



POVERTY PROFILE IN MONGOLIA

Main Report

Household Socio-Economic Survey 2010

Ulaanbaatar

2011

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FOREWORD

Poverty reduction continues to be one of the most pressing global challenges and the international community and organizations are pulling their efforts together to alleviate and move out of poverty. An example of such a concerted effort is directing the first goal of Millennium Development Goals (MDGs) to eradicating extreme poverty and hunger. The Government of Mongolia has joined this effort decisively by working towards combating and reducing poverty. Essential to the successful implementation of poverty interventions is the provision of credible and up-to-date information on poverty, estimated and updated through rigorous application of internationally recognized methodology.

Household Socio-Economic Survey 2010 (HSES) is a sequel to many of the surveys previously conducted by the National Statistical Office (NSO) such as *Assessments of the Living Standards of the Population of Mongolia, 1995*; *Living Standards Measurement Survey, 1998*; *Household Income, Expenditure and Living Standards Survey, 2002-2003*.

Consistent with the international practice of prioritizing coverage of themes in the analysis according to their need, importance and frequency of study, it has now established to conduct HSES in a comprehensive form every three years and in an abbreviated form annually. This enables us to estimate major poverty indices on an annual basis and feed national accounts, MDG monitoring and poverty mapping with essential indicators and estimates. At the same time, it allows us analyze some important themes in the context of the concerned policies pursued by the government and some in the context of their changing trends. There may be some themes that arise out of need and that deserve an analysis on their own rights and HSES is flexibly designed to accommodate them in its annexes. It is worth emphasizing that these positive changes in the organization and conduct of surveys are seen as new to not only Mongolian but also in international statistical practice. Enumerators had been given special training in data collection and were regularly supervised in their process of data collection. This has largely contributed to the reduction of non-sampling errors in the present survey.

Welfare is obviously too broad and multidimensional notion to be measured solely by poverty indices and is closely linked to socio-economic factors. As such, it is worth emphasizing that further analyses are needed to appraise the welfare of the population in detail building on the comprehensive information and data already collected through HSES.

We hope that present survey findings and data and information will not only provide credible and up-to-date information on poverty to all policy and decision makers but also serve as a reference material for researchers and academicians working in the area of poverty, economics and social studies.

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Chairman
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Findings of *Household Socio-Economic Survey 2010* have formed the basis of *Poverty Profile in Mongolia*, the report which is published by the National Statistical Office with the aim of determining the living standards and the state of poverty in Mongolia.

The present survey is one of the nationally representative flagship surveys and as such, the culmination of the efforts of many people including the staff of central and local offices of the National Statistical Office, who have contributed at all levels of the survey and citizens from some 11,000 households who agreed to share their household information with us.

My appreciation goes to the staff of Population and Social Statistics Department of NSO and the core staff team for their successful conduct and organization of the survey. This report would not have been possible without survey interviewers, supervisors and typists who have performed firsthand the difficult task of collecting data from households. The members of the core staff team expeditiously performed data processing and data analysis through rigorous application of internationally recognized methodology and prepared this report.

Last but not least, I would like to express my thanks to members of the Methodology Working Group and the Chairman's Board of the NSO for their professional guidance in developing survey design and proforma questionnaire, to the *aimag* and capital city statistical office and *aimag*, *soum* and *bag* authorities, local government staff and other individuals for their active participation and support and wish them all the best.

S. Mendsaikhan
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List of Abbreviations

GDP	Gross Domestic Product
GE	Generalized Entropy
HIES	Household Income and Expenditure Survey
HIES/LSMS	Household Income and Expenditure Survey with Living Standards Measurements Survey
HSES	Household Socio-Economic Survey
LSMS	Living Standards Measurements Survey
NSO	National Statistical Office
PSSD	Population and Social Statistics Department
PSU	Primary Sampling Unit

INTRODUCTION

The National Statistical Office of Mongolia regularly conducts household socio-economic surveys (HSES) nationwide with the purpose of assessing the progress Mongolia is making towards Millennium Development Goals and monitoring poverty both at the national regional levels. The survey findings enable us to see how the population welfare is evolving and ascertain the current living standards and inform policy making decisions. This report presents the analysis of poverty based on findings of HSES 2010.

Presented in this report is the poverty analysis of findings of HSES 2010 which continued for the entire duration of the year. The first chapter of the report assesses the current extent of poverty and changes made in poverty during the past one year period. The second chapter constructs a composite profile of poverty by assessing the consumption pattern of the population and examining the relationship between poverty and different characteristics of household heads, the types of housing that households live in, assets that households possess and safety nets households rely on. As in the previous reports, additional tables of technical nature are provided in annexes together with detailed explanations of methodology used in the current poverty analysis.

1. POVERTY AND INEQUALITY

The purpose of this chapter is fourfold: First, it assesses the current extent of poverty and its sensitivity to changes in the poverty line. Next, it aims to examine how poverty has changed in the past years and checks the robustness of corresponding comparisons. Then, the trend of inequality is defined. Finally, changes in poverty are examined in the context of growth and inequality. The present analysis uses monetary estimates, that is, the cost of basic needs approach to establish the living standard and poverty level of the population as did in previous surveys. The poverty line is a threshold consumption index to determine if an individual is poor and those with per capita consumption that falls below the poverty line are defined as poor. The current poverty line as determined based on per capita consumption using the cost of basic needs approach stands at 88.2 thousand tugrug.

1.1 Poverty estimates

As of 2010, the incidence of poverty in Mongolia stands at 39.2% (Table 1.1), which means about 1090.1 thousand individuals are living in poverty. In other words, 39 out of every 100 Mongolians cannot afford to buy essential food and non-food items. Although this poverty level estimate is easy to grasp it does not provide comprehensive information as to how much, in monetary terms, the poor fall short from fulfilling their basic needs and how consumption is distributed among the poor. This presents a serious limitation to evaluate alternative policy options. For example, the adoption of a particular policy may improve wellbeing of the poor leaving the incidence of poverty unchanged. To complement the so-called poverty incidence measure and to obtain more comprehensive account of poverty, two other poverty measures are used: poverty gap and poverty severity.

Table 1.1 National Poverty Rates

Headcount	Poverty gap	Severity
39.2	11.3	4.6
(0.9)	(0.3)	(0.2)

*Note: Standard errors taking into account the survey design are shown in parentheses.
Source: HSES 2010.*

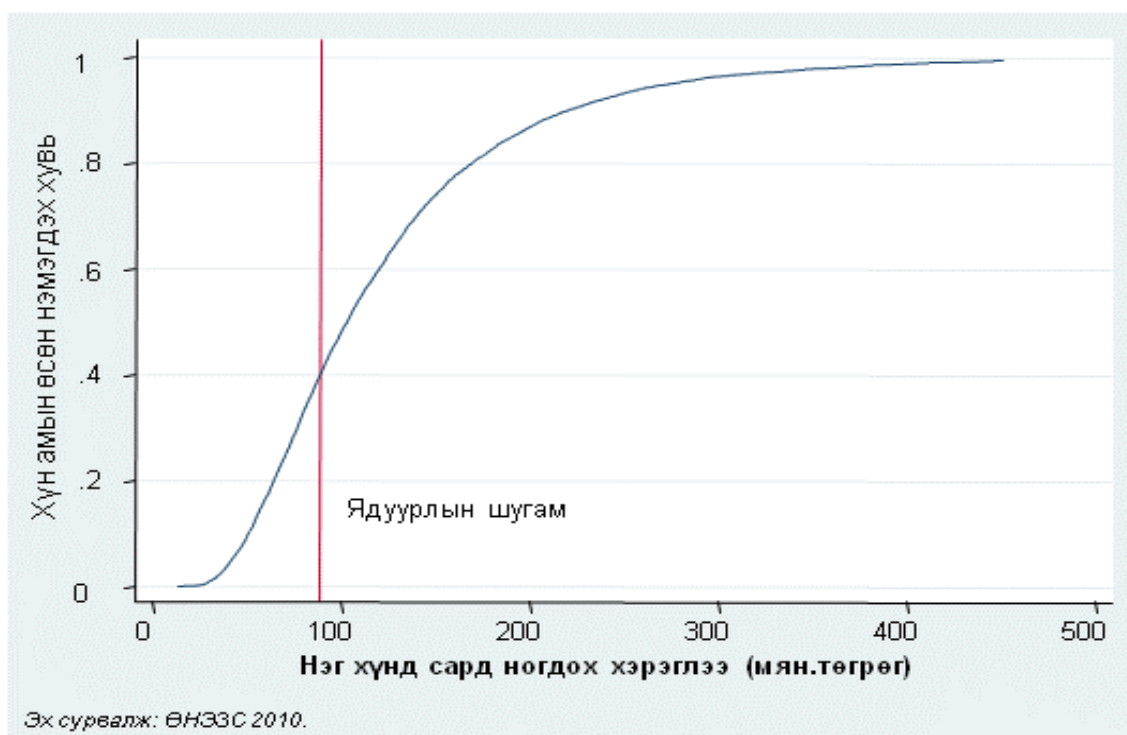
The poverty gap index measures the extent to which individuals fall below the poverty line as a proportion of the poverty line and thus, overcomes the first limitation of the poverty headcount. The current poverty gap is estimated at 11 percent, which means that the average shortfall in consumption of each person is 11 percent from the poverty line if it is assumed that the non-poor have a shortfall of zero. The poverty gap among the poor population is estimated at 29 percent, which means that the average consumption of the poor falls 29 percent or 25.6 thousand tugrug short from the poverty line. The poverty

severity is estimated at 4.6 percent¹. Unlike the poverty headcount and poverty gap indices, the poverty severity index is sensitive to the distribution of consumption among the poor. For instance, if the consumption of a poor household decreases inasmuch as the consumption of another better-off household increases, it is considered that poverty has increased. Even then if the better-off household's consumption still falls below poverty line, the poverty headcount and poverty gap indices remain unaffected; however, the severity index increases. Thus, the severity index is used to compare the poverty of groups of a population with identical headcount and gap indices.

1.2 Sensitivity of poverty estimates to poverty lines

Essential to the complete understanding of poverty is to determine how sensitive the poverty measures are to changes in the poverty line. To see how much the incidence of poverty changes for every upward or downward shift in the poverty line, we graphically illustrate the cumulative distribution function of per capita consumption.

Figure 1.1 Cumulative distribution of per capita consumption



For a given consumption level on a horizontal axis, a corresponding cumulative percentage of the population is indicated on the vertical axis. For a given consumption level which has been chosen as the poverty line, the curve indicates the level of incidence

¹ This measure assigns weight to the shortfall in consumption relative to the poverty line. The farther below the poverty line the consumption is the higher the weight is.

of poverty associated with that line and as such, it can be regarded as “poverty incidence curve.” Hence, at a poverty line of 88,156 tugrug per person per month, 39.2 percent of the total population is poor. Given that the slope of the distribution curve is steep around that level, a small shift in the current poverty line is likely to have a large impact on the poverty incidence. The concentration of the poor households near the poverty line is explained using the so-called density function.² Figure 1.2 describes the density estimate of per capita consumption. Here, two important characteristics of the distribution around the poverty line can be seen: First, significant clustering occurs close to that point. Secondly, it is highly likely that there is a greater mass below the poverty line than above it, which suggests that changes in poverty indices will be less sensitive to increasing the poverty line than decreasing it.

Figure 1.2 Density function of per capita consumption

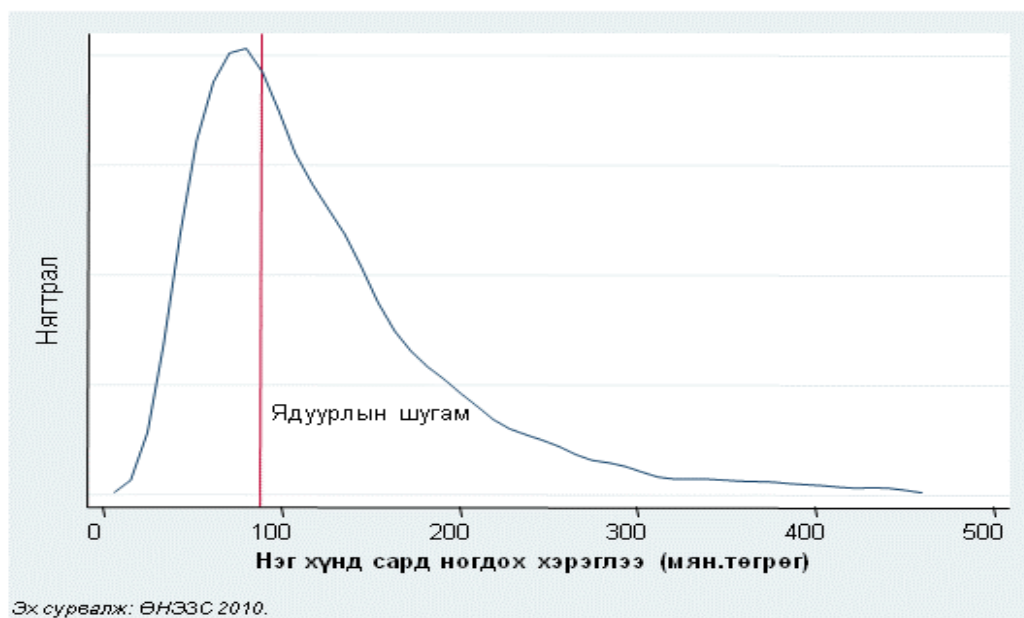


Table 1.2 confirms this by estimating all three poverty indices in response to an upward and downward shifts in the poverty line. For instance, the interval of 10 percent increase and 10 percent decrease around the poverty line contains 13.5 percent of the total population while 27 percent of the population lies between the interval of 20 percent increase and 20 percent decrease around the poverty line. On the other hand, the change in headcount index is greater for a downward shift in the poverty line than that for an upward shift.

² The notion of the density function is very similar to that of histograms. Traditional histograms divide a range of the variable of interest into certain number of intervals of equal width and draw a vertical bar for each interval with height proportional to the relative frequency of observations within each interval. A kernel density function can be thought of as a “smoothed” histogram. It estimates the density, or relative frequency, at every point rather than at every interval. Hence, say in the case of consumption, the area between two consumption levels is the proportion of the population with consumption within that range (it follows that the total area under the curve is 1 or 100 percent of the population).

Table 1.2 Poverty Rates on Different Scales of Poverty Line

Poverty Line	(%)	Poverty		
		Headcount	Gap	Severity
150		66.0	25.5	12.6
140		61.4	22.7	10.8
130		56.8	19.9	9.2
120		51.5	17.1	7.5
110		45.7	14.2	6.0
100		39.2	11.3	4.6
90		32.2	8.6	3.3
80		24.7	6.2	2.2
70		17.6	4.0	1.3
60		11.2	2.3	0.7
50		5.9	1.0	0.3

Source: HSES 2010.

1.3 Geographical distribution of poverty

How does poverty vary across the country? For the purposes of this report, Mongolia is divided according to three different classifications: by region, by urban and rural areas and by settlement strata. The regional division was identified by the government in order to design appropriate policies to promote economic development in each region. Table 1.3 presents poverty indices by five regions: West, Highlands, Central, East and Ulaanbaatar³. The capital city and Central region have the lowest incidences of poverty with three out of every ten inhabitants being poor. The West and the Highland regions tops the list with the highest poverty headcounts with almost one half of their population being afflicted by poverty. The East region ranks next with slightly lower incidences than the preceding two regions with four out of every ten people being poor. In terms of distribution of the poor, the Highland accounts for three tenths of the poor whilst constituting two tenths of the total population. Meanwhile, Ulaanbaatar, where the four tenths of the total population live, has over two tenths of the poor. The West accounts for three tenths of the poor, while the Central for one tenth and the East for the remaining fractions of the poor population.

³ The West is comprised of the *aimags* of Bayan-Olgii, Govi-Altai, Zavkhan, Uvs and Khovd; the Highlands Arkhangai, Bayankhongor, Bulgan, Ovorkhangai, Khovsgol and Orkhon; the Central Dornogovi, Dundgovi, Omnogovi, Govisumber, Selenge, Tov and Darkhan-Uul; and the East Dornod, Sukhbaatar; and Khentii.

Table 1.3 Poverty by Region

	National	West	Highlands	Central	East	Ulaanbaatar
Headcount	39.2 (0.9)	51.1 (2.1)	51.9 (1.8)	29.3 (1.8)	40.6 (2.6)	29.8 (1.6)
Poverty Gap	11.3 (0.3)	16.0 (0.9)	16.0 (0.9)	7.7 (0.5)	12.3 (1.1)	7.7 (0.5)
Severity	4.6 (0.2)	6.7 (0.5)	6.7 (0.5)	2.9 (0.2)	5.2 (0.6)	2.8 (0.2)

Memorandum items:

Population ('000)	2780.8	402.7	567.1	459.1	200.4	1151.5
Population share (%)	100.0	14.5	20.4	16.5	7.2	41.4
Poor ('000)	1090.1	253.7	308.3	143.1	98.7	286.3
Share in the poor (%)	100.0	23.3	28.3	13.1	9.1	26.3
Household size	3.8	4.2	3.6	3.7	3.7	3.9
Dependency ratio (%)	38.5	42.1	39.3	38.6	37.9	36.6
Children (% household size)	25.5	29.8	25.4	25.1	25.3	23.7
Age of household head	45.0	44.5	44.7	44.8	44.4	45.7
Male-headed households	78.2	87.5	81.0	79.7	78.7	71.0
Urbanization (%)	55.3	27.1	31.2	38.4	29.0	100.0

Note: Population for 2010 is based on administrative data and refers to the estimated population at the end 2010.

Standard errors taking into account the survey design are shown in parentheses.

Source: HSES 2010

Table 1.4 shows the state of poverty by four main settlement strata. Poverty in urban areas is considerably less with a poverty incidence of 32.2 percent compared to 47.8 percent in rural areas. At the urban level, the incidence of poverty is lower in Ulaanbaatar than in *aimag* centers. In rural areas, *soum* centers are less poor than countrysides. Urban areas account for 46 percent of the poor and 63 percent of the total population whereas *soum* centers make up 18 percent of the poor and 18 percent of the total population. The countryside constitutes 36 percent of the poor but make up only 18 percent of the total population.

Table 1.4 Poverty by settlement stratum

	National average	Urban			Rural		
		Total	Ulaanbaatar	Aimag centers	Total	Soum centers	Country- side
Headcount	39.2 (0.9)	32.2 (1.2)	29.8 (1.6)	36.2 (1.7)	47.8 (1.3)	38.8 (1.7)	54.2 (1.7)
Poverty Gap	11.3 (0.3)	8.7 (0.4)	7.7 (0.5)	10.4 (0.6)	14.6 (0.6)	11.4 (0.7)	16.9 (0.8)
Severity	4.6 (0.2)	3.4 (0.2)	2.8 (0.2)	4.2 (0.3)	6.1 (0.3)	4.7 (0.4)	7.1 (0.5)
<i>Memorandum items:</i>							
Population ('000)	2780.8	1760.4	1151.5	608.9	1020.4	513.3	507.1
Population share (%)	100.0	63.3	41.4	21.9	36.7	18.5	18.2
Population below the poverty line ('000)	1090.1	495.6	286.3	209.3	594.5	199.1	395.4
Share below the poverty line (%)	100.0	45.5	26.3	19.2	54.5	18.3	36.3
Household size	3.8	3.8	3.9	3.8	3.8	3.7	3.8
Dependency ratio (%)	38.5	37.0	36.6	37.8	40.4	39.3	41.2
Children (% household size)	25.5	24.2	23.7	24.9	27.1	25.4	28.3
Age of household head	45.0	45.7	45.7	45.7	44.1	45.7	43.0
Male-headed households	78.2	73.7	71.0	78.1	83.7	78.7	87.3

Note: Population for 2010 is based on administrative data and refers to the estimated population at the end 2010.

