

**Efficiency of the poverty reduction programs:
decomposition of the dynamics and structure of Russian poverty**

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We investigate the dynamics and the structure of the Russian poverty for the period of 1994 – 2005 in the context of the government socio-economic policy of poverty reduction. In the study we employ decompositions of relative levels of poverty on growth and redistribution components of average incomes. The trends in the depth and severity of poverty and income deficit for various socio-demographic groups are presented. We present decomposition of poverty according to the sources of household income at different periods of time in order to assess the contribution of various components of the household income on poverty. Our results include decomposition of sources of income on the Gini coefficient within poor and rich subgroups and inequality between these groups.

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Non-technical summary

Poverty alleviation is one of the development priorities in Russia. The effective strategies of reducing poverty level in the country are a major concern of the government, international organizations, and academic researchers. The development of effective programs of fighting poverty requires analysis of successes and failures of past policies. Our project shed light on poverty alleviation programs in Russia by analysing the RLMS data for the period 1994-2005, covering both the period of deep socio-economic crisis and major economic resurgence.

The methodology of the study is based on the decomposition approach to poverty and inequality, allowing to study the level and the structure of poverty in the context of different socio-demographic types of households and different sources of households' income. Income inequality is closely related to poverty, influencing its dynamics and responsiveness to economic growth. Hence, the analysis of poverty in the context of changing inequality levels allows us to derive important social policy implications.

The objective of our study is to explain the changes in the structure of the Russian poverty in the period 1994 – 2005 in the context of the government policy of poverty alleviation. To meet the objectives of the study we have to: determine the contribution of income growth and income redistribution for the poverty alleviation; determine the trend in the level, depth and severity of poverty for various socio-economic groups of households; decompose poverty according to various sources of household disposable income at different time periods, in order to estimate their impact on poverty; assess the within and between groups (rich and poor) redistribution impact of government reforms in the area of poverty alleviation using the decomposition of the Gini coefficient by sources of income.

Our general conclusions.

- The analysis of the structure and dynamics of poverty during the period 1994 – 2005 reveal low effectiveness of the government policy in the reduction of poverty and inequality.
- The government redistributive policies are effective neither for general population nor for specific socio-demographic groups.
- We find that benefits and transfers fail to reduce poverty among target groups.
- As a response to ineffective government social policies households developed their own strategies in coping poverty. Such strategies may be counterproductive for long term sustainable economic growth.

Introduction

Alleviation of poverty is one of the primary objectives of Russian economic development. Effective strategies of poverty reduction are in the central focus of Russians government, international organizations and academic community. In order to evaluate the effectiveness of the poverty reduction programs it is necessary to analyze poverty development during a sufficient period of time. The analysis should capture not only the total number of people living in poverty but also focus on the specific socio-demographic groups which were more likely to experience poverty in different periods. Knowing poverty dynamics of a particular socio-demographic group allows us to describe changes in the poverty profile and thus to evaluate the effectiveness of the government poverty reduction programs targeted to specific socio-demographic groups.

It is also important to analyze the impact of various sources of income on poverty. The analysis allows assessing the relative importance of labour income, pensions, state subsidies, and intra family transfers at different points in time and to appraise the effects of the government initiatives in the labour market and the social sphere.

To understand the changing dynamics of poverty it is important to disentangle contributions of changes in the mean income from changes in redistribution of income. The influence of these two components at different points in time could have varying importance and possibly influence the poverty level in the opposite directions, often reflecting the impact of macroeconomic developments.

The transition period in Russia was characterized by the increased inequality among household in areas such as income, asset ownership, access to education and medical care. Undoubtedly, inequality is important for poverty. It affects the poverty dynamics and its responsiveness to economic growth.

The focus of contemporary research has shifted from inequality to poverty research and consequently a lot of attention is paid to the development of new poverty indexes. Many of these indexes, such as Sen's poverty index, are related to inequality indexes. Restricting the analysis to the poverty line may limit the insights into the effect of government policies on the level of poverty. Since cumulative distribution of income of rich and poor groups does not intersect, it is possible to decompose inequality into inequality within a population group and between groups. The decomposition would provide the same information as calculation of poverty measures, but also give some extra evidence, useful in poverty analysis.

Since 1992, Federal State Statistics Service of Russia (Rosstat) publishes information on the share of population with the monetary income below subsistence minimum. However this information may not be enough to assess the level of poverty because the contribution of non monetary income sources, such as income in kind and intra family transfers, has risen sharply. The necessity of

better understanding the effects of the government policy on poverty trends in Russia was one of the reasons for conducting household surveys such as the Russian Longitudinal and Monitoring Survey (RLMS). The RLMS dataset covers the period from 1994 to 2005 and allows to monitor and evaluate government social policy in the area of poverty alleviation¹.

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The literature dealing with the issues of poverty measurement is large and well- established. Ravallion (1999) presents a comprehensive overview of the literature on the issues related to poverty measurement. The impact of aggregate welfare on poverty and inequality in Russia is investigated in Ovcharova and Tesliuc (2006). World Bank (2005) presents in-depth analysis of the Russians poverty trends including the regional poverty trends. Ovcharova (1998) presents estimates of the poverty line in Russia. Aivazyan and Kolenikov (2001) investigate inter-regional inequality using some innovative techniques. Sprieskov (2003) aims to explain incidence and duration of poverty in Russia using the ordered probit model. Finally, Kislisina (2003) presents a decomposition of inequality according to the sources of income and highlights the role of the household characteristics.

In the analysis of poverty one of the most widely used indexes are FGT indexes (Foster et, al., 1984). These indexes allow additively decomposing poverty according to geographical and socio-economic impacts. Recent studies presenting decomposition of Russian poverty using FGT indexes include Gustafsson and Nivorozhkina (1996, 2004, 2005). An overview of different approaches to decomposition of poverty and inequality is presented in Duclos and Araar (2005).

The promotion of economic growth and redistribution policies are central to the reduction of poverty. Thus, the dynamics of poverty and its decomposition according to the impact of income growth and redistribution policies plays a critical role (Datt and Ravallion, 1992). However, the de-

¹ In a context of a considered problem we understand the efficiency of state policy as productive reduction of poverty. At such approach this multidimensional concept can be characterised as economic or social, macroeconomic, group or individual efficiency.

composition suggested by Datt and Ravallion (1992) as well as many others decomposition techniques suffer from the presence of “indecomposable” error term. A solution to the problem is suggested by Shorrocks (1999). The author uses Shapley value approach to achieve an exact decomposition, in a sense that contributions to all factors sum up to the total change, and develop procedures for decomposition of the impact of income growth and inequality as well as contribution of various factors to poverty change over time. This new approach to decomposition was applied by Kolenikov and Shorrocks (2001, 2005). The authors decompose the intra-regional poverty in Russia into the contribution of income, inequality and regional price levels.

Suggested decomposition methodology may be extended by applying methods of Yitzhaki (1985, 1990). The author extends Gini decomposition to account for the contribution of the sources of incomes. Yitzhaki (1985, 1990) decomposition would allow us to assess for the impact of poor on the overall inequality.

1. Review of the macroeconomic trends in the context of social policy, 1994-2006

The start of economic reforms in Russia led to the significant decline in all sectors of the economy and lasted well throughout 1990s. An adverse effect of the reforms was increased uncertainty of Russian households about the future. Privatisation and insolvency of state owned companies led to the rise in unemployment and deterioration of the social security system often provided by the employer. Wage arrears and unpaid leaves became a norm. Many individuals found their education and skills outdated and of no use in the market environment.

Subsequent period was characterised by the economic upheaval and improvement in living standards. Table 1 presents the main macro indicators for the period 1994-2006.

The GDP growth remained negative throughout the most of the 1990s. High levels of inflation eradicated savings and negatively affected consumption. In 1997, the Russian economy showed some signs of recovery, which followed by the financial crisis of 1998 (Brown, 1999; Buchs, 1999), and subsequent economic upheaval. In 1999, the period of strong growth started and by 2000, the Russian economy reached a record 10% GDP growth rate.

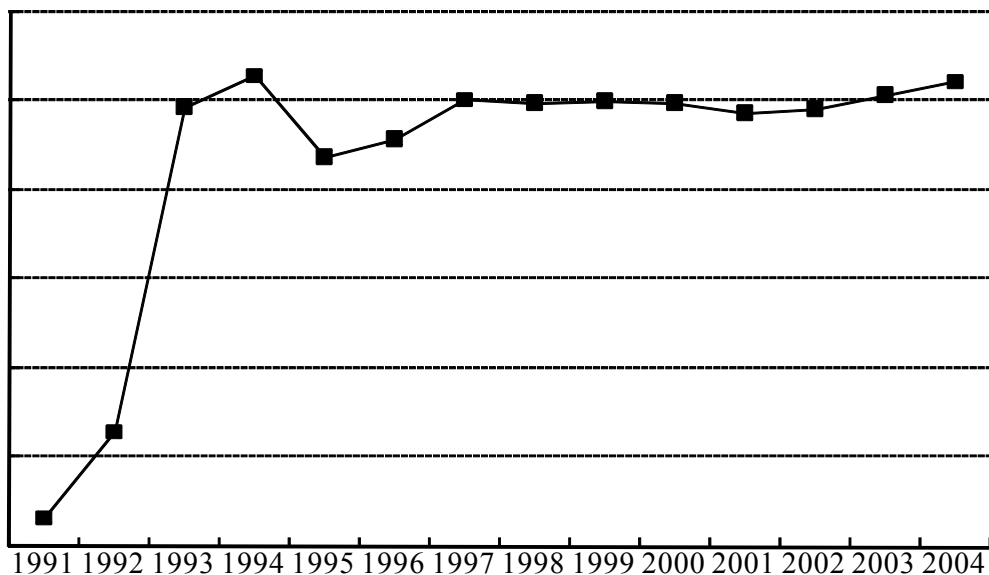
According to the official statistics, wage tends to be the main source of income, however from the beginning of reforms its contribution has declined by 2.5 times. Since the end of the 1990s the real wages were increasing, with the highest growth rate in the year 2000. During the period 2001-2005 the growth rate of the real wage had slowed down.

Increasing rates of unemployment in the period 1994-1999 could be attributed to the structural adjustments and financial crisis of 1998. Nevertheless unemployment rate remained high during the period of economic recovery.

Table 1. Macroeconomic indicators 1994 – 2006

Indicator	Year												
	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
GDP (in percentages to the previous year)	87,3	95,9	96,6	100,9	95,1	105,4	108,3	110,0	105,1	104,7	107,3	107,2	106,4
Consumer price index (in percentages to the previous year)	320	230	121,8	111,0	184,4	136,5	120,0	119	115	112	111,7	110,9	109,0
Unemployment (at the end of year)	132	118	100	120	110	102	77,1	89,1	97,9	92,3	101,6	90,2	89,0
Annual average of employment (as % of total: primary sector)	27,1	25,8	24,8	23	22,2	22,4	22,6	22,7	22,2	21,9	22,2	21,7	21,2
Agricultural sector	15,1	14,7	14	13,3	13,7	13,3	13	12,3	11,8	11	11,2	11,1	10,6
Service	42,7	43,9	44,6	47,8	48,6	48,7	48,6	49,0	50,1	50,8	54,1	54,4	55,2
Real income (1994=100) ²	100	78,9	95,8	102,6	73,4	81,0	83,2	90,5	106,2	128,8	144,2	160,1	110,2 ³
Real wage (monthly average, 1994=100)	100	90,2	96,6	109,3	72,4	81,7	90,0	107,7	124,4	142,4	153,3	168,6	113,4 ³
Real pension (monthly average, 1994=100) ²	100	95,5	103,6	105,8	63,2	59,9	78,62	99,9	102,3	115,1	113,3	124,6	105,1 ³

Source: World Development Indicators (2005), Russian Statistical Yearly Book (issues 1995-2006 years).



² In relation to the year 1991 the real income in 1994 amounted to 57.9%

³ In relation to previous year.

Figure 1. Gini coefficient for 1991 – 2004 (Russian official statistics)

An important indicator of the structural changes in Russia is employment level in different sectors of the economy. The employment dynamics is presented in Table 1. The period under investigation was characterised by the declining employment levels in production and agriculture and substantial increase in the service sector.

Economic transition also led to the decline in the individual wellbeing, individual consumption decreased sharply, and inequality went up. (Milanovic, 1998; World Bank 1995, 1998; Commander et al, 1999). According to the official statistics the Gini index increased from 0.260 in 1991 to 0.409 in 1994 (see Figure 1). At the later period the coefficient has declined but still remains high comparing to other European countries.

The risk of high inequality is related to the fact that people tend to associate income differentials with social justice. Hence, the rise in income inequality has to be accompanied by improvements in the welfare of the poor. From the point of view of social stability, the income and social protection policies should guarantee the income for the poor above the subsistence level. Only in this case, the increase in incomes of the wealthy will not be a factor contributing to social unrest.

