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Providing international comparability of poverty assessments. Experience and problems

Prepared by Rosstat

Abstract

The paper reviews basic areas of work and progress made in the field of poverty statistics in the Russian Federation.

According to the current methodology, Rosstat has been publishing poverty indicators since 1992. At the same time, the assessment system is based on the limited number of indicators, beyond which there is a broader set of indicators reflecting the processes of socio-economic disparities and poverty, standardized for comparative analysis on the global international level.

Rosstat has to switch to a broader system of indicators that responds to progressive statistical methods of measurement due to Russia's accession to the OECD and the need to expand the performance evaluation system of income distribution and poverty in the run of a government program to improve the living standards of the population.

Rosstat has been working in that direction for the last three years calculating relative poverty indicators with the help of available information sources. The results obtained show the different components of the poverty profile and thus open up new analytical possibilities for studying the processes of socio-economic differentiation.

In order to proceed work in this direction Rosstat has to determine more precisely the composition and relative poverty calculation methods in relation to the sample survey of household budgets (HBS) and sample survey of income and participation in social programs. Also Rosstat has to provide a user friendly integration of the new grading system into the current complex of published information. Special significance is given to systematic methodological recommendations, determining methods of indicators calculation on the base of the OECD methodology and with regard to characteristics of the information base.

Meanwhile, since 2011 the system of additional sample surveys of households by socio-demographic challenges has been implemented into the Russian statistical system. This creates a new information platform for more accurate measurement of absolute and relative poverty and contributes to expansion of the poverty measurement system.

However, there are well-known practical difficulties that have to be faced. Data on household income on the basis of sample surveys show a fairly significant break with the macroeconomic indicator of monetary income of the population, taking into account the revaluation surplus in the informal sector of the economy. In this aspect, it is necessary to continue to search for appropriate practical solutions to reduce this gap and improve the quality of micro-data based on household surveys.

PROVIDING
INTERNATIONAL COMPARABILITY
OF POVERTY ASSESSMENTS.
EXPERIENCE AND PROBLEMS

Information sources and methods of poverty assessment

Income distribution indicators have been compiled in Russia since 1970, and indicators on the poverty level - since 1992.

Until 1992, the basis for these estimates was a special sample survey of income, which was held every five years through 1989 inclusive, covering about 170 thousand families. In the period between surveys income distribution data were collected by a specially developed model (using the last survey data in relation to the current level of income). At the same time a sample survey of household budgets (consumer spending, housing, food consumption, etc.) in groups by average total income was being developed.

Since 1992 quarterly household budget survey (HBS) data have been used as an information base for calculation of inequality and poverty indicators, conducted in all constituents of the Russian federation and covering 47.8 thousand households. Since 1997 it has not contained direct indicators on the total amount of income. Assessment of each surveyed household's income is made by calculation[1].

Comparative analysis of HBS results for the general population with macroeconomic indicator of monetary income indicates rather significant differences. Among the main reasons for these deviations are as follows:

- composition of an HBS sample frame, where groups with relatively high incomes are not adequately represented;
- low reliability in terms of growth in high-cost savings and expenditure, which largely determine the income differentiation.

Under these conditions, an assessment of inequality and (although to a lesser extent) poverty based solely on HBS data, looks quite vulnerable, so, according to the current methodology calculations of indicators of population distribution by income are performed using the method of simulation by converting the empirical distribution (based on HBS data), into the distribution range that corresponds to a grouping variable in the population[2].

The following data are collected based on the obtained number of population distribution by per capita income (with a coefficient of equivalence $\varepsilon = 1$):

- data on distribution of total income by decile and quantile groups in the general population;

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[1] Calculations are based on data on final consumption expenditure, intermediate consumption and the acquisition of non-financial assets, as well as using data from a recovery for current consumption and for the balance of unspent funds received during the survey period. The indicators characterizing the level of income at the disposal of households during the survey include disposable resources and monetary income.

[2]. The key guidelines of this method are based on the hypothesis of correspondence of the nature of the money income distribution to the lognormal (two-parameter) model. To determine the parameters used in the simulation model, microdata database of HBS results for all observation periods during the year is created. When quarterly budget survey is planned, covering about 48 thousand households, the annual information collection contains data for about 190 thousand households.

- population distribution by interval monetary income groups in the general population;

- basic coefficients (indices) of income spread;:
  - Gini index
  - decile coefficient;
  - fund coefficient (decile);

- indicators of absolute poverty in the general population;

- indicators of absolute poverty in the general population by demographic (age and sex) groups of population

- indicators of relative poverty in the general population;

- population with income below the international absolute poverty line of $ 1 per capita per day.

All these indicators are compiled quarterly in Russia as a whole and annually for each of the 83 constituents of the country.

In calculation of absolute poverty indicators in accordance with the current methodology the subsistence minimum (absolute poverty line) is used as the poverty threshold, and 40, 50 and 60% value of the median income is used as the poverty threshold in calculation of relative poverty indicators.

Using the simulation method when calculating population distribution by income allows you the following:

- to perform timely calculations of all the above mentioned poverty and income inequality indicators;

- to improve accuracy of estimates in regions, where groups with relatively high incomes are not adequately represented.

