THE PROFILE OF POVERTY IN TAJIKISTAN: AN UPDATE 1999 TO 2003

JANE FALKINGHAM, IRINA KLYTCHNIKOVA

ABSTRACT

Tajikistan is one of the poorest countries in the world and ranks 113th among 175 countries according to the UNDP's Human Development Report 2003. This paper uses data from the Tajikistan Living Standards Survey (TLSS) conducted in May-June 2003 to examine the level and composition of poverty within the country. It compares the results with those derived from analysis of the 1999 TLSS to look at changes over the previous four years. The findings indicate that there has been a significant reduction in the proportion of households living in poverty in Tajikistan over the period 1999 to 2003. In 2003, 64 percent of the population was poor compared with just over 80 percent in 1999. Nevertheless Tajikistan remains the poorest country in the CIS-7 region, with poverty rates of 54 percent in Kyrgyz Republic (2001) and 45 percent in Moldova (2002).

The gains in living standards have not been equally distributed across the county, with virtually no improvement in poverty rates between 1999 and 2003 in Dushanbe, urban RRS and Sugd. Moreover, although poverty rates have fallen, inequality appears to have widened between 1999 and 2003. While there has been growth in per capita expenditures across the distribution, growth has generally been higher in the top half of the distribution. Other indicators of welfare, including subjective measures, indicate increasing levels of stress and social exclusion. Thus urgent reforms are necessary to improve governance and so foster private sector development and to complete the process land reform which has been delayed in cotton growing areas such as Khatlon. Only then will the poorest be able to benefit from the peace.

Southampton Statistical Sciences Research Institute
Applications & Policy Working Paper A06/02

The Profile of Poverty in Tajikistan: an update 1999 to 2003

Jane Falkingham
University of Southampton

&
Irina Klytchnikova
Consultant
The World Bank

The Profile of Poverty in Tajikistan: an update 1999 to 2003

Abstract
Tajikistan is one of the poorest countries in the world and ranks 113th among 175 countries according to the UNDP's Human Development Report 2003. This paper uses data from the Tajikistan Living Standards Survey (TLSS) conducted in May-June 2003 to examine the level and composition of poverty within the country. It compares the results with those derived from analysis of the 1999 TLSS to look at changes over the previous four years. The findings indicate that there has been a significant reduction in the proportion of households living in poverty in Tajikistan over the period 1999 to 2003. In 2003, 64 percent of the population was poor compared with just over 80 percent in 1999. Nevertheless Tajikistan remains the poorest country in the CIS-7 region, with poverty rates of 54 percent in Kyrgyz Republic (2001) and 45 percent in Moldova (2002).

The gains in living standards have not been equally distributed across the county, with virtually no improvement in poverty rates between 1999 and 2003 in Dushanbe, urban RRS and Sugd. Moreover, although poverty rates have fallen, inequality appears to have widened between 1999 and 2003. While there has been growth in per capita expenditures across the distribution, growth has generally been higher in the top half of the distribution. Other indicators of welfare, including subjective measures, indicate increasing levels of stress and social exclusion. Thus urgent reforms are necessary to improve governance and so foster private sector development and to complete the process land reform which has been delayed in cotton growing areas such as Khatlon. Only then will the poorest be able to benefit from the peace.

Table of Contents

List of Tables

List of Charts

List of Figures

1. Introduction

Tajikistan is one of the poorest countries in the world and ranks 113th among 175 countries according to the UNDP's Human Development Report 2003. Using the poverty line suggested by the Tajik State Statistical Agency, about 83 percent of the population were considered to be poor and 33 percent to be extremely poor in 1999. The poverty assessment undertaken by the World Bank in 1999/2000 painted the following broad picture: (i) while inequality seemed to be lower than in other countries in this region, it had been rising [1]; (ii) there were significant regional differences regarding poverty; poverty incidence in Dushanbe was much lower than elsewhere in Tajikistan; (iii) the poverty incidence among demographic groups showed that children were the most vulnerable group; (vi) another group with a high poverty incidence was older people; poverty rates were especially high for cases where three or more elderly persons resided in the same household or extended family; and (v) poverty rates were particularly high in female headed households resulting from the civil war.

The period since 1999 has witnessed positive and strong economic growth. In May-June 2003 a second round of the Tajikistan Living Standards Survey (TLSS) was conducted. This discussion paper updates the earlier analysis of poverty (Falkingham, 2000; World Bank, 2000) using data from the most recent survey. The paper contains eight substantive sections. The data is briefly discussed in Section 2 below. Section 3 then examines changes in the extent and depth of material poverty over the period 1999–2003. The poverty assessment in 1999/2000 did not take regional differences in prices into account due to data constraints. However the recent survey makes such analysis possible. Thus Section 4 investigates the impact upon the regional picture of material poverty using national and regional poverty lines Section 5 then explores changes in the distribution of welfare and investigates the impact of recent growth on measures of inequality. The composition of income and expenditure is further unravelled in section 6. Section 7 then presents a detailed examination of the profile of poverty in Tajikistan using bi-variate and multi-variate analysis. In between the two World Bank funded TLSS, the Asian Development Bank conducted a further survey. Poverty was defined here using an asset based indicator of welfare. In order to compare results across the two surveys, Section 8 shows the results of using a similar measure within the TLSS. Finally, results using other measures of welfare including subjective poverty and food security as well as household coping mechanisms are presented in Section 9.

2. Data

The TLSS 2003 was based on a stratified random probability sample, with the sample stratified according to oblast and urban/rural settlements, and with the share of each strata in the overall sample being in proportion to its share in the total number of households as recorded in the 2000 Census. The same approach was used in the TLSS 1999, although there were some differences in the sampling. First, the share of each strata in the overall sample in 1999 was determined according to 'best estimates', as it was conducted prior to the 2000 Census. Second, the TLSS

[1] In 1999 the Gini coefficient for per capital income was 0.47. Although not directly comparable, this is an significant increase from 0.31 in 1989 (Atkinson and Micklewright, 1992). The Gini coefficient for expenditure in 1999 was lower than that for income, at 0.33.

2003 over-sampled by 40 percent in Dushanbe, 300 percent in rural GBAO and 600 percent in urban GBAO. Third, the sample size was increased in 2003 in comparison with 1999, in order to reduce sampling error. In 2003 the overall sample size was 4,156 households compared with 2,000 households in 1999.

3. Changes in poverty 1999–2003

As noted in the World Bank poverty assessment (World Bank, 2000), there is no officially sanctioned or universally accepted poverty standard within Tajikistan. The State Statistical Agency continues to estimate the cost of the 'rational norm of nutrition' basket based on the basket of goods established under the definition used in the USSR (line 1 in table 1 below). In addition they publish an alternative food based poverty line, known as the minimum food basket (line 2). Neither of these is based on scientific estimation of calorific intake. However they do provide a useful guide to changes in the costs of a basic basket of foodstuffs over time. The 1999 poverty assessment also included two other poverty standards suggested by the SSA of TR 20,000 and TR 10,000. These can be uprated to 2003 prices using the consumer price index (lines 3 and 4). In addition, the 1999 poverty assessment used the international poverty lines of PPP $2.15 a day and PPP $1.08 a day. It is important to note that the results are sensitive to the choice of the PPP conversion factors. The results reported in the 1999 Poverty Assessment used the World Bank 1996 conversion factors. New conversion factors were calculated in 2000, the use of which results in a slightly higher poverty line. This is due to a change in relative prices across time as prices become increasingly liberalised. For completeness, Table 1 below shows the changes in poverty between 1999 and 2003 using per capita household expenditure as the welfare indicator compared against seven alternative poverty lines.

Table 1: Comparison of poverty rates in 1999 and 2003

Alternative Poverty Lines	Head Count Index (P0)			Poverty Gap (P1)		Poverty Severity (P2)	
	1999	2003	Change in % points	1999	2003	1999	2003
1. SSA Rational Nutrition Norm 1999 = TR 27,400 2003 = S 67.53	92.3	83.1	-9.2	51.1	40.0	31.7	22.5
2. SSA Minimum Food Basket 1999 = TR 16,830 2003 = S 35.03	74.9	44.4	-30.5	29.2	13.6	14.7	5.8
3. SSA Arbitrary-2 1999 = TR 10,000 2003 = S 24.78	35.5	22.6	-12.9	10.2	5.4	4.3	2.0
4. SSA Arbitrary-1 1999 = TR 20,000 2003 = S 49.55	82.8	67.4	-15.4	37.1	26.3	20.2	13.1
5. $1.08 PPP a day (at 2000 PPP conversion factor) 1999 = TR 9,532 2003 = S 23.62	32.7	19.9	-12.8	9.0	4.7	3.8	1.7
6. $2.15 PPP a day (at 2000 PPP	80.6	64.4	-16.2	34.8	24.1	18.4	11.6

conversion factor) 1999 = TR 18,991 2003 = S 47.06							
7. $2.15 PPP a day (at 1996 PPP conversion factor) 1999 = TR 16,836 2003 = S 41.72	75.0	56.6	-18.4	29.2	19.5	14.7	9.0

Notes: Poverty lines 3 and 4 were updated using the CPI, which is 247.8 in June 2003 (June 1999=100). Poverty lines 5 through 8 were updated using World Bank PPP calculations. The World Bank EcaPov 2000 PPP conversion factor is 0.3596 S/USD. The poverty lines were calculated applying the appropriate conversion factor and inflating the poverty line to 1999 and 2003, respectively.

Regardless of which poverty line is chosen, headcount poverty rate is lower in 2003 than in 1999. Comparing the results of the TLSS 2003 with the TLSS 1999, using $2.15 PPP (at 2000 PPP conversion factor) as the poverty line, it appears that the rate of poverty dropped from 81 percent to 64 percent (a decline of 16 percentage points). Using the State Statistical Agency's poverty line, it appears that the poverty rate dropped from 83 percent to 67 percent (a decline of 15 percentage points). And using the Government's Rational Nutritional Norm approach, the poverty rate apparently dropped from 92 percent to 83 percent (a decline of 9 percentage points).

It also seems that severe poverty has declined, with a fall in the proportion of the population living on less than PPP $1 a day. However, despite the apparent improvement in the overall poverty situation, the TLSS 2003 results suggest that over four-fifths of the population still have a total per capita consumption level that is less than the "rational norm" and nearly two-thirds live on less than PPP $2.15 a day.

The remainder of the analysis presented here uses a poverty line of $2.15 PPP a day based on the 2000 conversion factors.

4. Regional poverty, using national and regional poverty lines

In 1999, the poverty profile for Tajikistan was analysed using a single poverty line based on national prices. Although price data for a number of goods and services were collected as part of the community questionnaire administered within each primary sampling unit (PSU) in the TLSS 1999, no attempt was made to take into account differences in the cost of living within the country. The reason for this was that the community level data was not made available for analysis until sometime after the main household and individual level data. For comparative purposes the same approach is adopted here and Table 2 shows the percentage of *individuals* living in households with per capita expenditures below $2.15 PPP a day in 1999 and 2003. Using a national poverty line, the rate of poverty decline seems to have varied significantly across the country, with improvements been most marked in GBAO and least change in Khatlon.

Table 2: Headcount poverty rates using per capita expenditure, $2.15PPP poverty line
(1999 = 18,992 TR; 2003=47.06 somoni) and national prices (95% confidence interval)

Region	Type of settlement	National prices		Change % points
		1999	2003	1999-2003
GBAO	Urban	94.9 [85.0-100]	46.2 [36.5-55.9]	-48.6
	Rural	91.8 [86.1-97.6]	66.2 [61.2-71.3]	-25.6
	Total	92.5 [87.5-97.5]	63.3 [58.7-67.9]	-29.2
SUGD	Urban	81.8 [76.0-87.6]	59.2 [53.9-64.5]	-22.6
	Rural	84.0 [80.6-87.5]	72.1 [68.9-75.2]	-11.9
	Total	83.5 [80.5-86.4]	68.6 [65.9-71.4]	-14.8
KHATLON	Urban	86.3 [80.6-91.9]	78.4 [73.0-83.8]	-7.8
	Rural	86.8 [84.0-89.7]	81.8 [79.2-84.4]	-5.1
	Total	86.7 [84.2-89.3]	81.2 [78.8-83.5]	-5.6
DUSHANBE	Total/Urban	58.1 [50.1-66.1]	39.9 [35.5-44.3]	-18.2
RRS	Urban	64.0 [49.1-78.8]	50.7 [40.7-60.8]	-13.2
	Rural	73.0 [68.3-77.7]	44.4 [39.9-48.8]	-28.6
	Total	72.3 [67.8-76.8]	45.2 [41.0-49.3]	-27.1
Total	Urban	75.0 [71.2-78.8]	55.4 [52.5-58.3]	-19.6
	Rural	82.2 [80.1-84.3]	67.7 [65.7-69.7]	-14.5

Note: 95% CI for 2003 calculated using simple weights to take into account sample design (i.e. over-sampling in GBAO and Dushanbe) rather than grossing up weights, as the latter unduly affects the N used in the calculation.

