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# Kosovo Poverty Assessment

## Volume II: Estimating Trends from Non-comparable Data



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## **CURRENCY AND EQUIVALENT UNITS**

(as of October 3, 2007)

Currency Unit = Euro

1 US\$ = 0.71 Euro

## **ABBREVIATIONS**

AE	Adult equivalent
CIS	Commonwealth of Independent States
CPI	Consumer Price Index
EA	Enumeration Areas
EAR	European Agency for Reconstruction
ECA	Eeastern Europe and Central Asia
ECAPOV	Eeastern Europe and Central Asia Poverty Database at the World Bank
EU	European Union
EU-8	Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, the Slovak Republic and Slovenia
HBS	Household Budget Survey
HH	Household
HIES	Household Income and Expenditure Survey
IMF	International Monetary Fund
IPW	Inverse Probability Weighing
KDSP	Kosovo Development Strategy and Plan
LIC	Low-income countries
LSMS	Living Standards Measurement Survey
MIC	Middle income countries
MLSW	Ministry of Labor and Social Welfare
PA05	Poverty Assessment 2005
PEIR	Public Expenditure and Institutional Review
PISG	Provisional Institutions of Self Governance
SEE	South Eastern Europe
SIDA	Swedish International Development Cooperation
SOK	Statistical Office of Kosovo
TWGs	Technical Working Groups
UNMIK	UN Mission in Kosovo

## VOLUME II

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## **CHAPTER 1: HOUSEHOLD BUDGET SURVEY (HBS) AND POVERTY MONITORING IN KOSOVO**

*Since 2002, Kosovo has conducted annual Household Budget Surveys (HBS). At first glance, availability of annual cross-sections of detailed collection of household consumption expenditure data should suggest that one should be able to track poverty and inequality over time. However, examining changes in poverty and inequality over time in Kosovo poses several challenges. The main problem is data comparability because of (i) changes in survey design and (ii) large sampling errors. First, a wide variety of experience in other countries has shown that even small changes in the way expenditure/consumption or income data is collected can have a substantial impact on poverty estimates. These experiences have documented that differences in the poverty estimates over time could be driven by changes in survey design rather than by a real change in household welfare. The survey sampling weights, on the other hand, compound the problem as they introduce an unquantifiable bias or sampling error. The sampling was based on an outdated population frame and with limited survey supervision.*

*In this note, we apply several methods to construct poverty estimates that are consistent over time. First, we make an attempt to construct a comparable consumption by aggregating items that were defined uniformly and focusing only on the years where the questionnaire did not change. Second, we use an adjustment procedure that relies on a few variables whose definition has not changed over time to update the distribution of the poor over time. The results from these various methods show that during the period from 2002 to 2006, poverty was high, at around 45 percent, and that there is no evidence of a sustained improvement in the welfare of households in Kosovo.*

*The recommendations for data collection for poverty monitoring coming from this research are to, first, maintain consistency in the survey questionnaire, second, to conduct a population census, and, third, to emphasize better survey administration and documentation.*

1.1 The first poverty assessment for Kosovo was done in 2001 on the basis of a Living Standard Measurement Survey of 2880 households conducted between September and December 2000. Although there was no existing census, effort was made to create a representative sample of the population of Kosovo. Up to date lists of households were created and a sample representative at areas of responsibility (AORs), rural/urban, and Albanian/Serbian ethnicity was drawn.

1.2 In June of 2002 Kosovo began to implement the Household Budget Survey (HBS). The HBS is implemented by the Statistical Office of Kosovo with technical assistance from Statistics Sweden, which in turn is financed by SIDA. To date four rounds of HBS have been completed (Table 1.1). SOK, together with Statistics Sweden, draw the sample to be surveyed each May. The first HBS survey began in June 2002 and

ran till May of the following year. The second survey (2003) followed the same cycle. But in 2005, SOK switched to calendar year (January to December of same year) for the introduction of differences in the questionnaire but kept the timing of sampling the same at mid-year. Thus, currently, each questionnaire spans two samples.

1.3 The Household Budget Survey provides a solid foundation for monitoring poverty in Kosovo. The HBS has become a core survey in Kosovo's efforts to build a long term monitoring and evaluation system. It has some of the basic tenets of a sustainable survey. It is fully funded by the government and implemented by the SOK staff (with technical support from development partners). The HBS unit of SOK has also introduced innovations to the traditional HBS by including additional modules, most recent of which have been migration and remittances (2005) and time use (2006).

#### **A. THERE ARE PROBLEMS OF DATA COMPARABILITY**

1.4 **Examining changes in poverty and inequality over time in Kosovo poses several challenges.** With a Living Measurements Standards Survey (LSMS) in 2000 and a series of HBS since 2002, it would seem tempting to conclude that tracking welfare changes in the first half of 2000 should be feasible. But there are practical problems. A major problem is that data are not comparable. There are three changes across surveys where efforts to compare data present difficulties to tracking welfare changes over time. Below we list each of these changes and discuss potential consequences for estimating changes in poverty and inequality.

##### **(a) Problem # 1: Diary versus Recall**

1.5 The main change between HBS 2002 and subsequent HBS series is how households were asked to recall expenditures of goods and services bought. The first HBS asked households to record expenditures on a daily basis for two weeks. This applied to food, own-produced consumption and most non-food items such as clothing, footwear, and education and health expenditures. A switch from a shorter to a longer recall period (diary to weekly) is likely to make households forget some details of consumption and therefore underreport consumption. The impact is likely to be severe for frequently purchased items such as food.

##### **(b) Problem #2: Survey Design – Redefinition of Consumption Items**

1.6 The second change which is likely to have an impact on the comparability of data across HBS series is the level of disaggregation of the expenditure items. This took two forms. In the 2002 survey, households recorded expenditure items on a blank sheet, but in subsequent years, the list was provided to the households. Between the first and second surveys, the lists did not exhibit substantial differences. It appears that households in the second survey were offered the same list that households interviewed in 2002 reported. However, by 2005, the level of disaggregation has increased and the list contained more items. The more substantial change was in how consumption of own-produced items was reported. In this case, the items were aggregated into 12 categories (meat products, poultry, grain crops, and so on). Furthermore, in the case of consumption of own-produced goods the recall period changed not from daily to weekly as in other items, but from daily to monthly. A shift from a smaller list to a longer list



(disaggregation) is likely to lead to higher reported consumption.

### (c) Problem #3: Survey Design - LSMS versus HBS

1.7 As the first post-conflict household survey, the LSMS estimates and profile of poverty would be a good starting point to establish the baseline for the monitoring and evaluation system that is now anchored on HBS. However, except for the fact that the LSMS and the HBS are drawn from the same sample frame – that is, the households surveyed in HBS are selected from the same enumeration areas that were drawn for the LSMS – the two surveys differ in a number of ways (Table A.1). First, distribution of consumption may differ due to failure to account for seasonality in the LSMS. The latter was conducted for 3 months (September through December of 2000), while HBS collects information from households (albeit different ones each month) throughout the year. If the three months when LSMS was fielded happen to be a period of low (high) consumption, then the distribution of consumption may be lower (higher) than the HBS distribution. Second, the recall period for consumption differs in the two surveys. In the LSMS, food and most frequently purchased non-food items had a recall of a week or a month, while infrequently purchased goods and services had a 12 month recall. By contrast, the HBS first started with a two-week diary (daily recording) of food and most non-food expenditures and then switched to a weekly recall. Finally, the LSMS provided households with a much narrower list of expenditure items (46 food items) compared to HBS list that was over 100. In practical terms, a single change is hard to overcome, but three makes the problem almost insurmountable.

## B. SAMPLE WEIGHTS INTRODUCE ADDITIONAL UNCERTAINTY

1.8 Sample weights introduce additional uncertainty. The Kosovo HBS uses the 1981 census as the reference population. This is then updated every survey cycle through re-listing of selected EAs, but it is not clear how the updated information is used in subsequent surveys. In addition to the outdated sampling frame, because of resource constraints, field supervision of surveys has been limited. As a result, there is considerable uncertainty surrounding the HBS demographic statistics each year. shows the implied population count from the sample weights in the HBS. Within each wave of the survey, it also presents the average household size of sampled households by year and wave. The estimated population appears to have declined by about 25 percent between 2002 and 2005. Viewed from the perspective

**Figure 1.1: Total Population in Millions and Household Size**



Source: World Bank staff calculations from the HBS data.

of this period, that is absence of conflict and or unnatural mortality shocks, there is no clear justification for this massive change in population estimate.

