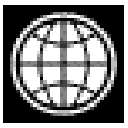
Report no. 36602 - KG

KYRGYZ REPUBLIC
POVERTY UPDATE
Profile of Living Standards in 2003

August 30, 2005

Poverty Reduction and Economic Management Unit
Europe and Central Asia Region



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CURRENCY AND EQUIVALENT UNITS

(Exchange Rate Effective June 18, 2005)
Currency Unit = som
US$1.00 = 41.0685 som

Acronyms and Abbreviations

CAC	Central Asia and the Caucuses
DFID	Department for International Development
ECA	Europe and Central Asia Region
GDP	Gross Domestic Product
GNI	Gross National Income
Ha	Hectare
HBS	Household Budget Survey
KIHS	Kyrgyz Integrated Household Survey
KPA	Kyrgyz Poverty Assessment
MDG	Millennium Development Goal
Ml	Million
NPRS	National Poverty Reduction Strategy
NSC	National Statistics Committee
PPP	Purchasing Power Parity
SAM	Social accounting matrix
UNDP	United Nations Development Programme
WB	World Bank
WDI	World Development Indicators

Fiscal Year
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ACKNOWLEDGMENTS

This report is a joint product of the National Statistics Committee (NSC) of the Kyrgyz Republic and the World Bank. It represents the continued cooperation between the two institutions on analyzing the poverty situation in the country.

Leadership on the task by the NSC was provided by Mr. Zarylbek Kudabaev, Chairman. Other key members of the team include Ms. Galina Samohleb, Head of the Household Survey Department, and Ms. Larisa Praslova, Head of Division, who were instrumental in the preparation of the survey data.

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CHAPTER 1: THE STATUS OF LIVING CONDITIONS

A. INTRODUCTION

1.1 This report is the result of cooperation between the World Bank and the National Statistics Committee (NSC). An understanding of the poverty situation in the country has been central to assessing the success of the National Poverty Reduction Strategy (NPRS) of the Government of the Kyrgyz Republic. It has also been important in informing the policy dialogue and choice of government interventions due to the widespread nature of poverty in the Kyrgyz Republic. The first phase of the NPRS spanned the period 2002 – 2005 and the second phase is under preparation. Ensuring the availability of the most recent poverty data will not only be important to the development of the NPRS II, but also for providing a benchmark against which the strategy can be evaluated.

1.2 Previous joint work on poverty analysis issues began with the first Poverty Profile report on the Kyrgyz Republic (2001) and followed by a comprehensive Poverty Assessment in 2003. Both of these documents provided a useful basis for the first NPRS. Following the completion of these joint reports on the poverty situation in the country for 1996 – 2001, the NSC annually published a poverty profile which provides information on many aspects of human development as well as disaggregated data on poverty incidence. The NSC has continued to work on improving its assessment of the poverty situation by working with key the United Kingdom's DFID to update its household survey sample and questionnaire in order to collect better and more comprehensive data.

1.3 The reason for undertaking a joint poverty update based on 2003 data is that this year represents a transition in terms of the household survey used by the Government to evaluate trends in poverty in the Kyrgyz Republic—a change which can have important policy repercussions if not understood properly. In 2003, the NSC undertook two household income and expenditures surveys because it aimed to phase out the Household Budget Survey and introduce the new Kyrgyz Integrated Household Survey (KIHS). The former survey was a continuation of the original annual survey which began in 2000 and was undertaken in 2003 in order to provide a means of comparing poverty rates across surveys and across time. The latter survey, KIHS, provides an important opportunity for gaining a better and more accurate assessment of poverty in Kyrgyz as well as having collected a richer dataset which is representative at the national and urban and rural levels.

1.4 This report hopes to be informative on poverty issues in the Kyrgyz Republic on the following three issues. First, it provides a summary of the trends in poverty over the period 2000-2003 by drawing upon comparable data from the Household Budget Surveys from those years. Second, based upon the new survey—the KIHS—it presents the new estimates of absolute and extreme poverty by applying updated poverty analysis methodology. Third, the report provides a profile of the poor in order to determine whether with the changes in survey instruments and sampling, there have been any major changes in the composition and location of the poor.

1.5 In order to accomplish these three objectives, the report is organized as follows. The remainder of this chapter provides an overview of the main social and infrastructure indictors of the Kyrgyz Republic against other Europe and Central Asia countries. Chapter 2 reviews the changes in poverty over time. The third and final chapter provides an updated poverty profile using the KIHS data. Annex 1 presents the methodology; other Annexes elaborate some methodological and statistical topics discussed in Chapter 2.

B. DEVELOPMENT INDICATORS

1.6 This section provides a brief overview of the Kyrgyz Republic's progress as benchmarked by the Millennium Development Goals (MDGs) which represent a multidimensional view of human welfare. The international community adopted the MDGs in September 2000. Eight goals were established for developing countries to achieve by the year 2015. Seven of these goals address improvement in social indicators including reduction in poverty and improvements in health, education, gender disparities, and environmental sustainability. The eighth goal addresses economic progress. Monitoring progress towards these goals is based upon achievement of targets in these areas. [1]

Table 1.1: Kyrgyz Republic: Progress on Millennium Development Goals

	Kyrgyz Republic		ECA /1	LIC /2
	Earliest available	Latest available	Latest available	Latest available
Goals related to	1990-1994	2000-2003	2000-2003	2000-2003
Hunger				
Population below minimum level of dietary energy consumption (%)	--	6	8	25
Schooling and gender				
Primary completion rate (% of relevant age group)	101	93	90	71
Ratio of girls to boys in primary and secondary education (%)	--	99.6	97.3	84.3
Health				
Infant mortality rate (per 1,000 live births)	68	59	29	80
Under 5 mortality rate (per 1,000)	80	68	36	123
Births attended by skilled health staff (% of total)	--	98.1	--	38.4
Incidence of tuberculosis (per 100,000 people)	52	124	82	225
Environment				
CO2 emissions (metric tons per capita)	2.4	0.9	6.7	0.8
Connectedness				
Fixed line and mobile phone subscribers (per 1,000 people)	72	103	438	56
Internet users (per 1,000 people)	--	38.4	161.0	16.2
Other				
GNI per capita, Atlas method (current US$)	510	340	2,580	440
Life expectancy at birth, total (years)	68.3	65.0	68.5	58.1
Trade (% of GDP)	39	68	67	35

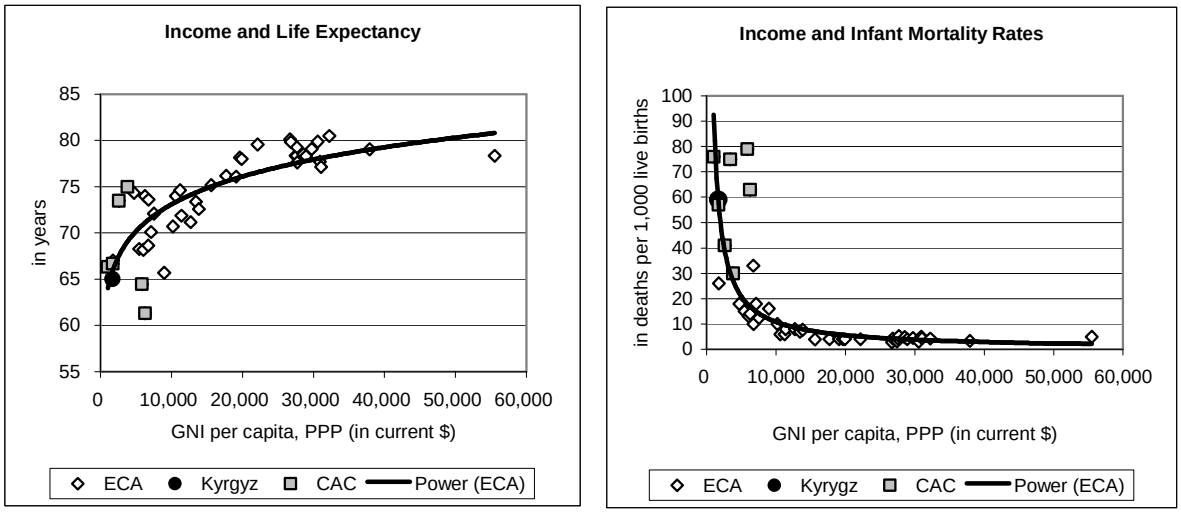
Source: World Development Indicators database, April 2005. 1. ECA refers to Europe and Central Asia. LIC is the group of low income countries.

[1] The millennium development goals (MDGs) include eradicating extreme poverty and hunger, achieving universal primary education, promoting gender equality and empowering women, reducing child mortality and improving maternal health, combating HIV/AIDS, malaria, and other diseases, ensuring environmental sustainability, and developing global partnerships for development. Each goal has a set of target indicators. For the full set of indicators, see http://www.developmentgoals.org/.

1.7 **The Kyrgyz Republic has made mixed progress on the millennium development goals.** Most social indicators appear to have worsened during 1990 – 2003—a trend which is seen in across most countries of the former Soviet Union. Health indicators such as infant and child mortality rates improved according to official statistics while tuberculosis incidence rates have risen over 100 percent. Due this period of 1990 – 2003, life expectancy fell by 3 years and the decline would have been even worse had mortality rates among infants and children not improved substantially. Primary education enrollment has also deteriorated which is probably a reflection of the overall decline in living standards following independence. But despite this downward trend, gender disparities do not appear to have grown and the proportion of boys and girls enrolled in school is similar.

1.8 **Compared to other low-income countries, the MDGs for Kyrgyz are high.** Despite its level of income per capita, the Kyrgyz Republic does not have a similar profile to low income countries in terms of its health and education indicators. Social indicators remain relatively high and this may be due to a combination of the high average educational attainment of its population (and its impact on health indicators), the continued demand for services which build human capital, and the availability of health and education services. However, given that the Kyrgyz Republic started at a strong advantage in terms of high social indicators, comparing its MDGs to that of other lower income countries may not provide a useful benchmark for assessing its progress in development.

Figure 1.1: A comparison of key health indicators with other ECA countries



Source: WDI, 2001.

a/ GNI is Gross National Income; CAC refers to the countries in Central Asia and the Caucuses.

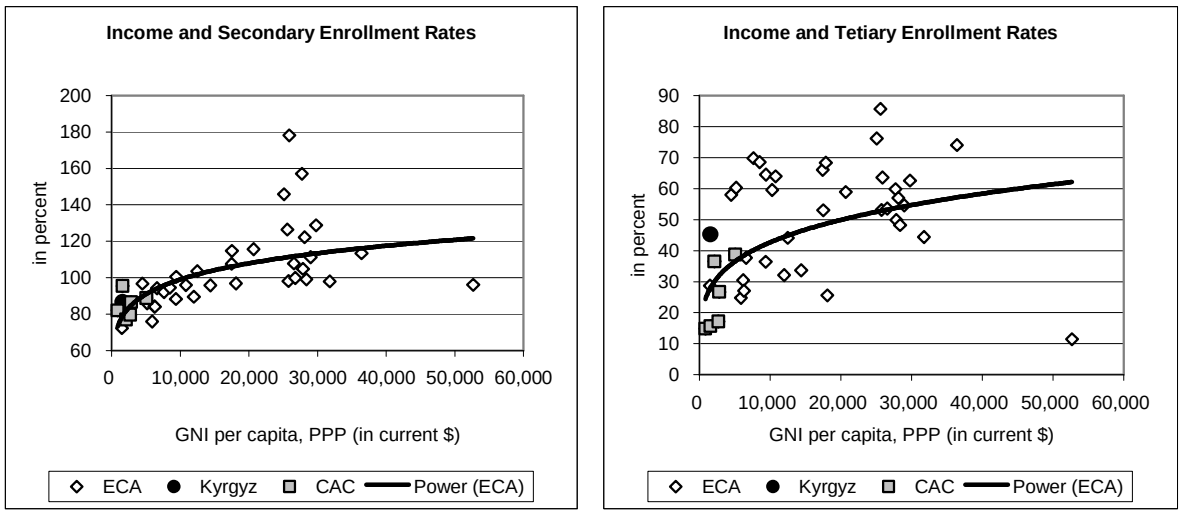
C. SOCIAL INDICATORS AND ACCESS TO INFRASTRUCTURE

1.9 Perhaps the more appropriate comparison for the Kyrgyz Republic is to compare where it stands today with other countries in the ECA region and especially with other Central Asian and the Caucuses countries—Armenia, Azerbaijan, Georgia, Kazakhstan, Tajikistan, Turkmenistan and Uzbekistan. These seven countries have an average (unweighted) gross national income per capita (PPP corrected) in 2003 of $3,527 compared to $1,690 for Krygyz. This section provides an overview of selected key indicators in both the social and infrastructure spheres.

1.10 **Though among the lowest in the ECA region, health indicators for the Kyrgyz Republic are consistent with its level of income.** Key indictors of the population's health status are life expectancy and infant, child, and maternal mortality rates. In order to provide a broad comparison of

health conditions in ECA, we see that life expectancy and infant mortality rates are somewhat below average of the comparator countries as seen in Figure 1.1. Health conditions are a function of many factors including prevalence of potable water, good sanitation systems in urban areas, education levels (especially of women), road and work place safety, and an effective health care system. Kyrgyz Republic inherited and continues to have a functioning infrastructure within in urban areas which helps to prevent the spread of infection and disease that lead to prevalent morbidity and mortality, especially among young children and the elderly.[2]

Figure 1.2: International Comparison of Secondary and Tertiary Education



Source: WDI, 2001.
a/ GNI is Gross National Income; CAC refers to the countries in Central Asia and the Caucuses.
b/ All enrollment rates are gross not net.

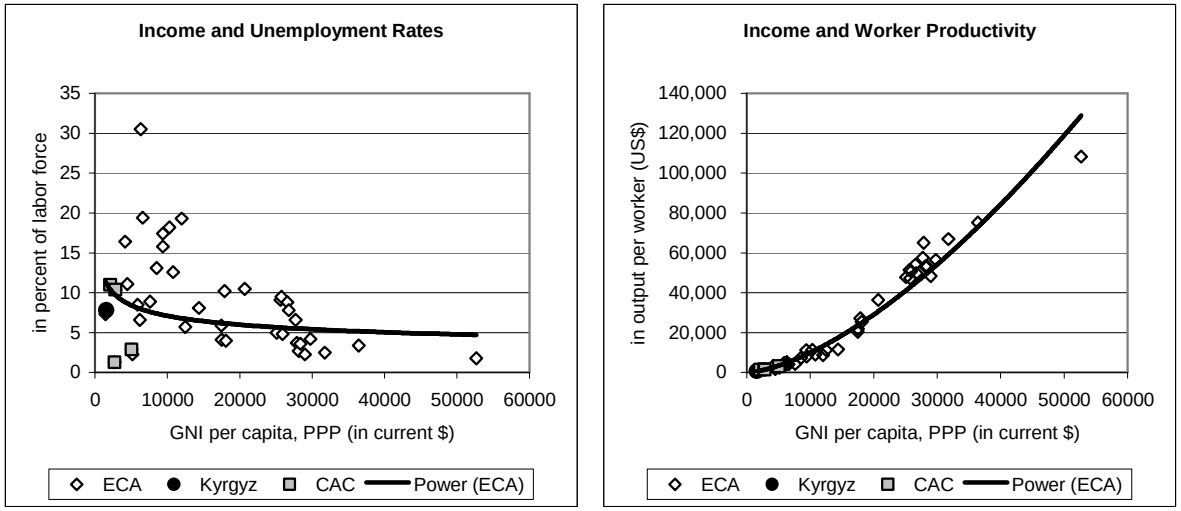
1.11 **The Kyrgyz Republic's school enrollment rates are relatively good for its level of income.** Gross secondary school enrollment rate in Kyrgyz is 87 percent compared to an average of 85 percent for the Central Asia and Caucuses countries. Though gross secondary enrollment rates are relatively high, the key question requiring further analysis is to determine net enrollment rates as this is a better indicator. The Kyrgyz tertiary gross enrollment rate at 45 percent is the highest of any of the comparator countries in the ECA region. Gross tertiary enrollment rates are comparable with some high income ECA countries such as Austria, Hungary, and Switzerland—though this comparison does not account for the quality of education.

1.12 **Despite relatively high levels of education and modest unemployment rates, productivity in Kyrgyz is low.** The unemployment rate in Kyrgyz was 7.8 percent in 2001 and rose to 10 percent in 2003.[3] This rate is below average for the ECA region. However, as is apparent in Figure 1.3 there is little correlation between unemployment and income levels. What is probably a more significant issue but difficult to measure is the extent of under-employment in the economy, which is large for relatively poor countries as they tend to under-utilize labor. A much stronger correlation exists between income and productivity—consequently, Kyrgyz ranks among the lower end of the ECA distribution (only higher than Moldova). This low level of worker productivity combined with rising unemployment rates raises concerns of how rapidly the population's living conditions can improve.

[2] Infrastructure in peri-urban areas, especially among the new squatter areas, has not been established.

