Economics of Poverty
Tajikistan

William Lee-Wagner

ECON 496 May 5, 2010

Abstract

This paper is a short poverty profile for the Republic of Tajikistan, a low-income ex-Soviet nation. Primarily drawing from Tajikistan Living Standards Surveys from 1999, 2003, and 2007, the paper finds that poverty is very high, but had decreased dramatically during the survey years, while Tajikistan's low inequality has increased slightly. Poverty in the county is largely determined by location and occupation, with rural cotton farmers, particularly uneducated ones, being the worst off. This is something of an irony given that cotton is also Tajikistan's major cash crop, but corruption and a mismanaged transition from a planned to market economy has left the cotton farmers behind. Tajikistan's poverty reductions have come almost exclusively from growth, and about half the growth came from gains from privatization. These gains have now largely been realized, leaving the country in need of a new, sustainable growth engine.

Introduction

Tajikistan is a low income country with a GDP per capita of $884.64 (1993 dollars) in 2004[1] and $751 (current US dollars) in 2008[2] and a population of 7,455,800 in 2009.[3] After gaining independence from the Soviet Union in 1990, Tajikistan almost immediately became embroiled in a civil war that lasted until 1997 which took its human and economic toll. However, in the aftermath of the conflict, the economy experienced very high rates of growth. Between 1999 and 2007, GDP per capita grew at 8-10 percent per year on average.[4,5]

---

[1] World Bank. "Tajikistan Summary Report." PovcalNet. 2008. <http://go.worldbank.org/NT2A1XUWP0>.

[2] World Bank. *World Development Indicators*. (2009)

[3] Bureau of South and Central Asian Affairs. Background Note: Tajikistan." U.S. Department of State. October 2009. <http://www.state.gov/r/pa/ei/bgn/5775.htm>.

[4] Ibid.

[5] UNICEF. "Indicators at a Glance." Tajikistan Living Standards Measurement Survey 2007. 2009. <www.tojikinfo.tj/en/download/.../UNICEF%20TLSS%20Report%20Eng.pdf>.

This paper analyzes the evolution of poverty and its determinants during this period of rapid growth. In particular, the objectives of this paper are fourfold: i. to assess the situation of poverty in Tajikistan for the period between 1999 and 2007; ii. to present a poverty profile; iii. to discuss the main determinants of poverty; and, iv. to examine the impact of public policies on poverty. Given the scope of this exercise, our analysis will not involve original research but will entail a critical review of two World Bank publications: Republic of Tajikistan Poverty Assessment Update. World Bank. 2005 and "Indicators at a Glance." Tajikistan Living Standards Measurement Survey 2007. 2009.

The paper has five sections; each of the four first sections corresponds to the objectives stated in the previous paragraphs. Section 5 summarizes the main conclusions.

The Poverty Situation in Tajikistan Between 1999 and 2007

Tajikistan is a low-income country in central Asia[6] that was until 1991 the poorest part of the Soviet Union.[7] It has a population of 7,455,800 as of July 2009.[8] Per capita GDP was $884.64 (1993 dollars) in 2004[9] and $751 (current US dollars) in 2008[10] and grew between 8 and 10 percent per year between 1999 and 2007.[11,12] The inflation rate in

---

[6] World Bank. "Country and Lending Groups." 2010. <http://data.worldbank.org/about/country-classifications/country-and-lending-groups>.

[7] Bureau of South and Central Asian Affairs (2009).

[8] Ibid.

[9] World Bank. PovcalNet(2008)

[10] World Bank. *World Development Indicators*. (2009)

[11] World Bank.*Republic of Tajikistan Poverty Assessment Update*. (2004)

[12] UNICEF (2009)

2009 was eight percent,[13] and in 2007 Tajikistan had an HDI ranking of 127 of 184.[14]

Based on World Bank's Povcal figures, the headcount ratio and the Gini coefficient equaled 21.49 and 33.61 respectively in 2004.[15] Socioeconomically, the literacy rate was reported to be 99.6 percent.[16] Life expectancy at birth is 67 years, and the infant mortality rate is 56 in 1000.[17] Sixty seven percent of the population had access to an improved water source in 2006, and 26.5 percent lived in urban areas in 2008.[18]