Standard errors taking into account the survey design are shown in parentheses.

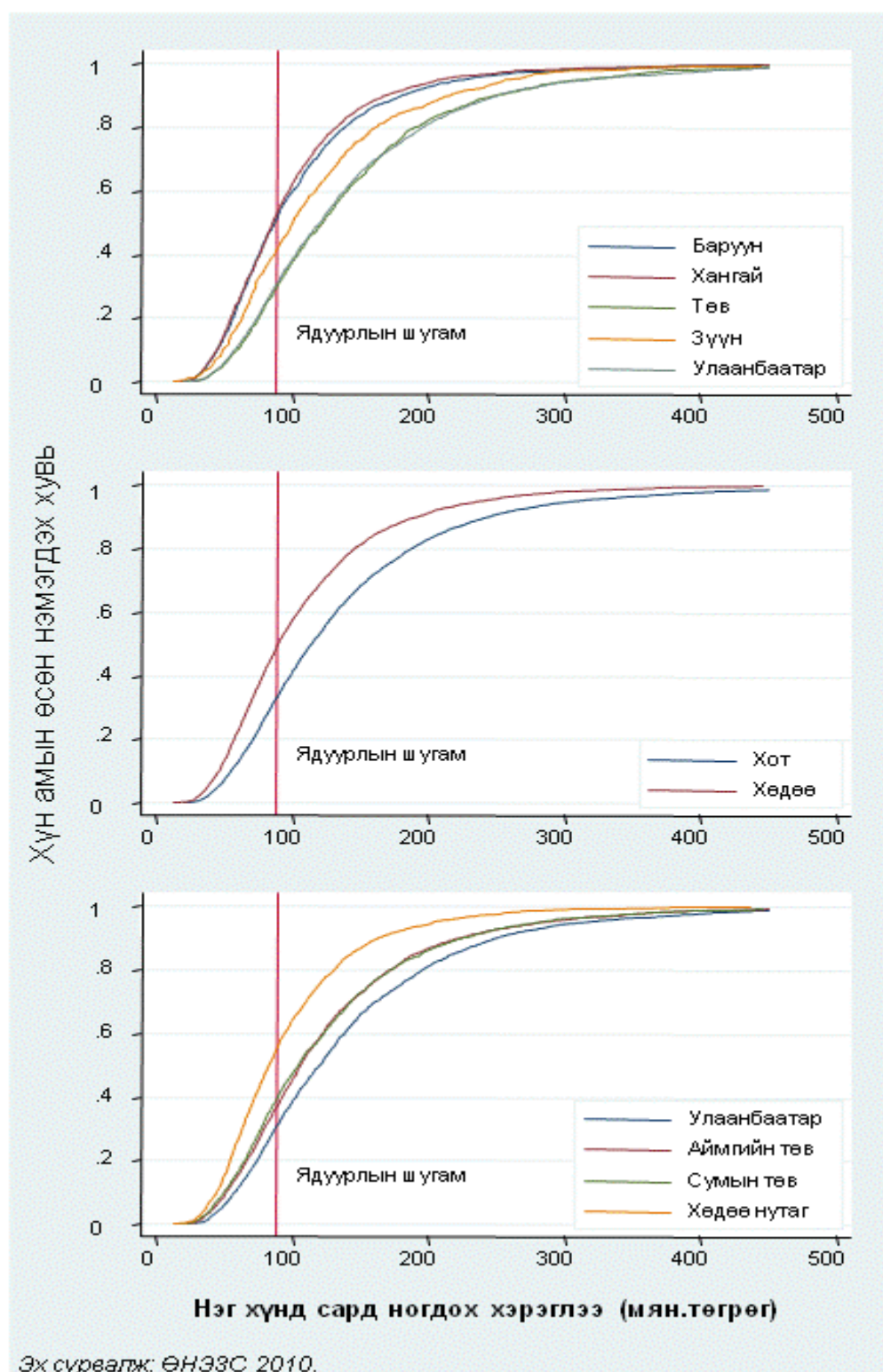
Source: HSES 2010

How sensitive are these findings to the poverty line level? Stochastic dominance analysis allows us to find a range of poverty lines over which poverty comparisons are robust. It relies on graphical tools and focuses on the entire distribution of consumption.⁴ At the regional level, poverty incidence is the highest in the Highlands, the West and the East regions. The curves for the West and the Highlands overlap for the most part of the distributions; hence they cannot be compared. In other words, they will display similar incidence curves regardless of which poverty line is chosen. Unlike other regions, the

⁴ By plotting two or more cumulative density functions of per capita consumptions in the same graph, it is possible to infer first-order stochastic dominance.

headcount index for East turns out to be sensitive to the choice of poverty lines. Ulaanbaatar, followed by the Central, has the lowest incidence curves, which overlaps with each other. This means they will display similar incidence curves even if the poverty line changes. The comparisons between urban and rural areas lead to the following conclusions: First, urban areas are always better-off than rural areas. Second, Ulaanbaatar is less poor than *aimag* centers. Third, the countryside has persistently lower welfare levels than any other settlement types. Overall, welfare level is the highest in the capital city, then decreases with *aimag* and *soum* centers with similar average levels and farther falls in the countryside.

Figure 1.3 First-order stochastic ordinance: Cumulative distribution of per capita per month consumption



1.4 Poverty trends

How the state of poverty has changed in the past years is shown in Table 1.5. All three estimates indicates a modest increase in poverty. Incidence of poverty rose by 0.5 percentage points from 38.7 percent in 2009 to 39.2 percent in 2010. In urban areas, poverty has increased from 30.6 percent to 32.2 percent while rural areas saw a decline from 49.7 percent to 47.8 percent. Even within these two broad locations, the change pattern has not been the same. In Ulaanbaatar, the incidence of poverty has grown by 3 percentage points compared to a slight decline in poverty in *aimag* centers. *Soum* centers experienced a close to a four-percentage point decline in poverty in contrast to 1 percentage point increase in countryside. Changes in the incidence of poverty vary across regions. In the West the incidence of poverty has risen from 48.6 to 51.1 percent while it has reversed in the Highland (from 55.2 % to 51.9%) and the East (from 43.9% to 40.6%). Meanwhile, no change has been observed in the Central.

How have the other poverty indices changed in the same period? The ratio of poverty between urban and rural areas remains the same with urban areas being less poor than rural areas. Ulaanbaatar has the lowest level of poverty followed by the *aimag* centers. *Soum* centers have lower levels of poverty compared to the countryside. Across regions, the state of poverty remains relatively unchanged. Nonetheless, the West has experienced a relative increase in poverty. These findings do not seriously alter the distribution of the poor across urban and rural areas; a majority of the population lives in urban areas yet a greater share of the poor reside in rural areas. However, urban areas now have a slightly lower share of the poor while the percentage share of the poor in rural areas have slightly increased. This has slightly changed across regions. In 2010 the percentage of the poor in the West, the Central and the East rose by 0.3 to 1.5 percentage points from the preceding year. In reverse, the share of the poor people in the Highlands fell by 3.8 percentage points.

Table 1.5 Poverty Estimates, 2009 and 2010

	2009					2010				
	Poverty			Population share (%)	Share below the poverty line (%)	Poverty			Population share (%)	Share below the poverty line (%)
	Headcount	Gap	Severity			Headcount	Gap	Severity		
National average	38.7	10.6	4.1	100.0	100.0	39.2	11.3	4.6	100.0	100.0
Urban	30.6	7.9	2.9	62.6	45.8	32.2	8.7	3.4	63.3	45.5
Rural	49.7	14.4	5.7	37.4	54.2	47.8	14.6	6.1	36.7	54.5
Ulaanbaatar	26.7	6.4	2.3	40.7	24.9	29.8	7.7	2.8	41.4	26.3
Aimag										
centers	37.0	10.3	4.0	22.0	20.9	36.2	10.4	4.2	21.9	19.2
Soum										
centers	42.6	12.9	5.3	14.2	15.6	38.8	11.4	4.7	18.5	18.3
Countryside	53.2	15.1	5.8	23.2	38.6	54.2	16.9	7.1	18.2	36.3
West	48.6	12.5	4.6	14.9	21.8	51.1	16.0	6.7	14.5	23.3
Highlands	55.2	17.4	7.2	20.6	32.1	51.9	16.0	6.7	20.4	28.3
Central a/	29.3	7.7	2.8	16.5	12.5	29.3	7.7	2.9	16.5	13.1
East	43.9	12.4	4.9	7.3	8.8	40.6	12.3	5.2	7.2	9.1

a/ Excludes Ulaanbaatar

Source: HSES 2010

1.5 Sensivity of the temporal comparisons to changes in the poverty line

Stochastic dominance analysis once again can help us to see how per capita consumption distribution changes across different time periods in response to changes in the poverty line level.

Figure 1.4 Cumulative distribution of per capita consumption, 2009 and 2010

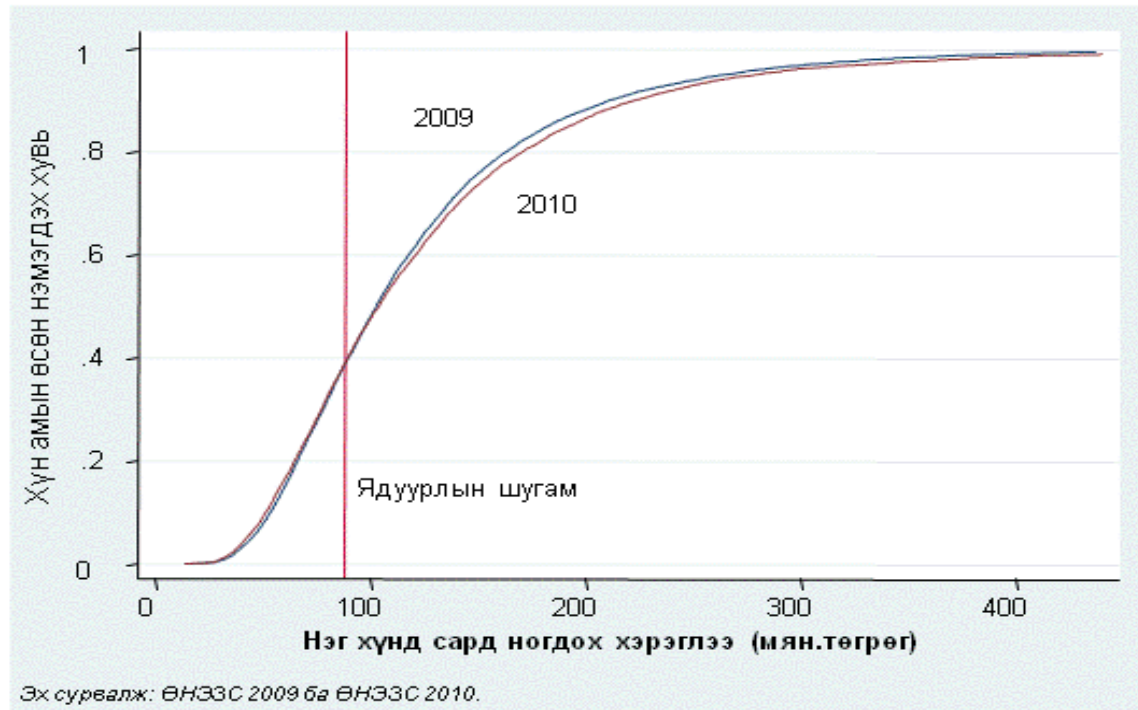


Figure 1.4 shows that the 2010 consumption distribution is only slightly lower than the 2009 distribution, which means that the poverty level in 2010 was no higher than that in 2009. At the top of the distribution, the 2009 curve performs better than the 2010 curve whereas for the lower part of the distribution, the two curves predominantly overlap and at some points, the 2010 curve stands higher than the 2009 curve. At the very bottom of the distribution clear signs of welfare improvement can be seen in 2010 over 2009. Although the poverty level in urban areas stays about the same regardless of which poverty line is chosen, the lower poverty lines show an increase in poverty over the preceding year. For upper poverty lines, there is an improvement in welfare in 2010 from the 2009 period.⁵ A different pattern can be seen in rural areas. For both the lowest and highest poverty lines, poverty remains unchanged and for poverty lines in the middle of the consumption, the welfare is seen deteriorated in 2010 from the 2009 level. These findings will now be examined across settlement strata. The poverty in Ulaanbaatar remains unchanged at the top and in the middle of the distribution regardless of the choice of the poverty lines but increased at the bottom. In *aimag* centers, the poverty level remains the

⁵ Please see Annex B for upper and lower poverty lines by urban and rural areas, by location strata and by regions.

same at the top and bottom of the distribution, except in the middle, where the welfare level can be seen improved in 2010 from the 2009 level. *Soum* centers have an improved welfare status compared to the previous year with a slight reduction in poverty. Meanwhile, welfare level has declined in the countryside in 2010 from the 2009 level regardless of the choice of the poverty line. This suggests that welfare improved in *soum* centers while declining in the countryside. The findings can be summed by regions. As consumption grew in the Central over the same period, regardless of the choice of the poverty line poverty can be seen as declined at the top and in the middle of the distribution, but remains unchanged bottom at the of the consumption distribution. For the West, there is an improved welfare at the top of the distribution, overlapped consumptions in the middle and worsened welfare compared to 2009 at the bottom of the consumption distribution (for those living below the poverty line). That is, the poverty incidence has not changed at all from the 2009 level across different poverty lines set between 90-120 thousand tugrug. The living standard has clearly declined in the Highlands and the East for the most part of the distribution, which suggests an increase in the poverty incidence.

1.6 Inequality

Inequality has risen over the past year. Table 1.6 indicates changes in the Gini coefficient and Generalized Entropy Indices⁶ over the period. All three indices indicates a significant increase in per capita consumption inequality.

For instance, Gini coefficient has risen from 0.31 to 0.33 at the national level - More so in urban areas than rural areas. Inequality has grown across all regions. Increases in the two other indices confirm this conclusion. Across settlement strata, *soum* centers display a slightly different trend. Two of the three indices for *soum* centers indicate little or no increase in the level of inequality whilst the third index suggests reduced inequality. By examining the changes made in the mean consumption during the period of analysis might also help us to obtain a clearer picture. Per capita consumption between the two years increased by 2.4 percent in real terms. The increase was more evident in rural areas; urban consumption only grew slightly. By settlement strata, *aimag* and *soum* centers reported a significant increase in their consumption whilst consumption in Ulaanbaatar reduced. The mean consumption increased across all regions with the highest increase in the East and lowest in the Highlands.

Welfare, in general has not improved and even declined for those employed in the agriculture sector. This is consistent with the annual GDP growth estimates. Figure 1.5 shows per capita GDP by three broad economic sectors. In 2010, per capita GDP for the agriculture sector has dropped while it slightly increased for the industry and services sectors.

⁶ Generalized Entropy Inequality Measure is denoted by GE (α). The higher (lower) the α value is the more sensitive it is to changes at top (bottom) of the distribution. Gini coefficient is more sensitive to changes in the middle of the distribution. Values of all three indices range between 0 to 1; the greater the value is the higher the inequality is. .

Table 1.6 Inequality and average consumption, 2009 and 2010

	Theil or GE (1)		Gini coefficient		GE(2)		Per capita consumption per month (2010 tugrug)		
	2009	2010	2009	2010	2009	2010	2009	2010	Change
National average	0.17	0.19	0.31	0.33	0.25	0.28	123 238	126 185	2.4
Urban	0.17	0.19	0.31	0.33	0.25	0.29	137 336	139 440	1.5
Rural	0.15	0.17	0.29	0.32	0.20	0.23	103 947	109 780	5.6
Ulaanbaatar	0.17	0.19	0.31	0.33	0.26	0.31	146 865	145 955	-0.6
Aimag centers	0.16	0.18	0.30	0.32	0.20	0.24	121 618	128 604	5.7
Soum centers	0.18	0.18	0.32	0.33	0.24	0.22	116 726	126 367	8.3
Countryside	0.13	0.15	0.27	0.30	0.16	0.21	97 481	98 106	0.6
West	0.12	0.17	0.26	0.31	0.17	0.22	102 616	103 819	1.2
Highlands	0.15	0.17	0.29	0.31	0.20	0.26	96 276	102 018	6.0
Central a/	0.15	0.17	0.30	0.31	0.19	0.21	136 717	142 788	4.4
East	0.14	0.17	0.29	0.32	0.18	0.21	109 124	119 482	9.5

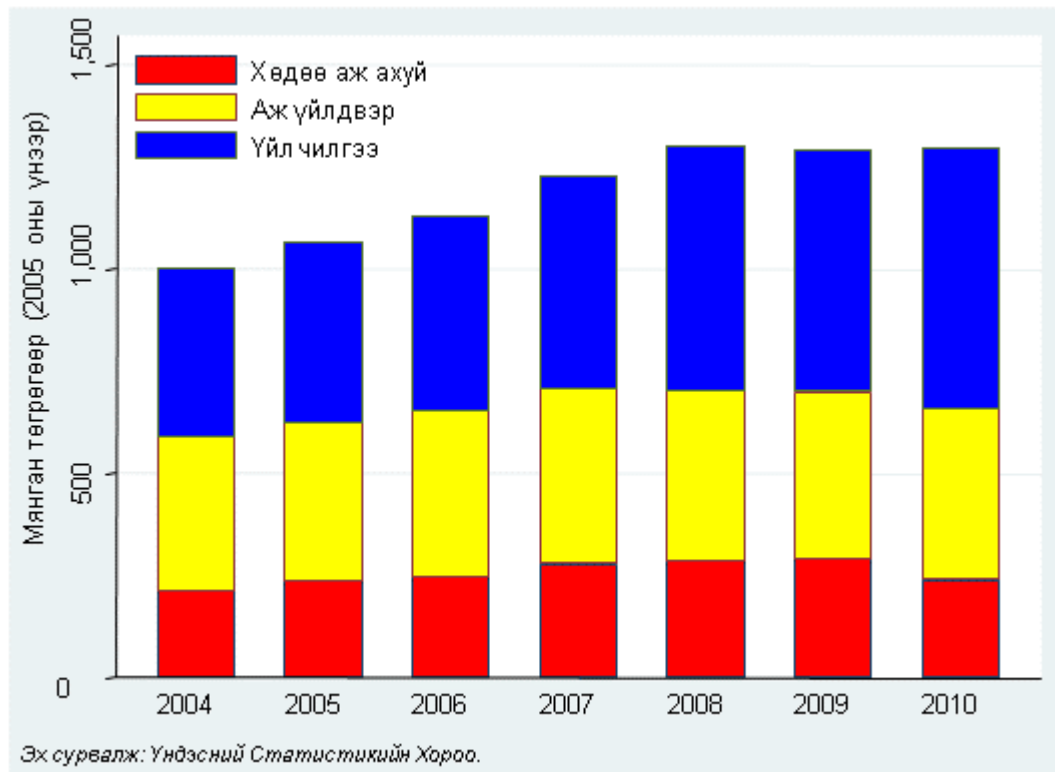
a/ Excludes Ulaanbaatar

Note: 2009 prices are expressed in 2010 prices with the ratio between the poverty lines in both periods.

GE (a) indices refer to the Generalized Entropy class of inequality measures, the higher (lower) the value of a, the greater the sensitivity of the measure to consumption differences at the top (bottom) of the distribution. The Gini index is more sensitive to consumption differences in the middle of the distribution.

Source: HSES 2010

Figure 1.5 Gross Domestic Product per capita, 2004-2010



1.7 Decomposition of poverty changes into growth and inequality components

How does an increase in per capita consumption and growth in inequality of consumption impact poverty? Other things being constant, an increased consumption is generally associated with declined poverty while increased inequality tends to suggest the opposite. This trend can clearly be seen when changes in poverty is decomposed into growth and inequality components.⁷ The growth component refers to changes in poverty, that would have resulted if only the real mean consumption had changed but there was no change in relative inequalities. In contrast, the inequality growth refers to the change in poverty that would have occurred if only relative inequalities had changed but there was no change in the real mean consumption.