However, use of the simulation model is limited to calculations for the general population, without calculation of the absolute and relative poverty indicators, depending on the place of residence, household size, number of children, employment, age and gender. Another disadvantage of this method is the inability to take into account the effect of co-residence, which makes it impossible to obtain relative poverty indicators by OECD standards under the current methodology.

Evaluation of the poverty profile is performed on the basis of a sample survey of household budgets. These estimates are made by comparing the amount of resources available for each household to the subsistence minimum level, corresponding to its value for the specific constituent of the Russian Federation at the surveyed population's place of residence. At the same time, the subsistence minimum (or poverty line) is defined as the sum of respective indicators in different socio- demographic groups, according to the actual composition of each surveyed household.

Basic characteristics of poverty indicators in dynamics

During the whole period of observation (1992-2012) absolute poverty (share of population with monetary income below minimum subsistence level) has changed significantly (Figure 1).
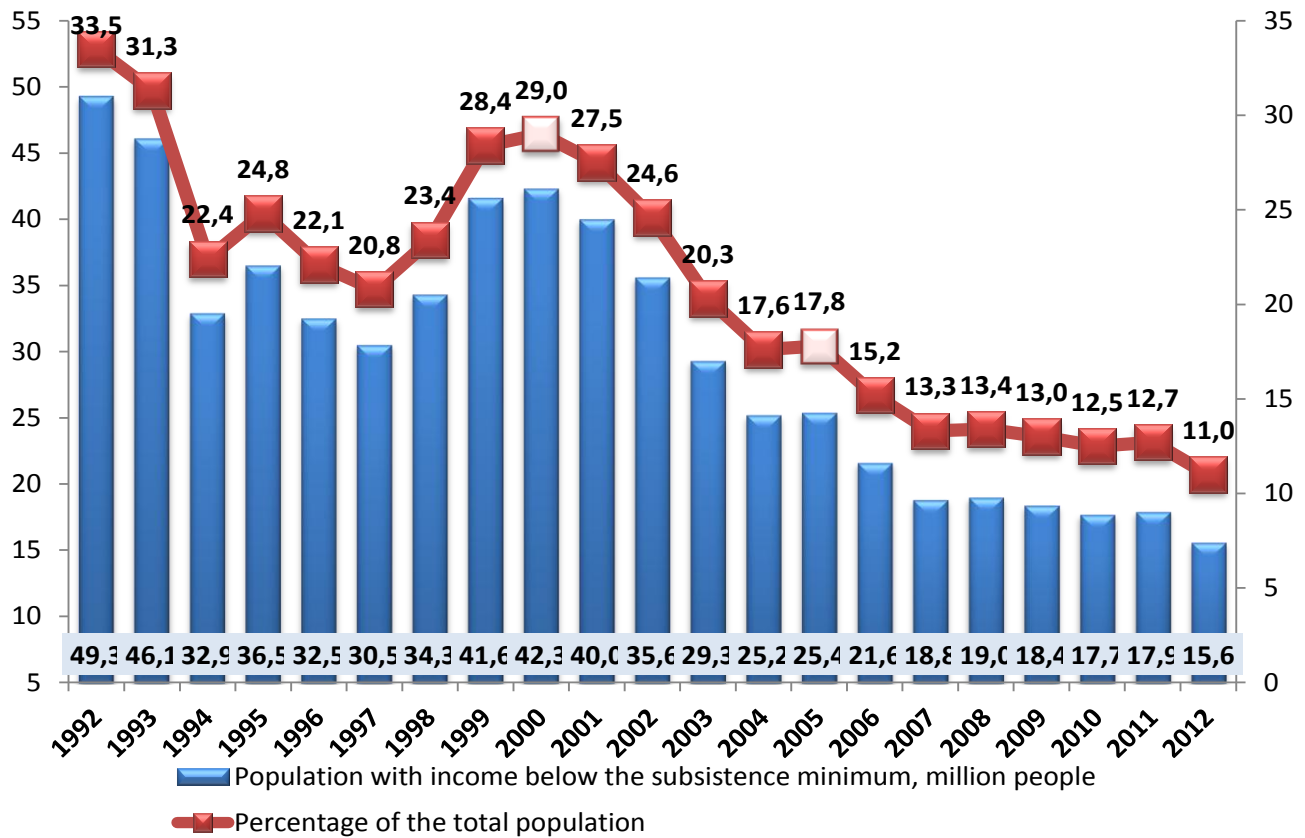
In 2000 the methodology of the subsistence minimum calculation was changed.
In 2005 the composition of the consumer basket for determination of the minimum subsistence level was changed.

The similar changes with slight differences occurred in the constituents of the Russian Federation. Figure 2 shows situation with regional poverty levels in comparison to average level for the Russian Federation in 2012.

