



Working Paper No. 05/08

## Factors Behind Persistent Rural Poverty in Armenia

Gohar Minasyan  
IMF Armenia Office  
[gminasyan@imf.org](mailto:gminasyan@imf.org)

Aghassi Mkrtchyan  
UNDP Armenia Office  
[aghasi.mkrtchyan@undp.org](mailto:aghasi.mkrtchyan@undp.org)

January 2005

### Abstract

Poverty monitoring through household surveys in the period 1996-2003 did not reveal poverty reduction in rural areas. At the same time poverty reduction in urban areas especially in the capital was significant. This paper attempts to contribute to a better understanding of the factors behind persisting rural poverty in Armenia. Rural poverty in Armenia has been largely stagnant in the context of continuous growth in agriculture as rural farm incomes did not respond to the growing agricultural value-added. Further, negative relative price shocks may have held back agricultural growth significantly below the level of economic growth, thus impeding its potential to reduce rural poverty. Incomes from non-farm employment of rural households failed to increase while the growing state benefits and remittances were insufficient to serve as a safeguard from poverty. We use the data available from household surveys, national statistics as well as expert estimations to examine the factors impeding rural poverty reduction.

The views expressed in this Working Paper are those of the author(s) and do not necessarily represent those of the Armenian International Policy Research Group. Working Papers describe research in progress by the author(s) and are published to elicit comments and to further debate.

JPE Classification: I320, O180, R200

Keywords: rural poverty, household income

## Contents

1. Introduction	4
2. The Problem	4
3. Data and Analysis	6
4. Farm Income of Rural Households versus General Pattern of Agriculture	6
4.1 Commercialization of Agriculture	8
4.2 Involvement of Urban Population in Farming	8
4.3 Distribution of Gains along the Value Chain of Agricultural Products	10
5. Agricultural Growth and Relative Price Developments	10
5.1 The Dynamics of Agricultural Prices	10
5.2 Implications of Relative Agricultural Prices for Rural Poverty	11
6. The Dynamics of Non-farm Incomes of Rural Households	13
6.1 Trickle-down of Economic Growth to Rural Areas	14
6.2 The Role of Public and Private Transfers	14
7. Explaining Regional Disparities	15
8. Conclusions	17
9. Bibliography	19

## 1. Introduction

Rural poverty in Armenia has been largely stagnant during the recent years, while urban poverty did decline. As a result, while in the 90-s urban poverty used to be much more severe than rural poverty, in the 00-s rural poverty proved to be a more persistent phenomenon hardly responding to the positive trends in the economy in general and agricultural growth in particular. The purpose of this paper is to contribute to a better understanding of the factors behind persisting rural poverty in Armenia. For that we will try to focus on the main issues around this problem, using the data from Household surveys conducted in 1996-2003, national statistics as well as expert estimations.

The paper is structured as follows. First, we briefly describe the problem, presenting the main statistics indicative of the trends in rural poverty. In the following section the available data are described and the main questions that we will attempt to answer in this paper are formulated.

The fourth section focuses on the dynamics of farm incomes of rural households. Here we discuss the possible factors that may have lead rural farm incomes to decline in the context of growing agriculture. We focus on the role of commercialization of agriculture, involvement of urban households in farming and shifts in the value chain of agricultural goods.

In the fifth section we reflect on the speculation that agricultural growth has not been high enough to have lead to a reduction of rural poverty. We analyze the factors that may have held back agricultural growth thus limiting its potential to reduce rural poverty. We consider the unfavorable relative food price dynamics as a factor holding back agricultural growth. Further we consider the impact of relative food price changes on the rural poor.

In the sixth section we explore the questions to what extent the continuous rapid economic growth trickled down to rural households through non-farm income and to what extent state benefits and private transfers served as a safeguard from poverty for rural households.

The final seventh section focuses on the growing regional disparities in poverty and tries to explain them by the extremely uneven agricultural growth.

## 2. The problem

The results of household surveys in the period 1996-2003 indicate around 12 percentage point reduction in the poverty incidence on the national level. The elasticity of poverty reduction in respect to growth in Armenia has been one of the lowest in developing countries: 6 percent annual real economic growth against 1 percentage point reduction of poverty. This reduction in poverty has been driven by improvement in urban areas, especially in the capital, while poverty in rural areas has not changed. Yerevan, other cities and rural areas account for around one third of the sample of the Household Survey, however out of the 11.8 percentage points reduction in poverty around 9.4 is coming from improvements in Yerevan, 2.2 percentage points are contributed by other cities and only 0.2 percentage points by rural areas. The Yerevan-centered improvement has basically changed the nature of poverty: while in the mid 90-s poverty was predominantly an urban phenomenon, in the recent years poverty in Armenia started to take the common shapes for developing countries with rural poverty significantly exceeding urban poverty.

Table 1: Poverty profile, 1996-2003, (percent)

	1996	1999	2001	2002	2003
Armenia	54.7	55.1	50.9	49.7	42.9
Urban poverty	58.8	58.3	51.9	52.6	39.7
Yerevan	58.2	56.6	46.7	43.8	29.6
Rural poverty	48	50.8	48.7	45.3	47.5

Source: NSS

The household surveys (HS) revealed a growing disparity of average incomes between urban and rural areas. Nominal total incomes on the national level increased by around 46 percent over the period 1999<sup>1</sup>-2003 with 90 percent nominal increase in urban areas and only 7 percent increase in rural areas. This is an extremely modest increase, especially when taken into account that CPI inflation was around 15 percent for that period. As table 2 shows, the main reason for the low growth of rural household incomes is the significant decline of farm income (income from sales of agricultural products and consumption of food from own farm) for the period of 1999-2003, a development that is difficult to interpret in the context of growth in the agricultural sector. Rural households also lag behind in respect of increase in incomes from self-employment and hired job.