The Data

For the purposes of this paper, we will focus on the period of 1999 to 2007. Before 1999, the country was embroiled in a civil war, a situation not conducive to survey-taking, and before that it was part of the notoriously tight-lipped Soviet Union. So good data from before the 1999 Tajikistan Living Standards Survey (TLSS) simply does not seem to exist. This nation-wide survey was taken again in 2003, and these two were analyzed in the 2004 World Bank Republic of Tajikistan Poverty Assessment Update, from which most of the data in this paper is drawn. The third and most recent TLSS was taken in 2007. The data have been published, and so when possible are included in this paper. However, that publication simply reported the results of the survey, without a great deal of analysis – presumably that will come with the next Poverty Assessment Update. So, much of the analysis in the paper must rely on what was done in 2004.

---

[13] Bureau of South and Central Asian Affairs (2009).
[14] United Nations Development Programme. "Human Development Report 2009." 2009. <http://hdr.undp.org/en/statistics/>.
[15] World Bank. "Tajikistan Summary Report." *PovcalNet*. 2008..
[16] UNDP (2009)
[17] World Bank. "Tajikistan at a Glance." 2008.
[18] Ibid.

Interestingly the World Bank's Povcal interactive data base on Tajikistan includes data points from 1999, 2003, and 2004. Presumably the 2007 data has not yet been analyzed sufficiently to include in Povcal. Based on Povcal's documentation I was not able to determine the source of the 2004 data – there was not a TLSS taken at the time, and if there was some other survey taken that year, it is difficult to track down. The Basic Information Document on the TLSS07 does talk about a 2005 UNICEF Multiple Indicator Cluster Survey, (MICS05),[19] but since dates do not match up this is a tenuous connection at best. In any case since the 2004 numbers seem to be in line with overall national trends, they are included when appropriate in this paper with the hopes that the World Bank would not publish false data.

Comparability between these data sets is also questionable. Each of the TLSS surveys was conducted slightly differently – while in particular the TLSS07 was based on the TLSS03, each survey used a different sample design, attempting to achieve the best representation of the poverty at the time. While this was an admirable goal, it means direct comparisons between the surveys are not as accurate as they might otherwise be. For instance when looking at food products, the TLSS99 looked at 33 items, the TLSS03 32, and the TLSS07 66. Changing the number of items for a particular category can give dramatically different results – however given the lack of alternatives, the analysis is based on the existing and reported TLSS's.

The Evolution of Poverty

_____

[19] UNICEF. "Basic Information Document." *Tajikistan Living Standards Measurement Survey 2007*. June 2008.

In table 1 one can observe that although poverty is relatively high it declined very sharply between 1999 and 2007. In quantifying this decline, the first difficulty is actually finding a poverty line to measure by. Tajikistan's government has no official poverty line, leaving that choice up to the World Bank and other poverty assessors. In the 2004 poverty assessment, the World Bank looked at eight different lines, which showed between 90 and 15 percent of the population below the line in 2003. The TLSS07 derived a single "absolute poverty line" and calculated headcounts using that line for 2003 and 2007, but not 1999. However the report also included headcount data for the two most recent survey years under $2.15 a day in US dollars, 2000 PPP. The report says they looked at this poverty line specifically for comparability, since it was one of the poverty lines in the TLSS03. Because of this fact, pulling headcount ration from the two reports on the $2.15 a day poverty line allows us to see the evolution in poverty over all three survey years. So in 1999 81.5 percent of the population lived under the 2000 PPP $2.15 a day line. By 2003 this headcount had dropped to 64 percent[20] and 2007 saw an even steeper drop to 40.9 percent.[21] Both rural and urban population saw similar trends, but the urban population in 1999 was considerably less poor than the rural population. By 2007 this gap had almost completely disappeared. (Table 1) Both reports only give headcounts based on expenditure data.

---

[20] World Bank. *Republic of Tajikistan Poverty Assessment Update*. (2004)
[21] UNICEF (2009)

Table 1: Poverty Incidence: 1999-2007[22]
Percent of population with expenditures under $2.15 per day
US dollars, 2000 PPP

The Evolution of Inequality

With a Gini coefficient in the mid-thirties for consumption per capita, inequality

in Tajikistan is relatively low when compared with many other developing countries.