[3] Data for 2001 is from Table 2.5 in *CDF/PRSP/MDG: Statistical Development Indicators for the Kyrgyz Republic and Its Regions (2004).*

Figure 1.3: International Comparison of Unemployment and Productivity



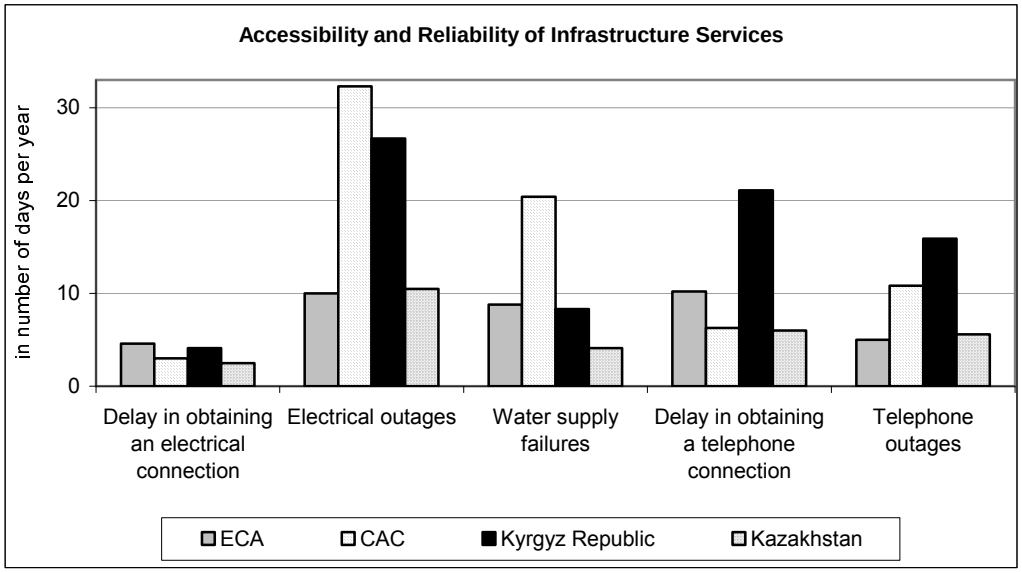
Source: WDI (2001) for all countries except the unemployment rate for the Kyrgyz Republic which is from the NSC.
a/ Worker productivity is computed as output per (employed) worker.

1.13 **In addition to social services, physical infrastructure plays an important role in impacting living conditions and productivity.** Key infrastructure services are potable water, electricity, sewerage (or sanitation) services, and telecommunications. Few international databases exist which provide current information on access rates to these infrastructure services let alone information on the reliability or quality of these types of services. Consequently, analysis on the how well a country is performing in the delivery of essential services can be done either by exploiting household survey information for a particular country or by using surveys such as the Investment Climate Survey that targets businesses.

1.14 **The population's access to essential infrastructure services could be improved.** Information on the population's access to infrastructure services such as electricity, sewerage, and water is available from the analysis of the Kyrgyz Integrated Household Survey. The data indicate that in general the vast majority of the population has access to these three services (see the next chapter for more detailed information). However, there is one group which has low access to sewerage disposal within their dwellings and that is the rural population. However, this is a common phenomenon in both developed and developing countries due to the prohibitively high cost of providing network sewerage services to a dispersed population.

1.15 **Reliability of services appears to be below average for the ECA region but is high compared to other regions.** Information on accessibility and reliability that allows for international comparison is only available through the Investment Climate Surveys conducted by the World Bank. Though not representative of the population as a whole since most of the businesses surveyed are located in medium to large size urban centers, they do provide some indication of how well the country's infrastructure is performing compared to other countries. As can be seen in Figure 1.4, businesses in the Kyrgyz Republic do report power, telephone, and water outages. Even though the reported water supply reliability looks better than in other ECA countries, indicators for electricity and telephone outage are significantly higher compared to the others. However, when we compare Kyrgyz's performance on electrical outages—an area where it performs poorly in ECA—to internationally for example, the number of power outages is 27 days per year compared to 5 days in East Asia nd Pacific.

Figure 1.4: Accessibility and Reliability of Infrastructure Services



Source: World Bank's Investment Climate Surveys for 2002 and 2004.

a/ CAC computation for Armenia, Azerbaijan, Georgia, Kazakhstan, and Uzbekistan.

D. CONCLUSIONS

1.16 The Kyrgyz Republic with a GDP of $340 in 2003 continues to have remarkably high social and physical infrastructure indicators for a low income country.[4] Thus despite the country's economic constraints, living conditions in some important aspects—especially health status—remain good especially with compared to other low income countries in Asia, Africa, and Latin America. However, when compared to the ECA region, though most of its social indicators are in line with its income level, the status of the Kyrgyz Republic's population remains among the lowest rank. The great concern at this time is whether indicators will remain high given the growing constraints being placed on the ability of the Government to properly finance health, education, and infrastructure as well as the population's ability to pay for these services.

[4] World Bank estimate based on Atlas methodology.

CHAPTER 2: TRENDS IN POVERTY

A. INTRODUCTION

2.1 This chapter provides an overview of the poverty trends in the Kyrgyz Republic over the period 2000-2003. During these years, the National Statistics Committee (NSC) administered the same survey annually, thus allowing for comparable estimates of poverty to be computed. It was also a period when the Government embarked on the National Poverty Reduction Strategy (NPRS) and used as one of its key indicators of progress the changes in the level of poverty in the country. Consequently, the alignment between the output of the statistical arm of the Government and the goals of policymakers provided a valuable means for assessing the country's progress in a critical area.

2.2 The NSC publishes data annually on poverty for the national, sectoral, and oblast levels. It has made the Kyrgyz Republic a leader in its openness in the timely publication of disaggregated poverty statistics. It has also taken steps to educate the public on the methodology used in estimating poverty.[5] However, the estimation of the level of poverty is complicated and though a "standard" methodology exists, there are many judgment calls required such that no two persons will come up with the exact same estimates of poverty.

2.3 As a consequence of the differences that can result in the computation of the *level* of poverty, it is better to focus on the *trend* in poverty over time in order to assess progress in policies and economic developments that may result in poverty reduction. This is a particularly useful approach when more than one source of poverty statistics is available as is the case for Kyrgyz. The robustness of the claim of the extent and speed of poverty reduction is improved if more than one set of poverty statistics shows a similar trend in poverty.

2.4 Two sources of poverty statistics exist for the Kyrgyz Republic—the official statistics computed by the NSA and recently computed statistics by the World Bank. As will be discussed shortly, the NSA computes three different poverty rates in any one year. The World Bank recently computed poverty rates for Kyrgyz as part of its publication *Growth, Poverty, and Inequality in Europe and Central Asia: Past, Present and Future* (2005). Though the objective of the poverty estimation methodology applied by the World Bank was to compare poverty across the countries in the Europe and Central Asia (ECA) region rather than estimate the level of poverty in the country, these statistics will nevertheless be informative regarding the trend.

2.5 Given the information sources available, this report will take advantage of the available data to answer two questions. First, is the *trend* in poverty during 2000 - 2003 as indicated by the official data similar to what is found using other sources (World Bank) of poverty data? Second, given the availability of internationally comparable data for countries in the ECA region, how well is Kyrgyz performing both in terms of level as well as in terms of the rate of poverty reduction.

[5] In November 2004, NSC staff traveled to five oblast capitals and made a detailed presentation on the methodology it used in the computation of poverty. This was part of the joint NSC-World Bank dissemination of the 2003 Poverty Assessment.

B. MEASURING POVERTY – WHAT ARE THE KEY COMPONENTS?

2.6 Poverty is a multi-dimensional phenomenon in terms of its impact on individuals and households. Not only does it impact what people can buy and consume including the most basic of human needs—food, shelter, and clothing—but it impacts their ability to exploit opportunities and ride out crises. Poverty can also be measured by people's lack of access to basic infrastructure services—such as sanitation, clean drinking water, and electricity—and social services—such as health care and education. However, beyond physical wellbeing, poverty can also be a state of being in terms of people feeling powerless either to improve their own lives or to participate in the political system where decisions taken that impact their own lives.

2.7 For the purposes of this report, wellbeing is measured based upon how much people consume.[6] Though this is a material approach to measuring people's welfare (and ultimately money based), it is a relatively transparent way of gauging to what extent people are able to meet their most basic human needs. Furthermore, there is a well developed methodology for collecting information from a sample of households that allows for estimating the extent and depth of poverty nationally. The NSC has applied this method for estimating poverty for the last several years.

2.8 Estimating poverty requires measuring consumption (the "welfare or consumption aggregate") and establishing a threshold below which people are considered poor (the "poverty line"). The choice of these two measures can dramatically affect the estimates of poverty in a country and even the profile of the poor. However, though there are better and worse ways of estimating consumption and poverty lines there is no single right way, hence people applying the same broad methodology can come up with different estimates of poverty.

2.9 Household expenditures must be translated into a welfare aggregate that is representation of current welfare levels based upon available data. In order to be as accurate a measurement of present welfare as possible, it should reflect consumption in the period under consideration rather than future consumption—consequently, total expenditures are not the best welfare aggregate. Consumption is estimated based upon selected household expenditures on food and non-food goods and services, the monetary value of household consumption of own-produced goods, and the estimated benefits derived from durable goods (such as cars and washing machines).[7] Food expenditures include both actual expenditures as well as the valuation of self-produced food that is consumed. Non-food consumption includes clothing, utilities, services, personal care and hygiene items, communication and transportation, and other non-food expenditures.

2.10 Different welfare aggregates can be computed based upon which goods and services are included. Though the NSC computes three different welfare measures—consumption, expenditures, and consumption per adult equivalent—the official poverty estimates are based on expenditures per capita. This includes all expenditures on goods and services and the value of own produced goods (i.e., food); it includes also the use value of durables. The World Bank's preference is to use consumption per capita as explained above. Annex 1 provides a detailed explanation of the methodology applied for computing the welfare aggregate in 2003 using the KIHS data.

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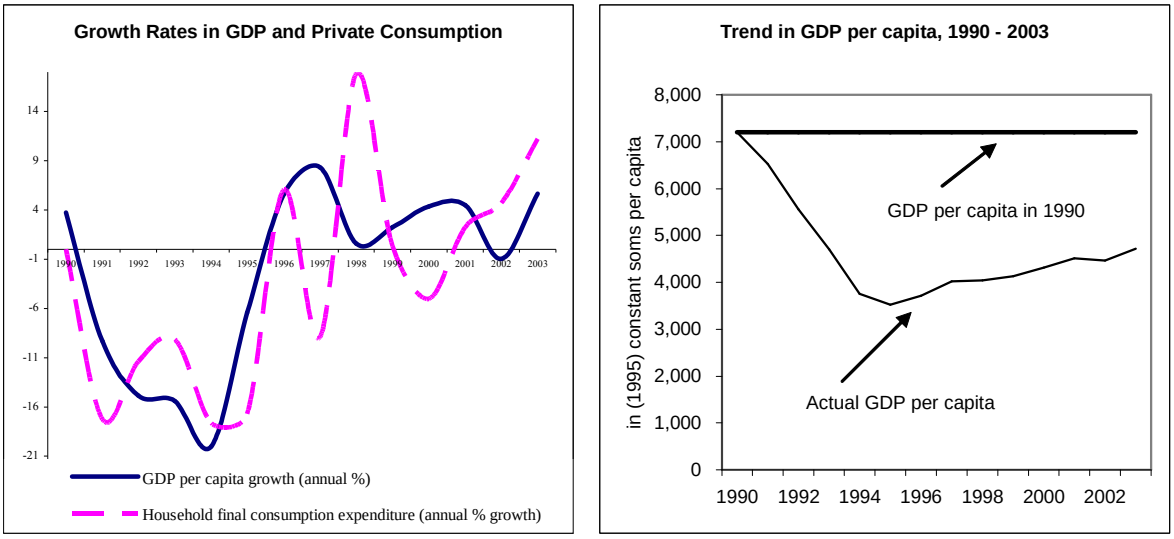
[6] Income is an alternative way of measuring welfare, but it is considered an inferior measurement to consumption expenditures for two main reasons. First, in countries where a significant share of the population is involved in subsistence farming, it would not appropriately capture their welfare. Second, people tend to under-report income for various reasons and consequently it is neither accurate nor reliable.

[7] Expenditures on durable goods are excluded but its annual use value is included.

C. ECONOMIC DEVELOPMENTS

2.11 The Kyrgyz economic growth story follows the pattern experienced by most transition economies in the last decade. After a downturn in the first half of 1990s, the economy began to recover and see positive though moderate growth. In the Kyrgyz Republic, real GDP growth averaged 5 percent during 1996 – 2003. However, this average hides year-to-year volatility especially because of the vulnerability of agricultural and industrial production to exogenous factors such as climate, natural disasters, and external shocks. The Russian financial crisis hit the Kyrgyz economy quite hard and GDP growth stagnated. The impact on households came with a lag in the following year as can be seen in Figure 2.1.

Figure 2.1: Trend in Output and Private Consumption, 1990 - 2003



Source: World Development Indicators.

2.12 Output expanded by an average of 4.4 percent per annum from 2000 to 2003—at a moderate pace. Economic activity continued to broaden in (non-gold) industry, agriculture, and services. The expansion of the latter two labor-intensive sectors is especially likely to benefit the living standards of the poor and, thus, contribute to decline in overall poverty level in the country.[8] Even during this short time period, growth was uneven. In 2002, the decline in the mining and power sectors resulted in negative growth. In 2003 the economy bounced back strongly with real GDP per capita increasing by 6 percent to reach US$ 381.

2.13 Agriculture sector growth is particularly important for understanding the changes in rural poverty. During 1995 – 1999, the agriculture sector grew by 7.3 percent per annum while in 2000 – 2003, it grew by 4 percent. The growth in agriculture compares favorably to other sectors in the earlier period but in recent years the growth has moderated even relative to the industrial and services sectors. Land reforms had a large payoff in the 1990s when they were first undertaken, but since then the returns on reform appear to have stabilized.

[8] The Kyrgyz Republic social accounting matrix (SAM) developed by the WB could be useful for estimating the extent to which growth in these sectors would lead to raising household income.

Table 2.1: Government Estimates of Poverty: 2000 – 2003

Measure of welfare	2000	2001	2002	2003
	Share of population living below poverty line *(in percent)*			
Absolute Poverty				
Expenditure per capita	52	48	44	41
Consumption per capita	63	56	56	49
Consumption per adult equivalent	53	45	39	35
Extreme Poverty				
Expenditure per capita	18	14	14	9

Source: NSC. HBS 2000-2003 full sample, weighted data.

D. OFFICIAL ESTIMATES OF ABSOLUTE AND EXTREME POVERTY

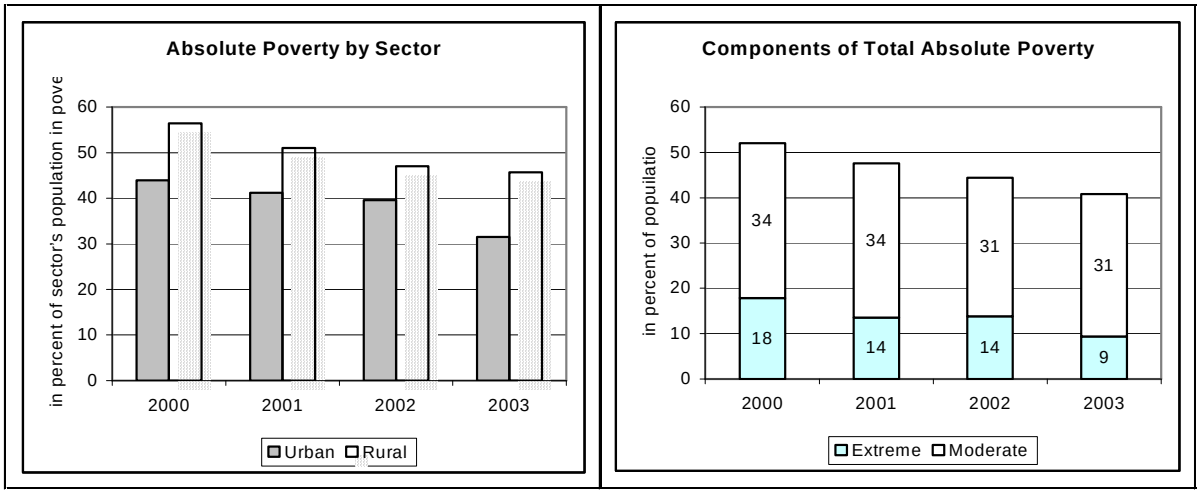
D.1. Poverty Trends

2.14 Poverty declined significantly and rapidly in the Kyrgyz Republic during 2000 – 2003 according to the official estimates derived from the Household Budget Surveys from these years. This trend is robust to the choice of whether we look at the upper or lower poverty lines as well as the welfare aggregate, that is, whether one uses expenditures per capita, consumption per capita or consumption per adult equivalent. The official absolute (or upper) poverty estimates (which are based on expenditure per capita) decreased from 52 percent to 41 percent of the population. Consumption poverty followed a similar trend though it started from a higher level of poverty (63 percent in 2000) and fell to 49 percent by 2003. Similarly, extreme poverty (using a lower poverty line) fell by half during this period as measured by expenditures per capita as seen in Table 2.1.

2.15 A sectoral disaggregation of poverty shows that urban poverty declined faster than rural poverty in 2000-2003 (on the basis of the expenditure per capita approach). Though the initial urban and rural trends seemed to indicate convergence of absolute poverty in the medium-term, this no longer appears to be the case. During 2002-2003, the trends in the two sectors diverged significantly, indicating that a potential structural change may have occurred. Urban poverty fell dramatically by 8 percentage points to 32 percent while rural poverty fell by 1.3 percentage point to 46 percent in 2002-2003. This discrepancy in the trend also indicates that the concentration of poverty in the rural areas increased. Consequently, the share of the poor living in rural areas increased from 71 percent to 73 percent of the total poor.

2.16 Persons living in extreme poverty are those with insufficient expenditures (or consumption) to purchase the food basket of 2100 calories. Extreme poverty fell by half—from 18 percent to 9 percent during 2000 – 2003. As with absolute poverty, changes in extreme poverty have been uneven with one year (2002) exhibiting an increase in the rate for 0.3 percentage points. The substantial decline in extreme poverty resulted primarily from the fall in the number of extreme poor living in rural areas especially in the period until 2002. The decline in rural poverty was accompanied by a (less rapid) decline in the extreme urban poor. However, in 2002-2003, urban poverty fell sharply by 7 percentage points to reach 5 percent of the urban population.

