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**Item 6: Linkages between poverty, inequality and vulnerability**

**Poverty and Inequality in the Countries of the Commonwealth of Independent States**

Prepared by the Interstate Statistical Committee of the Commonwealth of Independent States <sup>1</sup>

**Abstract**

Economic reforms taking place in the CIS countries<sup>2</sup> throughout the last decades have changed the economic structure of the society. Considerable stratification of population based on the living standards having resulted in the formation of polar opposite groups of wealthy and poor population is characteristic of the majority of these countries.

The Commonwealth countries pay great attention to fighting against poverty and its eradication. Majority of CIS countries have developed national programs for poverty eradication holding regular assessments of the size of poor population.

The Interstate Statistical Committee of the Commonwealth of Independent States carries out collection and analysis of data on the population living standards paying great attention to such aspects as population differentiation connected with standards of well-being, poverty and pauperism.

This paper is a brief review of monetary poverty and inequality assessment methods in the CIS countries including data sources, major concepts, definitions and assessment methods. It also presents analysis of tendencies in the change of poverty and inequality level throughout the last 15 years.

The review bases on the materials provided by the CIS countries statistical services, as well as those placed on their websites.

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<sup>2</sup>The Commonwealth of Independent States (CIS) was formed on December 8, 1991 and presently includes 11 states (Azerbaijan, Armenia, Belarus, Kazakhstan, Kyrgyzstan, Republic Moldova, Russia, Tajikistan, Turkmenistan, Uzbekistan and Ukraine).

### **Absolute monetary poverty assessments**

Poverty measurement in the CIS countries bases on the concepts used, in a varying degree, in the international statistical practice (absolute and relative, subjective and multidimensional monetary values).

Due to the fact that the main objective of statistical studies of poverty is to identify the number of those needing social support, the most widely spread concept used in the measurement of poor population is absolute concept based on monetary approach. This kind of assessment shows poverty as financial level that is insufficient for normal sustainment of a person with account of social norms and standards existing in the society.

The official poverty measurement in Ukraine is based on the relative monetary concept, according to which the poverty line is established at the level of 75 % of the median level equivalent to the monthly per-capita aggregate expenditure. At the same time, in 2000, there was introduced a national social standard representing a minimum wage that serves as an absolute poverty line indicator.

In all the CIS countries, poverty and inequality assessments are carried out based on the income and expenditure survey of households. In the majority of countries, such surveys are held on a regular basis according to a number of common principles in the methods of data collection and development of major indicators. At the same time, there can be found some differences in the sample formation method, periodicity of data collection, classifications used, aggregation methods, use of equivalence scales, etc.

Household survey programs are usually aimed at receiving information on incomes, expenditures, foodstuff consumption, provision with durable goods, household conditions and other aspects of living conditions.

Monetary assessment bases on the following two major components:

- 1) Well-being indicator (income, expenditures, consumption) that serves as a basis for population ranking.
- 2) Poverty threshold serving as a basis for calculations.

Majority of the CIS countries use aggregated consumption indicators as a *well-being indicator* for construction of distribution series, while some of the countries use incomes for these purposes.

#### **Well-being indicators used for national monetary poverty assessments**

<b>Country</b>	<b>Indicators</b>
Azerbaijan	consumption expenditures
Armenia	consumption aggregate
Belarus	available resources
Kazakhstan	income used for consumption
Kyrgyzstan	consumption aggregate
Moldova	adjusted consumption aggregate
Russia	available resources (household survey) and incomes ( <i>balance between incomes and expenditures of the population based on data provided by the ministries and departments</i> )
Uzbekistan	aggregate income
Ukraine	total income

Aggregated income and consumption indicators include expenditures and estimated value of food and non-food products and services supplied to the households without pay (in kind). This kind of supply in the CIS countries plays a great role in the assessment of population living standard, which is

particularly characteristic of rural households.

When calculating consumption aggregate Armenia and Kyrgyzstan, unlike other countries, consider imputed value of services versus the use of durable goods available in the household.

The CIS countries use the size of minimum subsistence or national poverty line as *poverty threshold*.

