4*
Thimphu	0.1 (0.1)	*0.2*	0.0 (0.0)	*0.0*	0.0 (0.0)	*0.0*	*13.8*
Trashigang	7.0 (1.3)	*8.9*	1.3 (0.3)	*8.8*	0.4 (0.1)	*8.7*	*7.6*
Trashiyangtse	0.5 (0.5)	*0.3*	0.0 (0.0)	*0.0*	0.0 (0.0)	*0.0*	*2.9*
Trongsa	4.8 (2.1)	*1.9*	1.1 (0.5)	*2.3*	0.3 (0.1)	*2.0*	*2.3*
Tsirang	2.5 (1.8)	*1.3*	0.4 (0.4)	*1.2*	0.1 (0.1)	*1.0*	*3.0*
Wangdue	1.9 (0.9)	*1.8*	0.3 (0.2)	*1.4*	0.1 (0.1)	*1.3*	*5.7*
Zhemgang	17.8 (3.3)	*9.4*	2.8 (0.7)	*7.6*	0.8 (0.2)	*6.9*	*3.1*
Bhutan	***5.9*** ***(0.4)***	*100.0*	***1.1*** ***(0.1)***	*100.0*	***0.34*** ***(0.04)***	*100.0*	*100.0*

Figures in parentheses are the standard errors of the estimates.

Table A-3. Poverty Incidence, Gap and Squared Gap (Percent of Population), 2007

Area	Poverty Incidence		Poverty Gap		Poverty Squared Gap		*Share of Population*
	Index	*Contribution to Total*	Index	*Contribution to Total*	Index	Contribution to Total	
Urban	1.7 (0.4)	*1.9*	0.4 (0.1)	*1.6*	0.1 (0.03)	*1.3*	*26.4*
Rural	30.9 (1.0)	*98.1*	8.1 (0.3)	*98.4*	3.0 (0.2)	*98.7*	*73.6*
Bhutan	***23.2 (0.8)***	***100.0***	***6.1 (0.3)***	***100.0***	***2.3 (0.1))***	***100.0***	***100.0***

Figures in parentheses are the standard errors of the estimates.

Table A-4. Subsistence Poverty Incidence, Gap and Squared Gap (Percent of Population), 2007

Area	Subsistence Poverty Incidence		Subsistence Poverty Gap		Subsistence Poverty Squared Gap		*Share of Population*
	Index	*Contribution to Total*	Index	*Contribution to Total*	Index	*Contribution to Total*	
Urban	0.2 (0.1)	*0.7*	0.02 (0.02)	*0.5*	0.01 (0.01)	*0.5*	*26.4*
Rural	8.0 (0.5)	*99.3*	1.5 (0.1)	*99.5*	0.5 (0.1)	*99.5*	*73.6*
Bhutan	***5.9 (0.4)***	***100.0***	***1.1 (0.1)***	***100.0***	***0.34 (0.04)***	***100.0***	***100.0***

Figures in parentheses are the standard errors of the estimates.

Table A-5. Magnitude of Poor and Subsistence Poor by Area, 2007

Area	Population				Households			
	Poor	*% of Total Poor*	Subsistence Poor	*% of Total Subsistence Poor*	Poor	*% of Total Poor*	Subsistence Poor	*% of Total Subsistence Poor*
Urban	2,800	*1.9*	300	*0.7*	400	*1.9*	-	*0.9*
Rural	143,300	*98.1*	37,100	*99.3*	20,900	*98.1*	4,700	*99.1*
Bhutan	***146,100***	***100.0***	***37,300***	***100.0***	***21,300***	***100.0***	***4,800***	***100.0***

Note: Figures rounded off to nearest hundreds; totals may not add up due to rounding.

"-" indicates a sample estimate less than 100 households.

Table A-6. Poverty Incidence, Poverty Gap and Poverty Squared Gap by Area and Sex of Household Heads (Percent of Household Heads), 2007

Area	*Sex of Head*	Poverty Incidence		Poverty Gap		Poverty Squared Gap		*Share of Household Heads*
		Index	*Contribution to Total*	Index	*Contribution to Total*	Index	*Contribution to Total*	
Urban	Male	1.1 (0.2)	*83.9*	0.2 (0.06)	*76.6*	0.1 (0.2)	*75.3*	*78.5*
	Female	0.8 (0.3)	*16.1*	0.2 (0.1)	*23.4*	0.1 (0.3)	*24.7*	*21.5*
	Both Sexes	**1.1 (0.2)**	***100.0***	**0.2 (0.1)**	***100.0***	**0.1 (0.02)**	***100.0***	**100.0**
Rural	Male	26.6 (1.0)	*73.0*	6.7 (0.3)	*74.5*	2.4 (0.1)	*75.4*	*65.4*
	Female	18.5 (1.0)	*27.0*	4.3 (0.3)	*25.5*	1.5 (0.1)	*24.6*	*34.6*
	Both Sexes	**23.8 (0.8)**	***100.0***	**5.9 (0.1)**	***100.0***	**2.1 (0.1)**	***100.0***	***100.0***
Bhutan	Male	17.9 (0.7)	*73.2*	4.5 (0.2)	*74.6*	1.6 (0.1)	*75.4*	*69.3*
	Female	14.8 (0.8)	*26.8*	3.5 (0.2)	*25.4*	1.2 (0.1)	*24.6*	*30.7*
	Both Sexes	**16.9 (0.6)**	***100.0***	**4.2 (0.2)**	***100.0***	**3.3 (0.1)**	***100.0***	***100.0***

Figures in parentheses are the standard errors of the estimates.

Table A-7. Poverty Incidence, Poverty Gap and Poverty Squared Gap by Area and Age of Household Heads (Percent of Household Heads), 2007

Area	*Age Group*	Poverty Incidence		Poverty Gap		Poverty Squared Gap		*Share of Household Heads*
		Index	*Contribution to Total*	Index	*Contribution to Total*	Index	*Contribution to Total*	
Urban	<25	1.2 (0.7)	*2.7*	0.2 (0.1)	*2.6*	0.04 (0.04)	*2.9*	*8.7*
	25-34	0.9 (0.3)	*13.8*	0.2 (0.1)	*13.9*	0.08 (0.04)	*14.3*	*37.4*
	35-44	0.8 (0.4)	*20.5*	0.1 (0.1)	*19.7*	0.03 (0.02)	*19.0*	*29.1*
	45-54	1.5 (0.6)	*24.6*	0.4 (0.2)	*24.3*	0.11 (0.05)	*23.7*	*16.4*
	55-64	0.5 (0.5)	*19.4*	0.1 (0.1)	*19.9*	0.03 (0.03)	*20.1*	*6.1*
	65 +	4.2 (2.3)	*19.0*	0.9 (0.5)	*19.5*	0.20 (0.12)	*20.0*	*2.4*
	All ages	**1.1 (0.2)**	***100.0***	**0.2 (0.1)**	***100.0***	**0.1 (0.02)**	***100.0***	**100.0**
Rural	<25	19.1 (3.0)	*2.5*	4.8 (1.0)	*2.6*	1.9 (0.5)	*2.9*	*3.2*
	25-34	20.2 (1.6)	*13.5*	5.0 (0.5)	*13.6*	1.9 (0.2)	*13.9*	*15.8*
	35-44	23.2 (1.3)	*20.5*	5.5 (0.4)	*19.7*	1.9 (0.2)	*19.1*	*21.0*
	45-54	23.5 (1.1)	*24.6*	5.7 (0.4)	*24.3*	2.0 (0.2)	*23.7*	*24.9*
	55-64	23.8 (1.3)	*19.7*	6.0 (0.4)	*20.2*	2.2 (0.2)	*20.3*	*19.7*
	65 +	29.6 (1.6)	*19.2*	7.5 (0.5)	*19.7*	2.8 (0.2)	*20.2*	*15.4*
	All ages	***23.8 (0.8)***	***100.0***	***5.9 (0.1)***	***100.0***	***2.1 (0.1)***	***100.0***	***100.0***
Bhutan	<25	9.4 (1.5)	*2.7*	2.3 (0.5)	*2.6*	0.9 (0.2)	*2.9*	*9.9*
	25-34	10.5 (0.9)	*13.8*	2.6 (0.3)	*13.9*	1.0 (0.1)	*14.3*	*26.3*
	35-44	14.8 (0.9)	*20.5*	3.5 (0.3)	*19.7*	1.2 (0.1)	*19.0*	*29.2*
	45-54	18.7 (0.9)	*24.6*	4.6 (0.3)	*24.3*	1.6 (0.1)	*23.7*	*20.5*
	55-64	21.1 (1.2)	*19.4*	5.3 (0.4)	*19.9*	1.9 (0.2)	*20.1*	*10.0*
	65 +	28.0 (1.5)	*19.0*	7.1 (0.5)	*19.5*	2.6 (0.2)	*20.0*	*4.1*
	All ages	**16.9 (0.6)**	***100.0***	***4.2 (0.2)***	***100.0***	***3.3 (0.1)***	***100.0***	***100.0***

Figures in parentheses are the standard errors of the estimates.