Russian trends in the wellbeing of the socially deprived groups indicate that their position had deteriorated throughout most of the 1990s. The Russian system of social insurance failed to protect low income families. A number of important social security components were regarded as inadequate. For example, child benefits amounted to 3% of subsistence minimum in 2004. Table 2 summarizes the most important government subsidies and guaranties for low income groups.

It should be pointed out that historically Russian social security system was not build to meet the demands of the disadvantaged households. The access to housing and high quality medical care was restricted to elites. Child benefits, maternity benefits and assistance to disabled people were not a government priority and often were insufficiently funded.

From the begging of the 1990s, new types of benefits had emerged: unemployment benefits, benefits for low income families, assistance to the forced migrants from the republics of the former Soviet Union. As a result in the year 2000 federal budget financed around 150 social programs for over 200 eligible groups. On top of these social programs a number of benefits and subsidies were financed from independent funds, such as unemployment insurance. It should be noted that almost all benefits are administrated to specific groups and typically are not means-tested. Only three types of federally funded benefits are means-tested - child benefits, housing benefits and benefits to low income families.

Legislative base for administrating benefits is complex and is based on federal, regional and municipal laws. These documents often have contradictory meaning and are in constant process of revision. As a result, an overwhelming amount of benefits is received by relatively better-off households. In the middle of 1990s 70%⁴ of Russian population were eligible to state support. At the same time, due to the complicated procedure and low level of benefits, only 33.8% of Russian households received state subsidies. Among households with income levels below the subsistence minimum only 27.4% received state support. According to the official statistics the size of benefits received by poor households was smaller comparing to the average household. Recent attempt to switch from in-kind transfers to monetary transfers did not improve the situation (Ovcharova et al., 2005).

Table 2. The size of government subsidies and guaranties as a share of subsistence minimum (as of January 1, each year)

Indicator	Year										
	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Minimum wage	28,0	10,0	16	19	18	10	6,8	13,2	16,1	20,2	24,0
Minimum pension	44	27	26	25	29	15	15,3	15,8	34,3 ⁵	33,6	34,2
Maternity benefits	23,7	20,8	40,1	40,6	33,9	18,4	14,1	14,2	29,0	24,5	22,1
Child benefit ⁶	21 18	8 7	13	15	14	7	5,0	5,0	4,1	3,4	3,1
Minimum unemployment benefits	20,3	16,1	19,7	20,3	16,9	8,3	-	6,6	5,4	4,5	4,0
Minimum stipend: Student, high education	28	10	16	38	36	19	13,6	13,2	10,7	9,0	16,0
Student, secondary education	19	7	11	13	13	7	4,7	4,6	3,8	3,1	5,6

Source: Social'noe polozhenie i uroven' zhizni naselenija Rossii: Stat. sb. / Goskomstat Rossii. - M., (sborniki s 1995 po 2005 gg).

One of the outcomes of economic recovery at the end of 1990s was better funding of social programs. Nevertheless the share of social spending in the federal budget remains relatively low, reaching 8.8% of the GDP in 2005.⁷

Pension benefits are the main social program administrated by the Russian government. Price liberalization of 1992 lead to the two-fold reduction in the real value of pensions⁸. As compensation, the government introduced minimum income pension, which was equal to 342 rubles. It was assumed that the size of the pension will be revised periodically. Subsequent revisions attempted to keep the size of the average pension at the subsistence minimum level.

⁴ Government programme «Strukturnaja perestrojka i ekonomicheskij rost v 1997-2000 godah».

⁵ Prior to 2003 the pensions are reported without accounting for compensations, after 2003 reported pensions include only part related to the labor income.

⁶ 1994 – 1995 the size of child benefits was differentiated according to the age of the child. Upper line presents the benefits for children up to 6 years old and lower line the size of benefits for 6-16 years old.

⁷ Social'noe polozhenie i uroven' zhizni naselenija v Rossii. – M.: Rosstat, 2006.

⁸ Organizacija socialnogo obespechenija: pensionnoe obespechenie. M., Ministerstvo socialnoj zashchiti naselenija RF, 1993.

Deterioration of macroeconomic situation in 1994-1995 led to decline of average pensions below the subsistence minimum, with the minimum pension dropping below 50% of the subsistence minimum. The indexation that followed increased pensions, but also led to the deficit in the pension fund.

In 1996-1998 due to the lack of financing and wage arrears the pension crisis had deepened. Proposals of reforming the pension system were overturned multiple times. The rapid process of ageing of the Russian population and financial crisis of 1998 added urgency to the need of the pension system reform.⁹ At the beginning of 2002, the average pension became equal to the subsistence minimum. However, real pensions still accounted to only 66.4% of their pre reform period.

Economic stabilization led to increase in real incomes. Wages and pensions grew at the accelerating rate, exceeding the rate of the GDP growth. The share of households with incomes below subsistence minimum declined¹⁰.

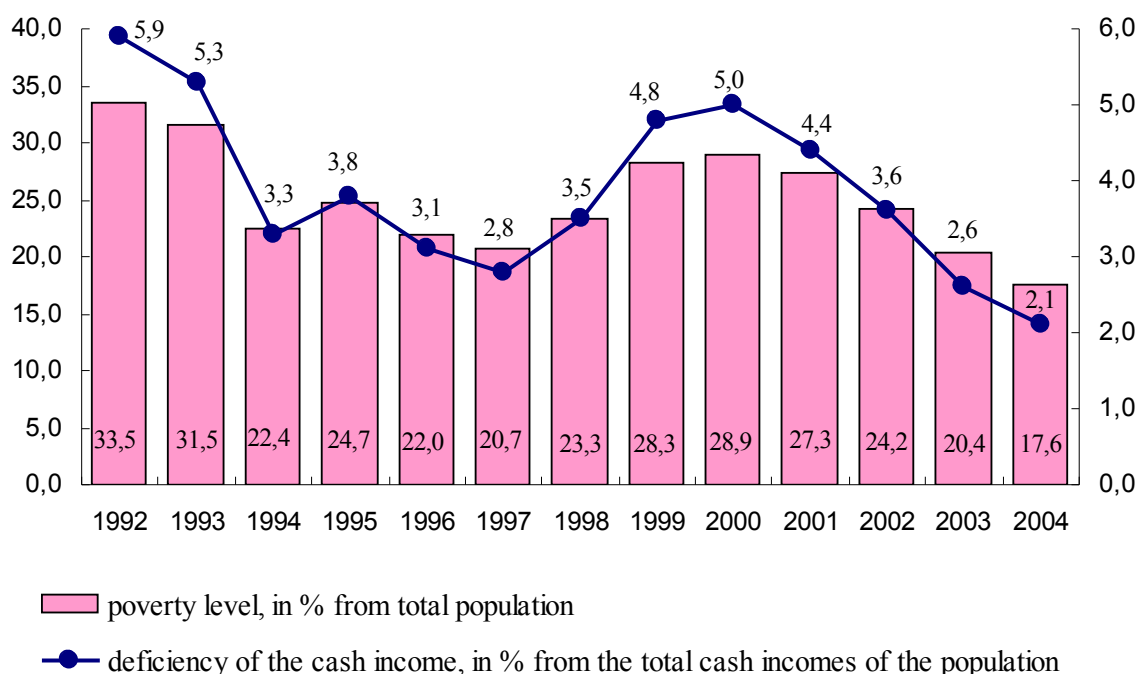


Figure 2. Official estimates of the level and extend of poverty

⁹ Predlozhenija k strategii sodejstvija i sokrawenija bednosti v Rossii. Izdanie bjuro MOT. Moskva 2002.

¹⁰ Source: Obzor social'noj politiki v Rossii. Nachalo 2000-h/pod red. T.M.Malevoj/ N.V.Zubarevich, D.H.Ibragimova i dr.; Nezavisimyj institut social'noj politiki. – M.: NISP, 2007.

Source: Rossiya v cifrah. 2004: Krat. stat. sb./ Federal'naja sluzhba gosudarstvennoj statistiki. - M., 2004. - S. 99-100. Social'noe polozhenie i uroven' zhizni naselenija Rossii: Stat. sb. / Goskomstat Rossii. - M., 2005. - S. 24. Social'noe polozhenie i uroven' zhizni naselenija Rossii: Stat. sb. / Goskomstat Rossii. - M., 1997. - S. 9

In the period 1992-1994 the proportion of individuals living below the poverty line, defined by the state, was decreasing. This however can be partially attributed to the changes in methodology of the statistical agency rather than real improvements in the wellbeing. The trend in the poverty alleviation was brooked abruptly by the financial crisis of 1998. The next significant decline in poverty levels started in the year 2000. However, the true decline is masked due to adoption of more “expensive” survival equivalent. Starting from 2001 we observe steady decline in poverty levels, which point to the positive impact of economic development on income growth. (Ovcharova, 2005, 2007). According to (Ovcharova, 2007) the income deficit of poor households remained relatively stable at the level of 31%.

2. Methodology

2.1. Data

We utilise the information provided by ten rounds of the Russian Longitudinal Monitoring Survey (RLMS) for the period 1994-2005. RLMS dataset provides socio-demographic information and information on individual and household incomes and consumption.

The object of our study is a household. In the household we identify the household head – an individual with the highest income. For each household we take into the account the following characteristics: size and structure of the household, number of children and working members and type of settlement. We also take into the account attributes of the head of the household, such as: age, gender, education, employment status as well as professional occupation. For the purpose of decomposition we treat each household member as a separate observation, thus avoiding the problem that households with different number of individuals would have the same weight in the sample (table 3).

We construct a measure of household disposable income as a welfare indicator. Household disposable income includes both information provided by the individual questionnaire and household questionnaire. We adjust the disposable income to account for non monetary sources of income.

The sources of income which were included into the calculation of disposable income are:

1. *Wage and income in-kind*: Includes monetary and non monetary labour income from primary and secondary employment¹¹.
2. *Pensions*.

¹¹ The RLMS questionnaire contains questions asking households to estimate a monetary equivalent of their non-monetary incomes. Therefore we use the subjective estimates of non-monetary incomes from RLMS.

3. *Alimony.*
4. *Child benefits.*
5. *Stipends.*
6. *Benefits:* including unemployment benefits and house heating assistance.
7. *Other forms of assistance:* intra family transfers, charity, etc. Starting from the year 2000 this includes government help with the exception of pensions and child benefits.
8. *Income from selling the property or house leasing*
9. *Income from subsidiary agriculture.*
10. *Other forms of income: royalties, interest, loans, etc.*

Households which did not report any of the above mentioned sources of income are excluded from the analysis.¹²

Table 3

Sample size

Year	The share of income expenditures, %	Number of observations (households)	Number of individuals
1994	71,2	3881	11027
1995	69,6	3783	10161
1996	77,4	3680	9095
1998	77,9	3704	9715
2000	77,1	4006	10986
2001	77,7	4528	12259
2002	82,3	4668	12635
2003	93,8	4718	12755
2004	98	4711	12882
2005	98,9	4572	12383
Mean	82	4225	11390

We consider the household to be poor if its disposable income is less than 50% of the median disposable per capita income of the households in our sample. Such approach is not free of shortcomings, but it allows as to analyse the poverty trends using consistent definition of poverty.

2.2. Decomposition approach

A popular class of poverty indexes which posses a number of useful properties and allow additive decomposition is FGT indexes (Foster, et al., 1984). In general form the index can be written as follows:

¹² Classification of income and expenditures changes among waves.

The main changes in accounting for income and expenditures include:

- until 2002 child subsidies for children younger than 1.5 years were not accounted separately.
- until 2001 information of housing subsidies was not collected.
- information for monetary value of transfers and subsidies is only available for 2005.
- until 1998 there is no information on overdue housing bills, expenditures on hospital treatment and dental care. Information on non-repaireable government help is also missing.

$$FGT = \frac{1}{N} \sum_{i=1}^n \frac{(Z - Y_i)^{\alpha}}{Z^{\alpha}}$$

there Y_i – personal income, N – sample size, n – number of individuals below poverty line, Z – poverty line.

When $\alpha=0$ – index represents the proportion of a population in poverty; $\alpha=1$ – is an estimate (in % from poverty line) of the average shortfall of individual income from the poverty line; $\alpha \geq 2$ – index gives higher weight to a large shortfall of individual income.

FGT index is a useful tool for building of a poverty profile. Let the population be divided into m mutually exclusive population subgroups forming poverty profile. The poverty profile is simply the list of poverty measures P_j for $j=1,2,\dots,m$. Aggregate poverty can be written as the population weighted mean of the sub-group poverty measures

$$P = \frac{1}{N} \sum_{j=1}^m n_j P_j,$$

where

$$P_j = \frac{1}{n_j} \sum_{i=1}^{n_j} p(Z_j, Y_{ij})$$

is the poverty measure for j 'th sub-group with population n_j , having income Y_{ij} for $i=1,2,\dots,n_j$ and the total population is $N=\sum n_j$. The $p(Z_j, Y_{ij})$ is the individual poverty measure, taking value zero for non-poor ($Y_{ij} < Z_j$) and some positive number for poor.