However, there are significant differences in the cost of living throughout the country. In 2003 the same price data was collected within each PSU. Information was obtained for each commodity from three different retail outlets in each commodity and the average across the three

outlets calculated. This allowed for the calculation of a regional poverty line separately for urban and rural areas within each oblast (based on the rational norm), which in turn facilitated the derivation of a regional price index, with which to adjust alternative poverty lines, including the $2.15PPP.

As the community price data are now readily available for the 1999 TLSS it is also possible to repeat this exercise to a) look at changes in regional price differentials over time and b) to examine changes in the regional profile of poverty after taking into account regional differences in the cost of living.

Table 3 below shows the regional price index for both 1999 and 2003, with national prices equal to 100. A priori, one might have expected that differences in prices between regions would have been greater in 1999 than 2003 as access to many parts of the country was still limited due to continuing tensions following the civil unrest. By 2003 transport routes had been largely restored and goods and services could move freely around the country. In fact the relative difference in prices between GBAO and elsewhere in the country has increased over time, as prices in the rest of the country have converged. Not surprisingly, prices in the capital, Dushanbe, remain well above the national average[2].

Table 3: Regional differences in the cost of living, 1999 and 2003

Region	Type of settlement	1999	2003
GBAO	Urban	118	133
	Rural	124	135
Sugd	Urban	84	98
	Rural	93	94
Khatlon	Urban	107	99
	Rural	119	92
Dushanbe	Urban	105	113
RRS	Urban	96	106
	Rural	99	99
Total		100	100

The most interesting change, however, has occurred in Khatlon. In 1999 prices in both urban and rural areas were above the national average and prices were actually higher in rural than urban areas. This in part reflects the composition of the basket used to derive these prices indexes. The basket contains a number of goods that are not grown in rural areas and that would need to be purchased in a local market, such as meat products, sugar, confectionary, salt etc. In 1999, trade within many rural areas in Khatlon (and Sugd, formerly Leninabad) was still disrupted with the result that the price of some commodities was higher in rural than urban areas.

[2] According to regional prices produced by SSA (personal communication 14th March 2004), prices indices for May 2003 were 133 in GBAO, Sugd 101, Khatlon 94, Dushanbe 114 and RRS 103. Figures were not disaggregated by urban and rural areas. However the value of the indices is a reassuringly close match to those derived from the TLSS in Table 3.

What difference do regional differentials in the cost of living make to the regional profile of poverty, and to estimates of changes in poverty over time?

Table 4 shows the same information as Table 2 above but now household expenditures are adjusted for regional differences in prices. The poverty ranking of oblasts in 1999 remains the same after taking region price differentials into account. However, overall headcount poverty rates are somewhat higher in GBAO, Khatlon and Dushanbe and somewhat lower in RRS and Sugd after taking differences in the cost of living into account. In 2003, however, the poverty ranking alters once regional prices differences are taken into account – with GBAO being the poorest region and both Khatlon and Sugd improving their relative position

The relative position in Khatlon is affected both in 1999 (with a worsening of the position) and in 2003 (with an improvement in position). The overall result is that whilst poverty rates in Khatlon do not show any improvement over the period 1999 to 2003 using national prices, the regional does witnesses a significant improvement in poverty rates if a regional poverty line is used. This is in line with what is known about economic recovery in the region.

After taking regional differences in the cost of living into account, there is still some improvement in headcount poverty in GBAO between 1999 and 2003, but the improvement is less marked.

Interestingly, Table 4 also shows that although poverty rates have fallen everywhere, these falls are not significant (i.e. the confidence intervals overlap) in Dushanbe and in urban areas in Sugd and RRS. Overall improvements have been greatest in rural areas, and urban-rural differentials have considerably narrowed by 2003 once price differences are taken into account.

In summary, using real, i.e. regionally adjusted, expenditure there is:

- Some improvement in poverty everywhere, but
- The improvement in poverty rates between 1999 and 2003 is not statistically significant in Dushanbe, urban RRS and Sugd.
- The change for the better between 1999 and 2003 is more marked in rural than urban areas (with the exception of GBAO)
- Poverty rates remain highest in rural GBAO, followed by Khalton
- Poverty is now lowest in rural areas in RRS

Table 4: Headcount poverty rates using per capita expenditure, $2.15PPP poverty line
(1999=18,991TR;2003=47.06 Somoni) and regional prices (95% confidence interval)

Region	Type of settlement	National prices		Change % points
		1999	2003	1999-2003
GBAO	Urban	100.0 [100-100]	74.0 [66.2-81.7]	-26.0
	Rural	96.4 [92.8-100]	85.9 [82.3-89.4]	-10.5
	Total	97.1 [94.3-100]	84.1 [80.9-87.4]	-13.0
SUGD	Urban	70.9 [63.7-78.0]	58.5 [53.3-63.8]	-12.3
	Rural	81.6 [77.9-85.2]	66.4 [63.0-69.7]	-15.2
	Total	78.9 [75.7-82.2]	64.3 [61.4-67.1]	-14.7
KHATLON	Urban	88.1 [82.7-93.4]	77.6 [72.0-83.1]	-10.5
	Rural	92.1 [89.9-94.3]	78.2 [75.4-81.1]	-13.9
	Total	91.4 [89.4-93.5]	78.1 [75.6-80.7]	-13.3
DUSHANBE	Total/Urban	60.5 [52.6-68.5]	48.9 [44.5-53.4]	-11.6
RRS	Urban	64.0 [49.1-78.8]	55.3 [45.4-65.2]	-8.7
	Rural	72.1 [67.3-76.8]	43.6 [39.1-48.1]	-28.5
	Total	71.4 [66.9-76.0]	45.1 [41.0-49.2]	-26.3
Total	Urban	73.2 [69.3-77.1]	59.1 [56.2-62.0]	-14.1
	Rural	83.6 [81.6-85.6]	65.1 [63.0-67.1]	-18.5

Note:

Poverty line was calculated using EcaPov 2 PPP conversion rate of 0.3596

For completeness sake, Table 1 is repeated here using regionally adjusted expenditures. In principle, there should be no differences in the headcount rates between Table 1 and Table 1a. However, there are some minor discrepancies as the regional prices differentials were calculated at the level of the primary sampling unit using unweighted data. These are the headcount rates presented in the main 2003 PAU report.

Table 1a: Comparison of poverty rates in 1999 and 2003 using expenditure adjusted for regional price differences

Alternative Poverty Lines	Head Count Index (P0)			Poverty Gap (P1)		Poverty Severity (P2)	
	1999	2003	Change in % points	1999	2003	1999	2003
1. SSA Rational Nutrition Norm 1999 = TR 27,400 2003 = S 67.53	93.1	83.0	-10.1	52.4	38.6	33.3	21.6
2. SSA Minimum Food Basket 1999 = TR 16,830 2003 = S 35.03	75.9	41.8	-34.1	31.1	12.7	16.3	5.3
3. SSA Arbitrary-2 1999 = TR 10,000 2003 = S 24.78	38.3	20.6	-17.7	11.8	4.9	5.2	1.8
4. SSA Arbitrary-1 1999 = TR 20,000 2003 = S 49.55	83.7	66.6	-17.1	38.8	25.2	21.8	12.3
5. $1.08 PPP a day (at 2000 PPP conversion factor) 1999 = TR 9,532 2003 = S 23.62	35.5	18.0	-17.5	10.5	4.2	4.6	1.5
6. $2.15 PPP a day (at 2000 PPP conversion factor) 1999 = TR 18,991 2003 = S 47.06	81.3	63.5	-17.8	36.5	23.1	20.1	11.0
7. $2.15 PPP a day (at 1996 PPP conversion factor) 1999 = TR 16,836 2003 = S 41.72	75.9	55.0	-20.9	31.1	18.4	16.3	8.3

Notes: Poverty lines 3 and 4 were updated using the CPI, which is 247.8 in June 2003 (June 1999=100). Poverty lines 5 through 8 were updated using World Bank PPP calculations. The World Bank EcaPov 2000 PPP conversion factor is 0.3596 S/USD. The poverty lines were calculated applying the appropriate conversion factor and inflating the poverty line to 1999 and 2003, respectively.

Poverty reduction and regional prices changes

In order to assess the sensitivity of headcount rates to changes in regional price differentials over time, Table 5 below shows what headcount rates in 1999 would have been if regional price differentials been the same as those prevailing in 2003. If the relative prices had been the same in 1999 as they were in 2003, then the poverty reduction observed would have been much higher in Khatlon, and substantially lower in rural Sugd and rural GBAO. The numbers for extreme poverty are especially sensitive to changes in regional price relativities. The disaggregated rural/urban statistics by region should be interpreted with caution because of low statistical power. For example, the poverty rate of 100% in urban GBAO is based only on 16 households in 1999 (64 in rural), and in urban RRS – 48 households. (In other rural/urban strata by region the number of observations in the 1999 survey exceeds 100). This was addressed in the 2003 TLSS by oversampling GBAO and then giving these observations a lower weighting in population summary statistics. The total numbers by region for GBAO and RRS in the 1999 survey are more representative and therefore reliable.

Table 5. Sensitivity of Poverty Headcount to Regional Price Changes

	$1.08 PPP				**$2.15 PPP**			
	1999	**2003**	**Change in % points**	**Change in % points**	**1999**	**2003**	**Change in % points**	**Change in % points**
	Both years adjusted by the 2003 regional CPI			1999 adjusted by 1999 regional CPI, and 2003 by 2003 CPI	Both years adjusted by the 2003 regional CPI			1999 adjusted by 1999 regional CPI, and 2003 by 2003 CPI
GBAO								
Urban	71%*	16%	-55	-55	100%*	74%	-26	-26
Rural	76%	39%	-37	-28	97%	86%	-11	-11
Total	75%	36%	-39	-33	98%	84%	-14	-13
Sugd								
Urban	34%	18%	-17	-7	81%	59%	-22	-12
Rural	28%	15%	-12	-12	82%	66%	-16	-15
Total	29%	16%	-13	-11	82%	64%	-18	-15
Khatlon								
Urban	33%	34%	1	-5	86%	78%	-9	-11
Rural	33%	26%	-7	-26	83%	78%	-5	-14
Total	33%	27%	-6	-22	84%	78%	-6	-13
Dushanbe								
Urban	17%	12%	-5	-1	66%	49%	-17	-12
RRS								
Urban	22%	8%	-14	-12	66%	55%	-10	-9
Rural	25%	8%	-17	-16	72%	44%	-29	-29
Total	25%	8%	-16	-16	72%	45%	-27	-26

***Notes*: 2000 PPP conversion factor is used here. Results in this as in all other tables are population weighted.**
***This number is not representative, since it is based on 16 households.**

What is the impact on the distribution of expenditure of adjusting for regional price differences?

Table 6 below presents a cross tabulation of the quintile ranking of per capita expenditure in 2003 for both adjusted and unadjusted data. Even after taking regional differences in prices into account, the majority of households remained within the same quintile, and where households changed rank, they only moved up or down one quintile.

Table 6: Transition matrix for household rankings by quintile of adjusted and unadjusted per capital household expenditure

		Quintile of regionally adjusted pc exp					Total
		1	2	3	4	5	
Quintile of per capita expenditure	1	94.1%	6.0%				100.0%
	2	5.9%	84.2%	9.9%			100.0%
	3		9.7%	80.7%	9.7%		100.0%
	4		.2%	9.4%	83.7%	6.5%	100.0%
	5				6.6%	93.5%	100.0%
Total		100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Comparison of the regional composition of the richest and poorest quintile in Tables 6a and 6b shows that, after taking regional prices into account Khatlon continues to contribute a disproportionate share to the poorest 20% and it is now joined by GBAO.

Table 6a: Quintile of unadjusted per capita household expenditure by region

		Quintile of per capita expenditure					Total
		1	2	3	4	5	
Region	GBAO	2.2%	3.2%	3.5%	3.6%	2.4%	3.0%
	SUGD	32.5%	37.7%	42.8%	33.9%	28.2%	35.0%
	KHATLON	49.3%	39.5%	25.0%	18.8%	14.7%	29.5%
	DUSHANBE	5.5%	6.9%	10.6%	16.6%	25.9%	13.1%
	RRS	10.5%	12.8%	18.1%	27.1%	28.8%	19.5%
Total		100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Table 6b: Quintile of per capita household expenditure adjusted for differences in the regional cost of living by region

		Quintile of regionally adjusted per capital expenditure					Total
		1	2	3	4	5	
Region	GBAO	5.3%	3.8%	3.0%	1.7%	1.1%	3.0%
	SUGD	30.6%	35.7%	40.3%	36.5%	32.0%	35.0%
	KHATLON	45.4%	37.8%	27.5%	19.9%	16.7%	29.5%
	DUSHANBE	7.1%	9.3%	12.3%	15.7%	21.0%	13.1%
	RRS	11.5%	13.5%	16.8%	26.3%	29.2%	19.5%
Total		100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

The remainder of this paper uses per capita household expenditure adjusted using the regional price index as the welfare indicator. Although this means that results are not strictly comparable with those for 1999 presented in Falkingham (2000), the fact that (a) the ranking by quintile is relatively robust (Table 6) and (b) price differences were less marked in 1999 than in 2003 (Table 3) means that analysis by quintile will be broadly comparable. Before going on to examine the profile of poverty in more detail in Section 6, it is useful to look at what has happened to the overall distribution and composition of income and expenditures.