Inequality in Tajikistan rose slightly between 1999 and 2003 (there was no inequality

data in the TLSS07 indicators), the Gini coefficient for consumption inequality going

from .33 to .36 (.35 after adjustment for regional prices). (Table 2) Though .35 is fairly

low in a global context, it is higher than the value for much of the region – Armenia, for

example, had a Gini coefficient for consumption of .27 in 2002.[23] Inequality was in

general also higher in rural areas than urban in 2003, though the urban capital oblast of

Dushanbe had the highest consumption inequality of any oblast, with a Gini coefficient of

[22] World Bank. *Republic of Tajikistan Poverty Assessment Update*. (2004); UNICEF (2009)

[23] World Bank. *Republic of Tajikistan Poverty Assessment Update*. (2004)

7

.37.

There is, however, a potentially disturbing fact in Tajikistan's inequality data. As shown in Table 2, the Gini coefficient for income inequality is on average about 20 points higher than the coefficient for consumption inequality, with a full 43 point difference in urban Sugd, (.30 versus .73) and the national income inequality rate at .51.[24] While the 2003 poverty assessment makes note of this fact, it does not seek to explain the discrepancy. However it also sticks with the consumption inequality data for summary analysis, so presumably this is the more accurate measure.

Table 2: Gini coefficients for income and expenditure inequality

	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 unequal command in STATA (author E. Whitehouse, OECD)

World Bank. *Republic of Tajikistan Poverty Assessment Update*. (2004)

---

[24] Ibid.

A Poverty Profile for Tajikistan

Who are the poor?

Given Tajikistan's high levels of poverty and low levels of inequality, poverty is fairly evenly distributed throughout the population, but there are some regional and occupational differences. Those in rural areas are slightly poorer overall than those in urban areas. By oblast, (the political regions in Tajikistan) Khalton had the most poor of any one oblast in 2003[25], and Sughd had the highest percentage in poverty in 2007.[26] (Table 3) By occupation cotton farmers, who are actually farming the nation's best cash crop, are also some of the poorest working people in the county.[27] We will return to this unexpected fact below.

Poverty by oblast varies in Tajikistan mostly because of regional differences in employment sector. Sughd and Khalton, Tajikistan's two poorest oblasts in 2003,[28] are also its two primary cotton-farming regions. The RRS on the other hand, which saw a substantial poverty drop between 1999 and 2003, is mostly non-cotton farmers. The wealthiest oblast, Dushanbe, is comprised primarily of the nation's capital city.[29]

---

[25] Ibid.

[26] *Tajikistan Living Standards Measurement Survey*, 2007

[27] World Bank. *Republic of Tajikistan Poverty Assessment Update*. (2004)

[28] Ibid

[29] Ibid.

Table 3: Poverty by household location (2007)

Description			Extremely poor	Extreme poverty gap index	Poor	Poverty gap index
TOTAL			17.1%	3.4%	53.5%	15.0%
Location type	Urban		18.9%	4.3%	49.4%	15.4%
	Rural		16.4%	3.1%	55.0%	14.9%
Location type	Dushanbe		16.4%	3.8%	43.3%	13.2%
	Other urban		20.3%	4.5%	52.9%	16.7%
	Rural		16.4%	3.1%	55.0%	14.9%
Oblast (region)	Dushanbe		16.4%	3.8%	43.3%	13.2%
	Sughd		31.1%	6.6%	68.8%	23.1%
	Khatlon		8.2%	1.2%	47.3%	10.3%
	DRD		14.1%	2.7%	48.8%	13.1%
	GBAO		9.9%	1.8%	43.4%	10.9%
Oblast (region)	Dushanbe		16.4%	3.8%	43.3%	13.2%
	Sughd	Urban	24.5%	6.4%	53.6%	19.1%
		Rural	33.4%	6.7%	74.0%	24.4%
	Khatlon	Urban	14.5%	2.6%	52.5%	13.7%
		Rural	6.8%	0.9%	46.2%	9.6%
	DRD	Urban	24.8%	4.3%	56.8%	18.5%
		Rural	12.5%	2.5%	47.7%	12.3%
	DRD	Urban	0.9%	0.0%	18.4%	3.9%
		Rural	11.2%	2.0%	47.2%	11.9%

UNICEF (2009)