NUMBER OF INDIGENT POPULATION
BY CONSTITUENT ENTITIES OF THE RUSSIAN FEDERATION IN 2012
(percentage of the total number of population in the region; preliminary data)
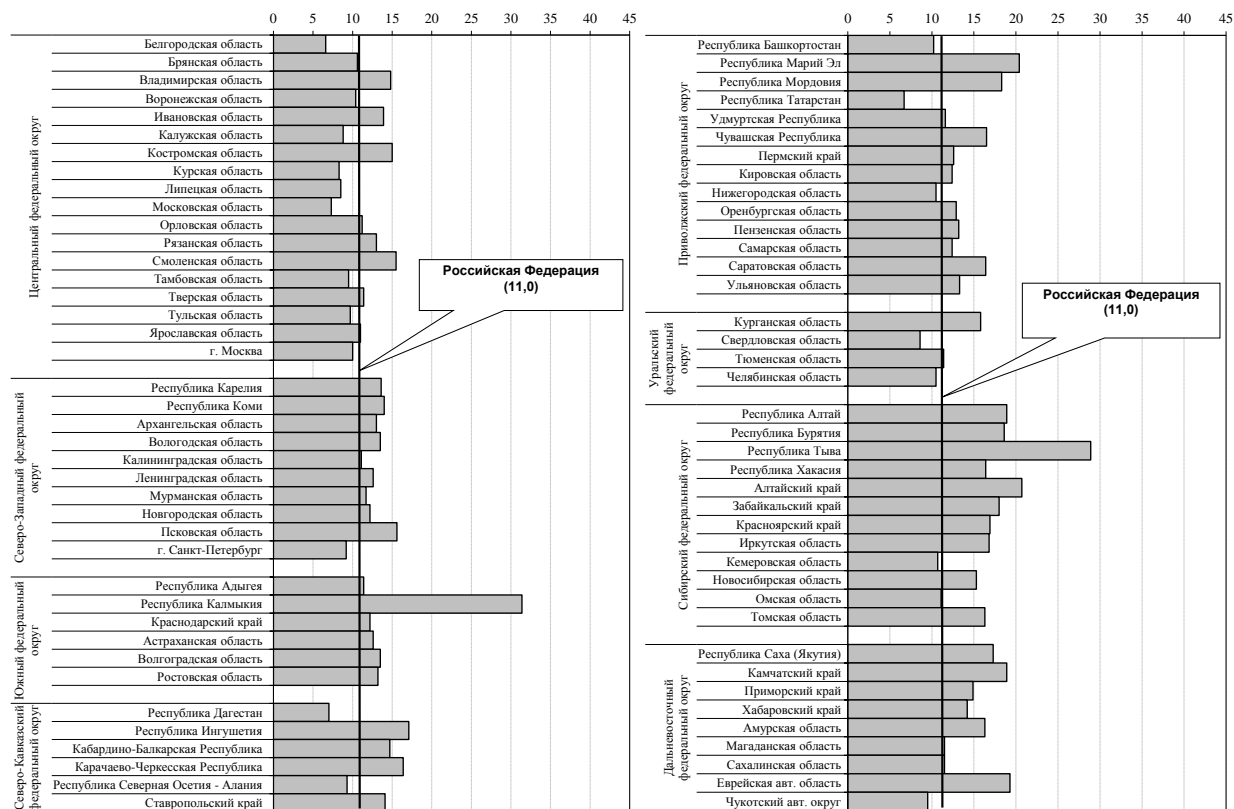

Figure.1

Table 1 contains data that might be used for evaluation of effectiveness of social policy in improving the material support of pensioners (multiple increase in pensions and indexing it for inflation).

Table 1

**SHARE OF POPULATION WITH MONETARY INCOME
BELOW THE SUBSISTENCE MINIMUM LEVEL
BY MAIN AGE GROUPS**

Percent of total number of population in a corresponding age group

	2000	2002	2004	2006	2008	2010	2011	2012[1)]
Total number of population	**29,0**	**24,6**	**17,6**	**15,2**	**13,4**	**12,5**	**12,7**	**11,0**
Children under the age of 16	*33,7*	*28,7*	*20,9*	*18,8*	*18,6*	*19,2*	*19,9*	*17,9*
Children under the age of 7	26,9	22,7	16,7	15,0	15,7	17,9	18,7	15,8
Children in the age of 7-16	36,8	31,6	23,4	21,4	20,8	20,2	21,1	19,8
Youth in the age of 16-30	*28,9*	*25,3*	*18,2*	*15,5*	*13,6*	*12,8*	*12,8*	*11,0*
Male in the age of 16-30	26,5	23,9	17,5	14,8	13,0	12,0	12,0	10,4
Female in the age of 16-30	31,2	26,8	19,0	16,2	14,3	13,6	13,6	11,7
Persons of capable age above 30	*30,5*	*25,7*	*18,1*	*15,7*	*13,5*	*12,9*	*13,1*	*11,2*
Male in the age of 31-59	27,7	23,6	16,7	14,5	12,5	12,1	12,2	10,5
Female in the age of 31-54	33,4	27,9	19,6	17,1	14,7	13,8	14,0	12,1
Population of above capable age - totally	*20,9*	*17,2*	*12,3*	*10,3*	*8,5*	*6,1*	*6,1*	*5,2*
Male in the age of 60 and above	19,5	16,1	11,5	10,1	8,4	5,4	5,6	4,7
Female in the age of 55 and above	21,5	17,7	12,7	10,4	8,6	6,4	6,3	5,4

Source: assessment on the base of data from sample household budget survey and macroeconomic indicator of monetary income of population.

[1)] preliminary data.

This year Rosstat published on its web-page indicators of relevant poverty (for Russia and its constituents) calculated on the base of current methodology.