Table 2: Dynamics of average monthly per capita income, Armenian drams

	Armenia			Urban			Rural		
	1999	2003	Percent change	1999	2003	Percent change	1999	2003	Percent change
Total income	10,761	15,697	46	8,765	16,653	90	13,416	14,313	7
Total monetary income	7,929	13,324	68	7,397	15,647	112	8,636	9,960	15
Hired job	1,948	5,487	182	2,814	7,985	184	796	1,870	135
Self-employment	842	1,868	122	796	2,439	206	903	1,041	15
Sale of agricultural products	2,546	1,691	-34	165	628	281	5,715	3,232	-43
State pensions and benefits	740	1,321	79	894	1,236	38	532	1,447	172
Private transfers	1,532	2,113	38	2,285	2,325	2	529	1,807	242
Other incomes	321	844	163	443	1,035	134	161	563	250
Non-monetary income	2,832	2,373	-16	1,368	1,006	-26	4,780	4,353	-9
Consumption of food from own farm	2,652	2,195	-17	1,155	755	-35	4,643	4,281	-8
Free non-food products and services	180	178	-1	213	251	18	137	72	-47

Source: NSS

Our final contemplation is on the regional picture of poverty. Behind the largely stagnant rural poverty during 1999-2003, the regional data indicate significant and growing disparities of poverty situation across the country. In six of the regions - Ararat, Aragatsotn, Armavir, Gegharkuniq, Vayots Dzor, Tavush (not highlighted in Table 3) more than two thirds of the population lives in rural areas and these regions account for around two thirds of rural population of Armenia. In the context of non-decreasing rural poverty in the country, there were improvements in Ararat, Tavush and Vayots Dzor, while in Aragatsotn, Armavir and Gegharkuniq the situation deteriorated.

Table 3: Poverty profile across the regions (percent)

	1996	1999	2001	2002	2003
Aragatsotn	51.1	57	60.3	72.1	57
Ararat	54.2	49.4	44.7	45.4	42.8
Armavir	38.1	36.7	53.7	51.6	48.3
Gegharkuniq	48.1	43.4	62.2	47.2	59.9
Lori	51.5	61.7	54.2	44.6	34
Kotayq	62.4	60.3	50.5	55.9	52.5
Shirak	63.1	77.3	57.8	73.6	72.2
Syuniq	47.1	50	NA	32.7	34.6
Vayots Dzor	61.5	34.7	51.1	53.2	42.9
Tavush	56.1	27.6	59.7	48.2	30.7

Source: NSS

<sup>1</sup> Since HS 1996 is not fully comparable with later surveys HS 1999 will mostly be used as a starting data point in this paper.

In summary, the HS results point to the problem of stagnant rural poverty in Armenia. The continuous high economic growth, including growth in the agricultural sector failed to reduce rural poverty while the improvement in urban areas seems apparent. Also, the survey results reveal a problem of regional disparities.

### 3. Data and Analysis

Poverty monitoring through household surveys started in 1996 and five surveys were conducted since then. However the following reasons make the results of the household surveys not strictly comparable: the 1996 survey used a notably different methodology compared to the subsequent surveys; the 98-99 survey covered a 12 month period over two years; only summary data are available for the 2003 survey. To make the regional analysis more credible we would need representative data on rural and urban households for each region, which, however, are not provided by the household surveys. These data constraints will unfortunately limit the accuracy of our research. Besides the HS data we use various data from national statistics as well as the results of the social monitoring survey conducted by UNDP.

We organize the analysis of the main factors behind persistent rural poverty in Armenia into a discussion of several key questions. We start by the question why rural households failed to benefit from the growth in agriculture and try to answer this question by considering the factors influencing farm incomes of rural households. The second question is whether agricultural growth itself was high enough to bring about a reduction of rural poverty and what factors limited this potential. The third question is whether economic growth has trickled down to rural areas through non-farm income. We also consider the behavior of public and private transfers to see whether they helped rural households to escape poverty. Finally we try to explain the possible factors behind regional disparities of rural poverty.

The data constraints make it unfeasible to construct models to test hypotheses on the factors impeding rural poverty reduction. In case the major data constraints are resolved a more thorough quantitative analysis can be done to substantiate the theories underlined here.

### 4. Farm Income of Rural Households versus General Pattern of Agriculture

This section focuses on the question why the growth in agricultural sector has not transformed to growth in farm income of rural households.

The most marked feature of rural incomes is the importance of farm income component in the structure of rural households' total income. In 2003 the sum of monetary income from the sales of agricultural goods and consumption of food products of own production accounted for around 53 percent of the total income of rural households. It was even higher in previous years: 77 percent in 1999 and in 59 percent 2001. As Table 4 below shows, farm income has been extremely volatile and its decline in the period 1999-2003 could be deep enough to be responsible for the persistence of rural poverty.

Table 4. Monthly per capita farm incomes

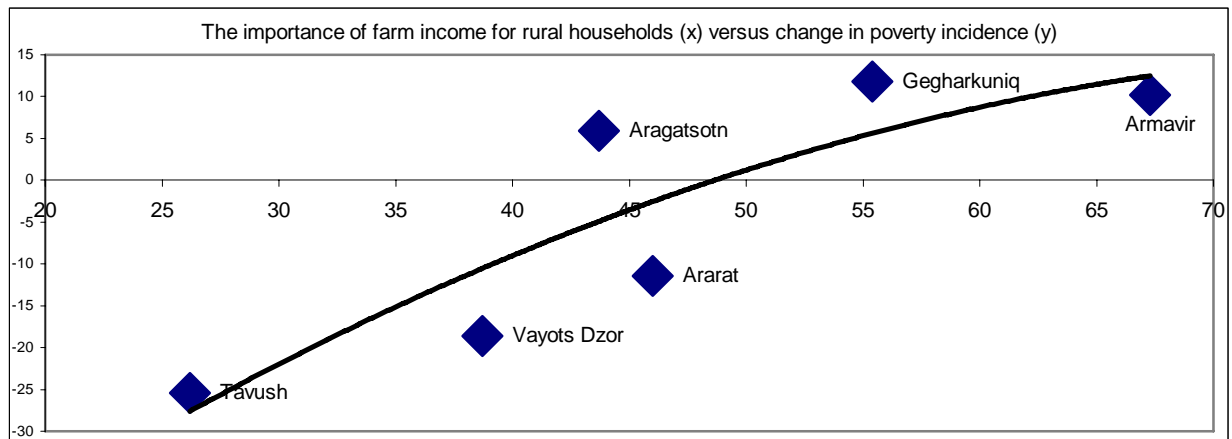
	Armenia				2003 against 1999, percent change
	1999	2001	2002	2003	
Total farm income	5,198	4,237	3,429	3,886	-25
of which: Income from sale of agricultural products	2,546	1,754	626	1,691	-34
Consumption of food from own farm	2,652	2,483	2,803	2,195	-17
	Urban				

Total farm income	1,320	1,582	1,578	1,383	5
of which: Income from sale of agricultural products	165	105	147	628	281
Consumption of food from own farm	1,155	1,477	1,431	755	-35
Rural					
Total farm income	10,358	9,695	6,148	7,513	-27
of which: Income from sale of agricultural products	5,715	5,144	1,329	3,232	-43
Consumption of food from own farm	4,643	4,551	4,819	4,281	-8

Source: NSS

The household survey data point up that the role of farm income as a safeguard from poverty is becoming less and less important. Although agricultural activities still help to secure the minimum of food consumption keeping extreme poverty in rural areas lower as compared to urban areas, still, households relying on farm income are at a higher risk of poverty. This argument is supported by data on regional level, which show that there is a positive correlation between the share of farm income in total household income and increases in poverty incidence in the six predominantly rural regions of Armenia.

