Poverty Analysis 2012

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National Statistics Bureau
Royal Government of Bhutan

The World Bank

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Contents

Acknowledgement

This poverty analysis report is prepared by a four-member team from National Statistics Bureau – Mr. Cheku Dorji (Dy. Chief Statistical Officer), Mr. Tashi Namgay (Statistical Officer), Mr. Sonam Gyeltshen (Research Officer), and Mr. Cheda Jamtsho (Research Officer). Experts from the World Bank – Dr. Aphichoke Kotikula (Sr. Economist), Dr. Srinivasan Thirumalai (Sr. Economist),and Dr. Hiroki Uematsu (Junior Professional Officer) and Dr. Nobuo Yoshida (Sr. Economist) greatly contributed by verifying the results and conducting robustness tests for comparability with the 2007 poverty indicators. They also reviewed and provided comments on the draft report.

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Foreword

The National Statistics Bureau (NSB) is pleased to present the "Poverty Analysis" Report (PAR) 2012. It is based on the data from Bhutan Living Standards Survey (BLSS) 2012 conducted by NSB with the support of the Asian Development Bank.

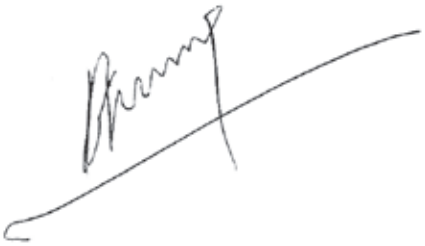
A key objective of this report is to prepare updated poverty estimates that are as comparable as possible with the estimates prepared in 2007. Both the BLSS 2007 and 2012 questionnaires were nearly identical and the data from both the surveys were checked for comparability by the experts from the World Bank. The variables included in estimating poverty lines and rates were also checked for robustness to confirm the comparability.

This report measures poverty in Bhutan in 2012, and evaluates the change in poverty compared to 2007. It is reassuring to learn from the report that poverty, as measured by the percentage of poor has declined from about 23.2 percent in 2007 to 12 percent in 2012.

Poverty is multi-dimensional and there is no single solution. In general, people are poor because they are stuck in circumstances which don't allow them to get ahead. One of the reasons for poverty reduction can be attributed to the noble *Royal Kidu* Program. Through the program, many landless households were able to get land permanently registered in their names which changed their lives forever. Generally, landless households are more vulnerable to poverty. The *Kidu* program also extends the education of the poor children and the support for elderly and needy citizens of the country. These initiatives could have direct impact in improving the living standard of the poor.

It is our earnest hope that the report will undoubtedly cast light on a huge range of policy issues and that the poverty statistics presented in this report will be used to design policies and programs aimed at improving the living standards of the poor.

Finally, NSB would like to acknowledge with deep appreciation the support of the Royal Government of Bhutan. Our sincere thanks extend to the World Bank for financial and technical support in bringing out the PAR 2012. The data analysis team deserves all the appreciation for the hard work and dedication exhibited in bringing out this report.



Kuenga Tshering
Director General

Executive Summary

Poverty Rate

PAR 2012 established the total poverty line at Nu. 1,704.84 per person per month. The total poverty line is obtained by adding the food poverty line of Nu. 1,154.74 to non-food allowance of Nu. 550.10. An estimated 12 percent of the population is found to be poor. Thus, poverty has declined by about half from the estimate of 23.2 percent in 2007.

Poverty in rural areas (16.7%) is significantly higher than urban areas (1.8%). Only about three percent of the population is subsistence poor i.e., persons belonging to households with per capita consumption below the cost of subsistence diet food. Poverty rates are observed to be high in Dagana, Samtse, Lhuentse, Pema Gatshel, and Zhemgang.

Household Characteristics

In both urban and rural areas, a poor household has a much larger family size than a non-poor household. However, the number of households with large size is much less than the number of small sized households. Persons living in households where the head is currently working have higher living standards than those living in a households whose head is either unemployed or out of the labour force. Among the employed, poverty levels are higher in households whose head works in agriculture.

The poverty rate is about three percent for those below 25 years of age as compared to 14 percent for those aged 65 years and older. This may indicate a person's inability to engage productively in economic activity with age. At least 68 percent of the household heads in Bhutan are between 25 and 54 years old, while less than five percent are below 25, and about 13 percent are 65 and above.

About 44 percent of the poor live in households whose head is engaged in agriculture; and at least 16 percent in households whose head is not actively participating in the labour force.

Basic Needs

The analysis shows that the poor have a much lower (52%) literacy rate than the non-poor (65%). The literacy rate of the poor in urban areas is 17 percentage points lower than the rate for the urban non-poor while in the rural areas the rate for the poor is six percentage points lower than the rural non-poor. About 50 percent of the non-poor adult population (15+) has not attended school/institute compared to about 70 percent of the adult poor population.

Around 17 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. However, of this population, only about half (53%) of the poor visited a medical facility compared to 69 percent of the non-poor. Among those who gave birth during the 12 months prior to the BLSS 2012, a smaller proportion of poor women in rural areas received ante-natal care than non-poor women. However, a considerable proportion of women received pre-natal care in urban areas, even amongst the poor

Majority (98%) of the population have access to improved water source with hardly any disparity existing between the poor and the non-poor households. At least 80 percent households have access to improved sanitation; between poor and non-poor households both in urban and rural areas the disparity is around 15 percentage points.

Nearly all (97%) households in urban areas, even the poor use electricity for lighting purpose. In rural areas, however, only 69 percent of the poor households have electricity as their primary source of lighting. Nationally, only 21 percent among the poor households have TV compared to 59 percent in the non-poor households.

Most of the poor, especially in the rural areas, suggest that road infrastructure and bridges, Commerce, transport and communication and water supply should be the priorities for the government. In urban areas, poor households specify housing, labour and employment creation, and land and resettlement, as priority concerns

Inequality

On average, a person in the top 20 percent of the national population consumers 6.2 times more than a person in the poorest 20 percent of the population he poorest 20 percent of the population. The Gini index, which measures inequality, has remained almost the same at the national level (0.35 in 2007 and 0.36 in 2012). However, it has slightly increased for the both urban (0.32 to 0.35) and the rural areas (0.32 to 0.34).

Chapter 1: **Introduction**

1.1. Background

The purpose of this report is to provide updated poverty estimates for Bhutan using newly available data from the Bhutan Living Standards Survey (BLSS) 2012. Baseline poverty estimates were produced in 2003 and 2007 using the corresponding BLSS data. The updated poverty estimates in this report can be used to monitor Bhutan's success in reducing poverty during the past five years since the last poverty estimates in 2007. It is also useful for broadening and deepening our understanding of the changing dimensions of Bhutan's poverty and for designing appropriate interventions for poverty reduction and monitoring efforts.

1.2. Objectives

A key objective of this report is to update poverty estimates that are as comparable as possible with the estimates prepared for 2007. This involves the following steps:

- The 2012 poverty lines are updated for inflation in food and non-food prices during the 2007-2012 period.
- New estimates of per capita household consumption are prepared that are as comparable as possible with the consumption estimates prepared in 2007.
- The per capita consumption of each household in the sample is compared to the updated poverty lines to identify the poor and to calculate the relevant poverty indicators.

Although there are a few changes in the components of questionnaire in the BLSS 2012 compared to BLSS 2007, robustness test carried out revealed that in both years the food consumption shares are roughly the same and the distribution of major food items are comparable thus suggesting a high degree of comparability between the results for 2007 and 2012.

Chapter one describes briefly the BLSS 2012, which is the primary data source used in preparing these updated 2012 poverty estimates. Chapter two summarizes the work done to update the 2012 poverty lines for inflation. Chapter three presents patterns in consumption poverty. Chapter four presents an analysis of socio-economic indicators that provide an independent source of information on poverty reduction during the period 2007-2012. Chapter five provides measures of income inequality (for example, estimates of Gini coefficient). Chapter six provides the report's conclusions and recommendations for future poverty monitoring.

1.3. Data Source

The data used for this report is from the BLSS 2012 which is the latest and third in a series of national household surveys that have been conducted by the NSB. Like the previous rounds, the BLSS 2012 followed the World Bank's Living Standard Measurement Study (LSMS) Methodology. It is comparable in size to the 2007 survey, but more than twice the size of the survey in 2003. The BLSS 2012 surveyed 8,968 households across the country from a planned sample size of 10,000. It provides the same level of detailed information needed to prepare updated poverty estimates. The questionnaire that was administered in both the BLSS 2007 and 2012 is similar.[1]

Using the BLSS 2012 data, an aggregate of household consumption was generated and subsequently analyzed. This aggregate excludes household expenditures on durables, irregular expenses, health expenses (on consultations and

[1] In the 2012 questionnaire, the 'purchased' item is broken into 'purchased domestic' and 'purchased imported.' The education expenditure in 2012 was the expenditure incurred in the last academic year unlike the 2007 survey that collected estimated expenditure for the current academic year.

hospitalization) from the total household consumption expenditures (found in the BLSS 2012 report), but includes expenses on medicines. Details on the computation of this consumption aggregate are provided in Technical Note 1 of Annex-II.

The BLSS 2012 gathered data on household consumption expenditure, and as such, provides a means of assessing the level of poverty and well-being in Bhutan. Besides collecting consumption expenditure data, it also collected data on demographic characteristics of household members, household assets, credit and income, remittances, housing, access to public facilities and services, education, employment, health of household members and prices paid for commodities. Also, it included an additional module on social capital and questions on happiness and self-rated poverty.

The sample households for the BLSS 2012 were selected on the basis of two mutually exclusive sampling frames for rural and urban areas. The total sample size was set to about 10,000 (comparable in scale to BLSS 2007) and allocated equally between the rural and urban areas to capture higher variability of data in the urban areas. Sample sizes of urban and rural areas were allocated across all *dzongkhags* and strata in proportion to the number of households. 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*.

A set of household weights are needed when interpreting statistics from the BLSS 2012 household data. These weights are needed to correct for the varying area and household in the survey design. They can be regarded as made up of three components: (a) a correction for the differing sampling rates of PSUs used in the strata at the area stage of sampling; (b) a correction for varying numbers of households selected in each PSU; and, (c) a 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 trials in jails and indoor patients of hospitals; and, (c) barracks of military and para-military forces, including the police.

Chapter 2: **Updating the Poverty Lines**

Bhutan's poverty lines, defined in 2007, consist of a single national food poverty line and single non-food allowance and refer to monthly per capita levels of food and non-food consumption. Both the food poverty line and the non-food allowance measured in current prices must therefore be updated for inflation, i.e., they need to be converted into 2012 prices. This chapter of the report discusses the procedures used to update the 2007 poverty lines.

2.1. Updated Food Poverty Line

The poverty line, the minimum acceptable standard of per capita consumption needed to assure a minimum standard of living, is obtained using the Cost of Basic Needs (CBN) approach, a commonly used methodology for constructing the poverty lines in many countries. This approach estimates the food component of the poverty line as the cost of a food bundle that provides a predetermined minimum required level of food energy. The total poverty line is obtained by adding to the food component the cost of the non-food allowance.

The food poverty line is based on the estimated cost of a single national reference food bundle providing an average subsistence diet of 2,124 Kcal per day (i.e., averaged over persons of all ages and both sexes).[2] The reference food bundle was designed to reflect the actual food consumption patterns of Bhutanese in 2007 who consumed a diet yielding approximately 2,124 Kcal per day. The food basket used in this report is representative of the diet of a reference population, namely population in the second, third or fourth decile based on nominal per capita consumption. The selection of households in the second to the fourth deciles of the per capita expenditure distribution ensures that expensive nor cheap food items are heavily represented in the basket. After all, prices paid 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 a consistent comparison of welfare levels of people living in different areas of Bhutan. The 2007 poverty line is updated for inflation to the year 2012. The methodology used to update for inflation involves (1) updating the food poverty line using the ratio of the food CPI is 2012 to the food CPI in 2007 CPI (2) using the food price data collected in the BLSS 2012 to estimate spatial (regional) differences in food prices in the survey year. The CPI is believed to be a reliable source of information about inflation because of its rigorous collection.

Households (and their members) consuming (in real terms) less than the food poverty line, of Nu. 1,154.74 per person per month are considered subsistence poor.

2.2. Updated Non-food Allowance and Total Poverty Line

The 2007 baseline non-food allowance was estimated as the per capita monthly non-food consumption of households in the reference population whose food spending was near the food poverty line. This is a conservative non-food allowance because it represents non-food consumption that is at the expense of food consumption that could otherwise be used to achieve the reference food bundle of 2,124 calories per day per person.[3]

[2] There are 53 food items in the food bundle

[3] Although persons with total per capita consumption below the food poverty line would have to sacrifice some food consumption to purchase non-food items, they would presumably substitute cheaper foods for more expensive foods within the reference food bundle.

In order to update the non-food allowance for inflation in different regions, it is necessary to develop regional non-food price indices similar to the food price index. Estimates of inflation in non-food prices developed in this report are based on non-food price data collected for the 2007 and 2012 CPI.

Nationwide, the non-food allowance was estimated at Nu. 550.10 per person per month. Adding this non-food allowance to the food poverty line yields the total poverty line, estimated to be Ngultrum 1,704.84 per person per month, at 2012 prices.

Households (and their members) consuming (in real terms) less than the total poverty line, of Nu.1,704.84 per person per month are considered poor.