Figure 1 shows charts that characterize the correlation of main resource indicators (average per capita monetary income and median monetary income) subsistence minimum level, that are used relative poverty boundaries (by relative and absolute conceptions).
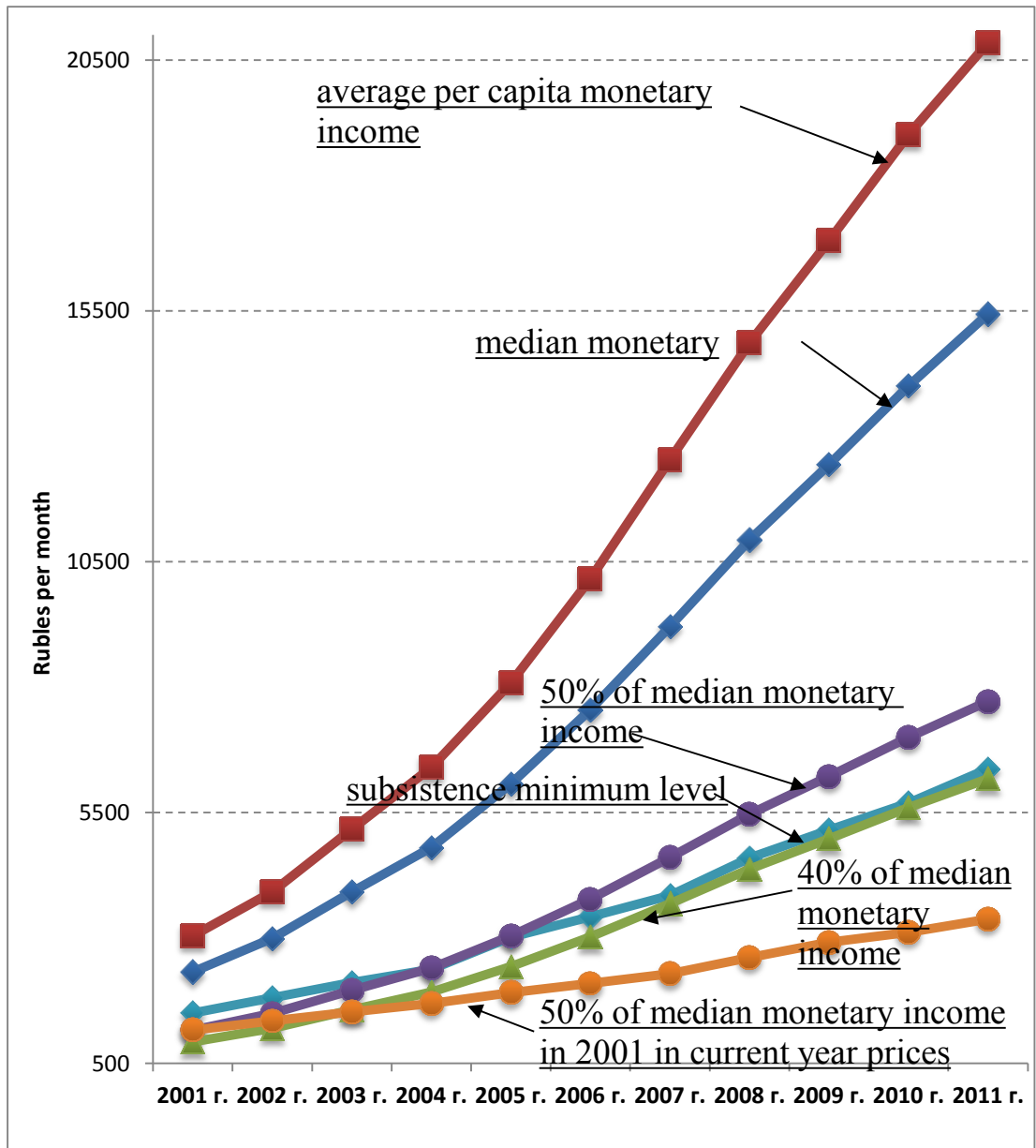
Figure.1