Chart 1



Source: NSS, UNDP

Another important observation on farm income is its changing distribution across income deciles. As shown in Table 6 below, it has changed dramatically: while in 1999-2001 the well-being of households was positively correlated with farm income and farm income used to contribute almost half of the incomes of the richest group, implying mostly rural households being on the top of income distribution, by 2003 this pattern radically shifted. HS 2003 results indicate that, the highest deciles lost the bulk of their farm income, which led to a more even distribution of farm income. The data in table 5 illustrate that an average rural household in the top quintile lost around 90 percent of its farm income, and only half of this loss was compensated by gains in the first four quintiles while the other half disappeared.

Table 5: The share of farm income by deciles, 1999 and 2003, percent

Deciles	I	II	III	IV	V	VI	VII	VIII	IX	X
1999	5	11	14	15	18	15	21	20	28	46
2003	44	35	25	23	15	14	11	6	5	2

Source: NSS

It is important to understand the main reasons behind the extreme volatility of farm income. The household survey results show that in 2003 rural families were getting 27.5 percent less in incomes from sale of agricultural goods than in 1999. At the same time national accounts statistics report

continuous positive growth of agriculture. Nominal value added in agriculture increased by 20.2 percent over the period 1998/1999<sup>2</sup>-2003.

In the remainder of this section we will try to explain why in spite of continuous agricultural growth<sup>3</sup> rural farm income has not grown, and moreover has fallen significantly. Our objective is to identify the possible factors that may have led rural farm incomes to decline in the context of growing agriculture. We focus on the role of commercialization of agriculture, involvement of urban households in farming and shifts in the value chain of agricultural goods. The factors that we examine are roughly quantifiable, which will allow to estimate a combined effect of these factors on the gap between rural households farm income and total value added in agriculture.

#### 4.1 Commercialization of Agriculture

The increasing role of commercial firms in production of agricultural products may have driven some of rural households out of business thus becoming a factor behind declining farm incomes of rural households in the context of the continuous real growth in agriculture. Commercialization of agriculture is believed to increase the inequality of farm income distribution as households engaged in farming can be put out of business by commercial firms. The incomes that could be received by the members of rural households employed in these firm would not be classified as farm income in the HS results, but would probably appear in the categories “income from hired job” or other.

Table 6: The share of commercial organizations in total agricultural production, percent

	1997	1998	1999	2000	2001	2002	2003
Share of commercial organizations in agricultural output, percent	0.8	0.9	1.5	2.5	3.1	3.2	3.8
of which in planting, percent	0.9	1.0	1.4	1.5	1.2	1.2	1.8
in animal husbandry, percent	0.7	0.7	1.7	3.4	5.9	6.2	6.2

Source: NSS

There is some statistical evidence that commercialization of agriculture has been increasing in the recent years. In Table 6 above the ratios of commercial organizations in the agricultural output are given. Data on the share of commercial organizations in the value added unfortunately are not available. However, we can argue that the share of commercial organizations in the agricultural value added would be higher than their share in agricultural output. The rationale is that normally commercial firms do better than households in terms of productivity, bargaining power in input and output markets and market positioning, e.g. proximity to food processing companies. Nevertheless, the ratio of commercial organizations in food production, although increasing, remains rather low. This leads us to believe that commercialization of agriculture could not have been a major factor behind declining farm incomes of rural households and the losses for rural households from the commercialization can be estimated at 3-4 percent<sup>4</sup>

#### 4.2 Involvement of Urban Population in Farming

A more extensive involvement of urban population in farming could have caused a redistribution of farm income in favor of urban households and at the expense of rural households. The HS data indicate that urban households have in fact become relatively more involved in agricultural production. While in 1999 urban households used to receive only 10 percent of monetary incomes

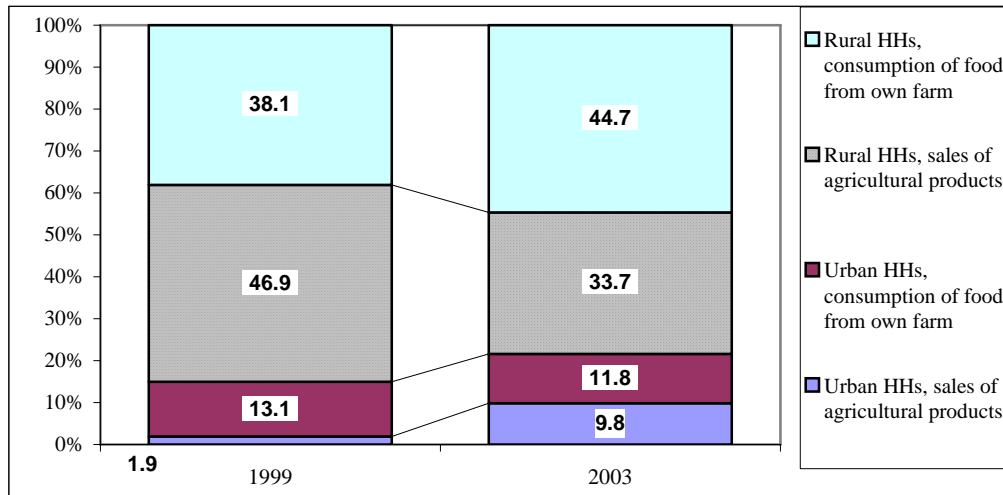
<sup>2</sup> Since 1998/1999 survey covers the period between July 1998-June 1999, we compare the value added in agriculture for this period with 2003.

<sup>3</sup> The speculation that agricultural growth has not been sufficiently high to have an impact on rural poverty will be considered in the next section.