1.9 Strikingly, sometimes the surveys appear to come from completely different population groups. In particular, while average household size was near 7 in 2002, it drops to around 6 in 2005. Moreover, rural population shares change dramatically. For instance, the rural population decreases from 73 to 65 percent of the total population. The 2001 LSMS reports rural population as 62.4 percent. The Agricultural Household Survey finds that rural population stayed at round 65 percent in 2004 and 2005. Based on experience in Albania (Carletto *et al*, 2004), we are expecting the incidence of internal mobility to remain quite stable over time. One consequence of this massive change in population estimate is to introduce huge volatility in the estimated count of fraction of people below the poverty line.

**Table 1.1: Population Size by Survey Wave and Year**

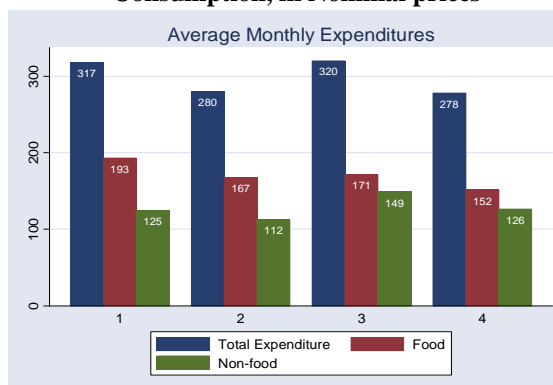
HBS estimates	2002-03	2003-04	2004-05	2005-06	
Total population, in million	2.1	1.8	1.7	1.5	
Number of households, in thousands	306.1	281.6	281	249.4	
Household size	6.8	6.5	6.1	6.1	
Rural as % of total population	72.5	73.4	65.9	64.6	
<b>Reference population statistics</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>
Source	LSMS	LFS and AHS		AHS	AHS
Total Population	1.97	1.9			
Rural as % of total	62.4				
Rural in million	1.23	1.3		1.3	1.3

*Source:* World Bank staff calculations from HBS data and LSMS: World Bank Kosovo Poverty Assessment (2001); Labor Force Survey(LFS) and Agricultural Household Survey (AHS) estimates are from the relevant SOK publications.

### C. LIKELY CONSEQUENCES: CONSUMPTION

1.10 Experiences around the world have documented the influence and magnitude of the changes in recall period on consumption. In all cases, longer recall periods lead to less declared expenditures (Table 1.3). For instance, in India, households who were asked to report weekly food expenditures had 15 to 20 percent higher per capita consumption than those asked to report 30 day food expenditures, mainly because households with shorter recall period reported higher per capita food expenditures (Tarozzi, 2002; Deaton, 2001). In another study, Deaton (2003) reports an experiment where reducing recall period for food items from 30 to 7 days resulted in 30

**Figure 1.2: Average Monthly Household Consumption, in Nominal prices**



*Source:* World Bank staff calculations from the HBS data.

percent higher consumption (1.1 percent per day). Amenuvegbe (1990) shows from Ghana household surveys that for 13 frequently purchased items, reported expenditures fell at an average of 2.9 percent for every day added. Lanjouw and Lanjouw (2001) showed that variations in food expenditure definitions that arise from a disaggregation of the list would lead to significant lower per capita consumption in countries such as Brazil, Ecuador, and El Salvador. For instance, per capita monthly expenditures in El Salvador were 32 and 15 percent higher at the 10<sup>th</sup> and 90<sup>th</sup> percentiles, respectively, for household receiving the long list.

**1.11 Diagnostic work on Kosovo data indicates that expenditure data has been influenced by changes in recall period.** The pattern is consistent with prior expectations as documented above in a number of other countries. It suggests, using Deaton (2003) results and noting that food accounts for 50 percent of total consumption in Kosovo, that we should expect at least 4 percent lower consumption in 2003 compared to 2002 from changes in recall period alone (that is, 1.1 percent x 7 x 0.5). In reality, we find that the mean of total consumption in 2002, which used the diary, was about 10 percent higher than the mean in 2003, where a weekly recall was used. It was 15 percent higher than the mean in 2005. The mean of food consumption dropped by 13 percent between 2002 and 2003, but by as much as 21 percent between 2002 and 2005.

**1.12 The effect of recall change may have been particularly severe for certain sub-components of consumption.** As noted above, recording of own consumption underwent two substantial changes. One is the change in recall from daily to monthly. The other is that, in the second and subsequent surveys, households were given an aggregated list against which to record own consumption. More precisely, the list reported for own consumption changed from 85 in 2002 to 12 in subsequent surveys (Table 1.2). Both changes are likely to lead to underreporting of expenditures. Mean of own consumption fell by 4 percent between 2002 and 2003 and by 30 percent between 2002 and 2005. Given that small scale farmers – those with less than 3 hectares of land – report using 70 percent of their production for own consumption (SOK, 2005), the changes introduced in capturing this sub-component of consumption presents serious problems for a credible measure of total consumption, and ultimately, poverty in Kosovo.

**1.13** The possibility of survey design changes driving the changes in consumption (and therefore changes in welfare) cannot be ruled out. Food share fell from 61 to 54 percent between 2002 and 2005. In one view this could be an indication of households getting richer and substituting away from food to non-food. However, the evidence for this alternative hypothesis is not strong. First, the macroeconomic data shows a stable inflation regime (possibly even a deflation) and negligible output growth. Second, non-food expenditures remained stable across surveys in sharp contrast to food and its sub-components. Specifically, the share of sub-categories such as bread, meat or eggs and dairy out of total expenditures do not show evidence of substitution away from staples. Taken together, it appears that changes in recall period probably drive much of the observed changes, since as predicted these changes in recall period are likely to have the biggest impact on frequently purchased items such as food. Simply put, since these changes in consumption (welfare) are observed in the context of several changes to survey design, it is difficult to argue credibly that observed changes are not due to changes in survey design.

**Table 1.2: Summary of Survey Constraints and Their Effects on Poverty Estimates**

<i>Survey and questionnaire design issues</i>	<i>Possible effects</i>	<i>References</i>	<i>Evidence of effect in the HBS data</i>	<i>Interaction and final effect on poverty</i>
Weak sampling frame	Non-representative population. Household size and subgroups are not stable	Demery and Grootaert (1994), Howes and Lanjouw (1997)	<u>Population estimates:</u> 2002/03: 2.1 m 2005/06: 1.5 m <u>Rural proportion:</u> 2002/03: 73% 2005/06: 65% (Table 1.1)	Interacts with all other survey measurement errors. Leads to unquantifiable biases.
Change from open-ended to close-ended expenditure questions	Possibly an increase in reported consumption estimates	Currently no controlled experiments	Own production drops by around 30% from 02/03 to 05/06 (Volume I, Table A.1)	Poverty: Underestimated in 05/06 or overestimated in 02-03
Recall period change from daily to weekly	Decrease in reported expenditure of about 4%.	For survey, see Deaton and Kozel (2005)	Total food expenditure drops 21 % from 02/03 to 05/06 (Volume I, Table A.1)	Poverty: Underestimated in 05/06 or overestimated in 02-03
Change in number of subcategories of expenditures reported	Decrease in reported expenditures	Lanjouw and Lanjouw (2001) and many others	Own production drops by around 4% after the number of categories changes from over 85 to 12	Interacts with changes in recall period and question type. Cannot be singled out.
Short recall period	Overstated poverty	Gibson (2005)	Seasonality in poverty estimates (Table B.4)	Overstating poverty

*Source:* World Bank staff calculations from HBS data and relevant references.

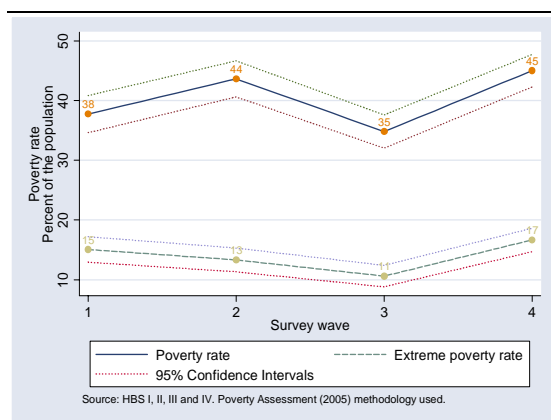
## **D. LIKELY CONSEQUENCES: POVERTY ESTIMATES**

**1.15 A shift from diary to recall leads to underreporting of consumption, which in turn leads to higher estimated poverty rates.** In 2002, the proportion of people living below the poverty line was estimated at 37 percent. Using a consumption aggregate constructed in the same way and adjusted for inflation, the fraction of the population below the poverty line increases to 44 percent in 2003, fell to 35 and increased back to 45 percent in 2005.