Figure 2 shows lines that characterize the level of relative and absolute poverty for the period
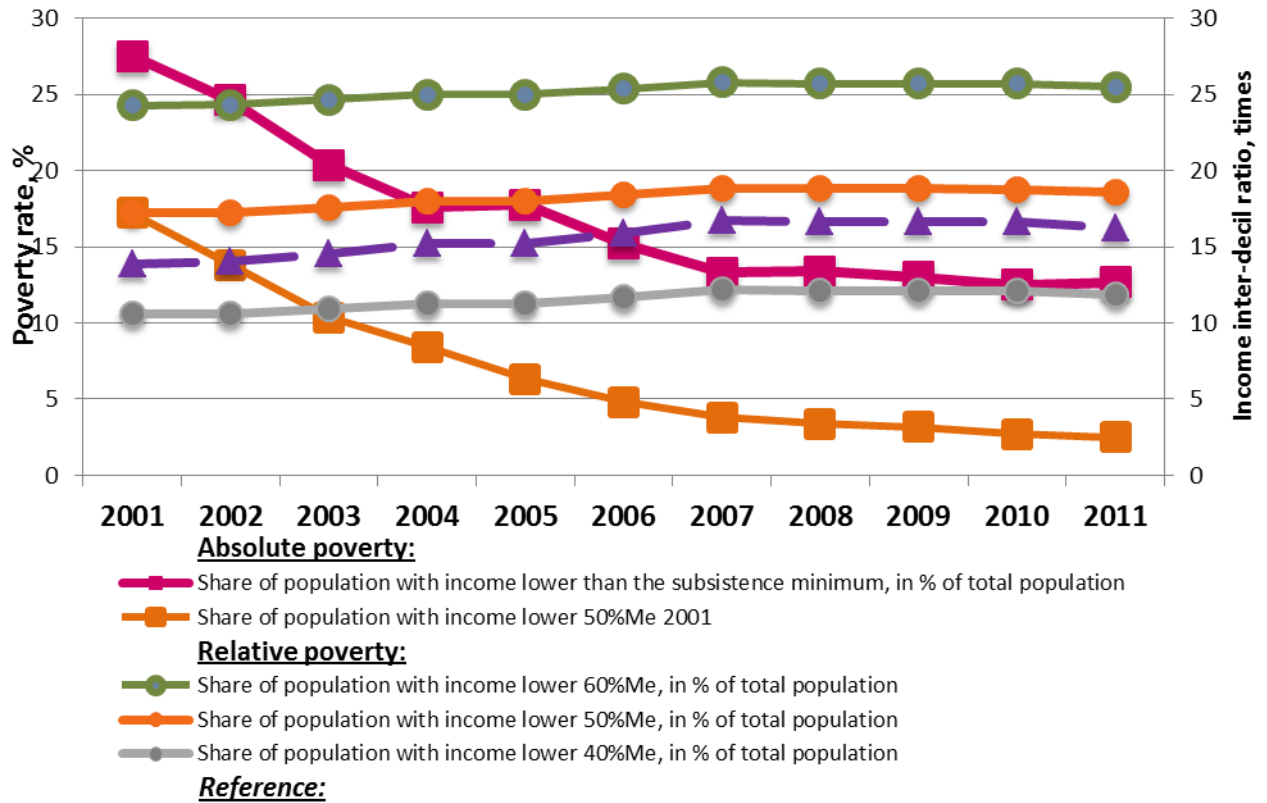2001-2011.

Figure.2

As seen in the charts for the period 2001-2011 (in proportion to income growth [3]) absolute poverty has
fallen by more than two times. It should be noted that even more significant (almost 7 times) was the
reduction of poverty, calculated using the absolute limit value of 50 per cent of median income of 2001 in
the prices of the respective years.

The trajectory of relative poverty over time practically coincides with changes in differentiation of
monetary income, represented in the chart by income inter-decile ratio.

Comparison of absolute and relative poverty lines emphasizes the well-known advantages and
disadvantages of these two concepts:

"+" of Absolute method - model natural (partially natural) sets of consumer baskets do not lose their value
as a legal basis for determining the minimum monetary income and the provision of state social
assistance.

"-" of Absolute method - model minimum sets of goods and services, that reproduce the conditions of life
of low welfare population, as economic development is insufficient to account the diversity of different
structural relations of heterogeneous groups of people's needs (physical, intellectual, spiritual, social and
other).

"+" of Relative method - displays the effect of measures aimed at "leveling" of the distribution of income.

"-" of Relative method - impossibility to interpret it using effects of implementation of social policies
addressed to specific vulnerable groups (such as families with children, the elderly, etc.).

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[3] In nominal terms – 6-7 times, in real terms – 2-3 times.

In order to introduce into statistical practice indicators used for cross-country comparisons, Rosstat has calculated the proportion of the population with incomes below the poverty line set at the international level with regard to purchasing power parity [4].

Table 2

SHARE OF POPULATION WITH INCOME BELOW THE POVERTY LINE SET AT THE INTERNATIONAL LEVEL WITH THE PURCHASING POWER PARITY[1)]

percentage of total population

	Share of population with income per capita lower:					Reference: share of population with income lower than the subsistence minimum
	1,25$[1)] per day	*2$[1)] per day*	*2,5$[1)] per day*	*4$[1)] per day*	*10$[1)] per day*	
Russian Federation						
2009	0,0	0,0	0,1	0,6	8,9	13,0
2010	0,0	0,0	0,1	0,5	8,4	12,5
2011	0,0	0,0	0,1	0,5	8,4	12,7
2012[2]	0,0	0,0	0,1	0,5	8,0	11,0
Reference[3)]:						
Brazil						
2009	6,1	10,8	15,1	27,6	…	21,4
India						
2010	32,7	68,8	81,1	93,8	…	29,8
China						
2009	11,8	27,2	36,5	58,0	…	…
South Africa						
2009	13,8	31,3	39,5	55,5	…	23,0[4)]

Source:for Russia – assessment on the base of data from sample household budget survey and macroeconomic indicator of monetary income of population.

[1)] Russian Federation – by PPP in international prices 2008 (2011-2012 – preliminary data); Brazil, India, China and South Africa – by PPP in international prices 2005.

[2)] Preliminary data

[3)] Source of information: The World Bank database "Poverty and Inequality Database"

[4)] 2006

Major results and guidelines for further work

A grading system, currently published by Rosstat, based on the use of limited number of indicators, beyond the scope of which, there is a broader set of indicators to reflect the processes of socio-economic disparities and poverty, standardized by the OECD for comparative analysis on the global international level and employed by many other countries to identify trends in dynamics of income distribution as well as living standards in a country.

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[4] This indicator is used for cross-country comparison only.

Following this direction, Rosstat, together with involved experts, has carried out some preliminary estimates of relative poverty in Russia as a whole, which were based on the OECD methodology used for international comparisons of inequality and poverty. This methodology utilizes microdata bases containing the results of household surveys.