<sup>4</sup> Taking into account that the change of the share of commercial organizations in agricultural output in 1997-2003 was 3 percentage points.

from farming, in 2003 they received around 25 percent of incomes from the sale of agricultural goods. As for the total farm income that includes food consumption from own farms, in 1999 urban households had a 15 percent share in total and in 2003 their share reached 21 percent.

Chart 2 Composition of total farm income, 1999 and 2003 (percents)



Source: NSS

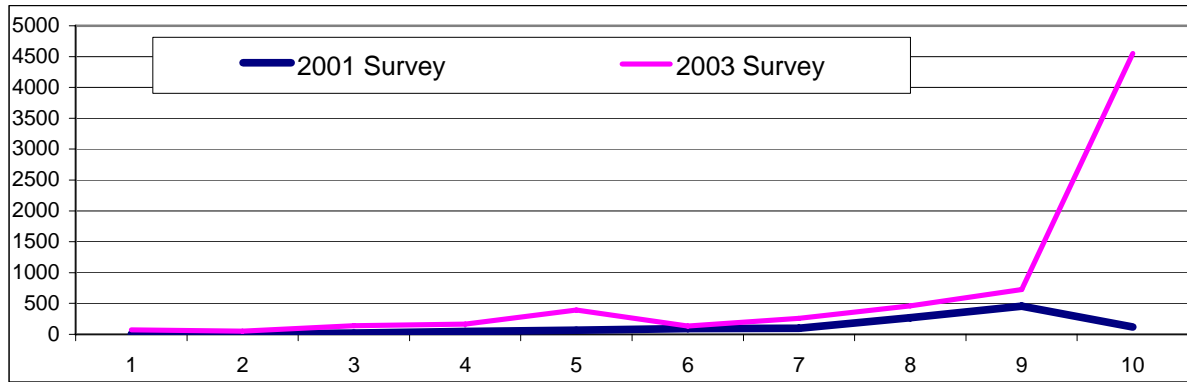
Yet there is no sufficient evidence to argue that these increases in urban households' farm incomes have negatively affected the incomes of rural population. There was hardly any absolute increase in farm incomes of urban households in the period 1999-2003, rather, they could manage to keep their farm incomes at roughly the same level, while rural households lost almost one third of it.

A possible explanation of this difference is that urban households may have benefited from more dynamic structural changes. As chart 2 and table 4 above show not only the share of urban households in total farm income increased but also the composition of farm income of urban households changed significantly. Consumption of food produced at own farm by urban households declined and the ratio of goods sold in the market significantly increased.

This may suggest that some urban households have been able to shift from subsistence farming to specialization in a few crops, thus becoming more marketable. At the same time rural households lack the positive trends in specialization and in contrast to urban households their farm output was increasingly going to own consumption. Further, looking closer at the decile data of urban farm incomes we can see that these urban households specializing in agriculture were concentrated almost in the top decile (see chart 3 below), for which the income from sales of agricultural products jumped radically in 2003 as compared to 2001.

Chart 3 Monthly income from sale of agricultural product of urban households across deciles, drams





Another possible scenario is that due to land transactions or land leasing rural households lost a fraction of their farm income while the resulting new incomes to urban households appeared not as “income from sale of agricultural goods” but as incomes from self-employment or as other incomes. The data from HS do not allow testing this idea, however, data on real estate transactions show that there has been no significant amount of land transfers (including both sales and leasing) in recent years. This limits the validity of assumptions on the social mobility through land transactions within rural areas and between rural and urban areas.

### 4.3 Distribution of Gains along the Value Chain of Agricultural Products

The evidence from price statistics shows that the gap between gate-prices of farmers and retail market prices for some food products has been increasing during the recent years. This can potentially affect the distribution of income along the value chain of agricultural products<sup>5</sup>. To estimate the aggregate impact of this phenomenon on farm income we constructed a basket of the main goods, for which price statistics are available. These goods cover 75 to 80 percent of total agricultural output and the base year of this exercise is 1998<sup>6</sup>. We derived the aggregate impact of the gate-price versus retail price developments using the formula:  $\sum_{i=1}^N (G_{98}^i/R_{98}^i - G_t^i/R_t^i) * AO_t^i / TAO_t$  where G-s are the gate prices for the i-th agricultural product (i=1:N) in the year 1998 and in subsequent years (t=1999:2003), R-s are the corresponding retail prices,  $AO_t^i$  is the output of the i-th sector and  $TAO_t$  is the total agricultural output of the examined main agricultural products. The data show that the gap expressed by this formula has been widening in the period 1999-2003 with a peak in 2002 at 3.2 percent of total agricultural production. In 2003, the gap somewhat narrowed to 2.8 mainly due to the prices of fruits, grapes and meat. In general, the prices contributing to the increase of the gap are those of potatoes, vegetables and milk, while the prices contributing to the narrowing of the gap are those of fruits and meat.

This variation among different agricultural products may have regional implications. The regions specialized mostly in fruits and meat may have benefited from the shifts in the value chain while regions specializing in potatoes and vegetables may have lost. However, since most regions producing meat are also milk producers and the price gaps of these two products exhibit opposite trends aggregate regional data analysis does not allow calculating the impact of this factor on farm incomes of rural households in different regions.

There could be various explanations behind this widening gap between gate-prices of farmers and retail market prices. The most important ones probably are the following: increasing role of trade intermediation; less labor on the sales of products by farmers themselves and losses in the

<sup>5</sup> See Max Spoor (2004), Land Reform, Rural Poverty and Inequality: A Pro-Poor Approach to Land Policies

<sup>6</sup> The quality of price statistics does not allow covering earlier periods.

bargaining power of farmers; increasing indirect taxation in retail market, which puts a pressure on gate-prices.

Based on the above estimates of the scope of the impact of commercialization, increasing involvement of urban households in farming and increasing gap between gate-prices and retail prices we can conclude that these factors together can account for a total of up to 13 percentage points<sup>7</sup> of the aggregate loss of farming incomes for rural households. However, this is only a fraction of the approximately 40-percent shortfall of farm incomes of rural households relative to general performance of agriculture. The reason why we cannot fully explain the shortfall of farm income can also be statistical, i.e. HS may fail to adequately capture the dynamic of farm income, presumably omitting the farm incomes of the richest rural deciles.

## **5. Agricultural Growth and Relative Price Developments**

In the previous section we tried to analyze the main reasons behind the large discrepancy between the growth recorded in the agricultural sector and the farm incomes of rural households. These discrepancies imply that rural households fail to effectively capture the benefits of agricultural growth. This section focuses on the question whether the growth in agriculture was high enough to reduce rural poverty. We will analyze the factors that may have held back agricultural growth thus limiting its potential to reduce rural poverty.