**1.16** Viewed differently, the disaggregation of consumption items is akin to introducing measurement error into a variable (Table 1.2). If the measurement error is random, there will be no effect on the estimates of the mean or the population total if the sample is large enough. However, such errors will systematically bias poverty estimates. Figure 1.3 shows a situation where an accurate welfare indicator is compared with an error-ridden indicator. The poverty rate is the area under the welfare function up to the poverty line and it will be affected both by imperfectly measured welfare indicator, or incorrectly specified poverty line.

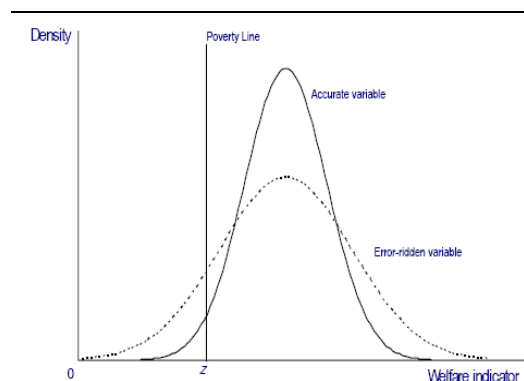
**Figure 1.3: Poverty Rate Estimates and the Effect of Changes in the Questionnaire**

**A. Poverty Rates Over Survey Periods, Absolute, Extreme**



Source: World Bank staff calculations from HBS data.

**B. The Effect of Random Measurement Error on Poverty Estimates**



Source: Gibson (2005).

**1.18 Sampling weights increase the volatility of the estimated poverty.** Table 1.3 compares the estimated poverty rates with and without weights. A comparison of the weighted and un-weighted columns shows why using weights as currently constructed introduces volatility. The magnitude of changes is further overstated with the weighted statistics. For instance, for urban areas, the weighted poverty rates seem to drop by 5 percentage points whereas the un-weighted by only three. For rural, the value of the supposed increase in poverty is much smaller when the sampling weights are not included. These findings suggest the need for a consistent procedure for calculating sampling weights.

**Table 1.3: Poverty Headcount by Location and Ethnic areas, using PA05 methodology**

	<i>Weighted</i>				<i>Unweighted</i>			
	<i>2002-03</i>	<i>2003-04</i>	<i>2004-05</i>	<i>2005-06</i>	<i>2002-03</i>	<i>2003-04</i>	<i>2004-05</i>	<i>2005-06</i>
Total	37.7	43.7	34.8	45	45.4	44.5	34.4	44.3
Rural	34.4	44.2	37.2	49.2	42.1	46.2	37.5	49
Urban	46.6	42.1	30.3	37.4	48.1	42.7	31.4	39.7
Albanian area	37.8	43.8	34.9	43	45.3	45.1	34.5	41.7
Serbian area	33.5	40.8	33.3	80.4	44.1	38.4	33.8	70.3

Source: World Bank staff calculations from HBS. Notes: Methodology as in the 2005 Poverty Assessment.

Weighted refers to individual-level weights, unweighted to household size weights.

**1.19** These uncertainties persist across several estimates. In addition to national level estimates by wave, poverty rates were estimated for rural and urban residents and Albanian and Serb ethnic groups. For instance, estimates of poverty by ethnicity, whether defined as area occupied mainly by such an ethnic group or ethnicity of head of household, are highly volatile. For instance, the poverty rate for Serbs ranges from 35 to 80 percent. They are especially sensitive to inclusion of own consumption. For instance, in where we present the poverty rates under different consumption aggregation with the same poverty line, the coefficient of variation (the standard deviation over the mean) of the poverty rate increased with the inclusion of own production for weighted figures. In

all cases, these problems of large changes between weighted and unweighted, and within a short time period, are observed.

1.20 The data from 2004-05 (wave III) seems to be particularly problematic. This survey was done in the same way as waves II and IV (that is, 2003-04 and 2005-06) so that in theory it should be comparable to these surveys. However, we find that it is particularly sensitive to the inclusion of consumption of non-food. The estimated welfare swings with and without inclusion of non-food are (unrealistically) large. This leads to the conclusion that estimated poverty counts are not comparable, especially between 2002 and 2003. In the next chapter, we try to resolve this issue in a number of ways and provide preliminary estimates of poverty trends in Kosovo.

**Table 1.4: Poverty Headcount by Household Head Ethnicity**

	<i>Weighted</i>				<i>Unweighted</i>			
	<u>2002-03</u>	<u>2003-04</u>	<u>2002-03</u>	<u>2003-04</u>	<u>2002-03</u>	<u>2003-04</u>	<u>2002-03</u>	<u>2003-04</u>
Albanian	37.4	43.8	32.1	42.5	45.2	45	32.9	41.1
Serbian	30.1	36	34.3	81.7	39.1	35.7	33.8	70.2
Other	57.6	53	67.2	51.7	58.2	59.5	57.6	56

*Source:* World Bank staff calculations from HBS. Methodology as in the 2005 Poverty Assessment.

Weighted refers to individual-level weights, unweighted to household size weights.

## **CHAPTER 2: POVERTY – ALTERNATIVE ESTIMATES**

2.1 The dual problem of (i) possible survey bias in the data, and (ii) numerous changes in questionnaire design, make HBS survey estimates merely suggestive of a trend and should be used only as a guide by policy makers. Numerous changes in survey design do not lead to conclusive comparisons on the levels and trends in poverty between 2002 and 2005. We have shown that a shift from diary to a weekly or longer recall period, from 2002 to 2003 and thereafter, respectively, is likely to lead to underreporting in consumption and therefore over-estimation of poverty rates. We have also discussed that aggregation of own consumption items from 85 to 12, in 2002 compared to 2003 and thereafter, adds to the underreporting of consumption (and by consequence over-estimation of poverty) problems in second and subsequent waves. Finally, the sampling methodology, which indicates a larger population and higher household size in 2002 compared to 2003 and thereafter, is likely to reduce per capita consumption and, for a given poverty line, under-estimate poverty in 2002 relative to 2003 and thereafter. While we know the possible direction of impact of these changes in design on consumption and poverty, it is not possible to know with precision the magnitude of these changes on consumption or poverty. That is why, the search for alternative methods to establish comparability becomes necessary.

2.2 **We employ several estimation techniques to correct for some of these problems.** In order, we present a brief description of the steps taken to address the (a) sampling issues and (b) non-comparable welfare measures.

**(A) Sampling issues:** As the HBS data is based on an outdated sample and the survey supervision is very limited, the data suffer from a possible bias. To rectify a part of this problem, we use a **post-stratification** procedure. This method calibrates the weights to make demographic estimates from HBS comparable to external sources.

2.3 Even if sampling issues are addressed, the problem of non-comparability of consumption estimates still persists. Therefore, we apply the following steps to rectify this second problem:

**(B) Comparability of welfare measures:** We use two main methods to provide comparable consumption aggregates.

- **Compare only 2003 and 2005:** Since the biggest and the most problematic changes took place between 2002 and 2003, one strategy is to ignore the 2002 survey and start the analysis of poverty from 2003. As a reminder, the 2003 through 2005 data have the same recall period. The level of item dis/aggregation can also be considered the same, since only minor changes were introduced. For instance, food items declined from 114 to 107 between 2003 and 2004, and similar changes were introduced in non-food items. But overall, the number of the changes in consumption items and their contribution to aggregate consumption were negligible. Our justification for

excluding 2004 survey is that welfare changes are very sensitive to inclusion of non-food consumption. Therefore, we use three methodologies to compare poverty between 2003 and 2005:

- First, we use the same construction of consumption aggregate and poverty line as was used for the previous two Poverty Assessments. We refer to this as **PA05 methodology** (short for Poverty Assessment 2005). Then, we directly compare the poverty rates.
- Second, a method developed by Lanjouw and Lanjouw (2001) is used to construct a **Comparable Consumption Aggregate** that includes only consistently recorded expenditure items and least volatile items.
- Third, we construct an **Abbreviated Consumption Bundle** consisting only of products for which price information was collected by the price unit of the SOK in order to re-calculate the poverty line for 2003-04 data.
- **Compare all the years:** The final option is to compare all the years. However, as argued above, this cannot be done without additional adjustment. There are two candidate methods for adjusting poverty rates to arrive at comparability.
  - The first method, called **inverse probability weighting**, aims to match the distribution of consumption or any welfare measure between the two surveys. It reweights the poverty count in 2002 using as weights the probability of an observation belonging to a comparison survey, say year 2003 (Tarozzi, 2005; DiNardo et. al. 1996). Similarly one can compare 2002 to 2004 and 2002 to 2005.
  - The second method, which we shall refer to as **econometric projection** methodology, is to estimate a consumption model using the 2002 data, and then use the estimated parameters from the 2002 model to forecast or predict the consumption for subsequent years. The final step is to add to the forecast consumption an estimate of unobserved part of consumption (the error term) in order to recover full consumption. The results from this methodology are not yet complete and are not reported here.