5. Changes in the distribution of welfare: rising inequality?

Table 7 presents summary information regarding the distribution of per capita income and expenditure in the form of Gini coefficient[3]. Inequality appears to have widened between 1999 and 2003. In 1999 the gini coefficient for per capita expenditure was 0.33 and income 0.47; by 2003 these figures had risen to 0.36 and 0.63 respectively (unadjusted for regional prices) and 0.35 and 0.51 after regional differences in the cost of living have been taken into account[4]. Income inequality is most marked in urban Sugd.

Table 7: Gini Coefficients

	All	Rural	Urban
Total per capita expenditures, adjusted by regional prices			
All Tajikistan	0.35		
GBAO	0.30	0.26	0.31
Sugd	0.32	0.36	0.30
Khatlon	0.35	0.37	0.35
Dushanbe	0.37	na	0.37
RRS	0.31	0.34	0.30
Total per capita income, adjusted by regional prices			
All Tajikistan	0.51		
GBAO	0.37	0.38	0.34
Sugd	0.60	0.52	0.73
Khatlon	0.43	0.42	0.48
Dushanbe	0.55	na	0.55
RRS	0.46	0.47	0.40
Total per capita expenditures (unadjusted)			
All Tajikistan	0.36	0.37	0.33
Total per capita income (unadjusted)			
All Tajikistan	0.63	0.68	0.58

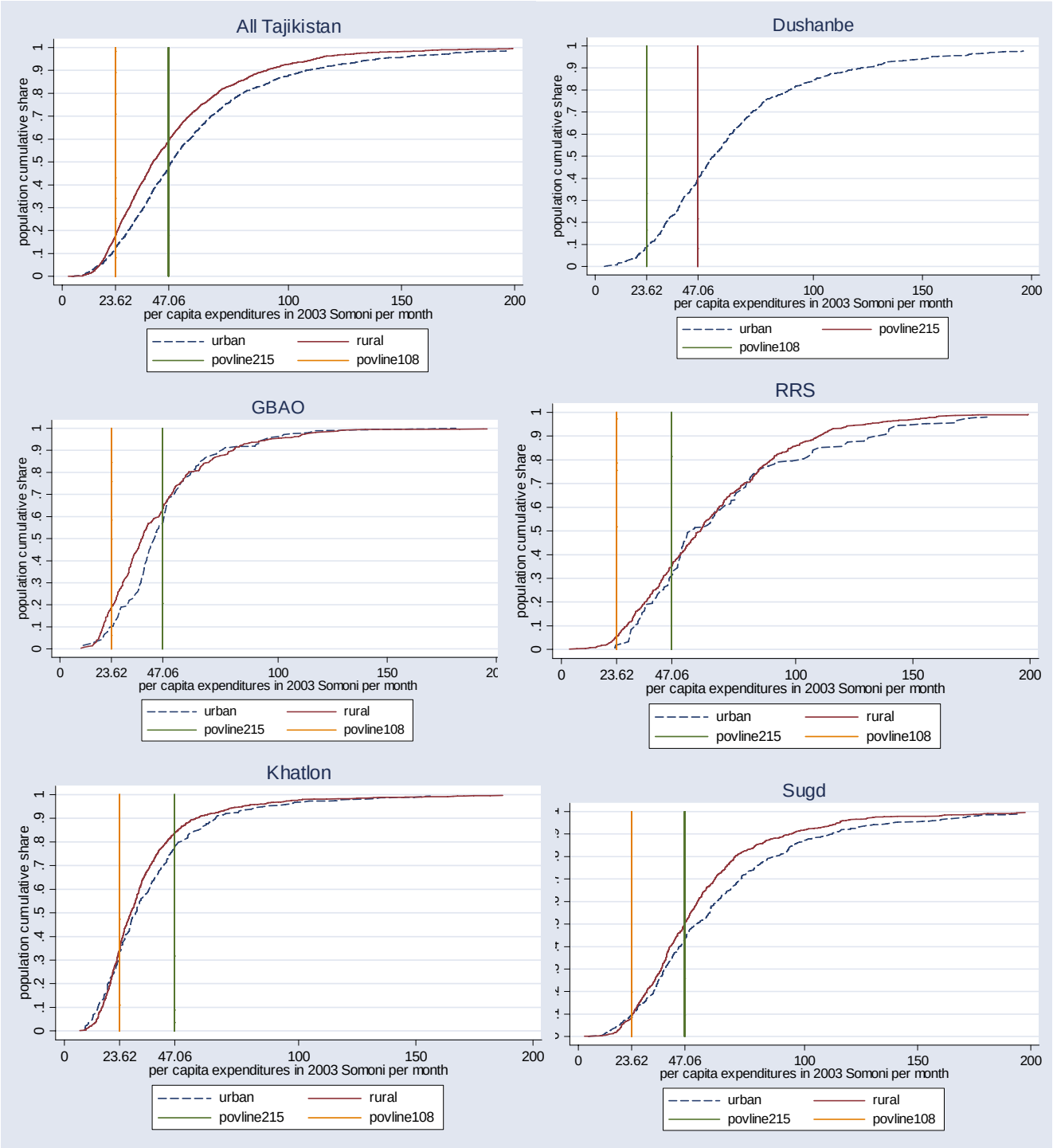
Note: Calculated using inequal command in STATA (author E. Whitehouse, OECD)

Interesting the Gini coefficient in 2003 is greater in rural than urban areas for both income and expenditure. Charts 1 – 6 below show the cumulative distribution of per capita total expenditures, adjusted by regional CPI, for rural and urban areas. Two points stand out: first that expenditure in rural areas is generally lower than in urban areas (the exception being RRS); and secondly, that there is a longer tail in rural areas, i.e. a minority of rural households record very high expenditures.

[3] The 'Gini' is a measure of the inequality in the distribution of income/expenditure. It ranges from 0 in the case of total equality (i.e. where everyone receives the same income or expenditure) to 1 in the case of total inequality (one person receives all the income or expenditure).

[4] The rise in income inequality may in part be due to changes in the questionnaire between the two surveys, with the inclusion of additional questions on income from private enterprise in the most recent survey.

Charts 1-6. Cumulative distribution of per capita total expenditures, adjusted by regional price differences and weighted by household size



Note: outliers with expenditures over 200 Somoni per month not shown.

The Gini coefficient is just one summary indicator of the distribution of income and expenditures. Table 8 presents information on mean and median value of household welfare for all individuals, as well as the decile ratios. Information for both 1999 and 2003 is calculated after regional price adjustments. Income and expenditure data for 1999 have been deflated to June 2003 prices using the CPI discussed in Section 1 above (converted to somoni at 1,000 TR = 1 somoni). Charts 7-10 present the same information graphically.

Table 8: Summary measures of the distribution of household per capita expenditure and income, 1999 and 2003

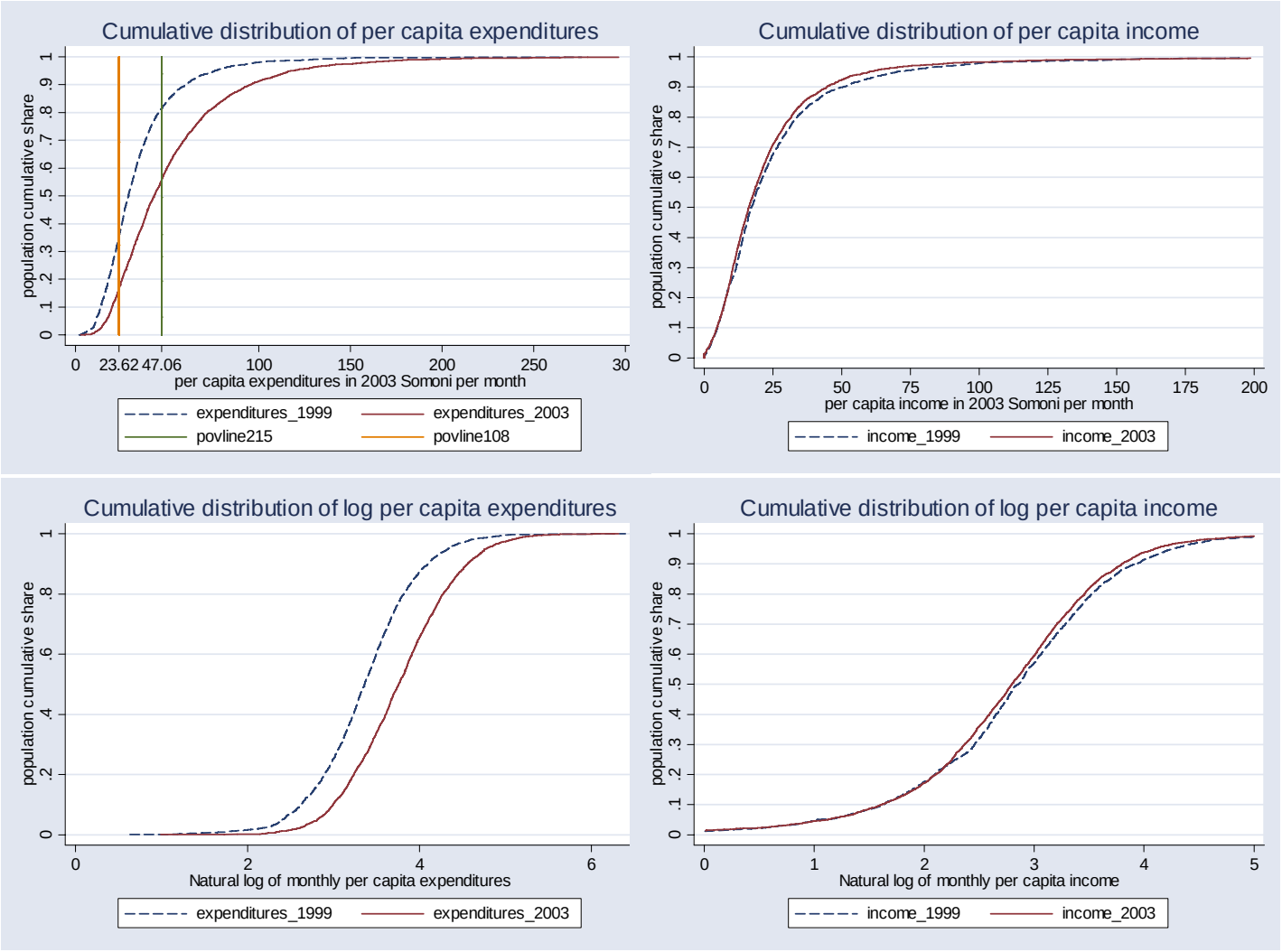
	Per capita expenditure			Per capita income		
	1999	**2003**	**% change**	**1999**	**2003**	**% change**
Mean	34.61	47.24	36.5%	24.83	22.88	-7.9%
10^{th} percentile	13.77	19.42	41.0%	4.88	4.07	-16.6%
20^{th} percentile	18.11	24.53	35.5%	8.00	7.73	-3.4%
30^{th} percentile	21.92	29.26	33.5%	11.58	10.62	-8.3%
40^{th} percentile	25.38	33.98	33.9%	14.09	13.57	-3.7%
Median	28.82	39.22	36.1%	17.04	16.73	-1.8%
60^{th} percentile	32.98	44.75	35.7%	21.23	20.61	-2.9%
70^{th} percentile	38.16	52.11	36.6%	26.67	25.49	-4.4%
80^{th} percentile	45.57	63.06	38.4%	33.84	32.33	-4.5%
90^{th} percentile	60.56	83.68	38.2%	50.55	45.86	-9.3%
Decile ratio P90/P10	4.40	4.31		10.37	11.26	
Of which: P50/P10	2.09	2.02		3.49	4.11	
P90/P50	2.10	2.33		2.97	2.74	

There are several points to note.

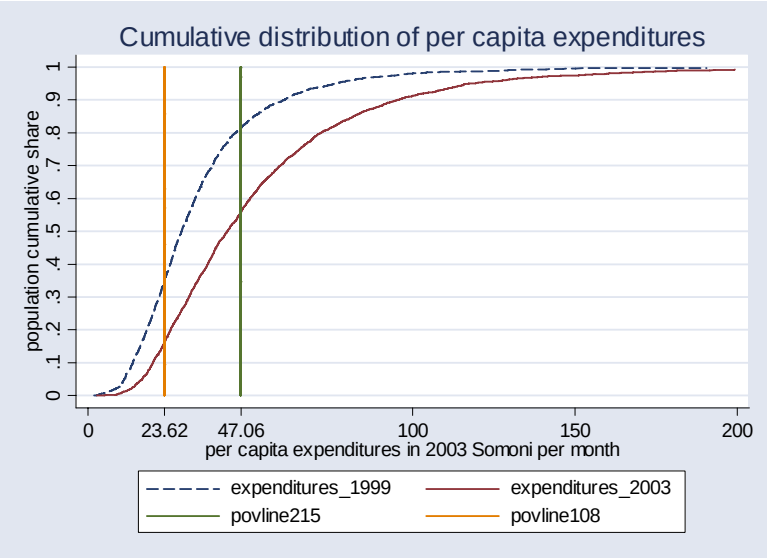
First, while it appears that per capita expenditure has risen in real terms across the last four years by 36.5%, per capita incomes have fallen.