Subgroup decomposability also implies that an income improvement in one of the subgroups will necessary improve aggregate poverty if the incomes in other subgroups have not changed (Foster et al., 1984).

In the context of poverty research decomposition techniques allow to distinguish intra group effect arising due to the income differences between subgroups (e.g. males/females) from inter group effects arising due to the distribution of income within groups.

The growth-redistribution decomposition methodology was suggested by Datt and Ravallion (1992). According to the authors decomposition of the change in poverty between periods t_1 and t_2 ($P_2 - P_1$) accounting for the impact of income growth (difference in mean income), redistribution component (difference in relative income shares) and error term which depends on interdependence of growth and redistributive policies is given by the formula:

$$P_2 - P_1 = \underbrace{[P(\mu_{t_2}, \pi_{t_1}) - P(\mu_{t_1}, \pi_{t_1})]}_{C_1} + \underbrace{[P(\mu_{t_1}, \pi_{t_2}) - P(\mu_{t_1}, \pi_{t_1})]}_{C_2} + R, \text{ for } t_1,$$

$$P_2 - P_1 = \underbrace{[P(\mu_{t_2}, \pi_{t_2}) - P(\mu_{t_1}, \pi_{t_2})]}_{C_1} + \underbrace{[P(\mu_{t_2}, \pi_{t_2}) - P(\mu_{t_2}, \pi_{t_1})]}_{C_2} + R, \text{ for } t_2,$$

there $(P_2 - P_1)$ – difference in poverty between t_1 and t_2 , C_1 – growth impact, C_2 – contribution of re-distribution effect, R – indecomposable error term (residual), $P(\mu_{t_2}, \pi_{t_1})$ – FGT index of the first period when we multiply all incomes $Y_i^{t_1}$ of the first period by the ratio μ_{t_2} / μ_{t_1} . $P(\mu_{t_1}, \pi_{t_2})$ – FGT index of the second period we multiply all incomes $Y_i^{t_2}$ of the second period by the ratio μ_{t_1} / μ_{t_2} ¹³.

Using the Shapley values the exact FGT decomposition of the impact of growth and redistribution (free from error term) is given by the following formula:

$$P_2 - P_1 = \frac{1}{2} \left(\underbrace{[P(\mu_{t_2}, \pi_{t_1}) - P(\mu_{t_1}, \pi_{t_1})] + [P(\mu_{t_2}, \pi_{t_2}) - P(\mu_{t_1}, \pi_{t_2})]}_{C_1} \right) + \frac{1}{2} \left(\underbrace{[P(\mu_{t_1}, \pi_{t_2}) - P(\mu_{t_1}, \pi_{t_1})] + [P(\mu_{t_2}, \pi_{t_2}) - P(\mu_{t_2}, \pi_{t_1})]}_{C_2} \right).$$

The next task of the proposed exercise is to take into the account that individual income consists of J components such as: wage at the first and second place of work, transfers etc:

$Y_i = \mathbf{e} \sum_{j=1}^J Y_i^j$ and to identify impact of every components on overall poverty. One supposes with the Shapley approach that the contribution of component j towards reducing total poverty is the expected value of its marginal contribution when it is added randomly to anyone of the various subsets of components that one can choose from the set of all components.

The contribution of all factors yields an exact, additive decomposition of Y_i into J components. When a component is missing from that set, we assume that the observation values of that component are everywhere replaced by 0 (Duclos and Araar, 2003).

Decomposition approach developed by (Lerman and Yitzhaki, 1985), allows us to examine the impact of the different sources of income on inequality. Let's define overall household per capita income as y . Cumulative distribution function of the income – $F(y)$ takes values 0 for the poorest household and 1 for the richest. Let us also define average income as \bar{y} . The Gini coefficient can be decomposed in the following way:

$$G_y = 2 \text{cov} \left(\frac{y}{\bar{y}}, F(y) \right) = \mathbf{e} \sum_i S_i R_i G_i,$$

¹³ Here we denote μ_{t_1} mean income for the period t_1 , μ_{t_2} – mean income for the period t_2 , π_{t_1} – ratio μ_{t_2} / μ_{t_1} , π_{t_2} – ratio μ_{t_1} / μ_{t_2} .

where G_y denotes the Gini coefficient of total income, G_i is the Gini index of the income component i , S_i is a component i 's share of total income. Finally, R_i is the ‘‘Gini correlation’’ between income component i and total income.

The Gini correlation is defined as $R_i = \frac{\text{cov}(y_i, F(y))}{S_i \text{cov}(y, F(y))}$, where $F(y_i)$ is a function of cumulative distribution of income component i . The Gini correlation R_i ranges between -1 and +1. Income from sources such as income from capital that tend to be strongly and positively correlated with total income and thus would exhibit strong and positive Gini correlation. Income from benefits and transfers tend to have smaller and possibly negative Gini correlation. The overall (absolute) contribution of income component i in total income inequality is given by $S_i R_i G_i$.

A key rationale for studying decomposition by source is to learn how changes in particular income source will affect overall income inequality. This decomposition provides a simple way to assess the impact on the inequality in total income of a marginal percentage change equal for all households in the income from a particular source. Yitzhaki (1986) showed that the impact for all households of the increase in income source i can be derived by multiplying y_i by $(1 + e_i)$, where e_i approaches to zero, so that

$$\frac{\partial G_y}{\partial e_i} = S_i (R_i G_i - G_y).$$

This equation can be rewritten to show that the percentage change in inequality due to a marginal percentage change in the income from source i is equal to that source's contribution to the Gini minus its contribution to the total income. In other words, at the margin, what matters for evaluating the redistributive impact of income sources is not their Gini, but rather the product $R_i G_i$, which is called the pseudo Gini. Alternatively, denoting by $\eta_i = R_i G_i / G_y$ the so called Gini income elasticity (GIE) for source i , the marginal impact for households on the Gini for total income in percentage term is

$$\frac{\partial G_y / \partial e_i}{G_y} = \frac{S_i R_i G_i}{G_y} - S_i = S_i (\eta_i - 1).$$

Thus a percentage increase in the income from a source with a GIE η_i smaller (larger) than one will decrease (increase) the inequality in per capita income. The lower the GIE, the larger the redistributive impact. The GIE of income source i can be written as:

$$\eta_i = \frac{\text{cov}(x_i, F(y))}{\text{cov}(y, F(y))} \frac{1}{S_i},$$

where x_i is income source i per capita, y – is income per capita, and S_i is the share of source i in income.

Next decomposition presents an algebraic decomposition of the Gini index, an approach that will be used later for evaluating the impact of policy instruments on the Gini index and its components.

Assume that society is divided into two administrative groups:

- the poor, whose income is $y \leq Z$ (Z is the poverty line)
- the rich, whose income is $y > Z$.

The Gini coefficient of income y , G_{yo} is composed of:

$$G_{yo} = P_p S_{yp} G_{yp} + P_r S_{yr} G_{yr} + G^b,$$

where G_{yi} denotes the Gini coefficient of income, y , and $i = (o - \text{overall}; p - \text{poor}; r - \text{rich})$, P_i is the share of the group in the population; $S_{yi} = P_i \bar{y}_i / \bar{y}_o$ is group i 's share in total income, y , and \bar{y}_o denote mean income. G^b is between-groups inequality.

Note that $S_{yr} = 1 - S_{yp}$ and $P_r = 1 - P_p$. (To simplify the notation - the index y is omitted unless it is necessary to avoid confusion). Also $G^b = P_p - S_{yp}$, this means that between-groups inequality is equal to the share of the poor in the population minus their share in income. G^b is an increasing (decreasing) function of the poverty line, depending on whether $Z < (>) \bar{y}_o$. Hence, for all practical purposes G^p is an increasing function of the poverty line. This result should be treated with caution because an increase of inequality among the poor and an increase in between-groups inequality may simply be the result of (unintentionally) raising the poverty line.

Finally, the impact of a policy measure on inequality is a function of its effect on each component, weighted by the component's share in income inequality.

We define the share of each component in inequality as:

$$w_p = \frac{P_p S_{yp} G_{yp}}{G_o}, \quad w_r = \frac{P_r S_{yr} G_{yr}}{G_o}, \quad w^b = \frac{G^b}{G_o},$$

where w_i is the share of this component in the Gini coefficient. From equations it clearly follows that $w_p + w_r + w^b = 1$.

According to Yitzhaki (2002) having decomposed the numerator, the decomposition of the overall income elasticity is straightforward. Using the definition of income elasticity mentioned above we get:

$$\eta_o = \frac{w_p S_p}{S_o} \eta_p + \frac{w_r S_r}{S_o} \eta_r + w^b \eta^b .$$

This equation presents the overall Gini income elasticity as a weighted sum of intra- and inter-group elasticities. Note that each income elasticity has the same implication on the appropriate Gini inequality component as the overall elasticity: for example, if $\eta_p > 1$, then an increase in the i source of income increased Gini inequality among the poor.

3. Decomposition of the dynamics and structure of Russian poverty

3.1. Poverty profiles: FGT decomposition

Our results based on the RLMS dataset are somewhat different from the results reported earlier (figure 2). This could be explained by the fact that the poverty line used in the analysis includes less poor individuals comparing to the poverty line which is based on the subsistence equivalent. Moreover, our income definition is wider comparing to the official one and is consistent over time.

Relative poverty line rises in the beginning of the investigation period and reaches the pick in 1996-1998. After 1998 the poverty level starts to decline at an increasing rate. The proportion of poor individuals went up from 17.9% in 1994 to 20.1% in 1998, when it declined to 15.4% in the year 2005. Income deficit reached its pick in 1996 and 2001 and went down to 1.8% in 2004.

The effectiveness of the government social policy could be viewed by its success to help the groups with high poverty risk to escape poverty or to reduce its incidence and severity. The development of poverty trends often vary among subgroups. The impact on aggregate poverty of each subgroup depends on its size as well as incidence and deepness of poverty in each subgroup.

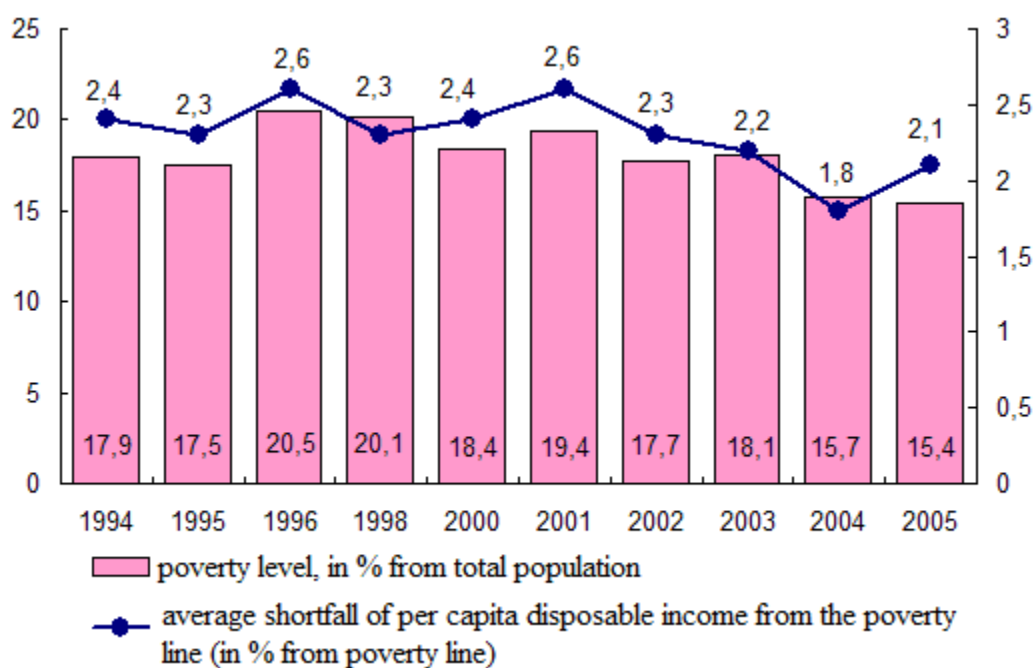


Figure 3. Estimates of the level and extend of poverty, RLMS data (the poverty line – 50 % median disposable per capita income)

The poverty profile in Russia varies depending on the residence area (figure 4). During the period under investigation the highest levels of poverty were found in the rural area. Even accounting for income in kind the level of poverty in rural areas was three times higher comparing to regional centres.

The level of poverty in rural area went up from 0.317 in 1994 to 0.345 in 1996 and picked in 2001 reaching 0.362. After the year 2001 poverty levels in rural area started to decline reaching the level of 0.281.

The share of rural population went down in the middle of 1990th and then bounce back to 0,265 in 2005.

As a result the rural poverty had a large impact on the aggregate poverty. During the period under investigation the relative contribution of rural poverty to the aggregate poverty went up from 0.421 to 0.484.