2.4 All methods suggest that the poverty rate in Kosovo remained in the mid 40s percent from 2002 to 2005. The results of the different estimation methodologies are presented in (Table 2.1). Although the trends are not consistently pointing to the same direction, the pattern that emerges is one of stagnating poverty. The PA05 and abbreviated consumption methods imply a stagnant poverty rate: a change from 44 to 45 percent. The Comparable Consumption Aggregate, suggest a slight decrease from 49 percent in 2003-04 to 46 percent in 2005-06. The Inverse Probability Weighting methodology also confirms that poverty remained very similar from 2002-03 to 2005-06, with only a small increase of about 3 percentage points from 2003 to 2005. These conclusions do not change substantively if survey waves are defined differently. Specifically when using calendar year 2005 as the last wave, the results show only a small decline in poverty. See Annex B and particularly Table B.5.



**Table 2.1: Overview of the Results of Methodologies for Comparable Poverty Estimates**

<u>Consumption Aggregate (CA) definition</u>	<u>Poverty Line definition</u> Poverty Rates	
<b>CA with PA 05 methodology</b>	<b>Poverty line 2002 adjusted with CPI</b>	
	<i>weighted</i>	<i>unweighted</i>
2002-03	37.6	45.7
2003-04	43.6	44.5
2004-05	34.8	34.4
2005-06	45	44.3
<b>Comparable CA (Lanjouw and Lanjouw, 2001)</b>	<b>Robust Poverty Line</b>	
	<i>weighted</i>	<i>unweighted</i>
2002-03		
2003-04	48.5	48.7
2004-05	41.3	41.3
2005-06	45.6	44.7
<b>CA I Using Inverse Probability Weighting (Tarozzi, 2005)</b>	<b>2002 Poverty Line</b>	
	<i>weighted</i>	<i>unweighted</i>
2002-03	42.7	
2003-04		
2004-05		
2005-06	45.6	

Source: World Bank staff estimates from HBS data.

2.5 The results presented in the main part of the report (Volume I) are for 2003/04 and 2005/06 only, re-weighted to match non-HBS based rural and urban population estimates. In this volume, we present the results from the methodologies discussed above in order to see whether the main result of Volume I, that of unchanging poverty trend, is confirmed. In short, in this volume we undertake a sensitivity analysis.

**Table 2.2: Summary of Poverty Estimates from the Methodologies Used**

<b>Methodology</b>	<b>Base year</b>	<b>Final year</b> <u>Poverty rates</u>	<b>Change</b>
A. Sampling issues	<b>2003/04</b>	<b>2005/06</b>	
1. Post-stratification	43.5	45.1	About the same
B. Comparability of Welfare Measures			
Compare only 2003/04 and 2005/06	<b>2003/04</b>	<b>2005/06</b>	
2. PA 05	43.6	45	About the same
3. Comparable Consumption Aggregate	48.5	45.6	Slight decrease
4. Abbreviated Consumption Bundle	36.3	36.2	The same
Compare all surveys 2002-2005	<b>2002/03</b>	<b>2005/06</b>	
5. Inverse Probability Weighting	42.7	45.6	Slight increase

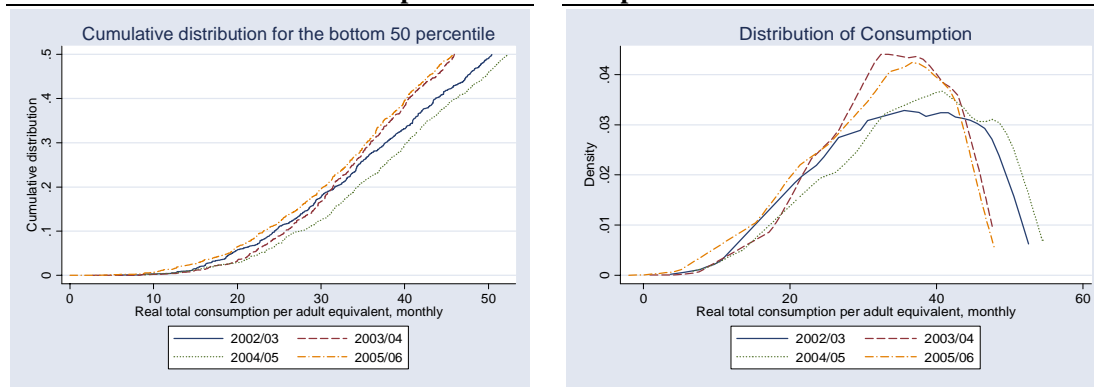
Source: World Bank staff estimates from HBS data.

## **A. POST-STRATIFICATION**

2.6 Because of an outdated sampling frame and resource-constrained limited survey supervision, the HBS sample is likely to be affected by non-negligible sampling and non-sampling errors. As discussed in the survey samples each year appear to come from different populations. This is reflected also in the distribution of the consumption aggregate. As

Figure 2.1 shows, the cumulative distributions of consumption from year to year even indicate a stochastic dominance of 2005/06 over wave 2002/03 and 2004/05. This figure also shows the similarity of 2003/04 and 2005/06 and wave 2002/03 and 2004/05. We suspect that these patterns may be driven by both changes in the questionnaire and the sampling procedure.

**Figure 2.1: Cumulative and Density Distribution of Consumption for the Bottom 50 percentile of the Population**



Source: World Bank staff estimates from HBS data.

2.7 The sampling process and survey administration is poorly documented. The quality of the list of EAs is poor: the distinction between urban and rural is purely administrative; the classification by ethnicity does not follow strict rules, and the description of the geographical boundaries of the EAs is outdated (Andersson, 2002a). In addition, due to lack of proper supervision misclassified EAs were skipped (Andersson, 2002c), relisting of large EAs may be incomplete and field control of enumerators is lacking. Some areas that were heavily populated in 1981 are currently not and vice versa. This introduces large sampling errors and possibly bias to the HBS estimates. There are also issues of under coverage.

**Table 2.3: Poverty Rates with Current Weights and Reweighted**

Wave	Population estimates (million)	Average household size	Extreme poverty rate (%)	Absolute poverty rate (%)
Current Sampling Weights				
2002-03	2.05	6.8	15.0	37.8
2003-04	1.82	6.5	13.3	43.7
2004-05	1.71	6.1	10.7	35.5
2005-06	1.52	6.1	16.5	45.6
Reweighted				
2002-03	1.9	8.5	15.3	38.7
2003-04	1.9	8.0	13.6	43.5
2004-05	1.9	7.4	10.6	34.8
2005-06	1.9	7.7	16.7	45.1

2.8 The reweighting methodology adjusts the sampling weights attached to each surveyed household so that the urban and rural population match non-HBS based data. Generally survey data and its sampling weights are re-calibrated and post-stratification weights are used to match the distribution to some external data (Lohr, 1999). The adjustment methodology is simple and it uses a scaling factor so that the weighted total population size in all surveys matches that of external sources. Then it also matches the distribution of rural and urban households as compared to that of other surveys (Table 1.1). The resulting weighted population total and household size is much more comparable (second half of (Table 2.3). We also match household size distribution in each stratum and obtain very similar results.

2.9 The re-weighted poverty rate confirms the time trend of unchanging poverty over time, while the volatility of the estimates has decreased. The poverty rate, when re-weighted, is again around 45 percent for 2003-04 and 2005-06. At the same time, its decrease in 2002 and 2004 is smaller than when calculated without post-stratification. This procedure, however, seems insufficient in equating the samples. As next steps, the analysis will adjust for other aggregates on which official data is available, as for instance pensioners and students.