Table A-8. Literacy Rate of the Population Aged Six Years and Above, by Area, Poverty Status, and Sex (Percent), 2007

Area	Sex	Classification of Poor		Poor	Non-Poor	Total
		Subsistence Poor	Poor but Not Subsistence Poor			
Urban	Male	23.6	62.0	55.8	84.6	84.0
	Female	-	46.2	44.8	65.2	64.9
	Both Sexes	**21.1**	**55.5**	**51.6**	**74.5**	**74.2**
Rural	Male	43.5	52.2	50.0	63.4	59.3
	Female	25.3	32.3	30.6	42.8	39.2
	Both Sexes	**34.3**	**42.1**	**40.1**	**52.8**	**49.0**
Bhutan	Male	43.2	52.4	50.1	70.4	65.7
	Female	25.3	32.6	30.8	50.2	45.9
	Both Sexes	**34.2**	**42.4**	**40.3**	**60.0**	**55.5**

Table A-9. Literacy Rate of the Population Aged Six Years and Above, by *Dzongkhag* (Percent), 2007

Dzongkhag	Classification of Poor		Poor	Non-Poor	Total
	Subsistence Poor	Poor but Not Subsistence Poor			
Bumthang	72.7	52.2	54.1	64.3	63.2
Chukha	27.0	33.4	32.0	64.0	57.6
Dagana	41.7	49.2	47.0	56.3	53.6
Gasa	30.0	33.3	32.6	40.5	40.2
Haa	38.7	52.9	47.3	67.7	65.1
Lhuentse	40.9	48.4	46.5	53.1	50.4
Monggar	35.2	39.4	38.4	52.6	46.4
Paro	-	28.1	24.0	53.8	52.7
Pemagatshel	29.2	44.0	41.6	49.5	47.6
Punakha	24.1	46.9	44.3	54.4	52.9
Samdrupjongkhar	37.1	43.9	41.8	62.2	54.8
Samtse	29.2	41.0	36.7	60.5	49.6
Sarpang	44.3	49.1	48.3	62.2	59.5
Thimphu	20.0	44.6	43.7	72.7	72.0
Trashigang	39.6	40.0	39.9	50.1	47.3
Trashiyangtse	16.7	40.8	39.9	48.4	47.3
Trongsa	40.8	57.9	54.6	65.3	63.0
Tsirang	36.4	37.2	37.0	56.6	54.0
Wangdue	37.0	36.1	36.2	53.9	51.3
Zhemgang	35.4	48.1	43.8	59.1	51.2
Bhutan	**34.2**	**42.4**	**40.3**	**60.0**	**55.5**

"-" indicates a sample estimate less than 100 persons.

Table A-10. Educational Status of Persons 3 years & older, by Poverty Status, Sex and Area (Percent), 2007

Area	Educational Status	Poor			Non-Poor			Total		
		Male	Female	Both Sexes	Male	Female	Both Sexes	Male	Female	Both Sexes
Urban	Now	16.5	26.7	20.3	34.8	34.0	34.3	34.4	33.9	34.1
	Past	32.3	18.7	27.2	41.7	27.1	34.2	41.5	27.0	34.1
	Never	51.3	54.7	52.6	23.6	39.0	31.5	24.2	39.2	31.9
Rural	Now	22.1	19.3	20.7	28.9	26.2	27.5	26.8	24.1	25.4
	Past	14.3	5.8	10.0	21.0	11.5	16.1	18.9	9.8	14.2
	Never	63.6	74.9	69.3	50.1	62.3	56.4	54.3	66.1	60.3
Bhutan	Now	22.0	19.4	20.7	30.9	28.8	29.8	28.8	26.7	27.7
	Past	14.7	6.0	10.3	27.9	16.7	22.1	24.8	14.3	19.4
	Never	63.3	74.6	69.0	41.3	54.6	48.1	46.4	59.1	52.9

Table A-11. Net Enrolment Rates by Area and Education level, Poverty Status, and Sex (Percent), 2007

Area	Sex	Classification of Poor		Poor	Non-Poor	Total
		Subsistence Poor	Poor but Not Subsistence Poor			
Urban	**Male**	**100.0**	**87.6**	**89.0**	**92.4**	**92.4**
	Primary School	-	-	-	43.6	43.6
	Lower Secondary School	-	33.1	33.1	37.6	37.6
	Middle Secondary School	-	-	-	30.0	29.6
	Higher Secondary School	100.0	42.3	44.5	62.2	62.0
	Female	**100.0**	**75.7**	**77.6**	**89.7**	**89.6**
	Primary School	-	-	-	45.6	45.1
	Lower Secondary School	-	27.4	27.4	38.9	38.7
	Middle Secondary School	-	0.0	-	23.2	23.0
	Higher Secondary School	100.0	82.4	84.2	91.1	91.0
	Total	**100.0**	**82.4**	**84.2**	**91.1**	**91.0**
	Primary School	-	0.0	0.0	44.7	44.4
	Lower Secondary School	-	29.1	29.1	38.4	38.2
	Middle Secondary School	-	-	-	25.9	25.6
	Higher Secondary School	100.0	68.0	70.8	68.7	68.7
Rural	**Male**	**35.7**	**43.6**	**41.6**	**50.5**	**47.7**
	Primary School	59.0	74.6	70.6	84.5	79.7
	Lower Secondary School	1.9	4.8	4.2	21.3	15.9
	Middle Secondary School	-	4.7	3.6	15.5	12.2
	Higher Secondary School	-	-	-	7.0	5.1
	Female	**30.1**	**42.9**	**39.7**	**49.2**	**46.2**
	Primary School	51.6	72.7	67.4	84.0	78.2
	Lower Secondary School	-	4.7	3.6	19.5	15.1
	Middle Secondary School	-	3.3	2.4	16.3	12.3
	Higher Secondary School	-	1.0	0.8	6.3	4.7
	Total	**32.9**	**43.2**	**40.7**	**49.8**	**46.9**
	Primary School	55.3	73.6	68.9	84.3	79.0
	Lower Secondary School	0.9	4.7	3.9	20.3	15.5
	Middle Secondary School	-	4.0	3.0	15.9	12.2
	Higher Secondary School	-	0.6	0.4	6.7	4.9
Bhutan	**Male**	**36.0**	**44.0**	**42.0**	**56.3**	**52.9**
	Primary School	59.3	74.9	70.9	87.2	83.0
	Lower Secondary School	1.9	4.8	4.2	28.3	22.5
	Middle Secondary School	-	5.1	4.0	21.9	18.0
	Higher Secondary School	-	-	-	13.5	10.7
	Female	**30.2**	**42.9**	**39.8**	**53.8**	**50.6**

	Primary School	51.8	72.7	67.5	86.0	81.2
	Lower Secondary School	-	4.6	3.5	28.4	23.4
	Middle Secondary School	-	4.2	3.1	24.5	20.0
	Higher Secondary School	-	1.0	0.8	12.7	10.3
	Total	**33.1**	**43.4**	**40.9**	**55.0**	**51.7**
	Primary School	55.6	73.8	69.2	86.6	82.1
	Lower Secondary School	0.9	4.7	3.9	28.3	23.0
	Middle Secondary School	-	4.6	3.5	23.3	19.1
	Higher Secondary School	-	0.6	0.4	13.1	10.5

"-" indicates a sample estimate less than 100 persons.

Table A-12. Gross Enrolment Rates by Area and Education level, Poverty Status, and Sex (Percent), 2007

Area	Sex	Classification of Poor		Poor	Non-Poor	Total
		Subsistence Poor	Poor but Not Subsistence Poor			
Urban	**Male**	**100.0**	**82.1**	**83.6**	**105.3**	**105.0**
	Primary School	100.0	87.6	89.0	117.3	116.7
	Lower Secondary School	-	-	-	98.1	98.8
	Middle Secondary School	-	66.8	66.8	91.6	91.3
	Higher Secondary School	-	-	-	77.4	76.4
	Female	**100.0**	**69.8**	**71.0**	**93.2**	**92.9**
	Primary School	100.0	117.4	116.0	110.9	111.0
	Lower Secondary School	-	53.6	53.6	96.7	96.2
	Middle Secondary School	-	27.4	27.4	82.8	81.7
	Higher Secondary School	-	-	-	50.1	49.7
	Total	**100.0**	**75.4**	**76.9**	**98.7**	**98.5**
	Primary School	100.0	100.4	100.4	114.0	113.8
	Lower Secondary School	-	105.8	105.8	97.3	97.4
	Middle Secondary School	-	38.8	38.8	86.4	85.6
	Higher Secondary School	-	-	-	60.8	60.1
Rural	**Male**	**49.8**	**68.6**	**63.9**	**85.2**	**78.5**
	Primary School	76.2	107.3	99.2	115.3	109.9
	Lower Secondary School	22.0	26.2	25.4	70.2	56.2
	Middle Secondary School	7.3	20.8	17.7	60.3	48.3
	Higher Secondary School	1.7	3.9	3.3	28.9	22.1
	Female	**44.6**	**60.9**	**56.9**	**82.0**	**74.0**
	Primary School	71.0	94.2	88.4	115.0	105.7
	Lower Secondary School	16.7	31.8	28.2	74.1	61.6
	Middle Secondary School	6.1	14.5	12.3	52.4	40.9
	Higher Secondary School	-	2.7	2.1	17.1	12.7
	Total	**47.2**	**64.7**	**60.4**	**83.6**	**76.3**
	Primary School	73.6	100.7	93.8	115.2	107.8
	Lower Secondary School	19.2	28.7	26.7	72.2	58.9
	Middle Secondary School	6.6	17.7	15.0	56.3	44.6
	Higher Secondary School	0.9	3.2	2.6	23.0	17.3