Figure 2.2: Components of Absolute Poverty, 2000 – 2003



Source: NSC and WB staff computations based on HBS 2000 - 2003.
Expenditure aggregate

2.17 What is remarkable about the trend in poverty in the Kyrgyz Republic is how rapidly poverty falls per year especially during 2002-2003. The rapid decline in poverty may possibly be a result of the survey itself because a smaller number of households were sampled in that year.[9] Alternatively, it could indicate either the high degree of sensitivity of poverty to economic growth or that poverty is relatively shallow. However, poverty does *not* appear to be shallow in the Kyrgyz Republic—the poverty gap for 2003 was 12.6 nationally which is among the higher rates in the Europe and Central Asia region.

2.18 The *elasticity of poverty to growth* measures how responsive the level of poverty is to economic growth – it is also an indicator of pro-poor growth really is. In Kyrgyz, during 2000-2003, based on the official poverty rates, the number of absolute and extreme poor decreased by 19 percent and 46 percent respectively while the economy's output on a per capita basis (as measured by GDP) grew by 9 percent over this period. Thus, for every one percent growth in output per capita, absolute poverty declined by 2.1 percent. However, extreme poverty was even more responsive to growth such that the elasticity was 4.9. An important implication of this is that economic growth is indeed a powerful tool for decreasing poverty, especially extreme poverty, and emphasis placed on continuing growth results in significant poverty alleviation.

D.2. Changes in Inequality

2.19 Inequality as measured by the Gini coefficient saw small improvements both at the national level as well as at the sectoral level during 2000 – 2003 as seen in Table 2.2. Inequality rates were similar in urban and rural areas in 2000 at 0.32 and fell to 0.29 and 0.30 respectively by 2003. This measure of inequality does not show a steady trend over the period; rather inequality measures have been volatile. It is unclear why this has been since, in reality, most societies' income distribution change only gradually over time. It could of course be because the welfare aggregate used is expenditures per capita which includes the purchase of big ticket durable items (cars and washing machines) that may impact the volatility of the distribution.

[9] This sample size makes poverty estmates of the HBS 2003 data not representative on oblasts level.

Table 2.2: Gini Coefficients using Official Data for the Kyrgyz Republic, 2000 – 2003

	Urban	Rural	Total
2000	0.322	0.323	0.326
2001	0.313	0.351	0.320
2002	0.336	0.321	0.328
2003	0.288	0.295	0.295

Source: NSC staff estimates based on HBS 2000-2003, expenditure aggregate

E. TRENDS IN POVERTY BASED ON WORLD BANK ESTIMATES

E.1. Poverty and Inequality Trends

2.20 As discussed earlier in this chapter, poverty rates can be computed using different—lower or higher—poverty lines as well as different welfare aggregates. With the use of different benchmarks for poverty as well as different methodologies, it should come as no surprise that poverty rates could differ significantly. However, for similar poverty lines, similar changes in poverty over time would give some degree of confidence in the trend.[10]

2.21 This section looks at the trend in poverty using World Bank estimates based on international poverty lines of PPP-corrected $1.08, $2.15, and $4.30. The World Bank computed these poverty rates as part of a regional report on the situation of poverty in the Europe and Central Asia region. One of its main goals was to be able to compare poverty rates across countries. In order to do this, the study not only used international poverty lines (rather than national poverty lines), but it also used the same methodology across countries for computing the welfare aggregate.[11] The methodology employed by the World Bank differs from that of the NSC as does the basket of goods and services included in the welfare aggregate; consequently, comparing poverty levels between the NSC and the World Bank is not meaningful. However, the data source used in this study for the Kyrgyz Republic is HBS, taken from the NSC.

2.22 Table 2.3 presents poverty rates using the three different international poverty lines over the time period of 2000 – 2003. The trend in poverty using these different poverty lines shows that the share of the population living below the lowest poverty line (PPP-corrected $1.08 per day per capita) declined the most with the number of poor reduced by 48 percent. Though the share of the population living below PPP $2.15 per capita per day fell modestly in comparison from 78 percent to 70 percent, the trend nevertheless was also downwards. Upon applying the highest international poverty line of PPP-corrected $4.13 per capita per day, the Kyrgyz Republic showed very marginal progress in terms of reduced poverty.

[10] Similar poverty lines in this case would not be the same value in terms of local currency but rather as a similar ratio between the poverty line and the average consumption per capita. Consumption can go up or down depending upon what is and is not included. For example, the same household could have very different consumption expenditures if we included the rent (or use value of an owned house) in the consumption aggregate.

[11] The welfare aggregate computed by the World Bank has the same items in welfare aggregate from one year to the next—unlike in the NSC's computation—which allows for true comparability of poverty rates over time. The Bank's aggregate does not include estimates of flow of services of durables, durable purchases (or rents), and health expenditures.

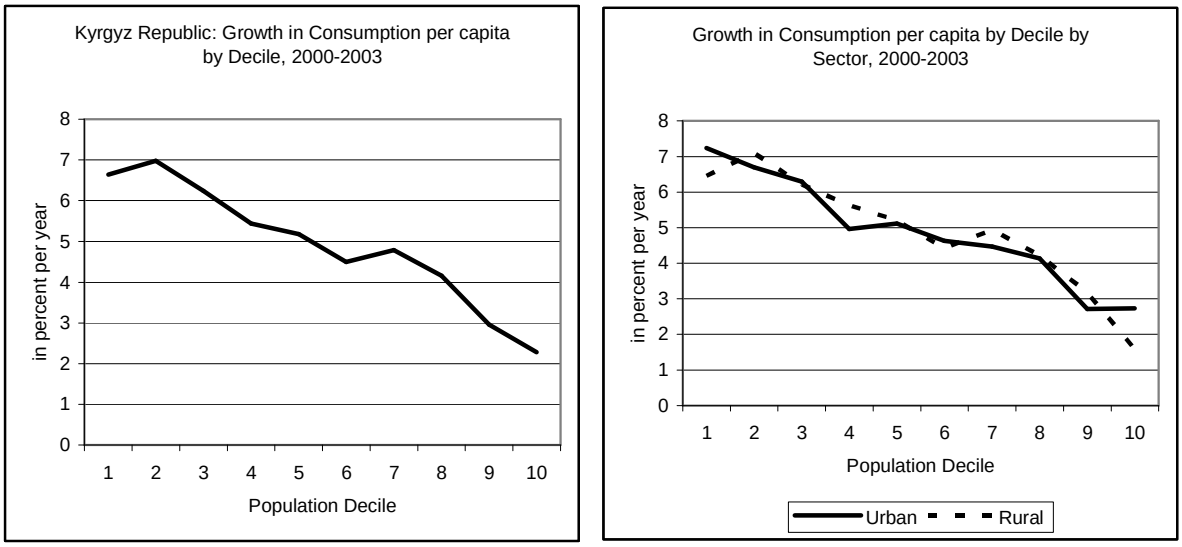
Table 2.3: HBS Poverty rates using international lines, 2000 - 2003

	Share of population livign below the poverty line *(in percent)*			
Poverty Line /a, b	2000	2001	2002	2003
$1.08	28	24	23	14
$2.15	78	74	73	70
$4.30	97	97	97	96

Source: World Bank database used in *Growth, Poverty, and Inequality in Europe and Central Asia (2005).*

2.23 The poverty to growth elasticities vary greatly depending upon which poverty line is chosen—as was seen in the earlier section when official poverty figures were utilized. Based upon the experience in 2000 – 2003, for every 1 percent of GDP growth per capita, poverty fell by 5.2 percent, 0.9 percent, and 0.2 percent respectively using the PPP-corrected $1.08, $2.15, and $4.30 poverty lines. The sharp fall in the number of poor living below $1.08 per day but very little improvement among those living below the higher poverty lines, appears to indicate that economic growth has helped the poorest mostly.

Figure 2.3: Growth in Consumption per capita by Population Deciles, 2000 - 2003



Source: World Bank staff estimates using HBS 2000 and 2003.

2.24 In addition to analyzing the movements in poverty rates, it is worthwhile looking at changes in real consumption per capita expenditures by decile (see Figure 2.3). The data at the national level show that consumption per capita grew the most for the poor and the least for the persons in the top deciles. This pattern is repeated both at for the urban and rural populations as well. Questions are always raised when this analysis is provided as to how this could be occurring since by simple observation it appears that the rich are becoming wealthier rapidly. A couple of possible answers are that since durables—such as housing and cars—are excluded, these consumption aggregate does not capture the whole spending of the affluent. The second reason could be is that many of the rich refuse to participate in household surveys administered by national statistical agencies and hence the sample is not fully representative of the upper end of the income distribution.

Table 2.4: Trends in Inequality for the Kyrgyz Republic, 2000 – 2003

Measure of Inequality	2000	2001	2002	2003
Gini Coefficient	0.30	0.29	0.29	0.28
Share of total consumption held by bottom 20% of the population (in %)	8.9	9.1	9.0	9.6

Source: World Bank database used in *Growth, Poverty, and Inequality in Europe and Central Asia (2005).*

2.25 The trends in inequality as computed by the World Bank (see Table 2.4) are consistent with the trend as indicated by official data (Table 2.2). The main difference in the Gini coefficients is that the World Bank estimates indicate lower inequality than the official data. However, this should be expected since the welfare aggregate used by the World Bank excludes expenditures on durables which tend to be large and occasional. The trend in the growth in the share of total consumption held by the bottom 20 percent of the population is consistent with the declining Gini coefficients.

E.2. An International Comparison

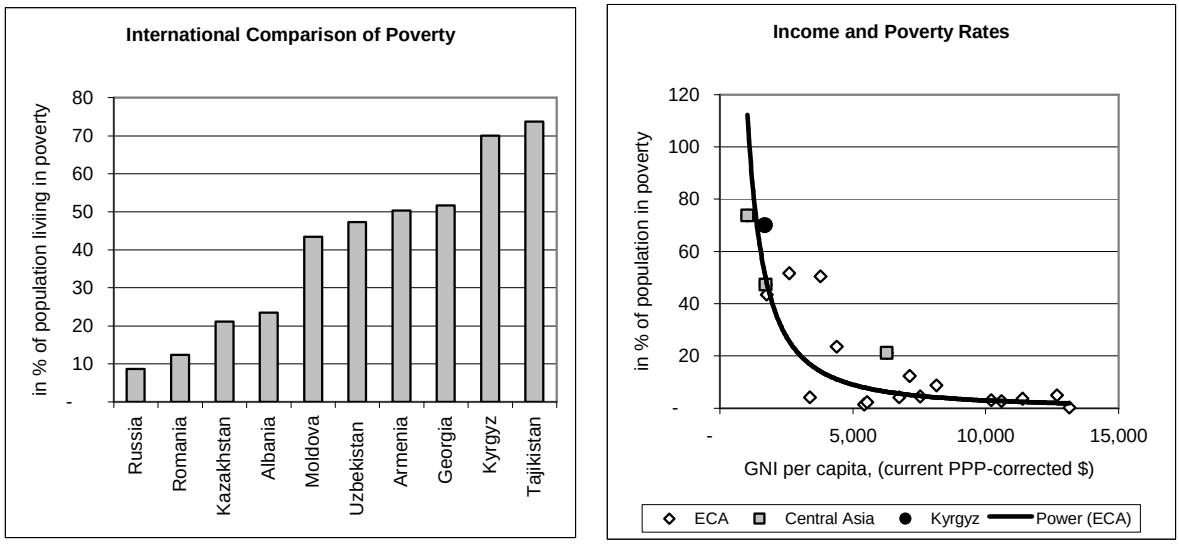
2.26 In comparison to other countries in Europe and Central Asia, the level of poverty in the Kyrgyz Republic is high based upon the poverty line of PPP-corrected $2.15 per capita per day line. As seen in Figure 2.3 below, Tajikistan is the only country where the level of poverty exceeds that in the Kyrgyz Republic. However, as the adjacent figure appears to indicate, a major determinant of poverty in this region is the average gross national income per capita. For the Kyrgyz Republic, its high poverty level is consistent with its relatively low income level.[12] In addition to high poverty as measured by the headcount ratio, the depth of poverty in the Kyrgyz Republic is also among the least favorable. The higher the poverty gap ratio, the further away the average expenditures of the poor are from the poverty line. On average the poverty gap ratio for the ECA region is 0.07 compared to 0.24 for the Kyrgyz Republic. Other countries with very high poverty gaps are Tajikistan and Georgia with 0.30 and 0.21 respectively.

2.27 On average, poverty (as measured by the headcount ratio using a poverty line of $2.15) fell by about 14 percent per annum for countries in the region[13] compared to 2-3 percent for Kyrgyz during the early years of this decade. Why was the rate of poverty reduction so modest in the Kyrgyz Republic? There are two main explanations for this. First, economic growth may have been relatively low. Second, the impact of growth on poverty (using the high PPP-corrected $2.15 poverty line) is small. In the case of Kyrgyz, it seems that both of these reasons explain why poverty did not fall more rapidly. Economic growth was low in Kyrgyz at 3.0 percent per annum during 2000 – 2003 compared to 6.5 percent for the rest of the developing countries in the ECA region.

[12] It should be noted that the poverty rate computed by the World Bank using the $2.15 per capita per day will most likely differ from other estimates based on the same poverty line due to the choice of the welfare aggregate and the conversion factor. As noted in the text, this consumption aggregate was chosen to be consistent across time as well as across countries in the ECA region.

[13] This conclusion is based on data from 17 low and middle income countries of the ECA region.

Figure 2.4: International Comparison of Poverty, 2000 – 2003



Source: World Bank database used in *Growth, Poverty, and Inequality in Europe and Central Asia (2005).*
a/ Poverty line applied is PPP-corrected $2.15 per capita per day basis using 2000 conversion factor.
b/ Poverty estimates for all countries apply similar methodology for the welfare aggregate.

2.28 When comparing Kyrygz's poverty-growth elasticity (using the PPP-corrected $2.15 poverty line) to other countries in ECA, we find that it is below the regional average of -2.1. However, poverty-growth elasticities vary significantly across countries and Kyrgyz's remains within one standard deviation of the mean. What this does mean is that when we use a relatively high (international) poverty line, poverty in Kyrgyz was not very responsive to economic growth especially when compared to other countries in the region.

2.29 The story is more optimistic when we look at changes in poverty using the PPP-corrected $1.08 per capita per day. The poverty to growth elasticity for the ECA region was -5.3 while for Kyrgyz, it was -5.2.[14] Thus, economic growth in Kyrgyz appears to be average (or even above average if we exclude Poland) in how "pro-poor" it is relative to the economic growth impact in the rest of the region on extreme destitution.

F. CONCLUSIONS

2.30 This chapter analyzes changes in poverty based upon the analysis of the Household Budget Survey for which data were available for a period of four years. Two main issues of interest were whether the downward trend in poverty during 2000 – 2003 was robust to the choice of source of information—in this case, official data and World Bank estimates. Second, we also wanted to determine how well the Kyrgyz Republic was performing compared to other countries in the ECA region.

2.31 The analysis of the data showed that the improvements in poverty were indeed robust since both official and World Bank estimates show declining poverty during 2000 – 2003. With regard to the second issue, the performance of the Kyrgyz Republic was mixed. At the lower poverty line of PPP-corrected $1.08 per capita per day, poverty in Kyrgyz declined at the regional average of 5

[14] If we exclude Poland with its unusually high poverty to growth elasticity of -21 using the $1.08 poverty line, the average for the ECA region is -4.3 and Kyrgyz's elasticity would be well above average .

percent for every 1 percent of economic growth per capita. However, when we used the higher poverty line of $2.15, the decline in poverty was modest such that the poverty-growth elasticity was -1.

CHAPTER 3: POVERTY PROFILE FOR 2003

A. INTRODUCTION

3.1 The aggregate changes in poverty over time can overwhelm the discussion of the more human aspects of poverty and the poor. Consequently, a description of *who* are the poor, *where* do they live, and *why* are they poor is an important complement to any analysis of trends in poverty in a particular country. These questions were addressed in detail not only in an early joint poverty report by the National Statistical Committee and the World Bank, but also subsequently by the NSC in its annual publication on human development.

3.2 The introduction of the Kyrgyz Integrated Household Survey (KIHS) in 2003 and the simultaneous administering of the last cycle of the Household Budget Survey (HBS) provides a unique opportunity to policy makers and researchers alike to better understand the poverty profile and to see how robust it is to changes in the survey instrument. In light of this opportunity, the chapter will try to accomplish two important goals. First, it attempts to determine whether the survey instrument itself has led to any significant change in the broad characteristics of the poor such that policy makers should reevaluate its redistribution policies. Second, given the availability of the better survey instrument, what does a detailed profile of the poor look like?

3.3 This chapter is divided into two main sections. The first section compares selected key results from the KIHS and HBS for 2003 with a focus on the aggregate and regional distribution issues. The following sections provide information on the poor's individual and household characteristics, access to social and physical infrastructure, and labor market involvement.

B. COMPARISON OF THE RESULTS OF TWO HOUSEHOLD SURVEYS

B.1. Measures to Assess Poverty

3.4 The comparison of the results of the household surveys in this chapter is provided with the aim of highlighting the observed differences between them. It does not attempt to provide *consistent* estimates of poverty by using the same welfare aggregate or even applying the same poverty line, to both household surveys. This can of course be done, but such analysis would serve to better understand the differences resulting from the survey instrument rather than noting the actual changes in official statistics. The analysis here uses the official results from the HBS which uses expenditures per capita as its welfare aggregate and an exogenously determined poverty line. Analysis of the KIHS uses a welfare aggregate of consumption expenditures per capita and a poverty line which is estimated based upon the minimum basket of goods and services required as indicated by the consumption patterns of households in the sample.