Minimum subsistence size is established legislatively and used as criterion for assessing the size of poor population in Belarus, Kazakhstan, Russia and Ukraine. Azerbaijan, Armenia, Kyrgyzstan, Moldova and Tajikistan use poverty line for this kind of purposes.

#### National Poverty Line in the CIS Countries in 2014

		Per capita, US dollars	As % of average wage
Azerbaijan	Poverty line	165	29
Armenia	Upper aggregate poverty line	97	25
Belarus	Minimum subsistence	128	22
Kazakhstan	Minimum subsistence	106	16
Kyrgyzstan	Aggregate poverty line	46	20
Moldova	Absolute poverty line	90	31
Russia	Minimum subsistence	212	25
Ukraine	Minimum subsistence	99	34

<sup>1</sup> Converted to official annual average US dollar/national currency rate fixed by national (central) banks of the CIS countries.

*Poverty level* is defined as share of population with average per-capita incomes (expenditures) below the national poverty line.

According to the CIS national assessments, the poor population size has decreased considerably throughout the period after 2001. At the same time, in some countries about one third of the population is still living below the absolute poverty line.

#### Share of Population with Incomes (Expenditures) below the National Poverty Line

(as % of total population)

	2001	2005	2010	2012	2013	2014	2015
Azerbaijan	49.0	29.3	9.1	6.0	5.3	5.0	...
Armenia	...	40.1	35.8	32.4	32.0	30.0	...
Belarus	28.9	12.7	5.2	6.3	5.5	4.8	5.1
Kazakhstan	46.7	31.6	6.5	3.8	2.9	2.8	2.7
Kyrgyzstan	56.4	43.1	33.7	38.0	37.0	30.6	...
Moldova	54.6	29.1	21.9	16.6	12.7	11.4	...
Russia	27.5	17.8	12.5	10.7	10.8	11.2	13.4
Tajikistan	81.0 <sup>1</sup>	53.5 <sup>2</sup>	46.7 <sup>3</sup>	...	35.6	32.0	...
Uzbekistan	27.5	25.8	17.7	15.0	14.1	...	...
Ukraine	83.7	28.4	8.6	9.0	8.3	8.6	...

<sup>1</sup> 1999

<sup>2</sup> 2007

<sup>3</sup> 2009

Besides the aggregate poverty line, some countries use *extreme poverty line*. In Armenia, it corresponds to the food basket value with daily per-capita caloric value of 2232 kcal; in Kazakhstan, it is equal to 2175 kcal, Kyrgyzstan – 2100 kcal, Moldova – 2282 kcal. Extreme poverty line in these countries, as expressed in value terms, makes 55 % of the aggregate poverty line.

Extreme poverty line in Russia corresponds to half of the minimum wage size.

Besides *poverty level*, some of the CIS countries use the following indicators when assessing poverty line:

*poverty risk / low income index* is relation of poverty level / low income in a certain group of population (households) and poverty level / low income calculated for the overall population (households). The value of poverty risk index equal to 1 indicates that the group is subject to the same risk as the country population on the whole; if the index value is above 1, it means that this group is subject to higher risk than the population (households) of the country on the whole; should it be below 1 – poverty risk is lower than the one for the population (households) on the whole;

*income (expenditure) gap* is the cash amount necessary for bringing incomes (expenditures) of needy population to the Minimum subsistence (poverty line) level;

*poverty depth index* shows an average deviation of incomes (expenditures) from the Minimum subsistence size and is expressed by the size of income gap correlated with the total population;

poverty acuteness indicator differs from that of poverty depth in the way that relation between deficit and minimum subsistence is raised to the second power and calculated with account of the bigger weight for the population whose income deficit is higher. As a result, this characteristic is hypersensitive in relation to the well-being standard of the poorest population and shows inequality level or income variations among the needy population.

It is necessary to note that national poverty assessments cannot be used for comparisons between countries because of difference in methodological approaches used for measuring poverty level due to the different threshold values and different indicators (incomes or expenditures) used to characterize the well-being standard.

### **Methods for Measuring Population Inequality Based on Incomes / Expenditures in the CIS Countries**

Poverty is one of inequality aspects. Among different kinds of inequality, economic inequality is the best understood one. It shows differences between certain groups of population based on their well-being standards (incomes, expenditures).