Secondly, growth in per capita expenditures has generally been higher in the top half of the distribution, with the exception of the first decile – which has increased by 41%, albeit from a very low base.

Charts 7-10. Per capita expenditures and income, 1999 and 2003 (adjusted for regional price differences and weighted by household size)



Alternative to the above chart on expenditures (same as above, but dropping obs with > 200 income)



6. The composition of income and expenditure

Tables 9 and 10 shed further light on the composition of household income and expenditure. Labour income remains the most important source of income for all households. Imputed income from the production and gifts of foodstuffs is the second most important source of income. Remittances are also important, constituting a higher proportion overall than the state funded social safely net. Even amongst those households in the bottom fifth of the distribution of expenditure, social transfers only account for 10 – 13 percent of income. Income from business or agricultural activities remains relatively unimportant.

Table 9: Structure of total household income (including the imputed value of home production) (%) by quantile group of households ranked by per capita household expenditure (adjusted for regional price differences)

	Poorest 20%						
	1st decile	**2nd decile**	**2**	**3**	**4**	**Richest 20%**	**All**
Wages	47	44	46	44	47	42	45
Remittances	12	10	10	9	8	9	10
Social assistance inc school subsidies	13	10	9	9	7	9	9
Imputed value of food produced at home & gifts	24	33	33	33	34	36	33
Agricultural income	2	2	2	4	2	3	2
Business	1	<1	1	2	1	2	4
Other	<1	<1	<1	<1	<1	<1	<1
Total	100%	100%	100%	100%	100%	100%	100%

Table 10: Composition of total household expenditure (%) by quintile group (households ranked by per capita household expenditure, adjusted for regional price differences)

	Poorest 20%						
	1st decile	**2nd decile**	**2**	**3**	**4**	**Richest 20%**	**All**
Food purchases	54	53	54	52	51	49	52
Imputed value of consumption of home production	12	15	14	14	14	11	13
Food gifts	4	5	3	2	2	2	3
Total food	*71*	*73*	*71*	*70*	*67*	*62*	*67*
Non food	10	11	12	13	15	18	14
Housing (rent, utilities etc)	8	7	6	7	7	6	7
Education	6	5	4	4	4	4	4
Health	3	3	4	5	5	7	5
Other (inc agriculture/farming)	2	2	2	2	2	2	2
Total	100%	100%	100%	100%	100%	100%	100%

As we would expect, the share of total household expenditure on food is higher for those households at the bottom of the distribution than at the top, with the poorest household spending 71-73 percent of all expenditure on food. In 1999 the imputed value of home production

contributed a significantly greater proportion of total food expenditures for the poorest groups, as did the value of food gifts including humanitarian aid. However this is not the case in 2003, with the share of expenditure on the cash purchase of food varying little across the lowest 80% of the distribution. Expenditures on 'non-food items, which includes clothing, books, durables, holidays and weddings, varied sharply between the rich and poorest households. Moreover spending on health care made up a higher share of the richest households, whilst spending on education comprised a greater share of the poorest. Care needs to be exercised in interpreting the results, particularly for health expenditures. It may be that an episode of poor ill that resulted in high expenditures could lead to a household being classified as 'not poor' when in fact the spending was financed by borrowing and so is not a good indicator of permanent wealth.

7. A profile of poverty in Tajikistan

Poverty can be looked at in two ways: firstly the *risk* of being poor faced by individuals with different characteristics and secondly the *composition* by characteristics of those that are poor. Tables 11 and 12 present summary information for a range of variables from these two perspectives. For completeness, Table 11 presents the percentage within each quintile of the distribution of per capita expenditure; the incidence of poverty being defined as the percent of any particular group in the bottom quintile. The table also presents information on which groups experience the risk of being extremely poor i.e. in the bottom decile. Table 12 presents the composition of both the richest and poorest quintile, as well as that of the population as a whole. Note that chi-squared was significant at ($p<0.001$) for all the bi-variate associations shown.

Urban-rural differences in poverty

It is useful to look to at relative risk of poverty i.e. the ratio of the poverty rate for a particular sub-group to the average poverty rate. If a particular sub-group has a relative poverty rate of greater than one, this implies that the group has a higher incidence of poverty than the average and that the characteristic defining that group may be a correlate of poverty which can be used in policy design.

In 2003, 24% of all individuals lived in households located in the bottom quintile of the distribution of per capita household expenditure. However, only 22% of individuals living in urban areas did so compared with 25% of those living in rural areas. Thus the relative risk of poverty for those in urban areas was 0.88 compared to a relative risk of poverty for those in rural areas of 1.04. Put another way, urban dweller were 12 percent less likely to be poor than on average, whilst rural dweller were 4 percent more likely to be poor.

Between 1999 and 2003 there has been no change in the relative risk of poverty for rural dwellers but a slight increase for urban dweller (up from 0.83).

Table 11: Poverty incidence among individuals, Tajikistan 2003

	Bottom 20 percent							
	1st decile	2nd decile	Bottom 20%	2nd quintile	3rd quintile	4th quintile	Top 20%	N*
All individuals	12%	12%	24%	21%	21%	19%	15%	6,671,824
Average household size	7.7	7.5	7.6	6.8	6.6	6.0	4.9	6,671,824
Location (urban, rural)								
Urban	12%	9%	22%	21%	19%	20%	18%	1,805,071
Rural	12%	13%	25%	22%	21%	18%	14%	4,866,753
Location (by region)								
GBAO, urban	12%	10%	22%	27%	29%	14%	8%	29,209
GBAO, rural	26%	19%	46%	25%	16%	8%	5%	167,959
Sugd, urban	13%	8%	21%	21%	18%	21%	19%	568,299
Sugd, rural	10%	11%	21%	24%	25%	18%	12%	1,555,116
Khatlon, urban	23%	17%	40%	26%	14%	12%	8%	380,126
Khatlon, rural	17%	18%	34%	26%	20%	12%	8%	1,788,950
Dushanbe	8%	5%	14%	17%	21%	24%	24%	629,666
RRS, urban	2%	12%	14%	21%	22%	24%	19%	197,770
RRS, rural	6%	7%	13%	13%	19%	28%	26%	1,354,728
Number of children in hhold under 15								
Zero	4%	5%	9%	16%	14%	25%	35%	457,573
One-two	7%	9%	17%	20%	21%	23%	20%	1,989,670
Three-Four	13%	13%	26%	22%	21%	18%	13%	2,547,188
Five or more	19%	15%	33%	23%	21%	14%	8%	1,677,393
Gender of household head								
Male	12%	11%	23%	22%	21%	19%	15%	5,613,908
Female	12%	14%	26%	18%	21%	19%	16%	1,057,916
Age (persons in each age group as a share of total hhold size)								
Age 0 to 5	12%	11%	24%	22%	20%	18%	16%	1,028,822
Age 6 to 15	10%	11%	21%	21%	21%	20%	18%	1,728,913
Age 16 to 64	9%	9%	19%	19%	20%	21%	22%	3,633,824
Age over 65	9%	9%	18%	19%	21%	19%	23%	280,265
Education of household head								
Unknown	22%	20%	42%	18%	14%	14%	12%	328,928
None**	8%	16%	24%	25%	25%	20%	6%	121,062
General secondary	14%	13%	27%	24%	19%	18%	11%	2,707,627
Primary	11%	14%	25%	23%	23%	19%	11%	552,635
Basic	15%	16%	31%	21%	24%	14%	11%	756,368
Vocational	9%	7%	17%	20%	24%	17%	22%	635,992
Specialized	6%	9%	15%	21%	18%	21%	25%	466,942
University	7%	7%	14%	17%	21%	24%	24%	1,090,843
Phd**	0%	0%	0%	0%	11%	30%	59%	11,426
Household head labor market status								
Employed	11%	11%	22%	22%	20%	20%	16%	4,234,407
Unemployed**	14%	14%	27%	20%	23%	15%	15%	165,186
Out of the labor force	17%	12%	29%	20%	19%	17%	15%	821,256
Retired	11%	14%	25%	22%	24%	18%	12%	1,169,141
Unknown**	14%	11%	25%	23%	21%	15%	16%	281,833
Number of adults unemployed								

Zero	12%	11%	24%	22%	20%	19%	16%	6,206,689
One-two	12%	14%	26%	19%	26%	18%	10%	437,578
Three or more**	9%	42%	52%	33%	0%	0%	15%	27,557
Location, by whether cotton is reported to be one of the three main crops in the community								
Rural, non cotton growing	12%	13%	24%	21%	21%	18%	16%	3,239,800
Rural, cotton growing	13%	12%	25%	23%	21%	19%	12%	1,626,953

*Note: Number of households in each row category in the sample, weighted using population expansion factor wgt_ind.
**Results in this category should be interpreted with caution, because there are few observations in each category.

Table 12: Composition of the poorest and richest quintiles of individuals ranked by per capita household expenditure, adjusted for regional price variation, Tajikistan 2003

	Bottom 20 percent				
	1st decile	2nd decile	Bottom 20 percent	Top 20 percent	Total
Urban and rural					
Urban	27%	22%	25%	32%	27%
Rural	73%	78%	75%	68%	73%
Region					
GBAO	6%	5%	5%	1%	3%
Sugd	29%	27%	28%	29%	32%
Khatlon	48%	48%	48%	17%	33%
Dushanbe	7%	4%	6%	15%	9%
RRS	10%	16%	13%	38%	23%
Age groups (pesons in each age group as a share of household size)					
age 0 to 5	19%	17%	18%	12%	15%
age 6 to 15	26%	28%	27%	23%	26%
age 16 to 64	51%	52%	51%	60%	54%
age over 65	4%	4%	4%	5%	4%
Number of children under 15					
zero	3%	3%	3%	16%	7%
one to two	18%	23%	21%	38%	30%
three to four	40%	42%	41%	33%	38%
more than five	39%	31%	35%	13%	25%
Number of elderly in household (55+ women; 60+ men)					
zero	62%	67%	64%	69%	66%
one to two	22%	22%	22%	18%	21%
two to three	15%	11%	13%	12%	13%
more than three	1%	0%	0%	0%	0%
Gender of household head					
male	84%	82%	83%	84%	84%
female	16%	18%	17%	16%	16%
Education of household head*					
unknown	9%	8%	9%	4%	5%
none	1%	2%	2%	1%	2%
primary	8%	10%	9%	6%	8%

	Bottom 20 percent				
	1st decile	2nd decile	Bottom 20 percent	Top 20 percent	Total
basic	14%	16%	15%	8%	11%
general secondary	48%	43%	46%	30%	41%
specialized/vocational	11%	11%	11%	25%	17%
university	9%	9%	9%	26%	16%
graduate school (phd)	0%	0%	0%	1%	0%
Labor market status of household head					
employed	59%	59%	59%	68%	63%
unemployed	3%	3%	3%	2%	2%
out of the labor force	17%	13%	15%	12%	12%
retired	16%	21%	19%	13%	18%
unknown	5%	4%	4%	4%	4%
Number of adults unemployed					
zero	93%	91%	92%	95%	93%
one to two	7%	8%	7%	4%	7%
three or more	0%	1%	1%	0%	0%
Number of adults out of the labor force (excludes retired)					
zero	20%	19%	19%	28%	22%
one to two	44%	49%	46%	50%	48%
three or more	37%	32%	35%	22%	29%
Number of adults retired					
zero	77%	72%	75%	81%	77%
one to two	23%	27%	25%	19%	23%
three or more	0.1%	0.3%	0.2%	0.2%	0.3%

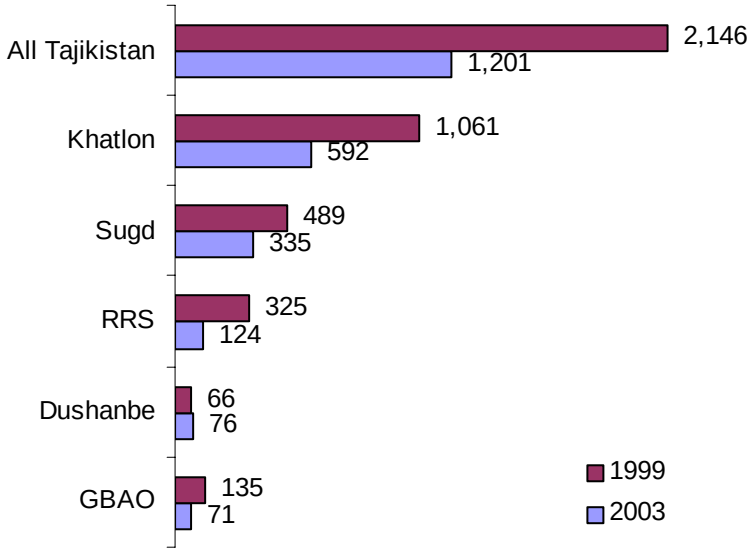
*The results on education levels for the 1999 TLSS, reported in Falkingham (2000), are for all household members, while results reported here are for the education level of the household head.
All results are weighted using the individual weight wgt_ind, so they are representative of the population.