**Box 2.1: Bosnia and Herzegovina HBS:  
Example of Sampling without a Census**

Bosnia and Herzegovina's HBS sampling faced similar constraints to those of Kosovo. First, there were no population registers or housing registers to be used as sampling frames. Second, there was possibly considerable internal migration and rapid change amongst the housing stock. Third, the statistical office staff had limited resources and little experience of general population sampling methods (Lynn, 2004). The Bosnia and Herzegovina HBS sampling process follows the steps identified in Table 2.4. The procedure is similar to what currently SOK employs except for several noteworthy differences: census EAs are well delineated and stratified; relisting and questionnaire administration is better supervised; use of equal probabilities both at the stage of selecting PSUs and at the stage of selecting households within PSUs.

**Table 2.4: Sampling procedure for the Bosnia and Herzegovina's Household Budget Survey**

Stage of sampling	Steps	Time
<b>Implemented only once</b>		
Pre-sampling	Revised the census EAs to ensure comprehensiveness and appropriate maps	5 months
Field test	A systematic random sample of 50 EAs to find percent of unoccupied dwellings. Implement relisting procedure and follow up visit.	1 month
<b>Implemented before the survey each year</b>		
1st stage	Systematic equal-probability stratified sampling of 3.65% of EAs.	
Relisting	Semi-intrusive approach (observation where possible, contact elsewhere). About 1 day visit per EA.	3 weeks
2nd stage	Systematic selection of Households from the relist (about 25% of all relisted). Systematic division of the sampled households into 12 monthly samples	

*Source: Lynn (2004).*

## **B. COMPARE ONLY 2003 AND 2005**

### **PA05 Methodology**

2.10 The poverty rate is around 45 percent in both 2003-04 and 2005-06 with a substantial decline in 2004-05 that is as yet unexplained. We use three methods to compare the poverty rates between 2003 and 2005. The first method uses the same poverty line used for the poverty assessment of 2005 (PA05), adjusted for inflation to estimate the poverty rates. A comparison of all three years shows that poverty levels remained stagnant between the start and end of the period. The poverty rate was at 44 percent in 2003 and 45 in 2005. But in 2004/05 there is a large drop in poverty, to 35 percent. While the pattern of change is consistent with the macroeconomic developments – there was a 2.6 percentage point

turnaround in GDP growth between 2003-04 and 2004-05 --such a decrease over a short period of time implies unusually high growth elasticity of poverty reduction<sup>1</sup>.

**Table 2.5: Poverty Rates with the PA05 and Comparable CA methodologies**

Poverty line	PA05 methodology	Comparable CA
	2002 PL	Robust PL
	<u>Poverty rates</u>	
2003-04	43.7	48.5
2004-05	34.8	41.3
2005-06	45	45.6

*Source:* World Bank staff estimates from HBS data.

2.11 Although the last 3 HBS surveys appear very similar and seem to be prime candidates for comparable poverty estimates, changes in the aggregation of food items could affect the poverty figures. The 2003-2005 HBS surveys used the same recall period. Generally, there is a presumption that the groups surveyed are similar: the samples were drawn from three adjacent time periods, between which there had been no expectation of a marked change in poverty. However, they used different levels of aggregation: for instance, there are 107 food items in 2005-06 and 114 in 2003-04 and 2004-05 surveys. Several additional non-food consumption items were added. Possibly, the changes in survey design produced a (misleading) appearance of a drop and then an increase in poverty. The 2004-05 is particularly problematic and as has been mentioned very sensitive to inclusion of consumption of non-food.

## C. COMPARABLE CONSUMPTION AGGREGATE METHODOLOGY

2.12 The second method, which adjusts the poverty line to account for survey-design induced volatility of consumption sub-components shows a slight decline in poverty. We noted that consumption and welfare estimates for 2004/05 survey were noticeably more sensitive to inclusion of consumption of non-food. To address this concern, we use a methodology (Comparable Consumption Aggregate) which constructs the poverty line each year. First, we construct a food poverty line for a reference population using only comparable food consumption items. Then we construct an absolute poverty line each year, non-parametrically (see Box 2.1).

2.13 The differences between the robust and the poverty line from the 2005 Poverty Assessment (Table 2.6) is not only the result of inflation over the period, but also reflects the fact that the 2005 survey embodies a more comprehensive consumption definition than 2003 and 2004 surveys as well as the issues arising from biased sampling and measurement error in the second half of 2004. On the basis of these robust poverty lines, the incidence of poverty in Kosovo decreased slightly from 48 percent in 2003-04 to 46 percent in 2005-06. This contrasts with the observation that poverty increased slightly from 2003 to 2005 when only inflation is adjusted for. In addition, the magnitude of the drop between 2003-04 and 2004-

<sup>1</sup> Most likely, the reported higher expenditure by households is due to survey administration and sampling issues. As shown in the previous sections, the survey methodology could be introducing an unquantifiable bias. Measurement error is also a big concern for the Kosovo HBS as described earlier. Because of limited resources and capacity, survey administration is not at par with international standards: enumerator supervision is compromised while the incentives for respondents changed. This unknown measurement error poses a special challenge when the focus is on poverty and other distributional statistics, rather than on means and totals. While random measurement error should not affect estimates of the mean or the population total if the sample is large enough, such errors will systematically bias poverty estimates (Gibson, 2005). For poverty rates and other variance-based statistics, the effect of random errors accumulates so errors in measuring household level welfare will be reflected in inaccurate estimates of aggregate poverty rates.

05 is much smaller than when consumption of own-production is included. The trend now shows that poverty declines from 48 percent to 41 percent between 2003 and 2004.

**Table 2.6: Robust Poverty Lines Based on Consistent Food Items. Food Poverty Line Excluded Own Production**

	<b>2003-04</b>	<b>2004-05</b>	<b>2005-06</b>
Robust Food poverty line	26.2	27.11	22.75
Robust final poverty line	41.84	44.21	40.39
CPI adjusted PA05 food poverty line	28.35	28.35	28.34
CPI adjusted PA05 poverty line	43	43.01	43

*Source:* World Bank staff estimates from HBS data. In Euros per adult equivalent, monthly, in June 2002 prices.

### **Abbreviated Consumption Bundle Methodology**

2.14 This fourth methodology re-calculates the poverty line for 2003-04 data (second wave) using non-HBS price information of 40 items. The calculation of poverty line is based on the household total consumption of certain reference population. Thus, the poverty line calculated for 2002-03 data in the 2005 Poverty Assessment is based on the consumption recorded in 2002-03. As we pointed earlier, consumption in 2002-03 was recorded using a diary method and it is different from later years. Unfortunately, for 2003-04 survey no price information was collected that can allow us to replicate the poverty line for that data. Using non-HBS price information we are able to calculate the cost of an abbreviated consumption bundle of 40 items.

**Table 2.7: Poverty Rates using the Abbreviated Consumption Bundle Methodology**

<b>Survey wave</b>	<b>Adjusted Adult Equivalent Consumption</b>	<b>Food line</b>	<b>Complete Poverty line</b>	<b>Extreme Poverty Rate</b>	<b>Complete Poverty Rate</b>
2003-04	52.26	22.39	39.01	5.85	36.28
2004-05	59.73	21.84	38.05	4.84	27.23
2005-06	52.12	21.83	38.03	8.89	36.19
units	Euro/month	Euro/month	Euro/month	%	%

*Source:* World Bank staff calculations from HBS data. Wave 2 Poverty line is recalculated using 40 major food item. The poverty lines for waves 1, 3, 4 are deflated from wave 2 poverty lines using CPI.

2.15 Based on these new poverty lines, poverty rates in Kosovo remained stagnant from 2003 to 2005, thus confirming results from other methods. The poverty line is lower than the one calculated for 2002 since it is abbreviated. The poverty line calculated using HBS price information for the 2002-03 data was 43 Euros per month, while this one is 22 Euros per month. Thus the poverty rate appears to be lower. The lower poverty rates are not driven by any real changes in the welfare but simply by this estimation technique. It is the poverty trend that is informative. The resulting poverty trend confirms findings from other estimations that poverty rates remained stagnant.

### ***Box 2.2: Analysis of Changes***

Analysis of changes in poverty presented here is based on consumption data from the 2003-2004, 2004-05 and 2005-06 Kosovo Household Budget Surveys. The consumption modules differ over the survey waves: the 2005 HBS included more items than the 2003 and 2004 surveys. Because the consumption modules differed it was necessary to put together a comparable consumption aggregate (CCA) with each survey. The CCA is a single consumption value in each survey, constructed such that the sets of components in the aggregate in the 2003-2004 surveys and the 2005 survey are parallel. Because the CCAs were assembled solely for the purpose of maximizing comparability across the two years, the CCA is not identical to the full consumption aggregate used in the first part of the report, Volume I.