According to the OECD methodology, the value of 50% of the median equivalent disposable income, determined for the entire surveyed population, was taken as the threshold of relative poverty.

The value of equivalent income was calculated by the formula:

$N = D/S^E$, where

N - equivalent per capita income;

D - nominal household income;

S - size of a household;

$E=0,5$ - equivalence factor (coefficient of bringing the income to an equivalent level).

Let us compare the poverty risks obtained from household surveys microdata in 2008 by absolute and relative poverty concepts.

In case when an individual is considered poor with per capita income below the subsistence minimum (absolute poverty), the highest risk of poverty is observed among children aged up to 16 − 1.3 times higher than among population on the whole, as well as in the age group 16 -30 − 1.1 times higher. The lowest risk of absolute poverty belongs to a group of retirement age: among women it is 0.7 times of the average for men − 0.9 times (Fig.3).

Values of relative poverty risk, calculated on the basis of the OECD methodology[5], produce a somewhat different picture: the highest poverty risk is observed in the age group of over 65 − for them the risk of falling into the poverty zone is nearly twice than that for the entire surveyed population (Figure .4). In the group of children aged up to 17, the risk exceeds the average level in 1.2 times. Risk of relative poverty in the age group of 18 - 65 is 0.8-0.9 factor of the average level.

Thus, we can conclude that children have an increased risk of poverty in both concepts of poverty (absolute and relative), and for those over retirement age there exists a relatively low risk of poverty in absolute concept and the highest risk of relative poverty in the age group of over 65 as compared with other groups of population.

Figures 5 and 6 represent exceeding the risk of relative poverty by age groups and separately for men and women with regard to the risk of poverty for the population as a whole. From these two graphs, we can conclude that up to 50 years the gender has almost no effect on the risk of relative poverty, but in the older age groups (over 65) women's relative poverty risk is generally higher than that for men in the appropriate age.

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[5] Individual is considered poor if his average equivalent income is below 50% of median income per capita equivalent. According to the OECD methodology, the value of disposable (after deduction of income tax) and market (before transfers) income are considered. Additionally, for comparison, the relative poverty indicators were calculated using the monetary income indicator.

Poverty risk index by gender and by age in 2008
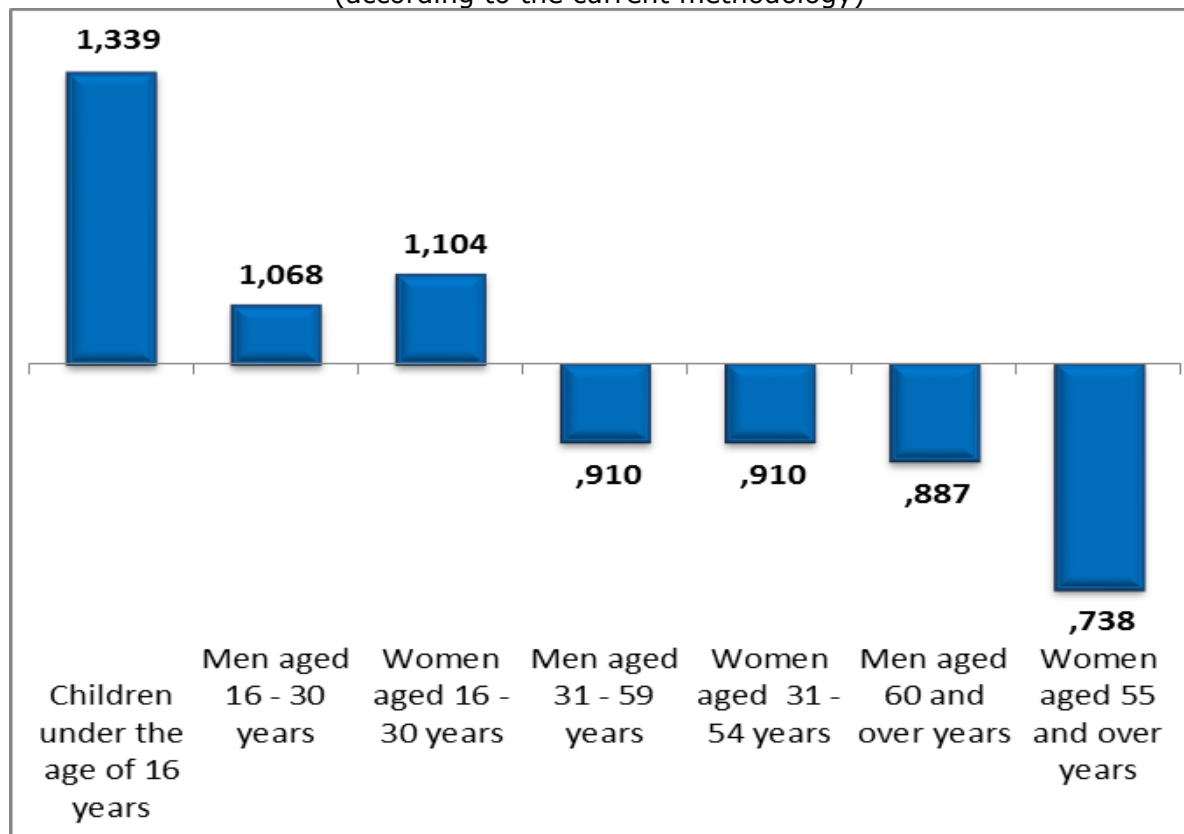(according to the current methodology)