The poverty level in the urban-type settlement (*posyolok gorodskogo tipa*) exhibited a varying trend. However, due to the small proportion of individuals living in such areas the contribution on aggregate poverty remained small.

The poverty level in towns remained consistently higher than in cities with the exception of the year 2001. The absolute contribution of urban poverty to aggregate poverty reached its peak in the year 1996 and remained persistently high until 2001 when it dropped sharply. Initial increase in the impact of urban poverty on aggregate poverty may be explained by the prevalence of wage arrears in the middle of 1990th.

The relative contribution of cities to aggregate poverty went down from 0.258 in 1994 to 0.198 in 2005, while the contribution of towns decreased only slightly from 0.252 to 0.246.

The urban-rural poverty gap remained stable during the whole period. However diverging social-demographic trends led to the increase in the gap in the contribution to poverty between rural and urban areas. The gap was smallest in 1996 and increased dramatically afterwards.

The analysis of the FGT index for $\alpha=1$ и $\alpha=2$ showed that the relative contribution of income deficit in rural areas and urban-type settlements did not change much, but the values were higher comparing to results found for $\alpha=0$, at the same time results for urban areas indicate opposite relationship. This indicates that poverty in rural areas was deeper and more severe. Since 2004, in cities the share of poor declined, but the deepness and severity of poverty increased. This phenomenon can be explained by the growth of income of individuals who were just below the poverty line, while marginalized groups remained unaffected.

To a large extent the gap between rural and urban areas in poverty profiles may be explained by socio-demographic structure. Thus, it is warranted to present decomposition according to the socio-demographic type of the household.

The following decomposition is conducted by the type of households. The statistical analysis of different type of households supports a stylized fact that the most poor are the single parent households, the poverty level in that group increased from 22.1% to 27.3% in 2005. The share of these households though is relatively small and remained stable – about 4.5% of total number of households. The second poorest group is married couples with children, and the households with several generations of relatives. The poverty in this group has been decreasing during the period of investigation, but the share of households with two children was decreasing, while the share of “multigenerational” households was increasing.

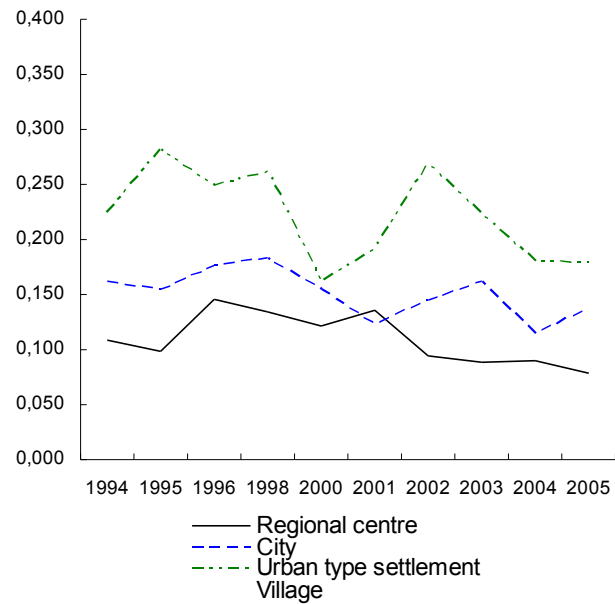
There are several explanations for the observed phenomena. Despite the growth in nominal incomes, the living standards of Russian households remain relatively low. One of the consequences of low living standard is the fact that young families are often reside with their parents due to lack of funds for purchasing or renting their own housing. In the presence of two able-bodied

couples in a household, even the presence of children is unlikely to decrease the per capita incomes below the poverty level. In other cases, a retired female member of household often takes care of children while the mother can continue to work.¹⁴

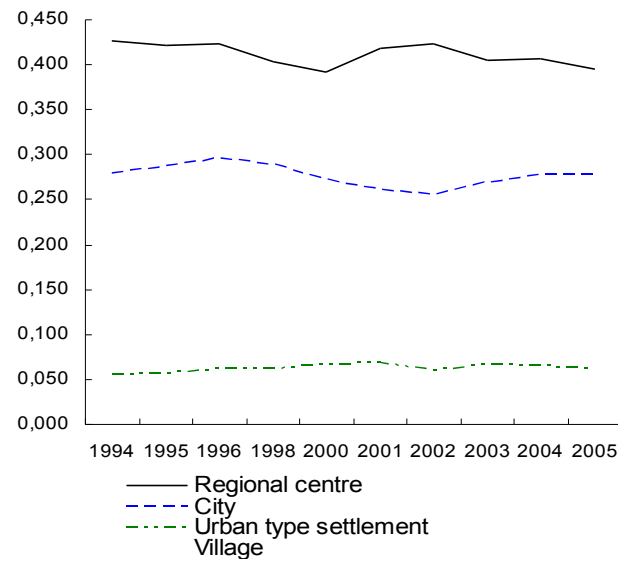
Moreover, in the period from 1996 to 1998, characterized by the presence of wage areas and high unemployment, pensioners were often the main source of income in the multigenerational households. This observation is indirectly supported by the fact that during the 1998 financial crisis, the contribution to poverty and its extent decreased in multigenerational households but increased for the couples with children. After 1998, the contribution to poverty of the couples with children decreased while the contribution of other types of households remained relatively constant. From our perspective, these facts indicate that the diversification of resources allows multigenerational households optimize consumption and decrease the risk and extent of poverty. Single-member households, and couples without children were less prone to poverty. The level of poverty in these households is up to four times lower than in other groups, while their share remained relatively stable.

Our results confirm the findings of (Ovcharova and Popova, 2005) on the fact that child poverty is acute problem of the Russian society. Limited progress achieved in this sphere may rather be attributed to the decreasing fertility rate rather than success of the government policy. Sustainable fertility rate is a cornerstone of the long-term economic development. The situation when households postpone childbearing due to the financial issues will result in the labour deficit in the nearest future. We do not claim that the decrease in fertility can be fully explained by the listed factors, but the fact that these factors are important is undisputable.

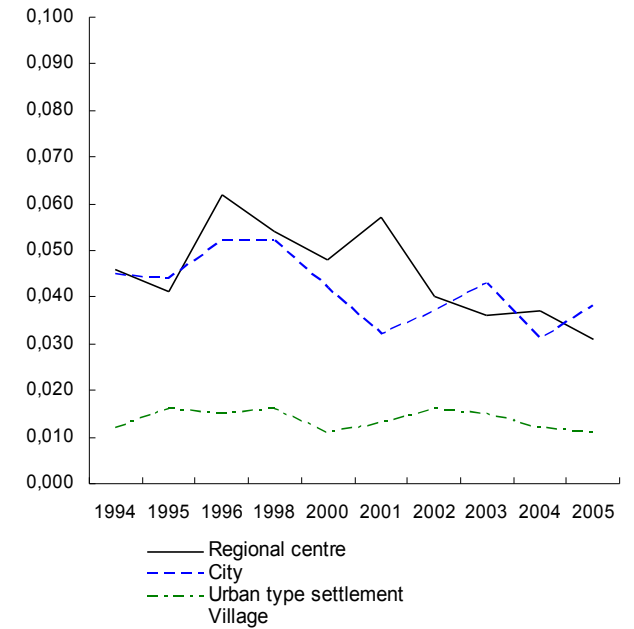
¹⁴ It is important to note the retirement age for women in Russia is 55.



a)



b)



c)

Figure 4. Decomposition according to the area of residence

a) index FGT ($\alpha=0$), b) proportion of individuals, c) absolute contribution to poverty ($\alpha=0$)

During the period under investigation we observe a substantial increase in the number of households without children and households with one child. The share of households with two children has exhibited a significant decrease while the proportion of the households with three and more children has decrease only marginally.

The poverty index clearly indicates an increase in poverty with an increase in the number of children in household (see Figure 6). Moreover, the economic downturn is closely correlated with the increase in poverty of households with two or more children. Only in 2005, the poverty in this group decreased while the poverty in other groups remained at the level of 1994.

The level of poverty for the household with one child went up from 16.3% in 1994 to 20.7% in the year 2000. Between the year 2000 and 2005 we observe the decrease in poverty rate to 13.8%. At the same time the share of households with one child increased from 31.3% to 34.8%. It is also interesting to note that the contribution to aggregate poverty of the households with one child was smaller when that of households with two children from 1994 to 1999. However, after 1999 the contribution to aggregate poverty of the households with one child started to increase and exceeded the contribution of the households with two children.

The share of poor rose among households with two children during the economic crisis of 1998 and went back to the level of 24.3% in 2005. The level of poverty for the households with three or more children increased from 36.2% to 48% in the period 1994-2001 and then declined to 28.5% in 2005.

In the period prior to 1998 the largest contribution in aggregate poverty had households with two children. However, as the number of such household declined, the contribution to aggregate poverty of household with one child and childless household increased. The impact of single parent household on aggregate poverty is the smallest. Their contribution declined from 7.2% in 1994 to 5.1% in 2005.

Deepness and severity of poverty developed similar to the level of poverty in all groups. However, for households with two and more children the relative impact on aggregate poverty is higher when $\alpha=1$ и $\alpha=2$ in the FGT index, comparing to the case when $\alpha=0$.

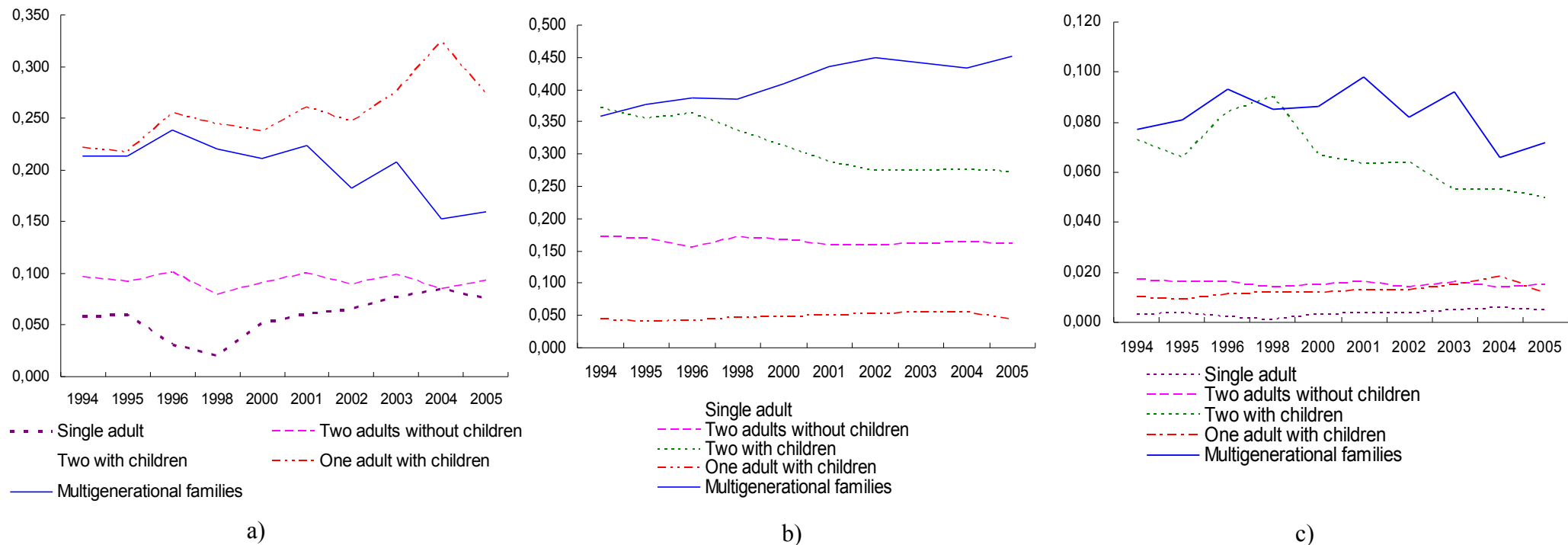


Figure 5. Decomposition according to the household type

a) index FGT ($\alpha=0$), b) proportion of individuals, c) absolute contribution to poverty ($\alpha=0$)

Do we observe an effect of the government social policy on the poverty levels of households with children?

When we examined Russian macroeconomic trends we pointed out relatively small level of child and maternity transfers during the period of investigation. Nevertheless, on the aggregate level, these transfers could still affect the poverty trends of households with children. According to official statistics, the real growth of child and maternity transfers amounted to 4.8% in 2000, 7.4% in 2001, 9.5% in 2002, -7.5% in 2003, and -11.2% in 2004.¹⁵

This trend does not correlate with the poverty levels of households with children, indicating the lack of effect of these transfers on poverty levels of targeted groups.