Bhutan	**Male**	**50.0**	**68.8**	**64.2**	**91.7**	**85.1**
	Primary School	76.4	106.9	99.1	116.0	111.7
	Lower Secondary School	22.0	27.2	26.2	79.0	66.3
	Middle Secondary School	7.3	21.5	18.3	69.3	58.1
	Higher Secondary School	1.7	3.8	3.2	42.7	34.5
	Female	**44.7**	**61.1**	**57.1**	**86.0**	**79.2**
	Primary School	71.1	94.6	88.7	113.6	107.1
	Lower Secondary School	16.7	32.3	28.6	81.8	71.2
	Middle Secondary School	6.1	14.9	12.7	63.5	52.9
	Higher Secondary School	-	2.6	2.0	29.6	24.0
	Total	**47.3**	**64.9**	**60.6**	**88.7**	**82.1**
	Primary School	73.7	100.7	93.9	114.8	109.4
	Lower Secondary School	19.2	29.5	27.3	80.5	68.8
	Middle Secondary School	6.6	18.2	15.4	66.2	55.4
	Higher Secondary School	0.9	3.2	2.6	35.6	28.8

"-" indicates a sample estimate less than 100 persons.

Table A-13. Net Enrolment Rates in at the Primary Level by *Dzongkhag* (Percent), 2007

Dzongkhag	**Classification of Poor**		**Poor**	**Non-Poor**	**Total**
	Subsistence Poor	**Poor but Not Subsistence Poor**			
Bumthang	33.3	78.7	70.7	91.6	89.9
Chukha	34.2	67.7	61.3	89.8	83.0
Dagana	60.0	72.5	69.3	83.7	79.6
Gasa	50.0	16.7	25.0	65.4	63.7
Haa	38.5	65.2	55.6	92.2	86.4
Lhuentse	70.4	85.2	81.7	86.5	84.2
Monggar	52.5	77.3	71.4	89.9	80.8
Paro	0.0	61.9	54.2	88.4	86.5
Pemagatshel	61.1	91.2	85.7	91.6	89.8
Punakha	50.0	70.4	67.7	80.8	78.4
Samdrupjongkhar	66.2	76.9	73.3	87.5	81.0
Samtse	33.0	68.1	55.5	84.7	71.7
Sarpang	50.0	63.3	60.9	84.5	79.1
Thimphu	-	70.4	70.4	88.1	87.8
Trashigang	62.7	77.6	73.9	86.7	82.6
Trashiyangtse	100.0	85.9	87.1	88.8	88.5
Trongsa	90.0	82.4	84.1	89.1	88.1
Tsirang	50.0	40.8	43.3	71.6	66.6
Wangdue	54.5	49.3	50.0	78.4	72.9
Zhemgang	88.0	90.6	89.6	93.8	91.5
Bhutan	**55.6**	**73.8**	**69.2**	**86.6**	**82.1**

"-" indicates a sample estimate less than 100 persons.

Table A-14. Net Enrolment Rates at the Secondary Level by *Dzongkhag* (Percent), 2007

Dzongkhag	Classification of Poor		Poor	Non-Poor	Total
	Subsistence Poor	Poor but Not Subsistence Poor			
Bumthang	-	-	-	24.6	22.7
Chukha	-	-	-	22.4	18.5
Dagana	-	-	-	6.9	4.4
Gasa	-	-	-	8.8	8.5
Haa	-	-	-	29.4	26.0
Lhuentse	-	-	-	12.4	7.3
Monggar	-	3.8	2.9	16.8	10.7
Paro	-	12.5	10.0	21.9	21.6
Pemagatshel	-	9.6	8.1	16.3	14.4
Punakha	-	2.9	2.5	23.5	20.2
Samdrupjongkhar	-	5.0	3.6	20.9	15.2
Samtse	-	5.4	3.4	17.0	11.2
Sarpang	-	2.2	2.0	14.8	12.2
Thimphu	-	23.3	23.3	37.4	37.2
Trashigang	-	2.9	2.3	21.0	16.3
Trashiyangtse	-	10.0	10.0	17.7	16.6
Trongsa	-	2.9	2.4	17.9	14.2
Tsirang	-	-	-	10.8	9.3
Wangdue	-	-	-	13.2	11.7
Zhemgang	4.2	1.2	1.9	23.9	13.0
Bhutan	**0.3**	**3.4**	**2.7**	**21.8**	**17.7**

"-" indicates a sample estimate less than 100 persons.

Table A-15. Gross Enrolment Rates at the Primary Level by *Dzongkhag* (Percent), 2007

Dzongkhag	Classification of Poor		Poor	Non-Poor	Total
	Subsistence Poor	Poor but Not Subsistence Poor			
Bumthang	66.7	100.0	94.1	122.7	120.4
Chukha	44.7	90.6	81.9	120.0	111.0
Dagana	110.0	105.2	106.4	115.6	112.9
Gasa	50.0	50.0	50.0	89.5	87.8
Haa	38.5	78.3	63.9	110.9	103.5
Lhuentse	100.0	105.7	104.4	115.1	109.8
Monggar	68.9	103.1	94.9	113.5	104.4
Paro	-	76.2	66.7	114.4	111.7
Pemagatshel	83.3	110.0	105.1	117.2	113.4
Punakha	62.5	88.9	85.5	97.9	95.6
Samdrupjongkhar	82.4	102.0	95.5	120.1	108.8
Samtse	50.0	103.0	84.1	123.2	105.7
Sarpang	61.1	98.6	91.9	116.3	110.7

Thimphu	-	82.1	82.1	111.3	110.8
Trashigang	86.3	101.3	97.6	114.8	109.4
Trashiyangtse	100.0	117.1	115.7	122.2	121.2
Trongsa	100.0	111.8	109.1	110.9	110.5
Tsirang	60.0	63.0	62.2	125.0	114.1
Wangdue	63.6	71.6	70.5	106.6	99.7
Zhemgang	108.0	137.6	126.7	113.3	120.6
Bhutan	**73.7**	**100.7**	**93.9**	**114.8**	**109.4**

"-" indicates a sample estimate less than 100 persons.

Table A-16. Gross Enrolment Rates at the Secondary Level by *Dzongkhag* (Percent), 2007

Dzongkhag	**Classification of Poor**		**Poor**	**Non-Poor**	**Total**
	Subsistence Poor	**Poor but Not Subsistence Poor**			
Bumthang	-	40.1	35.4	64.8	62.6
Chukha	4.5	7.6	7.1	64.2	54.2
Dagana	8.3	7.5	7.8	19.3	15.2
Gasa	-	-	-	37.3	36.0
Haa	-	20.0	13.6	71.2	64.6
Lhuentse	23.8	17.5	19.2	58.4	42.4
Monggar	7.0	15.3	13.2	51.0	34.4
Paro	-	25.0	20.0	72.6	71.2
Pemagatshel	-	30.8	25.8	60.8	52.7
Punakha	-	17.6	15.0	60.8	53.7
Samdrupjongkhar	10.5	31.7	25.9	68.8	54.7
Samtse	7.5	13.8	11.6	50.4	33.7
Sarpang	-	11.9	10.7	56.0	46.7
Thimphu	-	46.6	46.6	78.9	78.4
Trashigang	3.2	18.6	15.0	55.7	45.5
Trashiyangtse	0.0	16.6	16.6	58.5	52.6
Trongsa	14.3	14.7	14.6	59.4	48.8
Tsirang	-	3.8	2.9	42.9	37.4
Wangdue	50.0	15.9	18.7	46.1	43.1
Zhemgang	20.8	26.8	25.5	70.6	48.4
Bhutan	**8.8**	**17.9**	**15.7**	**61.3**	**51.6**

"-" indicates a sample estimate less than 100 persons.