Table 2.1 shows the comparison of poverty lines (food-poverty line, non-food allowance and poverty line) for 2007 and 2012 along with the inflation in the Consumer Price Index (CPI). As mentioned, the 2012 food and non-food poverty lines are derived from the 2007 values by adjusting for inflation that occurred between 2012 and 2007.

Table 2.1. Poverty Lines of 2007 and 2012 and CPI Inflation

Poverty lines	2007	2012	CPI inflation
Food poverty line	688.96	1,154.74	1.68
Non-food allowance	407.98	550.10	1.35
Total poverty line	1,096.94	1,704.84	1.55

2.3. Spatial Price Index

Prices differ across the country and therefore per capita consumption expenditures (in nominal terms) across regions are not directly comparable. An important staple food like rice is found to be much more expensive in Gasa than in Wangdue Phodrang, so that a household in Gasa consumes less with the same nominal consumption expenditure on rice than a household in Wangdue Phodrang. To make per capita consumption between regions comparable, values must be deflated using a cost of living index. However, no such index is available. The usual approach to controlling for spatial price differences is to use a price index 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 using base reference prices. A Paasche index was computed with food items using the BLSS 2012 median price data. Details on these computations are provided in Technical Note 1 (d).

Table 2.2. Regional Price Deflator (Median of Household-level Paasche Indices), by *Dzongkhag* and Area

Dzongkhag	Urban	Rural
Bumthang	1.12	1.12
Chhukha	1.10	1.02
Dagana	0.77	0.92
Gasa	1.30	1.00
Haa	0.97	1.01
Lhuentse	1.02	1.00
Monggar	0.87	0.88
Paro	1.12	0.95
Pema Gatshel	0.87	1.03
Punakha	1.02	0.95
Samdrup Jongkhar	0.80	0.82
Samtse	0.75	0.81
Sarpang	1.07	0.94
Thimphu	0.88	1.02
Trashigang	0.89	0.87
Trashi Yangtse	0.82	0.89
Trongsa	1.00	1.03
Tsirang	0.81	0.87
Wangdue Phodrang	1.03	0.95
Zhemgang	0.89	0.86
Bhutan	0.94	0.92

Consequently, the average monthly household consumption in 2012 for Bhutan was estimated at Nu.20,913 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. 5,493 per person per month. In 2007, average monthly household consumption was estimated at Nu.11,777 and Average monthly per capita consumption in real terms was estimated at Nu. 2,745 per person.

Chapter 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 consumption expenditure is insufficient even to meet 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 2012 does not allow intra-household analysis. Consequently, if a household is considered poor, then all its members are considered poor. Similarly, 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 for households in urban and rural areas, and in *dzongkhags*, and in by the sex of the household head, among others. For more information on indices of poverty, see Technical Note 4.

3.1. Poverty Rate

The food poverty line and total poverty line are used to compute subsistence and poverty incidence, respectively. Figure 3.1 illustrates subsistence and poverty rates for population across urban and rural areas. These rates are poverty head counts i.e., the percentage of the poor persons. For the 2012 the total poverty rate for Bhutan is estimated to be 12 percent. This means that, around one out of eight persons belong to households whose per capita real consumption is below the total poverty line of Nu. 1,704.84 per person per month. It can be observed that subsistence incidence, i.e. extreme poverty, is relatively small in the country: only about three percent of the population in Bhutan belongs to households that are spending less per person than the food poverty line of Nu. 1,154.74. Poverty in Bhutan is still a rural phenomenon with about 17 percent of the rural population being poor as against only about two percent in the urban areas. While the four percent of extremely poor persons in rural areas is quite small, it is quite large in relation to that of urban area rate of 0.3 percent.

Figure 3.1. Poverty and Subsistence Poverty in Bhutan

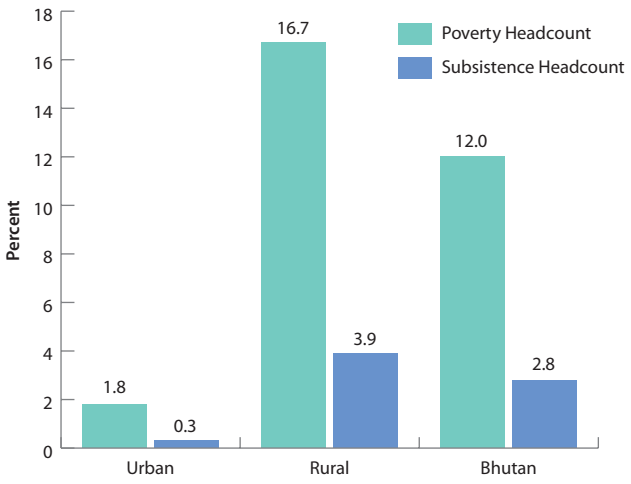


Table 3.1. Population Poverty and Subsistence Poverty by Area

Area	Poverty			Subsistence Poverty			Population Share
	Rate	Standard error	*Contribution to National*	Rate	Standard error	*Contribution to National*	
Urban	1.8	0.3	*4.6*	0.3	0.1	*3.1*	*34.0*
Rural	16.7	0.8	*94.4*	3.9	0.5	*96.9*	*66.0*
Bhutan	12.0	0.6	*100.0*	2.8	0.3	*100.0*	*100.0*

Table 3.2. Household Poverty and Subsistence Poverty by Area

Area	Poverty			Subsistence Poverty			Population Share
	Rate	Standard error	*Contribution to National*	Rate	Standard error	*Contribution to National*	
Urban	1.4	0.2	*5.5*	0.2	0.1	*4.2*	*34.0*
Rural	12.4	0.6	*94.5*	2.6	0.3	*95.8*	*66.0*
Bhutan	8.6	0.4	*100.0*	1.8	0.2	*100.0*	*100.0*

The poverty and subsistence poverty statistics are shown in Table 3.1 together with their standard errors. Because the poverty incidence figures are estimates from a sample survey, it is important to consider their standard error when evaluating the precision of these estimates. While the best estimate of poverty rate in Bhutan in 2012 is 12 percent, this estimate has a margin of error of 1.2 percentage points. That is, we are 95 percent confident that the true poverty rate is between 10.9 percent and 13.2 percent. We are also confident that urban poverty, estimated at 1.8 percent (but could range between 1.2% to 2.3%) is much lower than rural poverty of 16.7 percent (that could range between 15.1% to 18.3%). In addition, we observe that about 95 percent of poor persons throughout the country reside in rural areas. Among the extremely poor, the proportion is even higher: 97 percent resides in rural areas. Consequently, efforts toward poverty reduction ought to continue to focus on ural development. The poverty estimates of 2012 (Table 3.1) are comparable with previous estimates of 23.2 percent poor and 5.9 percent subsistence poor in 2007.

Table 3.2 presents poverty incidence and subsistence incidence as a percent of households. About nine percent of households are poor, and about two percent are subsistence poor households. Hence, of the estimated 127,942 households, 11,049 are poor, and 2,322 are extremely poor.

A comparison of the poverty statistics in Table 3.1 and Table 3.2 indicates that poverty measures based on population are larger than those based on the number of households because poor households, on average, have more household members

Dzongkhag level estimates of poverty incidence and subsistence poverty for the population and for households are shown in Table 3.3 (together with their standard errors). Ranks for *dzongkhags* are difficult to determine due to overlapping confidence intervals, but it can be observed that poverty rates are highest in Dagana, Lhuentse, Pema Gatshel, Samdrup Jongkhar, Samtse, and Zhemgang. However, the survey shows that Gasa and Paro have the least poverty. It is also important to observe the distribution of the poor population. Among the *dzongkhags*, 17 percent of the poor population resides in Samtse followed by Samdrup Jongkhar (9.1%), Chukha (8.8%) and Pema Gatshel (8.6%).

In terms of the subsistence poverty, the rates are high in Lhuentse (11.1%) and Zhemgang (9.9%). In terms of the distribution of subsistence poor, Samtse and Zhemgang have the highest proportion of the subsistence poor population (Table 3.4).

The estimated number of poor and subsistence poor households across *dzongkhags* are provided in Table 3.5 and Table 3.6. These tables include the contribution of each *dzongkhag* to household poverty and subsistence poverty. Dagana and Lhuentse have high proportion of poor households. The largest proportion of poor and subsistence poor households is in Samtse.

3.2. 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 and severity of poverty, respectively. For an individual, the poverty gap is the difference between the poverty line and actual per capita expenditure (the gap is zero for all non-poor individuals). The poverty gap index measures the average extent to which individuals in a population fall below the poverty line and expresses it as a percentage of the poverty line. The poverty squared gap index gives more weight to the very poor than those who are less poor. It is the average value of the square of depth of poverty for each individual measured relative to the poverty line. More explanation on these indices is available in Technical Note 4.

For both the poverty gap and poverty squared gap, as well as for poverty rate, the larger the value of the index, the greater the degree of poverty. These poverty measures are important for planning poverty reduction programs. All things being equal, sub-groups of the population with higher measures should receive priority for poverty reduction programs.

Table 3.3. Population Poverty Rate by *Dzongkhag*

Dzongkhag	Poverty rate	Standard error	*Distribution of the Poor*	*Distribution of Population*
Bumthang	3.4	1.8	*0.6*	*2.2*
Chhukha	11.2	2.0	*8.8*	*9.4*
Dagana	25.1	3.7	*6.9*	*3.3*
Gasa	<0.5	0.0	*<0.5*	*0.5*
Haa	6.4	4.3	*0.8*	*1.5*
Lhuentse	31.9	5.9	*6.5*	*2.5*
Monggar	10.5	1.7	*5.8*	*6.6*
Paro	<0.5	0.0	*<0.5*	*5.4*
Pema Gatshel	26.9	3.2	*8.6*	*3.8*
Punakha	10.0	2.6	*3.1*	*3.8*
Samdrup Jongkhar	21.0	4.2	*9.1*	*5.2*
Samtse	22.2	2.9	*17.4*	*9.5*
Sarpang	4.2	1.1	*2.1*	*5.9*
Thimphu	0.5	0.2	*0.7*	*15.4*
Trashigang	11.5	1.5	*7.2*	*7.5*
Trashi Yangtse	13.5	5.0	*3.1*	*2.8*
Trongsa	14.9	3.8	*2.8*	*2.3*
Tsirang	14.8	2.9	*4.0*	*3.3*
Wangdue Phodrang	10.9	2.1	*5.3*	*5.8*
Zhemgang	26.3	4.2	*7.2*	*3.3*
Bhutan	12.0	0.6	*100.0*	*100.0*

Table 3.4. Population Subsistence Poverty Rate by *Dzongkhag*

Dzongkhag	Poverty rate	Standard error	*Distribution of the Poor*	*Distribution of Population*
Bumthang	<0.2	0.0	*<0.2*	*2.2*
Chhukha	2.3	0.8	*7.6*	*9.4*
Dagana	6.3	2.8	*7.5*	*3.3*
Gasa	<0.2	0.0	*<0.2*	*0.5*
Haa	2.6	2.5	*1.4*	*1.5*
Lhuentse	11.1	3.7	*9.7*	*2.5*
Monggar	1.9	0.8	*4.5*	*6.6*
Paro	<0.2	0.0	*<0.2*	*5.4*
Pema Gatshel	4.7	1.8	*6.5*	*3.8*
Punakha	3.6	2.1	*4.8*	*3.8*
Samdrup Jongkhar	4.8	1.7	*8.9*	*5.2*
Samtse	4.0	1.4	*13.4*	*9.5*
Sarpang	0.3	0.3	*0.5*	*5.9*
Thimphu	<0.2	0.1	*0.4*	*15.4*
Trashigang	3.1	1.0	*8.3*	*7.5*
Trashi Yangtse	3.8	3.5	*3.8*	*2.8*
Trongsa	3.8	1.9	*3.1*	*2.3*
Tsirang	2.8	1.3	*3.3*	*3.3*
Wangdue Phodrang	2.2	0.9	*4.7*	*5.8*
Zhemgang	9.9	4.1	*11.6*	*3.3*
Bhutan	2.8	0.3	*100.0*	*100.0*

Table 3.5. Household Poverty Rate by *Dzongkhag*

Dzongkhag	Poverty rate	Standard error	*Distribution of the Poor*	*Distribution of Households*
Bumthang	1.9	0.9	*0.5*	*2.2*
Chhukha	7.5	1.4	*8.7*	*10.0*
Dagana	18.7	2.9	*7.6*	*3.5*
Gasa	<0.5	0.0	*<0.5*	*0.5*
Haa	2.9	2.0	*0.5*	*1.4*
Lhuentse	24.9	4.7	*6.9*	*2.4*
Monggar	7.4	1.3	*5.1*	*5.9*
Paro	<0.5	0.0	*<0.5*	*5.5*
Pema Gatshel	21.2	2.5	*9.0*	*3.7*
Punakha	7.4	1.6	*3.0*	*3.5*
Samdrup Jongkhar	15.1	3.1	*9.8*	*5.6*
Samtse	16.1	2.2	*17.0*	*9.1*
Sarpang	2.4	0.6	*1.7*	*6.0*
Thimphu	0.5	0.2	*0.9*	*16.1*
Trashigang	9.0	1.2	*8.3*	*8.0*
Trashi Yangtse	8.7	2.6	*3.0*	*2.9*
Trongsa	10.6	2.9	*2.7*	*2.2*
Tsirang	12.2	2.2	*4.5*	*3.2*
Wangdue Phodrang	7.8	1.3	*4.9*	*5.4*
Zhemgang	19.0	3.2	*6.0*	*2.7*
Bhutan	8.6	0.4	*100.0*	*100.0*