The following indicators are the most often used ones for studying statistical inequality in majority of the CIS countries:

- Gini coefficient (concentration of incomes/expenditures ratio);
- assets ratio;
- decile ratio of incomes/expenditures differentiation;
- population distribution according to the per-capita income/expenditure size;
- distribution of the total amount of incomes/expenditures among different groups of population expressed as the share of the total amount of cash incomes/expenditures per each of the 20 (10) percent groups of population ranked in the process of per-capita increase of these indicators.

Lorentz curve is a standard tool for analyzing distribution of incomes between population groups; it shows proportion of percentage groups of population and their shares in the aggregate income. It serves as a basis for determining *Gini coefficient* characterizing the extent of deviation between the line of actual aggregate incomes distribution and the line of their uniform distribution. The coefficient size can vary from 0 to 1 with higher indicator values showing bigger inequality in income

distribution in the society. Some of the CIS countries estimate this coefficient based on incomes and consumer expenditures. As we can see from the data presented here, population differentiation by incomes is essentially higher than the one defined by expenditures.

#### Gini coefficient

	By incomes				By consumer expenditures (available resources)			
	2001	2005	2010	2014	2001	2005	2010	2014
Armenia	0.535	0.359	0.362	0.373	0.344		0.265	0.272
Belarus	-	-	-	-	0.278	0.256	0.265	0.275
Kazakhstan	-	-	-	-	0.366	0.304	0.278	0.278
Kyrgyzstan	0.441	0.433	0.371	0.429	...	0.271	0.251	0.209
Moldova	0.428	0.411	0.408	0.370	0.380	0.380	0.302	0.250
Russia	0.397	0.409	0.421	0.416	-	-	-	-
Ukraine	...	...	0.251	0.240	0.340	0.330	-	-

As Gini coefficient does not reflect in what population groups income distribution is uneven, the studies devoted to incomes inequality widely use indicators of relationship between incomes of marginal 10 % (deciles) or 20 % (quintiles) of population. These differentiation ratios show the discrepancy size in incomes of the farthest separated from each other groups of population having identical share in its aggregate amount.

*Assets ratio* shows the degree of social stratification and is determined as relationship between the average levels of cash incomes of 10 % (20 %) of the population with the highest incomes and 10 % (20 %) of the population with the lowest incomes.

#### Assets Ratio<sup>1</sup> (times)

	By 10% groups of population				By 20% groups of population			
	2001	2005	2010	2014	2001	2005	2010	2014
Azerbaijan	...	3.0	3.0	2.6	5.1	2.4	2.5	2.1
Armenia	26.3	11.5	14.2	17.1	13.8	6.6	8.2	8.9
Belarus	6.1	5.4	5.6	6.0	4.1	3.7	3.9	4.0
Kazakhstan	8.8	6.8	5.7	5.7	7.0	4.6	4.0	4.0
Kyrgyzstan	17.8	17.5	11.1	17.2	9.9	9.9	6.9	9.7
Moldova	36.4	20.7	21.2	13.6	11.4	9.9	9.8	7.1
Russia	13.9	15.2	16.6	16.0	8.0	8.6	9.2	9.1
Ukraine	9.8	8.7	4.9		6.1	5.5	4.0	3.4

<sup>1</sup> Estimation of coefficients on the basis of indicators: Belarus – available resources, Kazakhstan – incomes used for consumption, Moldova – available cash incomes, Russia – incomes based on the balance of cash incomes and expenditures of the population, other countries – cash incomes.

Some countries determine *decile coefficient of differentiation* of incomes characterizing degree of social stratification and showing by how many times the minimum incomes of 10 % of the wealthiest population exceed the maximum incomes of 10 % of the poorest population. This coefficient can be also determined for 20 % (quintile) and 25 % (quartile) population groups.

The following example with Russia's data demonstrates variations in the assets ratio and decile ratio of incomes differentiation.

**Differentiation Coefficient by Incomes  
of 10 % Groups of the Wealthiest and Poorest Population**

	2001	2005	2010	2014
Assets ratio, times	13.9	15.2	16.6	16.0
Decile incomes differentiation coefficient, times	6.5	7.0	7.4	7.3

Assets ratio and differentiation coefficient in some countries is estimated based on consumer expenditures.