Following the methodology developed by Lanjouw and Lanjouw (2001), we define an abbreviated food poverty line based only on the categories included in the CCA. (Given the differences between the CCA and the full consumption aggregate, it would not be sensible to apply the poverty lines based on the full consumption aggregate to the CCA (see Table B.5: Poverty Rates Using Alternative Consumption and Poverty Line Methodologies). The food poverty line,  $z$ , is defined as the average expenditure on these comparable items by the population in the 30 to 50 percentiles (26.2 Euros for 2003-04). The robust final poverty line,  $Z$ , derived from this abbreviated food poverty line is 41.8 Euros for 2003-04 surveys and 44.2 and 40.4 Euros per month for 2004-05 and 2005-06 surveys respectively. Each line is calculated non-parametrically by taking average total consumption among sample households with food expenditure within 1 percent of  $z$ , within 2 percent of  $z$ , in increasing bands to within 5 percent of  $z$ . The final poverty line,  $Z$ , is then the average of these values. The values are listed in Table 2.6.

A major assumption behind this methodology is that expenditures on the goods included in the CCA have an Engel curve relation to more comprehensive measures of expenditure. Engel's law postulates that the higher the total expenditure, the lower the share of food expenditures.

A major assumption behind this methodology is that expenditures on the goods included in the CCA have an Engel curve relation to more comprehensive measures of expenditure. Engel's law postulates that the higher the total expenditure, the lower the share of food expenditures. This assumption appears to be met with this data. Other assumptions that need to be satisfied for this methodology to be robust are stable expenditure patterns and no mis-measurement in the data. The other requirement for the comparisons to be robust is that only the head count measure of poverty is used. The problem with higher order poverty measures is that the relative distance between the consumption level of the poor and the poverty line may increase as the components in the consumption aggregate become more comprehensive.

It should be emphasized that the fact that the two surveys were not identical means that the CCAs at best are only approximately comparable. As a result, the use of the CCAs introduces a level of unquantifiable error beyond the usual sample error. Thus, the apparent changes over time should be interpreted with caution

## **D. COMPARE ALL THE YEARS**

2.16 The procedure employed in this section involve estimating an econometric relationship between welfare and household characteristics with the 2002-03 data, using a set of characteristics common to all surveys. The estimated relationship is then used to update the distribution of the explanatory variables in the later surveys with information on the conditional probability (the estimated relationship) from the 2002 survey (Inverse Probability Weighting (IPW))<sup>2</sup>.

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<sup>2</sup> The procedure used here is very similar to that of Stifel and Christiansen (2006), drawing heavily on the work of Elbers, Lanjouw, and Lanjouw (2003).

## **Inverse Probability Weighting**

2.17 The IPW consist of two estimation steps that corrects for the difference in the distribution of consumption between two surveys. In the first stage, data for 2002 and a comparison year are combined and a logit or probit model estimated where the dependent variable is 1 if an observation belong to year 2003 and 0 otherwise and the independent variables are a set of variables that have not changed from survey to survey. This enables us to obtain the predicted probability that an observation is part of 2003 (propensity score). In the second stage, the estimated propensity score is used to reweigh the poverty counts in 2002. The reweighted poverty estimate provides a comparable poverty count for 2003. By doing the same thing for 2004 and 2005, we obtain a series of poverty counts all comparable to 2002 data.

2.18 **The estimation results from using IPW methodology also suggest that poverty headcount increased.** Our preliminary results using data from 2005-06 and 2002-03 only suggest poverty outcomes probably remained the same. The results indicate a slight increase, but the magnitude of the increase depends on the household characteristics specified in step 1. The increase is from 42 to 45 percent between 2002 and 2005 if a large set of household characteristics are used (Table 1.2). If we employ a more limited set of household characteristics, then the implied increase of poverty is higher.

## **E. COMPARISON OF POVERTY FIGURES FROM THE LSMS AND HBS**

2.19 LSMS and HBS data are not directly comparable because of differences in item definitions, disaggregation and recall periods. The 2001 Poverty Assessment (PA) reported the poverty rate at 50 percent using the LSMS 2000 data, while in 2005 the PA reported this rate at 37 percent using the HBS 2002 data. While both reports estimated household expenditures and a relevant poverty line, their results are not comparable because the LSMS and HBS surveys differ significantly in their representativeness and survey design. The representativeness of the surveys is difficult to gauge because of lack of a recent population census. In addition, the sampling frame of the LSMS was revised for the HBS. There are substantial disparities in the population estimates for urban and rural areas as well as for the ethnic groups (Poverty Assessment, 2005).

2.20 The questionnaire designs preclude the construction of comparable poverty indexes. The main differences are in the expenditure item definitions and in the recall period. However, in theory, the inverse probability weighting methods should apply here as well. There are also a few methodological differences in the construction of the poverty indices in these two poverty assessments. The main methodological differences are the exclusion of durables and the inclusion of health expenses for the consumption aggregate using the HBS (Table 1.2). By comparison, the PA using LSMS included durables but excluded health expenditures. Another difference in the estimation of poverty numbers in the two PAs stems from the need to account for survey design when calculating point estimates. The HBS survey is stratified at the urban/rural and ethnic group level, but the 2005 poverty estimates did not adjust for this pattern of stratification. It is therefore difficult compare how large a difference the two estimates are from each other. The per-adult equivalent consumption aggregate and the poverty lines are otherwise constructed in the same way.





## **CHAPTER 3: CONCLUSIONS AND RECOMMENDATIONS**

3.1 The HBS demographic estimates suggest that there is an unquantifiable bias due to the outdated sampling frame and limited survey administration. The survey data implies incorrectly a population reduction from about 2 million to 1.6 million as well as very volatile urban and rural dimensions. These estimates are suggestive of a sampling bias that cannot be corrected for without proper sampling frame. The currently sampling frame for the HBS data (and other SOK surveys such as LFS) dates back to 1981. A sample drawn from the 1981 frame will approximate the population in that frame. The differences between the 1981 population distribution and the current are introducing very large sampling error and possibly bias. In addition, the survey administration has very limited field supervision.

3.2 **Changes in the survey questionnaire additionally make poverty non-comparable between years.** The HBS questionnaire and how it asks respondents to report their consumption changes dramatically from 2002/03 to 2004/05 and then additional changes are introduced each year. As the literature on the subject prove, changes in the recall period and the disaggregation of the categories produce different consumption estimates even when there are no consumption differences in reality.

3.3 **We employ six methods to address the issues non-comparability and sampling.** For sampling, we employ post-calibration to match HBS estimates to other estimates of the population. We also exclude volatile waves, as for instance the consumption patterns from 2004/05 seem to not be comparable to those of 2003/04 or 2004/05. To address non-comparability of how the expenditure data was collected, we use, first, surveys with comparable questionnaires, and second, all surveys but correct for differences in consumption patterns by using econometric projection and inverse probability weighting.

3.4 Based on this extensive sensitivity analysis, we do not find firm evidence of improvement of household welfare in Kosovo in the last three years. The result that is robust to specification and different methodologies is that there is no significant increase or decrease in the poverty rate in Kosovo for the period from 2003/04 to 2005/06.

### **A. RECOMMENDATIONS**

3.5 **Consistency in the survey questionnaire should be the goal of next surveys.** Even small changes in the way how questions about expenditures are asked can cause differences in reported consumption even if there is no real change in the consumption pattern of the household. Changes in the survey questionnaire should not be introduced without a randomized experiment beforehand. A randomized experiment/mini-survey will allow to test the effect of changing the question on the reported expenditure.

3.6 **A census is urgently needed to create a basis for unbiased sampling.** It is unfortunate that four years of data are not reliable enough to provide policy guidance because of a lack of census. A census will completely resolve the sampling issues for future surveys, and possibly can be used retroactively to adjust earlier sampling weights.

3.7 **Better survey administration and documentation of all steps of the process and the data are necessary.** Currently, the survey administrators have hardly any supervision. Additional supervision will affect the HBS budget only marginally but will have high returns in improved data quality. Second, documentation of all procedures is very limited. This step is at least costly, but will improve data quality and usefulness.