Table A-17. School Participation Rates, by Area, Poverty Status, and Age Groups (Percent), 2007

Area	Age group	Classification of Poor		Poor	Non-Poor	Total
		Subsistence Poor	Poor but Not Subsistence Poor			
Urban	Ages 6-12	100.0	82.4	84.2	94.4	94.2
	Ages 12-18	-	65.6	65.6	80.6	80.5
	Total	**100.0**	**75.4**	**76.9**	**87.9**	**87.7**
Rural	Ages 6-12	55.3	73.8	69.0	85.1	79.6
	Ages 12-18	31.0	47.1	43.3	67.3	60.4
	Total	**45.4**	**62.2**	**58.1**	**76.3**	**70.5**
Bhutan	Ages 6-12	55.6	73.9	69.3	88.4	83.4
	Ages 12-18	31.0	47.4	43.6	71.7	65.7
	Total	**45.6**	**62.5**	**58.3**	**80.2**	**75.1**

"-" indicates a sample estimate less than 100 persons.

Table A-18. School Participation Rates, by Sex and Age groups, Poverty Status (Percent), 2007

Sex	Age group	Classification of Poor		Poor	Non-Poor	Total
		Subsistence Poor	Poor but Not Subsistence Poor			
Male	Ages 6-12	59.3	74.9	70.9	88.7	84.1
	Ages 13-14	50.0	72.9	68.5	84.0	80.3
	Ages 15-16	29.2	52.7	47.5	76.5	70.1
	Ages 17-18	14.6	29.0	24.9	61.0	53.5
	Total	**47.9**	**66.0**	**61.6**	**81.9**	**77.0**
Female	Ages 6-12	51.8	73.0	67.7	88.0	82.7
	Ages 13-14	50.4	57.1	55.5	80.6	75.6
	Ages 15-16	36.2	43.1	41.3	74.5	67.6
	Ages 17-18	5.4	20.6	17.2	52.7	45.4
	Total	**43.3**	**58.9**	**55.1**	**78.7**	**73.2**
Both Sexes	Ages 6-12	55.6	73.9	69.3	88.4	83.4
	Ages 13-14	50.2	65.7	62.4	82.2	77.9
	Ages 15-16	33.0	47.9	44.3	75.4	68.8
	Ages 17-18	10.2	24.4	20.8	56.5	49.2
	Total	**45.6**	**62.5**	**58.3**	**80.2**	**75.1**

Table A-19. School Participation Rates at Primary Level by *Dzongkhag* (Percent), 2007

Dzongkhag	Classification of Poor		Poor	Non-Poor	Total
	Subsistence Poor	Poor but Not Subsistence Poor			
Bumthang	33.3	78.7	70.7	92.1	90.3
Chukha	34.2	67.7	61.3	91.7	84.5
Dagana	60.0	72.5	69.3	84.9	80.4
Gasa	50.0	16.7	25.0	65.4	63.7
Haa	38.5	65.2	55.6	94.0	87.9
Lhuentse	70.4	85.2	81.7	86.5	84.2
Monggar	52.5	77.3	71.4	91.0	81.4
Paro	-	61.9	54.2	91.2	89.1

Pemagatshel	61.1	91.2	85.7	92.5	90.4
Punakha	50.0	70.4	67.7	82.5	79.8
Samdrupjongkhar	66.2	76.9	73.3	89.0	81.8
Samtse	33.0	68.1	55.5	85.8	72.3
Sarpang	50.0	64.5	61.9	85.1	79.8
Thimphu	-	70.4	70.4	91.9	91.6
Trashigang	62.7	77.6	73.9	87.5	83.2
Trashiyangtse	100.0	85.9	87.1	89.3	89.0
Trongsa	90.0	85.3	86.4	89.1	88.6
Tsirang	50.0	40.8	43.3	73.3	68.0
Wangdue	54.5	49.3	50.0	80.1	74.3
Zhemgang	88.0	90.6	89.6	93.8	91.5
Bhutan	**55.6**	**73.9**	**69.3**	**88.4**	**83.4**

"-" indicates a sample estimate less than 100 persons.

Table A-20. Proportion of Population with Access to Improved Water Source by Area, Poverty Status, and Sex (Percent), 2007

Area	Sex	Classification of Poor		Poor	Non-Poor	Total
		Subsistence Poor	Poor but Not Subsistence Poor			
Urban	Male	100.0 (0.0)	97.3 (1.6)	97.7 (1.4)	99.6 (0.1)	99.6 (0.6)
	Female	100.0 (0.0)	96.3 (2.2)	96.4 (2.2)	99.5 (0.1)	99.4 (1.1)
	Both Sexes	**100.0 (0.0)**	**96.9 (1.9)**	**97.2 (1.7)**	**99.5 (0.1)**	**99.5 (0.5)**
Rural	Male	78.4 (2.3)	83.8 (1.2)	82.3 (1.2)	90.0 (0.6)	87.6 (1.1)
	Female	77.9 (2.5)	83.8 (1.2)	82.3 (1.3)	90.5 (0.6)	87.9(1.0)
	Both Sexes	**78.1 (2.3)**	**83.8 (1.2)**	**82.3 (1.2)**	**90.2 (0.6)**	**87.8 (0.9)**
Bhutan	Male	78.7 (2.3)	84.1(1.2)	82.7 (1.2)	93. 3(0.4)	90.8 (0.7)
	Female	77.9 (2.5)	84.0 (1.2)	82.5 (1.2)	93.5 (0.4)	91.0 (0.7)
	Both Sexes	**78.3 (2.3)**	**84.1 (1.2)**	**82.6 (1.2)**	**93.4 (0.4)**	**90.9 (0.7)**

Figures in parentheses are the standard errors of the estimates.

Table A-21. Proportion of Population with Access to Improved Sanitation by Area, Poverty Status, and Sex (Percent), 2007

Area	Sex	Classification of Poor		Poor	Non-Poor	Total
		Subsistence Poor	Poor but Not Subsistence Poor			
Urban	Male	53.9 (14.7)	88.9 (5.8)	83.8 (5.6)	99.1 (0.1)	98.8 (0.2)
	Female	100.0 (0.0)	98.8 (0.8)	98.9 (0.7)	98.9 (0.1)	98.9 (0.2)
	Both Sexes	**58.5 (14.9)**	**93.1 (3.6)**	**89.7 (3.7)**	**99.0 (0.1)**	**98.9 (0.1)**
Rural	Male	93.9 (1.0)	94.4 (0.7)	94.3 (0.6)	95.9 (0.3)	95.4 (0.4)
	Female	93.3 (1.1)	95.3 (0.6)	94.8 (0.5)	95.8 (0.3)	95.5 (0.5)
	Both Sexes	**93.6 (1.0)**	**94.9 (0.6)**	**94.5 (0.5)**	**95.9 (0.3)**	**95.4 (0.3)**
Bhutan	Male	93.3 (1.0)	94.3 (0.7)	94.0 (0.6)	97.0 (0.2)	96.3 (0.2)
	Female	93.3 (1.1)	95.4 (0.6)	94.8 (0.5)	96.9 (0.2)	96.4 (0.2)
	Both Sexes	**93.3 (1.0)**	**94.8 (0.6)**	**94.4 (0.5)**	**96.9 (0.2)**	**96.4 (0.2)**

Table A-22. Proportion of Population using Solid Fuels by Area, Poverty Status, and Sex (Percent), 2007.

Area	Sex	Classification of Poor		Poor	Non-Poor	Total
		Subsistence Poor	Poor but Not Subsistence Poor			
Urban	Male	46.1 (14.7)	71.3 (5.3)	67.7 (4.7)	26.9 (0.9)	27.7 (0.9)
	Female	0.0 (0.0)	67.1 (6.1)	65.4 (5.7)	28.2 (0.9)	28.6 (0.1)
	Both Sexes	**41.5 (14.9)**	**69.5 (5.3)**	**66.8 (4.7)**	**27.5 (0.9)**	**28. 2 (0.9)**
Rural	Male	93.8 (1.2)	87.9 (1.0)	89.5 (0.9)	75.6 (1.2)	80.0 (1.2)
	Female	94.0 (1.2)	87.2 (1.1)	88.9 (0.9)	75.4 (1.2)	79.5 (1.1)
	Both Sexes	**93.9 (1.2)**	**87.6 (1.0)**	**89.2 (0.9)**	**75.5 (1.2)**	**79.7 (1.0)**
Bhutan	Male	93.1 (1.3)	87.5 (1.0)	89.0 (0.9)	59.1 (0.8)	66.2 (0.8)
	Female	93.9 (1.2)	86.8 (1.1)	88.6 (0.9)	59.4 (0.8)	66.1 (0.8)
	Both Sexes	**93.5 (1.2)**	**87.1 (1.0)**	**88.8 (0.9)**	**59.3 (0.8)**	**66.1 (0.8)**

Figures in parentheses are the standard errors of the estimates.