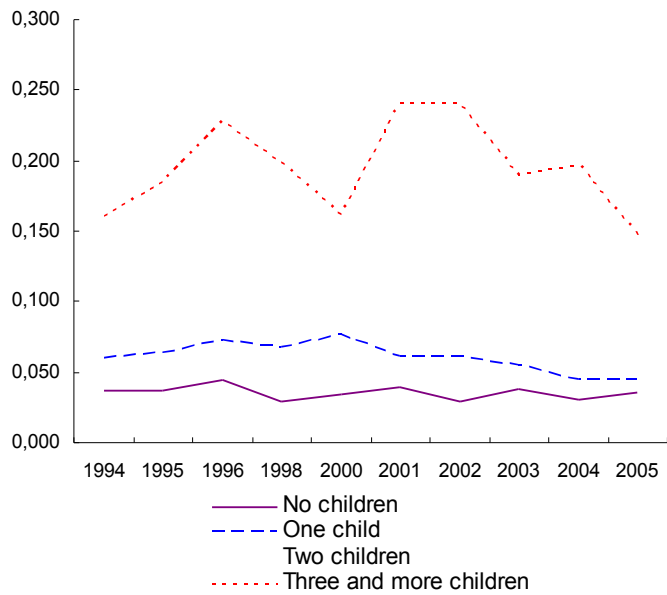
The primary reason for the child poverty lays in the fact that after the birth of the child mother interrupt work for several years or goes into part-time employment. Households with one employed member had a high risk of being poor. In 1994 their share was 0.216, it increased to 0.237 in 1996 than declined again to the level of 1994 and stabilised at the level 0.224 in 2005.

The lowest incidences of poverty are among households with three members employed, it is somewhat higher in households with two working members. However both groups exhibited declining risk of poverty after 1998. Before 2001 the risk of poverty for households consisting of non-employed members was smaller than that of households with one working member. By the end of the study period the poverty risk was the same for both groups.

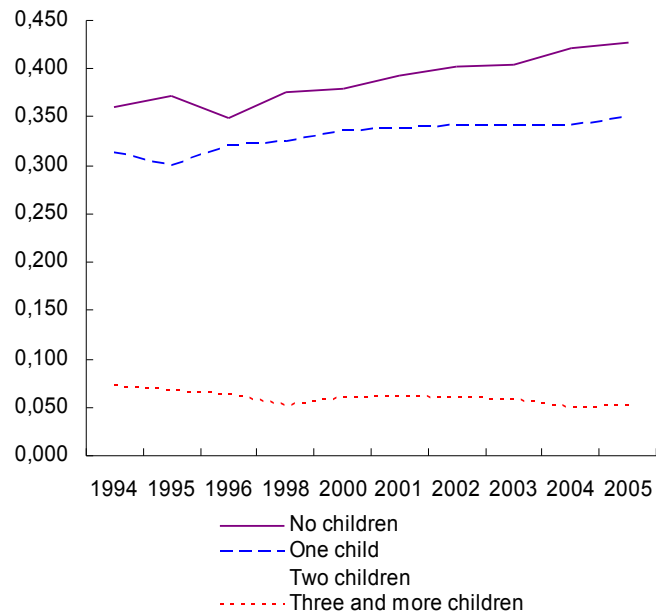
The later finding can be explained by the fact that households where all members are non-employed are usually pensioners' households, while households with one employed member predominantly consist of employed male, housewife and small children. During the 1990s, the pension benefits provided low but stable standards of living allowing pensioners to be better off than households with one employed member. Starting from 2000 the rate of wage growth exceeded that of pensions. Households with one employed member are no longer poorer than households where all members are non-employed. From the graph we observe that the poverty level falls with the number of working members in the household.

We observe the spike in poverty level, its depth and severity among households with employed members during the years 1996 – 1998. These were the years of high wage arrears and financial crisis.

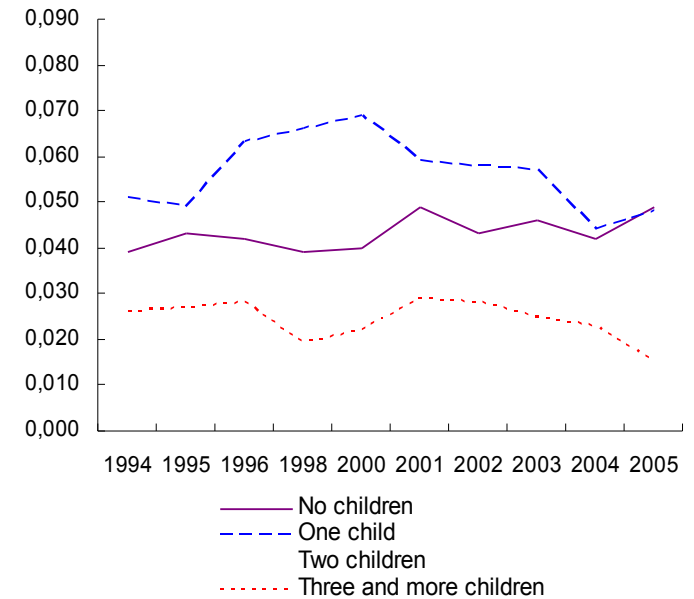
¹⁵ "Social'noe polozhenie i uroven' zhizni naselenija Rossiju", Rosstat, 2005..



a)

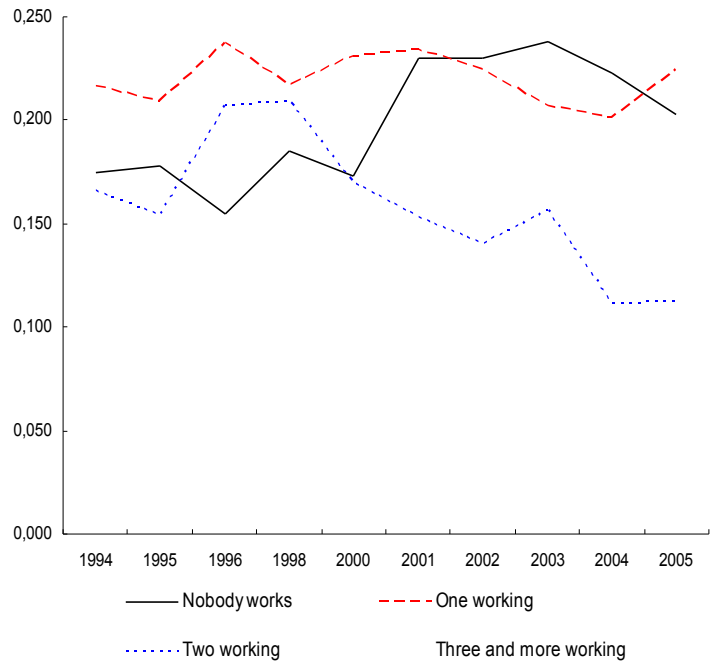


b)

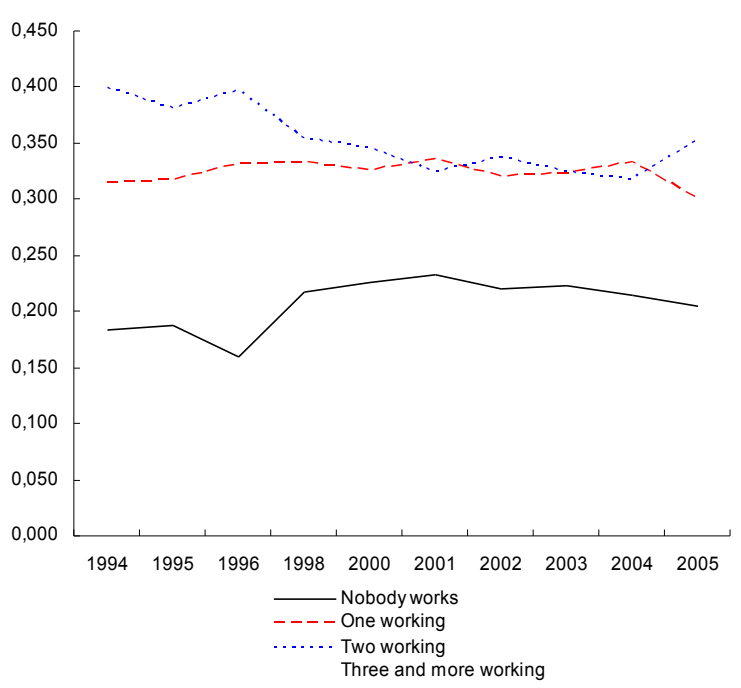


c)

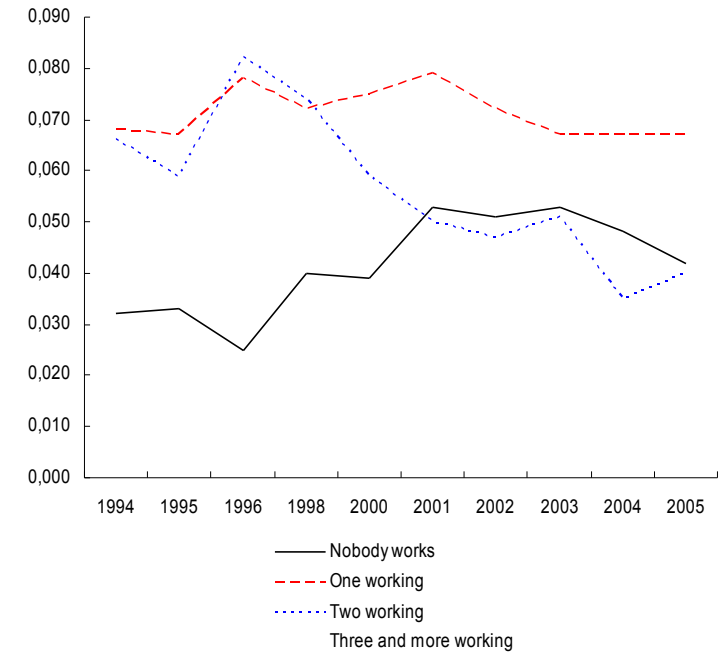
Figure 6. Decomposition according to the number of children in the household
 a) index FGT ($\alpha=0$), b) proportion of individuals, c) absolute contribution to poverty ($\alpha=0$)



a)

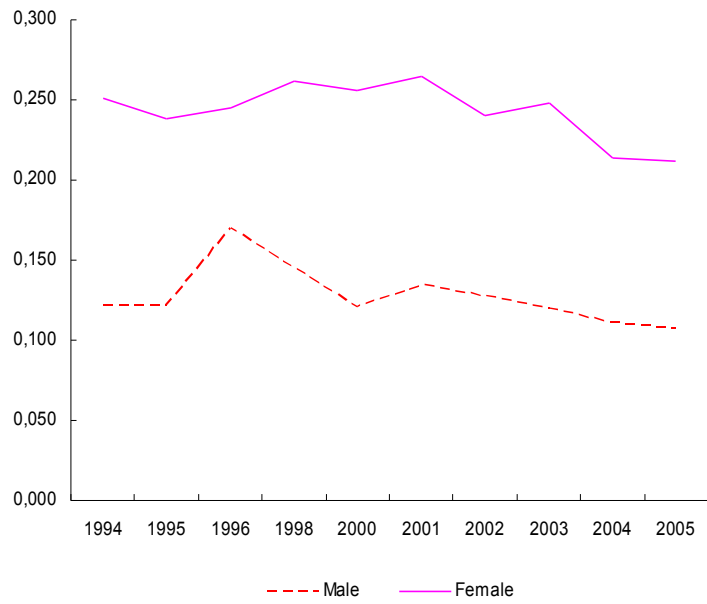


b)

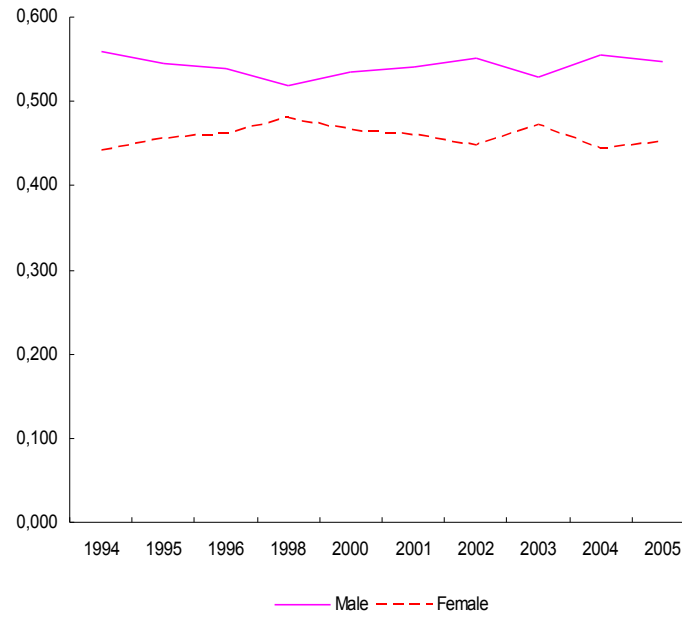


c)

Figure 7. Decomposition according to the number of working members
 a) index FGT ($\alpha=0$), b) proportion of individuals, c) absolute contribution to poverty ($\alpha=0$)



a)



b)



c)

Figure 8. Decomposition according to gender of household head
 a) index FGT ($\alpha=0$), b) proportion of individuals, c) absolute contribution to poverty ($\alpha=0$)

During the period under investigation we observe a slow increase in families with more than three employed members. However the share of households with one employed member is much larger and more stable. It is also interesting to compare households, where all members are non-employed to households where two members are employed. The increase in the number of households with two working members was absolutely symmetrical to the decline in the number of households where all members are non-employed. Pension arrears and declining living standard made pensioners to look for a job. After the 2000 we observe parallel trends in the proportions of these households and strong divergence in the year 2005.