Tajikistan's people, like many of those in poor countries, spend about half their income on food. (Table 4) As proof of the prevalent poverty, in 2003 the poorest decile spent about 54 percent of their household income on food, while the richest decile spent 49 percent.7 These data do show the signs of normal decreasing marginal consumption – the economic phenomenon in which as income goes up the marginal expenditure on necessities increases at a decreasing rate. However the relatively low levels of consumption inequality in Tajikistan mean these effects are minimal. The poverty assessment imputed the value of home produced consumption for the deciles, and found that this accounted for 11 to 15 percent of household expenditure. (Table 4). Interestingly, both the richest and poorest deciles produced a smaller percentage of their total expenditures than the rest of the population. For the rich, this is probably because they have a higher opportunity cost to their time, and so shift more self production to others with more of a competitive advantage in making particular goods. For the poorest

decile, the most likely explanation is that the poorest Tajiks are primarily cotton farmers whose crops are processed off-site – over 80 percent of farmers in the poorest two quintiles are cotton farmers, while this number is under 70 percent for the richest two quintiles.[30] Unlike food crop farmers, cotton farmers don't necessarily have a competitive advantage in producing any goods they can use themselves, which would push them to obtain more of their goods from the market.

Table 4: Composition of total household expenditure (2003)

| | 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%

World Bank. *Republic of Tajikistan Poverty Assessment Update*. (2004)

The people of Tajikistan are relatively unique in their reliance on sources of income other than traditional wages, which only accounted for about 45 percent of total income in 2003. (Table 5) This percentage was, like the rest of the makeup of household income in Tajikistan, relatively constant over income, though the richest decile earned slightly less of their income from wages than other quintiles. In fact the only place in income distribution that changed significantly over the income distribution was again the imputed value of home production – the poorest decile produced considerably less at home their relativly richer countrymen.

---

[30] Ibid.

Table 5: Structure of total household income (2003)

| | 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%

World Bank. *Republic of Tajikistan Poverty Assessment Update*. (2004)

Access to key services

Access for the poor to vital services like education and health care is vital to any effort to lift Tajikistan out of poverty, but while general education attendance is only slightly positively correlated with income, (Table 7) the wealthier quintiles see higher rates of both post-secondary education (Table 8) and better health and health care access indicators (Table 6).

Access to health care services seems to be fairly inequitable in Tajikistan. The 2003 numbers on self-reported morbidity are particularly interesting, as they actually show that the poor reporting significantly less disease than the rich. (Table 6) Particularly given the fact that the rich also had two to three times higher rates of healthcare utilization, the poor are clearly not actually healthier. Thus, this pattern reveals that the poor both report and seek help for illnesses at a considerably lower rates than their richer counterparts.

Table 6: Self reported morbidity by per capita household expenditure quintile (percent) (2003)

	Poorest 20%	2	3	4	Richest 20%	All Taj
Chronic illness lasting more than three months						
Yes	5.0	5.3	6.2	7.3	9.0	6.4
Acute illness in the last month						
Yes	4.5	5.8	5.8	8.7	10.0	6.7
Sought medical assistance in last month						
Yes	3.3	4.7	6.0	7.7	9.9	6.0
Hospitalised in the last year						
Yes	1.8	2.9	3.6	4.3	5.0	3.4

Source: 2003 TLSS.

World Bank. *Republic of Tajikistan Poverty Assessment Update*. (2004)

The situation for general education is better – attendance is fairly high in all quintiles and is generally 80 percent and above. Also, while richer families and some regions do see better attendance rates, there is not a great deal of inequitably, probably a legacy of the socialist education system that focused on equitability – though perhaps it did so over quality, as the country has serious problems with its general education system. (Table 7) The top problems for the education system in 2003 included poorly paid teachers, missing textbooks, intermittent electricity, and a generally decaying infrastructure.[31] But low-quality school is far better than none, and attendance rates are the most inequitable in Dushanbe, the relatively wealthy capital city. (Table 7) Since Dushanbe is also the most inequitable oblast, this is not particularly surprising.

However, inequality is far more prevalent in higher education, and young adults in the upper quintile are more than three times as likely to be in school as those in the lowest quintile, and in general only 20 percent of eligible 17 to 21-year-olds attend school. (Table 8) Since Tajikistan must have a skilled labor force to rise above its primarily agricultural economy, this is a particularly problematic situation.

[31] Ibid.