3.5 The main indicators used to measure income poverty in this report are (i) the poverty headcount ratio, which measures the incidence of poverty; (ii) the poverty gap index which measures the depth of poverty; and (iii) the squared poverty gap index which measures severity of poverty. These measures are standard for poverty analysis and provide important insights to how extensive and intensive the problem and to what extent small changes in consumption can have a large impact on poverty or not. A brief explanation of these three measures is provided in Box 3.1.

Box 3.1: Measures of Poverty

This analysis uses the three standard Foster-Greer-Thorbecke aggregate poverty measures.

The ***headcount index*** (PO) is a measure of the prevalence of poverty. It denotes the percentage of households who are poor-as defined by the poverty line-as a proportion of total population. This measure was insensitive to the distribution of the poor below the poverty line.

The ***poverty gap index*** (Pl) a measure of the ***depth*** of poverty, and it denotes the gap between the observed consumption levels of poor households and the poverty line. Assuming perfect targeting of resources (transfers), this poverty gap index indicates the total amount needed to bring all households in poverty up to the poverty line.

The ***poverty severity index*** (P2) measures the ***degree*** *of* ***inequality*** in distribution below the poverty line, giving greater weight to households at the bottom of the consumption distribution.

B.2. Poverty Aggregates

3.6 Despite pro-poor growth and some reduction of poverty in the last few years, the KIHS data for 2003 indicates that half of the population in the Kyrgyz Republic lived in poverty. Every second person in the population had consumption expenditures below the poverty line—which translates into roughly 2.5 million people. The adoption of the KIHS instrument with its larger sample size and improved sample design has led to significant changes in the *official* estimates of poverty as well as the distribution of the poor across sectors and regions. Poverty estimates using the KIHS indicate a higher share of the population living below the poverty line than the HBS (using expenditures per capita)—50 percent versus 41 percent (see Table 3.1).[15]

Table 3.1: Comparison of Poverty Rates using HBS and KIHS

(in percent)

	Headcount Ratio			Poverty Gap Ratio			Poverty Severity		
Survey	**KIHS**	**HBS**	HBS	**KIHS**	**HBS**	HBS	**KIHS**	**HBS**	HBS
Welfare Aggregate /a	**Cons.**	**Exp.**	Cons.	**Cons.**	**Exp.**	Cons.	**Cons.**	**Exp.**	Cons.
Absolute Poverty									
National	**50**	**41**	49	**15**	**11**	13	**6**	**4**	5
Rural	**57**	**46**	55	**18**	**13**	15	**7**	**5**	5
Urban	**36**	**32**	38	**10**	**7**	9	**4**	**2**	3
Extreme Poverty									
National	**17**	**9**	15	**9**	**2**	3	**5**	**<1**	1
Rural	**21**	**12**	18	**11**	**2**	4	**6**	**1**	1
Urban	**10**	**5**	10	**5**	**1**	2	**3**	**<1**	0

Source: NSC staff computations based on HBS and KIHS, 2003.

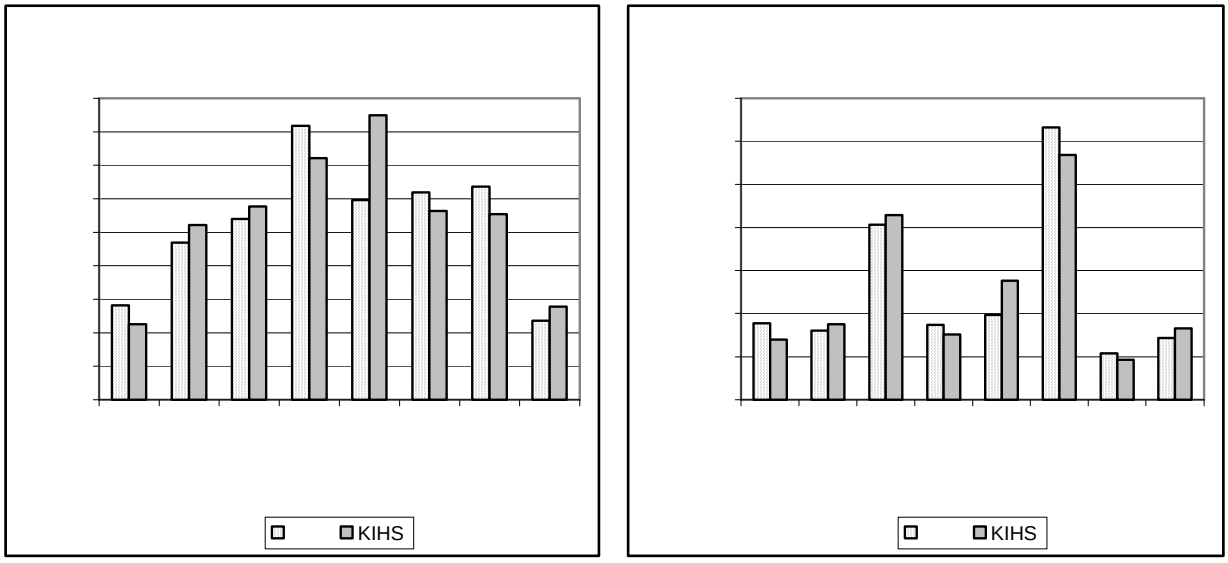
a/ "Cons." refers to consumption per capita; and "exp." refers to expenditures per capita.

b/ The first two columns represent official statistics.

[15] An estimation of the confidence intervals for the KIHS poverty estimates show they lie within very narrow intervals, thus, providing a high degree of confidence in the accuracy of poverty indicators.

3.7 This increase in poverty rates as indicated by the official figures is due almost exclusively to the choice of the welfare aggregate. As noted in Chapter 2, the NSC published poverty rates using expenditures per capita as well as consumption per capita. The poverty levels arising from the consumption per capita computations were consistently higher than the expenditure based rates (see Table 2.1). In 2003, actually the headcount ratio derived from the HBS using the consumption per capita was 49 percent—very close to the 50 percent derived from the KIHS.[16]

Figure 3.1: Comparison of Oblast Poverty Rates using HBS and KIHS



Source: NSC staff computations based on HBS and KIHS for 2003.

B.3. Oblast Poverty Rates (the whole B.3 section is proposed to skip, since HBS is not representative on oblast level)

3.8 Poverty rates at the oblast level have changed across the surveys—in some cases quite significantly. The most notable change is that in the KIHS, Batken oblast suffers from the highest incidence of poverty instead of Naryn oblast. However, Batken's ascendancy in this indicator is dramatic because it appears that the HBS (even when using the consumption aggregate) grossly underestimated (by 13 percentage points) the degree of poverty in this oblast and overestimated poverty (by 10 percentage points) in Naryn oblast. Though other oblasts also saw substantial changes (between -8 and +5 percentage points), none were as large. It should perhaps be noted at this point that the HBS sample was never structured to be representative at the oblast level which may explain the reason for the large discrepancy.

3.9 In addition to the changes seen in the incidence of poverty changed in some oblasts, the distribution of the poor by oblast also changed. According to the KIHS, the share of Kyrgyz's poor rose significantly in Batken by 4 percentage points and fell in Osh by 3 percentage points. However, Osh and Jalalabat oblasts, continue to have almost half of the country's poor with Batken now being the oblast where 14 percent of the country's poor live.

[16] This result is fortuitous since the methodology used to estimate absolute poverty under the HBS and the KIHS are different as is the poverty line and the welfare aggregate. The poverty aggregates based upon the HBS were published before the KIHS results. The World Bank provided technical assistance to the NSC for the computation of the KIHS results.

Table 3.2: Household Characteristics based on the HBS and KIHS, 2003

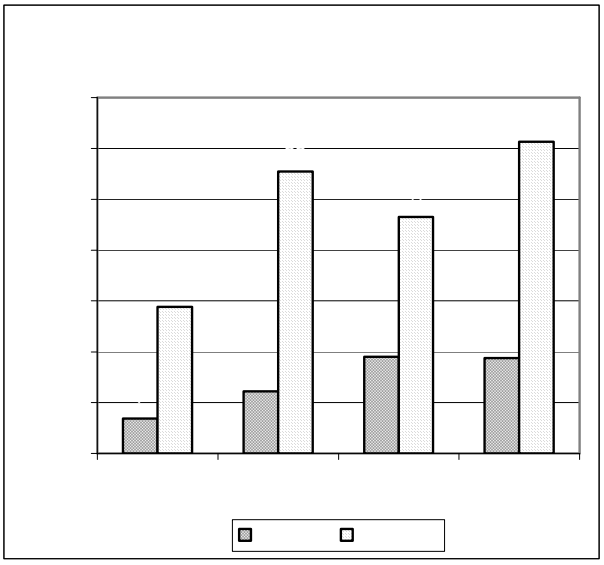
Household characteristics	HBS 2003			KIHS 2003		
	Poor	Non-poor	Total	Poor	Non-poor	Total
Household size	5.9	3.5	4.4	5.4	3.3	4.1
Headed by females (%)	19.0	43.3	34.0	25.3	38.2	33.3
Average number of children[1]	2.5	1.1	1.6	2.4	1.1	1.6
Households with children <6 years (%)	44.2	20.4	29.4	48.1	21.9	31.8
Average number of prime-age adults[2]	2.4	1.8	2.1	2.6	1.9	2.2
Average number of elderly	0.2	0.4	0.3	0.3	0.4	0.4
Households living in rural area, %	67.9	49.3	56.4	70.9	47.9	56.7
Number of households in survey	560	521	1,081	1,882	2,878	4,760

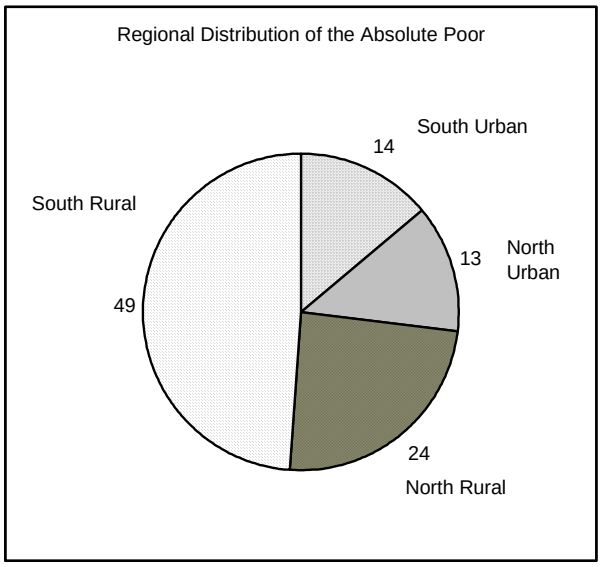
1. 0-17 years. 2. 18-56 years for women and 18-61 for men. 3. 57+ years for women and 62+ years for men.
Source: calculations using HBS 2003 and KIHS 2003

B.4. Household Characteristics

3.10 Table 3.2 compares selected households' characteristics from both surveys. At the national level, there are no large discrepancies among these household characteristics. A comparison of the characteristics of the HBS and KIHS poor households shows a higher proportion of households headed by females, which is a quarter of all poor households. Overall, the main characteristics of the poor appear to be similar across surveys indicating that the previous profile of the poor derived from the HBS was robust.

Figure 3.2: Regional Distribution of the Extreme and Moderate Poor





Source: World Bank staff computations based on KIHS 2003.

C. REGIONAL ASPECTS OF POVERTY

3.11 The remainder of this chapter provides a profile of the poor based on the KIHS which is now the basis on which the NSC will provide official statistics. Furthermore, the NSC has also taken a more rigorous approach to estimating poverty by adopting a lower and an upper poverty line. The lower poverty line is defined as the amount of (consumption) expenditures required to purchase a food basket of 2100 calories. Persons who are below the lower poverty line also have non-food requirements that must be filled (such as clothing), consequently those who live in extreme poverty most likely suffer from inadequate food intake and hence malnutrition. The upper poverty line is the level of expenditures needed to purchase the minimum basket of goods and services. Thus, persons who are below the upper poverty line have insufficient consumption of either food or non-food goods and services.

C.1. Regional and Oblast Poverty Rates

3.12 This section will provide a geographical disaggregation of poverty in the Kyrgyz Republic. Knowledge of the location of the poor is powerful information for assisting them. Though Kyrgyz has a relatively small population of about 5 million persons, the distribution of the poor within the country is not homogenous. The largest difference exists between rural and urban residents where 57 percent of the population lives in poverty compared to 36 percent of urban residents. Extreme poverty afflicts one in five persons in rural areas but one in ten persons in urban areas. As seen in Table 3.1, the poverty gap as well as the poverty severity indices indicate that the situation is worse for the rural (absolute and extreme) poor in the Kyrgyz Republic.

3.13 However, there is another important dimension of poverty which is the regional and oblast distribution. If we look generally at the northern and southern oblasts of the country, we can see from Figure 3.2, that absolute poverty is high in the southern oblasts both in the urban and rural sectors.[17] Over half the residents in these two areas live in absolute poverty. The rural areas in northern areas are also

[17] The three southern oblasts are Batken, Osh, and Jalalabat oblasts. Northern oblasts are Chui, Issykul, Talas, Naryn and the city of Bishkek.

poor though to a somewhat lesser degree at 47 percent of the population. Northern urban areas have the lowest poverty rates of 29 percent.

Table 3.3: Oblast Poverty Rates for 2003

(in percent)

Oblast	Share of popul. in oblast	Share of all poor in oblast	Headcount Index			Poverty Gap	Poverty Severity
			National	Rural	Urban	National	National
Northern oblasts							
Bishkek	15	7	23	…	23	5	2
Chui oblast	15	8	28	29	22	7	3
Issykkul oblast	8	9	52	62	27	14	5
Naryn oblast	5	8	72	75	59	24	11
Talas oblast	4	5	55	52	70	17	7
Southern oblasts							
Batken oblast	8	14	85	90	70	29	12
Jalalabat oblast	19	21	58	56	63	17	6
Osh oblast	25	28	56	61	42	18	7
Kyrgyz Republic	100	100	50	57	36	15	6

Source: KIHS 2003.

3.14 As shown in Table 3.3, regional and intraregional poverty disparities are significant in the Kyrgyz Republic. The headcount index of the Chui oblast, the second richest administrative area after Bishkek, and the poorest Batken oblast differs from each other by over a multiple of three. Batken oblast has the worst situation with poverty incidence in rural area where nine out of ten persons are poor. Batken also shares the lowest ranking position with Talas oblast among urban regions, where two out of three persons live in poverty. While the poverty situation in Osh, Jalalabat, Talas and Issykkul oblasts can be classified as moderate, Batken and Naryn oblasts have the highest poverty level. There are two oblasts, Jalalabat and Talas, where urban poverty rate is higher than in rural areas.

3.15 The poverty gap and poverty severity indices in the high poverty oblasts of Naryn and Batken were the highest among all oblasts. Along with high level of poverty rate these indicators demonstrate that the consumption level of an average poor in these oblasts is far below from the poverty line and there is relatively higher inequality of consumption among the poor. The best situation is maintained in Bishkek and Chui oblast where poverty gap and severity are the lowest ones.

3.16 Sensitivity analysis shows that urban/rural and regional differences in poverty do not change with various poverty lines (Table 3.4). If poverty line would be shifted to 5-10 percent in both directions, percentage change in poverty rate for both urban and rural areas will be almost proportional. The fact that poverty is fairly deep implies that not many of poor are living close to the poverty line, and therefore, a shift of the poverty line to such extent will not significantly change the poverty situation in the Kyrgyz Republic.

Table 3.4: Sensitivity Analysis of Poverty to Changes in the Poverty Line

Change in poverty line	National	North-rural	North-urban	South-rural	South-urban
Decrease by 10%	43.2	40.3	19.4	58.2	45.0
Decrease by 5%	46.5	42.9	22.5	61.6	49.4
No change in poverty line	*49.9*	*47.9*	*25.9*	*63.7*	*53.8*
Increase by 5%	52.5	50.6	28.4	66.0	57.3
Increase by 10%	55.4	53.8	30.6	68.8	60.8

Source: KIHS 2003, consumption aggregate

C.2. Distribution and Inequality

3.17 Economic growth is pro-poor if the benefits of the growth are distributed evenly among the poor population. Countries with high inequality of income (consumption) tend to have higher rates of poverty. Indicators that capture inequality are distribution of expenditures for consumption by deciles and Gini coefficient, which are presented in Tables 3.5 and 3.6. Distribution of expenditures shows that the poorest 20 percent of the population account for only 9 percent of total consumption whereas the richest 20 percent control 39 percent. Thus, the consumption of the richest 20 percent of population is 4.4 times higher than of the poorest one fifth of the population. If we look on mean consumption by deciles in monetary term, the lowest decile group's consumption is about 4 thousand soms, whereas the top group spends 25 thousand soms annually. In average, every defile group's consumption is for 24 percent higher than of previous group.

Table 3.5: Share of Total Consumption by Consumption Decile Groups

Consumption Decile	Percent of Total	Cumulative Percentage of Total	Average annual consumption, in soms
1	3.8	3.8	3,966
2	5.0	8.7	5,300
3	5.7	14.5	6,084
4	6.5	21.0	6,900
5	7.7	28.7	8,131
6	9.0	37.7	9,553
7	10.8	48.5	11,402
8	12.7	61.2	13,500
9	14.9	76.1	15,830
10	23.9	100.0	25,290

Source: KIHS 2003, consumption aggregate

3.18 The Gini index for consumption in the Kyrgyz Republic for 2003 was about 30.8 percent. Expenditures are most unequally distributed in Talas oblast and Bishkek. Rural areas have in general less inequality, than urban areas. Within oblasts, consumption inequality situation is better in comparison to national Gini coefficient. Among rural areas the higher consumption inequalities demonstrate Jalalabat and Chuy oblasts, whereas among urban areas Talas oblast and Bishkek are the worst cases. It turns out that the poorer the oblast the less consumption inequality it tends to have.