Regional dimensions

The regional dimension to poverty has already been discussed above. However it is worth noting the elevated risk of being very poor, i.e. in the poorest *decile*, that people in rural GBAO, urban Khatlon and rural Khalton face (2.2, 1.9 and 1.4 respectively). However, as Table 13 shows, although poverty in GBAO is relatively high, the oblast only accounts for 6.% of all very poor people. Geographical targeting at the oblast level would result in many poor people being missed out.

Figure 1: Thousands of Extremely Poor People, below PPP $1.08 Per Day (adjusted for regional prices)

Population below $1.08 PPP/day (thous. people)



Population below $2.15 PPP/day (thous. people)

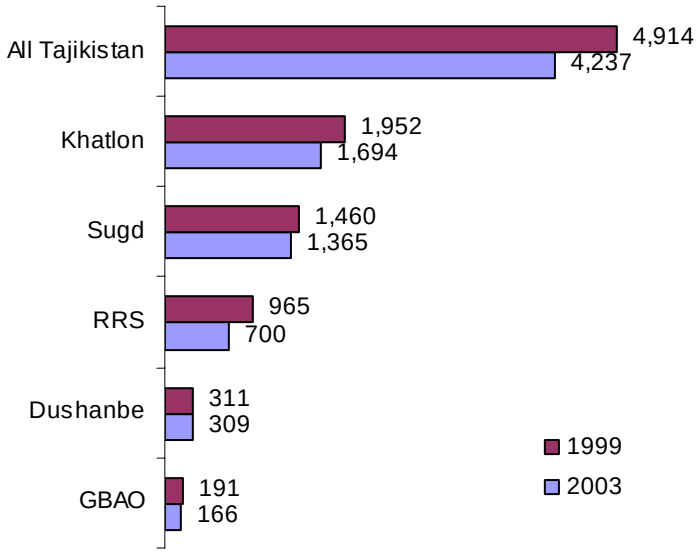
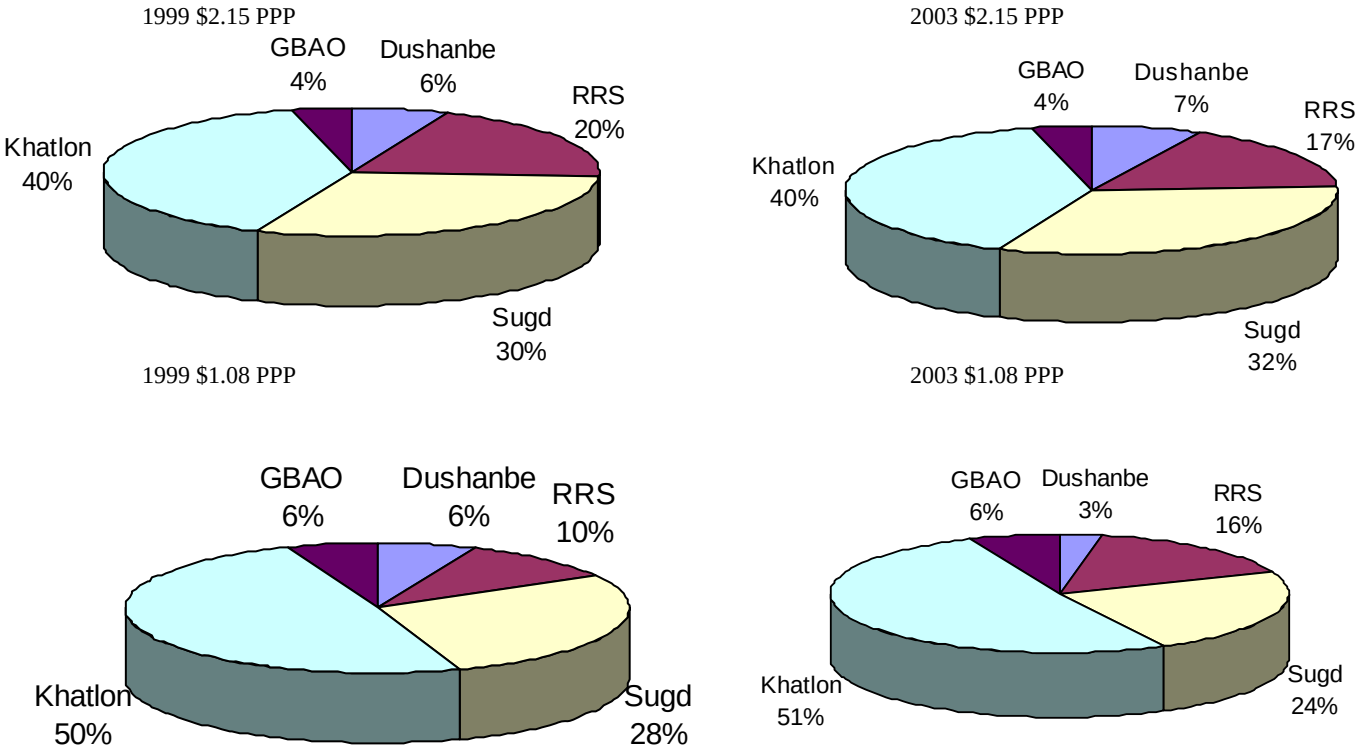


Figure 2: Thousands of Poor People, below PPP $2.15 Per Day (adjusted for regional prices)



Children

The risk of poverty increases sharply according to the number of children under 15 living in the household. Only 9 percent of individuals living in households with no children are poor, compared with 33 percent of those living in households with 5 or more children (Table 11). People living in households with children comprise the vast majority of the poor (Table 12). Over three-quarters live in households with at least 3 children and over a third live in households with at least 5 children[5]. Therefore targeting large households with children may represent one option for reaching the bulk of the poor.

Gender

There is a slightly elevated risk of poverty for female-headed households in Tajikistan, with a relative risk of being in the bottom decile of 1.08. This is a reduction from 1.28 in 1999.

It must be borne in mind that poverty here is defined by the expenditure of the household and as such assumes that all household resources are shared equally among their members. However, feminist literature would argue that in reality this is rarely the case (Bruce and Dwyer, 1988; Evans, 1989; Moore, 1992). There is some evidence that the circumstances of transition may have tended to *increase* gender-based disparities within the household rather than reduce them. Therefore statistics based on household measures may *underestimate* the true extent to which women are affected by poverty.

Other studies have found that women are disproportionately bearing the cost of a shrinking labour market (UNICEF, 1999). Women's labour force participation rates in the Soviet period were much higher than in other industrialised countries. Since independence however, a greater proportion of female employees have been laid off and more are 'on leave without pay' than their male counter-parts. Furthermore, there is evidence that women's wages have fallen more than men's. In the Soviet period a high proportion of public sector workers were women (especially in education and health). These are the sectors now where wages have not been paid and where real pay rates have suffered the greatest fall in value. The greater decline in the relative value of women's wages may mean that the proportion of household resources 'enjoyed' by women and children is declining.

Education

As is the case in most regions of the world, poverty the risk of being poor appears to be inversely related to education. People living in households where the head had only basic education experienced a relative risk of poverty of 1.29 (Table 11). Households where the head had individuals with vocational/specialised secondary education were less likely to be poor than on

[5] Note this is a fall from 1999 when nearly a half of the poor lived in households with 5 or more children. This reflects the fall in fertility in Tajikistan in recent times. In 1999 only 4% of all households contained no children; by 2003 this figure had risen to 7%.

average, with a relative risk of 0.70, and those with where the head had some higher education were *much* less likely to be poor with a relative risk of 0.58.

Overall, however, individuals with no education make up a very small proportion of the poor – a reflection of the fact that less than two percent of the population have no formal schooling (Table 12). The vast majority of the adult population has at least general secondary education; and so do the majority of the adult poor.

Multi-variate analysis

In order to investigate what factors remain significant determinants of per capita household expenditure once other characteristics of the household are controlled for, a quantile regression is carried out. The approach avoids the problem that would be inherent in probit analysis of choosing between the competing poverty lines presented in Table 13. It also has the advantage that it utilizes the entire distribution of per capita expenditure.

Quantile regressions are also preferable compared to the OLS or survey regression, since quantile regressions allow the structural factors to vary across quantile. It makes this method less restrictive and allows comparison of the effect of covariates across the income distribution. For example, households size may only be a strong correlate of poverty for the poor households, but a regular regression would impose the same structural relationship for all income groups. Quantile regressions have been successfully applied in recent poverty analysis (Jalan and Ravallion, 1996; Anderson and Pomfret, 1999; Koenker and Hallock, 2001; Gerry and Li, 2002).

As we have seen in charts 1-6 above, the distribution of consumption expenditures is skewed to the left. Thus to take this nonlinearity into account, the dependent variable is the logarithm of total per capita expenditure. We first estimate an ordinary least squares regression model and the estimate the same model using quantile regression. The interpretation of the estimated coefficients is the best linear approximation of the effect of the explanatory variables at various quantiles of the dependent variable. Here we look at the 10^{th}, 25^{th}, 50^{th}, 75^{th} and 90^{th} percentile. This allows us to determine whether the position in the expenditure distribution differentially affects how household characteristics are related to consumption [6].

The explanatory variables included in the model reflect household size and composition, economic activity and income from wage labour, human capital, receipt of public and private transfers, access to home production as well as locational variables.

[6] For comparative purposes, we first present the results of the survey regression that controls for the effect of stratification and clustering on standard errors. Ignoring clustering and stratification results in lower standard errors than when they are taken into account. This can be seen from the OLS results, which are very similar, except for the slightly higher significance levels. For computational reasons, quantile regressions do not control for clustering and stratification, so the results should be conservatively interpreted while making a slight adjustment to the standard errors.

In addition to household size, household composition is captured by the percentage of household members that are female, children under age 5, children aged 6-15 and persons aged 65 and older.

Economic activity is measured by the share of adults (aged 15+) within each category of labor market status: employed, unemployed, out of the labor force, and retired. A separate category is created for adults for which there is no labor market status information in the survey.

Human capital is measured with four dummy variables; the omitted category is secondary general education.

The impact of public and private transfers on household welfare is captured by dummies for receipt of government transfers (including social assistance) and private transfers and chari aid. The scale of these transfers is reflected in the ratio of income from these sources to total expenditures. In addition to income from transfers, the regression also includes income from own food consumption and gifts and wages as two additional variables.

To account for regional differences we include four dummy variables for GBAO, Sugd, Khatlon and RRS; the omitted region is the capital city of Dushanbe. There is also a dummy to account for urban-rural differentials.

The results are presented below.

Table 13: Summary of survey linear regression and quantile regression results (dep var: ln adj totexp)

			Quantile regressions				
	Survey reg	**OLS**	**0.10**	**0.25**	**0.50**	**0.75**	**0.90**
Demographic characteristics							
Household size	-0.009	-0.013	-0.032	-0.029	0	-0.016	-0.006
	(0.89)	(1.40)	(2.99)***	(3.20)***	(0.04)	(1.17)	(0.25)
Household size*urban	-0.025	-0.025	-0.037	-0.03	-0.027	-0.02	-0.019
	(2.78)***	(3.97)***	(5.05)***	(4.80)***	(4.02)***	(2.07)**	(1.22)
Share of females in hosehold size	-0.107	-0.12	-0.086	-0.095	-0.105	-0.09	-0.106
	(1.95)*	(2.62)***	(1.47)	(1.90)*	(2.14)**	(1.46)	(1.13)
Dummy=1 if hh head female	0.034	0.037	0.002	-0.014	0.006	0.059	0.056
	(1.33)	(1.53)	(0.06)	(0.55)	(0.22)	(1.86)*	(1.16)
Number of elderly (women over 55, men over 65)	0.037	0.025	0.068	0.047	0.018	0.044	-0.014
	(1.90)*	(1.31)	(2.65)***	(2.32)**	(0.87)	(1.69)*	(0.36)
Age composition (persons in each group as a share of household size):							
Five years old or younger	-1.068	-1.019	-0.807	-0.879	-1.134	-0.962	-1.164
	(9.09)***	(10.44)***	(6.87)***	(8.72)***	(10.88)***	(6.77)***	(5.34)***
Six to fifteen	-0.825	-0.79	-0.464	-0.62	-0.941	-0.842	-1.029
	(7.35)***	(8.56)***	(4.17)***	(6.55)***	(9.59)***	(6.20)***	(4.85)***
16 to 64	-0.054	-0.051	-0.013	-0.027	-0.076	-0.052	-0.073