The households with one employed member have the highest contribution to the aggregate poverty. Commonly these are the households consisting of the relatively young individuals with children. However the depth and severity of poverty in this group is close to the other groups. Households with two employed members also have a high contribution to the aggregate poverty. The impact of this group tends to diminish over time. Moreover the depth and severity of poverty tend to decrease faster among households with two employed members. The smallest contribution to the aggregate poverty had households with more than three employed members. Finally, households where none of the members are employed tend to increase their impact on poverty. The depth and severity of poverty in this group tend to increase faster comparing to the number of poor.

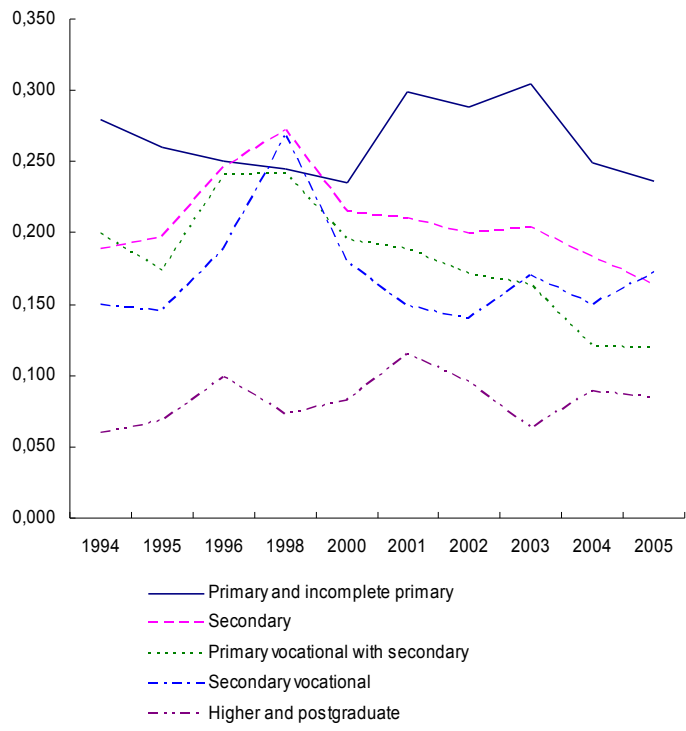
How did poverty changes depend on the characteristics of the household head? The level of poverty for households where the household head is a female is substantially higher than of households headed by a male.

The raise in poverty among households headed by males in 1995-1996 can be explained by the fact that males were predominantly employed in industries which underwent substantial restructuring. It should be noted that starting from the year 2001 we observe a decline in the poverty levels of households headed by males. At the same time poverty among female headed households remained rather stable.

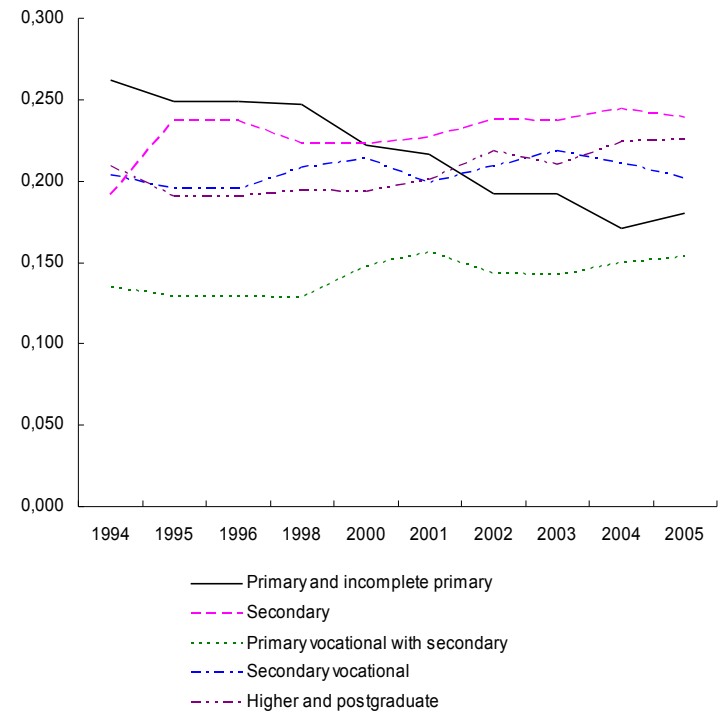
The trends in the change of the FGT index if $\alpha = 1$ и $\alpha = 2$ are close to results presented at the Figure 8.

How did the level of human capital influence the level of poverty in the period under investigation? Our results indicate that the level of poverty goes down with the increase in education of the household head. The risk of falling into poverty for households with different education level varied under the period of investigation (Fig. 9).

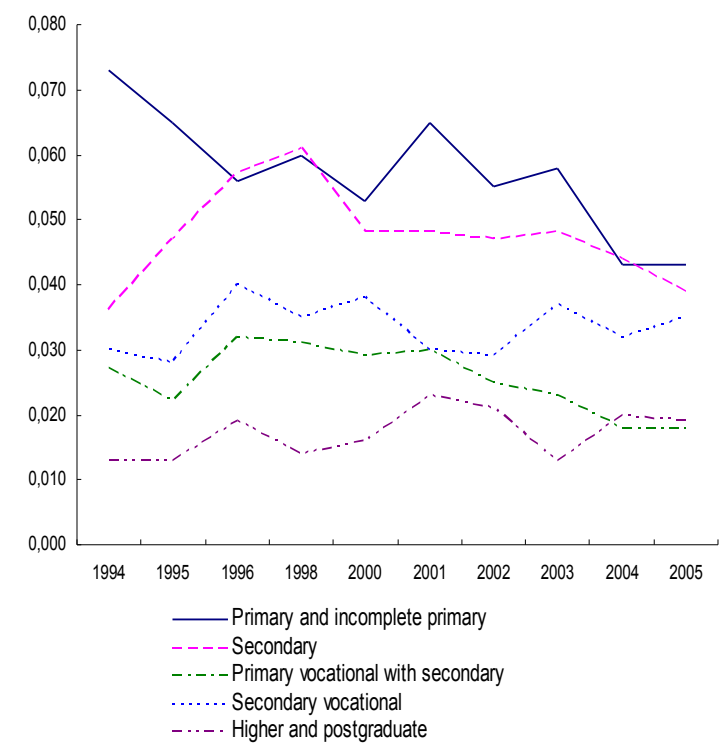
The number of household heads with post secondary education went up from 20.9% in 1994 to 22.6% in 2005 at the same time the level of poverty for this group went up from 6% in 1994 to 8.4% in 2005. We observe an increase in poverty in 1996 and its peake in 2001 when the poverty rate reached 11.5%.



a)

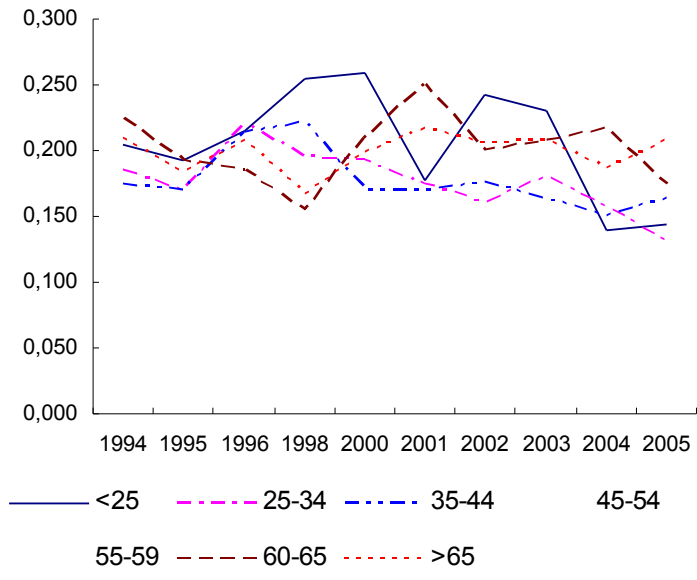


b)

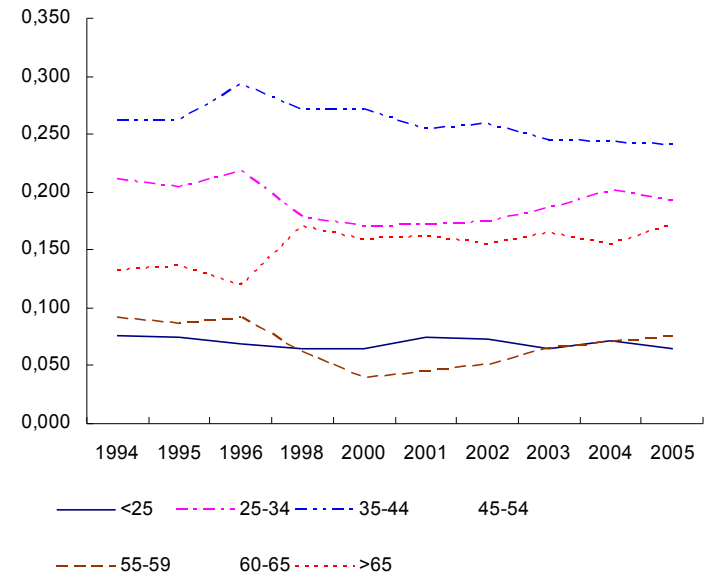


c)

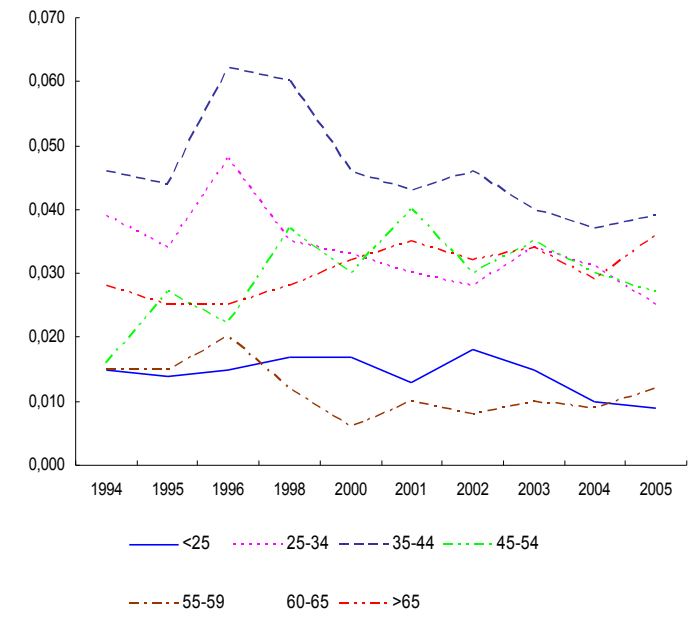
Figure 9. Decomposition according to education of household head
 a) index FGT ($\alpha=0$), b) proportion of individuals, c) absolute contribution to poverty ($\alpha=0$)



a)



b)



c)

Figure 10. Decomposition according to age of household head
 a) index FGT ($\alpha=0$), b) proportion of individuals, c) absolute contribution to poverty ($\alpha=0$)

The share of households, where the head had a professional secondary degree remained unchanged during the period under investigation. The level of poverty for this group also remained stable. The level of poverty went up to 18.9% in 1996 - 2000 and decreased hereafter. By the end of our observation period it was still higher comparing to 1994.

The poverty peake for the households where the head had a secondary degree was also in 1996 – 1998. However, by the end of our study period the level of poverty for this group declined from 18.9% in 1994 to 16.4% in 2005.

Households with the head who had primary professional or high school education had the most pronounced decrease in poverty rate. The level of poverty for this group went down from 19.9% to 11.9% during the period under investigation. The number of such households had somewhat increased.

Households with heads with primary or professional secondary education contribute to aggregate poverty equally. Yet there exists some important differences. The poverty rate is higher for household there the head has primary professional education. However the share of these households is smaller. Starting from 2002 the impact on aggregate poverty is higher among individuals with general secondary education, due to the poverty increase among these households.

The highest impact on poverty is from households where the household head education does not exceed primary school. Their impact on the aggregate poverty had decreased over the period under investigation, but still remained high. The reduction of impact on aggregate poverty was achieved due to reduction in the share of such households from 26.2% to 18% as well as poverty reduction from 28% to 23.6%.

It is also evident from our analysis that the gap in the contribution to aggregate poverty of different educational type households had decreased over time.