Tables 7 & 8: Attendance Rate:

General Education (Aged 7–16) and Higher Education (Aged 17–21) (2003)

Region	Expenditure Quintile					All
	Q1	Q2	Q3	Q4	Q5	
Tajikistan	85	89	88	89	90	88
GBAO	96	93	95	100	94	95
Sugd	87	89	92	91	90	90
Khatlon	85	91	91	89	89	88
Dushanbe	71	83	81	86	89	82
RRS	84	86	83	87	90	86

Source: TLSS 2003

Region	Expenditure Quintile					All
	Q1	Q2	Q3	Q4	Q5	
Tajikistan	11,6	15,5	16,1	23,5	30,7	19,0
GBAO	20,6	43,2	37,3	46,5	57,4	34,0
Sugd	12,0	13,6	11,8	29,0	42,1	20,4
Khatlon	12,0	16,9	17,4	12,1	16,3	14,9
Dushanbe	13,3	22,8	32,1	45,8	53,8	37,8
RRS	5,1	6,4	12,1	16,7	21,8	14,5

Source: TLSS 2003

World Bank. *Republic of Tajikistan Poverty Assessment Update*. (2004)

Gender also played a large role in attendance and in 2003 twice as many rural girls as boys, and three times as many urban girls as boys, dropped out before completing their general education. In particular, the poverty assessment said that many families kept their girls in school until 4th grade, at which point the families believed the girls had a basic education and pulled them to provide assistance at home.[32] However by 2007 this inequity had mostly been corrected and female and male attendance rates were almost equal. (Table 9) However the history of low female education almost certainly contributed to their lower labor force participation rate, and higher rate of employment in presumably unskilled agricultural work.

Table 9: Gender Statistics [33]

	Male	Female
Life expectancy at birth (years) (2007)	64	70
Population (% of total) (2008)	51	49
School enrollment, primary (% net) (2007)	99	95
Employment in Agriculture (% of gender employment) (2004)	41.8	75.1
Labor Force Participation Rate (% of gender 15-64) (2007)[34]	69.7	59.1

---

[32] Ibid.
[33] World Bank. *Data and* Statistics. (2008)
[34] World Bank. *Genderstats*. 2010. <http://go.worldbank.org/4D17F6Q9Z0>.

The Determinants of Poverty

Key Factors

There are a large number of factors that contribute to Tajikistan's high levels of poverty. One is politics. The aftermath of a bloody civil war, and cold relations with neighboring Uzbekistan means a large number of checkpoints, blockades and violent confrontations. These are all barriers to trade, which hurts growth, Tajikistan's key to fighting poverty.[35] Though the civil war is now over a decade in the past, it takes a long time to recover the capital, both physical and human, lost during war.

The other major problems for Tajikistan involve the meeting of public and private interests. The government still in 2003 was focused on public over private industries, and their uneven land reforms, discussed in the next section, have left behind the cotton farmers who make 63 percent of the GDP.[36] To compound that, having only one crop as the major source of income for the country makes Tajikistan very susceptible to bad harvests, like one in 1999 that hurt the nation, particularly the poor farmers.

Regression analysis

The reductions in poverty between 1999 and 2003, according to the poverty assessment, "resulted from economic growth or other changes in the economy. Redistribution was actually negative for the poor."[37] The World Bank's Poverty assessment provided a detailed regression analysis, which shows more specifically what allowed some households to benefit more than others from growth. The results are shown in Tables 10 to 12.

---

[35] World Bank. *Republic of Tajikistan Poverty Assessment Update*. (2004)

[36] UNICEF (2009)

[37] Ibid.

For Tajikistan the World Bank chose to do a quintile regression, as well as an OLS regression, to best see if some variables like household size are significant to only part of income distribution. They then utilized the log of total per capita expenditure as the dependent variable to account for the left-ward skew of consumption expenditure data.