	(3.49)***	(3.58)***	(0.77)	(1.88)*	(5.02)***	(2.49)**	(2.33)**
65 or older	-0.264	-0.223	-0.002	-0.117	-0.217	-0.067	-0.24
	(2.50)**	(3.01)***	(0.02)	(1.51)	(2.76)***	(0.63)	(1.43)
Labor market status (persons in each category as a share of adults)							
Employed	0.233	0.199	0.182	0.207	0.226	0.297	0.229
	(3.78)***	(3.48)***	(2.49)**	(3.51)***	(3.87)***	(3.88)***	(1.91)*
Unemployed	-0.302	-0.128	-0.455	-0.295	-0.171	-0.142	-0.13
	(3.03)***	(1.25)	(4.47)***	(3.39)***	(2.00)**	(1.29)	(0.80)
Out of the labor force (excluding retired)	-0.093	0.054	-0.153	-0.137	-0.106	-0.091	-0.098
	(2.35)**	(0.71)	(3.12)***	(3.44)***	(2.73)***	(1.86)*	(1.32)
Retired	0.21	0.225	0.262	0.3	0.224	0.182	0.271
	(2.93)***	(3.51)***	(3.58)***	(4.46)***	(3.30)***	(2.06)**	(2.06)**
Unknown	-0.061	0.085	0.001	-0.063	-0.081	-0.058	0.069
	(0.52)	(0.64)	(0.01)	(0.51)	(0.65)	(0.35)	(0.27)
Education level of the household head (omitted category - "general secondary")							
Specialized or vocational	0.126	0.139	0.085	0.134	0.132	0.141	0.216
	(5.55)***	(6.07)***	(2.77)***	(5.34)***	(5.37)***	(4.63)***	(4.86)***
Higher education	0.222	0.223	0.222	0.241	0.202	0.197	0.241
	(8.66)***	(9.68)***	(7.32)***	(9.58)***	(8.23)***	(6.45)***	(5.41)***
None, primary, or basic	-0.049	-0.041	-0.087	-0.036	-0.06	-0.071	0.028
	(1.88)*	(1.67)*	(2.69)***	(1.36)	(2.32)**	(2.21)**	(0.59)
Unknown	-0.17	-0.165	-0.155	-0.15	-0.122	-0.121	-0.041
	(3.85)***	(3.76)***	(2.68)***	(3.13)***	(2.63)***	(2.09)**	(0.48)
Receipt of public and private transfers							
Dummy=1 if household receives social transfers	0.035	0.038	0.176	0.102	0.089	-0.003	0.014
	(1.18)	(1.56)	(5.61)***	(3.91)***	(3.45)***	(0.08)	(0.27)
Dummy=1 if household receives remittances and other private transfers	0.061	0.075	0.106	0.055	0.049	0.063	0.051
	(2.39)**	(3.49)***	(3.61)***	(2.33)**	(2.15)**	(2.20)**	(1.19)
Income structure (ratio of income from each source to total expenditures)							
Pensions/family allowances	-1.15	-1.176	-3.326	-2.47	-2.038	-1.219	-0.979
	(2.99)***	(11.84)***	(42.18)***	(31.39)***	(19.21)***	(6.22)***	(2.34)**
Remittances and other private transfers	-0.525	-0.555	-0.696	-0.531	-0.481	-0.44	-0.528
	(5.49)***	(8.87)***	(8.53)***	(7.94)***	(7.20)***	(5.15)***	(3.48)***
Food (value of in kind production and gifts)	-0.097	-0.172	-0.016	-0.069	-0.17	-0.273	-0.266
	(1.20)	(3.34)***	(0.20)	(1.14)	(3.11)***	(4.01)***	(2.53)**
Scholarships/stipends	-2.581	-2.372	-3.031	-3.025	-1.823	-1.894	-1.372
	(4.61)***	(7.58)***	(15.53)***	(7.89)***	(5.46)***	(4.66)***	(3.59)***
Agricultural income	-0.026	-0.05	0.009	-0.057	-0.071	-0.022	-0.043
	(0.47)	(0.99)	(0.15)	(0.99)	(1.33)	(0.38)	(0.55)
Other	0.012	0.011	-0.01	0.006	0.022	0.036	0.052
	(0.80)	(0.51)	(0.56)	(0.30)	(1.50)	(2.05)**	(2.42)**
Wages	-0.185	-0.185	-0.219	-0.222	-0.205	-0.208	-0.147
	(4.81)***	(9.88)***	(11.73)***	(13.30)***	(10.38)***	(6.33)***	(2.21)**
Location							
Dummy=1 if urban	0.058	0.067	0.207	0.125	0.116	0.045	-0.026

	(0.80)	(1.50)	(3.71)***	(2.70)***	(2.44)**	(0.69)	(0.25)
Distance to capital city (hours of travel by bus)	0.004	0.003	0.005	0.006	0.004	0.002	0.001
	(2.05)**	(3.37)***	(3.56)***	(4.99)***	(3.45)***	(1.72)*	(0.78)
Distance to capital city (hours Distance*rural interactive term	-0.006	-0.005	-0.005	-0.006	-0.005	-0.003	-0.005
	(2.93)***	(4.24)***	(3.25)***	(4.83)***	(3.95)***	(2.49)**	(2.42)**
Regions:							
GBAO	-0.444	-0.451	-0.436	-0.443	-0.438	-0.494	-0.483
	(6.09)***	(10.77)***	(8.06)***	(9.84)***	(9.83)***	(8.70)***	(5.90)***
Sugd	-0.154	-0.152	-0.11	-0.112	-0.124	-0.182	-0.239
	(2.96)***	(5.23)***	(2.88)***	(3.55)***	(4.00)***	(4.68)***	(4.16)***
Khatlon	-0.242	-0.223	-0.166	-0.205	-0.211	-0.258	-0.319
	(4.01)***	(7.04)***	(3.90)***	(5.94)***	(6.25)***	(6.11)***	(5.15)***
RRS	0.103	0.123	0.079	0.171	0.172	0.13	0.046
	(1.64)	(3.61)***	(1.72)*	(4.55)***	(4.74)***	(2.91)***	(0.70)
Constant	4.589	4.431	3.795	4.186	4.611	4.926	5.42
	(49.85)***	(49.04)***	(45.32)***	(61.02)***	(67.60)***	(55.52)***	(40.77)***
Observations	4158	4158	4158	4158	4158	4158	4158
R-squared 3/	**0.31**	**0.32**	***0.18***	***0.19***	***0.20***	***0.20***	***0.20***

1/ Dependent variable: natural log of total expenditures, adjusted by regional price index
2/ Absolute value of t-statistics in parentheses
3/ For quantile regressions, pseudo R-squared is reported in italics.
*significant at 10%; **significant at 5%; ***significant at 1% level

Household composition: Household size is negatively related to household living standards. The composition of the household is also an important factor, with the share of young children (aged under five) in the household negatively affecting per capita expenditure, particularly at the lower quantiles. Conversely the number of elderly people has a positive impact on expenditures, particularly in the bottom half of the distribution. This may indicate the importance of shared pension income on household welfare.

The share of household members that are female is negatively related to household living standards, although significance levels are not high. This may be indicative of gender inequalities in wages etc, particularly given that employment is controlled for elsewhere in the model. There is no significant association with household welfare by gender of the household head.

Economic activity: Not surprisingly both the share of adult household members who are unemployed and out of the labour force is negatively related to expenditure, whilst the share of those employed is positively associated. The negative impact of a high proportion of adults out of the labour force is much greater that the lower end of the distribution, and has an insignificant impact on expenditure at the 90% quantile.

Interestingly the ratio of income from wages to expenditure is negative and strongly significant, suggesting that where income from wage labour is high relative to expenditures, this has a negative association with living standards. This suggests that households who are dependent on income from employment alone are more vulnerable than those who have diversified income sources.

Human capital: There are clear positive returns to education. Expenditure is lower in households with a head with only basic education and higher with a college-educated head at all points in the distribution. At the median, households headed by a person with higher education have expenditures 20 percent higher than households in which the head has only secondary education, whilst those whose heads have primary education only consume 1 percent less.

Region: Region has large and significant effects on consumption. Moreover there are interesting differences across quantiles. Households in RRS and Dushanbe are less poor and have higher per capital expenditures than households in other regions. At the median, per capita expenditure is 17 percent higher in RRS compared to Dushanbe. In contrast it is 12% lower in Sugd, 21% lower in Khatlon and 44% lower in GBAO. There is a similar pattern at every point across the distribution, although the differential between RRS and Dushanbe is not significant at the bottom or top of the distribution (10^{th} and 90^{th} percentiles).

Other indicators of welfare

In Tajikistan, as in other countries of the FSU, in the past there was little or no relationship between a household's ownership of consumer goods and its level of income. This is because under the Soviet Regime consumer durables were allocated by the command economy rather than by the market economy. However since Independence the sale of household assets has emerged as a key household coping strategies (see below). Therefore we might expect to see a relationship between probability of being poor and ownership of consumer durables in general (Table 14), and ownership of goods acquired during the 'post-soviet' period in particular (table 15). Table 14 shows that there is a significant relationship between household per capita expenditure and a range of durables.

Table 14. Percentage of households owning selected consumer durables within quintile groups of per capita household expenditure

	Bottom two deciles		**Per capita expenditure quintile**					
	decile 1	decile 2	Bottom 20%	2	3	4	top 20%	All Taj
gas or electric stove	26%	27%	27%	28%	32%	37%	43%	32%
refrigerator	14%	15%	15%	23%	28%	39%	47%	29%
washing machine	4%	3%	4%	7%	11%	18%	21%	11%
air conditioner	1%	2%	2%	2%	4%	6%	9%	4%
tape or CD player	13%	18%	15%	18%	26%	38%	45%	27%
color TV	10%	15%	12%	15%	25%	36%	45%	25%
video player	1%	3%	2%	5%	7%	16%	26%	10%
bicycle	9%	13%	11%	13%	17%	20%	19%	15%
car	3%	6%	5%	9%	14%	19%	23%	13%

The pattern in Table 14 may reflect two discrete effects: first the divestiture of household assets by the poorest groups and secondly differential acquisition of consumer durables by the better-off in the recent past. Table 15 therefore presents information on the proportion of households who have acquired consumer durables since 1995.

Table 15. Percentage of households having bought or received as gift since 1995 selected consumer durables within quintile groups of per capita household expenditure

	Bottom two deciles		Per capita expenditure quintile					
	decile 1	decile 2	Bottom 20%	2	3	4	top 20%	All Taj
gas or electric stove	11%	14%	13%	14%	16%	20%	20%	16%
refrigerator	1%	1%	1%	3%	5%	7%	9%	5%
washing machine	0%	1%	0%	1%	2%	3%	4%	2%
air conditioner	0%	0%	0%	0%	2%	2%	4%	1%
tape or CD player	9%	14%	12%	13%	20%	27%	34%	20%
color TV	5%	8%	6%	8%	14%	24%	26%	15%
video player	1%	3%	2%	4%	6%	13%	20%	8%
bicycle	5%	8%	7%	8%	11%	14%	14%	10%
car	1%	2%	1%	3%	7%	8%	10%	5%

Again there is a significant relationship between ownership of consumer durables and poverty, although what is most striking from Table 15 is the relatively low level of consumer spending throughout the Republic. Under five percent of households in Tajikistan have purchased a major household appliance (refrigerator or washing machine) in the last 7 years, indicating the continuing widespread nature of financial hardship. The most popular item purchased was a tape or CD player, followed by a color TV.

Table 16: Housing amenities by quintile of per capita household expenditure

	Bottom two deciles		Per capita expenditure quintile					
	decile 1	decile 2	Bottom 20%	2	3	4	top 20%	All Taj
Housing								
Working gas connection**	15%	17%	16%	19%	18%	24%	31%	21%
Coal/wood/other (fossil) source of heating*	80%	80%	80%	77%	78%	73%	72%	77%
Electricity connection	99%	100%	99%	100%	99%	99%	99%	99%
Average hours per day last month electricity was cut #	3.1	3.0	3.0	2.7	3.2	3.6	3.6	3.2
Central heating**	3%	4%	4%	4%	6%	8%	12%	6%
Outside toilet	71%	73%	72%	75%	75%	78%	74%	75%
One or more inside toilets	27%	26%	27%	24%	24%	22%	24%	24%
Piped water**	33%	34%	33%	35%	43%	46%	50%	41%

Note: **chi-square significant at ($p<0.001$), *chi-square significant at ($p<0.01$), # - at ($p<0.05$)

Housing quality and access to some amenities is also inversely related to poverty (Table 16). However, the lack of association with some variable such as having an outside toilet highlights the difficulties in utilising an asset based indicator of welfare in a country such as Tajikistan.

8. Using an asset indicator of welfare – 'The PRMS approach'

The recent report of the Asian Development Bank household survey of living standards (PRMS) highlighted recent changes in the picture of poverty in Tajikistan by comparing the results from their survey in 2001 with those from the 1999 TLSS. Unfortunately the welfare indicator used in the PRMS was not directly comparable with that in the TLSS being based on an asset index. It is useful therefore to construct a similar index within the TLSS 2003 for comparative purposes.