Table 3.6: Inequality Measure: Gini Index

	Gini index		
Oblast	National	Rural	Urban
Bishkek	29.2		29.2
Issykkul oblast	28.6	24.4	28.6
Jalalabat oblast	28.7	29.4	23.4
Naryn oblast	24.1	23.1	26.7
Batken oblast	22.0	18.7	27.3
Osh oblast	26.1	26.2	24.4
Talas oblast	29.9	25.0	30.1
Chui oblast	28.7	29.3	26.3
National	**30.8**	**29.6**	**30.2**

Source: KIHS 2003, consumption aggregate

B. International Comparisons

3.19 International comparison of poverty rates of the Kyrgyz Republic is made using a fixed poverty line, for example the well-known "$2 per day" poverty estimates. In this approach, the poverty line of $2.15 per day is converted into local current units, using the purchasing power parity (PPP) conversion factor. This conversion is defined as the number of units of a country's currency required to purchase the same amount of goods and services in that country as compared with another. The 2000 PPP conversion factor for 2003 is taken from the WDI database.

Table 3.7: Poverty Rates in 2003 Using International Lines [1]

Poverty line in $ PPP	Poverty line (soms/day/capita)	Poverty rate (%)
$1.075/day/capita	10.1	3.1
$2.15/day/capita	20.3	40.1
$4.30/day/capita	40.6	81.2

1. 2000 PPP conversion factor for 2003 is 9.43. The value of the poverty lines in local currency is calculated by applying the conversion factor.

3.20 Table 3.7 shows the international lines converted into Kyrgyz soms and the corresponding poverty rates. Table 3.8 presents comparisons of poverty incidence based on $2.15 per day for a select group of countries in the region. Overall, for this set of countries, the share of the population that are poor by the $2.15 per day standard is relatively high. The distribution of consumption as measured by the Gini coefficient is one of the low among this group. Kyrgyz Republic had less share of the population living below $2.15 per day in comparison to Tajikistan and Uzbekistan, countries with comparable income level. Among other countries with recent poverty estimates, Russia and Kazakhstan have lower poverty rates compared to other countries in the region that may be due to both the higher income level of these countries.

Table 3.8: Absolute Poverty Rates and GDP Growth in Selected ECA Countries 1/

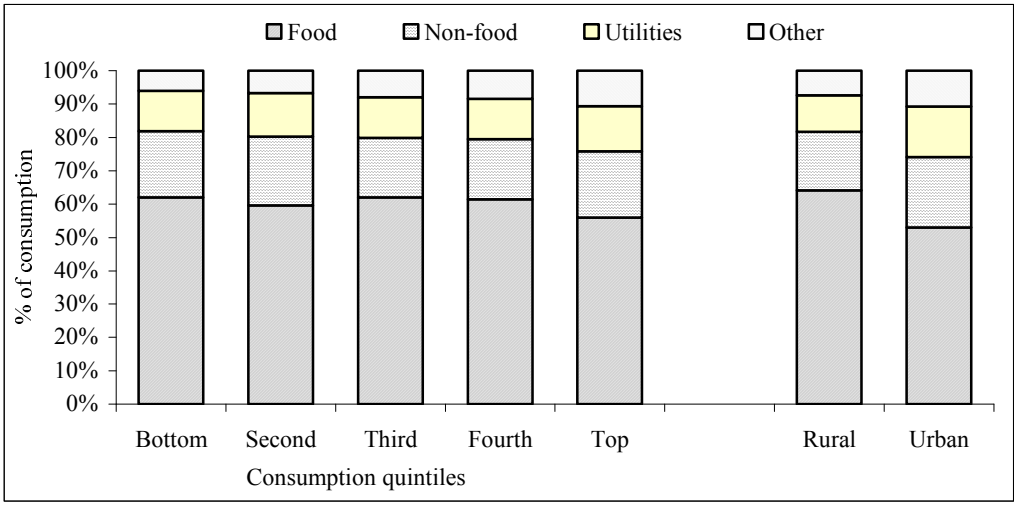
	Percent $2.15/day	Gini Index	Income share held by poorest 10 percent	Average real GDP growth 1995-2003	GNI per capita, 2003 (PPP)
Armenia (1998)	49.0	37.9	2.6	7.7	3,790
Azerbaijan (2001)	33.4	36.5	3.1	6.2	3,390
Georgia (2001)	15.7	36.9	2.3	5.9	2,610
Kazakhstan (2003)	24.9	32.3	3.2	4.1	6,280
Kyrgyz Republic (2003)	**40.1**	**30.8**	**3.8**	**3.9**	**1,690**
Russia (2002)	7.5	31.0	3.3	2.4	8,950
Tajikistan (2003)	42.8	32.6	3.3	2.2	1,040
Turkmenistan (1998)	44.0	40.8	2.6	8.2	5,860
Uzbekistan (2000)	71.7	26.8	3.6	3.5	1,720

1. Survey year used to compute poverty rate and Gini coefficient is in parentheses.
Source: KIHS 2003 and World Bank DDP data.

C. Consumption Patterns

3.21 The aggregate shares of the components in total household consumption are reported in Figure 3.3. The share of food consumption in total household consumption exceeds 50 percent for all groups. As would be expected, poor households spend proportionally more on food and the share of food in consumption decreases among the wealthier households, though the share of expenditures for food is not strikingly large. Food share is basically what is produced at home[18]. Non-food commodities take almost universal proportion of household expenditures among all groups, which is about 20 percent in the total consumption. Utilities represent another important expenditure for all households, taking also by and large about 13 percent of the total consumption.

Figure 3. 3: Structure of Household Consumption (Percent)



Source: KIHS 2003

3.22 Though some differences in consumption patterns between rural and urban areas exist, they are not so large. As expected, rural households spend more on food which takes almost two third of expenditures for food, whereas urban areas spend 53 percent. Rural households spend relatively less on non-food items, utilities and other services. This consumption pattern of rural households may be explained by fact that most poor live in rural areas, thus spending more money on basic necessities as

[18] A share of food eaten out is not shown because it takes at maximum 5 percent of all food expenditures

food, and with inherent lack of services in rural areas as central heating, hot water, sewerage and waste disposal, and telephone.

D. Housing Characteristics and Access to Public Transport

3.23 Access and affordability of utilities and housing features impacts the quality of life and the non-monetary aspects of well-being. The income level of households and location in rural/urban areas directly correlates with the access to various utilities and housing conditions, except electricity, which is universally available (though unreliable in rural area) (Table 3.9).

3.24 For illustration, while only 6 percent of a bottom quintile has access to central heating, a half of the top quintile reports such access. The pattern is similar for all listed types of utilities. Among important striking differences between quintile groups should be named a low access to clean water of the poorest (40 percent do not have such access), compared to 95 percent of the richest in the top quintile. Telephone service is available only for 7 percent of the poorest, whereas a half of the richest quintile has access to telephones. Only 3 percent of households in the bottom quintile have access to the hot water supply, while a third of richest quintile has such service. Electricity is available universally, but interruptions are more frequent in poorer quintile groups. Gap in access to public transport is not so large among first four quintiles.

Table 3.9: Housing features and utilities, access to public transport

	Bottom	Second	Third	Fourth	Top	Rural	Urban	All
Central heating	5.6	8.1	19.3	27.0	48.3	4.0	55.7	26.4
Pipeline gas	4.2	10.9	18.0	26.4	45.6	3.5	54.2	25.5
Telephone	6.8	12.9	21.5	30.0	48.6	11.7	50.4	28.5
Sewerage	9.1	12.0	26.4	36.3	60.9	7.6	70.2	34.7
Bath/Shower	6.1	8.6	20.3	28.3	44.3	2.8	55.9	25.8
Electricity interruptions once per week and more	58.0	45.2	45.3	29.2	18.4	49.2	16.7	35.1
Access to clean water	60.2	70.3	81.5	82.3	94.5	67.3	99.2	81.1
Hot water	2.7	4.7	12.0	17.6	32.9	0.8	39.0	17.3
Distance to public transport station: >15 min to reach	26.8	22.7	21.5	20.8	9.0	26.3	8.0	18.4

Source: calculations using KIHS 2003

3.25 Rural/urban dimension presents striking difference in access to utilities. While some utilities such as central heating, sewerage and hot water are rarely provided in rural areas, the low access to clean water source and telecommunication is a worrying signal. At best 12 percent of rural households have access to telephone, compared to 50 percent in urban. Only two third of rural households have access to clean water source, while in urban areas this service is universal. Gas supply is provided only for 3.5 percent of households in rural area. Half of rural households have to deal with electricity interruptions more frequently than once in a week, while in urban area 17 percent of households have such problems in service.

E. Household Characteristics

3.26 Poor households differ from less poor households in several aspects of households composition and the characteristics of the household head. For example, they tend to be larger and have more and younger children and thus more dependents. Table 3.10 presents some household characteristics, for all households, by households headed by females versus males, and for the poorest and richest quintiles.

3.27 The statistics show following. The poorest of the population reside in larger households. People in households in the bottom quintile have 6.1 household members while those in the top group have 2.6 household members on average. A large part of this difference is driven by a higher average number of children and prime-age adults in poorer households, whereas the number of elderly is not different across quintiles. In the bottom quintile, the number of children among the poor is 2.8 per household compared to 0.7 among those in the richest households. Families with young children are also disproportionately represented in the lower quintiles. Sixty percent of the population in the lowest quintile have at least one small child in the household, whereas only 13 percent of the wealthiest have young children.

Table 3.10: Household characteristics of population, by expenditure quintile and head's gender

Household characteristics	All Households		Female-headed households		Male-headed households	
	Bottom quintile	Top quintile	Bottom quintile	Top quintile	Bottom quintile	Top quintile
Household size	6.1	2.6	5.3	2.0	6.3	3.2
Headed by females (%)	22.6	45.6				
Age of household head	47.8	49.3	55.7	52.2	45.5	47.0
Average number of children[1]	2.8	0.7	2.2	0.4	3.0	0.8
Average number of prime-age adults[2]	2.9	1.6	2.6	1.1	3.0	1.9
Average number of elderly	0.3	0.4	0.5	0.4	0.3	0.4
Household with no prime-age adult (%)	0.5	18.7	0.2	26.4	0.6	12.3
Dependency ratio among households with any prime-age adults	1.1	0.7	1.0	0.8	1.1	0.6
Households with children <6 years (%)	60.0	12.8	50.2	5.9	62.9	18.6

1. 0-17 years. 2. 18-56 years for women and 18-61 for men. 3. 57+ years for women and 62+ years for men.
Source: calculations using KIHS 2003

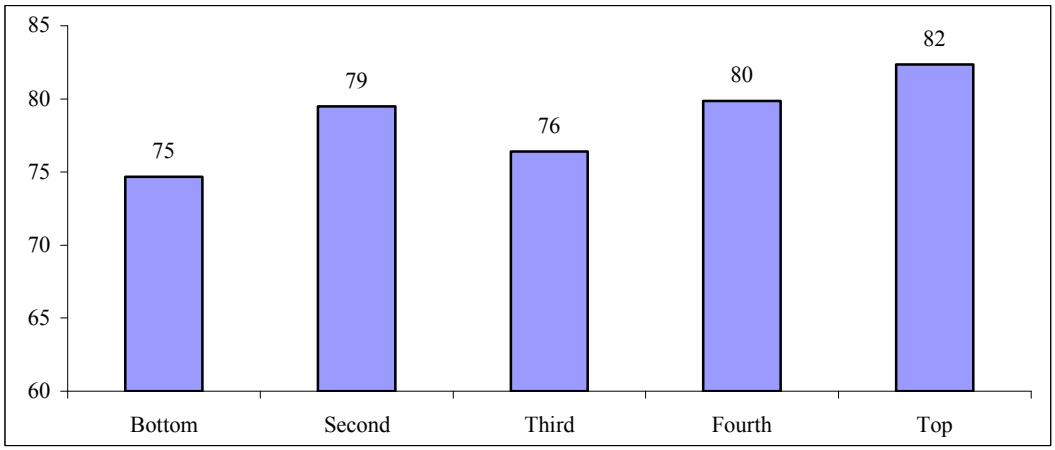
3.28 As a consequence, standard dependency ratios are also lower for the wealthiest households. The dependency ratio indicates the number of household members who depend on prime-age adults (18-59). Among households in the top quintile, on average, each prime-age adult resides with 0.7 persons below 18 or above pension age; in the lowest quintile this ratio is 1.1. In other words, poor households have relatively less income generating members and more net consumers, than other households – which of course is an important factor in reducing per capita consumption.

3.29 The lower prevalence of female-headed households among the poorest quintiles appears to be related to demographic and location factors. Female-headed households tend to be smaller than male-headed households. Second, female-heads of households are older and less likely to have young children.

F. Access to Education and Health

3.30 Overall levels of education in the Kyrgyz Republic are quite high, reflecting historically high levels of investment in education, and almost no prime-age adults have never attended school. Nevertheless, consistent with international experience, education levels are lower in poorer households, although the discrepancy between the poor and the non-poor is perhaps not as important as in some other countries. Individuals in wealthier households are more likely to have attended secondary schooling or beyond, compared to the population in the poorest quintile (Figure 3.4). Only 3 percent of the prime age adults in the poorest quintile have higher education, compared to 25 percent for the top quintile.

Figure 3.4: Percentage of Prime Age Adults with Secondary Schooling and Higher, by Consumption Quintiles 1/



1. People aged 16-60 with at least general secondary or secondary vocational training. Source: KIHS 2003

3.31 Table 2.16 reports the gross enrollment rate for children aged 7 to 15 years. Generally, children living in richer households tend to have better enrolled in school than in poorer households, though the differences among groups are not very significant. If we take all children not attending school, 54 percent of the children will belong to the first two poorest quintile groups, while the richest group will have 9 percent from the total amount. This, poorer households tend to have more reasons to not let children go for school. They name lack of money to finance the basic necessities for school, children from poor families have fewer incentives to study, and they are more prone to diseases[19]. Most households preferred to not provide explicitly the reasons of not attending as Table 3.11 demonstrates, but as the study on child poverty[20] points out, reasons of not attending are inabilities of poor households to provide basic school necessities for children and pay required fees. The report also references to the UNICEF study, which discovered the higher non-attendance and drop out rates in areas where there is paid employment opportunities for children.

Table 3.11: School Enrollment Rate and Access to Schools

	Consumption quintile					Location		
	Bottom	Second	Third	Fourth	Top	Rural	Urban	Total
School enrollment rate	88.4	91.9	92.3	91.5	94.3	91.3	91.7	91.4
Distribution of kids not attending school by quintiles, %	30.0	23.7	19.0	18.4	9.0	70.1	29.9	100.0
Reasons of not attending								
Too expensive	4.0	2.2	0.9	0.0	12.2	3.6	1.6	3.0
No wish to study	2.1	3.4	0.6	1.6	0.0	1.7	2.1	1.8
Sickness	4.2	8.9	2.8	4.7	5.3	5.2	5.4	5.2
Other reasons	89.7	85.5	95.6	93.7	82.5	89.5	90.9	89.9

Source: KIHS 2003

3.32 Regarding health facility access, the differences between poor and rich households are not very significant. Information about distance to medical facilities was not available from the survey, so the

[19] Results of non-attendance reasons should be considered carefully, because of high sampling errors

[20] J.Falkingham and Sh.Ibragimova, 'Children in Transition: Child Poverty in the Kyrgyz Republic', CHIP, 2004

indicators as 'need for medical assistance for last 30 days', 'need for hospital treatment in last year' and 'refusal to provide medical services' were taken. It looks like health services are widely available for population, but the cost of services may be serious obstacle. Percentage of people needed for hospital treatment, but who didn't go do not exceeded 5 percent at top quintile group. The poor tend to use actively hospital services and only 2 percent from the poorest quintile reported they had to refrain from going to treatment. More illustrative picture presents the measure 'need for treatment for last 30 days'. Top richest group has 11 percent of people who did not use medical services, while for the poorest group it is 5 percent. People do not go for doctors, because 60 percent of tem treat themselves using usual and herbal medicines, and the richer the household the more they would like to conduct self-treatment (Table 3.12). In 25 percent of cases refusal was related to financial difficulties, and it tends top be more characteristic for rural households.