In the period 1999-2003 the cumulative real growth of agriculture was around 21 percent, while GDP grew at 55 percent. As a result the share of agriculture in GDP fell significantly from 31 percent in 1998 to 24 percent in 2003, estimated in constant prices of 1998. Additionally, agriculture suffered from unfavorable relative price shocks in late 90s and early 2000s, which brought the share of agriculture in GDP in nominal terms to 21 percent by 2003, i.e. around 3 percentage points lower than the share derived based on constant prices of 1998. Relative price deterioration was so severe, that in spite of around 21 percent real growth between 1998-2003, nominal value added in agriculture grew only by 17 percent. This meant not only a decline in the relative deflator, but also a negative absolute deflator for the agricultural sector.

These developments of the relative position of agriculture in the economy were also reflected in the fluctuations of the domestic terms of trade for agriculture. In the period of 1997-2003<sup>8</sup>, gate-prices for agricultural goods declined by 1.5 percent, while the prices for agricultural inputs increased by 22.5 percent. Given that intermediate consumption makes up around 40 percent of the agricultural output, this disparity in input and output prices would mean an approximately 10 percentage points negative shock to the value added created in agriculture. Agriculture suffered the most severe negative domestic terms of trade shock compared to the other sectors. This leads us to believe that unfavorable price dynamics and the lack of productivity growth that could compensate it have been the main factors holding back agricultural growth.

### **5.1 The Dynamics of Agricultural Prices**

Most experts when discussing the developments of the recent years<sup>9</sup> point to the unfavorable price developments for agriculture in 1998-2001. Still, not enough attention has been paid to the underlying factors behind these fluctuations of relative prices and to the relative price developments prior to 1998. In the context of this paper we want to extend the coverage of the

---

<sup>7</sup> Estimated 3-4 percentage points from commercialization, up to 6 percentage points from more involvement of urban households in farming and 3 percentage points from the changes in value-chain.

<sup>8</sup> Statistics on prices of agricultural inputs and outputs begins at 1997.

<sup>9</sup> World Bank (2001), Armenia Growth Challenges and Government Policies; Aghassi Mkrtchyan (2004), Impact of regulated price adjustments on price variability in a very low inflation transition economy: Case of Armenia.

analysis of relative food price dynamics to include the period 1990-2003 and thus to offer a longer-term overview on what happened with food prices.

According to the conventional view the increase of the share of agriculture in GDP in early 90s (reaching to almost 50 percent of GDP by 1993) was due to the fact that other sectors experienced sharper falls. However, relative price developments appear to be more important than the relative changes in real output. We did an exercise calculating the share of agriculture in GDP for the period 1990-2003 based on constant prices of 1990 and comparing them with the respective shares calculated using current prices. This comparison reveals the impact of the relative price fluctuations on agriculture versus the rest of the economy.

Table 7. Comparison of the shares of agriculture in GDP by constant and current prices

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
(1) Share by constant prices, percent	15.8	17.5	27.5	28.4	27.8	27.0	26.0	24.1	25.3	24.9	23.2	23.7	21.7	19.9
(2) Share by current prices, percent	15.8	23.5	28.2	48.7	43.5	40.7	34.8	29.4	30.8	27.0	23.2	25.5	23.4	21.3
(3) Difference, (2) - (1)	-	6.0	0.7	20.3	15.7	13.7	8.8	5.3	5.5	2.1	-0.0	1.8	1.7	1.4

Source: NSS

As shown in Table 7, only 13 percentage points of the total 33 percentage points increase of the share of agriculture in nominal GDP between 1990 and 1993 is explained by real output while the rest of the increase is due to relative price changes. In other words, without the help of growing relative prices for food agriculture would not reach a share in GDP higher than 28 percent. However, the situation started to change in mid 90s and by 2000 all the gain that agriculture sector was enjoying in early 90-s vanished.

Summarizing, we can claim that in early 90s Armenia experienced a considerable jump in relative prices for food, which created favorable conditions for net food producers of food and accordingly net consumers of food had to bear the cost. Further, taking a long-term perspective, the decline of agricultural relative prices in 1998-2001 can be viewed as a return to the pre-transition level, which is probably closer to the longer-term equilibrium.

Increasing relative prices for agriculture in early 90-s allowed the sector to sustain the large influx of laid-off workers from other sectors that resulted in decrease of labor productivity. Without the favorable price developments for agriculture in 1992-1994 the sector would not absorb the large labor influx. At the same time as agriculture was enjoying high relative prices the urgency to improve productivity could have been overlooked. Non-sufficient increase of productivity in the context of declining relative prices left the sector with lower incomes by end-90s and early 00-s.

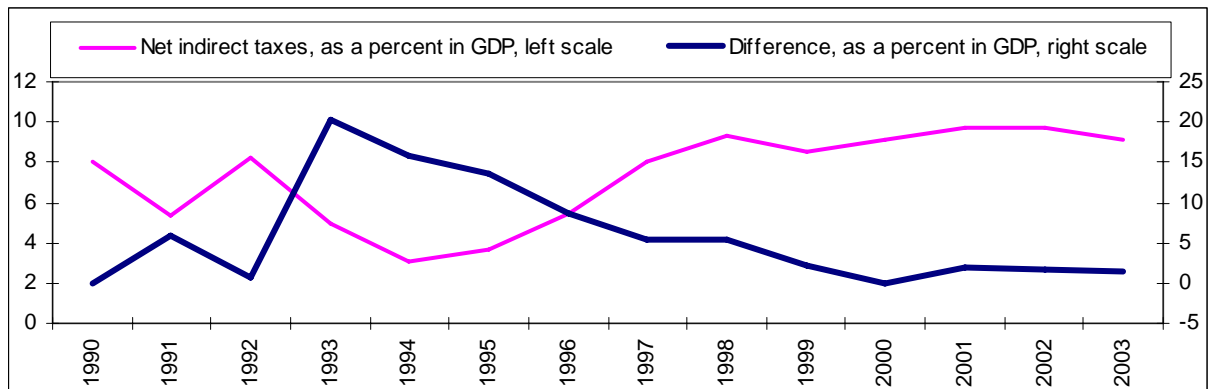
It is beyond the scope of this paper to analyze the reasons of the dramatic fluctuations of relative prices, however, we will briefly focus on two aspects, namely trade liberalization and net indirect taxes. It has been extensively argued that the drastic decline of relative prices for agricultural goods since 1998 was largely due to “barriers to trade” and the resultant excess supply of agricultural goods in the domestic market. However, we believe that barriers to trade in early 90s had caused higher relative prices for agricultural goods, especially for the low value and high volume ones. While later, when the blockade was eased, international trade introduced more competition by late 90-s, which resulted in lower prices of food in line with the regional and international levels<sup>10</sup>. This assumption is in line with the evidence of worldwide decline of the food prices of late 90s.