Table 3.6. Household Subsistence Poverty Rate by *Dzongkhag*

Dzongkhag	Subsistence Poverty rate	Standard error	*Distribution of the Poor*	*Distribution of Households*
Bumthang	<0.2	0.0	*<0.2*	*2.2*
Chhukha	1.7	0.5	*9.1*	*10.0*
Dagana	4.4	1.8	*8.5*	*3.5*
Gasa	<0.2	0.0	*<0.2*	*0.5*
Haa	1.0	1.0	*0.8*	*1.4*
Lhuentse	8.9	3.0	*11.6*	*2.4*
Monggar	1.4	0.5	*4.6*	*5.9*
Paro	<0.2	0.0	*<0.2*	*5.5*
Pema Gatshel	3.4	1.2	*6.8*	*3.7*
Punakha	1.9	1.1	*3.7*	*3.5*
Samdrup Jongkhar	3.4	1.2	*10.6*	*5.6*
Samtse	2.4	0.8	*12.0*	*9.1*
Sarpang	<0.2	0.1	*0.4*	*6.0*
Thimphu	<0.2	0.0	*0.4*	*16.1*
Trashigang	2.1	0.6	*9.0*	*8.0*
Trashi Yangtse	1.6	1.5	*2.6*	*2.9*
Trongsa	2.0	1.0	*2.4*	*2.2*
Tsirang	2.3	0.9	*4.2*	*3.2*
Wangdue Phodrang	1.7	0.6	*5.2*	*5.4*
Zhemgang	5.4	2.2	*8.1*	*2.7*
Bhutan	1.8	0.2	*100.0*	*100.0*

Figure 3.2. Depth and Severity of Poverty in Bhutan

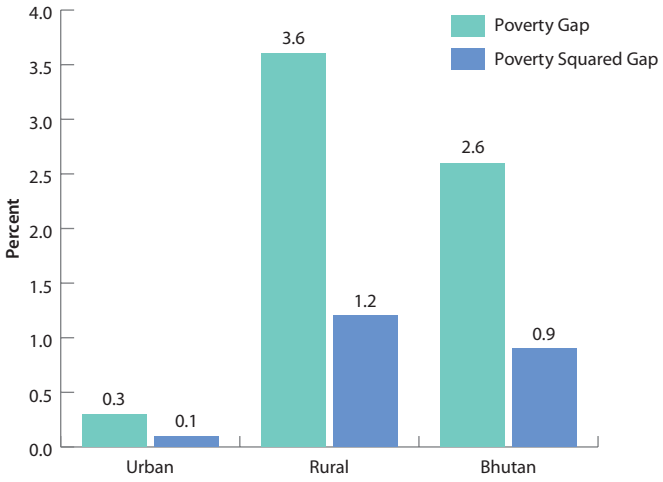


Figure 3.2 shows that poverty is deeper and more severe in rural areas than in urban areas.

The poverty gap and poverty squared gap (with their standard errors) across *dzongkhags* are listed in Annex I (Table A-1). The table also includes the contribution of the *dzongkhags* to the national poverty measures. Some *dzongkhags* such as Lhuentse, Pema Gatshel and Zhemgang have very high poverty measures (whether in terms of poverty rate, gap or severity). However, Samtse has a very high share of the contribution to the national poverty measures, partly because of its high population share.

3.3. Poverty trend

Figure 3.3 shows that the over poverty reduced from 23 percent in 2007 to 12 percent in 2012 and the reduction rural poverty from 31 to about 17 percent. However, the proportion of poor in urban areas remained practically unchanged at about two percent.

As shown in Figure 3.4 subsistence poverty decreased from six percent (2007) to about three percent (2012). In the rural areas, the rate was reduced from eight percent in 2007 to four percent in 2012. In the urban areas, the subsistence poverty rate is quite low and remains unchanged (around three in 100 persons).

3.4. Poverty by Household Characteristics

Households differ in their demographic composition and characteristics. Household sizes in Bhutan are, on average, larger in rural than urban areas. Table 3.7 shows that, across the country, a poor household typically has much larger family (6.3) than a non-poor household (4.4). The difference

Figure 3.3 Population Poverty Rates for 2007 and 2012

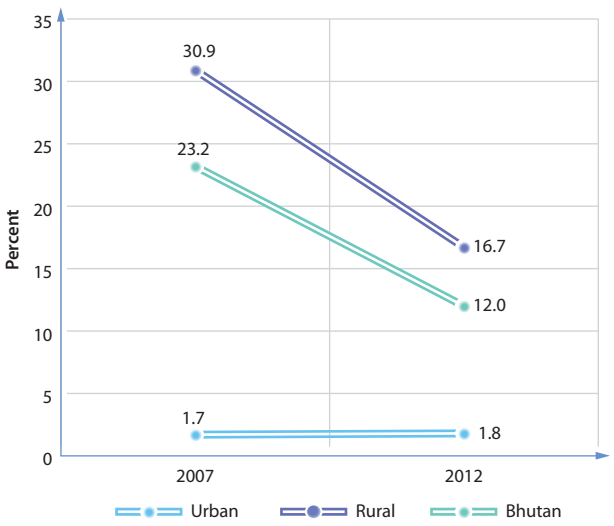
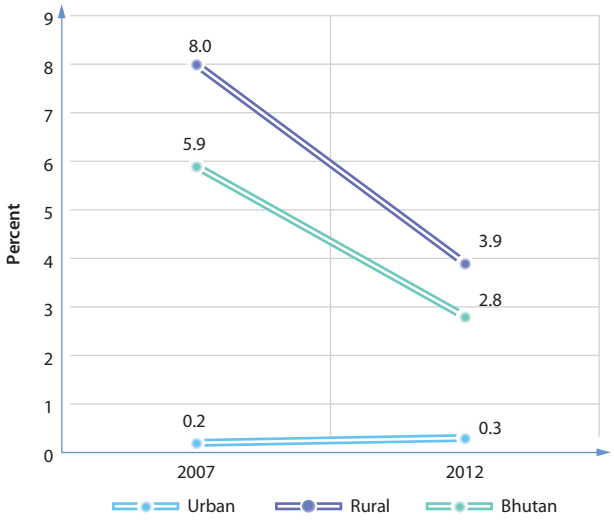


Figure 3.4. Population Subsistence Poverty Rates for 2007 and 2012



is larger in rural areas than in urban areas.

As shown in the figure 3.5 the poverty rates and subsistence poverty rates also increase with the size of the household. The increase in the poverty rate is faster than the subsistence rate as the household size increases. The share of households increases rapidly reaching a maximum of 40 percent for households containing four or five members. However, the share then decreases and reaches a minimum with four percent of the households containing nine or more members This indicates that, although the poverty rates are higher among the larger household size, especially those with an average size of more than five, the corresponding share of total households is much less.

Table 3.7. Average Household Size by Area, Poverty Status and Sex of Head

Area/Poverty status	Household head		Total
	Male	Female	
Urban	4.2	3.7	4.1
Poor	5.4	4.6	5.3
Non-poor	4.2	3.7	4.1
Rural	4.8	4.6	4.7
Poor	6.5	6.3	6.4
Non-poor	4.6	4.4	4.5
Bhutan	4.6	4.4	4.5
Poor	6.4	6.2	6.3
Non-poor	4.4	4.2	4.4

Table 3.8. Household Poverty and Subsistence Poverty Rates, by Area and Sex of Household Head

Area/ Household Head	Poverty Rate		Subsistence Rate		*Share of Total Heads*
	Index	*Contribution to National*	Index	*Contribution to National*	
Urban	1.4	*5.5*	0.2	*4.2*	*34.0*
Male	1.5	*4.9*	0.2	*3.3*	*27.4*
Female	0.8	*0.6*	0.3	*1.0*	*6.6*
Rural	12.4	*94.5*	2.6	*95.8*	*66.0*
Male	12.9	*64.7*	2.4	*57.8*	*43.3*
Female	11.3	*29.8*	3.0	*37.9*	*22.7*
Bhutan	8.6	*100.0*	1.8	*100.0*	*100.0*
Male	8.5	*69.5*	1.6	*61.1*	*70.7*
Female	9.0	*30.5*	2.4	*38.9*	*29.3*

Typically, welfare and household demographic composition are observed to have a nexus with the characteristics of the household head. Male headed households are observed to be, on average, less poor than female headed households. This difference is more pronounced for subsistence poverty (Table 3.8).

Figure 3.6 combines information on poverty, participation in the labour force, and main sector of employment of the household head. Persons living in households where the head is currently working have higher living standards than those whose head is either unemployed or out of the labour force. Among the employed, poverty rates are higher in households whose head works in agriculture. About 44 percent of the poor live in households whose head is engaged in agriculture; and 16 percent in households whose head is not actively participating in the labour force.

Figure 3.5. Household Poverty and Subsistence Poverty Rates by Household Size

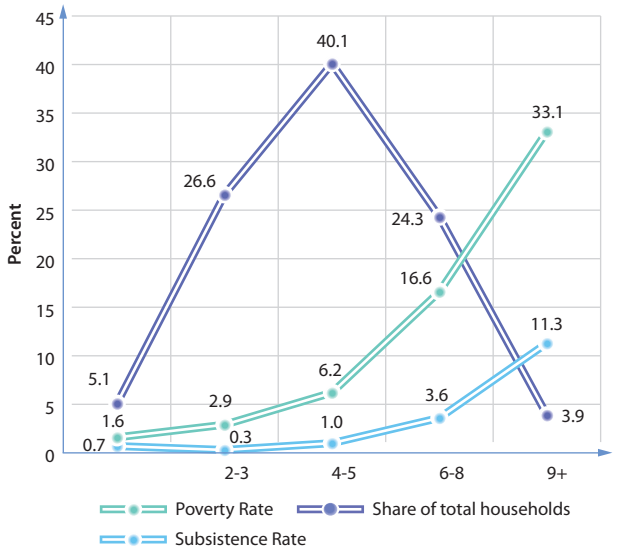


Figure 3.6. Population Poverty Rate by Economic Activity of the Household Head

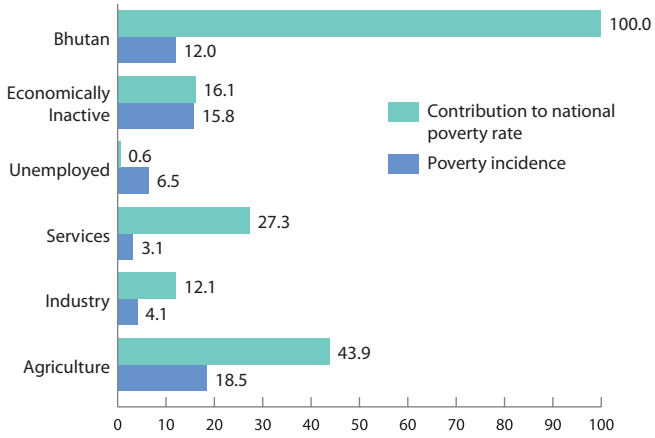


Figure 3.7 displays poverty rates by the highest level of educational attainment of the household head. The education levels in Bhutan are generally quite low, especially among household heads. As expected, the higher the level of learning completed by the household head, the lower the poverty rate. The returns to education increase considerably if the head has attended secondary levels irrespective of whether the household is in an urban or rural area.