Poverty changes decomposed by these components are shown in Table 1.7.

⁷ G. Datt and M. Ravallion (1992)

Table 1.7 Decomposition of poverty changes into growth and inequality components, 2009 and 2010

	Poverty		
	Headcount	Gap	Severity
National average			
Change in poverty	0.5	0.7	0.5
Growth component	-1.7	-0.7	-0.3
Inequality component	2.2	1.4	0.8
Urban			
Change in poverty	1.6	0.8	0.4
Growth component	-0.9	-0.4	-0.2
Inequality component	2.5	1.2	0.6
Countryside			
Change in poverty	-1.9	0.2	0.4
Growth component	-4.2	-1.9	-0.9
Inequality component	2.4	2.1	1.4
Ulaanbaatar			
Change in poverty	3.0	1.3	0.6
Growth component	0.3	0.1	0.1
Inequality component	2.7	1.1	0.5
Aimag centers			
Change in poverty	-0.8	0.1	0.2
Growth component	-3.8	-1.5	-0.7
Inequality component	3.0	1.6	0.9
Soum centers			
Change in poverty	-3.9	-1.5	-0.6
Growth component	-5.5	-2.3	-1.1
Inequality component	1.6	0.8	0.5
Countryside			
Change in poverty	1.0	1.8	1.2
Growth component	-0.6	-0.2	-0.1
Inequality component	1.5	2.0	1.3
West			
Change in poverty	2.4	3.4	2.1
Growth component	-1.0	-0.4	-0.2
Inequality component	3.4	3.9	2.3
Highlands			
Change in poverty	-3.3	-1.5	-0.5
Growth component	-4.3	-2.1	-1.1
Inequality component	1.0	0.7	0.7
Central a/			
Change in poverty	0.1	0.0	0.1
Growth component	-2.5	-1.0	-0.4
Inequality component	2.6	1.0	0.5
East			
Change in poverty	-3.3	0.0	0.3
Growth component	-6.2	-2.7	-1.3
Inequality component	2.9	2.7	1.6

a/ Excludes Ulaanbaatar
Source: HSES 2010

At the national level, while the growth component contributed to a potential decline in poverty, this was severely offset by the inequality growth. For instance, between 2009-2010, the incidence of poverty has increased by 0.5 percentage points. Had the relative inequalities not changed during this period, the growth in consumption would have brought in a decline in poverty of 1.7 percentage points. On the other hand, if the real mean consumption had remained constant over the period, poverty would have increased by 2.2 percentage points due to deepened inequality. The combined effect of these two opposite factors has resulted in a net decline in poverty incidence of 0.5 percentage points. Similar findings are found for the other two poverty indices. Results for urban areas mirror the national pattern although inequality component contributed more to the poverty rise. Both components contributed to the decline in poverty in rural areas but the growth component to a higher extent. By settlement strata, in Ulaanbaatar and the countryside the effect of inequality component outweighs that of the growth component on all three poverty indices. In contrast, the decline in poverty in *aimag* and *soum* centers was mainly driven by the growth component. In the Highlands and the East, an increase in consumption exceeds the effect of the inequality; as a result, poverty incidence has declined in these regions. The opposite is true for the West and the Central, where the inequality component dominated leading to an increased incidence of poverty. In sum, these findings suggest that both the growth and inequality components played a role in the changes in poverty. Had the inequality not increased that considerably nationwide, the decline in poverty would have been more pronounced.

2. WELFARE PROFILE

A welfare profile shows us how living standards vary across different population groups. This chapter helps to flesh out multidimensional portrait of poverty by examining the characteristics of poverty and their correlation with the specificities of households and other aspects of welfare and constructs a composite poverty profile. This aids differentiation of the poor from the non-poor and definition of the poor. The chapter also gives better understanding about the levels of human capital and wealth the poor have and the quality of housing they live in, safety nets they receive and the types of activities they are engaged in. These findings are important to inform appropriate poverty reduction interventions.

2.1 Consumption pattern

The first step to constructing poverty profile is to choose a comparable set of welfare indicators. For the purposes of the report, per capita consumption of the household was chosen. According to the household survey, as of 2010 per capita mean consumption per month stands at 126,185 tugrug⁸. Per capita consumptions by main expenditure groups in urban and rural areas and regions are shown in Table 2.1. Urban consumption is significantly 30 percent higher than the rural consumption. By settlement strata, the capital city ranks first, followed by *aimag* centers and then *soum* centers while the countryside bottoms the list. Across regions, the Central has the highest consumption level, even higher than the national average. The East, the West and the Highlands rank next. The differences among them is however, rather small.

The shares of consumption is presented below. Food has the largest share constituting 38 percent of the total consumption with significant differences between urban and rural areas. Owing to the difference in welfare levels, the share of food in the total consumption is lower in urban areas than rural areas. Food items account for 34 percent of the total consumption in urban areas while it is 44 percent in rural areas. Both urban strata, namely, the capital city and *aimag* centers show similar food shares of three tenth of the total consumption. More substantial differences are observed in rural areas. The *soum* center food share is close to the national average while in the countryside food constitutes almost half of the consumption. Across regions, the Central has the lowest food share of 36 percent whereas the West the highest share of 46 percent.

The largest of all non-food expenditures is clothing with the national average of 15 percent of the total consumption. This is slightly lower in urban areas compared to close to 17 percent in rural areas. The next important non-food expenditure is transportation and communication accounting for 12 percent of the total consumption. It is the highest in the capital city and similar for the other 3 strata.

⁸ All monetary values are in 2010 real prices.

Education expenditures are similar across all locations with 6 percent of all consumption. At the national level, housing expenses only occupies 6 percent of the total consumption with 9 percent in urban areas and 2 percent in rural areas. Health expenditures stand at 5 percent. Heating expenditures stand at 4 percent of the total consumption at the national level, 5 percent in urban and 3 percent in rural areas, respectively. Utilities such as electricity and water account for 3 percent of the total consumption. The remaining 11 percent of the total consumption is spent on leisure activities, cosmetics, durable goods, tobacco and alcohol products. More striking differences are observed in poverty status between urban and rural areas. (Table 2.2). First, the average consumption of the poor equals to three tenth of the average non-poor consumption. Second, the poor on average, consumes almost twice as less food as the non-poor, yet the share of food items in their consumption is higher than that of the non-poor owing to the large disparity in the total consumption. Third, there is a substantial variation in the average education expenditure by poverty status but in terms of the share in the total consumption, the non-poor's share is only slightly higher than that of the poor's. Fourth, the non-poor not only have substantially higher average health expenditures but also devotes proportionately higher resources to health services. Fifth, the non-poor's mean heating expenditure is higher than that of the poor but the poor's expenditure is proportionately higher. The opposite is found for the poor in the countryside, something driven by the urban poor's share to heating. Sixth, the non-poor's spending on clothing is much higher in real terms but proportionately less than that of the poor. Overall, the non-poor devotes higher resources to transportation and communication than the poor both in absolute and relative terms.

Table 2.1 Consumption per capita per month by main consumption categories (in tugrugs)

	National average	Urban	Rural	Settlement strata				West	Region		
				Ulaanbaatar	Aimag centers	Soum centers	Country- side		Highlands	Central a/	East
Consumption, tugrug											
Food	47 759	46 930	48 786	49 320	42 953	48 256	49 159	47 512	42 501	51 780	46 880
Alcohol and tobacco	2 066	1 351	2 952	1 027	1 890	3 487	2 576	2 857	2 060	2 983	2 739
Education	7 510	8 719	6 014	8 600	8 918	8 384	4 346	7 655	5 974	8 063	5 553
Health	5 844	5 761	5 947	5 263	6 590	6 876	5 293	7 140	5 191	6 655	5 466
Durable goods 1/	2 091	2 544	1 531	2 790	2 135	1 898	1 272	1 630	1 550	2 110	1 555
Rent 2/	7 717	12 124	2 262	15 208	6 996	3 392	1 466	2 670	3 221	5 537	3 772
Heating 3/	4 967	6 505	3 063	6 858	5 916	5 034	1 676	4 130	3 222	4 580	4 235
Utilities 4/	3 738	5 539	1 509	6 095	4 614	2 751	635	1 420	1 915	3 850	3 382
Clothing	18 859	19 383	18 211	17 814	21 994	22 713	15 042	13 537	17 037	26 746	22 501
Transportation & communication	15 425	18 850	11 186	21 863	13 838	13 014	9 900	8 638	10 139	17 632	12 331
Others 5/	10 208	11 734	8 319	11 116	12 761	10 563	6 740	6 629	9 208	12 851	11 067
Total	126 185	139 440	109 780	145 955	128 604	126 367	98 106	103 819	102 018	142 788	119 482
Shares											
Food	37.8	33.7	44.4	33.8	33.4	38.2	50.1	45.8	41.7	36.3	39.2
Alcohol and tobacco	1.6	1.0	2.7	0.7	1.5	2.8	2.6	2.8	2.0	2.1	2.3
Education	6.0	6.3	5.5	5.9	6.9	6.6	4.4	7.4	5.9	5.6	4.6
Health	4.6	4.1	5.4	3.6	5.1	5.4	5.4	6.9	5.1	4.7	4.6
Durable goods 1/	1.7	1.8	1.4	1.9	1.7	1.5	1.3	1.6	1.5	1.5	1.3
Rent 2/	6.1	8.7	2.1	10.4	5.4	2.7	1.5	2.6	3.2	3.9	3.2
Heating 3/	3.9	4.7	2.8	4.7	4.6	4.0	1.7	4.0	3.2	3.2	3.5
Utilities 4/	3.0	4.0	1.4	4.2	3.6	2.2	0.6	1.4	1.9	2.7	2.8
Clothing	14.9	13.9	16.6	12.2	17.1	18.0	15.3	13.0	16.7	18.7	18.8
Transportation & communication	12.2	13.5	10.2	15.0	10.8	10.3	10.1	8.3	9.9	12.3	10.3
Others 5/	8.1	8.4	7.6	7.6	9.9	8.4	6.9	6.4	9.0	9.0	9.3
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

a/ Excludes Ulaanbaatar

1/ Estimated monetary value of the consumption derived from the use of durable goods

2/ Estimated monetary value of the consumption derived from occupying the dwelling. If the household leases its dwelling, the actual rental was used for estimation in lieu of imputed rentals.

3/ Includes central and local heating, firewood, coal and animal dung.

4/ Includes water, electricity and lighting but not telephone usage

5/ Includes recreational and entertainment expenditures, beauty, toiletry items and household products

Source: HSES 2010

Table 2.2 Consumption per capita per month by main consumption categories and by poverty status in urban and rural areas

	Total		Urban		Rural	
	Non-poor	Poor	Non-poor	Poor	Non-poor	Poor
Consumption, tugrug						
Food	58 308	31 374	55 349	29 195	63 064	33 191
Alcohol and tobacco	2 609	1 223	1 656	707	4 141	1 654
Education	10 270	3 223	11 186	3 524	8 798	2 973
Health	8 753	1 325	7 889	1 278	10 143	1 364
Durable goods 1/	2 989	697	3 454	629	2 242	753
Rent 2/	11 386	2 019	16 462	2 987	3 224	1 211
Heating 3/	6 109	3 192	7 154	5 136	4 429	1 572
Utilities 4/	5 074	1 663	6 842	2 793	2 231	721
Clothing	25 308	8 843	24 716	8 151	26 260	9 419
Transportation and communication	22 364	4 647	25 349	5 161	17 566	4 219
Others 5/	13 937	4 415	15 048	4 754	12 152	4 133
Total	167 108	62 621	175 106	64 316	154 249	61 209
Shares						
Food	34.9	50.1	31.6	45.4	40.9	54.2
Alcohol and tobacco	1.6	2.0	0.9	1.1	2.7	2.7
Education	6.1	5.1	6.4	5.5	5.7	4.9
Health	5.2	2.1	4.5	2.0	6.6	2.2
Durable goods 1/	1.8	1.1	2.0	1.0	1.5	1.2
Rent 2/	6.8	3.2	9.4	4.6	2.1	2.0
Heating 3/	3.7	5.1	4.1	8.0	2.9	2.6
Utilities 4/	3.0	2.7	3.9	4.3	1.4	1.2
Clothing	15.1	14.1	14.1	12.7	17.0	15.4
Transportation and communication	13.4	7.4	14.5	8.0	11.4	6.9
Others 5/	8.3	7.1	8.6	7.4	7.9	6.8
Total	100.0	100.0	100.0	100.0	100.0	100.0

1/ Estimated monetary value of the consumption derived from the use of durable goods

2/ Estimated monetary value of the consumption derived from occupying the dwelling. If the household leases its dwelling, the actual rental was used for estimation in lieu of imputed rentals.

3/ Includes central and local heating, firewood, coal and animal dung

4/ Includes water, electricity and lighting but not telephone usage

5/ Includes recreational and entertainment expenditures, beauty, toiletry items and household products.

Source: HSES 2010

2.2 Seasonality of poverty

The poverty in Mongolia is distinct in that it varies according to the season. Livestock and crop production factors play a large role in this seasonal variation of consumption. The composition of food consumption distinctly varies depending on the season with more intake of dairy products in the summer, more vegetables in the autumn, more meat products in the winter and somehow lean period in the spring. The autumn is considered to be relatively abundant of all seasons with the availability of the remaining dairy products from the summer and early supply of meat products; the food consumption is at its highest at this time of the year. To ensure comparability to the previous report, the analysis presented here is by quarters, which do not exactly match with the four seasons⁹ of Mongolia. It can be said that during the survey period of one year, welfare in general, remained steady without much variations across all quarters except for the third quarter where a slight improvement can be seen from Table 2.3. The incidence of poverty rose from 39.5 percent in the first quarter to 41.3 percent in the last quarter. There were slight increases in the poverty gap and severity indices during the same period. Poverty was at its lowest in the third quarter with 36.3 percent but increased by 5 percentage points in the fourth quarter. A similar trend can be seen across almost all locations.

The poor is more severely affected by food price surges than the non poor because of the relatively higher share of food in their total consumption. During the analysis period, there was an increase in food prices; higher increases were reported for major Mongolian food staples such as flour, rice, bread and vegetables.

Table 2.3 Poverty by quarter

	National average	I Quarter (Jan-Mar) 2010	II Quarter (Apr-Jun) 2010	III Quarter (Jul-Sep) 2010	IV Quarter (Oct-Dec) 2010
Headcount	39.2 (0.9)	39.5 (1.7)	39.7 (1.7)	36.3 (1.8)	41.3 (1.9)
Poverty gap	11.3 (0.3)	11.4 (0.6)	11.4 (0.6)	10.0 (0.6)	12.7 (0.9)
Severity	4.6 (0.2)	4.5 (0.3)	4.6 (0.3)	3.9 (0.3)	5.4 (0.5)
<i>Memorandum items:</i>					
Population share (%)	100.0	25.8	25.6	25.8	22.9
Share below the poverty line (%)	100.0	26.0	26.0	23.9	24.1
Household size	3.8	3.9	3.8	3.8	3.7
Dependency ratio (%)	38.5	38.1	39.1	38.4	38.6
Children (% household size)	25.5	26.2	25.3	25.5	24.7

⁹ In Mongolia, the months of June to August are regarded as summer, September to November as autumn, December to February as winter and March to May spring.

Age of household head	45.0	44.6	45.3	44.8	45.3
Male-headed households (%)	78.2	78.7	76.9	77.5	79.9
Urbanization (%)	55.3	57.1	58.0	57.3	48.1

Note: Standard errors taking into account the survey design are shown in parentheses.

Source: HSES 2010

2.3 Household composition

The structure of the households surveyed differs greatly in their demographic composition. Some households were comprised of nuclear families where only single family members, husband, wife and their children live; others of extended families where other relatives live in the same household as the nuclear family members. Still others have a higher number of children or are comprised of only elderly people. A natural question that arises is whether there are any correlations between poverty and household composition. How poverty indices vary with the size of the household is shown in Table 2.4. The incidence of poverty monotonically increases with household size. This is hardly surprising when per capita consumption is used as a welfare indicator, which implicitly assumes consumption is shared equally among household members.

The probability of being poor is about 13 percent if one lives in a household of up two members. Such households make up 9 percent of the total population and 4 percent of the poor. The poverty incidence in the average-size households of three to five members is about 34 percent. These households account for seven tenth of the total population and six tenth of the poor. In contrast, more than half of those households with five or more members are poor. They represent only two tenth of the total population but four tenth of the total poor population. The extreme poor tend to live in households with an average size of eight or more persons, where 73 percent of such household members are living below the poverty line. Such households make up 6 percent of the total population and 10 percent of the poor.

Table 2.4 Poverty by household size

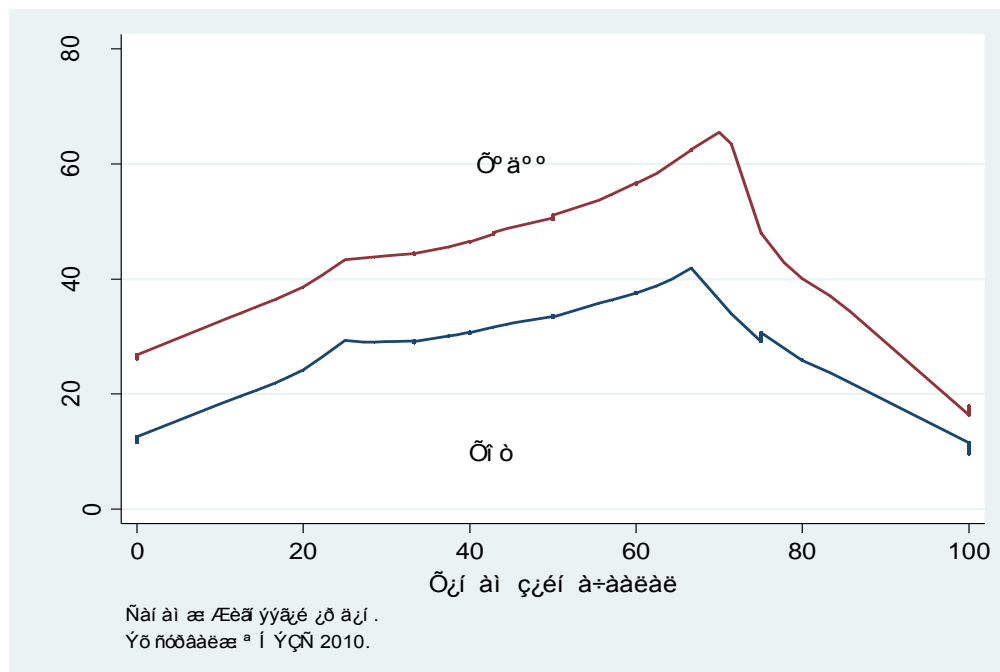
	National average	Household size							
		1	2	3	4	5	6	7	8 plus
Headcount	39.2 (0.9)	9.2 (1.1)	17.1 (1.2)	25.8 (1.1)	32.9 (1.2)	44.2 (1.4)	53.9 (2.0)	60.3 (2.8)	73.1 (2.9)
Poverty gap	11.3 (0.3)	2.0 (0.3)	3.8 (0.4)	6.1 (0.3)	8.8 (0.5)	12.3 (0.5)	16.3 (0.8)	20.0 (1.2)	28.2 (1.6)
Severity	4.6 (0.2)	0.6 (0.1)	1.3 (0.2)	2.2 (0.2)	3.4 (0.3)	4.8 (0.3)	6.6 (0.4)	8.4 (0.6)	13.4 (1.0)
<i>Memorandum items:</i>									
Population share (%)	100.0	2.2	7.0	16.6	27.8	21.5	13.2	6.0	5.6
Share below the poverty line (%)	100.0	0.5	3.1	10.9	23.3	24.3	18.1	9.3	10.4
Dependency ratio (%)	38.5	50.1	39.3	32.4	37.6	40.2	39.7	41.2	39.2
Children (% household size)	25.5	0.1	8.0	22.4	33.3	35.9	35.2	35.6	34.7
Age of household head	45.0	53.6	50.3	42.7	41.5	43.4	45.2	48.4	49.7
Male-headed households (%)	78.2	48.2	60.7	76.9	87.1	88.6	89.5	83.0	76.6

Note: Standard errors taking into account the survey design are shown in parentheses.