	Value
Children under the age of 16 years	1,339
Men aged 16 - 30 years	1,068
Women aged 16 - 30 years	1,104
Men aged 31 - 59 years	,910
Women aged 31 - 54 years	,910
Men aged 60 and over years	,887
Women aged 55 and over years	,738

Figure.3

Poverty risk index by gender and by age in 2008[7)]

(According to the OECD methodology)
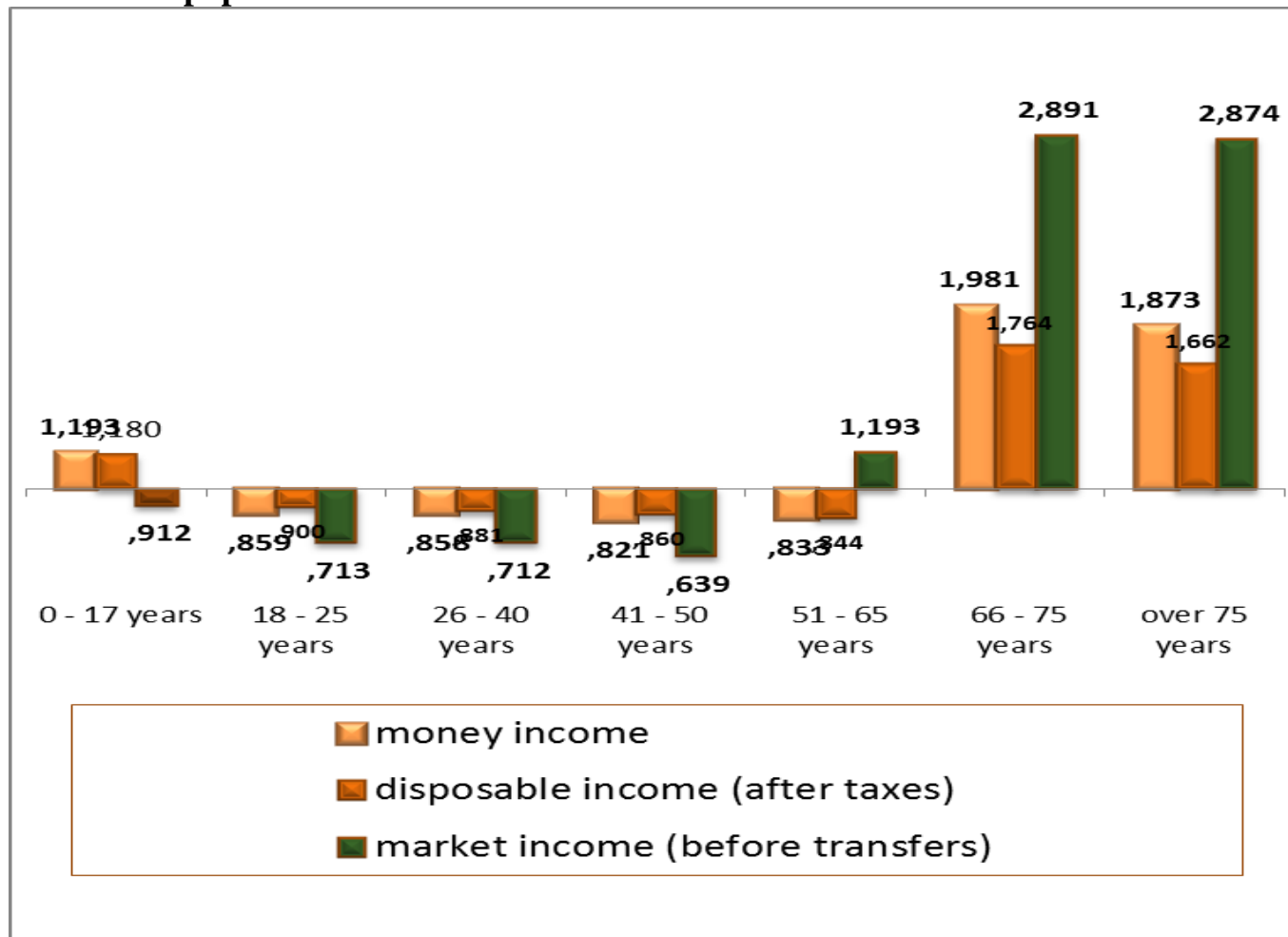
A. General population