The last row of Table 7 is the difference between the share of agriculture calculated using constant prices and current prices. This difference can be an indicator of relative prices of agricultural

<sup>10</sup> In recent years we observe both growing exports and rising prices for a limited number of raw and processed agricultural products, namely grapes, some other fruits and certain dairy products. This can be explained in the framework of tradable versus non-tradable sectors: trade liberalization may have caused agriculture to become “more tradable” imposing lower prices for some products and higher prices for others.

goods versus goods and services produced in other sectors and, as illustrated in chart 3, it appears to be negatively correlated with net indirect taxes (indirect taxes minus subsidies).

Chart 4



Source: NSS

Further analysis would be required to test the causality behind this correlation; however an intuitive explanation is that any increases in taxes and/or reduction of subsidies to other sectors can constrain the demand for agricultural goods. The implication for subsidies is that in early and mid 90s subsidies to irrigation system were relatively high, which secured high value added for agriculture. When the subsidies started to diminish and net indirect taxes started to increase, agriculture could not maintain the same level of value added.

## 5.2 Implications of Relative Agricultural Prices for Rural Poverty

The impact of relative prices for food on poverty is a largely debated issue. Since rural poor in many developing nations are not necessarily net-producers of food, increasing relative prices for food are often seen as a negative shock for rural poverty as much as for urban poverty<sup>11</sup>. Contrary to many developing nations, the vast majority of rural households in Armenia own land plots and their probability for being net food producers is quite high. If most of the rural poor are net producers of food then declining relative prices helping urban households can hurt rural households.

The impact of relative price changes on average rural and urban households can be illustrated by considering the dynamics of the poverty line. The poverty line that is being used for poverty assessment in Armenia is based on a food basket<sup>12</sup> and is being annually adjusted for changes of prices in its components. Over the period 1999-2003 the value of the poverty line increased only by 17 percent while CPI increased by 34 percent. This difference implies that urban households are better positioned, at least statistically, as their nominal incomes were increasing much faster than their expenditures on food. Contrary to this, rural households get the largest part of their income from farming and the decline in relative food prices negatively affects their well-being.

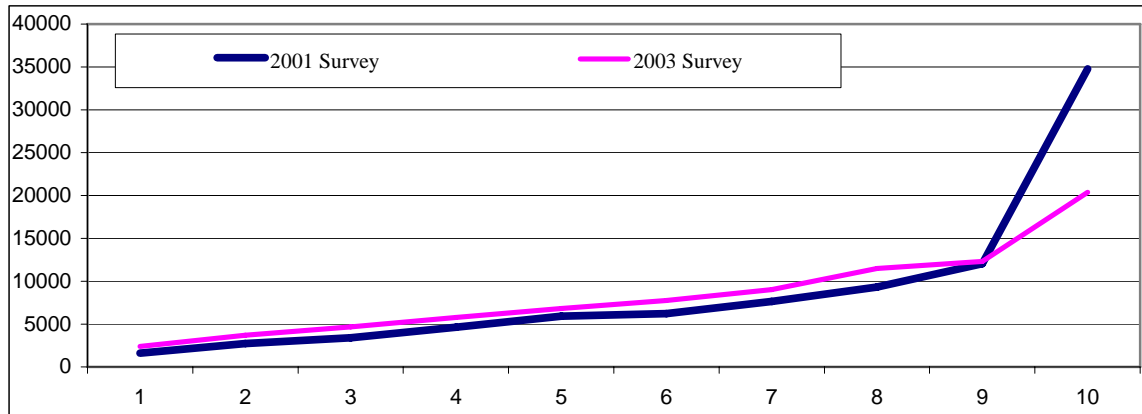
However, while the positive association between rural farm income and agricultural prices is straightforward for an average rural household, the implications for the rural poor will depend on the extent the rural poor are net consumers or net producers of food. According to the HS data for 1999-2001, an average rural household used to be a net producer of food as the sum of consumption of food from own farm and the income from sale of agricultural products exceeded the expenditures on food products. The picture changed in 2002-2003, as the average rural household became a net consumer of food. However, the decile distribution of incomes suggests

<sup>11</sup> See e.g. Caurav Datt and martin Ravallion, Farm productivity and rural poverty in India(1998), The Journal of Development Studies, April 1998, 34, 4

<sup>12</sup> The general poverty basket is derived by simply multiplying the food basket with a constant coefficient of 1.64.

that this shift was largely due to the changes in the top deciles as their food consumption increased while their farm income dropped significantly (Chart 5). At the same time the low-middle deciles started to get more in farm incomes. The cumulative distribution of farm income across deciles is illustrated in the chart below.

Chart 5 Monthly income from sale of agricultural product of rural households across deciles, drams



In order to answer the question, which portion of rural poor are net producers of food we would need the data at household level, which unfortunately are not available for the 2003 survey.

## 6. The Dynamics of Non-farm Incomes of Rural Households

In this section we will explore to what extent the continuous rapid economic growth trickled down to rural households through non-farm income and to what extent public transfers and remittances could serve as a safety net for rural households. Non-farm incomes (i.e. total income reduced by the income from sale agricultural products and consumption of food from own farm) of rural households, increased at around 122 percent over the period 1999-2003, albeit having a small share in total incomes of rural households. This growth rate exceeded the national average of 112 percent.

Non-farm incomes consist generally of income from hired job and self employment on one hand and public and private transfers on the other hand. As the HS data show, these two groups of incomes exhibited opposing dynamics for rural versus urban households. Incomes from hired job and from self-employment have been the most dynamic ones in the structure of household income contributing a large share of the increase of urban households' income. State benefits and private transfers, on the other hand increased much faster for rural households.