Table 3.12: Access to Medical Facilities

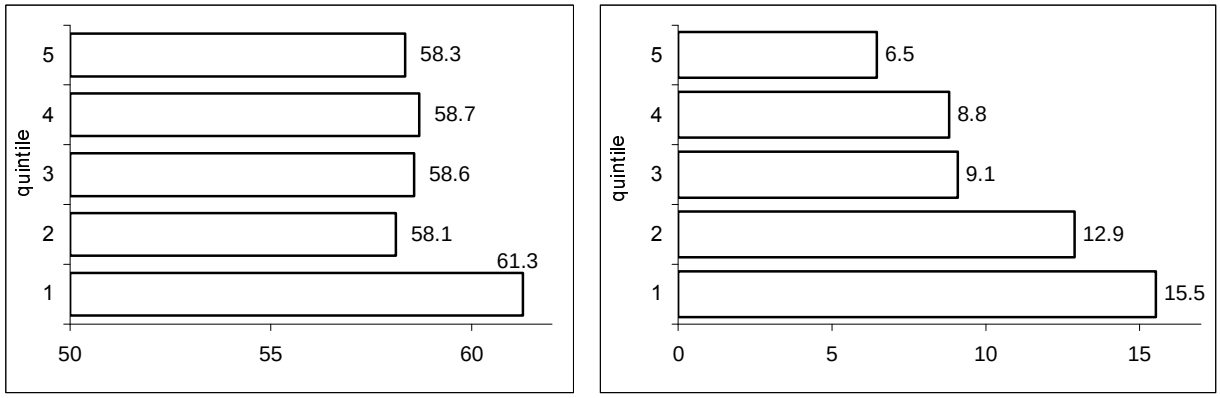
	Consumption quintile					Location		
	Bottom	Second	Third	Fourth	Top	Rural	Urban	Total
Needed hospital assistance for last year, but not requested	2.1	2.4	3.6	4.9	5.0	3.6	3.6	3.6
Have you ever been refused from getting medical service?	0.8	1.6	1.4	1.0	1.0	1.3	0.9	1.2
Needed medical assistance for last 30 days, but not requested	4.9	6.6	6.8	9.1	12.9	6.7	10.7	8.1
Reasons of not requesting, % within quintile group or location								
Self medicated using herbs and medicines	47	60	62	62	64	53	69	60
Believed that problem would go away	20	16	9	10	8	14	9	11
Too expensive	12	3	11	9	12	12	7	10
No money was available	18	19	15	14	12	17	12	15
Other reasons	2	3	3	5	4	4	3	4

Source: KIHS 2003

G. Labor Force Participation and Unemployment

3.33 As an analysis of income sources demonstrates labor income is the most important item for the households' consumption. Below, the labor force participation rate is defined as the percent of prime-age adults (15 years and higher) either employed or unemployed. The unemployed are defined as those without a job who searched for a job and ready to start working within 2 weeks if offered a job. The unemployment rate is the share of the labor force that is unemployed. Since the KIHS is a quarterly survey, there is quarterly labor force and unemployment information available. The information here is drawn from the fourth quarter household interview conducted in 2003.

Figure 3.5: Labor Force Participation Rates, percent (left), and Unemployment Rates, percent (right), by Consumption Quintiles



Source: KIHS 2003

3.34 The connection between employment and poverty is not so strong in the Kyrgyz Republic: the poor are equally likely to be economically active, though they are more likely to be unemployed. As can be seen in Figure 3.5 the poorest quintile has the highest participation rates of all expenditure groups, while other groups have very similar ratio of participation rate. Unemployment rate is evidently higher among poorer households. The poorest quintile of prime-age adults have an unemployment rate of 15.5 percent, which is much higher than the national average (9.9 percent) and more than two times that of the top expenditure quintile (6.1 percent). There is no large rural/urban difference between the poor and non-poor in terms of economic activity, but unemployment rates of the poor are twice higher than of non-poor universally in rural and urban areas.

Table 3.13: Labor Force Participation and Unemployment Rates

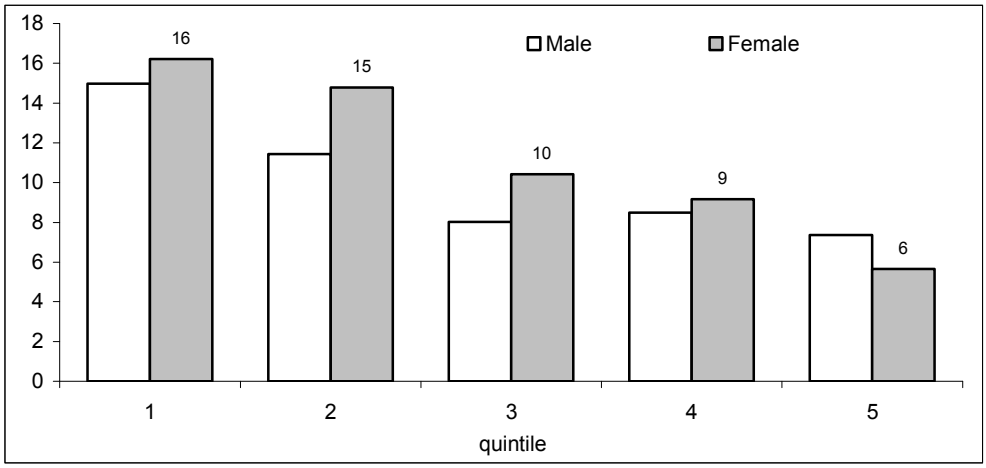
	Participation Rates		Unemployment Rates	
Oblast	**Poor**	**Non-Poor**	**Poor**	**Non-Poor**
Bishkek	54.8	61.9	10.1	5.3
Issyk-Kul oblast	60.3	57.9	10.1	7.5
Jalal-Abad oblast	57.1	52.4	22.0	6.8
Naryn oblast	54.9	60.2	7.5	7.2
Batken oblast	63.3	61.0	16.2	6.0
Osh oblast	60.7	62.0	6.0	4.2
Talas oblast	54.7	57.8	5.4	5.2
Chui oblast	54.3	58.7	32.7	13.9
Rural	54.9	60.4	13.1	7.6
Urban	60.3	58.2	13.7	7.1
National	58.6	59.2	13.8	7.4

Source: KIHS 2003

3.35 Table 3.13 confirms the similarity of pattern on labor participation and unemployment rate on oblast level. There is no real distinction among the poor and non-poor who is economically active. While low participation rate might be expected in oblasts with high poverty rates, it is not the case. However, unemployment rate among oblasts shows that the poor are more likely to be unemployed than non-poor. A very unexpected result appeared for the Chui oblast, the second richest oblast after Bishkek, where a third of poor and 15 percent of non-poor were unemployed.

3.36 Figure 3.6 shows unemployment rates for men and women, for each consumption quintile. It is important to note that (i) unemployment rates are higher for women than for men, excluding the top quintile group, (ii) unemployment rates are highest for both men and women who belong to poorer households, and (iii) the gender gap – i.e. the discrepancy between female and male unemployment rates - is largest for the second and middle quintiles. Thus in general, poor women are the group who has the hardest time finding a job in the labor market.

Figure 3.6: Unemployment Rates (%), Men and Women, by Consumption Quintiles



Source: KIHS 2003

H. Employment Sector and Poverty Incidence

3.37 This section explores the link between poverty development and growth rate in various sectors of the Kyrgyz economy in 2000/2003 period. In comparison to aggregate analysis of the economic growth and its impact to poverty, this detailed analysis sheds more light on significance of each sector growth into poverty decline in recent years. This type of analysis became possible starting from 2002 HBS, and KIHS 2003 also has such information in its large section devoted to employment issues[21].

3.38 Table 3.14 presents poverty rate for population employed in agriculture, industry and services sectors, as well as for unemployed and inactive population[22]. The immediate conclusion is that those who employed in the services sector, benefited mostly from sustainable high growth in this sector in these two years. Poverty rate of employed in this labor intensive sector (41 percent of labor force involved in this sector) declined from 41 percent in 2002 to 34.7 percent in 2003. Poverty rate of population employed in industry sector declined modestly in this period, though the highest growth rate was registered exactly in the industry sector. This is partly can be explained by the fact that only 14 percent of the work force is employed in this sector, based on KIHS.

[21] Statistics on employment in certain sectors is consistent in both surveys, but the classification of unemployed and inactive population is different.

[22] Poverty headcounts for 2002 and 2003 are based on different poverty lines.

Table 3.14: Sectoral Growth and Poverty Incidence

	Real Growth Rate, %		Poverty Headcount, %	
	2002	2003	2002	2003
Employed in:				
Agriculture, hunting, forestry	3.0	3.2	64.8	56.4
Industry	-9.0	12.7	36.6	34.3
Services	4.4	7.3	40.9	34.7
Unemployed			51.0	60.3
Inactive			65.2	53.0
Total	**0.0**	**7.0**	**56.1**	**49.9**

Source: HBS 2002, KIHS 2003, weighted data

3.39 Agriculture growth was in average lower in comparison to industry and services sectors in 2002/2003. Nevertheless, the decline in poverty rate from 65 percent to 56 percent[23] in this sector was impressive, and is compared to poverty development of employed in services sector. Agriculture employs 35 percent of the work force and the decline of poverty in this sector is more remarkable because large share of inactive also reside in rural areas. It could be confirmed with similar development of poverty rate of inactive population, though this and unemployment category are not comparable among two surveys. Nevertheless, **agriculture sector remains to have the highest incidence of poverty** and being employed in this sector does not increase chances of escaping from poverty for more than half of population involved in agriculture.

3.40 Table 3.15 presents the poverty rate for detailed breakdown of industry and services sectors, but these results should be considered carefully because of low size of sample for some items. Main observations are that within industry sector higher risks of being in poverty have those who employed in construction. In the services sector we observe unexpected high poverty rate of those who employed in trade and catering, whereas those who employed in healthcare and education (and believed to have poor living standards) have slightly lower poverty rate than average for the services sector. Data shortage also may result in the abrupt development of poverty rate in the financial intermediation sector, in which ratio of poor people declined more than twice. This kind of analysis using 2003 and 2004 KIHS data could shed more light into anomalies we see from comparison of two different surveys.

[23] HBS 2003 produces very similar result: in 2003 poverty rate of employed in agriculture was 57 percent.

Table 3.15: Poverty Rates within Sectors and Mean Consumption

	Poverty Headcount, %	
	2002	2003
Employed in:		
Agriculture, hunting, forestry	64.8	56.4
Industry	36.6	34.3
Mining and manufacturing	25.6	26.3
Gas, electricity, water	39.9	30.0
Construction	45.2	49.0
Services	40.9	34.7
Trade and catering	50.1	40.0
Transport and communication	36.8	37.2
Financial intermediation	57.4	23.6
Real estate	30.4	18.2
Public administration	26.2	28.0
Education	41.9	34.0
Healthcare	47.8	30.0
Other services	39.9	32.1
Unemployed	51.0	60.3
Inactive	65.2	53.0
Total	**56.1**	**49.9**

Source: HBS 2002, KIHS 2003

I. Income Sources

3.41 The reliance of households on different income sources is presented in Tables 3.16 and 3.17. While there are no large differences in the patterns of income sources between different consumption groups, the difference between urban and rural areas in the reliance on income sources is very significant for some items.

3.42 Income earned (salary and self-employment, seasonal and additional earnings) is the most prevalent source of household income and the most important based on share of total income on average. There is no large difference in the share of income earned between the poorest and the richest quintiles; though there is visible difference in rural/urban dimension, where urban households rely more on this item.

Table 3.16: Percent of households with income by source, consumption quintile and region

	Consumption Quintile					Location		
Source of Income	Bottom	Second	Third	Fourth	Top	Rural	Urban	Total
Income Earned	80.2	86.5	82.8	81.9	78.0	78.6	84.8	81.3
Pensions	36.4	33.3	42.2	40.2	36.3	41.0	33.6	37.8
Sale of Property	7.5	9.9	8.6	8.0	8.8	9.0	8.1	8.6
Social Transfers	52.1	41.8	41.7	41.5	49.2	35.2	58.8	45.4
Private Transfers	51.6	37.3	52.1	47.6	51.8	46.1	52.0	48.6
Other Income	21.4	19.0	14.4	17.7	17.2	22.4	11.4	17.6

Source: KIHS 2003

Table 3.17: Share of Total Household Income by Source, by Expenditure Quintile and Region

	Consumption Quintile					Location		
Source of Income	Bottom	Second	Third	Fourth	Top	Rural	Urban	Total
Income Earned	58.2	67.5	62.8	68.2	62.6	58.7	68.2	64.1
Pensions	16.7	13.2	15.6	13.4	12.1	17.5	10.4	13.5
Sale of Property	2.5	4.2	7.5	5.6	8.4	4.8	8.0	6.6
Social Transfers	5.7	2.8	1.4	0.8	0.6	2.5	0.7	1.5
Private Transfers	13.0	8.8	9.6	7.9	11.9	10.4	10.3	10.3
Other income	3.9	3.6	3.0	4.0	4.5	6.1	2.4	4.0
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

Source: KIHS 2003

3.43 Pensions are the second main source of income, accounting for 13.5 percent of households' income in average. Pensions are more important source of income for poorer households, though in monetary terms an average size of pensions in the top quintile is 1.6 times higher than in the poorest quintile. There is no such difference in the size of pensions among rural and urban households, though this item plays more important role for rural households.

3.44 Private transfers, a common form of mutual economic contribution of population, played serious role in total households' income being a third large item. Private transfers tend to be more important among poor households where it is 13 percent of total income, but as in the case with pensions the average size of private transfers received of the richest quintile group almost twice higher than of the poorest quintile group. This disproportion may be explained by fact that wealthier households receive more transfers abroad than poorer ones because of better human capital of richer households and more opportunities of working abroad.

3.45 Social transfers are more prevalent among poorer households, however, and, in terms of share of total income, they are also more important for the lower quintiles. In monetary terms the average size of social transfers are largest for poor households and smaller for richer households, suggesting that social programs are targeting the poorer households. Table 13 also shows that rural households (which tend to be poorer) receive more social transfers than urban, but fairly less private transfers.

J. Public Safety Nets

3.46 As noted in the Kyrgyz Poverty Assessment (2003), there are numerous social protection programs in the Kyrgyz Republic aimed to reduce poverty and vulnerability. These programs are performed through social insurance and social assistance schemes, as well as through quasi-fiscal transfers associated with the low price of electricity. In total, public expenditures for social protection without quasi-fiscal transfers, accounted for 7.1 percent to GDP in 2003, of which expenditures for pensions were equivalent to 4.9 percent.

3.47 The social insurance system consists of pensions, sickness/maternity and other benefits. The social assistance system includes number of cash benefits, subsidies and privileges, among which unified monthly benefits (UMB) for poor families and privileges for certain categories is the large one.

3.48 **Pensions represent the most important social protection item**, covering about 36 percent of population (including members of pensioners' households). As it was noted in previous section, pensions are very important source of income for all consumption groups, accounting higher share of income for poorer households. Other benefits reach almost a quarter of population, but the size of transfers is very

small in comparison to other items. UMB also covers great number of people and as follows from the Table 3.18, this item is really oriented to aid poor households.

Table 3.18: Coverage of the Social Protection Programs, 2003

	Program Participation Percent	Mean Benefit Per Recipient HH, soms/year	Coeff.of Variation
Pension	36.2%	8,546	4.1
Scholarship	2.5%	1,382	4.0
Other Social Insurance	8.8%	1,130	1.6
Unified Monthly Benefit	17.6%	1,646	1.5
Unemployment Benefit	0.4%	1,670	9.2
Other Benefits	23.0%	190	0.2

Source: KIHS 2003, weighted data

3.49 Table 3.19 presents significance of social benefits for households as a source of income. Pensions are very important source for receiving households by accounting 39 percent of all income[24]. This share is universal for most consumption groups, though the richest quintile group is more dependent on pensions, by having 43 percent of total income in form of pensions. Unified monthly benefits and unemployment benefits also play notable role as income source and this benefit is mostly directed to poor quintile groups. All the social protection items, but pensions, are relatively more important for poor households than for non-poor.

Table 3.19: Significance of social protection income by consumption quintiles, 2003

	Consumption Quintile					Poverty Status		
	Bottom	Second	Third	Fourth	Top	Poor	Non-Poor	Total
Pension	39.0	37.8	35.9	34.9	43.8	37.2	39.6	38.8
Scholarship	11.6	6.2	2.3	3.9	3.9	8.1	3.7	4.4
Other Social Insurance	10.4	4.6	3.6	4.2	3.7	6.1	4.0	5.1
Unified Monthly Benefit	11.6	10.1	8.0	4.6	5.5	10.5	6.2	9.0
Unemployment Benefit	10.7	22.1	3.5	7.9	1.8	10.7	4.2	6.5
Other Benefits	1.0	0.8	0.7	0.6	0.4	0.7	0.5	0.5
All Social Benefits	**28.8**	**25.3**	**24.7**	**20.2**	**16.6**	**26.1**	**18.5**	**20.6**

Source: KIHS 2003, weighted data

3.50 **Special anti-poverty programs are effectively directed to the poor, while more important social benefits, such pensions, go mostly for non-poor households.** Table 3.20 shows distribution of social assistance income among consumption quintile groups, as well as on poor/non-poor and rural/urban dimensions. Three items, pension, scholarship and the special benefits, are indifferent in addressing the poverty issue, about two third of these benefits go for richer households. Other types of assistance have pro-poor character, though the size of these aid is far low than of pensions. If we compare distribution of social assistance items on rural/urban dimension, we see that rural households receive most of the UMBs and other social assistance, while all the rest benefits are given to urban households.

[24] Only those households, which receive pensions, were taken into account

Table 3.20: Shares of social assistance income captured by consumption groups

	Consumption Quintile					Poverty Status		Location	
	Bottom	Second	Third	Fourth	Top	Poor	Non-Poor	Rural	Urban
Pension	11.6	15.4	21.5	21.6	29.9	39.9	60.1	38.5	61.5
Scholarship	17.2	14.3	12.2	18.7	37.7	39.7	60.3	26.0	74.0
Other Social Insurance	40.8	18.5	14.0	10.8	15.8	66.2	33.8	59.6	40.4
Unified Monthly Benefit	40.6	27.2	20.7	8.4	3.2	77.6	22.4	74.3	25.7
Unemployment Benefit	34.0	22.6	12.4	25.6	5.4	62.3	37.7	13.2	86.8
Other Benefits	9.2	9.9	20.6	23.4	37.0	30.3	69.7	22.8	77.2

Source: KIHS 2003, unweighted data

K. Correlates of Poverty

3.51 Table 3.21 presents the estimates of the relationship between per capita consumption and a key set of household characteristics, using OLS regression. Generally, the set of key household characteristics are highly significant. The regression uses log of per capita consumption, which means that the coefficients of the regression can be interpreted as partial effects measured in percentage terms. For example, the coefficient for female-headed households is -0.065, which means that, holding all other variables constant, a female-headed household has six and half percent less consumption per capita than a male-headed household.