The 2001 PRMS did not collect data on household expenditure or income. However it did include a range of questions on the ownership of assets such as a car, refrigerator, or television as well as dwelling characteristics such as type of roof and flooring materials and type of toilet, and access to basic services including clean water and electricity. Thus, in common with many other surveys where money metric data are missing, the responses to these questions were used to construct an indicator of households' socio-economic status. It should be noted that the information on asset ownership does not reflect the quantity nor quality of durable goods owned by the household. The weighting assigned to each of the components of the asset index was estimated by using the Principal Components statistical procedure. The first principal component constitutes the linear index of variables with the most information which is common to all the variables.

The approach produces an asset index (Aj) for each household based upon the following formula:

$A_j = f_1 (a_{j1} - a_1) / (s_1) + \ldots + f_n (a_{jn} - a_n) / (s_n)$

Where for each household A_j

f_1 = the scoring factor for the first asset as calculated by the procedure
a_{j1} = the jth household's value for the first asset
a_1 = mean of the first asset variable over all households
s_1 = standard deviation of the first asset variable over all households
n = total number of assets included in the procedure
j = 1, …, j households
n = 1, …, n household assets

The scoring factor is the weight assigned to each variable in the linear combination of the variables which constitute the first principal component. Each variable is normalised by its mean and standard deviation and the mean value of the index is zero.

One criticism levied against the use of asset indices is that the index treats ownership of assets and housing characteristics as equivalent in both rural and urban areas, even though they may have very different meanings. For example, urban slum dwellers often live in brick and concrete houses but in far worse conditions than rural families in thatched or tin houses. There are also methodological issues in including in a *household* based indicator assets and services that are shared or publicly owned, such as connection to the electricity supply.

It is clear from the results of the PRMS that the asset index used heavily favours people living in urban areas and in certain regions. The survey report itself notes '*One of the reasons for such*

distribution of scores to people in GBAO can be a peculiarity of the survey methodology. When allocating asset scores to houses made of stone (one of the basic and accessible materials for construction in GBAO receive highest scores that influenced quintile distribution results. 92.6% of houses in GBAO are built from bricks, stone and concrete blocks.'

Contrasting the PRMS asset index and the TLSS per capita expenditure measure

Few studies have attempted to verify the extent to which the asset indicator being used is a good proxy for household consumption; the main reason being that such verification requires a data set that contains both the components of the asset index and the money metric measure of household consumption they are meant to represent. The TLSS 2003 data include questions on asset ownership and dwelling characteristics, allowing us to directly replicate the proxy indicators used in the PRMS index and to then correlate the resultant index with a measure of consumption. The only difference between the approach used here and that in the PRMS is that three indicators regarding the type of walls, roof and floor were excluded from the PC analysis where they were direct opposites of ones already included, and as such did not add anything to the explanatory power of the model. The results of the analysis are shown in Table 17.

Table 17: First principal component analysis of components of asset index, TLSS 2003

		Mean	Std Dev.	Score	Has	Has not
Ass01	Number of rooms	3.39675458	1.567447	-0.2617		
Ass02	Individual house	0.7523126	0.431729	-0.83803	-0.480784	1.460307
Ass03	Individual apartment	0.16452804	0.370806	0.805228	1.814281	-0.357283
Ass04	Other type of dwelling	0.08315936	0.276161	0.228914	0.759981	-0.068932
Ass05	Own dwelling	0.90850083	0.288358	-0.4013	-0.127338	1.264347
Ass06	Walls brick/cement/concrete	0.35723209	0.479251	0.738675	0.990706	-0.550606
Ass08	Roof concrete, slate, metal sheets, tiles	0.75627429	0.429389	-0.57671	-0.327345	1.015743
Ass10	Floor parket, wood, linoleum	0.50751805	0.500013	0.55042	0.542130	-0.558682
Ass12	Telephone in dwelling	0.15303165	0.360068	0.540794	1.272080	-0.229841
Ass13	Cook with gas/electricity	0.67513881	0.468388	0.442626	0.306993	-0.638005
Ass14	Cook with wood/coal	0.64179067	0.479541	-0.70259	-0.524822	0.940305
Ass15	Other cooking fuel	0.06503609	0.246624	-0.00122	-0.004643	0.000323
Ass16	Stove	0.82806219	0.377379	-0.25801	-0.117551	0.566135
Ass17	Refrigerator	0.31298168	0.463771	0.441067	0.653385	-0.297659
Ass18	Computer	0.00446419	0.066675	0.099825	1.490508	-0.006684
Ass19	Heater	0.1236452	0.329222	0.376196	1.001394	-0.141287
Ass20	Sewing machine	0.41599389	0.492961	-0.04245	-0.050293	0.035824
Ass21	Radio-TV	0.75353692	0.431011	0.196093	0.112131	-0.342829
Ass22	Bicycle	0.14225708	0.349362	-0.10554	-0.259129	0.042977
Ass23	Motorbike	0.02331205	0.150914	-0.06124	-0.396339	0.009460
Ass24	Car	0.10882843	0.311467	-0.01367	-0.039106	0.004776
Ass25	Washing machine	0.11990561	0.324896	0.245693	0.665546	-0.090675
Ass26	Cattle >= 3 heads	0.02873404	0.167081	-0.13753	-0.799453	0.023651

Ass27	Land >= 10 ha	0.0058995	0.076592	-0.05666	-0.735432	0.004364

Table 18 shows the relationship between the two measures amongst households in the TLSS 2003. If the two measures were perfectly correlated we would find all the observations on the diagonal. As the tables show, there is only weak correlation between the two measures (with Pearson's R = 0.216). Just 26.3% of households ranked in the poorest quintile by per capita expenditure are also ranked in the poorest quintile by the asset score. Moreover, 12.4% of the poorest households when using expenditure are ranked in the richest quintile by asset score.

Table 18: Distribution of household asset score by quintile of per capita household expenditure

		Quintile of asset score					
Quintile of p.c expenditure		1	2	3	4	5	Total
	1	**26.3%**	23.1%	21.9%	16.3%	12.4%	100.0%
	2	24.0%	**22.3%**	21.6%	19.5%	12.5%	100.0%
	3	20.0%	22.4%	**21.3%**	20.8%	15.5%	100.0%
	4	15.9%	17.3%	21.3%	**21.0%**	24.6%	100.0%
	5	13.7%	15.0%	14.0%	22.4%	**34.9%**	100.0%
	Total	20.0%	20.0%	20.0%	20.0%	20.0%	100.0%

Pearson's R = 0.216; Spearman correlation 0.216.

The asset index is clearly capturing a different dimension of household welfare than that measured by consumption. Other studies have also found the correlation of their asset index with household expenditure to be weak (Filmer and Pritchett, 1998; Sahn and Stifel, 2001) and note that the asset index may be better thought of as acting as a proxy for long run household wealth rather than current per capita consumption.

Table 19 shows the distribution of the population within wealth quintiles using the asset index in the TLSS 2003. The strong association of the asset index with type of settlement is clearly visible. The results here may be contrasted with those in Table 12. There is a much higher relative risk of poverty in rural areas when using an asset based approach than using expenditure. Similarly, an asset approach reveals much lower risks of poverty in certain regions, particularly GBAO and Dushanbe. Given this extreme caution needs to be exercised in comparing the results of the Asian Development Bank household survey of living standards (PRMS) and the TLSS.

Table 19: Distribution of the population within wealth quintiles based on an asset index, TLSS, 2003

	Population Quintiles (1 = poorest)					*Total*
	1	2	3	4	5	
Tajikistan	100	100	100	100	100	100
Urban settlements	3.6	5.4	16.4	46.2	95.6	27.1
Rural settlements	96.4	94.6	83.6	53.8	4.4	72.9
GBAO	1.4	2.5	4.3	5.1	1.2	3.0
Sugd region	18.0	31.4	40.5	47.4	21.2	31.8
Khatlon region	50.3	40.7	27.6	17.2	16.0	32.5
Dushanbe City		0.1	1.6	12.4	50.7	9.4
RRS	30.2	25.3	25.9	17.8	10.8	23.3

9. Subjective Welfare And Coping Mechanisms

8.1 Coping mechanisms

Households continue to employ a range of different strategies to survive on limited resources.

Table 20 provides information about a range of other coping strategies households reported employing with regard to food consumption over the last 6 months. There is a clear relationship between poverty and the proportion of households reporting the use of a particular strategy. However, what is most striking is the *widespread* nature of behavior change within Tajikistan. Even amongst the most well-off households, nearly 33 percent reported having reduced the number of meals a day and a similar proportion reported eating smaller portions. This rose to over 60 percent amongst the poorest households.

Table 20: Proportion of households reporting having needed to engage in selected coping strategies in the last six months by quintile of per capita household expenditure (adjusted using regional CPI)

	Poorest 10%	**Poorest 20%**	**Next 20%**	**Middle 20%**	**Next 20%**	**Richest 20%**	**All Taj**
Shift to cheaper foods	85	82	77	71	68	63	72
Reduce number of meals a day	60	65	49	46	39	33	44
Eat smaller portions	56	55	44	44	33	28	39
Find other work	42	40	29	31	24	21	28
Sell household assets	21	18	14	13	13	11	14
Borrow	34	30	25	23	23	19	23
Beg	4	3	2	2	1	11	2
Send children to relatives	12	7	4	2	3	2	3

Note: chi-square significant at ($p<0.001$).

An indication of the continuing pervasive nature of financial insecurity for households across Tajikistan is the fact that over a sixth of all households had sold assets in the last month, and over a fifth had had to borrow from relatives, friends, and neighbors. There is a clear gradient by household welfare, with over a third of those living in the poorest tenth of households having to

borrow. In addition, 12 percent of the very poorest households reported that that they had to send children to live with relatives during the past six months – an extreme coping strategy.

In addition to the coping strategies already employed by households, respondents claimed that they would envisage using a variety of coping strategies over the *next* six months. A higher proportion of households thought that they would have to modify their diet still further and/or find other work A quarter thought that they would have to sell household assets and over a quarter would have to borrow to make ends meet. Two percent thought that they would have to resort to begging.

Table 21: Proportion of households reporting that they will need to engage in selected coping strategies in the <u>next</u> six months by quintile of per capita household expenditure (adjusted using regional CPI)

	Poorest 10%	Poorest 20%	Next 20%	Middle 20%	Next 20%	Richest 20%	All Taj
Shift to cheaper foods	74	70	64	61	60	56	62
Reduce number of meals a day	53	49	38	36	32	26	35
Eat smaller portions	49	46	33	34	27	21	31
Find other work	37	35	23	24	21	16	23
Sell household assets	16	14	8	10	10	8	10
Borrow	22	19	14	13	15	10	14
Beg	5	3	1	1	1	1	2
Send children to relatives	9	5	3	2	2	1	2

Note: chi-square significant at ($p<0.001$).

Migration is often seen as a strategy of the last resort. Just one percent of households reported that they had had to migrate within Tajikistan in last 6 months, and 5 percent reported that at least one member had migrated to outside the republic. Similar proportions reported that they envisaged migrating either internally or externally in the next 6 months.

How have these coping strategies changed 1999–2003

Table 22: Proportion of households reporting how their coping strategies changed in the last six months by quintile of per capita household expenditure (adjusted using regional CPI), 1999 and 2003.

	1999	2003
Last Six Months		
Shift to cheaper foods		72
Reduce number of meals a day	44	44
Eat smaller portions	46	39
Find other work	34	28
Sell household assets	28	14
Borrow	34	23
Beg	3	2
Send children to relatives	5	3
Next Six Months		
Shift to cheaper foods		62
Reduce number of meals a day	41	35
Eat smaller portions	40	31
Find other work	35	23
Sell household assets	23	10
Borrow	28	14
Beg	2	2
Send children to relatives	4	2

Food Security

The above section focused on the profile of poverty as measured by expenditure and focused on those at the bottom of distribution. However the information presented on household coping strategies suggests that financial hardship is far from being limited to this group. In this section therefore we examine the situation of households with regard to the most basic necessity – food.

In June 1997 a nation-wide survey was conducted by ECHO to assess the profile and location of food insecure households in Tajikistan (Freckleton, 1997). Some of the questions from that survey were included in the TLSS 1999 and 2003 to monitor changes over time in food consumption and security. Evidence from Table 22 above suggests that many households have changed their eating patterns over the last 6 months.

In 1999, the average household in Tajikistan ate 2.5 meals a day. This was only a slight reduction from the 2.6 reported by the ECHO Food Security Survey in 1997. The average number of meals a day varied from 2.2 for the poorest fifth of households to 2.8 for the richest fifth. By 2003, this figure had fallen to an average of just 1.6 meals a day. Most worrying from a nutritional point of view is the rise in the proportion of households claiming to eat just <u>one</u> meal a day from 13% in 1999 to 46% in 2003. Over half of the poorest households ate an average of one meal or less a day, and only 5 percent ate three or more (Table 23).