### 6.1 Trickle-down of Economic Growth to Rural Areas

As it is shown in Table 2 (see section 2) on the national level the growth of income from hired job and self-employment significantly exceeded the cumulative nominal economic growth over the same period. Due to these trends, the share of incomes from hired job and self-employment in total income significantly increased since 1999. According to HS 2003, incomes from hired job and self-employment together now account for around 55 percent of the monetary incomes of all households whereas this indicator was only 35 percent in 1999.

The growth of incomes from hired job and self-employment was distributed very unevenly across urban and rural households. Having population of around 60 percent of the national total, urban households gained 89 percent of the growth of hired-job incomes leaving only 11 percent to rural households. In terms of incomes from self-employment, the distribution of the growth in the period

1999-2003 was even worse for rural households: they gained only 2 percent of the total growth of incomes from self-employment. Due to these developments, the share of rural households in total incomes from hired job and self-employment declined from 23 percent in 1999 to 15 percent in 2003.

Table 8: Distribution of the income growth from hired job and self-employment across urban and rural households

	Urban	Rural	Total
Distribution of the income growth from hired job between 1999-2003, percent	89.1	10.9	100
Distribution of the increased income from self-employment, percent	97.7	2.3	100
The share of hired job income and self employment in total, 1998	77	23	100
The share of hired job and self employment in total, 2003	85	15	100

Source: NSS

These data lead us to conclude that trickle down of high economic growth of the recent years on rural areas has been very limited. In contrast, the fact that urban poverty did decline is an indication that the trickle down mechanism did work for urban households as their incomes increased by around 90 percent in the period 1999-2003 mostly driven by increased income from hired job and self employment.

We consider the following possible reasons why the trickle down of growth through non-farm income was so insignificant in rural areas. First, non-increasing incomes from hired job and self-employment may be the result of very limited opportunities for rural population in the non-farming sector. On the other hand the wages for the existing non-farming jobs do not increase in real terms, as the equilibrium wages in rural areas are influenced by the very low productivity in the farming sector. The recent increases in the public sector wages and in particular teachers' wages probably account for a significant share of increased income from hired job. This suggests that in the rural private sector the wage increase was probably negligible.

## 6.2 The Role of Public and Private Transfers

Contrary to the distribution of incomes from hired job and self-employment, rural households gained the bulk of the increased state benefits and private transfers (see Table 9). The HS data on state benefits are consistent with the recent shifts in the budget social expenditures policies. During the recent years the family allowances scheme was continuously being amended to focus more on multi-children families and communities at unfavorable locations (near-border, remote and high altitude communities), most of these target groups normally live in rural areas.

The dynamics of private transfers in the urban-rural context is difficult to interpret. The HS data show that urban households gained extremely little from the increasing private transfers, only 4 percent of the total. A reason behind the larger increase of private transfers going to rural household could be that rural areas benefit more from increasing remittances from migrants and seasonal workers.

Table 9: Distribution of the income growth from hired job across urban and rural households

	Urban	Rural	Total
Distribution of the increased income from state benefits, percent	35.9	64.1	100
Distribution of the increased income from private transfers, percent	4.2	95.8	100

Source: NSS

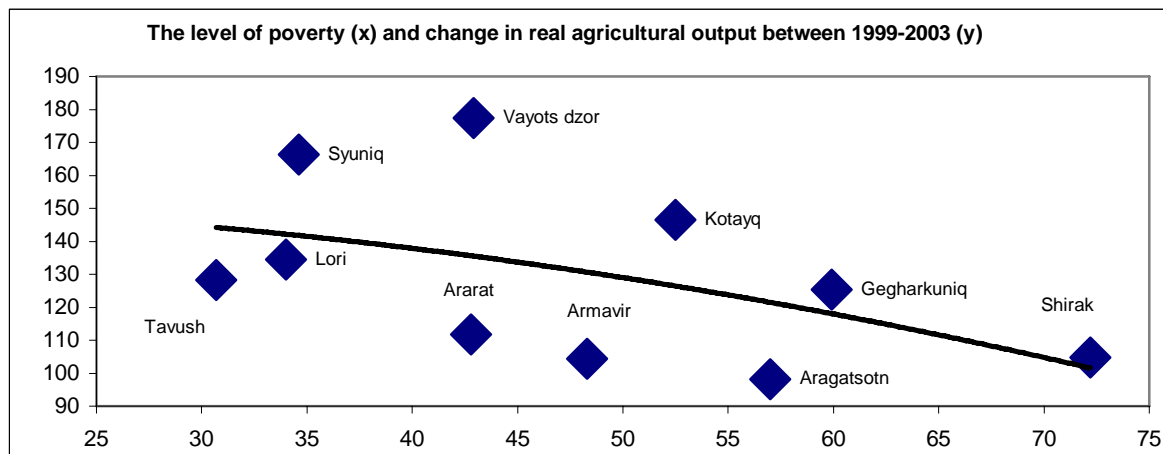
These HS data may suggest that state benefits and private transfers are a survival tool for rural households to mitigate the negative impact of declining incomes from the sale of agricultural goods. However, these two items together could not be sufficient to compensate for the declining incomes from the sale of agricultural goods.

## 7. Explaining Regional Disparities

The factors behind regional disparities of rural poverty may be various<sup>13</sup>. Here we focus on the regional developments in agriculture. In the fourth section we argued that the declining farm income tends to lose its importance for well-being of rural households. However, looking closer at the regional picture, we see that in regions where farm income increased significantly, some positive developments in terms of poverty reduction were achieved.

The cumulative growth rates of agriculture over the period 1999-2003 varied significantly across the 10 regions, ranging from negative 2 percent to positive 77 percent. The disparities in the poverty indicators are also very large. Chart 5 shows that there is a negative relationship between the level of poverty and real agricultural growth in 1999-2003 in the ten regions of Armenia. This relationship remains strong when tested for the predominantly “rural” regions, excluding the four predominantly urban regions of Shirak, Lori, Syunik and Kotayq.