Table A-23. Proportion of Population with Access to Improved Water Source by *Dzongkhag* (Percent), 2007

Dzongkhag	Classification of Poor		Poor	Non-Poor	Total
	Subsistence Poor	Poor but Not Subsistence Poor			
Bumthang	100.0	100.0	100.0	99.0	99.1
Chukha	76.5	71.4	72.5	92.1	88.1
Dagana	83.5	74.5	77.3	83.4	81.5
Gasa	100.0	0.0	24.0	58.6	57.1
Haa	75.6	86.4	82.2	93.4	91.9
Lhuentse	91.0	92.2	91.9	97.0	94.8
Monggar	70.8	82.9	80.1	93.5	87.5
Paro	50.0	71.6	68.5	92.5	91.6
Pemagatshel	66.3	74.8	73.3	89.2	85.0
Punakha	81.1	98.6	96.5	97.7	97.5
Samdrupjongkhar	79.6	96.8	91.3	97.2	95.0
Samtse	69.0	77.1	74.1	86.1	80.5
Sarpang	100.0	79.2	82.8	91.6	89.9
Thimphu	100.0	80.5	81.1	98.0	97.6
Trashigang	89.5	87.0	87.6	93.0	91.4
Trashiyangtse	100.0	98.0	98.1	98.0	98.0
Trongsa	100.0	92.5	94.1	94.2	94.2
Tsirang	68.4	96.5	91.4	94.9	94.4
Wangdue	68.6	91.9	89.2	91.8	91.4
Zhemgang	86.7	87.9	87.5	90.4	88.8
Bhutan	**78.3**	**84.1**	**82.6**	**93.4**	**90.9**

Table A-24. Proportion of Population with Access to Improved Sanitation by *Dzongkhag* (Percent), 2007

Dzongkhag	Classification of Poor		Poor	Non-Poor	Total
	Subsistence Poor	Poor but Not Subsistence Poor			
Bumthang	100.0	100.0	100.0	99.3	99.4
Chukha	95.5	96.9	96.6	94.5	94.9
Dagana	100.0	100.0	100.0	95.0	96.5
Gasa	100.0	100.0	100.0	99.8	99.8
Haa	73.2	81.6	78.3	95.9	93.5
Lhuentse	99.3	94.9	96.0	96.5	96.3
Monggar	94.4	95.8	95.5	98.8	97.3
Paro	100.0	86.3	88.3	96.8	96.5
Pemagatshel	100.0	98.3	98.6	96.1	96.8
Punakha	81.1	97.8	95.8	95.2	95.3
Samdrupjongkhar	96.3	95.7	95.9	97.8	97.1
Samtse	86.8	87.0	86.9	94.6	91.0
Sarpang	90.4	96.1	95.1	98.2	97.6
Thimphu	100.0	100.0	100.0	97.7	97.7
Trashigang	98.1	97.9	98.0	97.5	97.6
Trashiyangtse	100.0	95.6	95.7	98.5	98.1
Trongsa	88.9	89.8	89.6	97.7	95.9
Tsirang	100.0	86.0	88.5	96.6	95.5
Wangdue	100.0	100.0	100.0	99.5	99.6
Zhemgang	96.1	95.0	95.4	92.9	94.2
Bhutan	**93.3**	**94.8**	**94.4**	**96.9**	**96.4**

"-" indicates a sample estimate less than 100 persons.

Table A-25. Proportion of Population Using Solid Fuels by *Dzongkhag* (Percent), 2007

Dzongkhag	Classification of Poor		Poor	Non-Poor	Total
	Subsistence Poor	Poor but Not Subsistence Poor			
Bumthang	100.0	100.0	100.0	97.8	98.0
Chukha	100.0	95.5	96.5	46.9	57.0
Dagana	87.6	88.5	88.2	79.8	82.4
Gasa	100.0	100.0	100.0	86.4	87.0
Haa	100.0	94.2	96.4	96.5	96.5
Lhuentse	78.5	77.5	77.7	65.5	70.8
Monggar	92.4	89.8	90.4	67.7	77.7
Paro	100.0	100.0	100.0	89.6	90.0
Pemagatshel	79.5	85.5	84.5	65.6	70.5
Punakha	81.1	65.8	67.6	44.3	47.9
Samdrupjongkhar	96.3	84.2	88.1	42.0	59.5
Samtse	98.1	93.7	95.4	57.0	74.9
Sarpang	100.0	91.1	92.6	39.6	49.9

Thimphu	-	77.6	75.2	38.2	39.1
Trashigang	91.4	72.8	77.2	63.9	67.8
Trashiyangtse	-	90.6	87.3	78.0	79.3
Trongsa	88.9	100.0	97.6	85.4	88.1
Tsirang	100.0	100.0	100.0	83.7	86.0
Wangdue	82.4	67.5	69.2	55.1	57.3
Zhemgang	93.4	94.8	94.3	74.1	84.8
Bhutan	**93.5**	**87.1**	**88.8**	**59.3**	**66.1**

"-" indicates a sample estimate less than 100 persons.

Table A-26. Selected Health Indicators by Dzongkhag (Percent), 2007

Dzongkhag	**Proportion of Households with Access to Hospital or Basic Health Unit (BHU)**			**Average Time (Minutes) to Reach Hospital / Basic Health Unit**		
	Poor	**Non-Poor**	**All**	**Poor**	**Non-Poor**	**All**
Bumthang	93.8	96.4	96.2	98	54	57
Chhukha	99.3	99.6	99.5	122	48	58
Dagana	98.3	99.5	99.3	103	76	82
Gasa	100.0	99.1	99.1	77	90	89
Haa	96.1	99.1	98.8	191	34	50
Lhuntse	100.0	97.7	98.4	103	81	88
Monggar	100.0	99.7	99.8	100	70	80
Paro	100.0	98.5	98.5	129	49	51
Pemagatshel	100.0	99.4	99.5	137	110	115
Punakha	100.0	98.8	98.9	78	46	49
Samdrupjongkhar	100.0	99.2	99.4	144	76	98
Samtse	98.7	99.6	99.3	108	63	79
Sarpang	98.5	99.8	99.7	91	44	50
Thimphu	90.6	99.6	99.5	56	26	26
Trashigang	100.0	99.7	99.7	98	63	70
Trashiyangtse	96.3	98.9	98.6	77	59	61
Trongsa	100.0	97.6	97.9	98	62	67
Tsirang	100.0	99.6	99.7	76	54	57
Wangdue	95.7	97.9	97.7	144	94	98
Zhemgang	100.0	98.6	99.2	90	55	70
Bhutan	**99.2**	**99.2**	**99.2**	**109**	**56**	**65**

Table A-27. Proportion of Households with Access to Nearest Health Service by Poverty Status and Area (Percent), 2007

Mode of service to Hospital/ BHU	**Urban**			**Rural**			**Bhutan**		
	Poor	**Non-poor**	**Total**	**Poor**	**Non-poor**	**Total**	**Poor**	**Non-poor**	**Total**
Foot	60.9	45.6	45.7	29.4	18.9	21.4	30.0	28.5	28.7
Bicycle	-	0.3	0.3	0.1	0.2	0.2	0.1	0.2	0.2
Motorcycle	-	2.1	2.0	-	0.2	0.2	-	0.9	0.7
Bus	6.3	2.5	2.6	2.9	4.8	4.3	3.0	4.0	3.8
Car	3.3	22.4	22.2	0.6	6.7	5.2	0.6	12.3	10.3
foot+vehicle	3.2	7.6	7.6	24.1	24.8	24.6	23.7	18.6	19.5
other	-	5.5	5.5	0.5	2.1	1.7	0.5	3.3	2.8

"-" indicates a sample estimate less than 100 persons.

Table A-28. Sources of credit available for the households, Poverty Status, by Sex and Area (Percent), 2007

Area	Sex	Classification of Poor		Poor	Non-Poor	Total
		Subsistence Poor	Poor but Not Subsistence Poor			
Urban	Bank	33.4	25.0	25.8	53.1	52.8
	BDFC/RICD	33.4	18.7	20.2	36.2	36.0
	Relatives/friends	33.4	82.2	77.3	60.6	60.7
	Other	-	33.0	29.7	28.1	28.2
	No access	-	7.6	6.8	9.4	9.4
	Don't know	100.0	32.9	39.6	12.4	12.7
Rural	Bank	16.8	21.9	20.7	27.3	25.8
	BDFC/RICD	17.1	28.6	26.0	42.3	38.4
	Relatives/friends	80.3	78.2	78.7	66.2	69.2
	Other	35.3	31.0	32.0	20.7	23.3
	No access	22.2	18.5	19.3	13.7	15.0
	Don't know	22.3	16.6	17.9	11.9	13.3
Bhutan	Bank	16.9	22.0	20.8	36.6	33.9
	BDFC/RICD	17.2	28.4	25.9	40.1	37.7
	Relatives/friends	79.9	78.3	78.6	64.2	66.6
	Other	35.0	31.0	31.9	23.3	24.8
	No access	22.0	18.2	19.1	12.2	13.3
	Don't know	22.9	16.9	18.3	12.0	13.1