Poverty rates increase with the age of the household head (Table 3.9). The poverty rate is about three percent for those below 25 years as compared to 14 percent for those aged 65 years and older. This may indicate an inability to actively engage in economic activity with age. It is noticed that most

Figure 3.7. Household Poverty Rate by Educational Attainment of Household Head by Area

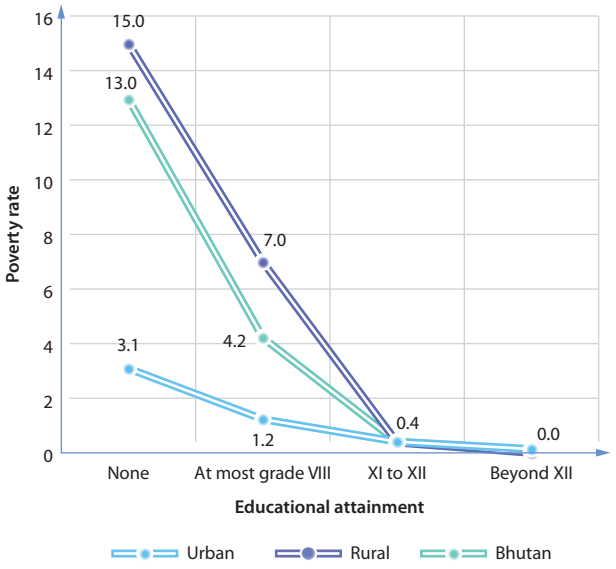


Figure 3.9. Household Distribution and Poverty in Rural Areas

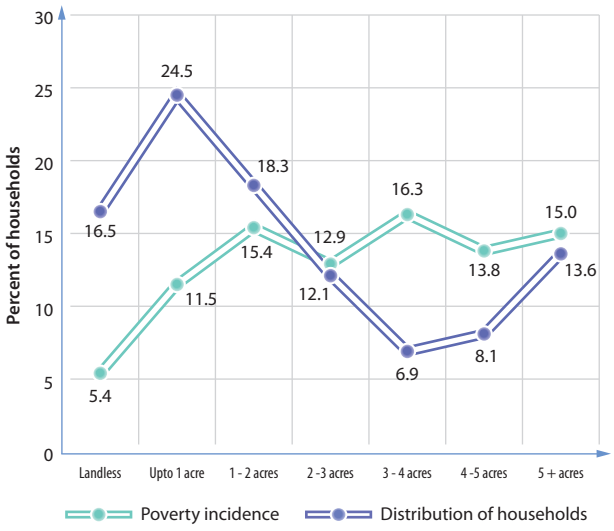


Figure 3.8. Distribution of (a) Type of Floor and (b) Type of External Walls by Household Poverty Status

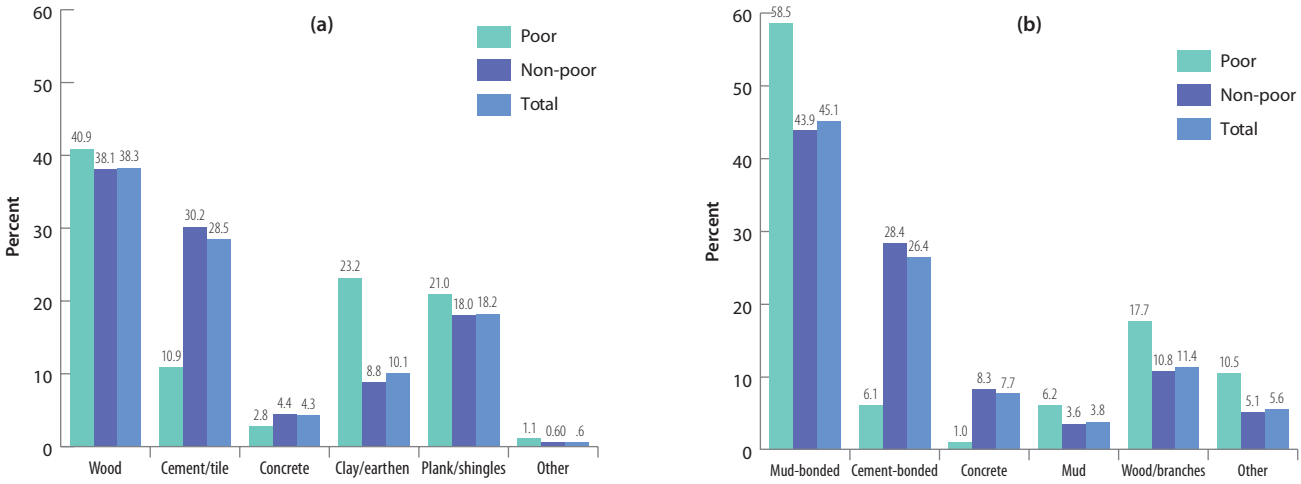


Table 3.9. Household Poverty and Subsistence Poverty Rates by Age of Household Heads

Age of Household Head	Poverty		Subsistence Poverty		Share of Total Heads
	Rate	Contribution to National	Rate	Contribution to National	
< 25	2.8	*1.4*	0.7	*1.6*	*4.4*
25-34	3.3	*9.1*	0.5	*7.1*	*23.9*
35-44	7.5	*20.0*	1.8	*22.4*	*22.9*
45-54	10.5	*25.5*	1.9	*22.3*	*20.9*
55-64	13.3	*23.4*	2.9	*24.2*	*15.2*
65 +	14.0	*20.6*	3.2	*22.5*	*12.7*
All ages	8.6	*100.0*	1.8	*100.0*	*100.0*

Table 3.10. Household Land ownership by Area and Poverty Status

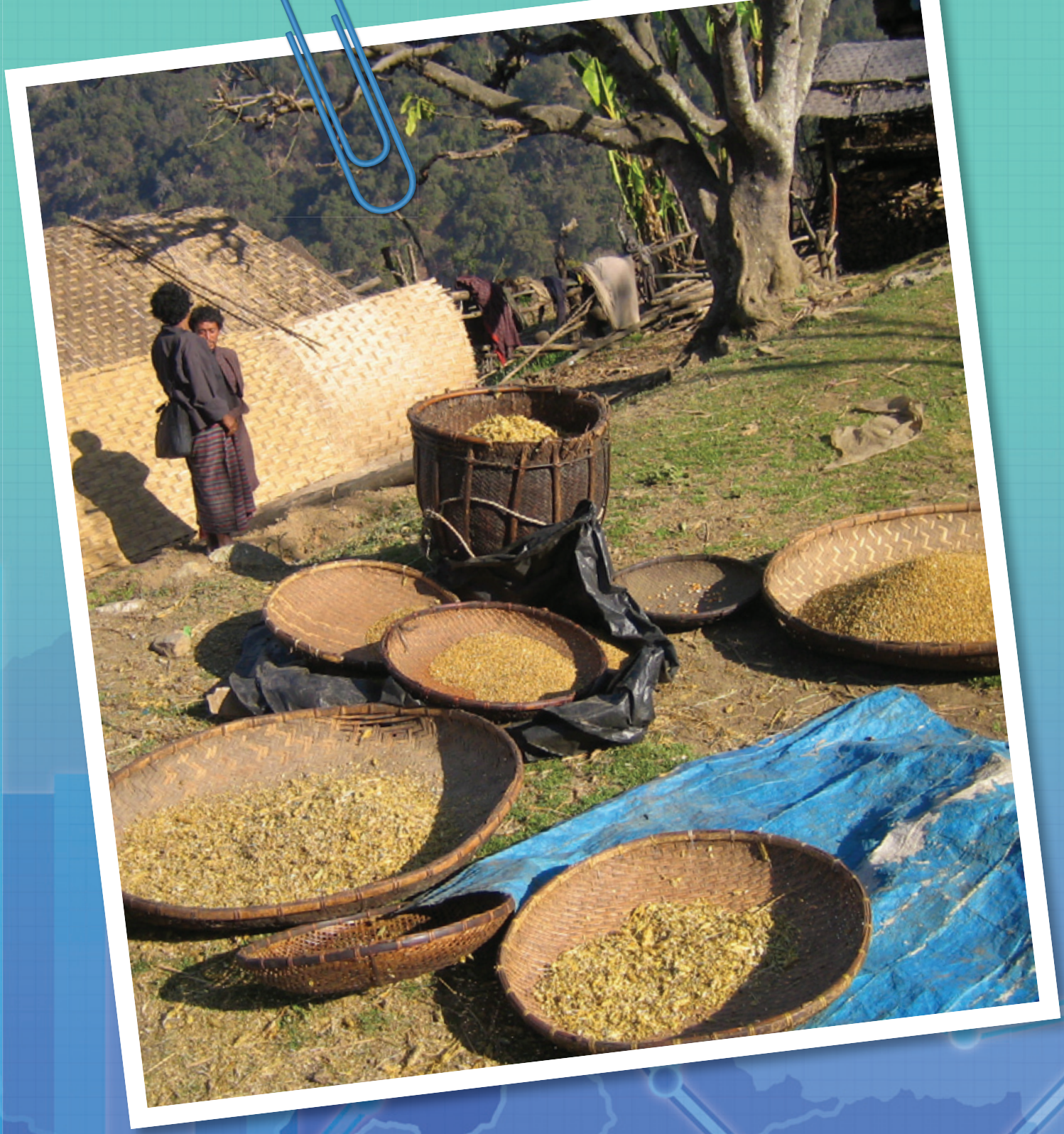
Area	Poor	Non-poor	Total
Urban	20.8	32.4	32.3
Rural	92.8	82.3	83.6
Bhutan	88.8	64.0	66.1

household heads (68%) in Bhutan are aged 25 to 54 years, while less than five percent are below age 25, and about 13 percent are 65 and above.

Figure 3.8 shows the distribution of floor and external wall types by household poverty status. There is not much difference between poor and non-poor households in the use of materials, except for cement/tile and plank/shingles. Just over 10 percent of the poor households has cement/tile compared to 30 percent for the non-poor. At least 23 percent of the poor have clay/earthen floor while less than 10 percent of non-poor have such flooring. Regarding the main materials of the wall, only seven percent of the poor households have cement-bonded or concrete compared to 37 percent for the non-poor households.

Table 3.10 shows land ownership in urban and rural areas by poverty status. Across the country, 66 percent of households own land with a higher proportion owned by poor households. The proportion of households owning land in rural areas is at least two and half times that of urban areas.

Figure 3.9 illustrates the distribution of the number of households and the poverty rate by size of land holdings in rural areas. The largest proportion of households own up to one acre of land but the proportion decreases with the size of land holding. The poverty rate is the lowest for landless households. The incidence of poverty is slightly lower for households who own two to three acres compared to those who own one to two acres, but is almost similar to those households who own more than three acres.



Chapter 4: **Basic Needs**

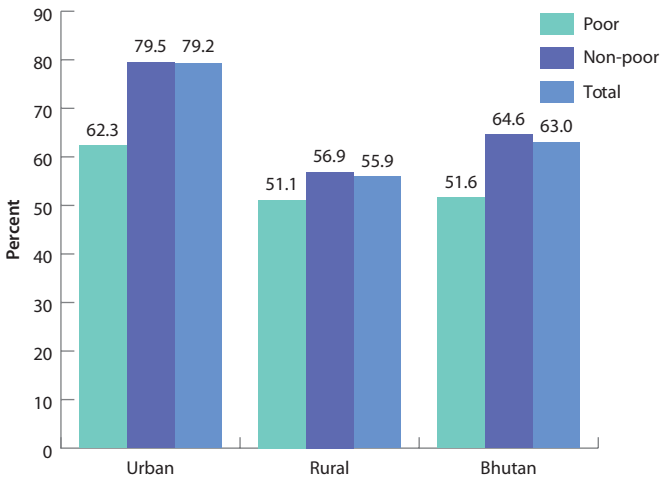
Other non-monetary dimensions of welfare, such as health and education status that pertain to basic needs, are complementary to consumption poverty. The health status of an individual undoubtedly determines her/his quality of life. Literacy and education status are widely recognized to be important for improving 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. Such occupations often put 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.

4.1. Education

According to Figure 4.1, poor persons in Bhutan have a much lower literacy rate than non-poor persons: 52 percent against 65 percent, respectively. Disparities persist in literacy rates between poor and non-poor both in the urban and rural areas. The literacy rate of the poor in urban areas is 17 percent lower than the non-poor while in the rural areas the literacy rate of the poor is just 6 percent lower than the non-poor.

At least 70 percent of the poor population 15 years and older have never attended school/institute while just over half of the non-poor have not attended. Although there is almost equal proportions of the poor and non-poor adult population that have some educational attainment up to at most class eight, the proportion who have XI and XII qualifications among the poor is just half that of the non-poor population. Just about one percent of the poor population has beyond

Figure 4.1. Literacy Rate by Area and Poverty Status



secondary qualification while adult population among the non-poor has seven percent (Figure 4.2).

4.2. Income

The BLSS 2012 collected information on the household income. Figure 4.3 illustrates that the average monthly income in urban areas is higher than in rural areas by about Nu. 10,000. The disparities between the poor and non-poor households in terms of average income exist both in urban and rural areas. In urban areas, the average income of the non-poor households is Nu. 23,784: more than three times that of the poor households. In the rural areas, the average income of the non-poor is Nu. 9,348: more than twice that of the poor households.

4.3. Health

The BLSS 2012 collected information about the health conditions and access to health services. Around 17 percent of

Figure 4.2. Distribution of Adult (15+) Educational Attainment by Poverty Status

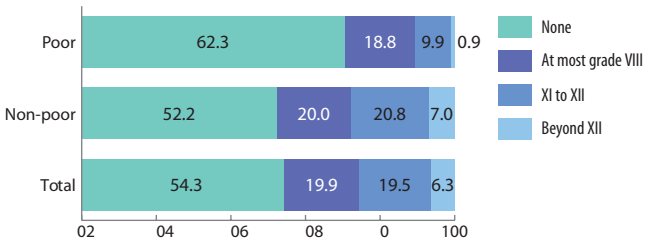
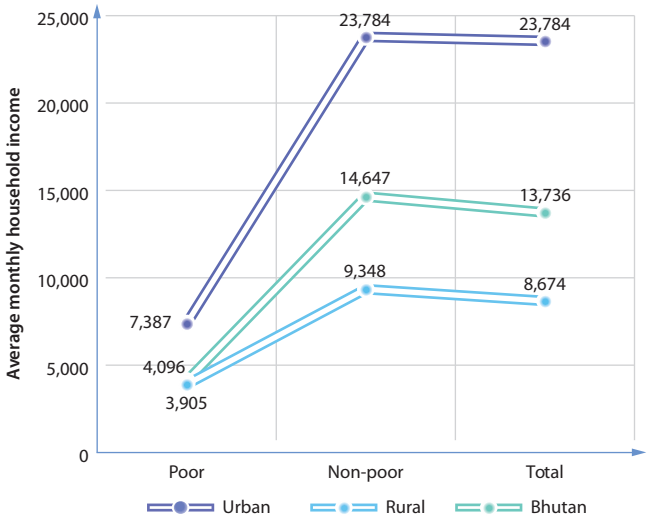


Figure 4.3. Average Monthly Household Income by Poverty Status and Area



the 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 (Figure 4.4). However, of the population that reported some illness only over half (53%) of the poor visited a medical facility compared to 69 percent of the non-poor.