3.52 As would be expected, households whose head is not employed have lower consumption levels in comparison of employed heads, which is about 9 percent lower both in urban and rural areas. Vocational secondary[25] and university degree are associated with significantly higher consumption in both urban and rural households. The lower consumption of those who have general secondary education in comparison of those with only basic secondary education is misleading one, since the latter category of households tend to be multigenerational ones, where the oldest member, who have basic education and not necessarily income earner, is entitled as a head of household. This could be confirmed by the fact that the average age of household heads with basic secondary education is 69.6 years, whereas those with general secondary education are in age of 44.5 years.

3.53 Households with pension income have higher consumption on national level and rural areas, but have less consumption in urban areas. Both in urban and rural areas receipt of some social benefits or private transfers is associated with lower consumption levels. It is a consequence of the fact that public social assistance programs, like UMB, target poor households and the monetary value of social benefits are far below the poverty line. Receiving the private transfers does not mean that aid goes in one way from richer to poorer households. About 50 percent of households in the sample are involved in private safety nets, so this item also affects expenditure part of households.

3.54 Access to any land and ownership of agro-culture equipment does not guarantee higher consumption - in opposite it is associated with lower consumption level. Negative correlation with land access is not related to entitlement - only about 3 percent of households rent land. Having livestock increases household consumption for a considerable extent.

3.55 Consumption in multigenerational households is higher than in others, and this impact is true both in the urban and rural population. Larger families and families with children have lower levels of consumption in both urban and rural areas. Living in Batken oblasts is associated with the consumption

[25] This item includes also those who has incomplete university education

level two times lower than in Bishkek. Also Jalalabat and Naryn oblasts have consumption equal to two third of Bishkek.

Table 3.21: Determinants of Household Consumption Per Capita

Variable	National	Rural	Urban
Constant	3.833 **	3.526 **	4.131 **
Characteristics of the household head			
Female	-0.065 **	-0.070 **	-0.080 **
Age	0.006 **	0.015 **	-0.005 **
Age Squared /100	-0.004 **	-0.011 **	0.005 **
Not working	-0.080 **	-0.089 **	-0.087 **
Education (*ref.cat.* : Basic Secondary)			
General Secondary	-0.002 **	0.010 **	0.021 **
Vocational Secondary or Uncompleted Higher	0.128 **	0.123 **	0.144 **
University and Higher	0.255 **	0.227 **	0.283 **
Household Income Sources			
Any pension	0.030 **	0.071 **	-0.027 **
Any private transfers	-0.029 **	-0.038 **	-0.034 **
Any social benefits	-0.065 **	-0.040 **	-0.027 **
Any land access			
Any land	-0.095 **	-0.116 **	-0.017 **
Any agro-equipment	-0.014 **	-0.009 **	-0.025 **
Any livestock	0.163 **	0.173 **	0.126 **
Demographic composition	0.000	0.000	0.000
Multi-generational household	0.013 **	-0.015 **	0.046 **
Number of household members	-0.107 **	-0.104 **	-0.118 **
Any children	-0.081 **	-0.053 **	-0.120 **
Oblast			
Bishkek	*Ref. Cat.*	*Ref. Cat.*	*Ref. Cat.*
Issyk-Kul oblast	-0.251 **	-0.358 **	0.009 **
Jalal-Abad oblast	-0.310 **	-0.260 **	-0.433 **
Naryn oblast	-0.385 **	-0.402 **	-0.308 **
Batken oblast	-0.516 **	-0.522 **	-0.475 **
Osh oblast	-0.250 **	-0.289 **	-0.083 **
Talas oblast	-0.262 **	-0.206 **	-0.500 **
Chui oblast	-0.034 **	*Ref. Cat.*	-0.057 **
R-squared	0.419	0.405	0.420
Number of households	4,760	1,882	2,878
F statistic	158,175	101,189	55,566

Notes: ** indicates significance at 1%; * at 5%. Dependent variable is the log (consumption per capita).

Source: KIHS 2003

L. Conclusions

3.56 In spite of the economic growth for the last decade, number of poor people remained high in the Kyrgyz Republic. Poverty levels in 2003 appear relatively high by regional standards, though inequality is reasonably low. Whether the growth in 2003 was pro-poor is not evident based on available data, since as it was discussed above, we cannot strictly compare data based on different household surveys. In addition, the poor appear not to have been left behind regarding access to health and education, both of which are crucial to improving the prospects of escaping poverty in the future.

3.57 2003 KIHS data confirmed some disturbing news, typical in previous years. First, there are considerable differences between oblasts: in some oblasts, poverty rates are 1.4-1.7 times higher than the national level, and in general rural households are poorer than those located in urban areas. What is striking is that the poverty in Batken and Naryn oblasts is deep and severe relatively to other oblasts. Second, there are important gaps between the poor and the non-poor in terms of access to infrastructure services, including water, gas, telephone, etc. Partly this result is driven by objective differences in style of living between rural and urban areas.

ANNEX 1: KYRGYZ INTEGRATED HOUSEHOLD SURVEY

The National Statistical Committee of the Kyrgyz Republic has introduced a new Integrated Household Survey of 5,100 households per quarter, one third of which is sampled each month. The new integrated survey began in February 2003 and has now been running for 18 months with data available for a full year. It is intended to provide a scientifically based platform for collecting household data and which will also meet the needs for poverty monitoring. The survey includes a labour force module that is consistent with an independent labour force survey undertaken in November 2002.

A. Consumption Aggregate and Components

1. Both income and expenditures of households were available in KIHS, but the preferred measure of welfare used for the analysis of poverty is consumption expenditure. There are several reasons for the decision of using consumption expenditure or more precisely consumption aggregate as a proxy for income of households and main welfare indicator of households. One of the main reasons is the factor of seasonality of the income distribution particularly for the agricultural households. Another reason is that the households are more open about their expenditures or consumption compared to the income.

2. The consumption aggregate constructed from the KIHS data set thus follows standard practices (Deaton, 1980; Deaton and Zaidi, 1999).

- **Food consumption**. Food consumption includes expenditures on food, estimated value of consumption of home-produced and received as a gift food. For non-purchased food (either own-produced or received as a gift or payment), only information on quantities was collected. In order to compute the value of this food, local prices were applied to get an estimate of the values of non-purchased items. If the survey prices were not available on local level, the prices were taken from the next level.

- **Consumption of non-food items**. Consumption of non-food items includes expenditures on clothing, utilities, services, personal care and hygiene items, communication and transportation and other non-food expenditures.

- **Expenditures on durable goods**. The expenditures on durable goods are excluded from the consumption aggregate. Inclusion of the value of purchase in the main welfare indicator variable can make some distortion in the households ranking and poverty profile. However the expenditures on semi durable goods are included into the consumption aggregates. The current user value of the durable goods owned by the HH is imputed using regression technique and it is included in the consumption aggregate. The information on the reported by HH current user value (implicit user value) and the age of each durable item owned by a household is used as an explanatory variables in the regression equation. Separate semi log form regression was run for each durable goods to get the formula for imputation of predicted user value of durable goods.

- **Housing rents**. *Explicit Housing rents.* The housing rental market is not well developed in Kyrgyz Republic. This fact making it not possible to apply in a meaningful way hedonic housing regressions to derive the estimates of the rental value of housing (Imputed rents). The decision was made to exclude the housing rents from the consumption aggregate. The inclusion of housing

rents in the consumption aggregate would significantly overestimate the consumption of those renting in their dwelling, comparing to ones owning the dwelling.

B. Treatment of Household Consumption

3. **Adjustment by food price deflators**. The nominal consumption aggregate defined the way described in previous section was not used for the Poverty analysis. The nominal consumption of household first was deflated by the Food Price Paasche index which takes into consideration regional and Urban/Rural food price differences.

4. The NSC calculates CPI (Consumer Price Index) based on the prices in urban areas only in different regions of Kyrgyz Republic. Taking into account that the official CPI does not reflect the price differential on rural areas, the decisions was made to create the Price indices on Regional and Urban/Rural level based on survey data. The price index was created based on the food prices only, because the recall period of non food expenditures rather is short and not sufficient to get proper price indices for non food Items.

5. The food price index (FPI) for each transaction (purchase or consumption from own production) was calculated as a transaction price divide by national average price. Then the weighted average of FPI for each region was calculated . The weight was the «importance» of the product i.e. the total value of the products spent by all households.

6. The following table presents the normalized food price index for regions and urban / rural areas, when the county average FPI for survey period is estimated as 1.000.

Table A.1. Food Price Paasche index 2003

Kyrgyz Republic	1.000
Bishkek city	1.264
Issykkul - urban	0.915
Issykkul - rural	0.974
Jalalabat - urban	1.079
Jalalabat - rural	0.896
Naryn - urban	1.106
Naryn - rural	0.987
Batken - urban	0.925
Batken - rural	0.917
Osh - urban	0.992
Osh - rural	0.884
Talas - urban	1.139
Talas - rural	0.950
Chui - urban	0.978
Chui - rural	0.994
KIHS 2002 NSC Kyrgyz Republic, weighted	

7. The nominal food consumption of household was deflated by FPI using the following formula:

Deflated food consumption = Nominal food consumption / Food Paasche index.

The deflated consumption of household was defined by the following formula:

Total deflated consumption = Deflated food consumption + Nominal non-food consumption.

8. **Adjustment by HH size and composition**. The measure of well-being used, total household consumption aggregate, is collected at the household level, yet household consumption and expenditures need to be adjusted for household size. The per capita value of deflated consumption aggregate was used as a main welfare indicator of Household.

C. Construction of Cost of Basic Needs Based Poverty Line

9. The approach used here, constructs the poverty line using the cost-of-basic-needs approach. These basic steps are followed:

- Identify a reference group from which consumption patterns can be drawn. A fixed nominal expenditure level is used to define the reference group. Given that food costs appear to be similar across regions, setting one expenditure range to define the reference group will establish a similar living standard with regards to food across regions.

- Set the calorie requirements. The recommended calorie needs are estimated using the World Health Organization caloric requirements.

- Set the food poverty line by calculating the caloric value unit, which is the cost of each calorie the reference group consumes.

- Set the allowance for non-food goods. The non-food allowance is anchored to the consumption behavior of the poor within each sector. We employ two standards for calculating the non-food portion of the poverty line. For the complete poverty line, we estimate the nonfood amount based on households whose food expenditure is just equal or a little more to the food poverty line.

D. Food poverty line

10. We calculate the food poverty line as the cost to buying a diet of 2,100 calories per capita per day, given the food consumption patterns of households in a reference population (RP). For each food item *f*, a caloric content value, c^f, is assigned based on calorie tables produced by USDA (2002). There are 579 food and beverage items in the KIHS 2003 diary (not including alcoholic beverages and food eaten outside). For each food, the share of total calorie intake, S^f, is computed.

E. Choice of Reference population

11. The choice of reference population for the food poverty line is guided by the expectation that it will correspond approximately with the population of households near the poverty line – thus reflecting food consumption that is near the poverty line (reflecting a minimum food basket that is not "too" poor and not overly rich). The choice of the reference population is a normative judgment in the construction of a poverty line. Ideally, the reference group will be chosen so as to be consistent with the resulting poverty estimates based on behavioral parameters of the reference group. In theory, then, one must first approximate who are the poor to set the reference group and then calculate the poverty line. In some cases it is necessary to iterate until there is convergence, by revising the reference group

accordingly. In this analysis the reference population to set the food consumption pattern is the population of people in the third, forth and fifth deciles of the per capita consumption distribution among all individuals. The food basket of this group is meant to capture the food consumption patterns for a relevant, relatively low-income population.

F. Composition of Minimal Food Basket

12. Based on the consumption shares of this reference population, 2,100 calories per day is then allocated across the most important food items constituting 97% of total food consumption basket for this group. This resulted in using 95 food items out of 579 recorded in the food diary. This minimum calorie diet is then priced by mean national prices using the price-per-calorie (P^f/c^f) for each food item. The food poverty line is then computed as the total cost of this diet.

The food poverty line (FPL) can simply be expressed as:

$$FPL = \sum_f \frac{P^f}{c^f} S^f (2{,}100).$$

The prices for each food (P^f) are drawn from the national unit value prices calculated from the food diary.

Using this methodology, the Food poverty line for 2003 is calculated as 5,490 SOM per capita per year as needed to obtain 2,100 calories per day.

13. The following table presents the composition of minimal food basked derived from the consumption patterns of reference population.

Table A.2. Composition of minimal food basket

		Daily cost SOM	Annual cost SOM	Calories from group	Share by Value	Share by caloric value
Food basket total		15.04	5490	2100.0	1.00	1.00
Food groups	Bread and cereals	5.59	2039	1349.7	0.37	0.64
	Milk and dairy products	1.11	406	101.4	0.07	0.05
	Meat and meat products	1.86	680	56.2	0.12	0.03
	Fish	0.02	6	0.3	0.00	0.00
	Cooking oil and fats	1.32	483	240.0	0.09	0.11
	Eggs	0.24	87	9.3	0.02	0.00
	Potatoes	0.97	354	95.5	0.06	0.05
	Vegetables	1.70	622	68.6	0.11	0.03
	Fruits	0.23	83	15.0	0.02	0.01
	Sugar	1.34	491	154.4	0.09	0.07
	Tea, coffee, cocoa	0.40	148	5.0	0.03	0.00
	Non alcoholic beverages	0.09	31	3.2	0.01	0.00
	Other food products	0.17	61	1.5	0.01	0.00

KIHS 2003, weighted

The detailed structure of annual Minimal Food basked is available in NSC.

G. Sensitivity Analysis of Food Poverty Line Based On the Choice of RP

14. The table below shows that choice of the reference population in lower part of the distribution results similar value of the food poverty line which proves that the poverty line calculated based on the reference population in 3-5 deciles leads to robust estimates.

Table A.3. Sensitivity of food poverty line based on alternative reference populations and alternative number of food items in the basket

		Reference Population for Food Basket			
		2nd-4th deciles	**3th-5th deciles**	**1th-5th deciles**	**All population**
Cumulative value share 95	Number of food items in the basket	61	70	68	92
	The daily cost of food basket in SOM	14.16	14.94	14.21	17.49
Cumulative value share 96	Number of food items in the basket	72	81	79	105
	The daily cost of food basket in SOM	14.24	14.97	14.29	17.53
Cumulative value share 97	Number of food items in the basket	86	**95**	93	122
	The daily cost of food basket in SOM	14.27	**15.04**	14.31	17.64
Cumulative value share 98	Number of food items in the basket	105	116	113	145
	The daily cost of food basket in SOM	14.33	15.09	14.40	17.72
Cumulative value share 99	Number of food items in the basket	136	151	147	181
	The daily cost of food basket in SOM	14.42	15.19	14.49	17.82
Cumulative value share 100 (All products)	Number of food items in the basket	364	398	419	579
	The daily cost of food basket in SOM	14.51	15.28	14.57	17.91

KIHS 2002 NSC Kyrgyz Republic, weighted

The decision to not include all the 579 food items in the minimum food basket is that the food items which have a small share in the basket and low frequency of purchase have greater sampling error and lower reliability. However, sensitivity analysis proves that in the same RP the composition of basket based consisting of different number of most important products is also robust.

H. Complete poverty line

15. Individuals have non-food needs in addition to food ones. The need for non-food consumption requires adding an allowance for non-food goods and services to the food poverty line. Upper-bound method used here to determine the value of the general or complete poverty line (CPL) was developed by M. Ravallion[26].

[26] For details see: Martin Ravallion (1994), *Poverty Comparisons*, Chur Switzerland, Harwood Academic Press.

16. To determine the allowance for non-food consumption, using the data itself, first those individuals whose food consumption is just above to the value of the food poverty line are selected. Now this part of the sample will constitute the reference group for the derivation of the general poverty line. More precisely in this analysis the reference group for non food share estimation is the population located in the first three quarters of the population distribution (quartiles 1, 2 and 3) ranked by per capita total a consumption, spending on food the amount within the interval (food line, foodline+30% of food line). The *share* of total consumption that goes to non-food consumption is calculated for this reference group. This share is the 'allowance' for non food consumption that is added to the value of the food poverty line to get the complete poverty line.

17. The share of food consumption among those whose total consumption is just above the value of the food poverty line is 62.9%, non-food consumption represents 37.1%. The value of the complete poverty line is thus:

Complete Poverty Line= Value of food consumption + Value of Non-Food Consumption,

where:

Food Consumption = Value of Food Poverty Line =15.04 SOM =62.9% of CPL;
Non-food Consumption = 37.1% of CPL.

Complete Poverty Line = 15.04 SOM /0.629= 23.92 SOM = 15.04 SOM + 8.88 SOM.

18. More exactly, the complete poverty line is estimated as 23.92 SOM/day/person which includes 62.9% food component (15.04 SOM) and 37.1% non-food component (8.88 SOM). This structure is based on the consumption patterns of population those food consumption is just above the food poverty line and they are in the first 3 quartiles (quartiles 1, 2 and 3) of consumption per capita.

19. Such method of deriving the complete poverty line is the simplest way to assess the value of the minimum consistent with the consumption patterns of the reference population. We have chosen the simplest method described above, as it is the most transparent, most easily replicable and most intuitive. It could be argued that other lines would be more accurate. But if a certain way to set the line it is not commonly understood, its use will not help the national poverty diagnostics. Given the fact that any poverty line is a matter of convention and includes in itself a technical judgment, the team considered the poverty line of around 23.92 SOM as the most accurate for the use with KIHS 2003 dataset, and for the analysis of poverty in the country.