## ANNEX A: TABLES AND FIGURES

**Table A.1: Comparison of Previous Methodologies**  
**WB Poverty Assessments**

WE Poverty Assessments				2001 <sup>3</sup>			2005 <sup>4</sup>		
Poverty Rates		Absolute	Extreme		Absolute	Extreme			
	Total	50.3	11.9	Total	37.0	15.2			
	Rural	52.0	11.6	Rural	34.1	14.8			
	Urban	47.5	12.5	Urban	Not avail.				
				Pristina	36.4	7.7			
				Other	47.1	19.1			
Data	LSMS 2000 Timing: Sept – Dec 2000. Sampling frame: 2, 880 households. Rural: based on the Housing Damage Assessment Survey (1999). Urban OSCE voters’ registration. Representativeness: Urban/rural. AORs, ethnic groups.			HBS 2002-2003 Timing: 6/2002-5/2003. Sampling frame: 2400 households Similar to LSMS with primary sampling units revised. Representativeness: Urban/rural; ethnic group.					
Consumption Aggregate	Food: 1. Purchased food in the last 30 days in 39 categories, both quantity and value. 2. Stored food in the last month and last year, 7 categories. 3. Own production, gifts. 4. Food out.  Housing Expenditure and Rent: excluded.  Non-food: personal items, hh services.  Durable goods: rental value.  Education: included, 1-year recall.  Health: excluded  Price indexes: using unit values (ratio of values over quantities) after excluding obs >			Food: 1. Expenditures on food. 2. Own production 3. Food out  Housing Expenditure and Rent: excluded.  Non-food: Personal items, hh services Semi-durables Durable goods: excluded;  Education: included, diary method  Health: included  Price index: CPI by month and urban/rural dimension.					

<sup>3</sup> Information here is from the Poverty Assessment, 2001 and Appendix G of the Kosovo LSMS 2000 Basic Information Document from <http://www.worldbank.org/lsm>

<sup>4</sup> Kosovo Poverty Assessment (2005) and Tsirunyan, Sasun. 2004. "Poverty and Inequality in Kosovo", background paper for the Poverty Assessment.

	2 st.d. Paasche price index.	
Equivalent Adults	$EA_i = (A_i + \theta C_i)^\theta$ where $\theta = 0.75$ . Equivalent Adults = (Adults + .75 Children) <sup>.75</sup> . Children < 15 years old.	$EA_i = (A_i + \theta C_i)^\theta$ where $\theta = 0.75$ . Equivalent Adults = (Adults + .75 Children) <sup>.75</sup> . Children < 15 years old.
Per Adult-Equivalent Consumption	$PEC_i = \frac{TC_i}{(A_i + \theta C_i)^\theta} \times \frac{(A_0 + \theta C_0)^\theta}{A_0 + C_0}$ where the pivotal household has 4 adults and 2 children ( $A_0=4$ , $C_0=2$ ).	$PEC_i = \frac{TC_i}{(A_i + \theta C_i)^\theta} \times \frac{(A_0 + \theta C_0)^\theta}{A_0 + C_0}$ where the pivotal household has 4 adults and 2 children ( $A_0=4$ , $C_0=2$ ).
Poverty Lines	Food poverty line: Based on 2, 100 calories per adult. Caloric structure of the 30 <sup>th</sup> to 50 <sup>th</sup> population percentiles. Food line: DM 1.8529 per adult per day. Poverty line: DM 3.498 per adult per day. Using the share of non-food items for hh with food consumption close to the Food Line. Food share= 53.97%.	Same methodology as for 2001. Food basket of 2100 calories is estimated with the price information from the HBS. Caloric structure of the 30 <sup>th</sup> to 50 <sup>th</sup> population percentiles from the HBS. Food line: Euro 0.93/day/adult. Poverty line: Euro 1.41 per adult per day. Same methodology as 2001. Food share= 65.9%.
Currency conversion	Lack of PPP adjustment indexes.  Currency conversions use the rates corresponding to the month of the survey. Unofficial exchange rate of 30 to 33 Dinars per DEM.	PPP not available.  Not indicated.
Other		Not accounting for stratification.

Source: World Bank Kosovo Poverty Assessment (2001) and Poverty Assessment (2005).

**Table A.2: Survey Comparison**

<b>KOSOVO HBS</b>	<b>Wave I</b>	<b>Wave II</b>	<b>Wave III</b>	<b>Wave IV</b>
	<b>HBS-2002-2003</b>	<b>HBS-2003-2004</b>	<b>HBS-2004</b>	<b>HBS-2005</b>
Period used for analysis	6/2002-/2003	6/2003-6/2004	6/2004-5/2005	6/2005-5/2006
Number of observations	2400 households (960 rural, 1440 urban)	2400 households	2400 households	2400 households
<b>Survey questionnaire design and its changes</b>				
Timing of questionnaire introduction	6/2002	6/2003	1/2005	1/2006
<b>Food consumption expenditure</b>				
Recall period	daily	weekly	weekly	weekly
Method	diary	recall	recall	recall
Question type	open-ended	close-ended	close-ended	close ended
Categories	165	103	103	107
<b>Consumption of own production</b>				
Quantities	yes	no	no	no
In-kind food received as gifts, donation	yes	yes	yes	yes
Categories	85	12	12	12
<b>Non-food expenditures</b>				
Education	daily diary	weekly recall	weekly recall	weekly recall
Categories	14	13	13	13
Health	daily diary	weekly recall	weekly recall	weekly recall
Categories	6	6	6	11
<b>Other non-food</b>				
Clothing	daily diary	weekly recall	weekly recall	weekly recall
Categories	31	10	10	10
Household textiles	yearly recall	weekly recall	weekly recall	weekly recall
Categories	6	6	6	6
Transport	daily diary	weekly recall	weekly recall	weekly recall
Categories	11	5	5	15
<b>Durables</b>				
Purchases	yes	yes	yes	yes
Ownership	quantity of item	no	no	yes
Value	no	no	no	no
When bought	no	no	no	yes
<b>Housing consumption</b>				
Rent	no	yes	yes	yes
Categories	2	6	6	6
Estimated rent if owned	yes	yes	yes	yes
Utilities	daily diary	weekly recall	weekly recall	weekly recall
Categories	16	24	24	26

*Source:* Relevant HBS questionnaires and datasets.

**Table A.3: Percent Changes in Main Aggregates from Survey to Survey Comparison**

<i>Change from.....</i>	<i>II to III</i>	<i>III to IV</i>	<i>II to IV</i>
Base is	03/04	04/06	03/04
Total Consumption of HH	9%	-13%	-5%
Total Expenditures of HH	14%	-13%	-1%
Consumption of own produced or fetched food	-18%	-12%	-28%
Food expenditures (incl. alcohol and tobacco)	2%	-12%	-9%
Non-Food expenditures	32%	-15%	12%

*Source:* World Bank staff estimates from HBS data.

**Table A.4: Alternative Consumption Aggregate Definitions and Poverty Rates**

<u>Consumption Aggregate Specification</u>	Poverty Rates Weighted				Coefficient of Variation 2002-05
	2002/03	2003/04	2004/05	2005/06	
Basic food excl own prod. plus basic non-food spending excl. utilities	77.8	81.7	73	79.7	5%
Above plus own production	61.3	68.8	58.8	69.6	8%
Above plus in-kind, food out, alcohol and tobacco	55.6	63.5	51.4	62.6	10%
Above plus semi-durables and utilities	46.4	49.6	38.9	50.1	11%
Above plus education	46.4	49.6	38.9	50.1	11%
Above plus medical	44.6	47.6	36.8	48.4	12%

*Source:* World Bank staff estimates from HBS data.

**Table A.5: Consistently Asked Questions over the 4 Surveys**

Variable	Wave I	2003-04/III	Wave IV
Education of head and max in hh	If 7 years or older: What is his/her highest level of education completed? 8 categories	If 6 years or older: What is his/her highest level of education completed? 8 categories	If 6 years or older: What is his/her highest level of education completed? 8 categories
Age (of household head)	How old is he/her? Age at last birthday. Note “o” for children under 1 year	How old is he/her? Age at last birthday. Note “0” for children under 1 year	How old is he/her? Age at last birthday. Note “o” for children under 1 year
Sex of household head	What is his/her sex?	What is his/her sex?	What is his/her sex?
Student/Unemployment status	What is his/her main activity during the past 12 months? 11 categories	What is his/her main activity during the past 12 months? 11 categories	What is his/her main activity during the past 12 months? 11 categories
Income source	What is the main source of income for this household? 8 categories	What is the main source of income for this household? 8 categories	What is the main source of income for this household? 10 categories <new: remittances from abroad and social assistance>
Housing: brick walls	What is the main material of the walls? 4 categories; 2=bricks/cement blocks.	Does your dwelling have walls of block, bricks or cement?	Does your dwelling have walls of block, bricks or cement?
Housing: electricity	Is this dwelling electrified?	Does your dwelling have electricity?	Does your dwelling have electricity?
Housing: tap water	What is the main source of water for this household? Central pipeline, own pipeline, standing water pipe.	Does your dwelling have indoor water taps?	Does your dwelling have indoor water taps?
Purchase of durables	Has anyone in the household during the last 12 months purchased any...? 57 categories	Has anyone in the household during the last 12 months purchased any...? 57 categories	Has anyone in the household during the last 12 months purchased any...? 57 categories

*Source:* World Bank staff estimates from HBS data.