Chart 6



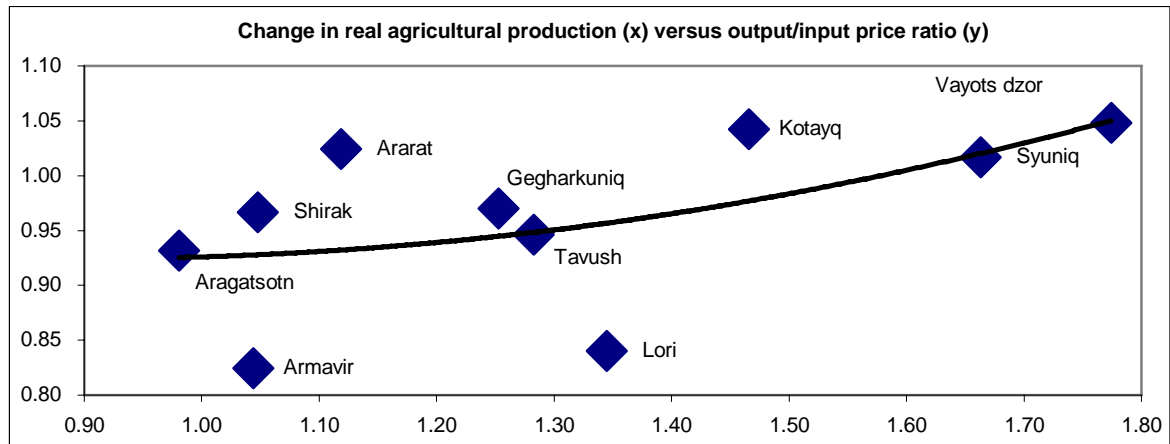
Source: NSS

However, one needs to be careful interpreting the causality of this relationship. The fact that regions experiencing high growth in agriculture have lower poverty incidence may imply that agricultural growth has had a poverty reducing impact. However, another interpretation could be that poorer regions had worse opportunities expand production through new investments.

Further, trying to explain the regional disparities in agricultural production, we consider the price differentials between production inputs and agricultural outputs. The prices for inputs and outputs of the agricultural sector significantly differ across the regions of Armenia reflecting different specializations by types of crops produced and inputs used for production in different regions. This variation implies that significantly different terms of trade are being faced by agricultural producers in different regions.

<sup>13</sup> As assessed by the NSS, two of the most important factors increasing the risk of poverty are the average size of the household and the number of children in the household. However, in this paper we do not focus on these characteristics, based on the rationale that demographic indicators tend to be relatively stable and thus not very useful to explain the growing regional disparities.

Chart 7



Source: NSS

As Chart 6 suggests, there was positive relationship between the terms of trade ratio and real output in the period 1999-2003. Since most of the agricultural producers are price-takers, they had to largely absorb the terms of trade shocks. This in most cases affected the real growth rates of agricultural output in the regions facing deteriorating terms of trade, and possibly affected the level of rural poverty in these regions.



## 8. Conclusion

In this paper we tried to explore the factors that impede rural poverty reduction in Armenia. We organized our analysis into a few key questions, the possible answers to which were examined using data from Household surveys 1996-2003 as well as National statistics and expert estimates.

We argued that rural households failed to capture a large part of the growth in the agricultural sector for the period of 1999-2003 - around 40 percent of the value added of agriculture. We discussed commercialization of agriculture, increased involvement of urban households in farming and the changes in the value chain of agricultural products as possible factors explaining why farm incomes could fall so short of the growth in agriculture. However, we concluded that these factors together could have had an impact equivalent to only 9-12 percent, which is only a fraction of the relative shortfall of farm incomes of rural households versus agriculture. Finding it difficult to identify other economic factors behind this shortfall we concluded that statistical problems, in particular, the failure of 2002 and 2003 household surveys to capture the incomes of the richest rural households could be a major reason.

Next we discussed the possible factors holding back agricultural growth and thus impeding its potential to reduce rural poverty. We studied the relative price developments for agricultural products and concluded that they were a key factor behind the developments in the agricultural sector. In particular we concluded that agriculture experienced a dramatic domestic terms of trade shock and the growth in productivity was not substantial enough to mitigate its negative impact. Taking a longer-term perspective we showed that in early 90-s agricultural sector greatly benefited from a positive shock of relative food prices. While this positive price shock helped the sector to absorb the large influx of labor force from other sectors, the need for investment and productivity increase was overlooked which lead to severe difficulties in agriculture when the positive food price shock reversed in end 90-s, leaving the sector with lower incomes and the rural farmers at high poverty risk.

Further, we discussed the role of non-farm income for rural households and concluded that the trickle-down of economic growth to rural areas through incomes from hired job and self-employment was very insignificant. At the same time rural households gained the bulk of increased public benefits and private transfers, which became the main component in their income portfolio helping to mitigate however unable to compensate the impact of diminishing farm incomes.

Finally, we considered the largely uneven performance of the agricultural sector as a possible factor behind increasing regional disparities in rural poverty and showed that poverty risk is negatively correlated with growth in agricultural production. Also, we compared the terms of trade faced by rural farmers in different regions and found that they are important in explaining the large variation of agricultural growth across regions.

## **Bibliography**

Caurav Datt and Martin Ravallion, *Farm productivity and rural poverty in India(1998)*, The Journal of Development Studies, April 1998, 34, 4

Lan Coxhead, Trade, *Trade Liberalization and Rural Poverty (2003)*, American Journal of Agriculture Economics, 85 (N5, 2003)

Lerman, Zvi and Astghik Mirzakhanian, *Private Agriculture in Armenia*, Lanham and Oxford: Lexington Books (2001).

Aghassi Mkrtchyan, *Impact of regulated price adjustments on price variability in a very low inflation transition economy: Case of Armenia*, William Davidson Institute Working Paper Series, WP 731, 2004

Max Spoor, *Land Reform, Rural Poverty and Inequality: A Pro-Poor Approach to Land Policies*, (UNDP Armenia White Paper, 2004)

Rajshri Jayaraman, Peter Lanjouw, *The Evolution of Poverty and Inequality in Indian Villages*, The World Bank Research Observer, Feb. 1999; 14,1

Thomas J. Kelly, *Neoliberal Reforms and Rural Poverty*, Latin American Perspectives, Issue 118, Vol. 28, No 3, 2001

Caroline Ashley and Simon Maxwell, *Rethinking Rural Development*, Development Policy Review, 2001 19(4)

NSS (2003) *Prices and Price indices in the Republic of Armenia, 1991-2001*, Statistical Bulletin

NSS (2004) *Prices and Price indices in the Republic of Armenia, 1998-2003*, Statistical Bulletin

NSS (2004) *The Statistical Yearbook*

UNDP Armenia, *Rural poverty in the regions of Armenia*, Armenian Social Trends, volume 6, 2004

World Bank, *Armenia Growth Challenges and Government Policies*, Report 2284-AM, By Lev Freinkman (2001)

World Bank, *Armenia Poverty Update*, December 2002