Table A-29a. Distribution of Households by Welfare Priorities and Poverty Status, Urban Areas (Percent), 2007

Welfare priorities	Classification of Poor		Poor	Non-Poor	Total
	Subsistence Poor	Poor but Not Subsistence Poor			
Electrification	-	11.1	10.0	3.6	3.7
Agriculture & extension facilities	-	3.6	3.3	2.6	2.6
Road infrastructure & bridges	-	3.5	3.1	5.2	5.1
Housing	-	31.3	28.2	22.2	22.3
Water supply	34.9	14.4	16.5	15.3	15.3
Credit & loan issues	-	21.7	19.5	19.0	19.0
Schooling facilities	-	14.7	13.2	9.5	9.5
Vocational & NFE training facilities	-	7.3	6.5	2.4	2.4
Health facilities & family planning	-	15.2	13.7	7.6	7.7
Waste Management	-	10.8	9.7	12.5	12.5
Labour & employment creation	33.4	35.5	35.3	25.3	25.4
Land & resettlement	33.4	17.7	19.2	28.8	28.7
Food assistance	33.4	10.5	12.8	3.2	3.3
Commerce, transport and communication	-	14.4	12.9	8.0	8.0
Other Public facilities	-	-	-	2.4	2.3
Others	-	7.0	6.3	9.3	9.2
No need	31.8	3.8	6.6	7.1	7.1

"-" indicates a sample estimate less than 100 persons.

Table A-29b. Distribution of Households by Welfare Priorities and Poverty Status, Rural Areas (Percent), 2007

Welfare priorities	Classification of Poor		Poor	Non-Poor	Total
	Subsistence Poor	Poor but Not Subsistence Poor			
Electrification	59.4	45.8	48.9	30.8	35.1
Agriculture & extension facilities	18.4	22.3	21.4	25.2	24.3
Road infrastructure & bridges	55.3	53.0	53.5	41.5	44.3
Housing	9.4	7.7	8.1	10.0	9.6
Water supply	27.9	26.8	27.1	26.4	26.6
Credit & loan issues	11.9	15.9	15.0	16.0	15.8
Schooling facilities	25.6	23.6	24.0	19.1	20.3
Vocational & NFE training facilities	3.1	1.1	1.6	1.5	1.5
Health facilities & family planning	10.6	12.2	11.8	10.8	11.1
Waste Management	0.6	1.1	1.0	3.0	2.5
Labour & employment creation	3.3	2.9	3.0	6.6	5.8
Land & resettlement	12.7	13.3	13.2	14.4	14.1
Food assistance	12.3	9.4	10.1	6.5	7.4
Commerce, transport and communication	8.9	9.3	9.2	10.7	10.3
Other Public facilities	-	0.9	0.7	1.0	0.9
Others	7.7	8.7	8.4	9.9	9.6
No need	0.2	0.8	0.7	1.3	1.2

"-" indicates a sample estimate less than 100 persons.

Table A-29c. Distribution of Households by Welfare Priorities and Poverty Status, Bhutan (Percent), 2007

Welfare priorities	Classification of Poor		Poor	Non-Poor	Total
	Subsistence Poor	Poor but Not Subsistence Poor			
Electrification	58.9	45.0	48.1	21.1	25.7
Agriculture & extension facilities	18.3	21.9	21.1	17.1	17.8
Road infrastructure & bridges	54.8	51.9	52.5	28.5	32.5
Housing	9.3	8.2	8.4	14.4	13.4
Water supply	28.0	26.6	26.9	22.4	23.2
Credit & loan issues	11.8	16.0	15.1	17.1	16.8
Schooling facilities	25.3	23.4	23.8	15.6	17.0
Vocational & NFE training facilities	3.0	1.3	1.7	1.8	1.8
Health facilities & family planning	10.5	12.3	11.9	9.7	10.1
Waste Management	0.6	1.4	1.2	6.4	5.5
Labour & employment creation	3.6	3.6	3.6	13.3	11.7
Land & resettlement	12.9	13.4	13.3	19.5	18.5
Food assistance	12.5	9.4	10.1	5.3	6.2
Commerce, transport and communication	8.8	9.4	9.3	9.7	9.6
Other Public facilities	-	0.9	0.7	1.5	1.4
Others	7.6	8.6	8.4	10.5	10.1
No need	0.5	0.9	0.8	3.4	3.0

Annex II: Technical Notes

Technical Note 1 (Measuring Aggregate Consumption)

Aggregations of consumption and expenditure data were made following the recommendations by A. Deaton and S. Zaidi (2002). Most of the information below is quoted from their paper.

a) Income versus consumption

In most industrialized countries living standards and poverty are assessed with reference to income, not consumption. The empirical literature on the relationship between income and consumption has established, for both rich and poor countries, that consumption is smoother and less-variable than income. Observing consumption over a relatively short period, even a week or two, will tell us a great deal more about annual—or even longer period—living standards than will a similar observation on income. Although consumption has seasonal components they are of smaller amplitude than seasonal fluctuations in income in agricultural societies.

There are several other reasons why it is more practical to gather consumption than income data. Where self-employment, including small business and agriculture, is common, it is notoriously difficult to gather accurate income data, or indeed to separate business transactions from consumption transactions.

b) Food consumption

Households consume food obtained from a variety of different sources, and so in computing a measure of total food consumption to include as part of the aggregate welfare measure, it is important to include food consumed by the household from all possible sources. In particular, this measure should include not just (i) food purchased in the market place, including meals purchased away from home for consumption at or away from home, but also (ii) food that is home-produced, (iii) food items received as gifts or remittances from other households, as well as (iv) food received from employers as payment in-kind for services rendered.

The BLSS 2007 food consumption module questionnaire contains separate sets of questions on (a) purchased and (b) non-purchased food items. The BLSS food purchases module contains questions on purchases of a fairly comprehensive list of food items (a) during a relatively short reference period, i.e. the last seven days, the last 30 days, and the last 12 months in which such purchases were made. Data are collected on the total amount spent on purchasing each food item, and also on the quantities purchased, during the specified recall period.

Calculating the food purchases sub-aggregate involved converting all reported expenditures on food items to a uniform reference period—one month—and then aggregating these expenditures across all food items purchased by the household.

The “last 30 days” data measure over the “last 7 days” or the “last 12 months” since the “last 30 days” has the advantage of being closer to the concept that we want—usual consumption — over what actually happened in the last 7 days, which could have been unusual for any number of reasons—and reduces problems with seasonality, but suffers from measurement error if respondents find it difficult to calculate a reasonable answer. The last “12 months” may be too long a recall period to reveal accurate data. Thus, we prefer the “last 30 days” data. If there are no available “30 days” data, we use the “last 7 days” data and rescale the results. If there are no available “30 days” nor “last 7 days,” we use the “last 12 months” data and rescale the results.

The BLSS 2007 questionnaire also asked explicitly about the total value of meals taken outside the home by all household members; this amount was also included in the food consumption aggregate part as purchased consumption, part as "received" consumption.

The questionnaire contains a separate set of questions on consumption of home-produced food items. Data were collected on both the value and quantity of consumption of each home-produced food item. The home-production food sub-aggregate can thus be calculated by adding the reported value of consumption of each of the home-produced food items in a manner analogous to that followed in the case of food purchases.

Consumption of food derived from payment in-kind, as well as in the form of gifts, remittances, etc., was added to the overall food aggregate.

All quantities were reported in standard units. Analysis was performed on the quantities and unit prices to treat missing data and identify inconsistent data. Cases were noted where a household had declared consuming a non-zero quantity of a particular item, or households reported consumption values, but no corresponding information on quantities. Others had inconsistent data on quantities, or values (yielding outliers of unit prices). In such instances, median regional unit prices were used to make imputations. Median prices were preferred to mean prices, as they are less sensitive to outliers. When median price was not available at the lowest geographic level, we used prices reported by other households in the same *Dzongkhag*, depending on whichever is the next higher level of aggregation for which price information is available. Median of unit prices per item were computed and used separately for purchased and produced items.

c) Non-food consumption

Unlike many homogeneous food items, most non-food goods are too heterogeneous to permit the collection of information on quantities consumed, so that BLSS 2007 collected data only on the value of non-foods purchased over the reference period. Data on purchases of non food items were collected for different two recall periods, i.e. over the 12 months, or the last 1 month, depending on how frequently the items concerned are typically purchased. Constructing the non-food aggregate thus entails converting all these reported amounts to a uniform reference period—one year, and then aggregating across the various items.

Not all non-food expenditures were included in the consumption aggregates. Also, some "expenditures" required imputations.

1) Housing

What is required is a measure in monetary terms of the flow of services that the household receives from occupying its dwelling. Because house purchase is such a large and relatively rare expenditure, under no circumstances should expenditures for purchase be included in the consumption aggregate.

Expenditure on house repairs and improvements were also excluded from the consumption aggregates.