**Table A.6: Definition of Consumption Aggregates for the Different Methodologies**

	<b>PA 05</b>	<b>CA Revised*</b>	<b>Comparable CA</b>
Food excluding own production	√	√	√
Alcohol and tobacco	√	√	
In-kind (received)	√	√	
Own production	√	√	√
Non-food excl health and education	√	√	
Education	√	√	
Health	√		
Utilities excl value of housing	√	√	
Value of housing			

*Source:* World Bank staff estimates from HBS data. Notes: \* Certain high volatility items are excluded (air and sea transportation expenses; gambling and holiday packages; financial and judicial services). Utilities include domestic services.

**Table A.7: Poverty Lines in Different Methodologies (in Euros, per adult equivalent per month)**

<b>Methodology</b>	<b>2002 PL adjusted with CPI</b>	<b>Robust in Comparable CA</b>	<b>Endogenous in Comparable Surveys</b>	<b>Endogenous in Econometric Projection (weighted)</b>	<b>Endogenous in Econometric Projection (unweighted)</b>
<b>Wave</b>	<b>Poverty line</b>				
2002/03	43.12			45.6	44.1
2003/04	43.10	41.8	37.2	45.6	44.0
2004/05	43.34	44.2	38.1	46.8	45.2
2005/06	43.10	40.39	38.1	46.8	45.2

*Source:* World Bank staff estimates from HBS data.



## ANNEX B: RESULTS USING DIFFERENT SURVEY YEAR DEFINITION

3.8 In this Annex, we present our results using survey waves defined by the introduction of changes in the questionnaire.

3.9 There is a difference between the sampling timing and the timing of the introduction of changes in the questionnaire. The sampling is done for the household being survey in June through May each year. Changes and additions to the survey questionnaire are introduced in January, starting 2005. The selection of which households and EAs are sampled each month is not clear, although 200 households from 25 EAs are consistently surveyed. There is evidence, however, that the surveying consequence is not representative by month or half a year. For instance, much larger share of the population is surveyed each second half of the year than during the rest of the survey. Partitioning the sample by calendar year, thus, introduces a bias. In deed, the results using waves defined as in the table below show a different trend in poverty.

**Table B.1: Introduction of New Questionnaires**

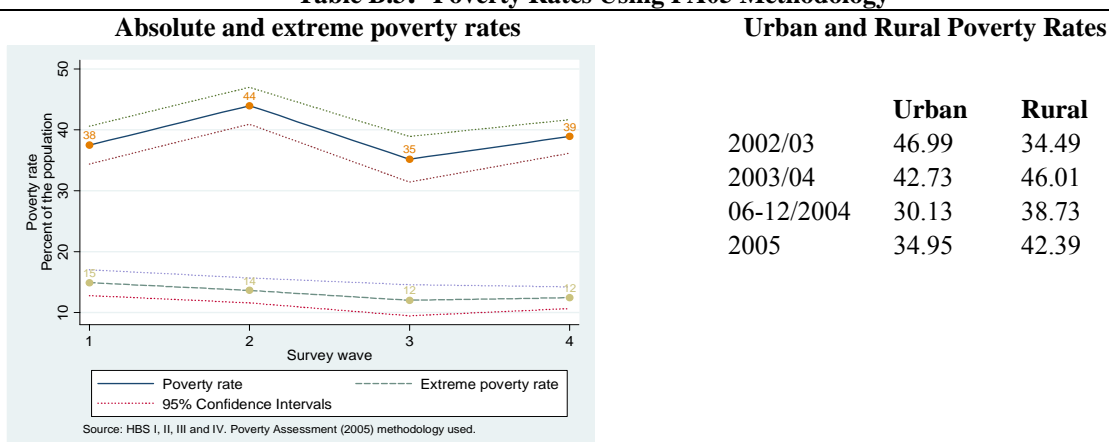
<b>KOSOVO HBS</b>	<b>Wave I</b>	<b>Wave II</b>	<b>Wave III</b>	<b>Wave IV</b>
	HBS_2002-2003	HBS_2003-2004	HBS_2004	HBS_2005
Period	6/2002-5/2003	6/2003-6/2004	6/2004-12/2004	1/2005-12/2005
Number of observations	2400 households (960 rural, 1440 urban)	2400 households	1400 households	2400 households

**Table B.2: Poverty Statistics using PA05 Methodology**

	<b>Absolute Weighted</b>	<b>Poverty Headcount Unweighted</b>	<b>Extreme Poverty Weighted</b>	<b>Headcount Unweighted</b>
6/2002-5/2003	37.93	43.56	15.43	18.30
6/2003-6/2004	45.14	41.83	13.85	13.64
6/2004-12/2004	35.79	31.61	12.43	10.39
1/2005-12/2005	39.72	39.13	12.68	13.24

*Source:* World Bank staff estimates from HBS data. Note: Unweighted here refers to no weights being used and thus these estimates are at household-level versus the population-level estimates in the “weighted” column.

**Table B.3: Poverty Rates Using PA05 Methodology**



Source: World Bank staff calculations from HBS data

**Table B.4: Detailed Poverty Diagnostics with Revised Consumption Aggregate**

	<u>Absolute Poverty Headcount</u>		<u>Extreme Poverty Headcount</u>	
	<i>weighted</i>	<i>unweighted</i>	<i>weighted</i>	<i>unweighted</i>
<i>By wave</i>				
6/2002-5/2003	40.6	46.0	17.9	20.1
6/2003-6/2004	46.9	42.8	14.5	14.4
6/2004-12/2004	37.3	33.0	12.8	10.7
1/2005-12/2005	42.1	40.7	13.1	13.7

Source: World Bank staff calculations from HBS data. Unweighted here refers to no weights being used and thus these estimates are at household-level versus the population-level estimates in the “weighted” column.

<b>Table B.5: Poverty Rates Using Alternative Consumption and Poverty Line Methodologies</b>				
<b>Consumption Aggregate (CA) definition</b>	<b>Poverty Rates</b>			
<b>CA I. CA with PA 05 methodology</b>	<b>PL 2002 adjusted with CPI</b>			
	<i>weighted</i>		<i>unweighted</i>	
By wave				
2002-03	37.9		43.6	
2003-04	45.1		41.8	
2004-05	35.8		31.6	
2005-06	39.7		39.1	
<b>CA II. Comparable CA (Lanjouw and Lanjouw, 2001)</b>	<b>PL 2002 adjusted with CPI</b>		<b>Nonparametric Poverty Line</b>	
	<i>weighted</i>	<i>unweighted</i>	<i>weighted</i>	<i>unweighted</i>
By wave				
2002-03	40.6	46.0		
2003-04	46.9	42.8	39.6	35.9
2004-05	37.3	33.0	39.2	34.8
2005-06	42.1	40.7	38.6	37.5
<b>CA II in Comparable Surveys</b>	<b>PL 2002 adjusted with CPI</b>		<b>Endogenous Poverty Line</b>	
	<i>weighted</i>	<i>unweighted</i>	<i>weighted</i>	<i>unweighted</i>
By wave				
2002-03	40.6	46.0		
2003-04	46.9	42.8	37.8	34.9
2004-05	37.3	33.0	29.9	25.7
2005-06	42.1	40.7	33.2	32.5
<b>CA I Using Econometric Poverty Projection (Stifel and Christiansen, 2006; Elbers, Lanjouw, and Lanjouw, 2003)</b>	<b>PL 2002 adjusted with CPI</b>		<b>Poverty Line Endogenously Determined</b>	
	<i>weighted</i>	<i>unweighted</i>	<i>weighted</i>	<i>unweighted</i>
By wave				
2002-03	29.7	34.7	38.2	36.2
2003-04	24.7	31.1	30.2	31.1
2004-05	28.8	30.1	38.8	32.3
2005-06	26.8	28.7	35.5	30.7
<i>Source: World Bank staff calculations from HBS data.</i>				



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