Source: HSES 2010

A second tool of household demographic analysis involves measuring the burden weighing on members within the household. The dependency ratio, which is the ratio of the number of non-working age family members to the number of all members of the household is a common indicator that analyses demographic composition of a household.¹⁰ In other words, it represents the proportion of the “dependants.” The correlation between poverty incidence and dependency ratio is shown in Table 2.1. One can expect that a high dependency ratio will be associated with greater poverty. A higher proportion of children and elderly in the household relative to the total number of working members means “earners” have more persons to support and therefore, there is less per capita income and consumption available within the household; hence more poverty. The ratio usually takes a value of up to 70 percent and above this level, poverty appears to decline. This relatively high ratio is likely to reflect the fact that in households where the proportion of dependants is high, these households are mainly comprised of elderly who are still working or receiving steady income in pensions or in remittances that protect them against poverty.¹¹

Figure 2.1. Poverty by dependency ratio



¹⁰ Alternatively, it can also be defined as the ratio between the non-working age population and working age population, typically those aged less than 15 or more than 64 to those aged between 15 to 64. Thus, it represents the number of “dependants” for each “earner” in the household. However, in Mongolia a different cut-off is used to define working age population: men aged between 16 to 59 and women 16 to 54.

¹¹ For instance, two thirds of the households with dependency ratios higher than 70% have household heads that are pensioners. This barely compares to more than one tenth among households with lower dependency ratios.

2.4 Characteristics of the household head

It is a common practice to classify households by certain characteristics of their heads in order to undertake some comparisons about poverty.¹² Although not without limitations¹³, it is a simple and useful way of comparing households.

The demographic composition and the level of well-being of a household often has to do with the characteristics of the head who is usually the main earner of income means. To illustrate, those households with tertiary education are likely to live in urban areas and have less number of children than the average. This chapter looks into poverty in relation to household head's age, sex, education level, employment and migration.

2.4.1 Age

How does the age of a household head relate to poverty? Five age groups of household heads are presented along with their corresponding poverty rates.

Table 2.5 Poverty by age of household head

	National average	<30	30 - 39	40 - 49	50 - 59	>=60
Headcount	39.2 (0.9)	39.2 (1.6)	43.5 (1.3)	38.6 (1.2)	37.3 (1.5)	33.8 (1.7)
Poverty gap	11.3 (0.3)	10.7 (0.6)	12.8 (0.5)	11.4 (0.5)	11.0 (0.6)	9.2 (0.7)
Severity	4.6 (0.2)	4.2 (0.3)	5.2 (0.3)	4.6 (0.2)	4.5 (0.3)	3.6 (0.3)
<i>Memorandum items:</i>						
Population share (%)	100.0	11.3	27.6	29.8	18.5	12.8
Share below the poverty line (%)	100.0	11.3	30.6	29.3	17.6	11.1
Household size	3.8	3.1	4.1	4.3	4.0	3.0
Dependency ratio (%)	38.5	31.6	45.2	25.7	21.5	72.8
Children (% household size)	25.5	28.9	43.6	24.6	12.5	9.6
Age of household head	45.0	25.6	34.6	44.3	53.8	69.1
Male-headed households (%)	78.2	87.2	86.1	79.3	74.4	60.6

Note: Standard errors taking into account the survey design are shown in parentheses.

Source: HSES 2010

¹²The HSES applies a precise definition of a household head. It is the person who is acknowledged as the head by the other members, who plays the main role in organizing the household activities, who bears main responsibility for problems and who usually makes financial decisions pertaining to the household.

¹³ An examples of limitations is that the eldest person sometimes regarded as the head of the household out of respect although he or she does not fulfill the given definition. Another example is when female widows, who may be in practice the head of the household refer their eldest son as the head of the family.

A pattern of poverty was observed by age groups: Poverty seems to be at its highest in 30-39 age group and drops in 40-49 age group before even significantly dropping in 50-59 age group. It eventually plateaued in 60-69 age groups. Six of every ten households are headed by middle aged persons, three of ten households by older heads and one of ten by younger heads. The distribution of the poor more or less matches with the age distribution of the population. Consumption differences by these age cohorts might help to explain the observed poverty trend. The likely increase in a family size in one's thirties is associated with increased poverty. It is increasingly likely for households in older age groups be headed by female persons.

2.4.2 Gender

According to the household survey, the incidence of poverty is similar between female-headed and male-headed households. (Table 2.6)

Table 2.6 Poverty by gender of household head

	National		Urban		Rural	
	Female	Male	Female	Male	Female	Male
Headcount	38.6 (1.5)	39.3 (0.9)	36.4 (1.9)	31.0 (1.2)	43.9 (2.4)	48.3 (1.4)
Poverty gap	11.7 (0.6)	11.3 (0.4)	10.6 (0.7)	8.1 (0.4)	14.3 (1.1)	14.6 (0.6)
Severity	4.9 (0.3)	4.5 (0.2)	4.4 (0.4)	3.1 (0.2)	6.2 (0.6)	6.1 (0.3)
<i>Memorandum items:</i>						
Population share (%)	17.5	82.5	22.4	77.6	11.4	88.6
Share below the poverty line (%)	17.2	82.8	25.4	74.6	10.4	89.6
Household size	3.1	4.0	3.3	4.0	2.6	4.0
Dependency ratio (%)	44.9	36.8	41.3	35.5	52.1	38.1
Children (% household size)	20.7	26.8	21.4	25.1	19.4	28.6
Age of household head	51.1	43.3	49.7	44.3	53.9	42.2
Married, living together (%)	13.4	92.7	16.3	92.2	6.3	93.3
Widowed, divorced, separated (%)	75.1	4.1	74.0	5.1	77.9	2.9

*Note: Standard errors taking into account the survey design are shown in parentheses.
Source: HSES 2010*

Nonetheless, the incidence of poverty is lower among male-headed households in urban areas but higher in rural areas. Two out of ten households are headed by females. In urban areas two out of ten people are living in female-headed households and this estimate decreases to one out of ten in rural areas. In terms of the distribution of the poor by gender, female-headed household tend be poor in urban areas while the opposite is

happening in countryside with more male-headed households being poor. These findings must be used with caution as the families being compared greatly differed in demographic structure. In this regard, three demographic features are worth mentioning. First, almost eight out of ten female household heads were either widowed, divorced or separated while nine out of ten male household heads were married. Second, the average size of the female-headed households is three while it is at least four for male-headed households. Finally, a distinct gap in age was observed between female and male-headed households. The average age of female household head was eight years older than that of the male heads.

2.4.3 Education

Education is an important factor that contributes to living standards. Those with little or no education are more likely to be engaged in low-paid labour-intensive jobs that require little professional skills and thus, more susceptible to hardships. In addition to better employment opportunities, the better-educated have better health awareness and higher social capital, other dimensions of well-being. Table 2.7 shows poverty indices by the highest level of education the household head attained. Before drawing any conclusion regarding the relationship between education and poverty, it is worth mentioning that the educational attainment of the households heads nationwide was very high with nine out of every ten people living in households headed by individuals with at least lower secondary or eight-year of schooling or education higher than that¹⁴. Only one out of ten people live in households headed by individuals who either had primary schooling or no schooling at all. As predicted, higher educational attainment of the household head was associated with less likelihood of poverty within the household. With household heads with tertiary education, the likelihood of being poor fell considerably. The poverty incidence stands at 38 percent among individuals whose household heads have upper secondary schooling. Meanwhile, it is 54 percent among those whose household heads had lower than upper secondary education and 16 percent among tertiary-educated households. These findings, however, fail to flesh out the differences between these two broad groups. Poverty rates were the highest among those households with heads either had no schooling or had only primary schooling. Poverty rates then fall with the attainment of lower secondary education. Poverty incidences were lower among the households whose heads had a university diploma compared to that if the household head had a bachelor's degree. But those whose household heads had a technical or vocational education were poorer than those with heads with a university diploma or bachelor's degree although less poor than those with any secondary education. This association holds true for both urban and rural areas but the difference is more striking in urban areas.

¹⁴The number of years of study to completion of lower secondary schooling depends on one's year of graduation. Until 1963, lower secondary involved 7 years of schooling, between 1964 and 2004 8 years of schooling and from 2005 9 years of schooling, respectively.

Table 2.7 Poverty by the highest educational level completed by household head

	National average	None	Primary	Lower secondary	Upper secondary	Vocational	University Diploma	Bachelor	Master	Ph.D	Other
Headcount	39.2 (0.9)	61.0 (2.7)	57.5 (1.8)	51.8 (1.4)	37.8 (1.2)	29.5 (1.8)	12.6 (1.5)	15.1 (1.6)	4.5 (2.9)	0.0	0.0
Poverty gap	11.3 (0.3)	21.1 (1.4)	18.6 (0.9)	15.7 (0.6)	10.5 (0.5)	7.0 (0.5)	2.6 (0.4)	2.7 (0.4)	1.3 (1.0)	0.0	0.0
Severity	4.6 (0.2)	9.9 (1.0)	8.0 (0.5)	6.4 (0.3)	4.1 (0.3)	2.4 (0.2)	0.8 (0.2)	0.8 (0.2)	0.7 (0.6)	0.0	0.0
<i>Memorandum items:</i>											
Population share (%)	100.0	3.8	12.1	24.2	31.3	10.8	8.5	8.3	0.9	0.1	0.1
Share below the poverty line (%)	100.0	5.9	17.7	32.0	30.2	8.2	2.7	3.2	0.1	0.0	0.0
Household size	3.8	3.4	3.4	4.0	4.0	3.9	3.6	3.5	3.5	3.3	4.1
Dependency ratio (%)	38.5	52.0	49.7	37.2	33.9	37.5	39.8	35.1	32.6	51.8	27.3
Children (% household size)	25.5	23.6	21.4	28.2	27.9	22.8	17.5	28.5	23.6	24.8	16.9
Age of household head	45.0	51.1	51.5	43.3	41.5	49.0	52.0	37.2	41.7	49.7	47.9
Male-headed households (%)	78.2	71.1	73.0	84.6	80.2	71.5	73.0	79.6	74.3	78.6	77.3

Note: Standard errors taking into account the survey design are shown in parentheses.

Source: HSES 2010

2.4.4 Employment

One of the most important determinants of the household wellbeing is the labour market participation and employment opportunities of the head and other members of the household and types of employment they are engaged in. Poverty rates by labour market participation and by industry affiliation are shown in Table 2.8¹⁵ The living standards were considerably higher among those living in a household with employed heads than unemployed heads and slightly higher than those out of the labour force. Among those households with currently working heads, the poverty rates were lower among those in the services sector than in the industry and considerably lower than those in the agriculture sector. Four out of ten of the poor has household heads who are engaged in agriculture activities, two out of ten in services sector and about two out of ten in the industry sector, respectively. Three out of ten of the poor population had household heads who have not participated in a labour market altogether during the last one year period. The distribution of the population follows a similar pattern except that the share of the employees in the agriculture sector has dropped and that in the services sector increased.

The relationship between poverty and employment can be studied more closely by looking into the household head's employment sector. Table 2.9 classifies the employment affiliation of currently working household heads into herding, private and public sectors and state-run enterprises.¹⁶ Those currently out of labour force are classified as pensioners and "unspecified". A few findings from the table are worth mentioning. First, the poverty rates are the highest among herding households compared to any other sectors of employment. Second, the living standards rose with those households in the private sector, rose even farther with those working in the public sector and state-run organizations. Third, the likelihood of being poor is more than 50 percent in those living in households with unemployed heads. They constitute two tenth of the total poor. Fourth, there are two groups of household which distinctly differed from these households. They are pensioner and non-pensioner households that do not participate in labour market. The likelihood of being poor is lower (31%) among households that receive pensions and 35 percent for those that do not receive pensions. However, it is the pensioner household groups that make up the highest percentage of the poor of 11 percent compared to a barely 1 percent of the poor that the other group constitute. Fifth, interesting findings are found when those households that have out-of-labour force heads are compared with all other groups. They are distinct in that they have a smaller size of households and less number of children. The average age of the household head is the highest in the pensioner-households and lowest in the "unspecified" households compared to all other groups.

¹⁵A person is deemed to participate in a labour force if he or she worked, or did not work but had a job, or did not work and did not have a job but looked for work during the last one year period. Otherwise, he or she is considered out of the labour force.

¹⁶State-run enterprises are mostly concentrated in a few sectors of the economy such as the transport, mining, energy and public utilities sectors.

Table 2.8 Poverty by the labour force participation of household heads

	National average	Employed				Unemployed	Out of labor force
		Total	Agriculture	Industries	Services		
Headcount	39.2 (0.9)	38.2 (0.9)	54.6 (1.6)	38.8 (1.7)	24.6 (1.1)	51.0 (1.8)	34.4 (1.7)
Poverty gap	11.3 (0.3)	10.9 (0.4)	16.8 (0.8)	10.9 (0.6)	6.1 (0.3)	16.8 (0.8)	9.2 (0.6)
Severity	4.6 (0.2)	4.3 (0.2)	6.9 (0.5)	4.3 (0.3)	2.2 (0.2)	7.4 (0.5)	3.5 (0.3)
<i>Memorandum items:</i>							
Population share (%)	100.0	74.9	26.3	16.1	32.6	11.8	13.2
Share below the poverty line (%)	100.0	73.0	36.6	15.9	20.5	15.4	11.6
Household size	3.8	4.0	4.0	4.1	3.9	3.9	3.0
Dependency ratio (%)	38.5	33.9	37.7	32.4	31.6	29.5	64.6
Children (% household size)	25.5	29.1	30.8	29.9	27.3	24.9	10.6
Age of household head	45.0	40.8	40.5	40.0	41.4	42.6	64.6
Male-headed households (%)	78.2	84.9	91.1	89.1	78.2	71.2	54.4

Note: Standard errors taking into account the survey design are shown in parentheses.

Source: HSES 2010

Table 2.9 Poverty by the sector of employment of household heads

	National average	Unemployed					Unemployed	Out of labour force	
		Herder	Private	Public	State-run enterprises	Unspecified		Pensioner	Unspecified
Headcount	39.2 (0.9)	56.4 (1.7)	31.6 (1.2)	26.1 (1.6)	25.9 (4.5)	24.5 (6.7)	51.0 (1.8)	34.6 (1.8)	30.6 (5.4)
Poverty gap	11.3 (0.3)	17.2 (0.9)	8.6 (0.4)	6.6 (0.6)	6.9 (1.3)	4.6 (1.4)	16.8 (0.8)	9.2 (0.7)	8.9 (2.1)
Severity	4.6 (0.2)	7.1 (0.5)	3.3 (0.2)	2.4 (0.3)	2.6 (0.6)	1.1 (0.4)	7.4 (0.5)	3.5 (0.3)	3.9 (1.1)
<i>Memorandum items:</i>									
Population share (%)	100.0	23.1	37.2	12.4	1.6	0.5	11.8	12.3	0.9
Share below the poverty line (%)	100.0	33.3	30.1	8.3	1.1	0.3	15.4	10.9	0.7
Household size	3.8	4.0	4.0	3.9	3.8	4.1	3.9	3.0	3.0
Dependency ratio (%)	38.5	38.1	32.6	30.4	30.4	33.6	29.5	67.9	19.4
Children (% household size)	25.5	30.9	28.9	26.4	28.7	27.5	24.9	10.6	11.1
Age of household head	45.0	40.4	40.7	41.8	40.4	42.9	42.6	66.8	33.6
Male-headed households (%)	78.2	91.7	83.4	77.4	81.1	91.8	71.2	53.5	65.9

*Note: A pensioner refers to a household head who receive any pension or benefit from the state.
Standard errors taking into account the survey design are shown in parentheses.
Source: HSES 2010*

2.5 Asset

Ownership of asset is another major determinant of the quality of life. Having an asset at its disposal or have access to an asset affects the household's prospects for coping with economic insecurity and seasonality of agricultural production. In the event of a sudden loss of unemployment of the breadwinner or natural calamities such as *dzud*, droughts and floods, a household uses its asset to smooth out its consumption. Assets a household possesses is important to access credit markets. Hence, this wealth indicator can be understood as an insurance that hedges the household against various risks. Two types of assets, namely livestock and land are discussed below.

2.5.1 Livestock

Livestock serves a double purpose of being a household's valued asset and the main sub-sector of the agriculture sector. At least four out of ten persons currently employed are engaged in some sort of livestock activities. Livestock includes five species of animals, each of which provides a different support towards household's welfare and opens different business opportunities. For example, the possession of goats means a comparative advantage in engaging in a cashmere business, those with sheep and camels in wool trade, those with cattles and horses in a meat and dairy production. Livestock holding is shown by each species of animals and by urban and rural areas in Table 2.10. Almost four out of ten persons possess some species of animals. Two to three out of ten persons in the total population raise cows, horses, goats and sheep while less than one out of ten persons breed camels. This composition of livestock holdings differs across settlement strata. Barely 10 percent of the urban population possesses livestock while eight of every ten persons in rural areas own animals. Ulaanbaatar has the least number of herder households compared to almost 90 percent of the total rural population owning some species of livestock. No such striking differences were found among herder households across regions. The share of population in possession of livestock is the highest in the West - More so for the share of population with goats and sheep. However, compared to 2007-2008 period, the number of those owning *bods* increased from 47 to 56 percent in the East, from 60 to 63 percent in the Highlands, respectively. All other regions were found to be similar in the number of persons owning *bods*.

For the purposes of comparability across households with different species of animals, different values of various livestock species were re-scaled into *bod* scale. Among herders, the average livestock number per capita is ten *bods* or ten horses.¹⁷ (Table 2.10) The average livestock per capita increased considerably compared to the 2002-2003 period where it stood at only seven *bods*; however, the share of the population that are in possession of animals during that period was the same as that during the present survey period. The average number of per capita livestock in rural areas doubles that in urban areas. By settlement strata, the average number of per capita livestock is increasing in the countryside. By regions, the average number of livestock

¹⁷ The so-called bod coefficient was used to transfer the value of various species into a common scale. One *bod* is assumed to be equal to a horse or cow, or 0.67 camels, or 6 sheep or 8 goats.

per capita is the highest in the East, an estimate mainly driven by a higher proportion of the population with cattles and horses. This region is characterised by vast steppes with an abundance of quality pastureland and hence, more suited for herding. In contrast, the average number of per capita livestock fell to the lowest in the West despite the highest proportion of population owning livestock and the highest number of all species owned in that region. Overall, many poor people raise livestock but the average number of livestock they own is considerably lower than that owned by the non-poor. The same pattern is observed for all species of livestock.

What is the relationship between livestock holdings and welfare levels? Table 2.11 shows poverty rates by households, by urban and rural areas and by species of livestock. Livestock herding greatly differs across rural and urban areas. Households in urban areas that are engaged in livestock activities tend to be more severely affected by poverty than those that are not. This suggests that sole reliance on livestock is not sufficient to survive in urban areas and broad-based economic activities are needed if a household is to improve its welfare.

The same pattern can be seen in rural areas where all three poverty indices, namely, incidence, gap and severity increase with populations raising livestock compared to those that are not engaged in any livestock activities. The poverty incidence among herder households has increased from 46.7 percent in 2007-2008 period to the current 49.7 percent. Reversely, the incidence in the non-herder households has fallen to 41.6 percent from 46.2 percent in the same period.