<u>Demographics</u>

Looking at the poverty assessment's regression analysis on expenditures, it is clear that the makeup of a given Tajik household is an important determinant of the poverty experienced in that household. In all but the richest quantile of urban households, the number of household members has a significant negative affect on expenditures. This affect is not significant for the entire population of the country, but is for the bottom two quantiles in general. (Table 10) This makes sense in light of the other demographic data. The proportion of females living in the house also has a significant negative correlation with expenditures for the lower quantiles, though having a female head did not significantly affect expenditures. (Table 10) This seems to point to income inequalities between men and women, which fits with the lower female education attainment rates in the country, particularly for the poor. Oddly, when looking at share of household population in a given age group, every age group had a significant and negative affect on expenditures in almost all quantiles. (Table 10) This result seems counterintuitive, but the assessment does not mention it. However since one age group was everyone 16 to 64, it is possible that having an age group of say 16 to 40 – particularly productive years – would have yielded a positive correlation for that group. Nevertheless, having more people in the house who can make less money – children and undereducated women – should

decrease the household's income and so expenditures. Also, it may be that people are forced to live together when they have less income, and so larger households would again correlate with lower expenditures. In any case, having more elderly in the household actually significantly and positively correlated with expenditures, suggesting a large amount of pension-type money. (Table 10)

Labor Market

Employment was positively, and unemployment negatively, correlated with household expenditures, as would be expected. However being completely out of the labor force, with also negatively impacting expenditures, had a weaker effect than being unemployed. (Table 10) Given the large amount of income that comes from non-wage sources for Tajiks, this suggests that some of those out of the labor force simply had other more sure sources of income. However neither unemployment nor being out of the labor force significantly affected the top quantile and employment was only slightly significant. Supporting the pension assumption, having a larger share retired people positively correlated with expenditures. (Table 10)

Table 10: Linear and quantile regression: Demographics and Labor[38]

	Survey reg	OLS	Quantile regressions				
			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 household 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)**

World Bank. *Republic of Tajikistan Poverty Assessment Update*. (2004). p. 65

Education

      Highlighting how important it is to Tajikistan to focus on high education attendance rates, having a higher or vocational education had a significantly positive affect on expenditures, while having only a basic level of education or no education at all had an opposite effect. (Table 11)

---

[38] Ibid.

Table 11: Linear and quantile regression: Education[39]

	Survey reg	OLS	Quantile regressions				
			0.10	0.25	0.50	0.75	0.90
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)

World Bank. *Republic of Tajikistan Poverty Assessment Update.* (2004) p. 66

Location

Given the inequality between different oblasts, it is unsurprising that region had a significant affect on expenditures at all income levels. Being located in the two cotton-growing oblasts of Sugd and Khatlon was negatively correlated, and living in any other oblast positively correlated, with expenditures. (Table 12) This is consistent with overall regional poverty levels in 2003.

Table 12: Linear and quantile regression: Location[40]

	Survey reg	OLS	Quantile regressions				
			0.10	0.25	0.50	0.75	0.90
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

---

[39] Ibid.
[40] Ibid.

World Bank. *Republic of Tajikistan Poverty Assessment Update*. (2004). p. 67

The Impact of Government Policies on Poverty

Policies and practices

Tajikistan ranked in the bottom 14.5 percentile for control of corruption in 2008, and has been consistently below the 20th percentile.[41] This level of corruption leads to serious costs to business, and bribes to local governments tally up to around 3% of gross revenue.[42] For poverty, the problem is that this general increase in costs slows economic growth, which is Tajikistan has been the engine for moving people out of poverty. Making it more expensive to start a business means fewer new businesses, and so fewer new jobs that could be taken by poor Tajiks.

The rampant corruption also hurt the investment climate, along with inefficient and unpredictable regulation, which decreased the amount of capital flowing into the country and the level of investment in general. This could be a serious problem for future poverty reduction. Currently much of the pro-poor growth is coming from gains from moving to a more free market economy – that is, from moving closer to the edge of the production possibilities curve. As the county nears this edge, however, it will be up to new investments to keep growth strong. With such low investment rates that may not happen. Further, many Tajik business people believe that financial success is largely determined by connections, which would tend increase inequality.[43] While inequality in general is not yet a large problem in Tajikistan, allowing the fruits of the new market

---

[41] Kaufmann D., A. Kraay, and M. Mastruzzi. *Governance Matters VIII: Governance Indicators for 1996-2008.* 2009.

[42] World Bank. *Republic of Tajikistan Poverty Assessment Update*. (2004)
[43]. Kraay and Mastruzzi (2009)

economy to flow more into the hands of those with government connections could quickly reverse that situation.