Table 4.1 illustrates a disparity between the percentage of the poor (36%) and the non-poor (58%) who first visited JDWNRH, or a regional referral or district hospital when they suffered from sickness or injury four weeks before the interview. At least 60 percent of the poor visited BHU/ORC compared against only 38 percent of non-poor. The disparity is more common in rural areas.

When examining women who gave birth during the 12 months prior to the BLSS 2012 interview, there is no difference between poor and non-poor women. However, in rural areas, a smaller proportion of poor women received ante-natal care than non-poor women. A considerable proportion of women received pre-natal care in urban areas, especially among the poor (Figure 4.5).

Figure 4.4. Health Seeking Behaviour by Area and Poverty Status

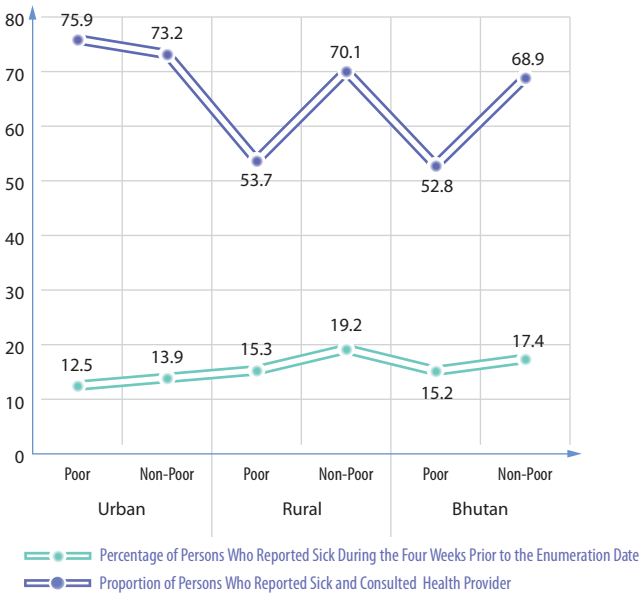
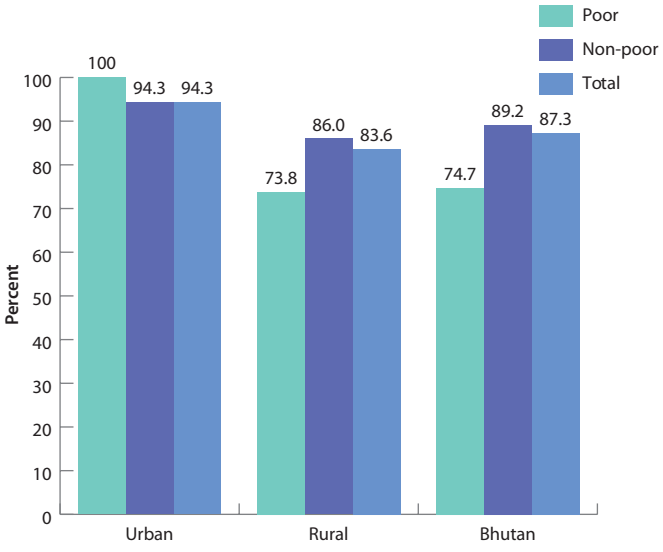


Figure 4.5. Proportion of Women Who Received Ante-Natal Care by Areas and Poverty Status



4.4. 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 welfare conditions of the household. Lack of safe water or basic sanitation affects an individual's health by increasing her/his chances of contracting diseases that are transmitted in

Table 4.1. Distribution of Persons who Suffered from Sickness/Injury four weeks prior to the survey with Health Seeking Behaviour by Area and Poverty Status

Health Service Provider Consulted	Urban			Rural			Bhutan		
	Poor	Non-Poor	Total	Poor	Non-Poor	Total	Poor	Non-Poor	Total
JDWNRH	6.9	33.2	32.8	3.1	9.2	8.5	3.3	16.1	15.0
Govt. regional referral hospital	8.8	14.4	14.3	6.9	10.4	10.0	7.0	11.5	11.1
Govt. district hospital	51.6	31.2	31.5	23.9	30.4	29.7	25.3	30.6	30.2
Govt. BHU/ORC	25.2	14.8	15.0	62.2	46.9	48.6	60.2	37.7	39.6
Indigenous centres	0.0	1.1	1.0	0.7	0.4	0.4	0.7	0.6	0.6
Traditional practitioner	0.0	0.7	0.6	0.0	0.0	0.0	0.0	0.0	0.0
Others	7.5	4.7	4.8	3.3	2.8	2.8	3.5	3.5	3.5
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Figure 4.6. Proportion of Households with Access to Improved Water Source by Poverty Status and Area

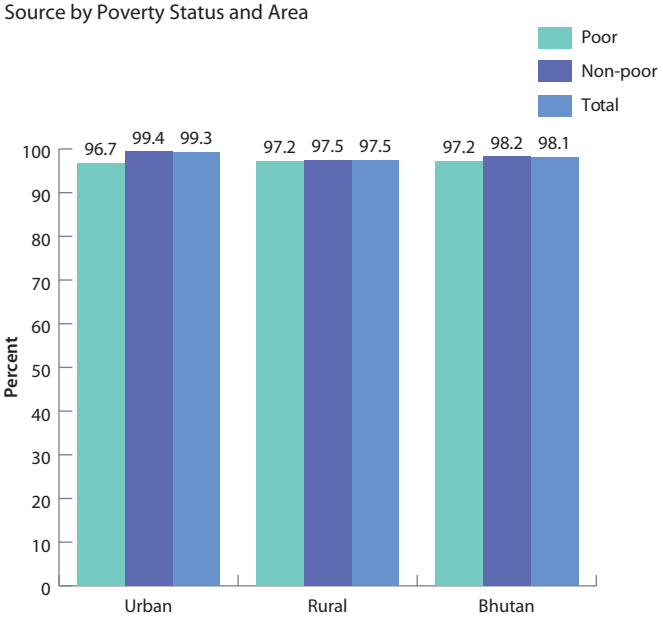


Figure 4.7. Proportion of Households with Access to Improved Sanitation by Poverty Status and Area

unsanitary environments. 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 becomes unemployed, or dies, or if a natural disaster occurs, the household could use its assets to smooth consumption. Consequently, it is important to look at the amenities and assets of a household as well as their access to basic social services to get a comprehensive assessment of their welfare conditions.

The BLSS 2012 shows that across the country, about all (98%) households have access to an improved water source, i.e., piped water, public tap, protected wells/spring, bottled water and rain water collection. There is hardly any disparity in access to improved water source between poor and non-

Table 4.2. Household Distribution of Subjective Poverty by Area and Poverty Status

Area/ Poverty Status	Not poor	Neither poor nor non-poor	Poor	Very poor	Don't know
Urban	20.1	64.1	13.4	0.5	2.0
Poor	0.0	44.4	50.9	4.7	0.0
Non-poor	20.4	64.4	12.9	0.4	2.0
Rural	5.9	61.7	28.1	3.6	0.6
Poor	1.9	49.9	39.3	8.6	0.3
Non-poor	6.5	63.4	26.6	2.9	0.6
Bhutan	10.7	62.5	23.1	2.6	1.1
Poor	1.8	49.6	39.9	8.4	0.3
Non-poor	11.6	63.8	21.5	2.0	1.1

Table 4.3. Household Distribution of Subjective Happiness by Area and Poverty Status

Area/Poverty Status	Very happy	Moderately happy	Neither happy unhappy	Moderately unhappy	Very unhappy
Urban	**33.7**	**54.2**	**10.4**	**1.2**	**0.5**
Poor	34.0	54.3	10.0	1.1	0.5
Non-poor	14.4	47.8	34.4	3.4	0.0
Rural	**32.2**	**50.8**	**12.7**	**3.0**	**1.3**
Poor	33.7	50.4	12.2	2.7	1.1
Non-poor	21.9	54.0	16.6	5.1	2.4
Bhutan	**32.7**	**52.0**	**11.9**	**2.4**	**1.0**
Poor	33.8	51.8	11.4	2.1	0.9
Non-poor	21.5	53.7	17.6	5.0	2.3

Figure 4.8. Proportion of Households Fuel Use for Lighting by Poverty Status and Area

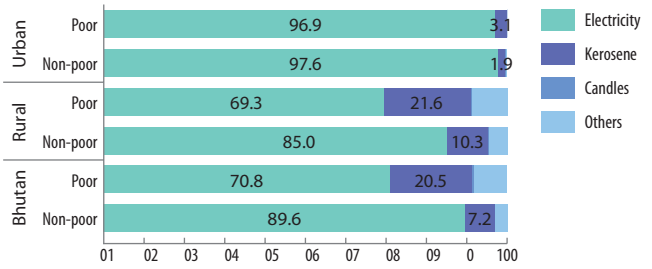
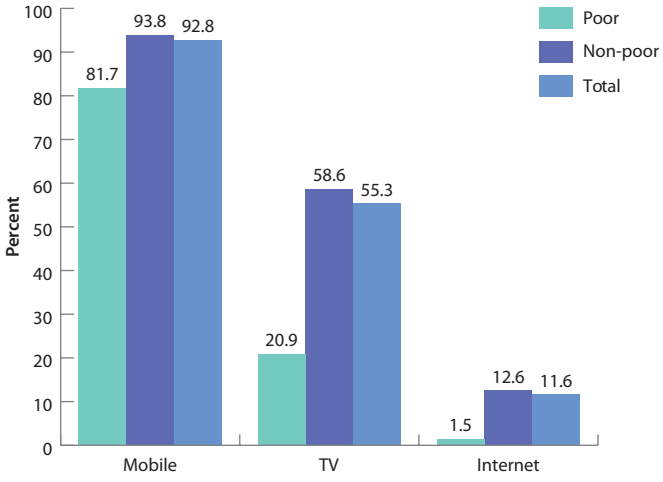
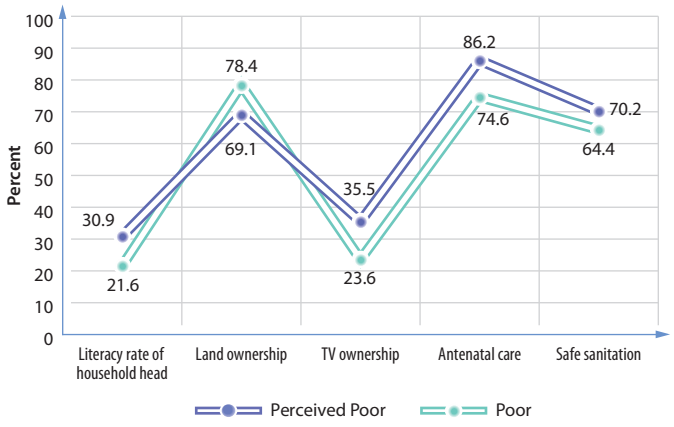


Figure 4.9. Proportion of the Population with Ownership of Mobiles, TV and Internet by Poverty Status



poor, both in urban and rural areas (Figure 4.6). However, further observation reveals that piped water into dwelling is less common among poor households forcing about one-third of the poor households to depend on a neighbour's pipe or public outdoor tap.

Figure 4.10. Rate of Characteristics for Perceived Poor and Poor Households



Regarding access to improved sanitation (Figure 4.7), at least 80 percent households have access to improved sanitation (sewers or septic tanks, flush-latrines, pit with slab, or ventilated improved pit latrines). The disparity of around 15 percentage point is observed between poor and non-poor households both in urban and rural areas. In urban areas, 81 percent of poor households have access to improved sanitation compared to only 62 percent in the rural areas.

The BLSS 2012 found that the main source of energy for lighting throughout the country is electricity (88%) which is proportionally higher in urban areas (98%) than in rural areas (83%). Figure 4.8 illustrates that nearly all (97%) of poor and non-poor households in urban areas depend on electricity for lighting in rural areas, however, only 69 percent of the poor households have electricity as their main source of lighting.

Figure 4.9 shows that 82 percent of poor households own mobile phone, but the corresponding proportion for the non-

poor is much higher (94%). The disparity between the poor and the non-poor is also evident for ownership of TV and internet connection in their homes. Only 21 percent among the poor households have TV compared to 59 percent in the non-poor households. The internet connection at home is low at 12 percent. Among the poor households, barely about two percent have a connection.

4.5. Perception and Priorities

In the BLSS 2012, questions about the perception of poverty and happiness were included. The household head was asked if he considered the household to be poor. This can be thought of as a measure of perceived poverty. Across the country, at least a quarter (26%) of the household heads considers their households to be either poor or very poor. In the urban areas, the perceived poverty rate is 14 percent which is mostly driven by the poor households (56%). There is at least 10 percent of the household heads, who do not consider their households poor yet the analysis of survey data shows they are actually poor. About a quarter (23%) of the household heads belonging to non-poor households consider their households to be poor and the proportion is more than double in urban areas (30%) compared to rural areas (13%). Table 4.2 further shows that in the urban areas there is no household head that belongs to a poor household that considers itself to be non-poor.

It could be useful to develop a different poverty profile based on the perceived (subjective) poverty. It is generally true that the subjective poverty line is much higher than the poverty line. The mean per-capita expenditure of the perceived poor is Nu. 3,201 compared to Nu. 1,353 for the poor. Figure 4.10 shows the difference for some indicators. The literacy rate of the household heads, TV ownership, access to ante-natal care and safe sanitation are lower for the poor than for the perceived poor. The only exception is for the rate of land ownership.