However, with these findings one should not construe livestock as not being able to hedge households against poverty in rural areas as many different factors come into play. During 2007-2008 period in rural areas the poverty headcounts were similar between herders and non-herders. These findings have changed according to the 2010 survey results. What is the relationship between poverty and the average number of livestock per capita? Figure 2.2 depicts how poverty incidence changes with the number of livestock per herder. Poverty incidence fell in both urban and rural areas as the number of livestock per herder increased. This corroborates the direct relationship between the living standard and the number of livestock per person. Although the households that own livestock are less better-off both in urban and rural areas than the households that do not; among the households owning livestock the welfare level improves with greater number of livestock. Outputs increase inasmuch as the number of livestock increases and by diversifying its activities households minimize its exposure to adverse shocks that might hit them had they only relied on single activities. This is derived from the fact that 75 percent of all herders owns at least three different species of livestock.¹⁸

¹⁸ On the other hand, owning only one to two species of animals might enable a household's ability to operate in niche markets and benefit from economies of scale at a certain points of production process.

Table 2.10 Livestock holdings

	Cattle		Horse		Camel		Sheep		Goat		Bod	
	Holders (%)	Average herd size	Holders (%)	Average herd size	Holders (%)	Average herd size	Holders (%)	Average herd size	Holders (%)	Average herd size	Holders (%)	Average herd size
National average	28.7	3.1	26.3	3.1	5.5	2.2	33.3	22.2	34.9	19.6	38.7	10.3
Urban	5.5	2.6	3.1	3.1	0.4	2.5	5.4	16.3	6.1	13.3	8.5	5.9
Rural	57.5	3.1	55.1	3.1	11.8	2.2	67.9	22.8	70.5	20.2	76.1	10.9
Ulaanbaatar	1.5	2.7	0.6	1.2	0.0	0.2	0.6	18.8	0.8	11.3	1.8	4.5
Aimag centers	12.1	2.6	7.1	3.4	1.0	2.6	13.3	16.1	15.0	13.5	19.7	6.1
Soum centers	39.0	2.2	28.0	2.4	3.1	2.4	41.2	13.1	44.5	11.4	53.1	6.0
Countryside	70.4	3.4	74.2	3.3	18.0	2.2	86.7	26.1	88.8	23.3	92.3	12.8
West	54.6	1.6	49.4	1.7	12.0	1.2	61.5	17.4	65.4	16.9	69.6	7.3
Highlands	44.4	4.0	42.7	3.4	3.1	1.4	57.5	21.7	59.8	20.2	63.5	10.8
Central a/	27.0	3.2	24.4	4.4	10.2	4.2	33.6	28.4	34.3	25.1	41.2	12.7
East	48.6	4.3	44.7	4.7	10.3	1.1	45.2	28.3	47.8	17.4	56.2	13.4
Poor	25.8	3.7	22.5	4.1	5.2	2.9	28.1	28.6	29.1	22.4	33.1	12.9
Non-Poor	33.3	2.2	32.4	2.1	6.0	1.3	41.5	15.6	43.9	16.6	47.4	7.4

a/ Excludes Ulaanbaatar

Note: Bod scale was used to estimate the size of the herd. It transforms cattle, camels, goats and sheep into horse equivalents.

One bod equals to a horse, a cattle, 0.67 camel, 6 sheep, and 8 goats

Source: HSES 2010

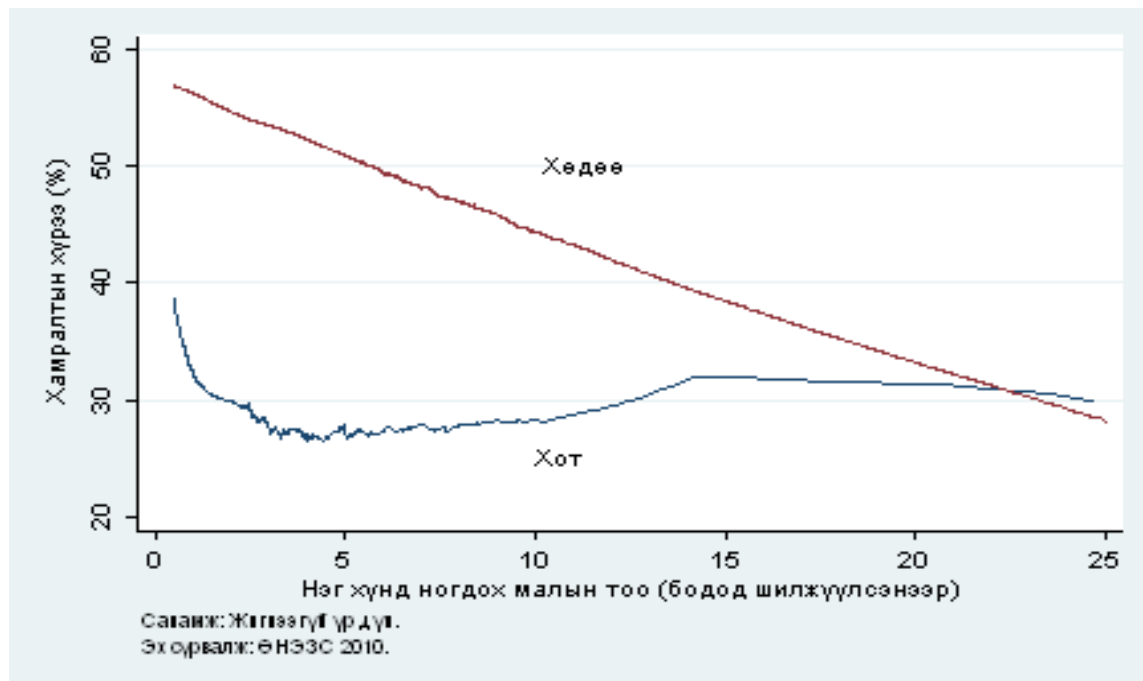
Table 2.11 Poverty by ownership of livestock

	National average		Urban		Rural	
	Herder	Non-herder	Herder	Non-herder	Herder	Non-herder
Headcount	33.6 (1.0)	48.0 (1.4)	31.9 (1.2)	35.3 (3.2)	41.6 (2.1)	49.7 (1.5)
Poverty gap	9.5 (0.4)	14.2 (0.6)	8.7 (0.4)	8.8 (1.0)	13.6 (0.9)	14.9 (0.7)
Severity	3.8 (0.2)	5.8 (0.4)	3.4 (0.2)	3.1 (0.4)	5.9 (0.5)	6.1 (0.4)
<i>Memorandum items:</i>						
Population share (%)	61.3	38.7	91.5	8.5	23.9	76.1
Share below the poverty line (%)	52.6	47.4	90.7	9.3	20.8	79.2
Household size	3.7	4.0	3.8	4.2	3.3	4.0
Dependency ratio (%)	37.2	40.8	36.8	39.8	39.0	40.9
Children (% household size)	23.9	28.2	23.9	27.4	23.8	28.3
Age of household head	45.6	44.0	45.7	45.7	45.0	43.8
Male-headed households (%)	72.3	88.2	72.6	87.1	71.3	88.3

Note: Standard errors taking into account the survey design are shown in parentheses.

Source: HSES 2010

Figure 2.2. Poverty by livestock sizes



2.5.2 Land

Land is typically considered as one of the most valuable assets a household can have if it is engaged in an agricultural production. In Mongolia crop production is limited and cannot be compared to the significance of livestock sub-sector. A few factors might help to explain this. First, the exposure to an extreme climate makes crop production more difficult as weather hazards can lead to a sudden loss of harvest. Second, relatively low quality of soil and a lower proportion of irrigated lands adversely affect the productivity. Third, crop farming seems to be more labour and capital-intensive than livestock herding. Fourth, crop farming is not something households were traditionally engaged in from generations to generation; until recently, crop production was entirely a state-run activity. Fifth, a traditional way of livestock herding requires households to lead nomadic way of life, which makes it difficult to combine it with crop farming.

Table 2.12 Poverty by ownership of land

	National average		Urban		Rural	
	No land	Land	No land	Land	No land	Land
Headcount	40.5 (1.2)	37.8 (1.1)	30.1 (1.6)	34.2 (1.3)	52.0 (1.7)	42.7 (1.7)
Poverty gap	12.3 (0.5)	10.4 (0.4)	8.4 (0.5)	9.0 (0.5)	16.6 (0.8)	12.2 (0.7)
Severity	5.1 (0.3)	4.0 (0.2)	3.3 (0.2)	3.4 (0.2)	7.2 (0.5)	4.8 (0.3)
<i>Memorandum items:</i>						
Population share (%)	51.5	48.5	48.8	51.2	54.7	45.3
Share below the poverty line (%)	53.2	46.8	45.6	54.4	59.5	40.5
Household size	3.6	4.1	3.6	4.1	3.6	4.1
Dependency ratio (%)	39.5	37.4	37.9	36.1	41.1	39.3
Children (% household size)	25.7	25.2	24.3	24.0	27.2	26.9
Age of household head	44.0	46.2	44.9	46.7	43.0	45.7
Male-headed households (%)	75.6	81.3	70.0	77.7	81.7	86.4

*Note: Standard errors taking into account the survey design are shown in parentheses.
Source: HSES 2010*

According to the household survey, one of every two persons own or live in a household that owns a piece of land for either crop or vegetable farming. These findings were similar across urban and rural areas. At the national level, the land owners are better-off than those that do not own lands. Nonetheless, the incidence of poverty grows in urban areas with those households that possess or own land compared those that do not. In contrast, the incidence of poverty fell in rural areas with the households owning land compared to those that do not. Eight of every ten land owners are able to utilize their lands either partially or fully for crop and vegetable productions – majority of the households make a full use of their lands. With the advent of Virgin Land Reclamation Campaign, households are increasingly engaged in crop farming in the past a few years. This not only benefits the households themselves but also the general population by promoting the country's self-sufficiency in home-grown vegetables and supplying domestic industries with raw materials.

2.6 Housing

Another important determinant of the quality of life is the type of housing a household and an individual live in and their access to basic infrastructure services. With improved housing conditions and improved access to public utilities, a household's prospects for moving out of vulnerability to poverty increases and expand their available

options and opportunities. Better infrastructure provides for a more convenient way of life and help improve household members' productivity. Those households connected to central water supply and having access to safe drinking water obviously have better level of well-being than those that fetch their consumption water from a half-an-hour walking distance. Discussed here will be types of living quarters and basic infrastructure services that households have access to.

2.6.1 Dwelling

The most common type of dwelling in Mongolia is *ger* where 46 percent of the total population live in. Three out of ten persons live in detached houses and less than two out of ten persons reside in apartments. By settlement strata, in urban areas close to four out of ten persons live in detached houses, three out of ten in apartments and another three tenth in *gers*. In comparison, in rural areas seven out of ten live in *gers*, almost three out of ten in detached houses and the remaining fractions in apartments. The relationship of dwelling and poverty is shown in Table 2.13. The poverty rates relatively increase with the households living in *gers*. They then slightly fell with the households that live in detached houses and fell farther with those living in apartments. A similar trend is seen in both urban and rural areas. For instance, almost one half of *ger* dwellers are poor regardless of their geographical location. This is in contrast with only 10 percent of all apartment dwellers in urban areas and 16 percent of all rural apartment dwellers being poor. *Ger* dwellers tend to be poorer with six out of ten being poor compared with only three out of ten living in detached houses and barely one out of ten living in apartments are poor. In Ulaanbaatar and *aimag* centers one half of the poor live in *gers* making up 28 percent of the total population whereas only 9 percent of the poor dwell in apartments making up another 28 percent of the total population. The distribution of the poor in rural areas by each type of dwelling is similar to the general population distribution with seven out of ten living in *gers* and the remaining poor living in houses.

Table 2.13 Poverty by type of dwelling

	National average				Urban				Rural			
	Ger	Apartment	House	Others	Ger	Apartment	House	Others	Ger	Apartment	House	Others
Headcount	55.2 (1.1)	10.7 (1.3)	33.4 (1.2)	22.6 (4.2)	55.8 (1.7)	10.1 (1.4)	31.8 (1.4)	22.7 (5.1)	54.9 (1.5)	15.9 (3.1)	36.5 (2.3)	22.4 (7.2)
Poverty gap	17.0 (0.6)	2.3 (0.3)	8.8 (0.4)	5.6 (1.2)	16.4 (0.7)	2.1 (0.3)	8.2 (0.5)	5.4 (1.4)	17.3 (0.8)	4.2 (1.2)	10.0 (0.8)	6.0 (2.2)
Severity	7.1 (0.3)	0.8 (0.1)	3.3 (0.2)	1.7 (0.4)	6.7 (0.4)	0.7 (0.1)	3.0 (0.2)	1.6 (0.5)	7.4 (0.4)	1.8 (0.6)	3.7 (0.4)	1.9 (0.8)
<i>Memorandum items:</i>												
Population share (%)	45.8	17.8	34.6	1.8	28.3	28.5	41.2	2.0	67.5	4.5	26.4	1.6
Share below the poverty line (%)	64.6	4.9	29.5	1.0	49.1	8.9	40.6	1.4	77.6	1.5	20.2	0.7
Household size	3.8	3.5	4.0	3.6	3.9	3.5	4.1	3.5	3.7	3.6	4.0	3.6
Dependency ratio (%)	41.2	36.0	36.7	32.8	39.9	36.4	35.8	33.5	41.9	32.7	38.4	31.6
Children (% household size)	27.4	22.3	24.8	24.1	27.0	21.8	24.2	21.5	27.5	25.9	26.0	28.2
Age of household head	44.2	45.4	46.0	43.1	45.1	45.8	46.2	44.9	43.8	41.9	45.7	40.1
Male-headed households (%)	80.7	71.8	78.8	70.2	74.1	71.0	76.1	65.8	84.1	78.6	84.0	77.1

Note: Others include student dormitories, company workers' living quarters and non-living quarters of all types.

Standard errors taking into account the survey design are shown in parentheses.

Source: HSES 2010

2.6.2 Infrastructure services

Quality of life improves with the provision of basic infrastructure services such as improved water sources, improved sanitation and electricity.¹⁹ Unimproved water sources and sanitation facilities can have a direct impact on population wellbeing and health through an increased risk of disease outbreaks and resultant financial risks due to ill health. Likewise, insufficient access to electricity can limit education and investment opportunities. How do Mongolians fare in these indicators? The association between poverty rates and access to basic infrastructure services is shown in Table 2.14 and Table 2.15.

According to the household survey, 55.2 percent of all Mongolians have access to improved water sources, 54.7 percent to improved sanitation and 76.8 percent to electricity, respectively. Accessing all three services are three-tenth of the population. Compared to 2007-2008 period, there is an increased access to improved sanitation and electricity nationwide. The number of people accessing these services is, however, higher in urban areas than in rural areas. 70.3 percent of the total urban population and 35.3 percent of all rural residents have access to improved sanitation facilities. Almost all urban dwellers have access to electricity compared to only 50 percent of all rural dwellers.

Findings in these two tables do not reflect the rapidly increasing consumption of solar energy in rural areas. In the past a few years the government successfully implemented a policy to provide herders with solar panels on a concessional basis. Although this cannot fully meet the energy needs of the rural population almost eight out of ten persons in the countryside now have access to either solar-powered or electricity powered energy. Significant differences emerge from comparisons between urban and rural areas; one half of all urban dwellers avail of all three basic services, namely, improved water sources, improved sanitation and electricity in contrast to barely two out of ten people in rural areas having access to these services. Difference in the quality of services households have access to is worth mentioning although this was outside the scope of the present survey. In general, urban dwellers enjoy higher quality of services. For example, tapwater may be regarded as safer than water obtained from a well since even a protected well can run the risk being contaminated.

¹⁹ An improved water source refers to piped water into dwelling or water from a protected well. Unimproved water sources are unprotected wells, rivers, springs and surface water. An improved sanitation facility means sewerage connection, or private and shared (but not public) pit latrines.

Table 2.14 Poverty by access to infrastructure services

	a/ Improved water sources		b/ Improved sanitation		Electricity		All three	
	No	Yes	No	Yes	No	Yes	No	Yes
Headcount	50.3 (1.2)	30.1 (1.1)	51.2 (1.2)	29.2 (1.1)	57.5 (1.8)	33.7 (0.9)	48.9 (1.1)	24.1 (1.2)
Poverty gap	15.1 (0.5)	8.3 (0.4)	15.4 (0.6)	7.9 (0.4)	17.9 (0.9)	9.4 (0.3)	14.6 (0.5)	6.3 (0.4)
Severity	6.1 (0.3)	3.3 (0.2)	6.4 (0.3)	3.1 (0.2)	7.5 (0.5)	3.7 (0.2)	6.0 (0.3)	2.4 (0.2)
<i>Memorandum items:</i>								
Population share (%)	44.8	55.2	45.3	54.7	23.2	76.8	60.9	39.1
Share below the poverty line (%)	57.5	42.5	59.1	40.9	34.0	66.0	75.9	24.1
Household size	3.9	3.8	3.9	3.8	3.8	3.8	3.9	3.7
Dependency ratio (%)	39.4	37.9	39.4	37.9	40.8	37.9	39.4	37.3
Children (% household size)	26.7	24.5	26.8	24.4	27.9	24.7	26.7	23.6
Age of household head	44.7	45.3	44.3	45.6	43.1	45.6	44.6	45.6
Male-headed households (%)	81.2	75.8	82.0	75.2	87.8	75.3	80.6	74.6

a/ Refers to the percentage of population with access to improved water sources such as household connection and protected wells and springs. Unimproved water sources include water from tanker trucks and unprotected well and springs.

b/ Refers to the percentage of population with access to improved sanitation facilities such as sewerage connection or private or shared but not public pit latrines. These may range from protected pit latrines to flush toilets with sewerage connection.

Note: Standard errors taking into account the survey design are shown in parentheses.

Source: HSES 2010

Overall, households that do not have access to water, sanitation and electricity were poorer than those that do. Two out of ten persons having access to all three services were poor while this increases to five out of ten persons in households that do not have access to the services. This pattern was seen in both urban and rural areas but the contrast was less evident in rural areas.

The availability of infrastructure services by poverty status is shown in Figure 3.2. The non-poor have an increased access to improved water sources and sanitation and electricity than the poor and the divergence increases when access to all three services are compared. This was observed in both urban and rural areas although the difference in the latter is less pronounced.