In 1994 the lowest poverty rate was among households headed by the individual aged 45 – 59. Similar, but somewhat higher rates were among households headed by 25 – 44 year olds. The poorest households were headed by the pensioners.

The impact on aggregate poverty of these groups of the households depends crucially on the changes in the demographic structure over time.

The share of household heads younger than 25 had a small decrease. However, the poverty rate among this group is persistently high. As a result the impact of this group on the aggregate poverty remained stable and went down only by the end of the period under investigation.

The share of households headed by the 25 – 49 year olds was decreasing throughout the analysing period and the share of households headed by the 25 – 59 year olds increased. Starting from 1996 to 1998 we observe poverty increase in the households headed by the able-bodied individuals, especially those that are young. Poverty rate among pensioners went down.

Since the year 2000 we observe decrease in the poverty level among households with young heads and increase in poverty among households with older heads.

The contribution to poverty of the households with the able-bodied heads went up during 1996 – 1998. A striking feature of this period is that the contribution of the former group of the households exceeds that of households headed by the pensioners.

The results of our analysis indicate that the relative impact of the FGT index for $\alpha=1$ and $\alpha=2$ is higher than for $\alpha=0$ for households headed by the individuals younger than 45 and older than 65. The poverty is less severe for households with the heads aged 45 – 59. After the 1996 the impact of poverty was less pronounced for the households with heads aged 60 – 65.

3.2. FGT decomposition of the growth and redistribution effects

According to the (Ravallion, Datt 1992) the change in poverty between two periods can be presented as the sum of two components, growth and redistribution between two periods t_1 and t_2 .

The growth component captures the change in the average level of income under the assumption that the redistribution did not change between two periods. The redistribution component captures the effect of the change in the redistribution between two periods, conditioned on the fact that the average income remained unchanged. Finally, the error term captures the interrelation between two components.

For the purpose of our analysis we are interested in the effect of redistribution, thus we use FGT for $\alpha=2$. However, for illustrative purposes we present in Table 1 (appendix 2) the contribution of growth and redistribution using all three components. It is clear from Table 1 that the growth component is always negative. This indicates that growth decreased relative poverty. Moreover, the absolute impact of growth rises over time¹⁶.

The analysis of the redistribution effect indicates that during the periods 1995-1996, 2000-2001 and 2002-2003 the process of redistribution led to the increase in poverty.

It should be noted however that the impact of the growth effect greatly exceeds that of redistribution effect. Thus, redistribution processes had smaller role in poverty alleviation.

The error term which captures the interrelation between growth and redistribution was negative only for the period 1996 – 2002.

The estimation using Shapley method did not influence our results with the exception that we find negative impact of redistribution on poverty during 1994-1995.

3.3. The dynamics of the household disposable per capita income

¹⁶ It should be noted that the growth effect captures the change in the nominal income which was especially high due to the inflation in the beginning of the 1990s.

Before presenting the results of the poverty decomposition according to the sources of income we review the relative contribution of different sources of income into the overall disposable income of the household. Wage is the main source of income for both poor and non-poor households. However, the share and dynamics of wage differ in two groups (table 4, appendix 3).

Among poor households the share of wage in the household disposable income was equal to 0.47 in 1995 then the share went up to 0.6 in 1996 and decreased again to 0.5 in 2000 reaching 0.54 in 2004.

Among non-poor households the share of wage in the household disposable income was 0.59 in 1994 and decreased to 0.52 in 1998 and went up to 0.64 in 2005.

The pick of wage arrears in 1996 increased poverty among employed households. As a result the share of wage in the disposable income reached its maximum and the share of pensions went down from 0.34 in 1994 to 0.22 in 1996. The subsequent growth of pensions raised its share in the disposable income to 0.32.

The share of pensions in the disposable income of non-poor households went gradually down from 0.16 in 1994 to 0.13 in 2004.

The share of other income components did not exceed 0.1 among poor households and 0.2 among non-poor households. Nevertheless, at different points in time these components played an important role.

For example in 1998 the share of income for poor households that originates from interest payments, insurance premiums, loans, etc. grew from 0.05 to 0.07 of the household disposable income and decreased hereafter to 0.02 in 2005. At the same time for non-poor households this share was equal to 0.13 in 1994 and decreased to 0.08 in 2002, rising again to its initial value in 2004.

The share of income from leasing or selling the property is negligibly small for poor households and is more important for non-poor households. At the time of financial crisis the share of income from property leasing in the overall disposable income went up from 0.03 in 1994 to 0.1 in 1998. During the period 2000 – 2001 it went down again to 0.03 and increased to 0.06 in 2003 – 2004. Finally by the end of our observation period the share was equal to 0.01.

The income from subsidiary agriculture have similar dynamics to income from property leasing but more important for non-poor households. The highest share of income from the subsidiary agriculture in the total disposable household income was in 2000 – 2001 amounting to 0.03 for poor and 0.07 for non-poor households.

Government benefits and subsidies account for a very small share of households' disposable income. However the share is higher for poor households. The relative important of benefits remained stable for non-poor households and varied over time for poor households.

The share of child benefits in the disposable income of non-poor households decreased from 0.009 in 1998 to 0.004 in 2005. The share of child benefits in the household's disposable income of poor households went down from 0.06 in 1994 to 0.03 in 1998 and further decreased to 0.02 in 2005.

The share of unemployment benefits and heating subsidies in the household disposable income grew from 0.006 in 1994 to 0.041 in 2005 for poor households and from 0.004 to 0.022 for non-poor households.

The other forms of assistance includes: interfamily transfers, charity, and starting from 2000 government benefits and subsidies excluding pensions and child benefits. For poor households the share of other income sources in the household disposable income increased in the period 1994 – 2000 from 0.023 to 0.043 and decreased to 0.032 in 2005. For non-poor households the share of this component was 0.044 in 1994 and decreased by 2005 to 0.035.

The share of alimony and stipends was negligible for both groups of households.

According to our results wage and pensions had the largest shares in the household disposable income. However, for poor households we observe that pensions have higher share in household disposable income comparing to non-poor households.

The other forms of income play a smaller role in the household's disposable income. More important, we do not find differences in distribution of the other forms of income between poor and non-poor households.

3.4. Decomposition of the FGT index by income sources

The objective of this decomposition is to define the contribution of the J components of

income, $Y_i = \mathbf{e} \sum_{j=1}^J Y_i^j$ such as: wage from primary and secondary employment, transfers, etc. to the overall poverty.

Among Russian's poor there are a number of households with members who are employed. This is a peculiar feature of the Russian poverty. Decomposition by income sources confirms the later finding, by showing that the impact of wage on the poverty is the strongest. Marginal contribution of wage to the poverty alleviation, given that the other income sources are held constant, is over 50% and tends to increase over time with the exception of 1998.

A simple interpretation of the results of the table 3 (appendix 2) and table 1 (appendix 3) for a case of two income sources and our poverty definition is that by eliminating the wage from the income would make half of the population poor.

The processes during the period of mass wage arrears and economic crisis of 1998 confirm our findings. During these periods a number of working individuals became poor, thus the import-

ance of the wage component had increased. Overall, eliminating the wage from the income sources would make smaller share of households poor. Marginal contribution of wage if $\alpha=1$ and $\alpha=2$ is lower than for $\alpha=0$.

The contribution of pensions is not that high, up to 26%, and tends to decrease. During the economic crisis of 1998 the role of this income component somewhat increased to 29.8%. Marginal contribution of pensions if $\alpha=1$ and $\alpha=2$ is higher, than if $\alpha=0$.

Thus, the poverty which is driven by the pensions is more severe than that of the wage.

The aggregated share of the rest of the income sources is small, 16.7% in 1994 and 11.8% in 2005. The most important category among this group is “other income” which tends to decrease from 5.8% in 1994 to 3.3% in 2005. The contribution of the child benefits did not exceed 1.1% and its role declined over time reaching 0.4% in 2005. We could not identify a trend in the contribution of the income from the subsistence agriculture.

Concerning the poverty deepness, our results are not surprising, wage is found to cause least deficit, other income components and especially transfers have a higher impact.

Similar results are found for poverty severity. However it should be mentioned that the contribution of child benefits to the poverty deepness and severity is the highest in 1994 – 1996. The deepness and severity of poverty had sharply increased in 2004 – 2005 with respect to other types of benefits.

3.5. Yitzhaki inequality decomposition according to the sources of income between poor and non-poor groups

The decomposition of the Gini coefficient for the household disposable income is presented in Table 2 (appendix 3). The poverty line, as before, is defined as 50% of the household median per capita income. The first row of Table 2 presents a share of poor and non-poor individuals. Next row presents average per capita disposable income in each group. The average disposable income for the non-poor group was 5 - 6 times higher than that of the poor group. The largest gap was reached in 1998 and then it declined until the year 2002. After 2002 we observe small increase in the gap between poor and non-poor groups which was followed by a decline in the gap. The smallest difference in the disposable income of poor and non-poor groups was observed in 2005.

The third row of the Table 2 (appendix 3) presents the values of the Gini coefficients. The Gini coefficient values are high and have several peaks. The initial value of the Gini coefficient was 0.47 in 1994 and increased to 0.51 in 1998. Between 1998 and 2001 the values are decreasing reaching 0.46. Finally the Gini index goes up to 0.47 in 2003 and decreases to 0.42 in 2005. However if we separate the Gini coefficient for poor and non-poor groups it becomes clear that the

observed pattern of the Gini coefficients over time is only true for non-poor households. The variation for poor is much smaller. Moreover, inequality among poor had decreased from 0.23 to 0.21 while for non-poor it went down from 0.47 to 0.42. During the economic crisis of 1998 the inequality among the non-poor households had increased while among poor households it had decreased. Intra group inequality decreased from 0.17 to 0.12.

As we noted before (see. page 13) the impact of a policy measure on inequality is a function of its effect on each component, weighted by the component's share in income inequality. We define the share of each component in the Gini coefficient as w_p for poor, w_r for non poor, w^b between groups and show that $w_p + w_r + w^b = 1$. It is important to note that the contribution to the inequality of the poor group did not exceed 0.4% which means that their impact on the overall inequality is negligible. The later does not however imply that the poverty did not influence inequality. The influence of poverty materialised mainly through between groups inequality which varied from 26% to 34% over time.

The general trend of contribution to the inequality shows that the contribution of non-poor households declined from 1995 to 2001 and again increased until 2004. The contribution of poor households to inequality reached its peake in 1996 and 2001 and sharply declined during other periods. The trend in the contribution of intra group inequality to the overall inequality is similar to that of poor households and opposite to that of non-poor households.

Based on our knowledge of the contribution of every component of income to inequality we can analyse the effectiveness of the government policy based on every component of inequality. The parameter that captures that effect is elasticity of the Gini coefficient by income. To understand this concept an example may be helpful. Suppose the government increases the price of some consumer good by some percentage points. How does the price increase influence the Gini coefficient (and the overall level of the wellbeing)? If the income Gini elasticity is equal (greater or less than) one, than the price increase will not influence (increase, decrease) inequality. This example is typically used to explain the income elasticity with the respect of consumer goods, but it is also suitable for explaining the Gini income elasticity. The decomposition of income elasticity in poor and non-poor group as well as between these groups would allow us to see the effect of the price increase and subsidies on inequality between poor, non-poor and between these groups.

Table 3 (appendix 3) presents decomposition of the Gini income elasticity by the sources of income from 1994 to 2005.

The first column shows Gini elasticity by wage. In both groups the Gini elasticity by wage is close to one. However among poor group it is slightly below one and in the non poor group it is slightly above one. This implies that a small increase in wage would marginally decrease inequality

among poor and marginally increase among non-poor households. Intra-group elasticity is also close to one.

In the previous analysis we found pensions to be a factor that decreased inequality among households. However inequality decomposition by the sources of income shows that over the whole period under investigation the pension growth lead to the increase in inequality among poor households and the decrease inequality among non-poor households. The latter results can be explained by the fact that pensioners income lies often around the poverty line. In the poor group pensioners are among better off households and in the non-poor group they are closer to the poor group.

Increase in the child benefits decreases inequality in both groups. Intra-group inequality indicates that the increase in the child benefits decreases the gap between rich and poor. Moreover this process had fastened after 2000. Our results indicate that child benefits are distributed among households whose income is around poverty line.

An increase in the unemployment benefits and heating subsidies decreased inequality among poor and non-poor groups of households. These types of benefits led to the increased inequality in 1995, 1996 and 2005 (this result is questionable, since some of the coefficients are not statistically significant). The analysis of the intra-group inequality confirms that the increase in this group of the benefits lead to the decrease in inequality between poor and non-poor groups.

A final income component which includes inter-family transfers, charity, and benefits (except of child benefits) increased inequality among both poor and non-poor households. However, its impact varied across groups. For poor households during the period 1994 – 1995 this income component influenced inequality positively in 1996 the impact was reversed and then up to 2001 it raised inequality again and continued during 2004 – 2005. Among non-poor households the later income component either decreased poverty or was neutral. Intra-group inequality was close to one during the whole period under investigation.