Regarding the perception on happiness (Table 4.3), the majority of the household heads reported they are moderately happy (52%) or very happy (33%). Although there is hardly any difference between the poor and non-poor who reported on moderate happiness, the proportion of household heads who reported being very happy is much higher among the poor households; around 20 percentage point and 10 percentage point higher in urban area rural areas, respectively. It is more likely that the non-poor households report being neither happy nor unhappy compared to poor households especially in the urban areas.

The BLSS 2012 respondents were asked to identify an action agenda for the government that would improve their welfare. Most of the poor, especially in the rural areas, suggest that road infrastructure and bridges, commerce, transport and communication and water supply should be the priorities of government. In urban areas, poor households specified housing, labour and employment creation, and land and resettlement, as priority concerns.

Chapter 5: **Inequality**

While poverty indicators focus on the population or households at the bottom of the per capita consumption distribution, it is also important to look at the spread of consumption over the entire population using inequality indicators. 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.

5.1. Consumption Quintiles

Consider the distribution of real per capita consumption. Typically the population is ranked by ascending order of per capita consumption and the distribution is divided into fifths, i.e., 20 percent of the population, or equivalently quintiles. In Bhutan, the share (7.1%) of national consumption of the poorest quintile is only one sixth that of the share of the richest quintile of the population (Figure 5.1).

Table 5.1 shows that a person belonging to the richest 20 percent of the national population consumes on average 6.7 times more than a person belonging to the poorest 20 percent of the population. This difference represents a decrease compared to the estimates in the BLSS 2007 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.

5.2. 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 5.2 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 indicates that inequality in urban and rural areas is very pronounced. The degree of inequality is similar in urban and rural areas. This similarity 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 5.1. Per Capita Consumption Quintiles

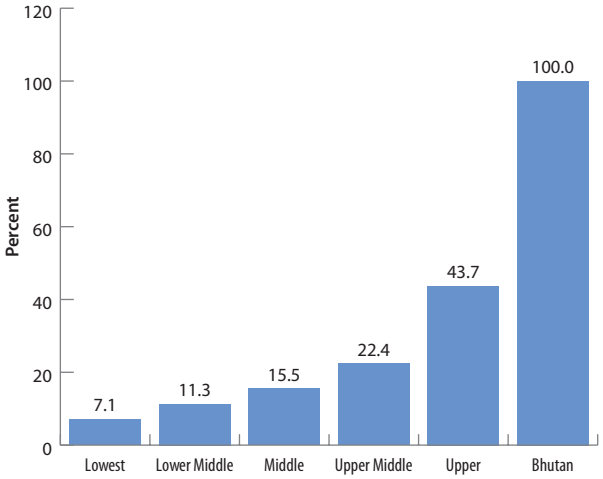
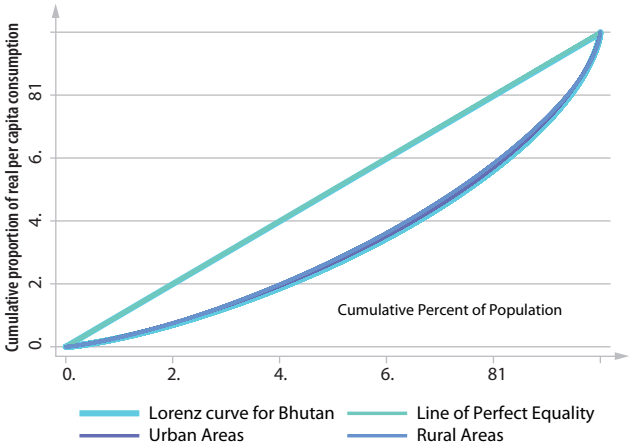


Table 5.1. Average Monthly Real Per Capita Consumption (Nu), Share in National Consumption, Average Share of Food to Total Consumption, Average Household Size by Consumption Quintile

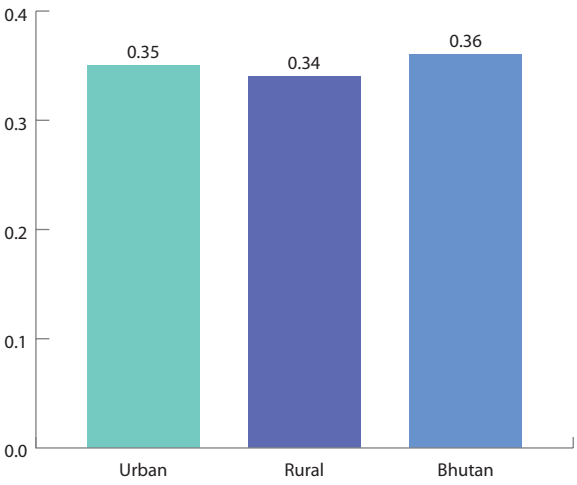
Indicator	Lowest	Lower Middle	Middle	Upper Middle	Upper	*Overall*
Average Per Capita Consumption	1,881.6	2,972.4	4,102.5	5,901.5	11,525.5	*4,603.2*
Share of National Consumption	7.1	11.3	15.5	22.4	43.7	*100.0*
Average Share of Food Consumption to Total Consumption	71.7	67.7	62.2	57.8	52.0	*62.3*
Average Household Size	6.1	5.1	4.5	3.9	3.2	*4.5*

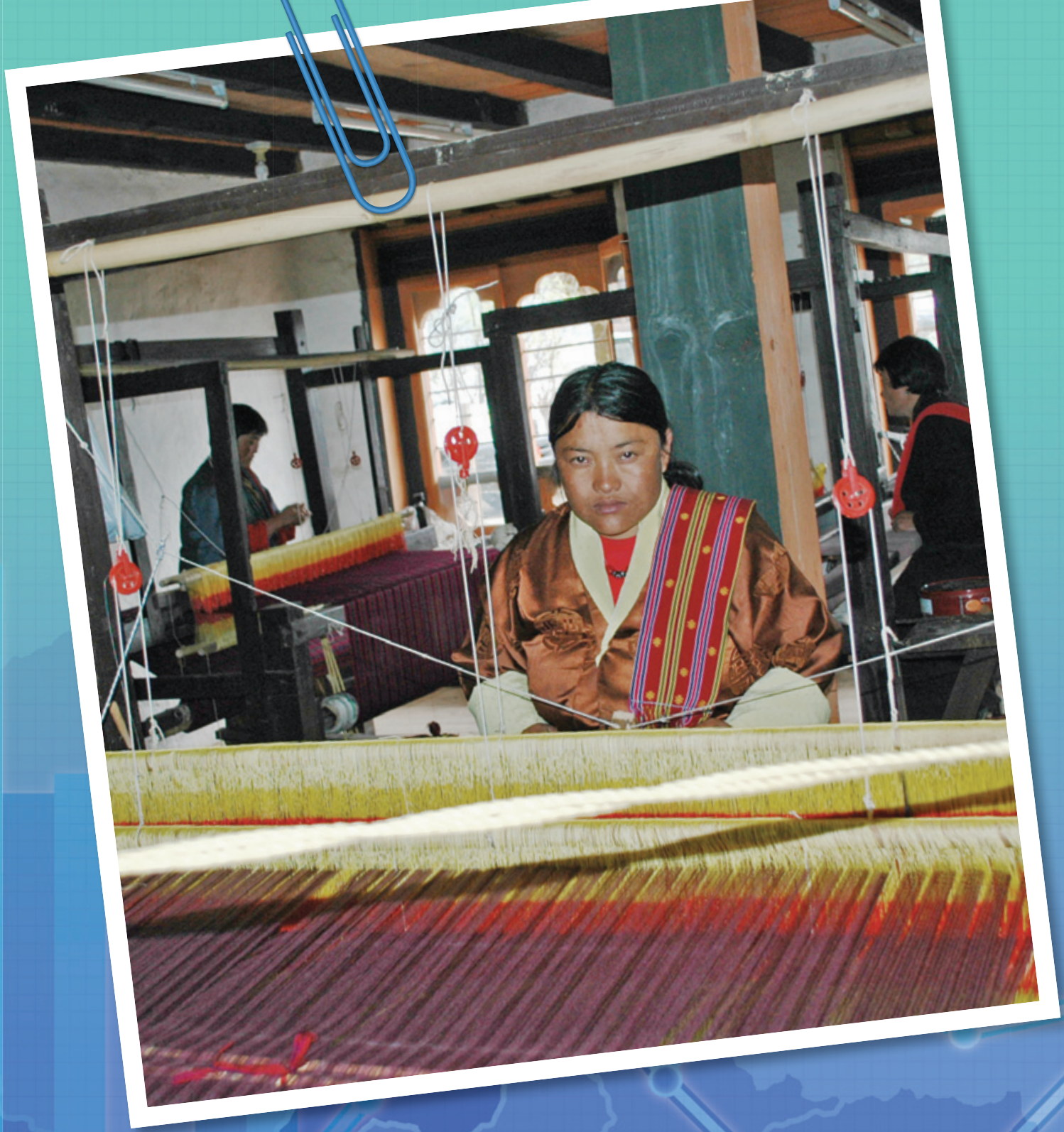
Figure 5.2. Lorenz Curve of Per Capita Household Consumption by Area



The Gini coefficient, measured by 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 indicator of inequality. The Gini index ranges between 0 to 1 (with zero meaning perfect equality and one meaning perfect inequality). The typical values of the Gini coefficient is between 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 groups within the country. Figure 5.3 provides the Gini index at the national level and within urban and rural areas. The Gini at the national level (0.36) is observed to almost equal that of urban (0.35) and rural areas (0.34).

Figure 5.3. Gini Coefficient by Area





Chapter 6: **Conclusion**

The Royal Government of Bhutan has been, over the past years, implementing developmental activities with the focus of increasing the living standards of its citizens. The 10th FYP in particular aimed to alleviate poverty under the theme of "Poverty Reduction." Such themes reflect the Government's commitment towards improving the welfare of the people especially those who live in poverty. 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 its 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. It highlighted the poverty conditions in the country and unquestionably contributed to putting poverty on the development policy agenda, even though the FYPs have always had a pro-poor focus.

The second analysis was carried out in 2007 using the BLSS 2007 data, which was designed to provide a portrait of the poverty conditions down to the *dzongkhag* level. The report examined an 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, 23.2 percent of the population was living in poverty in 2007. The rate of subsistence (or extreme) poverty was estimated at 5.9 percent, - one in sixteen Bhutanese did not have enough income to purchase even their food needs.

The current analysis report using BLSS 2012 data is based on a similar questionnaire, sample size and sampling methodology as BLSS 2007 that allows valid comparisons of poverty indicators over time. The poverty lines for the current analysis are updated from 2007 using the ratio of the Consumer Price Indices of 2012 and 2007. The total poverty line is obtained at Nu. 1,704.84 per person per month and subsistence poverty line of Nu. 1,154.74 per person per month. Consequently, the poverty rate is observed to be at 12 percent and subsistence poverty at 2.8 percent. Compared to the poverty rate in 2007, the result in 2012 represents a reduction of about 50 percent. However, in urban areas there is considerably smaller (i.e., from 0.2% to 0.3%) increase in the estimated total poverty index relative to the food poverty index, reflecting the more rapid inflation in food prices than in nonfood prices during 2012 and 2007.

Besides providing comparable and updated poverty profiles, the PAR 2012 also presents a spatial distribution of poverty in Bhutan down to the *dzongkhag* level. Updated information about the conditions of the poor presented in this report conveys information necessary to guide the implementing plans and programs needed to eradicate poverty and improve the living standards of the poor in Bhutan.

This report shows that poverty is still very much a rural phenomenon in Bhutan, and that living standards vary considerably across the *dzongkhags*.

In terms of demographic characteristics and educational attainment, the analysis shows the households that are poor tend to be larger in size with more children, and to have heads with no education and whose employment is concentrated in the agricultural sector.

Estimated literacy rates and inequality measures in this report appear to be improvements from the 2007 levels, thus giving a sense that public investments in basic social services, especially in education, have been successful in the rural areas.

Such efforts must be continued and intensified.

Like previous poverty analyses, this report confirms that poverty is still a very much a rural phenomenon where the majority (66%) of the population resides. While building a causal role for public policy in poverty reduction in Bhutan is beyond the scope of this report, some tentative conclusions can be suggested. 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 as entrepreneurs to transform their rural products should enable farmers to better reap the fruits of their labour.

. Livestock development is an excellent way to reduce poverty in the poorest of rural areas as it increases the standard of living for the recipients. Families get better nutrition and a source of income by selling surplus dairy products. Another option is to create market opportunities to enable the rural population sell their goods at favourable prices.

Poverty is bad not only for those who are poor but also represents a social problem that entail a joint responsibility by the government, private sector and the development partners in addressing this issue. Development plans should promote inclusive growth, speeding up growth in lagging regions, and reduce poverty in more deprived population groups. There is a need to look into the successes and failures in poverty reduction in other countries, and customize plans for Bhutan. It is hoped that this report will help all development stakeholders to understand the living conditions of the poor, and to listen to their often unheard voices, thereby leading to informed discussion and policy action.