Economic inequality is also characterized by the data on distribution of aggregate amount of assets (expenditures) between specific groups of population:

**Distribution of Aggregate Amount of Households Cash Incomes  
by 20 % Groups of Population  
(%)**

	I (with lowest incomes)	II	III	IV	V (with highest incomes)
<b>Azerbaijan</b>					
2001	8.0	12.2	16.6	22.4	40.8
2014	13.7	16.2	18.6	21.7	29.8
<b>Armenia</b>					
2001	4.0	9.0	12.0	20.0	55.0
2014	5.3	10.7	15.0	21.4	47.6
<b>Belarus</b>					
2001	9.1	13.5	17.3	22.5	37.6
2014	9.4	13.7	17.1	22.0	37.8
<b>Kazakhstan</b>					
2001	6.3	11.0	15.9	22.9	43.9
2014	9.4	13.2	17.1	22.4	37.9
<b>Kyrgyzstan</b>					
2001	5.0	9.4	14.2	21.6	49.8
2014	5.2	10.2	13.9	20.0	50.7
<b>Moldova</b>					
2001	4.3	10.4	14.8	21.7	48.8
2014	6.0	11.8	16.4	23.1	42.7
<b>Russia</b>					
2001	5.7	10.4	15.4	22.8	45.7
2014	5.2	9.9	14.9	22.6	47.4
<b>Tadjikistan</b>					
2007	7.3	12.9	17.2	22.5	40.1
2009	8.3	12.8	17.0	22.6	39.4
<b>Ukraine</b>					
2014	10.5	14.6	17.7	22.1	35.1

Despite essential reduction of the poor population size after 2001, the distribution pattern of aggregate incomes amount among quintile groups in the majority of countries has not changed considerably.

High level of income polarization took place in 2014 in Armenia, Kyrgyzstan, Moldova and Russia, while being more uniform in Azerbaijan, Belarus, Kazakhstan and Ukraine.

Population differentiation by the well-being standard takes place as a result of a number of factors, one of them being household incomes structure.

The size of per-capita incomes and sources for their formation are determined by the structure of households. The group with low incomes includes families having children and households of nonworking pensioners and the unemployed. Therefore, social benefits play an essential role in the incomes of 10 %-group of population with the lowest incomes. Incomes of the 10 %-group of

population having highest incomes in the majority of countries base on employed persons' remuneration of labor (wages), while in Tajikistan remittances from abroad play an important role.

### Cash Incomes Structure of Households with Different Well-Being Standards in 2014

(as % of cash incomes of a respective population group)

	10 % of population with the lowest incomes (resources)			10 % of population with the highest incomes (resources)		
	labor remuneration of employed persons (wages)	income from self employment and business activity	social benefits	labor remuneration of employed persons (wages)	income from self employment and business activity	social benefits
Azerbaijan	22.4	43.6	20.4	42.2	31.5	13.1
Armenia	17.4	8.3	51.6	55.5	19.3	5.2
Belarus	56.4	2.3	33.4	65.6	2.1	14.0
Kazakhstan	63.5	14.9	17.9	67.9	16.1	15.9
Kyrgyzstan	30.8	33.9	23.2	37.9	35.7	12.9
Moldova	38.1	0.0	46.9	49.0	7.5	11.3
Russia	54.6	7.0	34.4	68.2	17.7	6.5
Ukraine	43.8	10.5	34.7	59.5	14.5	19.5

Inequality in the per-capita income level is substantially determined by differences in the aggregate amount of disbursements to employees, which we can see from the example with Russia's data.

### Distribution of Aggregate Amount of Cash Incomes and Wages in Russia

(2015, %)

	Distribution of Aggregate Amount	
	cash incomes of population <sup>1</sup>	accrued wages of employees
Total	100	100
including by 20 % groups		
First (with the lowest incomes / wages)	5.3	5.7
Second	10.0	10.2
Third	15.1	14.9
Fourth	22.8	21.5
Fifth (with the highest incomes / wages)	47.0	47.7

Sources: Sample survey of household budgets and sample survey of distribution of the numbers of workers by the sizes of their wages in April 2015.

<sup>1</sup>Preliminary data.