Рис.4

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 7) A poverty risk index value above 1 shows to what extent the poverty risk for the population, grouped according to age and sex, is greater than that for the general population. A poverty risk index value below 1 indicates a lower risk of poverty than the poverty risk for the general population
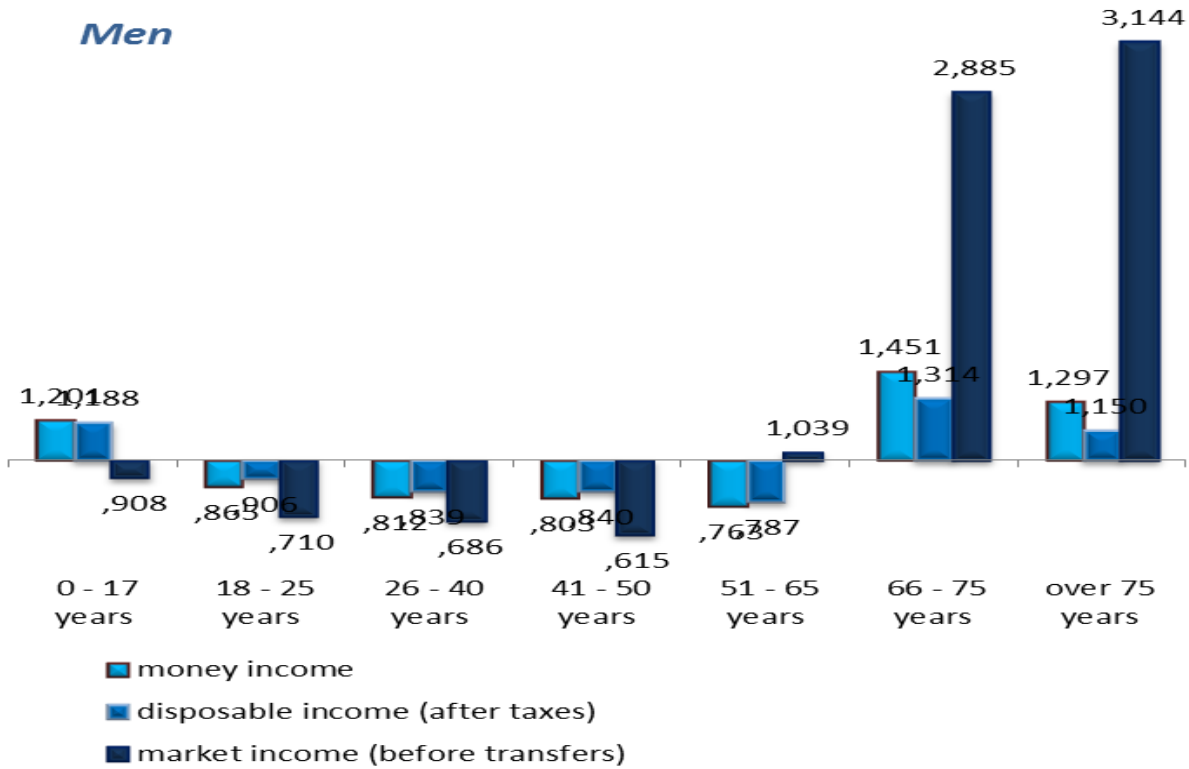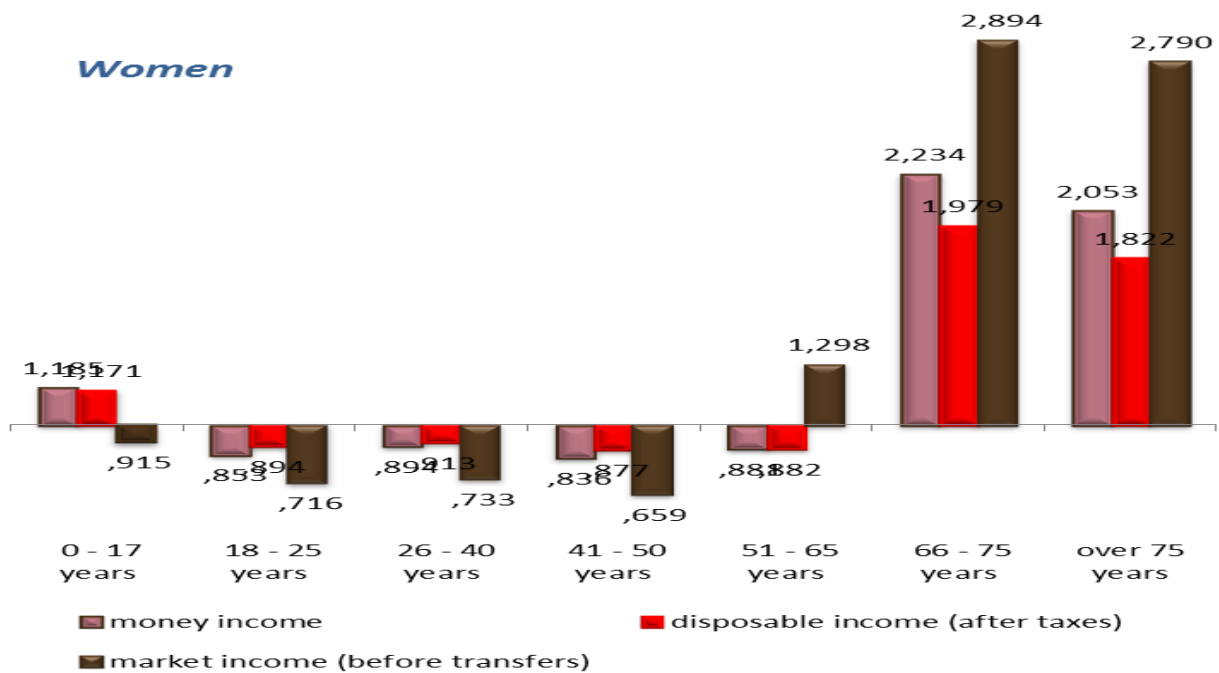
B. Men

Figure.5

C. Women

Figure.6