Annex I: **Additional Statistical Tables**

Table A-1. Population Poverty Gap and Poverty Squared Gap by *Dzongkhag*

Dzongkhag	Poverty Gap			Poverty Squared Gap			*Share of Population*
	Index	*Standard error*	*Contribution to Total*	Index	*Standard error*	*Contribution to Total*	
Bumthang	0.3	*0.1*	*0.2*	<0.2	*0.0*	*<0.2*	*2.2*
Chhukha	2.3	*0.5*	*8.2*	0.7	*0.2*	*8.1*	*9.4*
Dagana	5.8	*1.3*	*7.4*	2.0	*0.7*	*7.5*	*3.3*
Gasa	<0.2	*0.0*	*<0.2*	<0.2	*0.0*	*<0.2*	*0.5*
Haa	1.4	*1.3*	*0.8*	0.5	*0.4*	*0.8*	*1.5*
Lhuentse	8.4	*2.3*	*7.9*	3.2	*1.0*	*8.9*	*2.5*
Monggar	1.8	*0.3*	*4.4*	0.6	*0.2*	*4.2*	*6.6*
Paro	<0.2	*0.0*	*<0.2*	<0.2	*0.0*	*<0.2*	*5.4*
Pema Gatshel	5.5	*1.1*	*8.1*	1.7	*0.5*	*7.4*	*3.8*
Punakha	2.5	*1.0*	*3.6*	1.0	*0.5*	*4.3*	*3.8*
Samdrup Jongkhar	4.6	*1.1*	*9.2*	1.5	*0.4*	*8.8*	*5.2*
Samtse	4.7	*0.8*	*17.0*	1.4	*0.3*	*15.6*	*9.5*
Sarpang	0.7	*0.3*	*1.5*	0.2	*0.1*	*1.3*	*5.9*
Thimphu	<0.2	*0.0*	*0.2*	<0.2	*0.0*	*0.2*	*15.4*
Trashigang	2.7	*0.5*	*7.9*	0.9	*0.2*	*8.0*	*7.5*
Trashi Yangtse	2.8	*1.9*	*3.0*	1.0	*0.8*	*3.1*	*2.8*
Trongsa	3.5	*1.0*	*3.1*	1.1	*0.4*	*3.0*	*2.3*
Tsirang	2.5	*0.7*	*3.2*	0.7	*0.3*	*2.7*	*3.3*
Wangdue Phodrang	2.3	*0.7*	*5.2*	0.8	*0.3*	*5.3*	*5.8*
Zhemgang	7.2	*2.0*	*9.0*	2.9	*1.1*	*10.8*	*3.3*
Bhutan	2.6	*0.2*	*100.0*	0.9	*0.1*	*100.0*	*100.0*

Table A-2. Population Subsistence Poverty Gap and Subsistence Poverty Squared Gap by *Dzongkhag*

Dzongkhag	Subsistence Poverty Gap			Subsistence Poverty Squared Gap			*Share of Population*
	Index	*Standard error*	*Contribution to Total*	Index	*Standard error*	*Contribution to Total*	
Bumthang	<0.2	*0.0*	*<0.2*	<0.2	*0.0*	*<0.2*	*2.2*
Chhukha	0.4	*0.2*	*6.7*	0.1	*0.1*	*6.5*	*9.4*
Dagana	1.3	*0.7*	*8.0*	0.3	*0.2*	*7.4*	*3.3*
Gasa	<0.2	*0.0*	*<0.2*	<0.2	*0.0*	*<0.2*	*0.5*
Haa	0.3	*0.3*	*0.8*	0.0	*0.0*	*0.3*	*1.5*
Lhuentse	2.4	*1.0*	*11.0*	0.7	*0.3*	*10.6*	*2.5*
Monggar	0.2	*0.2*	*3.1*	0.1	*0.1*	*5.4*	*6.6*
Paro	<0.2	*0.0*	*<0.2*	<0.2	*0.0*	*<0.2*	*5.4*
Pema Gatshel	0.9	*0.6*	*6.3*	0.3	*0.2*	*7.0*	*3.8*
Punakha	0.8	*0.5*	*5.7*	0.3	*0.2*	*6.2*	*3.8*
Samdrup Jongkhar	0.9	*0.4*	*9.3*	0.2	*0.1*	*8.3*	*5.2*
Samtse	0.8	*0.3*	*13.4*	0.2	*0.1*	*13.0*	*9.5*
Sarpang	<0.2	*0.0*	*0.3*	<0.2	*0.0*	*<0.2*	*5.9*
Thimphu	<0.2	*0.0*	*<0.2*	<0.2	*0.0*	*<0.2*	*15.4*
Trashigang	0.5	*0.2*	*7.3*	0.1	*0.1*	*6.4*	*7.5*
Trashi Yangtse	0.7	*0.7*	*3.7*	0.1	*0.1*	*2.6*	*2.8*
Trongsa	0.7	*0.4*	*3.1*	0.1	*0.1*	*2.2*	*2.3*
Tsirang	0.3	*0.2*	*2.1*	0.1	*0.0*	*1.1*	*3.3*
Wangdue Phodrang	0.5	*0.3*	*5.4*	0.2	*0.1*	*7.1*	*5.8*
Zhemgang	2.3	*1.1*	*13.9*	0.8	*0.4*	*15.8*	*3.3*
Bhutan	0.5	*0.1*	*100.0*	0.2	*0.0*	*100.0*	*100.0*

Table A-3. Population Poverty Rate by *Dzongkhag* and Area

Dzongkhag	Urban			Rural			*Share of Population*
	Index	*Standard error*	*Distribution of the poor*	Index	*Standard error*	*Distribution of the poor*	
Bumthang	2.5	*1.6*	*2.4*	3.8	*2.3*	*2.4*	*2.2*
Chhukha	5.2	*1.4*	*42.9*	16.8	*3.5*	*42.9*	*9.4*
Dagana	2.8	*2.6*	*2.1*	28.3	*4.1*	*2.1*	*3.3*
Gasa	<0.5	*0.0*	*<0.5*	<0.5	*0.0*	*<0.5*	*0.5*
Haa	<0.5	*0.0*	*<0.5*	8.5	*5.7*	*<0.5*	*1.5*
Lhuentse	4.9	*5.8*	*2.0*	34.6	*6.3*	*2.0*	*2.5*
Monggar	<0.5	*0.0*	*<0.5*	12.7	*2.1*	*<0.5*	*6.6*
Paro	<0.5	*0.0*	*<0.5*	<0.5	*0.0*	*<0.5*	*5.4*
Pema Gatshel	4.0	*3.9*	*3.5*	30.1	*3.6*	*3.5*	*3.8*
Punakha	1.5	*1.5*	*1.8*	11.9	*3.1*	*1.8*	*3.8*
Samdrup Jongkhar	2.7	*1.6*	*7.1*	28.1	*5.6*	*7.1*	*5.2*
Samtse	1.8	*0.8*	*5.4*	26.5	*3.5*	*5.4*	*9.5*
Sarpang	3.8	*1.4*	*12.0*	4.3	*1.5*	*12.0*	*5.9*
Thimphu	<0.5	*0.1*	*6.5*	2.0	*1.2*	*6.5*	*15.4*
Trashigang	2.9	*1.6*	*4.8*	12.7	*1.7*	*4.8*	*7.5*
Trashi Yangtse	<0.5	*0.0*	*<0.5*	15.7	*5.7*	*0.0*	*2.8*
Trongsa	2.0	*1.2*	*1.4*	17.5	*4.5*	*1.4*	*2.3*
Tsirang	<0.5	*0.0*	*<0.5*	16.1	*3.0*	*<0.5*	*3.3*
Wangdue Phodrang	1.7	*1.4*	*4.9*	14.3	*2.8*	*4.9*	*5.8*
Zhemgang	3.6	*2.0*	*3.1*	30.0	*5.0*	*3.1*	*3.3*
Bhutan	1.8	*0.3*	*100.0*	16.7	*0.8*	*100.0*	*100.0*

Table A-4. Household Poverty Rate by *Dzongkhag* and Area

Dzongkhag	Urban			Rural			*Distribution of households*
	Index	*Standard error*	*Distribution of the poor*	Index	*Standard error*	*Distribution of the poor*	
Bumthang	2.7	*1.8*	*3.2*	1.7	*1.1*	*<0.5*	*2.2*
Chhukha	4.2	*1.1*	*48.7*	11.5	*2.8*	*6.4*	*9.4*
Dagana	1.8	*1.7*	*1.9*	21.4	*3.3*	*7.9*	*3.3*
Gasa	<0.5	*0.0*	*<0.5*	<0.5	*0.0*	*<0.5*	*0.5*
Haa	<0.5	*0.0*	*<0.5*	4.0	*2.8*	*0.5*	*1.5*
Lhuentse	2.6	*3.1*	*1.2*	27.1	*5.1*	*7.2*	*2.5*
Monggar	<0.5	*0.0*	*<0.5*	9.2	*1.5*	*5.3*	*6.6*
Paro	<0.5	*0.0*	*<0.5*	<0.5	*0.0*	*<0.5*	*5.4*
Pema Gatshel	3.2	*3.1*	*3.1*	23.7	*2.9*	*9.3*	*3.8*
Punakha	1.0	*1.0*	*1.6*	9.2	*2.0*	*3.1*	*3.8*
Samdrup Jongkhar	2.3	*1.4*	*7.5*	20.0	*4.2*	*10.0*	*5.2*
Samtse	1.1	*0.5*	*4.3*	19.9	*2.7*	*17.8*	*9.5*
Sarpang	1.9	*0.7*	*8.6*	2.6	*0.9*	*1.3*	*5.9*
Thimphu	<0.5	*0.1*	*5.9*	2.4	*1.2*	*0.6*	*15.4*
Trashigang	2.0	*1.0*	*4.2*	10.0	*1.4*	*8.5*	*7.5*
Trashi Yangtse	<0.5	*0.0*	*<0.5*	10.2	*3.0*	*3.1*	*2.8*
Trongsa	1.6	*0.9*	*1.5*	12.9	*3.6*	*2.8*	*2.3*
Tsirang	<0.5	*0.0*	*<0.5*	13.4	*2.4*	*4.8*	*3.3*
Wangdue Phodrang	1.5	*1.2*	*5.6*	10.7	*1.9*	*4.9*	*5.8*
Zhemgang	2.7	*1.5*	*2.9*	22.8	*4.2*	*6.2*	*3.3*
Bhutan	1.4	*0.2*	*100.0*	12.4	*0.6*	*100.0*	*100.0*

Table A-5. Population Poverty Gap and Poverty Squared Gap by area

Area	Poverty Gap			Poverty Squared Gap			Share of Population
	Index	Standard error	Contribution to Total	Index	Standard error	Contribution to Total	
Urban	0.3	*0.1*	*4.1*	<0.2	*0.0*	*3.6*	*31.0*
Rural	3.6	*0.3*	*95.9*	1.2	*0.1*	*96.4*	*69.0*
Bhutan	2.6	*0.2*	*100.0*	0.9	*0.1*	*100.0*	*100.0*

Table A-6. Population Subsistence Poverty Gap and Poverty Squared Gap by area

Area	Poverty Gap			Poverty Squared Gap			Share of Population
	Index	Standard error	Contribution to Total	Index	Standard error	Contribution to Total	
Urban	<0.2	*0.1*	*2.9*	<0.2	*0.0*	*2.8*	*31.0*
Rural	0.8	*0.2*	*97.1*	0.2	*0.1*	*97.2*	*69.0*
Bhutan	0.5	*0.1*	*100.0*	0.2	*0.1*	*100.0*	*100.0*

Table A-7. Household Poverty Rate, Poverty Gap and Poverty Squared Gap by Area and Sex of Household Heads

Area/Sex of HH Head	Poverty Rate		Poverty Gap		Poverty Squared Gap		Share of Population
	Index	Contribution to Total	Index	Contribution to Total	Index	Contribution to Total	
Urban	1.4	*11.4*	0.3	*100.0*	<0.2	*100.0*	*100.0*
Male	1.5	*88.6*	0.3	*84.4*	<0.2	*81.4*	*80.6*
Female	0.8	*11.4*	0.2	*15.6*	<0.2	*18.6*	*19.4*
Rural	12.4	*100.0*	2.6	*100.0*	0.8	*100.0*	*100.0*
Male	12.9	*68.4*	2.6	*65.4*	0.8	*63.2*	*65.6*
Female	11.3	*31.6*	2.6	*34.6*	0.9	*36.8*	*34.4*
Bhutan	8.6	*100.0*	1.8	*100.0*	0.6	*100.0*	*100.0*
Male	8.5	*69.5*	1.7	*66.4*	0.5	*64.1*	*70.7*
Female	9.0	*30.5*	2.0	*33.6*	0.7	*35.9*	*29.32*

Table A-8. Household Poverty Rate Poverty Gap and Poverty Squared Gap by Area and Age of Household Heads