But those fruits have been substantial, and the World Bank estimated that gains from privatization were responsible for about half the country's industrial growth between 2001 and 2002. Unfortunately they believed that these gains would begin slowing, as most of the state-run enterprises had been sold by 1998, and larger ones were only being slowly sold by 2004, slowing possible competition-based growth.[44]

Tajikistan has also lost some possible income though trade because their relations with their neighboring country of Uzbekistan stayed poor through 2003. This led to trade restrictions including mined borders and harassment at border checkpoints, which greatly increased the cost of trade between the two countries. This effectively closed off a potential market for poor farmers' wares and a potential source of cheaper goods, both consumables and farm inputs that are primarily purchased from monopolists in Tajikistan.

On the positive side, Tajikistan's president has made education reform a top priority, creating a Working Group chaired by the Prime Minister and in 2004 issuing a decree that the group's recommendations be pushed forward. The government's plans include budget and fee reform and transparency, decreasing in on-budget employment, expanding teaching assignments, reforming the curriculum, and bringing in the private sector. Given that education rates significantly improved between 2003 and 2007, these policies seem to have been successful.

Programs

[44] *World Bank. "Republic of Tajikistan Poverty Assessment Update." (2004)*

The most important specific program the government pursued up to 2003 was its multi-faceted agricultural reform. One key part of this was land reform. After the fall of the Soviet Union, Tajikistan's means of production were still owned by the state. Thus, part of its transition to a market economy was privatizing these factors. Among the most important, particularly to farmers, was the farmland. However, though the national government passed legislation reforming land ownership and distribution, there was by 2003 still little regulation. Differing local interpretations have led to unequal outcomes, and land restructuring in general has been inequitable, with those who already had connections and money being perceived to have obtained more and better land. This perception is in line with the corruption in the country's government as a whole.

One of the problems with the land reforms have been their uneven implantation. Cotton is Tajikistan's main cash crop, and so has attracted the most interests and therefore has seen the least reform for farmers. However in non-cotton, generally subsistence farming areas, most individual farmers have land-use certificates, and own their own farms. But in cotton-growing areas, large state farms have been broken up only into roughly 100-hetacre farms, with one manager and 100-150 farmers. The poorer farmers have little say in their farming practices, and are usually paid in-kind, not in cash. Further, since they do not control what or when to farm, or who to sell to, these cotton farmers have not seen returns to privatization.

Also as part of its agricultural reform plan, the government has privatized cotton gins, the machines that turn picked cotton into a sellable good. Unfortunately the gins are run by monopolies – every gin is privately owned, but the 34 gins in the country each control a specific farming region, and farmers are only allowed to sell to their regional

gin. The gins also supply inputs to cotton farmers, in exchange for an amount of cotton that they set. Underproduction results in a debt. The gins also take so long to process cotton (200 days rather than the average 90) that farmers do not see profits from a year's crop in time to purchase inputs for the next year, necessitating expensive and difficult-to-get loans. Thus, farmers of the country's main cash crop are worse off than farmers of other, less productive crops. Since about half the labor force is employed in cotton farming, this is a serious problem.

Other agricultural reforms the government was focusing on in 2003 included abolishing price controls which, while important in becoming a part of the globalized world market, may hurt the farming poor who rely on those controls to make a profit in unsustainable regions. The government was also working on more private provision of agricultural credit. Since credit constraints are a large problem that this should help alleviate, this should have been an effective program.

Outside the agricultural sector, the government experimented with ways of increasing its school attendance rates. For instance, Tajikistan was part of the World Food Program, which provided food to students, both to eat and take home, when attending school. By increasing the opportunity costs of pulling children from school, this program helped increase attendance from 67% in 2000 to almost 100% in 2003 in the region, while presumably also providing better nutrition to its subjects.

Priority Public Actions

Agricultural Liberalization

Tajikistan should focus on continuing land distribution reform, a key goal in

transitioning from a planned to market economy. Allowing cotton farmers to buy and sell with any gin would greatly decrease prices, increase wages, and spur investment in higher quality gin technology. The RRS, the country's main non-cotton farming area, saw the most progress in reform. It also saw a 20% reduction in poverty between 1999 and 2003, rather than the national average of 9%.

<u>Fighting corruption</u>

The government recognizes corruption in a major obstacle to growth and poverty reduction – Tajikistan joined five other ex-Soviet states in the Anti-Corruption Action Plan in 2003, a pledge for more enforcement and international cooperation. Reducing corruption would decrease costs to business, which would mean more jobs and cheaper goods. It would also help the inequality-increasing anti-competitive practices that plague the country. This in turn could make it easier for poor families to start businesses and begin moving out of poverty. Finally easing corruption could in turn create the better investment climate so crucial for sustaining Tajikistan's impressive growth rates.