Inequality in incomes is of *gender nature*. In the CIS countries, women's wages are, on the average, lower than those of men: in Belarus, Kyrgyzstan, Russia and Ukraine – by 23-26 %, Kazakhstan and Armenia – by 33-34 %, accordingly; Tajikistan – 40 %, Azerbaijan – 55 %. Having high level of vocational training, women more often have less paid jobs in agriculture, light and the food-processing industry, social sphere.

Another factor affecting the degree of people's inequality by the level of incomes in the CIS countries is *regional aspect*. In 2014, the per-capita income levels of urban households was higher than that of rural: in Armenia, Kazakhstan and Moldova – by 1.5-1.6 times, in Azerbaijan, Belarus, Kyrgyzstan, Tajikistan and Ukraine – by 1.1-1,3 times.

Inequality in incomes plays a decisive role with regard to the differences in consumption of goods and services. Gap in per-capita size of consumer expenditures with 10 % of the wealthiest and 10 % of the

poorest population is not as big as it is in incomes; in Azerbaijan, Moldova, Tajikistan and Ukraine it is bigger by 2-3 times, in Belarus, Kazakhstan and Kyrgyzstan – by 5-6, in Russia and Armenia – by 8 and 9 times, accordingly.

The most significant part of consumer expenditures with 10 % of poor population of the CIS countries goes for nutrition.

### Food Expenditures of Households

(as % of consumer expenditures of respective groups of population)

	10 % of population with lowest incomes			10 % of population with highest incomes		
	2000	2010	2014	2000	2010	2014
Azerbaijan	...	63.8	53.0	...	33.2	26.5
Armenia	80.4 <sup>1</sup>	65.0	59.9	50.1 <sup>1</sup>	38.3	31.1
Belarus	67.2	45.9	48.4	53.2	30.6	31.0
Kazakhstan	59.2	48.2	52.8	40.3	38.4	39.2
Kyrgyzstan	65.6	54.6	58.7	47.9	45.4	45.3
Moldova	56.9	45.8	40.3	34.6	24.1	33.1
Russia	63.4	47.0	45.8	38.6	23.7	20.6
Tajikistan	80.7 <sup>1</sup>	62.5	60.5	66.5 <sup>1</sup>	38.1	44.5
Ukraine	72.3	61.5	61.5	59.7	48.5	49.9

<sup>1</sup> 2001

Population with highest incomes spends the biggest part of money on non-food products and services.

Differentiation in expenditures related to non-food products with 10 % of the wealthiest and the poorest population makes from 3 times in Ukraine to 19 times in Russia; their service-related expenditures – from 5-8 times in Belarus, Kazakhstan, Kyrgyzstan and Russia to 16 times in Armenia.

The major share of service-related expenditures of low-income population is payment for housing and utilities, while that of high-income population – expenditures related to educational, medical and recreational services.

Household survey data show that high degree of population differentiation by the level of per-capita incomes results in unequal consumption of certain food products. For example, differences in the per-capita level of meat and meat products consumption between high and low income groups can be traced in Belarus, Moldova and Russia being equal to 1.7-1.9 times and in Armenia, Kazakhstan, Kyrgyzstan and Tajikistan – to 2.8-3.4 times.

Differences in the kinds and manifestations of inequality in incomes are combined with wide differences in the ownership of economic and financial resources, housing conditions, access to education, science and culture, as well as medical and recreational services.

### Inequality and Education

Education is one of the key factors determining living standards of population and affecting poverty risks.

Thus, according to Rosstat estimations, high poverty risk index (1.3-1.6) in Russia refers to the group of population with elementary, primary and secondary education. People with professional university

and post-university vocational training have the lowest risk to fall into poverty (poverty risk index being equal, respectively, to 0.51 and 0.07).

Access to education is characterized by such indicators as the *level* of education people already have and *rate of coverage* with different levels of education.

Recent population censuses data of 2010 shows rather high educational *level* of population in the CIS countries. Throughout the period between latest censuses held in all the countries, the number of persons having university and unfinished university education has increased, while the number of persons at the age of 15 and over having basic and elementary education has decreased.

There are considerable differences between the CIS countries in the extent of coverage of children with *preschool education*, which serves as the first step in the system of continuous education. Preschool education creates conditions for further education and development of child's personality and provides higher starting opportunities for successful transition to the next educational level.