Figure 2.3 Access to infrastructure services by poverty status

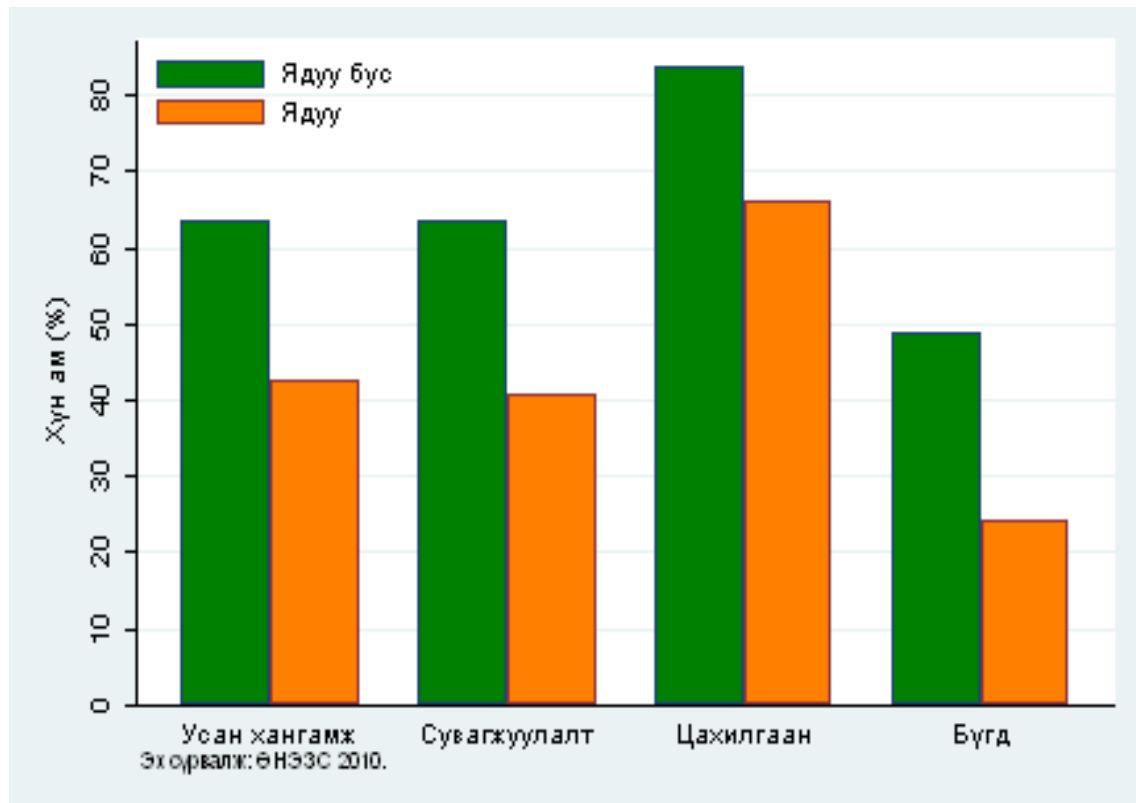


Table 2.15 Poverty by access to infrastructure services in urban and rural areas

	Urban		Rural		Urban		Rural		Urban		Rural		Urban		Rural	
	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Headcount	45.1	26.3	53.6	38.5	46.3	26.2	53.9	36.7	75.4	31.8	57.0	38.3	45.0	21.2	51.7	33.2
	(1.9)	(1.3)	(1.6)	(1.8)	(1.8)	(1.3)	(1.6)	(1.8)	(8.6)	(1.1)	(1.8)	(1.5)	(1.6)	(1.3)	(1.4)	(2.3)
Poverty gap	13.0	6.7	16.4	11.7	12.5	7.1	17.2	10.0	21.9	8.6	17.8	11.3	12.5	5.4	16.1	9.1
	(0.8)	(0.4)	(0.7)	(0.8)	(0.6)	(0.4)	(0.8)	(0.7)	(3.4)	(0.4)	(0.9)	(0.6)	(0.6)	(0.4)	(0.7)	(0.9)
Severity	5.2	2.5	6.7	5.1	4.8	2.7	7.3	3.9	8.1	3.3	7.5	4.6	4.9	2.0	6.7	3.7
	(0.4)	(0.2)	(0.4)	(0.4)	(0.3)	(0.2)	(0.5)	(0.3)	(1.9)	(0.2)	(0.5)	(0.3)	(0.3)	(0.2)	(0.4)	(0.5)
<i>Memorandum items:</i>																
Population share (%)	31.4	68.6	61.4	38.6	29.7	70.3	64.5	35.5	1.0	99.0	50.6	49.4	46.2	53.8	79.0	21.0
Share below the poverty line (%)	44.0	56.0	68.8	31.2	42.7	57.3	72.8	27.2	2.3	97.7	60.4	39.6	64.5	35.5	85.4	14.6
Household size	4.0	3.8	3.8	3.7	4.0	3.8	3.8	3.7	3.9	3.8	3.8	3.7	4.0	3.7	3.8	3.7
Dependency ratio (%)	36.8	37.1	41.0	39.5	36.6	37.2	40.9	39.4	46.0	37.0	40.7	40.1	37.0	37.1	41.0	38.1
Children (% household size)	25.3	23.7	27.5	26.4	25.5	23.6	27.6	26.2	23.7	24.2	28.0	26.2	25.6	23.0	27.5	25.5
Age of household head	45.9	45.6	43.9	44.5	45.3	45.9	43.7	44.8	51.2	45.7	42.9	45.3	45.5	45.9	44.0	44.6
Male-headed households (%)	74.4	73.4	85.4	81.1	75.1	73.1	85.7	80.1	86.4	73.6	87.9	79.5	74.7	72.9	84.7	79.9

a/ Refers to the percentage of population with access to improved water sources such as household connection and protected wells and springs. Unimproved water sources include water from tanker trucks and unprotected well and springs.

b/ Refers to the percentage of population with access to improved sanitation facilities such as sewerage connection or private or shared but not public pit latrines. These may range from protected pit latrines to flush toilets with sewerage connection.

Note: Standard errors taking into account the survey design are shown in parentheses.

Source: HSES 2010

2.7 Safety nets

Social safety nets can play the key role in reducing economic insecurity and alleviating poverty by mitigating adverse shocks on a household's ability to cope. Shocks can be permanent (e.g., disability) or temporary (e.g., unemployment), and can occur at the macro (e.g., natural disasters) or micro (e.g., death of the household head) levels. Each shock may require a different response.

There are two broad types of social safety nets: Informal safety nets that are traditional coping strategies based on community, social network and kinship and include assistance, supports and gifts received through these informal networks. Formal safety nets are public assistance in the form of cash transfers provided to support and protect the poor and vulnerable groups of the population. Informal safety nets such as private assistance and transfers are quite common. For instance, herders exchange animals, as in the form of private transfer.

Mongolia maintains an extensive network of social safety nets which mainly consist of social insurance and social assistance.²⁰ The state social safety net which was passed down from a command economy to a market economy still plays the key role. This section explains in detail formal and informal safety nets and private and state transfers such as pensions, welfare allowances and cash transfers that households receive.

2.7.1 The extent and importance of cash transfers and remittances

Table 2.16 summarizes cash remittances, assistance and gifts that households receive by their sources. Several findings are worth highlighting:

First, the extent of the cash remittances, assistance and gifts is quite remarkable with nine out of ten households having received one or another forms of cash remittance, assistance and gifts.

Second, the extent of coverage by state and private transfers greatly vary among households. Nine out of ten households have received state social assistance while six out of ten households have benefitted from one or another form of private transfers and remittances.

Third, the state transfers make up eight-tenth of the total amount transferred.

Fourth, the public transfers are mainly comprised of two types social assistance: retirement pensions and Human Development Fund allowance. Retirement pension is received by three out of ten households and constitute more than one half of the total amount of state cash transfers. The Human Development Fund benefits six out of ten

²⁰ Social insurance consists of retirement pensions, and unemployment and sickness benefits to cover specific risks. Social assistance is intended for disadvantaged or vulnerable groups that are in need of social protection and includes benefits such as disability or special pensions and compensations.

households representing one tenth of the total amount of public transfers. The surge in state transfers is mainly driven by the universal coverage of Human Development Fund allowances.

Fifth, three tenth of the total value of private transfers are between family members and friends. Sixth, foreign remittances are received by barely one-tenth of all households that benefit one or another form of private transfers. Overall, public transfers constitute a bit more than two tenth of the total consumption of the receipient households while private transfers make up almost two tenth of the total consumption of the receipient households.

Table 2.16 Transfers and remittances received by households

	Households received transfers (%)	Population received transfers (%)	Among those received		
			Average transfer per household per month (in tugrugs)	Share in consumption (%)	Share in total transfers (%)
Total	97.0	98.0	95 809	26.7	100.0
Social assistance and pensions	87.7	90.9	70 794	21.1	66.8
Retirement pensions	26.9	24.4	131 660	40.6	38.1
Maternity benefits	6.5	8.1	14 519	3.4	1.0
Disability benefits	8.4	9.2	63 656	19.5	5.7
Survivor child benefits	3.1	3.5	55 621	17.2	1.9
Infant care benefits	2.9	3.6	13 366	3.5	0.4
Human Development Fund allowance	59.5	69.8	12 855	3.3	8.2
Others a/	41.8	43.1	25 401	7.5	11.4
Remittances and assistance	64.1	65.2	48 114	11.6	33.2
Family and friends	17.5	15.7	93 921	22.7	17.6
Others b/	55.0	57.4	26 310	6.3	15.6
From abroad	3.3	3.0	169 921	29.8	6.0
From within the country	62.9	64.2	40 213	10.2	27.2

a/ Includes special pensions, unemployment benefits, illness payments, funeral payments and other benefits.

b/ Includes state, public and private enterprises, NGOs, international organizations, individuals and other source.

Source: HSES 2010

2.7.2 Transfers received by households

The main purpose of the social safety nets is to provide assistance to the vulnerables and to mitigate adverse economic and social shocks on a household's ability to cope. The relationship between poverty rates and whether a household receives any transfers is shown in Table 2.17. Poverty incidences are higher in households that are in receipt of some form of private transfers than in those that do not receive any private transfers. A degree of caution needs to be exercised when making comparisons between the households that receive public transfers and those that don't. The fact that poverty rates are high among the households that receive some form of public assistance may suggest that social assistance is well-targeted. However, universal nature of public assistance defeats the purpose of information these aggregate indicators may provide.

Table 2.17 Poverty by receipt of private and public transfers

	Private				Public			
	Urban		Rural		Urban		Rural	
	Yes	No	Yes	No	Yes	No	Yes	No
Headcount	31.8 (2.1)	32.3 (1.3)	47.5 (1.8)	48.1 (1.8)	14.3 (2.1)	34.3 (1.2)	34.8 (3.4)	48.9 (1.4)
Poverty gap	8.3 (0.6)	8.8 (0.5)	13.9 (0.9)	15.2 (0.8)	3.6 (0.7)	9.3 (0.4)	11.3 (1.7)	14.9 (0.6)
Severity	3.2 (0.3)	3.4 (0.2)	5.6 (0.5)	6.5 (0.4)	1.2 (0.3)	3.6 (0.2)	4.9 (1.0)	6.2 (0.4)
<i>Memorandum items:</i>								
Population share (%)	24.6	75.4	47.4	52.6	10.3	89.7	7.7	92.3
Share below the poverty line (%)	24.2	75.8	47.1	52.9	4.6	95.4	5.6	94.4
Household size	3.7	3.9	3.7	3.9	2.9	4.0	2.8	3.9
Dependency ratio (%)	33.8	38.1	39.4	41.4	10.1	41.4	13.7	43.5
Children (% household size)	23.1	24.5	26.5	27.6	7.6	26.8	12.3	28.8
Age of household head	45.4	45.8	44.0	44.3	41.7	46.4	39.1	44.7
Male-headed households (%)	78.2	72.2	85.1	82.4	70.7	74.2	89.3	83.0

Note: Standard errors taking into account the survey design are shown in parentheses.

Source: HSES 2010

2.7.3 Retirement pensions

Given the importance of public transfers on household welfare, the relationship between poverty and retirement pension, the largest constituent of public transfer, was studied. (Table 2.18)

At the national level households that receive pensions are more better-off than those that do not receive such benefits.²¹ No striking differences were found between urban and rural areas; although considerably lower poverty incidence was observed in rural households that receive pensions. In urban areas, however, similar incidences of poverty were found between pension recipient and non-recipient households. This may be explained by the fact that having a pensioner in the household that receive steady income regardless of seasons could be an important factor to welfare of the households in rural area. The distribution of the poor was closely aligned with that of the population when it was examined by whether an individual lives in a recipient household.

At the national level, three out of ten poor individuals belong to the households that receive pensions while three out of ten urban poor and two out of ten rural poor live in recipient households. Demographic indicators corroborates these findings. Households that receive pensions have less number of children than the national average. But these households have higher dependency ratios, reflecting higher proportions of elderly in the household. Such households tend to be headed by considerably older females.

Table 2.18 Poverty by receipt of retirement pensions

	National average		Urban		Rural	
	Yes	No	Yes	No	Yes	No
Headcount	40.5 (0.9)	34.9 (1.4)	32.3 (1.2)	32.0 (1.8)	49.8 (1.4)	39.9 (2.0)
Poverty gap	12.0 (0.4)	9.3 (0.5)	8.8 (0.4)	8.4 (0.6)	15.5 (0.6)	10.9 (0.9)
Severity	4.9 (0.2)	3.6 (0.3)	3.4 (0.2)	3.2 (0.3)	6.5 (0.4)	4.2 (0.5)
<i>Memorandum items:</i>						
Population share (%)	75.6	24.4	72.0	28.0	80.0	20.0
Share below the poverty line (%)	78.2	21.8	72.1	27.9	83.3	16.7
Household size	3.9	3.5	3.9	3.8	4.0	3.0
Dependency ratio (%)	31.3	58.2	29.5	55.8	33.4	61.6
Children (% household size)	30.4	12.0	28.5	13.3	32.7	10.2
Age of household head	39.3	60.4	39.9	60.2	38.6	60.8
Male-headed households (%)	83.3	64.3	78.2	62.5	89.3	66.7

Note: Standard errors taking into account the survey design are shown in parentheses.

Source: HSES 2010

²¹ It should be kept in mind that retirement pensions are not a form of social assistance. Rather, it is an arrangement whereby one is to be paid when he or she is retired, from the contributions he or she made to the pension fund.

ANNEX A. THE HOUSEHOLD SOCIO-ECONOMIC SURVEY 2010

This appendix provides some details on the general characteristics of Socio-Economic Survey (HSES) 2010, its sample design and overall assessments of the quality of the data.

A.1 An overview of HSES

The HSES 2010 is a nationally representative survey, which aims to evaluate and monitor the income and expenditure of households, update the basket and weights for consumer price index, and offer inputs to the national accounts. The HSES is a survey regularly conducted by the NSO and covers a 12-month period for analysis. The present report period covers the month of December 2010. The HSES may be regarded as an improved version of the Household Income and Expenditure Survey (HIES) because several typical modules from Living Standards Measurement Survey were merged to HSES, the then HIES. What differs from the HSES 2007/08 is that the present survey was conducted in a abbreviated form; hence consists of 11 major modules: basic socio-economic information about the members of households, education, health, employment, livestock, crop production, household business and other income, housing and energy, durable goods, non-food expenditures and food consumption.

A.2. The sampling design

The 2010 HSES used the sampling frame which was developed by the NSO based on 2005 population figures obtained from local registration offices. This updated sampling frame was of great importance because the spatial distribution of the population had changed dramatically over the last years and any frame based on the Census 2000 would not be relevant anymore.²²

The design of the survey recognizes three explicit strata: Ulaanbaatar, *aimag* centers, and *soum* centers and the countryside. In addition, the sample was implicitly allocated by districts and *khoroos* in Ulaanbaatar, and by *aimags* in rural areas. Each *aimag* center was an explicit sub-stratum. The selection strategy was different in each stratum: a two-stage process in urban areas and a three-stage process in rural areas. In Ulaanbaatar, 360 *khesegs* were initially selected, from each of which 10 households were chosen. In *aimag* centers, 12 or 24 *bags* were initially selected, and then 10 households from each *bag*.²³ In rural areas, first 52 *soums*, then 12 *bags* in each *soum* and finally 8 households in each

²² Mongolia is divided into 21 *aimags*. Ulaanbaatar is the capital city and is divided into 9 sub-districts, 121 *khoroos* and 1035 *khesegs*. Each *kheseg* has approximately 200 households. The rest of the country is divided into *soums* and *bags*. One of the *soums* in each *aimag* is normally considered as *aimag* centers while the others are regarded as rural areas.

²³ Darkhan-Uul and Orkhon were the only two *aimags* where 24 *bags* were selected.

bag were selected. All 1,248 primary sampling units or clusters (units, bags or *soums*) were selected with a probability proportional to their sizes and were randomly allocated into twelve months of survey fieldwork.

The use of this sampling procedure means that households living in different areas of the country have been selected with different probabilities. Therefore, in order to obtain representative statistics for each stratum and for the country as a whole, it was necessary to use sampling weights. The weight which was assigned to each household corresponds to the inverse of the selection probability and takes the sampling strategy into account.

The sample of 11,232 households was allocated as follows: 3,600 in Ulaanbaatar, 2,640 in *aimag* centers and 4,992 in rural areas and *soum* centers. However, the actual sample size used for this analysis is slightly smaller: 3,572 households in Ulaanbaatar; 2,639 in *aimag* centers; and 4,987 in rural areas and small towns. The difference is explained by 60 households, for which complete information was unavailable and were thus, excluded.

Table A.1 HSES 2010 sample by stratum and month of interview

	Ulaanbaatar	Aimag centers	Rural	National
2010				
Jan	299	219	416	934
Feb	298	220	416	934
Mar	299	220	416	935
Apr	299	220	416	935
May	299	220	416	935
Jun	296	220	416	932
Jul	299	220	416	935
Aug	295	220	416	931
Sep	298	220	416	934
Oct	295	220	416	931
Nov	295	220	411	926
Dec	300	220	416	936
Total	3,572	2,639	4,987	11,198

A.3 Data quality

The overall data quality is to be considered of good standard. On the one hand, the greater amount of information that the HSES collects from households imposed new demands on the operational strategies and data management compared to the previous HIES. All procedures were streamlined and centralized, which is likely to have had a positive impact on the quality of the information. On the other hand, three different rounds of consistency checks were applied to the data: first during the data entry process, then during the compilation of the raw data files and finally during the preparation of this report. In all cases, it was possible to compare the listings used for consistency checks against actual questionnaires filled out by households (in fact, during the first round of checks, some households were visited again) and the data were revised whenever an error was found.

ANNEX B: THE METHODOLOGY FOR POVERTY ANALYSIS

First and foremost, poverty analysis requires three main elements. First, welfare indicators, both measurable and acceptable, to rank all population accordingly. Second, an appropriate poverty line which is to be used as a cut-off to define individuals as poor and which is comparable against a given indicator. Lastly, a set of measures that consolidates individual welfare indicators into an aggregated poverty profile. In order to ensure comparability over time, the same methodology that was used in the poverty analyses²⁴ of HSES 2007/08 and HSES 2009 was adopted for the present analysis.

B.1. The choice of welfare indicators

Poverty involves multiple dimensions of deprivation, such as poor health, low human capital, limited access to infrastructure, malnutrition, lack of goods and services, inability to express political views or profess religious beliefs, etc. Each of them deserves separate attention as they refer to different components of welfare, and indeed may help policy makers to focus attention on the various facets of poverty. Nonetheless, more often than not, there is a high degree of overlapping: a malnourished person is also poorly educated and without access to health care.

Research on poverty over the last years has reached some consensus on using economic measures of living standards and these are routinely employed in poverty analysis. Moreover, income-based poverty indicators serve, first and foremost, a basis to monitor the Millennium Development Goals. Although they do not cover all aspects of human welfare, they do capture a central component of any assessment of living standard. The important decision to make is to choose between income and consumption as the welfare indicator. Consumption is the preferred measure because it is more accurate and useful measure of living standards than income. This preference of consumption over income is based on both theoretical and practical issues²⁵

The first theoretical consideration is that both consumption and income can be approximations to utility, even though they are different concepts. Consumption measures what individuals have actually acquired, while income, together with assets, measures the potential claims of a person. Second, the time period over which living standards are to be measured is important. If the interest is the long run, as in a lifetime period, both should be the same and the choice does not matter. In the short-run though, say a year, consumption is likely to be more stable than income. Households are often able to smooth out their consumption, which may reflect access to credit or savings as well as information on future streams of income. Consumption is also less affected by seasonal patterns than income, for example, in agricultural economies, income is more

²⁴ For complete description of methodology, please see *Poverty Profile in Mongolia: Main Report of Household Socio-Economic Survey 2007/08*, NSO, 2009

²⁵ See Deaton and Zaidi (2002)

volatile and affected by growing and harvest seasons, hence relying on that indicator might significantly overestimate or underestimate the true living standards.

On the other hand, there are practical arguments to take into account. First, consumption is generally an easier concept than income for the respondents to grasp, especially if the latter is from self employment or own business activities. For instance, workers in formal sectors of the economy will have no problem in accurately reporting their main source of income, i.e. their wage or salary. But self-employed people working in informal sectors or in the agriculture sector will have a harder time coming up with a precise measure of their income. Often is the case that household and business transactions are intertwined. Besides, as mentioned above, seasonality needs to be considered in estimating annual income if income is to be used. Finally, we also need to consider the degree of reliability of the information. Households are less reluctant to share information on consumption than on income. They may fear that income information is being collected for different purposes such as taxes, or they may just regard income questions as too intrusive. It is also likely that household members simply know more about the household consumption than the level and sources of household income.