In the hypothetical case where rental markets function perfectly and all households rent their dwellings, the rent paid is the obvious choice to include in the consumption aggregate. Whenever such rental data are available, they were used for constructing the housing sub-aggregate and the consumption total.

In most cases, however, households own the dwelling in which they reside and do not pay rent as such. Others are provided with housing free of charge (or at subsidized rates) by their employer, a friend, a relative, government, or other such entities. Non-renter households were asked how much it would cost them if they had to rent the dwelling in which they reside, and this "implicit rental value" was used in place of actual rent.

2) Taxes

Expenditures on taxes and levies are not part of consumption, and were not included in the consumption total.

3) Repayment of debt and interest payments

All purchases of financial assets, as well as repayments of debt, and interest payments were excluded from the consumption aggregate.

4) Education

Education expenditure paid by the households was included in the households' consumption.

5) Health

Expenditure on health is to a large extent a lumpy expenditure. One argument for exclusion is that such expenditure reflects a regrettable necessity that does nothing to increase welfare. By including health expenditures for someone who has fallen sick, we register an increase in welfare when, in fact, the opposite has occurred. The fundamental problem here is our inability to measure the loss of welfare associated with being sick, and which is (presumably) ameliorated to some extent by health expenditures.

Including the latter without allowing for the former is clearly incorrect, though excluding health expenditures altogether means that we miss the difference between two people, both of whom are sick, but only one of which pays for treatment. It is also true that some health expenditures—for example cosmetic expenditures—are discretionary and welfare enhancing, and that it is difficult to separate "necessary" from "unnecessary" expenditures, even if we could agree on which is which. It is also difficult without special health questionnaires to get at the whole picture of health financing. Some people have insurance, so that expenditures are only "out of pocket" expenditures which may be only a small fraction of the total, while others have none, and may bear the whole cost. Simply adding up expenditures will not give the right answer.

Expenditure on hospitalizations, consultations, and analyses were excluded from the household consumption. Purchase of medicine was however included.

6) Remittances

Another group of expenditures are charitable contributions, and remittances to other households. Their inclusion in the consumption aggregate would involve double-counting if, as one would expect, the transfers show up in the consumption of other households. We therefore excluded them from household consumption.

7) Other lumpy expenditures

While almost all households incur relatively large expenditures on relatively infrequent expenditures such as marriages and dowries, births, and funerals at some stage, only a relatively small proportion of households are likely to make such expenditures during the reference period typically covered by the survey. Ideally, we would want to "smooth" these lumpy expenditures, spreading them over several years, but lacking the information to do so—which might come, for example, by incorporating multi-year reference periods for such items—we left them out of the consumption aggregate.

8) Durable Goods

Another important group of items to consider are items such as consumer durables whose useful life typically spans a time-period greater than the interval for which the consumption aggregate is being constructed. From the point of view of household welfare, rather than using expenditure on purchase of durable

goods during the recall period, the appropriate measure of consumption of durable goods is the *value of services* that the household receives from all the durable goods in its possession over the relevant time period.

To assess the value of services, one would need data on the cost of purchase and year of purchase. Such information is not available in BLSS 2007. Consumption of durable goods was thus not included in the overall consumption aggregate.

d) Computing regional price deflators

Before our measure of consumption could be used to compare standards of living of individuals residing in different parts of the country, it is necessary to take into account differences in cost of living. To convert total expenditure into money metric utility, the price index must be tailored to the household's own demand pattern, a demand pattern that varies with the household's income, demographic composition, location, and other characteristics. The calculation of money metric utility thus requires that the nominal aggregate be deflated by a Paasche price index, in which the weights vary from household to household.

Data collected by the BLSS 2007 were used to construct the regional price deflators. The Paasche price index for household h is given by:

$$P_P^h = (\sum w_k^h (p_k^0 / p_k^h))^{-1}$$

where p_k^0 is the reference unit price for good k, p_k^h is the unit price paid for good k by household h, and w_k^h is the share of household h's budget devoted to good k. The weights used for the price index are the quantities consumed by the household itself and therefore differ from one household to another. In other words, these indexes involve, not only the prices faced by household h in relation to the reference prices, but also household h's expenditure pattern, something that is not true of a Laspeyres index.

The reference price vector p^0 was inevitably selected as a matter of convenience. To ensure that the vector is not very different from prices actually observed, we chose to take the median of the prices observed from individual households as reference. The use of the national median price vector ensures that the money metric measures conform as closely as possible to national income accounting practice, as well as eliminating results that might depend on a price relative that occurs only rarely or in some particular area.

Quantities and unit values were available at the household level only for foods items. For nonfoods, data is not available at the household level. The Paachse price indices were thus computed for food items only.

Technical Note 2 (Food Poverty Line)

The BLSS 2007 collected data on 118 different food items. Consumption data was available in standard quantity units for all these items. For 94 of them, calories intake data was available, and of these items, 53 items were used to create a reference food basket used for computing the food poverty line as these were the most frequently consumed food items by the reference population (i.e., the second to the fourth deciles of the nominal per capita consumption distribution). These 53 goods accounted for 80% of the food consumption of the reference population. The quantities of each item in the food basket were established by considering the consumption pattern of the reference population. The quantities were scaled up in such a way that the resulting basket provides a total of 2,124 Kcal. The cost of the basket was calculated using the national median unit prices for each item.

Table A-30. Food Bundle and Costs of Nutritionally Adequate Food Bundle Per Person Per Day, 2007

Items	Unit	Calories per units (kcals)	Daily quantity consumed (units)	Daily calories provided (kcals)	Price per unit	Cost
Cereals and Pulses						
101 Rice Bhutanese	Gram	3.46	92.29	319.34	0.03	2.31
102 Rice fine	Gram	3.49	59.83	208.79	0.01	0.79
103 Rice FCB	Gram	3.46	110.24	381.41	0.01	1.47
104 Processed rice (*zaw, sip*)	Gram	3.25	9.60	31.19	0.03	0.29
105 Maize (*kharang*)	Gram	3.42	92.97	317.97	0.01	1.02
106 Ata, Maida	Gram	3.41	9.75	33.23	0.02	0.18
107 Noodles	Gram	3.47	12.13	42.09	0.04	0.49
108 Confectionery	Gram	2.45	0.20	0.49	0.30	0.06
109 Biscuits	Gram	3.64	4.67	17.01	0.09	0.42
110 Pulses	Gram	3.43	11.47	39.34	0.03	0.34
Dairy Products						
201 Liquid milk	Ml	0.67	19.11	12.80	0.03	0.51
202 Milk powder	Gram	4.96	6.51	32.29	0.17	1.07
203 Local butter	Gram	7.29	10.44	76.09	0.15	1.57
204 Local cheese	Gram	4.73	12.35	58.47	0.11	1.37
205 Egg	Gram	1.73	3.68	6.37	0.08	0.32
Meat						
301 Fresh fish	Gram	0.97	2.25	2.18	0.08	0.23
302 Dried fish	Gram	2.55	11.20	28.57	0.07	0.78
303 Fresh beef	Gram	1.14	7.22	8.23	0.06	0.43
304 Dried beef	Gram	2.00	1.77	3.53	0.20	0.35
305 Fresh pork	Gram	1.14	4.09	4.67	0.10	0.41
306 Chicken	Gram	1.09	2.91	3.17	0.10	0.29
Fruits						
401 Apple	Gram	0.59	0.69	0.41	0.04	0.03
402 Orange	Gram	0.48	21.24	10.19	0.01	0.32
403 Mango	Gram	0.74	0.52	0.38	0.03	0.02
404 Banana	Gram	1.16	18.06	20.95	0.01	0.14
405 Cucumber	Gram	0.13	5.95	0.77	0.01	0.06

406 Sugarcane	Gram	3.98	2.70	10.73	0.02	0.05
407 Guava	Gram	0.51	2.44	1.25	0.01	0.02
408 Walnut	Gram	6.87	3.92	26.94	0.01	0.04
409 Other fruits	Gram	0.48	0.63	0.30	0.02	0.02
Vegetables						
501 Fresh beans	Gram	1.58	17.36	27.42	0.02	0.35
502 Tomato	Gram	0.23	17.77	4.09	0.02	0.36
503 Spinach	Gram	0.26	32.93	8.56	0.01	0.40
504 Cabbage	Gram	0.27	20.40	5.51	0.01	0.20
505 Potato	Gram	0.97	60.56	58.75	0.01	0.71
506 Pumpkin	Gram	0.25	4.42	1.10	0.01	0.04
507 Radish	Gram	0.17	26.46	4.50	0.01	0.26
508 Cauliflower	Gram	0.30	8.11	2.43	0.02	0.16
509 Brinjal	Gram	0.24	5.54	1.33	0.02	0.08
510 Gourd	Gram	0.12	2.67	0.32	0.02	0.04
511 Fresh mushroom	Gram	0.25	1.95	0.49	0.20	0.39
512 Fern (damru)	Gram	0.34	6.25	2.13	0.02	0.12
513 Mustard oil	Ml	9.00	14.11	127.03	0.06	0.85
514 Dalda oil	Ml	9.00	3.07	27.64	0.05	0.15
515 Refined oil	Ml	9.00	6.61	59.53	0.06	0.40
Spices, Seasonings and Pastes						
601 Fresh chilli	Gram	0.29	21.31	6.18	0.03	0.64
602 Dried chilli	Gram	2.46	6.16	15.15	0.10	0.62
603 Haldi, Jeera	Gram	3.49	0.82	2.87	0.10	0.08
604 Coriander leaves	Gram	0.44	6.18	2.72	0.03	0.19
605 Salt	Gram	0.00	8.80	0.00	0.01	0.09
607 Sugar/gur	Gram	3.98	16.00	63.69	0.03	0.48
Beverages						
701 Beer	Ml	0.35	3.93	1.36	0.06	0.24
702 Juice	Ml	0.47	4.36	2.03	0.05	0.22
TOTAL PER DAY				2,124 kcal		Nu. 22.49