In the last few years, coverage of children by preschool education has grown in the majority of the CIS countries. Thus, in Armenia in 2014, 29 out of 100 children of respective age attended preschool centers (compared to 18 in 2000), Kazakhstan – 29 (10), Kyrgyzstan – 20 (6), Russia – 65 (55) and Ukraine – of 56 (40).

In the majority of countries, there are practically no considerable gender disparities between children of younger age with regard to the access to preschool education: the share of girls attending preschool institutions makes from 46 % in Azerbaijan and Tajikistan to 49-50 % in Armenia, Kazakhstan and Kyrgyzstan.

The coverage rate with *secondary education* is high in the majority of the CIS countries, as long as national laws on education stipulate mandatory secondary education (10-11 years of formal education).

The biggest differences in the CIS countries with regard to the coverage rate of population refer to university education. Thus, in Belarus, Kazakhstan, Kyrgyzstan and Russia per 1000 persons there are 51-60 students getting university and secondary vocational training (which corresponds to levels 5-8 according to the International Standard Classification of Education, 2011), in Armenia, Moldova and Ukraine – 34-41, in Tajikistan and Azerbaijan – 27 and 23 students, respectively.

Proportion of women in the overall number of students in 2014 made 49-55 % in Azerbaijan, Armenia, Kyrgyzstan, Russia and Ukraine, 57-58 % – in Belarus, Kazakhstan and Moldova; in Tajikistan their share made 32 % and, despite the upward trend (24 % – in 2000), it still remains the lowest among the CIS countries.

### **Inequality and Health**

The issue of growing inequality in the health state of population remains a topical one in the CIS countries. Access to high-quality public health services is an important precondition for good health.

The major sources of data for examination of this issue are current and cross-sectional surveys of population / households.

Surveys of incomes and expenditures of households make it possible to receive information on population differentiation based on the level of expenditures related to public health services.

### Expenditures of Households for Public Health Services

(as % of consumer expenditures of respective groups of population)

	Expenditures for public health services as % to consumer expenditures of respective groups of population		Relationship between expenditures for public health services of 10 % of population with the highest, and 10 % – with the lowest incomes, times
	10 % of population with lowest incomes	10 % of population with highest incomes	
Azerbaijan	4.0	6.6	4.2
Armenia	2.9	10.6	33.7
Belarus	2.6	3.6	7.0
Kazakhstan	2.3	3.6	8.6
Kyrgyzstan	1.3	3.1	12.1
Moldova	7.3	5.4	2.2
Russia	2.5	3.3	11.1
Ukraine (2012)	3.1	4.5	3.2

Some countries include in the current household survey programs questions on the state of health and availability of public health services for the population. Besides, they undertake specific thematic surveys in order to receive information on the following issues:

- assessment of general state of health;
- need for medical examination or treatment;
- health related limitations in activities;
- availability of different kinds of medical aid;
- reasons for lack of medical aid;
- distance to the nearest medical institution.

To sum up the results, these countries use groupings based on a number of demographic, social and economic characteristics (gender, age, educational level, employment status, income, etc.).

Differences in the survey programs make it impossible to draw comparison between the countries due to variations in assessment criteria and formulation of questions, which can be seen from the examples of specific countries.

#### Distribution of Respondents at the Age of 15 and over Based on Their Own Health Assessments

	<b>good</b>	<b>satisfactory</b>	<b>bad</b>		
Azerbaijan	77.8	19.9	2.3		
	<b>satisfactory</b>	<b>partially satisfactory</b>	<b>unsatisfactory</b>		
Kazakhstan	53.1	40.5	18.3		
	<b>very good</b>	<b>good</b>	<b>satisfactory</b>	<b>bad</b>	<b>very bad</b>
Russia	3.5	35.6	43.0	10.7	1.2

The CIS Statistical Committee regularly publishes major social and economic poverty indicators in the CIS and other countries of the world. This information is provided to the policy makers in the CIS countries, mass media, scientific community, commercial and international organizations, as well as other users.

In its further work, the CIS Statistical Committee plans to give priority to new methods of poverty assessment taking into account the international experience.