B.2. The construction of the consumption aggregate

Creating consumption aggregate is also guided by theoretical and practical considerations. First, it must be as comprehensive as possible given the available information. Omitting some components assumes that they do not contribute to people's welfare or that they do not affect the rankings of individuals. Second, market and non-market transactions are to be included, which means that purchase is not the sole component of the indicator. Third, expenditure is not consumption. For perishable goods, mostly food, it is usual to assume that all purchases are consumed. But for other goods and services, such as housing or durable goods, corrections have to be made. Lastly, the consumption aggregate is comprised of five main components: food, non-food, housing, durable goods and energy. The specific items included in each component and the methodology used to assign a consumption value to each of these items is outlined below.

Food component

The food component can be readily constructed by simply adding up all consumption per food item, previously normalized to a uniform reference period, and then aggregating all food items per household. The HSES 2010 records information on food consumption at the household level for 122 items, organized in 13 categories: flour and flour products; meat and meat products; fish and seafood; dairy products; eggs; oils and fat; fruits and berries; sugar and jam; other food; tea and coffee; mineral water and soft drinks; alcoholic beverages; and tobacco and cigarettes.

The method to collect these data and the reference period vary across urban and rural areas. In the capital and in *aimag* centers, information is captured through a diary, which

is compiled by an enumerator every ten days, three times during a month. In other words, the reference period for household food information is one month. In *soum* centers and in the countryside, a recall period of last one week is employed. The reasons for this different approach are at least threefold. First, enumerators live in *aimag* centers, which are frequently at considerable distance from rural areas. It is impractical to visit households every ten days. Second, herder households move often, so sometimes it is difficult to find the dwelling in a second or third visit. Lastly, people in rural areas make bulk purchases and thus, have more problems filling out the diary on a daily basis compared to those living in urban areas.

A few general principles are applied in the construction of this component. First, all possible sources of consumption are included. This means that the food component consists of not only expenditures on market purchases or on meals eaten out but also food that was home-produced or received in gifts. Second, only food that was actually consumed, as opposed to total food purchases or total home-produced food was entered in the consumption aggregate. Third, the value of non purchased food items was estimated and included in the welfare measure. Both pieces of information about the average price and quantity were collected for purchased food only and for food from all other sources, only the quantities were reported. The HSES used average prices to estimate the monetary value of non-purchased food. Most food items are disaggregated enough to be regarded as relatively homogeneous within each category; however these average prices also reflect differences in the quality of the good. To minimize this effect, and to consider spatial and seasonal differences too, median prices were computed at several levels by household, cluster, *aimag*, stratum and month. Hence if a household purchased a food item, the same price would be used to value its self produced and in kind consumption. If the household did not make any purchase but consumed a food item, the average price from the immediate upper level was used to estimate the value of that consumption.

2010 food consumption aggregates the quantity of purchased, in-kind and home-made food items.

Non-food component

As in the case of food, non-food consumption is a simple and straightforward calculation. Again, all possible sources of consumption must be included and normalized to a common reference period. Data on an extensive range of non-food items are available, 371 items arranged in 38 different groups such as clothing and footwear for men, women and children, jewelry and souvenirs, textiles, education, health, recreation, beauty and toiletry products and services, cultural expenses, household goods, durable goods, housing expenditures, transportation, communication, insurance and taxes. The HSES does not gather information on quantities consumed because most non-food items are too heterogeneous to try to calculate unit values. With the exception of durable goods, housing and energy, which will be dealt later, this subsection covers the consumption of all the other non food items.

Practical difficulties arise often for two reasons: the choice of items to include and the selection of the recall period. Regarding the first issue, the rule of thumb is that only items that contribute to the consumption are to be included. For instance, clothing, footwear, beauty articles and recreation are included. Others such as taxes are commonly excluded because they are not linked to higher levels of consumption; households paying more taxes are not likely to receive more public services. Capital transactions like purchases of financial assets, debt and interest payments should also be excluded. The case for one-off lump expenditures like marriages, births and funerals is more difficult. Given their sporadic nature, the ideal approach would be to spread these expenses over the years and thus smooth them out; otherwise the true level of welfare of the household will probably be overestimated. Lack of information prevents us from doing that, so they are omitted from the estimation. Finally, remittances given to other households are better excluded. The rationale for this is to avoid double counting because these transfers are almost certainly already reflected in the consumption of the recipients. Hence including them would artificially increase living standards.

Two non food categories namely, education and health deserve special attention. In the case of education there are three issues to consider. First, some argue that if education is an investment, it should be treated as savings and not as consumption. Returns on education are distributed not simply during the school period but during all years thereafter. Second, there are life-cycle considerations; educational expenses are concentrated in a particular time period of a one's life. Say that we compare two individuals that will pay the same for their education but one is still studying while the other finished several years ago. The current student might seem as better-off but that result is just related to age and not to true differences in welfare levels. The most appropriate way out would be to smooth these expenses over the life period. Third, we must consider the coverage in the supply of public education. If all population can benefit from free or heavily subsidized education as it happens in Mongolia and the decision of studying in private schools is driven by quality factors, differences in expenditures can be associated with differences in welfare levels and thus, the case for their inclusion is stronger. Standard practice was followed and educational expenses were included in the consumption aggregate. Excluding them would make no distinction between two households with children in school age, but only one being able to send them to school.

Health expenses share some of the features of education. Expenditures on preventive health care could be considered as investments. Differences in access to publicly provided services may distort comparisons across households. If some sections of the population have access to free or significantly subsidized health services, whereas others have to rely on private services, differences in expenditures do not correspond to differences in welfare. But there are other factors to take into account. First, health expenditures are habitually infrequent and lumpy over the reference period. Second, health may be seen as a "regrettable necessity", i.e. by counting the expenditures incurred by a household member that was sick, the welfare of that household is seen increased when in fact, the opposite has happened. Third, health insurance can also distort

comparisons. Insured households may report small expenditures when some member has fallen sick, while uninsured ones larger amounts. It was decided to include health expenses because, as in the case of education, their exclusion would imply making no distinction between two households, both facing the same health problems, but only one is capable of paying.

The second difficulty regarding non-food consumption is related with the choice of the recall period. The key aspect to consider is the relationship between recall periods and the frequency of purchases. Many non-food items are not purchased frequently enough to justify a weekly or monthly recall period, exceptions being for instance, toiletry, beauty articles and payment of utilities, hence generally recall periods are the last quarter or the last year.

The HSES collects information with two reference periods: last month and last year. The decision on which to choose can have significant implications for the consumption aggregate. The use of last month data only was discarded because households do not usually buy non-food items every month and it is likely that many families will not report any expenditure at all. Whereas this could provide an appropriate estimation of average consumption in the last month, for the purposes of poverty analysis those households that did not buy anything will have their consumption significantly biased downwards and will be more likely to be considered poor. Using the last year as the reference period will certainly overcome the previous limitation because the last 12 months is a more reasonable recall period for non-food expenses. However, a trade-off appears when the reference period is extended.

More households are likely to report expenditures but the resultant average expenditure will be lower than that for expenditures with shorter reference period. A third option that can be seen as a compromise between these two choices is to combine the information from both recall periods. In this case information was taken from the last month if available, and if the household did not purchase anything in the last 30 days, information on the last year will be considered.

Finally, the HSES offers a second source of expenditure data for education and health because it includes specific modules on these two topics. These data differ from the standard non-food module in two ways. On the one hand, information is collected at the individual level as opposed household level as in the standard section. When the reference is the household, questions are normally more aggregated than if the same questions were given to each household member. Generally, households are known to provide a more accurate account of expenses when asked in more detail, which would favor the use of specialized modules. On the other hand, both specialized modules cover only one reference period, last twelve months in the case of education and last month in the case of health. It was decided to use the specialized modules because they are thought to better capture the long-term welfare of households.

Durable goods

Ownership of durable goods could be an important determinant of the welfare of the households. Given that these goods last typically for many years, the expenditure on purchases is not the proper indicator to consider. The right measure to estimate, for consumption purposes, is the stream of services that households derive from all durable goods in their possession over the relevant reference period. This flow of utility is unobservable but it can be assumed to be proportional to the value of the good and determined by depreciation rates. A usual procedure involves calculating depreciation rates for each type of good based on their current value and age, which in this case is provided by the HSES along with the number of durables owned by the household.²⁶

The estimation of this component involved three steps. First, selection of durable goods for consumption aggregate is performed. The HSES supplies data on 42 durable goods, ranging from home appliances to furniture. However, one third of them were excluded due to their being used for household businesses or fell under jewelry, dwelling or residual categories. Second, to calculate implicit depreciation rates a linear regression for each of the selected goods was run with the current unit value as the dependent variable and the age of the durable. This technique provides more robust estimates for the depreciation rates. For example, the newer the good is the higher its utility is, hence less depreciation rate. Finally, the stream of consumption is computed by multiplying the estimated value of the good a year ago by its depreciation rate, and aggregating these amounts by households.

Housing

Housing conditions are considered an essential part of determining living standards. Nonetheless, in most developing countries limited or nonexistent housing rental markets pose a difficult challenge for the estimation and inclusion of this component in the consumption aggregate. As in the case of durable goods, the objective is to try to measure utilities derived by the household from its living quarter. For households that rent, the utility of the rented accommodation can be expressed as the actual rentals the households pay.

In Mongolia, the value of housing for households who own their dwelling cannot be determined based upon on the above information because very few households reported renting their dwellings although it is increasingly common these days and rentals are too high. However, HSES asked households for estimates of how much they would rent their living quarter for and how much their dwelling could be sold. Implicit rental values can in principle be used in the consumption aggregate whenever actual rents are not reported. But they are hypothetical and the estimates may not always be credible. An additional complication is that almost half of the population lives in gers, for which establishing a

²⁶ Further refinements can be made using the inflation rate and nominal interest rate.

rental value appears to be even more difficult.

Hedonic housing regressions were run with the imputed value of the dwelling as the dependent variable. The set of independent variables included characteristics of the dwelling such as the main material for floor, walls and roof, number of rooms, access to water, electricity, heating, location, etc. This exercise was conducted separately for gers, houses and apartments. Results show that the estimated sale price of the dwelling has a strong correlation with its condition characteristics and this may be intuitively explained by the fact that even though households do not lease dwellings, since they either bought or built them, they tend report more accurate value of the dwelling rather than a hypothetical rent. However, the use of property values requires an additional assumption to arrive to an estimation of the utilities derived from housing. That is either the depreciation rate or the remaining lifespan of the dwelling. It was assumed that houses and apartments have a lifespan of 33 years and *gers* 17 years. Therefore for the consumption aggregate, the imputed rents which were derived using property values were used as estimates for the flow of services from housing, except when actual rents were available.

Energy

The final non-food component that deserves special attention was energy, that is expenditures on heating and electricity. Mongolia is a country that endures extreme weather conditions with winter temperatures up to -40 degrees Celsius and summer temperatures up to +30 degrees Celsius. While summer may pose fewer inconveniences, winter is indeed a serious matter. Winters are long and last on average, six months and usually with below zero temperatures. For instance, average temperatures in January and February in the capital are minus 25C. This means that heating and fuel is regarded one of the vital household essentials all over the country, and in some cases it constitutes a large and important component of their consumption.

The HSES collects information only on purchases and self-reported valuations of fuels and services obtained for free. In principle, this should be enough to capture energy consumption. However, that may not be the case. When there is no information available regarding the quantity of fuel items that households collected and prepared themselves and that are obtained free of charge, it is impossible to assign monetary values to the consumption. But if the household uses fuel such wood, coal and/or dung for heating and lighting, households tend to overwhelmingly report purchases only and not the fuel fetched for free. Given that no data on quantities of collected fuel are available, it is not possible to impute a value to that consumption. This is likely to lead to an underestimation of the energy consumption of households and this distortion is expected to be higher in rural areas, where households largely rely on collected fuels.

B.3 Price adjustments

Mongolia shows remarkable seasonal differences for food prices. For instance, food prices are usually higher during the spring compared to all the other seasons. At the same time, there are also regional price differences. Prices in Ulaanbaatar are particularly higher than in the rest of the country. Therefore, in order to accurately measure living standards, expenditure values need to be corrected for such differences using price indices. Since it varies with price levels and consumption aggregate, a price index consists of two components: prices and consumption shares, the share of the good in the total expenditure that corresponds to a given price period. The household survey collects information on the share of a given good in the total expenditure for all consumption items except for food. For food items, the survey only collects information on average prices paid by a household. A Paasche price index at the cluster level was constructed combining information from the HSES and the national consumer price index. A cluster is comprised of 10 households in urban areas and 8 households in rural areas. Households within the same cluster are likely to face similar prices and have similar consumption patterns.

The Paasche price index for the primary sampling unit is given by:

$$p_i^P = \left[\sum_{k=1}^n w_{ik} \left(\frac{p_{ik}}{p_{0k}} \right)^{-1} \right]^{-1} \quad (1)$$

where w_{ik} is the proportion of good k in the budget/consumption of primary sampling unit i ;
 p_{ik} is the median price of good k in the primary sampling unit i ; and
 p_{0k} is the national median price of good k

In the case of food, average budget shares for each food item were matched with the average prices paid. The HSES provided both pieces of information. In the case of non-food, the average budget share was provided by the HSES, whereas the average price was provided by the national non-food consumer price index. This means that all non-food items were bundled together and it was assumed that they experienced the same inflation rates. Overall, the final price index considers temporal adjustment for both food and non-food items, but spatial adjustment was made for food only. It is not clear what impact the assumption that there are no spatial differences in non-food prices will have on poverty estimates. For instance, in rural areas prices of non-food items, with the exception of housing, are generally higher than those in urban areas. If the price index assumes no differences, rural areas will appear to be relatively better-off compared to urban areas.

The average values and total price indices for food items are shown by stratum and by the month of interview in Table B.1. Two findings are worth emphasizing. First, both indices confirm that the cost of living in Ulaanbaatar is higher than in any part of the country. Second, seasonal pattern of prices can be seen. Indices increases with quarter 1 and quarter 2 and reduces with other quarters.

Table B.1 Cluster Paasche index by stratum and month of interview

	Food Paasche Index				Total Paasche Index			
	Ulaanbaatar	Aimag centers	Rural	National average	Ulaanbaatar	Aimag centers	Rural	National average
2010								
Jan	0.97	0.87	0.84	0.89	0.97	0.92	0.88	0.92
Feb	1.03	0.95	0.94	0.97	1.00	0.97	0.95	0.97
Mar	1.06	0.97	0.94	0.99	1.03	0.99	0.96	0.99
Apr	1.11	1.05	1.00	1.05	1.06	1.03	1.00	1.03
May	1.18	1.10	1.05	1.11	1.10	1.07	1.04	1.07
Jun	1.14	1.04	0.97	1.04	1.08	1.04	0.98	1.03
Jul	1.08	1.01	0.98	1.02	1.04	1.01	0.97	1.00
Aug	1.03	0.94	0.91	0.95	1.03	0.98	0.93	0.97
Sep	1.02	0.95	0.92	0.96	1.02	0.98	0.95	0.98
Oct	1.02	0.94	0.99	0.99	1.02	0.99	0.99	1.00
Nov	1.04	0.99	0.96	0.99	1.04	1.02	0.98	1.01
Dec	1.10	1.02	0.99	1.04	1.07	1.04	1.01	1.04
Average	1.07	0.99	0.96	1.00	1.04	1.00	0.97	1.00

Source: HSES 2010

B.4 Household composition adjustment

The final step in constructing a welfare indicator involves transforming measures of living standards that are measured at the household level to per capita level. Ultimate concern is to make comparisons across individuals and not across households. Consumption data are collected typically at the household level (usual exceptions are health and education expenses), so imputation of an individual welfare measure is generally performed by dividing the total household consumption by the number of people in the household, and assigning that value to each household member. A common practice when doing this is to assume that consumption is equally shared by household members.

Two types of adjustments are typically made in consumption aggregate and size. The first relates to demographic composition. Household members have different needs based

mainly on their age and gender, although other characteristics can also be considered. Equivalence scales are the factors that reflect those differences and are used to convert all household members into "equivalent adults." For instance, children are thought to need a fraction of what adults require, thus if a comparison is made between two households with the same total consumption and equal number of members, but one of them has children while the other is comprised entirely by adults, it would be expected that the former will have a higher individual welfare than the latter.

Unfortunately there is no single methodology to calculate these conversion scales. Some conversions are based on nutritional needs assuming a child may need only 50% of the food requirements of an adult. But is not clear why the same scale as adults is used for non-food items. It may very well be the case that the same child requires more in education and clothing expenses. Others are based on empirical studies of household consumption behavior, although with more analytical grounds, they do not command complete support either.²⁷

The second adjustment focuses in the economies of scale in consumption within the household. The motivation for this is the fact that some of the goods and services consumed by the household have characteristics of "public or common goods." A good is said to be public when its consumption by a member of the household does not necessarily prevent another member from consuming it too. Examples of these goods could be housing and durable goods. For example, one member's watching television does not preclude another from watching it too. Larger households may spend less to be as well-off as smaller ones. Hence, the bigger the share of public goods in total consumption is, the larger the scope for economies of scale is. In contrast, private goods cannot be shared among members, once they have been consumed by one member, no others can. Food is the classic example of a private good. It is often pointed out that in poor economies, food represents a sizeable share of the household budget and therefore in those cases there is little room for economies of scale.

Both adjustments can be implemented using the following approach:

$$AE = (A + \alpha K)^\theta$$

Where AE is the number of adult equivalents of the household, A is the number of adults, K is the number of children, α is the parameter that measures the relative cost of a child compared to an adult and θ represents the extent of the economies of scale.²⁸

Both parameters can take values between zero and one. It is been reported that in developing countries, children are relatively cheaper than adults, perhaps with values of α as low as 0.3, while in developed countries values are closer to one.²⁹

²⁷ See Deaton and Muellbauer (1986) or Deaton (1997).

²⁸ Since the elasticity of adult equivalents with respect to "effective size" ($A + \alpha K$) is θ , the measure of economies of scale is $1 - \theta$. These parameters range between 0 and 1.

²⁹ Deaton and Zaidi (2002)

At the same time, in poorer economies food is often the most important good in the household consumption, and given that is a private good, the budget share of public goods is limited and so is the scope for economies of scale, perhaps with θ being close to 1, whereas in richer countries around 0.75.

It was mentioned above that standard practice is to use a per capita adjustment for household composition and that is also followed here. This is a special case of the above formula, it assumes α and θ are set equal to one, so children consume as much as adults and there is no room for economies of scale. In other words, all members within the household have equal shares in the total consumption and costs increase in proportion to the number of people in the household. In general, per capita measures will underestimate the welfare of households with children and larger households compared to households with no kids or small households. It is therefore, important to conduct sensitivity analysis to see how robust the poverty measures and rankings are to different assumptions regarding child costs and economies of scale.

B.5 The poverty line

The poverty line can be defined as the monetary cost to a given person, a given place and time, of a reference level of welfare. (Ravallion, 1998) If a person does not attain that minimum level of standard of living, he or she will be considered as poor. But setting poverty lines could be a very controversial issue because people disagree on what "minimum" is. Poverty line is crucial to monitoring poverty and policy making decisions.

The poverty line will be absolute because it fixes a given welfare level, or standard of living, over the survey location strata. This guarantees that comparisons across individuals will be consistent, e.g. two persons with the same welfare level will be treated the same way regardless of the location where they live. Second, the reference utility level is anchored to certain attainments, generally nutritional ones, for instance, obtaining the necessary calories to have a healthy and active life. Finally, the poverty line will be set as the minimum cost of achieving that requirement.