Area/Age of HH Head	Poverty Rate		Poverty Gap		Poverty Squared Gap		Share of Population
	Index	Contribution to Total	Index	Contribution to Total	Index	Contribution to Total	
Urban	1.4	*100.0*	0.3	*100.0*	<0.2	*100.0*	*100.0*
< 25	0.6	*2.9*	<0.2	*2.0*	<0.2	*1.3*	*6.6*
25-34	1.1	*30.2*	0.2	*25.0*	<0.2	*24.0*	*37.4*
35-44	1.5	*31.2*	0.2	*23.5*	<0.2	*16.1*	*28.1*
45-54	1.4	*17.3*	0.3	*17.8*	<0.2	*15.4*	*17.5*
55-64	1.9	*8.8*	0.3	*8.2*	<0.2	*5.5*	*6.5*
65 +	3.3	*9.6*	1.6	*23.5*	0.8	*37.7*	*4.0*
Rural	12.4	*100.0*	2.6	*100.0*	0.8	*100.0*	*100.0*
< 25	5.2	*1.4*	1.3	*1.7*	0.5	*1.8*	*3.3*
25-34	5.7	*7.9*	1.2	*7.6*	0.3	*6.9*	*16.9*
35-44	11.8	*19.3*	2.6	*20.4*	0.9	*20.8*	*20.2*
45-54	14.2	*26.0*	2.9	*25.4*	0.9	*25.2*	*22.6*
55-64	15.2	*24.2*	3.1	*23.7*	1.0	*22.5*	*19.7*
65 +	15.3	*21.3*	3.2	*21.3*	1.1	*22.7*	*17.2*
Bhutan	8.6	*100.0*	1.8	*100.0*	0.6	*100.0*	*100.0*
< 25	2.8	*1.4*	0.7	*1.7*	0.2	*1.8*	*4.4*
25-34	3.3	*9.1*	0.6	*8.5*	0.2	*7.7*	*23.9*
35-44	7.5	*20.0*	1.6	*20.6*	0.5	*20.5*	*22.9*
45-54	10.5	*25.5*	2.1	*25.0*	0.7	*24.8*	*20.9*
55-64	13.3	*23.4*	2.7	*22.9*	0.8	*21.7*	*15.2*
65 +	14.0	*20.6*	3.0	*21.4*	1.1	*23.4*	*12.7*

Table A-9. Household Poverty and Subsistence Poverty Rate by area and household size

Area/Household size	Poverty Rate		Subsistence Rate		*Share of total households*
	Index	*Contribution to National*	Index	*Contribution to National*	
Urban	1.4	*5.5*	0.2	*4.2*	*34.0*
1	<0.5	*0.1*	0.4	*0.5*	*2.2*
2-3	0.7	*0.8*	0.2	*0.9*	*9.6*
4-5	1.2	*2.1*	<0.2	*0.4*	*15.7*
6-8	3.2	*2.3*	0.6	*2.0*	*6.1*
9+	5.0	*0.2*	2.0	*0.4*	*0.4*
Rural	12.4	*94.5*	2.6	*95.8*	*66.0*
1	2.5	*0.9*	1.0	*1.7*	*2.9*
2-3	4.1	*8.1*	0.4	*3.5*	*17.0*
4-5	9.4	*26.5*	1.6	*21.0*	*24.4*
6-8	21.1	*44.5*	4.6	*46.0*	*18.2*
9+	36.3	*14.6*	12.3	*23.5*	*3.5*
Bhutan	8.6	*100.0*	1.8	*100.0*	*100.0*
1	1.6	*0.9*	0.7	*2.1*	*5.1*
2-3	2.9	*8.9*	0.3	*4.4*	*26.6*
4-5	6.2	*28.6*	1.0	*21.4*	*40.1*
6-8	16.6	*46.8*	3.6	*48.1*	*24.3*
9+	33.1	*14.8*	11.3	*24.0*	*3.9*

Table A-10. Population Literacy Rate for Aged Six Years and Above by *Dzongkhag* and Poverty Status

Dzongkhag	Poor	Non-poor	Total
Bumthang	62.9	67.8	67.6
Chhukha	58.3	72.0	70.4
Dagana	52.6	63.7	61.0
Gasa	*	49.4	49.4
Haa	69.8	68.5	68.6
Lhuentse	47.2	58.5	54.9
Monggar	56.2	59.9	59.5
Paro	*	67.3	67.3
Pema Gatshel	54.5	56.6	56.1
Punakha	47.9	55.9	55.2
Samdrup Jongkhar	54.7	63.6	61.7
Samtse	42.3	52.0	49.8
Sarpang	67.5	59.6	59.9
Thimphu	60.4	80.2	80.0
Trashigang	47.8	61.7	60.1
Trashi Yangtse	54.4	61.4	60.4
Trongsa	56.4	67.4	65.7
Tsirang	51.9	60.9	59.6
Wangdue Phodrang	42.8	52.3	51.3
Zhemgang	58.3	63.7	62.3
Bhutan	51.6	64.6	63.0

* *Figure not shown due to few cases*

Table A-11. Proportion of Women (15-49 years) Who Received Antenatal Care by *Dzongkhag* and Poverty Status

Dzongkhag	Poor	Non-poor	Total
Bumthang	*	84.6	84.6
Chhukha	69.8	96.5	93.9
Dagana	100.0	100.0	100.0
Gasa	*	43.9	43.9
Haa	*	92.1	92.1
Lhuentse	53.4	72.8	62.0
Monggar	88.0	85.6	86.0
Paro	*	85.4	85.4
Pema Gatshel	59.8	78.8	74.8
Punakha	100.0	100.0	100.0
Samdrup Jongkhar	83.3	85.4	84.9
Samtse	76.3	85.6	83.4
Sarpang	100.0	85.7	87.4
Thimphu	*	98.6	98.6
Trashigang	49.4	72.7	70.5
Trashi Yangtse	100.0	100.0	100.0
Trongsa	*	88.7	88.7
Tsirang	76.4	77.9	77.5
Wangdue Phodrang	100.0	94.0	94.7
Zhemgang	44.7	84.8	66.5
Bhutan	74.6	89.2	87.2

* *Figure not shown due to few cases*

Table A-12. Proportion of Population Who Reported Sick/Injured Four Weeks Prior to the Survey by *Dzongkhag* and Poverty Status

Dzongkhag	Poor	Non-poor	Total
Bumthang	11.0	15.7	15.5
Chhukha	13.6	16.9	16.5
Dagana	17.5	25.1	23.2
Gasa	*	29.8	29.8
Haa	2.8	5.2	5.0
Lhuentse	15.6	20.2	18.7
Monggar	11.0	14.9	14.5
Paro	*	27.4	27.4
Pema Gatshel	10.9	11.4	11.2
Punakha	17.9	21.4	21.0
Samdrup Jongkhar	20.8	22.6	22.2
Samtse	6.2	7.1	6.9
Sarpang	18.3	7.7	8.2
Thimphu	47.2	14.0	14.1
Trashigang	19.5	25.6	24.9
Trashi Yangtse	8.5	22.5	20.6
Trongsa	23.2	22.4	22.5
Tsirang	22.7	32.0	30.6
Wangdue Phodrang	10.5	14.8	14.3
Zhemgang	28.9	24.1	25.3
Bhutan	15.2	17.4	17.1

* *Figure not shown due to few cases*

Table A-13. Proportion of Population with Access to Improved Water Source by *Dzongkhag* and Poverty Status

Dzongkhag	Poor	Non-poor	Total
Bumthang	100.0	100.0	100.0
Chhukha	100.0	98.7	98.8
Dagana	95.5	95.8	95.8
Gasa	*	100.0	100.0
Haa	65.3	99.1	98.1
Lhuentse	100.0	98.7	99.0
Monggar	100.0	95.8	96.1
Paro	*	98.9	98.9
Pema Gatshel	100.0	98.9	99.1
Punakha	93.5	96.6	96.4
Samdrup Jongkhar	100.0	98.5	98.7
Samtse	98.2	97.4	97.5
Sarpang	89.2	98.1	97.9
Thimphu	75.8	99.6	99.5
Trashigang	100.0	98.8	98.9
Trashi Yangtse	94.7	94.9	94.8
Trongsa	100.0	97.9	98.1
Tsirang	88.1	97.3	96.1
Wangdue Phodrang	85.4	97.9	96.9
Zhemgang	100.0	97.8	98.2
Bhutan	97.2	98.2	98.1

* *Figure not shown due to few cases*

Table A-14. Proportion of Population with Access to Improved Sanitation by *Dzongkhag* and Poverty Status

Dzongkhag	Poor	Non-poor	Total
Bumthang	100.0	76.6	77.0
Chhukha	66.8	86.3	84.8
Dagana	71.3	84.2	81.8
Gasa	•	54.9	54.9
Haa	•	67.6	65.6
Lhuentse	88.2	88.1	88.1
Monggar	43.7	71.8	69.7
Paro	•	93.4	93.4
Pema Gatshel	73.9	83.0	81.1
Punakha	60.5	69.2	68.6
Samdrup Jongkhar	53.5	84.6	79.9
Samtse	49.8	71.9	68.3
Sarpang	88.4	91.2	91.1
Thimphu	75.8	95.5	95.4
Trashigang	75.0	82.0	81.4
Trashi Yangtse	79.3	72.4	73.0
Trongsa	12.4	56.8	52.1
Tsirang	69.1	87.7	85.5
Wangdue Phodrang	38.4	70.5	68.0
Zhemgang	71.8	81.6	79.8
Bhutan	62.6	82.7	81.0

* *Figure not shown due to few cases*

Table A-15. Proportion of Population using Solid Fuels by *Dzongkhag* and Poverty Status

Dzongkhag	Poor	Non-poor	Total
Bumthang	100.0	91.0	91.2
Chhukha	20.8	24.4	24.1
Dagana	18.6	25.0	23.8
Gasa	•	95.3	95.3
Haa	69.4	84.8	84.3
Lhuentse	82.2	53.9	60.9
Monggar	27.8	27.1	27.2
Paro	•	59.8	59.8
Pema Gatshel	0.9	5.6	4.6
Punakha	71.9	37.9	40.4
Samdrup Jongkhar	35.1	11.3	14.9
Samtse	12.1	3.4	4.8
Sarpang	•	3.9	3.8
Thimphu	33.1	16.4	16.5
Trashigang	15.6	30.2	28.9
Trashi Yangtse	77.3	54.6	56.6
Trongsa	68.2	61.4	62.1
Tsirang	11.8	30.1	27.9
Wangdue Phodrang	57.1	47.0	47.8
Zhemgang	34.7	23.6	25.7
Bhutan	30.0	28.4	28.6

* *Figure not shown due to few cases*

Table A-16. Proportion of Households Who Have TV by *Dzongkhag* and Poverty Status

Dzongkhag	Poor	Non-poor	Total
Bumthang	82.6	76.3	76.4
Chhukha	28.8	65.1	62.4
Dagana	16.2	28.4	26.1
Gasa	*	35.8	35.8
Haa	*	79.5	77.2
Lhuentse	16.7	33.4	29.2
Monggar	12.0	38.3	36.4
Paro	*	78.7	78.7
Pema Gatshel	25.6	53.1	47.3
Punakha	34.5	62.6	60.5
Samdrup Jongkhar	12.9	45.6	40.6
Samtse	14.8	48.8	43.4
Sarpang	51.4	61.6	61.4
Thimphu	66.9	90.0	89.9
Trashigang	22.3	41.2	39.5
Trashi Yangtse	29.3	27.8	27.9
Trongsa	13.2	48.3	44.6
Tsirang	15.3	34.9	32.5
Wangdue Phodrang	27.8	50.8	49.0
Zhemgang	21.8	44.7	40.3
Bhutan	20.9	58.6	55.3

* *Figure not shown due to few cases*

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 rather 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 an 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 2012 food consumption module questionnaire contains separate sets of questions on (a) purchased imported (b) purchased domestic and (c) 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" 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 of 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" or "last 7 days," we use the "last 12 months" data and rescale the results.

The BLSS 2012 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 as part of purchased 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. Medians of unit price are computed and used separately for purchased and home-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 2012 collected data only on the value of non-foods purchased over the reference period. Data on purchases of non-food items were collected for two different 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 a housing 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 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 the 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 values 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 non-foods, 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 Food Poverty line for 2012 is updated from 2007 using the ratio of the Food Consumer Price Indices. 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. These items were used to compute the food poverty line since 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 percent of the food consumption by 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-17. 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 chili	Gram	0.29	21.31	6.18	0.03	0.64
602 Dried chili	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 overall 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 non-food items to reach a final poverty line. The non-food needs must be consistent with the consumption behavior of households who can just afford 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 non-food 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).

Similar to the Food Poverty line, the Non-food Poverty Line for 2012 is updated from 2007 using the ratio of the Non-food Consumer Price Indices.

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 is better to use confidence intervals.

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 by total population 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).

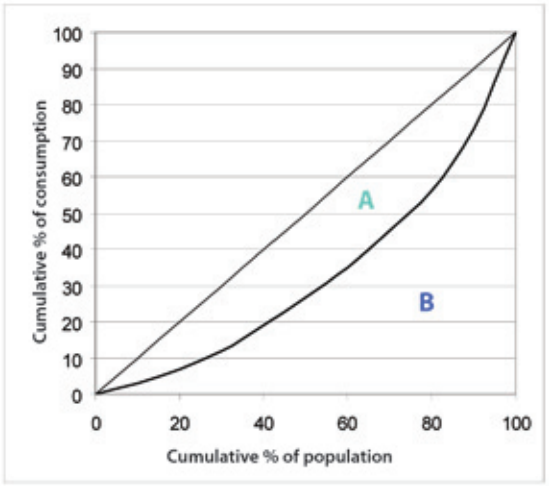
$$P_\alpha = (1/n)\sum_{i=1}^{q}\left(\frac{z-y_i}{z}\right)^\alpha$$

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.