20. It is worth to remind that this poverty line is calculated for an average person family but not for a single adult family. This means that if we assume the economies on household size and composition then the poverty line should be adjusted. It also should be reminded that the poverty in does not contain the component of housing rents. Thus it is appropriate to use only for the comparison with the consumption aggregate, described earlier in this document.

I. Other poverty lines

21. **The relative poverty line** used for the analysis is drawn as 70% of median Consumption Per Capita. The relative approach is a common practice in OECD countries, where the notion of

ability to share in increased general prosperity, rather than absolute survival, is probably more relevant. The value of Daily Relative Poverty Line is estimated as 16.62 SOM per capita.

22. **International Absolute Poverty Lines**. The following absolute poverty lines were used for the analysis: $1, $2.15, $4.3 a-day-per-person by Parity of Purchasing Power (PPP) of year 2000. It is very important to note that PPP exchange rates reflect the purchasing power of national currencies and differ (sometimes substantially) from current market exchange rates. Using these absolute poverty lines across countries allows comparison of poverty. These poverty lines are the ones used by the World Bank as an absolute poverty line for the comparison of poverty levels in different developing countries. It is estimated that $1 PPP in Kyrgyz Republic as much as 9.43 SOM for 2003. Therefore the absolute poverty lines used for the analysis are the numbers presented in the following table:

Table A.4. International absolute poverty lines (SOM per day per capita)

$1 PPP	10.1
$2.15 PPP	20.3
$4.3 PPP	40.6

KIHS 2003 NSC Kyrgyz Republic, weighted

ANNEX 2: POVERTY STATISTICS

23. Three different poverty measures are used in this analysis, all of which are members of the class of additive and decomposable measures proposed by Foster, Greer and Thorbecke (1984). Rather than being alternative poverty measures, they provide complementary insights on the standard of living of the population.

Poverty Headcount index

24. The first measure is the *Headcount Index of Poverty*, given by the proportion of the population for whom total per capita (adult equivalent) household consumption (income) y is less than the poverty line z. It is the most frequently used poverty measure. The main advantage of this statistics is its simplicity. If q is the number of poor people in the population of size n, then the Headcount is given by:

$$P0 = \frac{q}{n}.$$

Poverty Gap index

25. However, the headcount measure is totally insensitive to differences in the depth of poverty. A way to look at the poverty deficit of the poor relative to the poverty line is to use the *Poverty Gap Index*. Let Q be the sub-group of poor, the poverty gap is then given by:

$$P1 = \frac{1}{n}\sum_{i \in Q} \frac{(z_i - y_i)}{z_i}.$$

The poverty gap also allows an interpretation in terms of the potential fiscal cost for eliminating poverty by targeting transfers to the poor. Summing all the poverty gaps in the sample population and taking the average provides an estimate of what would be the minimum cost of eliminating poverty in the society, assuming perfect targeting.

Poverty Severity (squared gap) Index

26. One shortfall of the poverty gap measure is that it may not adequately capture differences in the severity of poverty. A way to tackle this problem is to include the *Severity of Poverty Index* in the poverty analysis. This measure gives more weight to the consumption (income) gap of those households located further below the poverty line and is defined as:

$$P2 = \frac{1}{n}\sum_{i \in Q} \frac{(z_i - y_i)^2}{z_i^2}.$$

The severity index has the main advantage for comparing policies which are aiming to reach the poorest, but it is more difficult to interpret and is less intuitive than the two previous poverty measures.

ANNEX 3: POVERTY INCIDENCE ON HOUSEHOLD LEVELS AND BY AGE GROUPS

27. The size of households is different among poor and richer households and thus it is worth to look at poverty incidence on household level. As Table A.6 demonstrates, national poverty headcount index on household level is equal to 38 percent. In rural/urban dimension almost half of rural households are poor, while a quarter of urban households were classified as poor. Batken and Naryn oblasts keep the highest poverty rate as it was the case for the whole population. Almost 60 percent of poor households live in South part of the country.

Table A.6: Poverty Incidence by Oblasts on Household Level, 2003

	Headcount index P0 (%)			Poverty Gap	Poverty Severity	Share of HHs popul.	Share of all poor HHs
Oblast	National	Rural	Urban	Index, P1 (%)	Index, P2 (%)	in oblast (%)	in oblast (%)
Bishkek	16.4		16.4	3.7	1.3	21.2	9.1
Issykkul oblast	42.8	56.0	18.7	11.3	4.1	8.6	9.7
Jalalabat oblast	48.0	47.4	49.6	13.7	4.8	16.8	21.2
Naryn oblast	65.7	69.2	52.4	21.5	9.2	3.9	6.8
Batken oblast	78.7	86.3	63.1	25.0	10.4	6.5	13.4
Osh oblast	46.4	53.3	30.4	14.6	5.6	20.7	25.2
Talas oblast	49.4	46.0	62.3	14.7	5.4	3.8	5.0
Chui oblast	19.7	21.5	14.3	5.1	2.1	18.4	9.5
National	**38.1**	**47.6**	**25.6**	**11.0**	**4.2**	**100.0**	**100.0**

Source: KIHS 2003

28. The difference in poverty levels for different age and gender groups show the categories of the population who are more likely to be poor. Table 16 shows that the highest poverty rate is among people between 0-5 years (about 62%). This is true for both men and women. More than half of all the poor are younger than 25 years of age. The poverty rate declines significantly beyond the threshold of 45 years of age. It is surprising that the older a person, the better off her (his) welfare state.

Table A.7: Poverty risk and share of the poor by gender and age group

Age category	Males		Females		Total	
	Poverty rate	Share of poor	Poverty rate	Share of poor	Poverty rate	Share of poor
0-4	60.2	10.2	63.4	7.7	61.7	8.1
5-9	59.4	13.9	60.4	10.1	59.9	10.9
10-14	55.3	13.9	59.5	11.6	57.4	12.1
15-19	49.2	11.4	55.5	11.2	52.4	11.5
20-24	46.1	8.6	48.9	8.7	47.5	9.1
25-34	51.5	14.9	46.7	14.1	49.1	14.3
35-44	50.2	13.2	45.3	13.9	47.6	13.6
45-54	40.5	7.1	38.4	10.1	39.3	9.5
55-64	38.7	3.0	31.1	5.0	34.3	4.5
65-74	34.5	2.4	33.9	4.6	34.1	4.1
75 +	44.5	1.4	33.1	3.0	36.8	2.3
All	**50.5**	**100.0**	**49.2**	**100.0**	**49.9**	**100.0**

Source: calculations using KIHS 2003

ANNEX 4: INTERNAL MIGRATION AND POVERTY INCIDENCE

29. In the 1999-2003 period the growth rate of urban population accounted for 4.9 percent, which is much higher than rate of rural population growth (0.5 percent). This demographic development in the Kyrgyz Republic is partly explained by internal 'rural->urban' migration processes driven by more employment opportunities available in large cities. As the latest population census (1999) showed, 29 percent of Bishkek population consisted of internal migrants from other regions, while some of the oblasts faced decline in population. Since the employment and housing issues could not be resolved quickly in new places for internal migrants, it is widely believed that they mostly represent poor clusters of the population. The KIHS has a section devoted to migration and this Annex explores the poverty incidence among the internal migrants as well as other features of migration process.

30. As the Table A.8 demonstrates, **there is no negative relationship between the migrant status and welfare state**. Headcount index of population, who migrated in new place in the last ten years, is 35 percent compared to national 49.9 percent and 51.4 percent of those who never migrated or did it more than 10 years ago. The overall share of migrants in the population is less than seven percent, which imposes careful consideration and use of these facts. This outcome also can hide possible under coverage of households in new establishments created in Bishkek area after 1999[27].

Table A.8: Migration status and poverty incidence

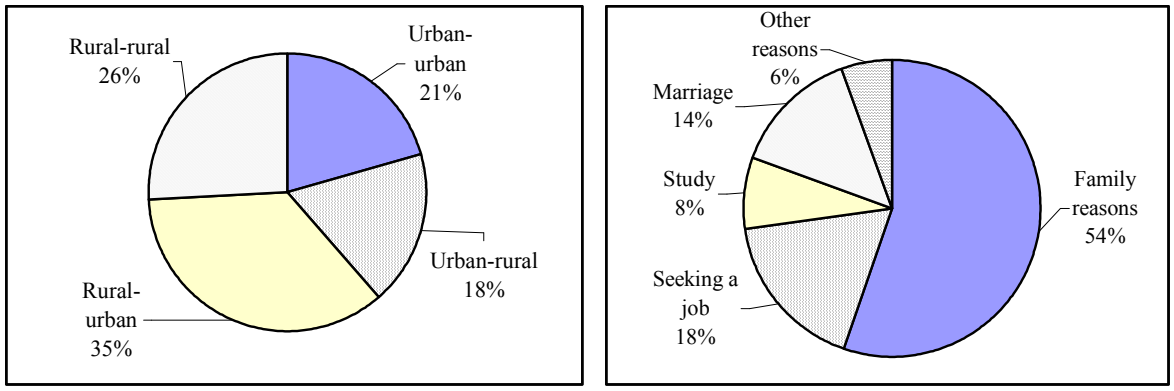
	Headcount index, %		Ratio of population, %	
Current place of living	Not migrated in last 10 years	Migrated in last 10 years	Not migrated in last 10 years	Migrated in last 10 years
Rural	58.3	44.3	71.3	3.7
Urban	37.2	27.5	22.2	2.9
Total	51.4	34.9	93.4	6.6

Source: KIHS 2003

31. Figure A.1 demonstrates direction and reasons of internal migration in the Kyrgyz Republic. As it was expected, most migration flows were concentrated in rural-urban direction, followed by rural-rural route. While the first migration flow is the biggest one taking one third of all flows, it is not the prevailing one, since the other flows are distributed more or less in comparable extent. Thus, **the migration flows in the Kyrgyz Republic did not have dominant rural-urban character in the last decade**.

[27] The sample of households for KIHS is based on information obtained from population census conducted in 1999. Since then several establishments in Bishkek area were created, which are occupied mostly by internal migrants from rural areas. These new establishments are not covered by the KIHS.

Figure A.1: Direction of internal migration (left) and reasons (right)



Source: KIHS 2003

32. Partly explanation comes from the fact that most incentives to relocate to other regions are not economic ones. **Only 18 percent of recent migrants moved to other places seeking employment**. Two third of respondents moved because of family reasons, such as marriage. Very probably that in fact this category hides economic reasons of migration.

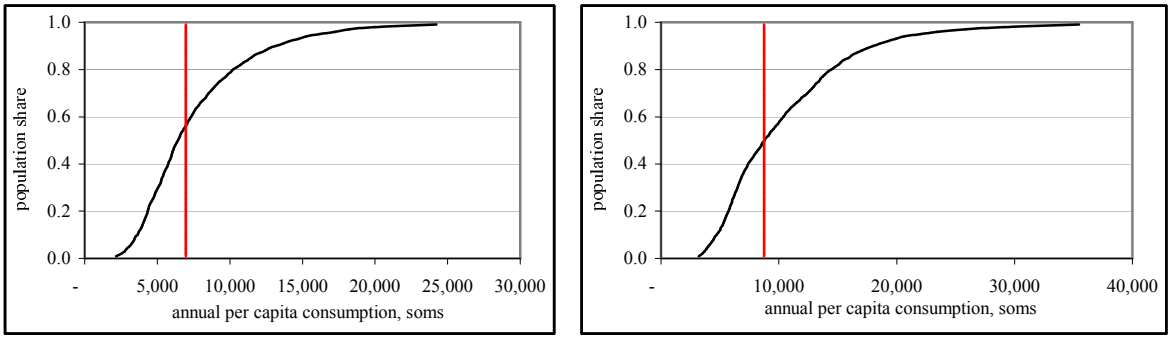
ANNEX 5: ROBUSTNESS OF POVERTY LINES: POVERTY INCIDENCE CURVES, 2001 AND 2003

1.21. Poverty in the Kyrgyz Republic in general is not very deep. As a result, small changes in the poverty line may have a magnified impact on the proportion of the population in poverty. Perhaps more importantly, variations in the poverty line could also affect the broad picture of urban-rural differences in poverty and temporal patterns, and the rankings of different groups in terms of poverty. It is therefore important to evaluate the robustness of the conclusions regarding poverty trends and patterns.

1.22. Figure A.2 plot the poverty incidence curves, or, simply, the cumulative distribution of the poor population corresponding to alternative poverty lines. As these figures show, the main conclusions regarding regional and temporal poverty trends are robust to the choice of poverty lines. While the slope of the curves varies across areas and will lead to different poverty rates for a given change in the value of the poverty line, the rankings patterns are maintained, and the conclusions hold:

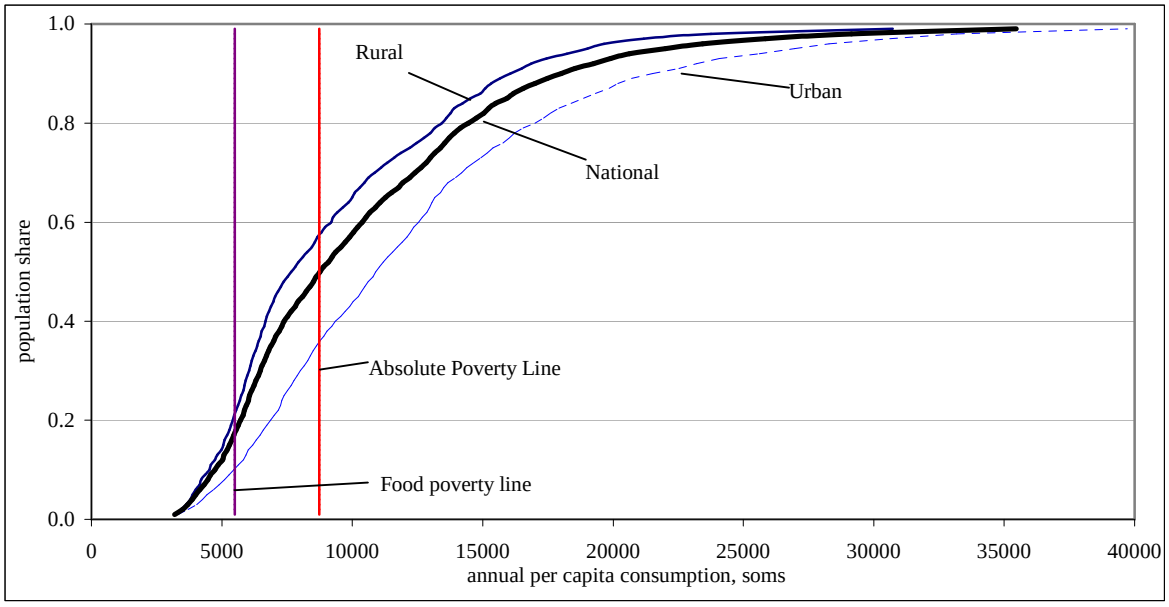
- *Poverty fell in 2003 compared to 2001 (Figure A.2)*
- *The rural population is always poorer than the urban population*
- *The south regions are poorer than the north.*

Figure A.2: Cumulative Distribution Function, National, 2001 and 2003



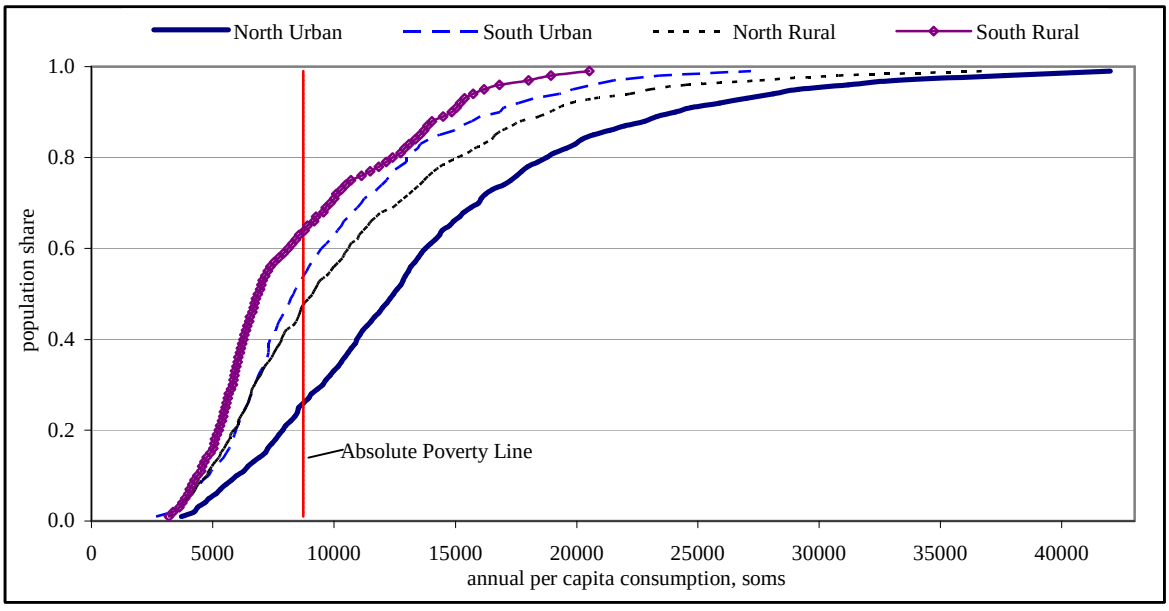
Source: KIHS 2003

Figure A.3: Cumulative Distribution Function, Urban and Rural Areas, 2003



Source: KIHS 2003

Figure A.4: Cumulative Distribution Function, Regions, 2003



Source: KIHS 2003