The Cost of Basic Needs approach was employed to estimate the nutrition based poverty line. This approach calculates the cost of obtaining a consumption bundle believed to be adequate for basic consumption needs. If a person cannot afford the cost of the basket, this person will be considered to be poor. First, it shall be kept in mind that the poverty status focuses on whether the person has the means to acquire the consumption bundle and not on whether his or her actual consumption met those requirements. Second, nutritional references are used to set the utility level but nutritional status is not a welfare indicator. Otherwise, it will suffice to calculate caloric intakes and compare them against the nutritional threshold. Third, the consumption basket can be set normatively or to reflect prevailing consumption patterns. The latter is undoubtedly a better alternative. Lastly, the poverty line comprises two main components: food and non-food.

Food component

The first step in setting this component is to determine the nutritional requirements deemed to be appropriate for being healthy and able to participate in society. Clearly, it is rather difficult to arrive to a consensus on what could be considered as a healthy and active life, and hence to assign caloric requirements. Common practice is to establish 2,100 calories per person per day as the reference for energy intake. Second, a food bundle must be chosen. In theory, infinite food bundles can provide that amount of calories. One way out of this is to take into consideration the existing food consumption patterns of a reference group in the country. It was decided to use the bottom 40% of the population, ranked in terms of real per capita consumption, and obtain its average consumed food bundle. It is better to try to capture the consumption pattern of the population located in the low end of the welfare distribution because it will probably reflect better the preferences of the poor. Hence the reference group can be seen as a first guess for the poverty incidence. Third, caloric conversion factors were used to transform the food bundle into calories. The main source for these factors was Public Health Institute of the Ministry of Health of Mongolia. Tobacco, liquors and meals eaten outside the household were excluded from this calculation: Tobacco and liquors are not necessities. It is very difficult to approximate caloric intakes meals outside the household. Fourth, median unit values were derived for each unit of calorie in order to price the food bundle. Unit values were computed using only transactions from the reference group. Again, this will capture more accurately the prices faced by the poor. Fifth, the average caloric intake of the food bundle was estimated, so the value of the food bundle could be scaled proportionately to achieve 2,100 calories per person per day. For instance, the average daily caloric intake of the bottom 40% of the population in Mongolia was around 1,386 calories per person and the daily value of the food bundle was 1,043 tugrug per person. Hence the value of the daily poverty line is 1,581 tugrug ($= 1,043 \text{ tugrug} \times 2,100 \text{ calorie} / 1,386 \text{ calorie}$) per person. Table B.2 shows the caloric contribution of the main food categories as well as their respective share in the cost of the food poverty line³⁰.

Table B.2. Food bundle per person per day by main food groups

	Caloric intake		Price	
	Calories	(%)	Tugrug	%
Total	2100	100	1581	100
Flour and flour products	1283	61	391	25
Meat and meat products	254	12	653	41
Fish and seafood	0	0	1	0

³⁰ A more detailed table by food item is provided at the end of this annex.

Dairy products and egg	147	7	226	14
Oils and fats	230	11	78	5
Fruits and berries	3	0	13	1
Vegetables	70	3	86	5
Sugar and jam	90	4	58	4
Other food items	3	0	13	1
Tea and coffee	9	0	27	2
Bottled water, soft drinks and juice	4	0	12	1
Alcoholic beverages	7	0	23	1

Source: HSES 2010

Non-food component

There is considerable disagreement on what sort of items should be included in the non-food share of the poverty line. However, it is possible to link this component with the normative judgment used when choosing the food component. Being healthy and able to participate in society requires spending on shelter, clothing, health care, recreation, etc. In most cases, the poverty line is raised to include essential non-food items. -- Poverty line can be obtained by dividing the food poverty line by some estimates of food share. The advantage of using this approach is that the non-food allowance can also be based on prevailing consumption patterns of a reference group and no pre-determined nonfood bundle is required.

The initial step is to choose a reference group that will represent the poor and calculate how much they spend on non-food goods and services. Two possible non-food poverty lines can be constructed according to the World Bank methodology. On the one hand, the upper nonfood poverty line is the average nonfood consumption of the population whose food consumption is similar to the food poverty line. The rationale behind this upper reference group is that if an individual spends on food what was considered appropriate for being healthy and maintaining certain activity levels, it will be assumed that this person has also acquired the minimum non-food goods and services to support this lifestyle. On the other hand, the lower non-food poverty line is the average non-food consumption of the population whose total consumption is similar to the food poverty line. The justification for the lower reference group is that if an individual spends on food what was considered appropriate for being healthy, it will be assumed that this person has also acquired the minimum non-food goods and services to support this lifestyle. If these people have substituted basic food needs in order to satisfy some nonfood needs, that amount can be interpreted as the minimum necessary allowance for non-food spending.

An equivalent way of estimating the non-food poverty lines is using the food shares

of the upper and lower reference groups rather than their average non-food consumption. Two different procedures to calculate the food share can be proposed. One relies on econometric techniques to estimate the Engel curve, i.e. the relationship between food spending and total expenditures. Another is to use a simple non parametric calculation as suggested in Ravallion (1998). The advantages of the latter is that no assumptions are made on the functional form of the Engel curve and that weights decline linearly around the food poverty line, i.e. the closer the household to the food poverty line is, the higher its weight is. This procedure was used to determine the non-food components of the upper and lower poverty lines.

In the case of the upper poverty line, the procedure starts by estimating the average food share of those households whose food expenditures lie within plus and minus 1 percent of the food poverty line. The same exercise is then repeated for households lying plus and minus 2 percent, percent, and up to 10 percent. Second, these ten mean food shares are averaged and that will be the final food share of the upper reference group. Finally, the upper poverty line can be easily estimated by dividing the food poverty line by this food share.³¹ In the case of the lower poverty line, the methodology is similar but there are two differences. First, the reference group is now those households whose total consumption is around the food poverty line. Second, the lower poverty line will be the result of multiplying the food poverty line by the difference between 2 and the food share.

The poverty line employed in this report can be seen as a combination of the lower and upper poverty lines. On the one hand, the lower poverty line may be considered as an extremely low threshold because the non-food component comes from the population whose total consumption is barely enough to cover the required food consumption. On the other hand, the upper poverty line may unnecessarily overstate the non-food component because once basic food needs have been satisfied; food consumption may not increase proportionally with total consumption. In other words, the non-food component may be taking into consideration consumption patterns of people that are relatively high in the consumption distribution and cannot be regarded as poor. The poverty line used in this report has a food share that is the average between the food share of the lower and upper poverty lines and can be seen as a compromise between the two. Table B.3 displays the food and non-food components of these three poverty lines. Even though this moderate poverty line is applied throughout the report, estimates with the lower and upper poverty lines are presented in Appendix C.

Table B.3 Poverty lines per person per month

Lower poverty line	Moderate poverty line	Upper poverty line
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³¹ Say FZ is the food poverty line. FSu is the food share from the upper reference group and FSI is the food share from the lower reference group. The upper poverty line will be estimated as FZ/FSu , while the lower poverty line as $FZ*(2-FSI)$.

	Tugrug	%	Tugrug	%	Tugrug	%
Food	48 093	69	48 093	55	48 093	42
Non-food	21 856	31	40 063	45	66 466	58
Total	69 949	100	88 156	100	114 559	100

Source: HSES 2010

B.6. Poverty measures

The literature on poverty measurement is extensive, but attention will be given to the class of poverty measures proposed by Foster, Greer and Thorbecke (1984). This family of measures can be summarized by the following equation:

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

where α is some non-negative parameter, z is the poverty line, y denotes consumption, i represents individuals, n is the total number of individuals in the population, and q is the number of individuals with consumption below the poverty line.

The headcount index ($\alpha=0$) gives the share of the poor in the total population, i.e. it measures the percentage of population whose consumption is below the poverty line. This is the most widely used poverty measure mainly because it is very simple to understand and easy to interpret. However, it has some limitations. It takes into account neither how close or far the consumption levels of the poor are with respect to the poverty line nor the distribution among the poor. The poverty gap ($\alpha=1$) is the average consumption shortfall of the population relative to the poverty line. Since the greater the shortfall, the higher the gap, this measure overcomes the first limitation of the headcount. Finally, the severity of poverty ($\alpha=2$) is sensitive to the distribution of consumption among the poor, a transfer from a poor person to somebody less poor may leave unaffected the headcount or the poverty gap but will increase this measure. The larger the poverty gap is, the higher the weight it carries.

These measures satisfy some convenient properties. First, they are able to combine individual indicators of welfare into aggregated measures of poverty. Second, they are additive in the sense that the aggregate poverty level is equal to the population weighted sum of the poverty levels of all subgroups of the population. Third, the poverty gap and the severity of poverty satisfy the monotonicity axiom, which states that even if the number of the poor is the same, but there is a welfare reduction in a poor household, the measure of poverty should increase. And fourth, the severity of poverty will also comply with the transfer axiom: it is not only the average consumption of the poor that influences

the level of poverty, but also its distribution. In particular, if there is a transfer from one poor household to a richer household, the degree of poverty should increase.³²

Finally, along the report all poverty measures are shown with their respective standard errors. Since these estimations are based on surveys and not on census data, standard errors must reflect the elements of the sample design, i.e. stratification, clustering and sampling weights.³³ Ignoring them will risk, when carrying out poverty comparisons, mixing up true population differences with differences in sampling procedures. Appendix E shows confidence intervals for the poverty measures and the effects of sampling method on them.

Table B.4 Food bundle per person per day

	Calories per unit (kcal)	Quantity required	Calories provided	Unit Price(kg)	Total price (tugrug)
Total			2100		1581
FLOUR AND FLOUR PRODUCTS					
Bread, piece (piece=670 g)	1 589	0.106	168	629	67
Rice, kg	3 447	0.054	187	1 608	87
Flour highest grade, kg	3 617	0.007	25	777	5
Flour grade 1, kg	3 250	0.216	701	685	148
Flour grade 2, kg	3 474	0.008	27	582	5
Other types of flour (barley flout etc), kg	3 742	0.000	2	1 623	1
Noodles domestic, kg	3 505	0.006	20	1 485	8
Noodles imported, kg	3 623	0.003	10	1 552	4
Bakery and pastries	4 050	0.032	129	1 782	57
Biscuits and wafers, kg	2 508	0.001	3	2 761	3
Cakes, kg	3 096	0.000	1	6 025	2
Millet, kg	3 513	0.002	6	1 162	2
Other rice	3 455	0.001	3	1 223	1
MEAT AND MEAT PRODUCTS					
Lamb, kg	1 083	0.087	94	3 166	274
Beef, kg	1 531	0.030	46	3 616	109
Goat meat, kg	1 057	0.048	50	2 372	113
Horse meat, kg	911	0.016	14	2 650	42
Camel meat, kg	1 025	0.002	2	2 813	5
Dried meat, kg	4 292	0.005	23	13 991	75
Chicken, kg	1 908	0.000	1	3 752	1
Pork, kg	3 554	0.000	0	5 227	0

³² Both the monotonicity and transfer axioms were formulated by Sen (1976).

³³ See Howes and Lanjouw (1997) for detailed explanation.

	Calories per unit (kcal)	Quantity required	Calories provided	Unit Price(kg)	Total price (tugrug)
Bacon, kg	4 580	0.000	0	4 817	0
Game meat, kg	1 788	0.000	1	2 029	1
Other poultry, kg	1 908	0.000	0	1 011	0
Animal guts, kg	1 057	0.015	16	1 491	23
Sausage (big salami), kg	2 666	0.002	6	3 918	8
Sausage (small), kg	1 680	0.000	0	3 787	0
Canned meat, kg	2 250	0.000	1	3 248	1
FISH AND SEAFOOD					
Fish, kg	821	0.000	0	3 312	1
Dried, smoked, salted fish, kg	2 600	0.000	0	7 202	0
Canned fish, kg	1 965	0.000	0	3 992	0
MILK, DAIRY PRODUCTS AND EGGS					
Milk, L	671	0.134	90	1 142	154
Yoghurt, L	564	0.021	12	1 203	25
Eggs, piece	78	0.025	2	211	5
Dried curds, kg	4 908	0.004	21	4 345	18
Horse milk, kg	487	0.003	2	1 971	6
Curds, kg	2 566	0.003	8	1 760	6
Cheese (traditional), kg	4 733	0.000	2	4 211	2
Cheese (imported), kg	3 040	0.000	0	9 634	0
Eezgii (a kind of traditional dairy products), kg	4 010	0.000	2	2 825	1
Milk powder and nondairy coffee milk, kg	3 293	0.001	3	4 781	5
Condensed milk, L	4 850	0.001	5	2 519	3
Sour cream, kg	2 495	0.000	1	4 243	2
OILS AND FATS					
Butter, kg	5 323	0.005	27	3 148	16
Margarine, kg	7 448	0.000	0	2 283	0
Vegetable oil, L	8 991	0.012	104	2 509	29
Edible animal fats, kg	8 991	0.008	75	1 630	14
Skimmed cream, melted white butter, kg	3 835	0.003	11	3 809	11
Melted yellow butter, kg	8 415	0.002	13	5 651	9
Olive oil, L	8 991	0.000	0	11 711	0
FRUITS AND BERRIES					
Apple, kg	468	0.004	2	1 682	7
Mandarin, kg	376	0.001	0	1 977	1
Raisin, kg	716	0.000	0	2 876	0
Wild berries, kg	398	0.001	0	3 058	4
Dried fruits, kg	2 721	0.000	1	2 732	1
Wild nuts, kg	5 980	0.000	0	1 926	0

	Calories per unit (kcal)	Quantity required	Calories provided	Unit Price(kg)	Total price (tugrug)
VEGETABLES					
Potato, kg	877	0.066	58	727	48
Cabbage, kg	140	0.010	1	868	8
Carrots, kg	224	0.009	2	793	7
Turnip, kg	208	0.003	1	799	2
Onion, kg	336	0.013	4	996	13
Garlic, g	1	0.352	0	4	1
Tomato, kg	260	0.000	0	2 506	1
Cucumber, kg	142	0.001	0	2 378	2
Clear noodles, kg	3 272	0.001	2	1 647	1
Canned cucumber, kg	164	0.000	0	2 652	1
Canned vegetable salad, kg	1 120	0.000	0	2 873	1
Capsicum, kg	220	0.000	0	2 417	1
SUGAR AND JAM					
Sugar, kg	3 992	0.015	60	1 733	26
Lump sugar, kg	3 996	0.000	2	2 119	1
Sugar substitutes, g	4	0.000	0	11	0
Candies. Kg	3 697	0.004	15	3 466	14
Sweets, kg	5 200	0.002	8	4 488	7
Chocolate, g	5	0.405	2	10	4
Honey, g	3	0.021	0	7	0
Compotes, g	1	0.102	0	5	0
Jam and fruit puree, kg	3	0.482	1	4	2
Ice-cream, g	2	0.704	1	3	2
Chewing gum, piece	4	0.009	0	50	0
OTHER FOOD					
Salt, g	0	9.047	0	0	4
Seasoning, g	1	0.036	0	5	0
Ketchup, g	1	0.450	0	2	1
Mayonnaise	6 258	0.000	1	4 049	1
Yeast, g	2	0.205	0	11	2
Spices, g	1	0.498	0	9	5
Baby food, g	2 940	0.000	0	1 887	0
TEA AND COFFEE					
Green tea, g	1	7.552	8	3	20
Black tea, g	1	0.532	1	13	7
Coffee, g	1	0.062	0	10	1
Cocoa, g	3	0.003	0	18	0
MINERAL WATER AND SOFT DRINKS					
Beverage, L	342	0.007	2	989	7

	Calories per unit (kcal)	Quantity required	Calories provided	Unit Price(kg)	Total price (tugrug)
Juice, L	488	0.003	1	1 517	5
Pure and bottled water, L	0	0.000	0	496	0
ALCOHOLIC BEVERAGES					
Vodka domestic, L	2 750	0.002	6	9 049	21
Beer domestic, L	240	0.000	0	2 250	1
Vodka imported, L	2 750	0.000	0	9 055	0
Beer imported, L	240	0.000	0	2 517	0
Wine, L	700	0.000	0	7 290	1

APPENDIX C. LOWER AND UPPER POVERTY ESTIMATES

Table C.1 Poverty lines per person per month, 2009 and 2010

	2009 Tugrug	(%)	2010 Tugrug	(%)
Lower				
Food	38 317	71	48 093	69
Nonfood	15 817	29	21 856	31
Total	54 134	100	69 949	100
Moderate				
Food	38 317	59	48 093	55
Nonfood	26 936	41	40 063	45
Total	65 253	100	88 156	100
Upper				
Food	38 317	48	48 093	42
Nonfood	41 538	52	66 466	58
Total	79 855	100	114 559	100

Note: Standard errors taking into account the survey design are shown in parentheses.

Source: HSES 2010

Table C.2 Lower poverty estimates, 2009 and 2010

	2009					2010				
	Poverty			Population (%)	Poor (%)	Poverty			Population (%)	Poor (%)
	Headcount	Gap	Severity			Headcount	Gap	Severity		
National average	26.0	6.2	2.1	100.0	100.0	24.3	6.0	2.1	100.0	100.0
Urban	19.0	4.4	1.5	62.6	42.3	18.6	4.4	1.5	63.3	42.2
Rural	35.5	8.6	3.0	37.4	57.7	31.5	8.0	3.0	36.7	57.8
Ulaanbaatar	15.5	3.4	1.1	40.7	21.5	16.6	3.7	1.2	41.4	23.5
Aimag centers	24.9	6.0	2.1	22.0	20.9	21.8	5.5	2.0	21.9	18.7
Soum centers	31.0	8.0	2.9	14.2	17.0	24.1	6.1	2.3	18.5	18.3
Countryside	37.7	8.9	3.0	23.2	40.7	36.6	9.4	3.4	18.2	39.5
West	31.4	6.9	2.4	14.9	20.9	34.2	8.9	3.3	14.5	25.1
Highlands	42.2	11.0	4.0	20.6	36.5	33.9	9.0	3.3	20.4	29.8
Central a/	19.0	4.3	1.4	16.5	12.1	16.9	3.7	1.2	16.5	12.2
East	30.3	7.3	2.6	7.3	9.0	26.1	6.6	2.6	7.2	9.4

Excludes Ulaanbaatar

Source: HSES 2010

Table C.3 Upper poverty estimates, 2009 and 2010

	2009					2010				
	Poverty			Population (%)	Poor (%)	Poverty			Population (%)	Poor (%)
	Headcount	Gap	Severity			Headcount	Gap	Severity		
National average	53.7	17.1	7.4	100.0	100.0	56.8	19.9	9.2	100.0	100.0
Urban	45.0	13.3	5.5	62.6	48.4	49.8	16.2	7.1	63.3	48.5
Rural	65.6	22.4	9.9	37.4	51.6	65.4	24.5	11.7	36.7	51.5
Ulaanbaatar	40.1	11.4	4.5	40.7	26.9	46.5	14.8	6.3	41.4	28.3
Aimag centers	53.0	16.6	7.2	22.0	21.6	55.2	18.6	8.4	21.9	20.2
Soum centers	57.3	19.7	9.0	14.2	15.2	55.8	19.8	9.2	18.5	18.2
Countryside	69.8	23.7	10.4	23.2	36.4	72.2	27.8	13.4	18.2	33.4
West	66.4	20.8	8.7	14.9	21.4	69.0	26.2	12.7	14.5	21.7
Highlands	70.6	25.7	12.0	20.6	29.6	71.0	26.7	12.8	20.4	26.7
Central a/	43.3	12.9	5.3	16.5	13.3	46.2	14.8	6.3	16.5	14.2
East	61.3	19.8	8.6	7.3	8.8	58.9	21.1	9.9	7.2	9.1

Excludes Ulaanbaatar

Source: HSES 2010