Table 23: Average number of meals per day consumed by members of the household over the last week by quintile of per capita household expenditure (adjusted using regional CPI)

'Over the last week, how many meals has your household eaten per day, on average?'	Poorest 10%	Poorest 20%	Next 20%	Middle 20%	Next 20%	Richest 20%	All Taj
1 or less	58	55	53	48	44	36	46
2	37	40	41	45	46	51	45
3 or more	5	5	5	7	10	13	8
Total	100%	100%	100%	100%	100%	100%	100%

Note: chi-square significant at ($p<0.001$)

When asked about the adequacy of the household's current level of food consumption, just a fifth of all households in Tajikistan reported that it was adequate. This rose to a third amongst the richest fifth of households. However, only 8 percent of the poorest fifth of households felt that their food consumption was adequate.

Table 24: Perceived adequacy of current level of food consumption by quintile of per capita household expenditure (adjusted using regional CPI)

'Would you consider the current level of food consumption of your family as …?'	Poorest 10%	Poorest 20%	Next 20%	Middle 20%	Next 20%	Richest 20%	All Taj
More than adequate	-	-	<1	<1	1	1	<1
Just adequate	6	8	12	19	24	32	20
Less than adequate	94	92	88	80	75	67	79
Total	100%	100%	100%	100%	100%	100%	100%

Note: chi-square significant at ($p<0.001$)

Respondents were asked a range of questions concerning their current stock of various foodstuffs, and their perception concerning the household's position with regard to food over the next 6 months and basic necessities in the next 12 months.

The store cupboard in most Tajik households appears to have been fairly empty in May 2003 with low per capita stocks of flour and virtually no stocks of dried and preserved fruits and beans. This is perhaps not surprising as the survey was conducted after winter and spring and before the main harvest period. There is a strong correlation between food stocks and poverty, highlighting that the poorest households have little cushion by way of stored food.

Table 25: Average stock of selected foods (kg) by quintile of per capita household expenditure (adjusted using regional CPI)

Mean per capita stock of food item (kg)	Poorest 10%	Poorest 20%	Next 20%	Middle 20%	Next 20%	Richest 20%	All Taj
Flour	3.2	3.7	4.5	5.6	6.4	8.7	6.0
Wheat	3.8	4.7	5.5	4.8	4.1	5.5	4.9
Rice	0.2	0.2	0.3	0.7	0.8	1.2	0.7
Vegetables	0.3	0.5	0.5	0.5	0.8	0.7	0.6
Beans	0.1	0.1	0.2	0.2	0.3	0.3	0.2
Dried fruits	0.03	0.01	0.03	0.06	0.05	0.1	0.07
Sugar & preserves	0.1	0.1	0.1	0.2	0.3	0.7	0.3
Oils & fats	0.3	0.4	0.3	0.4	0.6	1.0	0.6

As the survey was conducted before the harvest, households were generally optimistic that their situation with regard to food would improve in the coming months. Nearly four in ten households thought it would definitely get better, but this fell to only 31 percent for amongst the very poorest households. This may reflect that even if food availability increased with the harvest, many households felt uncertain that their access to food would improve. In fact 7 percent of all households thought that their food situation would get worse, and this rose to 17 percent amongst the poorest.

Table 26: Households perceived situation with regard to food in the next 6 months by quintile of per capita household expenditure (adjusted using regional CPI)

'In the next 6 months do you think your situation with regard to food will...?'	**Poorest 10%**	**Poorest 20%**	**Next 20%**	**Middle 20%**	**Next 20%**	**Richest 20%**	**All Taj**
Stay the same	52	54	56	54	54	51	54
Definitely get better	31	34	37	41	40	43	39
Definitely get worse	17	12	7	5	6	6	7
Total	100%	100%	100%	100%	100%	100%	100%

Note: chi-square significant at ($p<0.001$)

Households also expressed disquiet regarding their ability to provide themselves with the most basic necessities over the next year. Concerned was widespread across the republic, with 66 percent reporting that they were very concerned and a further 27 percent were a little concerned. Even amongst the better-off households, nearly 90 percent were a little or very concerned.

Table 27: Households concern over their ability to provide food and basic necessities in the next 12 months by quintile of per capita household expenditure (adjusted using regional CPI)

'How concerned are you about being able to provide yourself and your family will food and basic necessities in the next 12 months?'	**Poorest 10%**	**Poorest 20%**	**Next 20%**	**Middle 20%**	**Next 20%**	**Richest 20%**	**All Taj**
Very concern	78	76	65	64	66	61	66
A little concerned	18	20	30	30	26	27	27
Not too concerned	3	4	5	6	6	10	7
Not concerned at all	1	1	<1	1	1	2	1
Total	100%	100%	100%	100%	100%	100%	100%

Note: chi-square significant at ($p<0.001$)

Subjective measures of household welfare in Tajikistan.

The financial insecurity of households in Tajikistan is further reflected in a range of subjective measures of welfare included in the TLSS. When asked about their financial situation in 12 months time (Table 28), only four percent of households thought that their financial situation would have 'improved at lot' and a similar figure thought that it would have 'deteriorated a lot'. However, more households are optimistic than pessimistic, even amongst the poorest.

Table 28: Households perception concerning their financial situation in 12 months time by quintile of per capita household expenditure (adjusted using regional CPI)

'Do you think that in the next 12 months your financial situation will …?	**Poorest 10%**	**Poorest 20%**	**Next 20%**	**Middle 20%**	**Next 20%**	**Richest 20%**	**All Taj**
Improve a lot	1	2	1	4	5	5	4
Improve somewhat	25	30	35	39	38	39	37
Remain the same	60	58	57	50	52	50	53
Deteriorate somewhat	4	3	4	5	4	3	4
Deteriorate a lot	10	7	3	2	2	2	3
Total	100%	100%	100%	100%	100%	100%	100%

Note: chi-square significant at ($p<0.001$)

Moreover comparing their financial situation today with that of three years ago, more households say it has improved that deteriorated. However, there are significant differences between better off and poorest households, with over a third of the very poorest reporting some deterioration and just 12 percent reporting an improvement compared to 18 percent and 35 percent respectively amongst the richest fifth.

Table 29: Households perception concerning their financial situation today compared with three years ago by quintile of per capita household expenditure (adjusted using regional CPI)

'Do you fell that your financial situation in the last 3 years has …?	Poorest 10%	Poorest 20%	Next 20%	Middle 20%	Next 20%	Richest 20%	All Taj
Improved a lot	2	2	1	4	3	5	3
Somewhat improved	10	14	21	22	26	30	23
Remained the same	54	54	57	57	51	48	53
Somewhat deteriorated	24	22	16	15	16	14	16
Deteriorated a lot	11	8	5	4	4	4	5
Total	100%	100%	100%	100%	100%	100%	100%

Note: chi-square significant at ($p<0.001$)

Although people feel that their position has improved somewhat over the last three years, the majority still feel poor. When asked where they would place themselves on a ten rung ladder (with the poor at the bottom and the rich at the top) the majority of households in Tajikistan ranked themselves as being on the bottom half of the ladder, with 8 percent extremely poor (rung 1), 17 percent on rung 2, 29 percent on rung 3 and 22 percent on rung 4. There is some correlation with welfare as measured by per capita household expenditure, but even amongst the richest households, 40 percent place themselves on the bottom three rungs.

Table 30: Subjective relative poverty ranking using Cantril ladder by quintile of per capita household expenditure (adjusted using regional CPI)

'Imagine a 10-step ladder where on the bottom, i.e. the first, step stand the poorest people and on the highest step, i.e. the tenth, stand the richest. At which step would you place yourself today?'	Poorest 10%	Poorest 20%	Next 20%	Middle 20%	Next 20%	Richest 20%	All Taj
1	17	14	9	6	7	6	8
2	33	30	21	15	12	12	17
3	28	29	35	31	31	22	29
4	16	19	22	25	22	21	22
5	6	7	11	18	23	30	19
6	1	1	1	4	4	5	3
7			<1	<1	1	3	1
8 or higher				<1	<1	2	1
Total	100%	100%	100%	100%	100%	100%	100%

Note: chi-square significant at ($p<0.001$)

The fact that three-quarters of all households in Tajikistan ranked themselves as being on the bottom four rungs of the Welfare Ladder is reflected in Table 31 which shows household's satisfaction with their current financial situation. 65 percent of respondents are either unsatisfied or very unsatisfied at present.

Table 31: Satisfaction with current financial situation by quintile of per capita household expenditure (adjusted using regional CPI)

'How satisfied are your with your current financial situation?'	**Poorest 10%**	**Poorest 20%**	**Next 20%**	**Middle 20%**	**Next 20%**	**Richest 20%**	**All Taj**
Very satisfied	2	1	1	4	3	5	3
Satisfied	6	7	12	14	18	23	15
Unsatisfied	42	54	60	61	59	54	57
Very unsatisfied	51	38	27	22	21	18	24
Total	100%	100%		100%	100%	100%	100%

Note: chi-square significant at ($p<0.001$)

Table 32: Aspects of life that cause most concern at present by quintile of per capita household expenditure (adjusted using regional CPI)

'What is currently the aspect of your life that concerns you the most?'	**Poorest 10%**	**Poorest 20%**	**Next 20%**	**Middle 20%**	**Next 20%**	**Richest 20%**	**All Taj**
Money	38	34	25	21	20	15	22
Job security	2	2	2	1	1	3	2
Health	61	64	72	77	78	80	75
Safety	-	-	1	1	1	2	1
Other	-	<1	<1	-	<1	-	<1
Total	100%	100%		100%	100%	100%	100%

Note: chi-square significant at ($p<0.001$)

When asked about what aspects of life currently cause most concern, the good news is that safety is no longer a major concern, indicating that the country is moving from post-conflict into stability. However the bad news is that three-quarters of households reported that their major concern is health – and this is despite all the previous questions regarding financial issues. Concern about money highest amongst the poorest tenth of households, but even here health was the major issue.

Overall, these findings are disturbing as they indicate high levels of psychological stress and insecurity within the Tajik population. Taking a broad view of well-being, it is clear that not only are there high levels of economic (or material) poverty, but also growing social exclusion and alienation.

10. Concluding comments

The forgoing analysis shows that there was a significant reduction in the proportion of households living in poverty in Tajikistan over the period 1999 to 2003. In 2003, 64 percent of the population was poor compared with just over 80 percent in 1999. Nevertheless Tajikistan remains the poorest country in the CIS-7 region, with poverty rates of 54 percent in Kyrgyz Republic (2001) and 45 percent in Moldova (2002). The gains in living standards have not been equally distributed across the county, with virtually no improvement in poverty rates between 1999 and 2003 in Dushanbe, urban RRS and Sugd. Most of the change for the better between 1999 and 2003 was concentrated in rural rather than urban areas (with the exception of GBAO), reflecting improvements in relative prices in rural areas. Looking across the country, the incidence of poverty remained highest in rural GBAO, followed by Khalton, whilst households living in rural areas in RRS enjoyed the lowest incidence of poverty.

The fall in poverty is primarily the result of economic growth, which averaged 8 percent annually over the period 1998-2003. However, Tajikistan cannot expect past levels of growth and poverty reduction automatically to continue into the future, as the last five years benefited from the cessation of conflict and the bonus of peace. Progress in key economic reforms is needed for growth to become more stable and for poverty to continue falling. Formal sector employment did not show itself to be a way out of poverty in Tajikistan between 1999 and 2003. Indeed households which were dependent on income from employment alone were *more* vulnerable than those who have diversified income sources.

Moreover, although poverty rates have fallen, inequality appears to have widened between 1999 and 2003. While there has been growth in per capita expenditures across the distribution, growth has generally been higher in the top half of the distribution. Other indicators of welfare, including subjective measures, indicate increasing levels of stress and social exclusion. Thus urgent reforms are necessary to improve governance and so foster private sector development and to complete the process land reform which has been delayed in cotton growing areas such as Khatlon. Only then will the poorest be able to benefit from the peace.

Bibliography

Anderson, Kathryn and Richard Pomfret (1999). “Living Standards during Transition to a Market Economy: the Kyrgyz Republic in 1993 and 1996.” University of Adelaide School of Economics, Australia. Unpublished manuscript.

Falkingham, Jane (2000) A Profile of Poverty in Tajikistan. ESRC Centre for the Analysis of Social Exclusion Discussion Paper No. 39. London School of Economics.

Filmer, Deon and Lance Pritchett (1998) ‘Estimating wealth effects without income or expenditure data - or tears: Educational enrolment in India’. World Bank Policy Research Working Paper No. 1994 Washington D.C.: World Bank (also published in Demography 2001 38(1)

Gerry, Christopher and Carmen Li (2002). “Vulnerability to Welfare Change During Economic Shocks: Evidence from the 1998 Russian Crisis.” Deparment of Economics, University of Essex. Unpublished manuscript.

Jalan, Jyotsna and Martin Ravallion (1996). “Determinants of Transient and Chronic Poverty: Evidence from Rural China.” The World Bank. Unpublished manuscript.

Koenker, Roger and Kevin Hallock (2001). “Quantile Regression.” Journal of Economic Perspectives. Vol. 15. No. 4. pp. 143-156.

Sahn, D. and Stifel D. (2001). Exploring Alternative Measures of Welfare in the Absence of Expenditure Data. Mimeo paper. Cornell University.

World Bank (2000) Tajikistan Poverty Assessment. Washington DC: The World Bank.