Conclusions

Tajikistan is a very poor nation despite a remarkable reduction in poverty over the last decade since the end of its civil war in 1997, and has seen low but rising inequality over that same time period. Most of the data to support this comes from the Tajikistan Living Standards Surveys in 1999, 2003, and 2007. The surveys did change their makeup from year to year and so are not strictly comparable, but given the lack of other data they are close enough in design and function to serve as comparison points.

The poor in Tajikistan are both numerous and fairly evenly distributed, but both rural areas in general and cotton-farming oblasts in particular see higher poverty rates. The poor spend about half of their money on food, and get more than half of it from non-wage sources. Poverty has only minor affects on general education rates, but higher education attendance is far more inequitable. Girls are much less likely to complete even a general education, though this situation had improved by 2007. The poor also have much less access to healthcare than the rich.

Growth was the engine of poverty reduction in Tajikistan, and between 1999 and 2003 accounted of all the reductions in poverty, which makes sense given that inequality was rising. And while the 8-10 percent growth rates were impressive, they could have been even more so without the aftermath of the civil war and uneven government interaction with the private sector. Based on the World Bank's 2003 quintile regression analysis, having a larger household correlated with poverty, as did having higher proportions of the young, female, unemployed, and uneducated. Being located in a cotton region also hurt a household's expenditures.

Corruption, uneven land reform, and poor relation with neighbor Uzbekistan hurt Tajikistan, and almost certainly slowed down its fight against poverty. However the government did make some progress with increasing education attendance rates. Also, though the country has grown a great deal through privatization, those dividends have now been largely reaped, and so the country will have to find a new, more sustainable engine if it intends to keep growth rates high. To this end, the government should focus primarily on reducing corruption and better liberalizing its land polices.

References

Bureau of South and Central Asian Affairs. "Background Note: Tajikistan." U.S.

Department of State. October 2009.

<http://www.state.gov/r/pa/ei/bgn/5775.htm>.UNICEF "Basic Information

Document." *Tajikistan Living Standards Measurement Survey 2007*. June 2008.

<www.untj.org/files/reports/TLSS_2007_eng.pdf>.World Bank. BEEPS At-A-

Glance 2008. 2008.

<http://web.worldbank.org/WBSITE/EXTERNAL/COUNTRIES/ECAEXT/EXT

ECAREGTOPANTCOR/0,,contentMDK:20720934~pagePK:34004173~piPK:34

003707~theSitePK:704666,00.html>.

"Country and Lending Groups." The World Bank. 2010.

<http://data.worldbank.org/about/country-classifications/country-and-lending-

groups>.

World Bank "Country Brief 2009." Washington, DC. 2009.

<http://go.worldbank.org/JI1AOY9RZ0

Central Asia Caucasus Institute Analyst. "Data and Statistics." April 2007.

<http://go.worldbank.org/LJW2UB0SI0>.

Central Asia Caucasus Institute Analyst. "Decree Raises Minimum Wage in Tajikistan"

November 2004. <http://www.cacianalyst.org/?q=node/2585>.

United Nations Development Programme.*Genderstats*. 2010.

<http://go.worldbank.org/4D17F6Q9Z0>.

United Nations Development Programme. "Human Development Report 2009." 2009.

<http://hdr.undp.org/en/statistics>.

UNICEF. "Indicators at a Glance." Tajikistan Living Standards Measurement Survey

    2007. 2009. <www.tojikinfo.tj/en/download/.../UNICEF%20TLSS%20Report

    %20Eng.pdf>.

Kaufmann D., A. Kraay, and M. Mastruzzi. Governance Matters VIII: Governance

    Indicators for 1996-2008. 2009.

World Bank. *Republic of Tajikistan Poverty Assessment Update*. January 2005.

World Bank. "Tajikistan at a Glance." September 2008.

World Bank. "Tajikistan Summary Report." *PovcalNet*. 2008.

    <http://go.worldbank.org/NT2A1XUWP0>.

World Bank. *World Development Indicators*. 2009.

    <http://ddpext.worldbank.org/ext/DDPQQ/member.do?method=getMembers>.