Technical Note 3 (Non Food Adjustment to the Poverty Line)

Having set the food poverty line, a non-food component must be added to obtain an overall poverty line that incorporates both food and non-food needs. As M. Ravallion and Bidani (1992, 1999), suggested, the total poverty line is obtained by scaling up the food poverty line to allow for the purchase of some essential nonfood items to reach a final poverty line. The non-food needs must be consistent with the consumption behavior of those who can just afford their basic food needs.

A number of methodologies have been proposed for making this non-food adjustment, including the use of another basket of non-food items. The best solution is to measure what is the typical value of non-food spending by a household that is just able to reach its food requirements. This will equal the lowest level of non-food spending for households that are able to acquire the basic food bundle. It can thus be considered a minimal allowance for nonfood goods.

What we use here is a non-parametric estimate of the non-food consumption of households in the reference population whose food consumption is close to the food poverty line. First, we calculate the mean per capita non-food expenditures of households in the reference population whose food spending lies within a plus or minus 1 percent bandwidth of the household whose food consumption is nearest the food poverty line. We increase the bandwidth to 2 percent and recalculate the average non-food per capita expenses, and keep iterating up to a plus or minus 10 percent bandwidth. Then we take an average of all these mean per capita non food expenditures and use this as our non-food adjustment. In effect, the resulting non-food adjustment is a weighted average of non-food expenses of households whose food expenses are near the food poverty line, with the highest weight on the households whose food spending are closest to the food poverty line (and with weights that decline as the food spending goes farther from the food poverty line).

Technical Note 4 (Poverty Measures)

Incidence of Poverty (P_0)

The incidence of poverty is the proportion of the population that is poor (percentage of the total population below the poverty line). The percentage of households below the poverty line may also be computed (since poor households usually have a smaller size, the proportion of poor households is usually lower than the proportion of poor population).

$$P_0 = q / n$$

where P_0 is the proportion of population deemed to be poor (poverty headcount), q is the number of poor people (below the poverty line), and n is the total population.

The fact that poverty calculations are based on a sample of households, or a subset of the population, carries implications. Samples are designed to reproduce the whole population, but they can never be as exact as information that covers everybody in the country. They carry a margin of error, as do poverty rates calculated from these sample surveys. When monitoring the incidence of poverty over time, it is crucial to remember that the figures are based on samples. Instead of considering one figure, confidence intervals should better be used.

Poverty Gap Index (P_1) and Income Gap Ratio

The poverty incidence alone will not provide a complete picture of poverty. It is also important to look into the depth of poverty. For one individual, the depth of poverty is the proportion by which that individual is below the poverty line (it has a value of 0 for all individuals above the poverty line).

The poverty gap index is the average depth of poverty for the population. This is the sum of the depth of poverty of each individual, divided by the total number of individuals in the population. This gives a good indication of the depth of poverty, in that it depends on the distances of the poor below the poverty line. Also, this index multiplied to the product of total population and the poverty line (in one year) may be thought of representing the total cost of poverty reduction assuming perfect poverty targeting.

The poverty gap index can also be written as

$$P_1 = H * (z - y^p) / z$$

where $(z - y^p)/z$ is referred to as the "income gap ratio" (mean depth of poverty as a proportion of the poverty line).

The income gap ratio is not a good poverty measure. To see why, suppose that someone just below the poverty line is made sufficiently better off to escape poverty. The mean of the remaining poor will fall, and so the income gap ratio will increase. And yet one of the poor has become better off, and none are worse off; one would be loathe to say that there is not less poverty, and yet that is what the income gap ratio would suggest. This problem doesn't arise if the income gap ratio is multiplied by the head count index to yield P_1.

The poverty gap index doesn't tell us how the poverty is distributed among individuals; it may not convincingly capture differences in the severity of poverty. The poverty gap will be unaffected by a transfer from a poor person to someone who is less poor. However, when the poverty gap index is multiplied by the total population and the result further multiplied to the poverty line, we obtain the aggregate gap. This represents the cost of eliminating poverty assuming perfecting targeting and no targeting costs.

Poverty Squared Gap Index (P_2)

The Poverty Severity Index (P_2) gives a weight to the poverty gap (more weight to very poor than to less poor). It is the average value of the square of depth of poverty for each individual. Poorest people contribute relatively more to the index.

While this measure has clear advantages for some purposes, such as comparing policies which are aiming to reach the poorest, it is not easy to interpret. For poverty comparisons, however, the key point is that a ranking of dates, places or policies in terms of P_2 should reflect well their ranking in terms of the severity of poverty. It is the ability of the measure to order distributions in a better way than the alternatives that makes it useful, not the precise numbers obtained. The poverty incidence, poverty gap and poverty squared gap measures all belong to a family of measures proposed by Foster, Greer, and Thorbecke (1984).

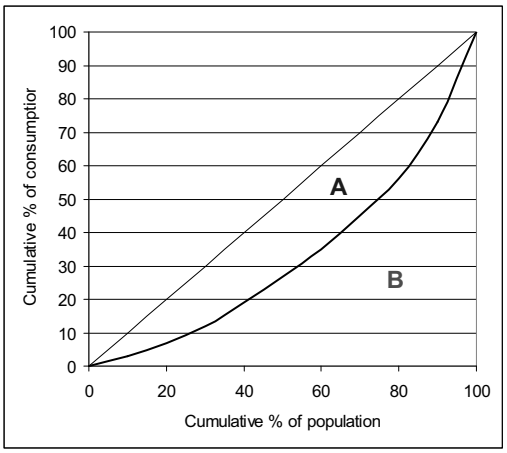
$$P_\alpha = (1/n)\sum_{i=1}^{q}\left(\frac{z - y_i}{z}\right)^\alpha$$

where α is some non-negative parameter, z is the poverty line, y denotes per capita consumption, i represents individuals (or households), n is the total number of individuals (or households) in the population (or household population), and q is the number of individuals (or households) with per capita consumptions below the poverty line.

Technical Note 5 (Inequality Measures)

a) Gini

Graphically, the Gini coefficient can be easily represented by different areas of the Lorenz curve, a cumulative frequency curve that compares the distribution of a specific variable such as per capita expenditure with the uniform distribution that represents equality. To construct the Gini coefficient, graph the cumulative percentage of households (from poor to rich) on the horizontal axis and the cumulative percentage of consumption-expenditure on the vertical axis. This gives the Lorenz curve as shown below. The diagonal line represents perfect equality. The Gini coefficient is calculated as the area A divided by the sum of areas A and B, where A and B are as shown on the graph. If A=0 the Gini coefficient becomes 0 which means perfect equality, whereas if B=0 the Gini coefficient becomes 1 which means complete inequality.



Formally, let x_i be a point on the X-axis, and y_i a point on the Y-axis. Then

$$Gini = 1 - \sum_{i=1}^{N} (x_i - x_{i-1})(y_i + y_{i-1}).$$

When there are N equal intervals on the X-axis this simplifies to

$$Gini = 1 - \frac{1}{N} \sum_{i=1}^{N} (y_i + y_{i-1}).$$

The Gini coefficient of inequality varies between 0, or complete equality of expenditures, to 1, or complete inequality (one person has all the expenditure, all others have none).

b) Quintile Dispersion Ratio

A simple measure of inequality is the quintile dispersion ratio, which represents the ratio of the average consumption of the richest 20 percent of the population divided by the average consumption of the bottom 20 percent. This ratio can also be calculated for other percentiles (for instance, dividing the average consumption of the richest 5 percent – the 95th percentile – by that of the poorest 5 percent – the 5th percentile). The quintile dispersion ratio is readily interpretable, by expressing the consumption of the top 20% as a multiple of that of those in the poorest quintile (the "poor"). However, it ignores information about consumptions in the middle of the consumption distribution, and does not even use information about the distribution of consumption within the top and bottom quintiles.

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