4. Sensitivity analysis

It would be interesting to undertake sensitivity analysis to see whether observed over-time patterns are robust to changes in the poverty line. Thus, we recalculated H, Pgap and FGT($\alpha=2$) measures for alternative poverty lines set at 10 percent below and above the original line. The estimates presented in Table 4 and Figures 11, 12 and 13 show the same cross-sector and over-time patterns as with the original lines. This confirms that the analysis and findings presented so far are not sensitive to the exact position of the poverty line.

Table 4. The estimates of poverty based on alternative poverty lines

FGT	Year									
	1994	1995	1996	1998	2000	2001	2002	2003	2004	2005
When poverty line increased by 10%										
$\alpha=0$	0,209	0,198	0,237	0,232	0,217	0,224	0,210	0,209	0,192	0,185
$\alpha=1$	0,080	0,078	0,092	0,084	0,081	0,086	0,076	0,079	0,065	0,064
$\alpha=2$	0,044	0,043	0,050	0,044	0,044	0,047	0,041	0,042	0,034	0,033
When poverty line decreased by 10%										
$\alpha=0$	0,150	0,150	0,178	0,161	0,155	0,162	0,146	0,149	0,129	0,133
$\alpha=1$	0,058	0,057	0,066	0,058	0,058	0,062	0,054	0,056	0,044	0,044
$\alpha=2$	0,031	0,031	0,036	0,031	0,031	0,033	0,030	0,030	0,023	0,022

Source: Authors' calculations.

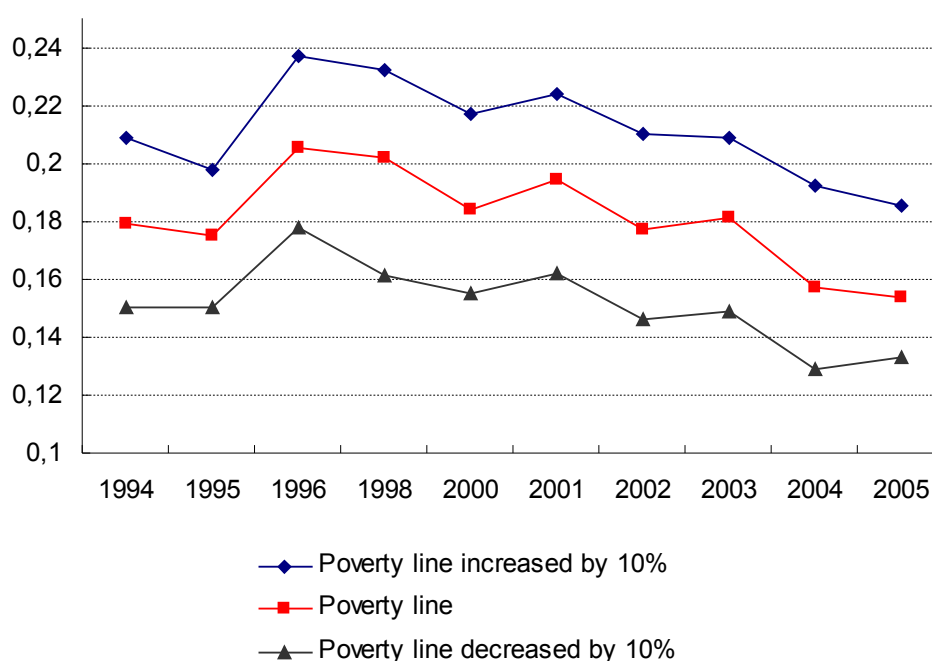


Figure. 11. Dynamics of FGT index values, $\alpha=0$

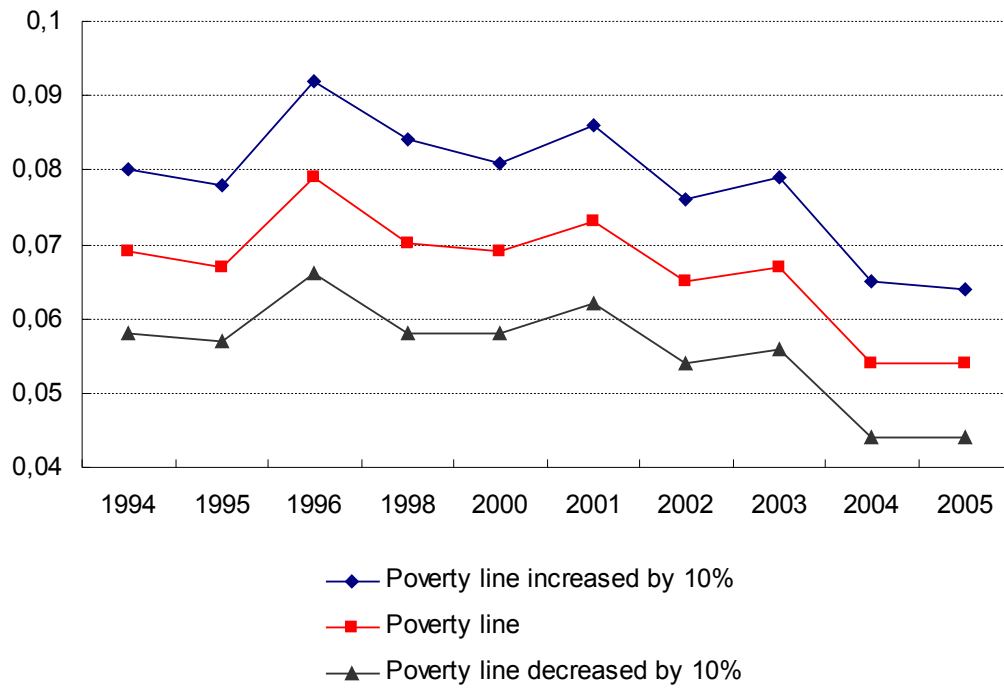


Figure 12. Dynamics of FGT index values, $\alpha=1$

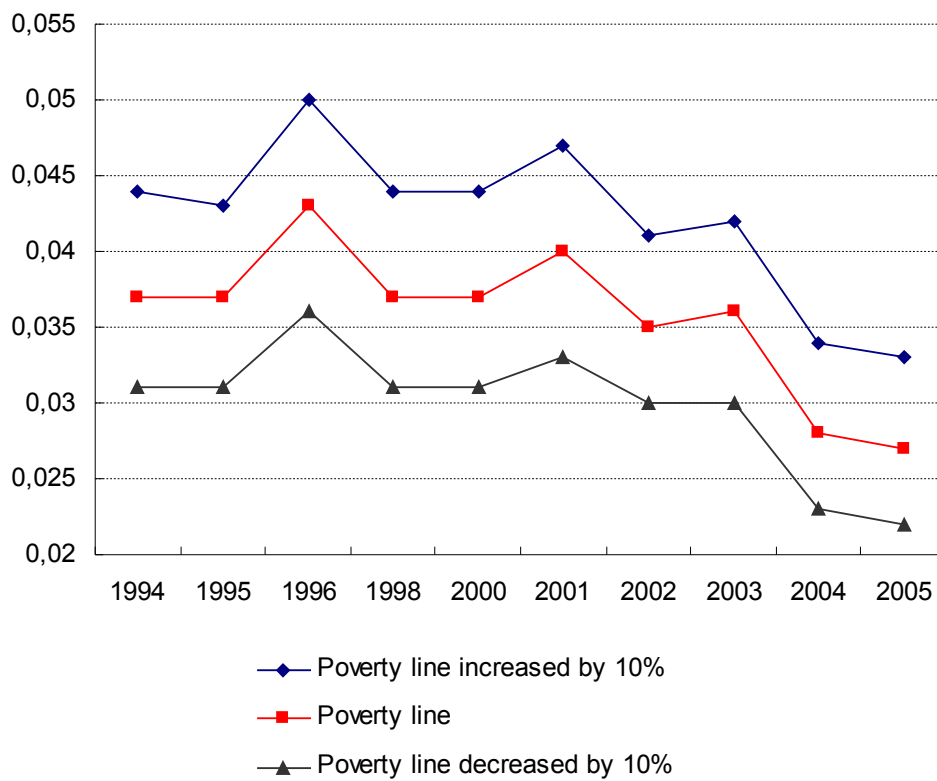


Figure 13. Dynamics of FGT index values, $\alpha=2$

5. Conclusion: Determinants of poverty and policy proposals

We started the analysis with the year 1994. That time the reforms initiated during the 1990s brought levels of poverty and inequality to a socially intolerable level. However, the situation remained relatively stable which indicates that Russian households adapted to the complex environment of economic reforms and learned to survive.

The review of the macroeconomic trends from 1994 to 2005 in the context of the social policy showed that the social policy was inadequate. The poverty level followed macroeconomic trends and only small fluctuations of the values of the index (especially transfer-sensitive indexes such as FGT for $\alpha=2$) captured the impact of wage and pension indexation on the level of poverty for specific groups of households. We managed to clarify and add the following points to the analysis of the Russian poverty:

- As it was shown in the decomposition of the FGT index on the components of growth and redistribution, the redistribution component did not play any significant role on the poverty dynamics. Government steps to level out poverty were restricted to indexation of wages and pensions. In the process of the concentration of the capital among small share of population the government showed its inability in development and implementation of the mechanism of the income redistribution between rich and poor.
- Decomposition of the FGT index by the income components showed that the presence of wage and/or pension as a source of the household income often ensured that the household would escape poverty. Over time we observe an increase in the importance of wage and declining importance of transfer payments such as pensions and benefits. Taking into account the fact that during some years the average wage did not exceed the subsistence minimum and was paid with delays, a presence of employed members in the household did not guarantee that the income of the household would not drop below the poverty line. The income of households which relied on the social assistance was always below the poverty line.
- The analysis of the inequality between two non-intersecting groups: poor and non-poor did showed that during the period under investigation the contribution of the poor group to the overall inequality was negligibly small (0.4%), at the same time the contribution to the intra-group inequality reached 34%. This finding has a big potential implication for the development of the redistribution policy.
- The trends in the wage elasticity of the Gini coefficient revealed that changes in the wages did not alert inequality pattern in poor and non-poor groups as well as inequality between these two groups.

- The growth of pensions during the period under investigation decreased inequality among non-poor households and increased it among poor households. Moreover, the growth pensions decreased the gap between poor and non-poor households. This confirms that the pensioners are the poverty borderline group and that the pension indexation was the only effective instrument of poverty alleviation. The responsiveness of the pensioners group to the pension indexation points out that a marginal increase in the level and the depth of poverty in 2001 is mostly related to a change in the poverty contribution dynamics: the share of the marginal contribution of wage into the poverty continued to rise, while the share of the pensions started to decline.
- All types of the government assistance exhibit low contribution to inequality. More important, similar Gini coefficient of elasticity for poor and non poor households point out to low efficiency of such assistance in the poverty alleviation.
- The analysis of the poverty profile among residential areas confirmed that the highest level of poverty is among rural households. Rural poverty is also deeper and more severe than in the cities. Interrelation of the demographic and migration processes among different types of residential areas resulted in the fact that the lowest gap in the contribution to poverty was registered in 1998, after this period we observe a diverging trend in the poverty contribution and increasing poverty gap.
- In the situation when government was incapable to developed effective mechanisms of the household social protection, households developed their own mechanisms of poverty alleviation. Among such mechanisms are decrease in fertility rate which resulted in the increased number of households with one or no children and decrease number of households with two and more children. Another observed tendency is the increase in the number of employed members in the household.
- It should be noted that the presence of three and more children in the household results in the higher level of poverty. However, the share of such households remained relatively stable and did not exhibit large decline comparing to the share of households with two children. The likely explanation to this finding is that the decision to have more than three children is dictated by non-economic factors.
- The analysis of poverty profiles according to the characteristics of the head of households, indicate that, the households there the head is a male are less prone to poverty, however they are more responsive to economic shocks (economic crisis of 1998) due to the gender differences in the sector of employment. Increased demand for qualified workers allowed sharp decrease of poverty levels of the male headed households. Wage arrears of 1996 and financial crisis of 1998 impacted less the households there the head has a high education. The age

profile indicate that from 1996 to 1998 the poverty has increased among able-bodied heads of households and somewhat decreased among pensioner heads of households. After the year 2000 the poverty rate among able-bodied head of households started to decrease, while the poverty rate of pensioner headed households had increased. Similar relation was detected using decomposition by the sources of income.

Table 1. Decomposition of FGT index according to settlement type

Year	Poverty line, rub.	Characteristic	FGT index									
			$\alpha=0$				$\alpha=1$			$\alpha=2$		
			Estimate	Proportion	Absolute contribution	Relative contribution	Estimate	Proportion	Absolute contribution	Estimate	Proportion	Absolute contribution
1994	62 ¹⁷	General	0,179	1,000	0,179	1,000	0,069	0,069	1,000	0,037	0,037	1,000
		Regional centre	0,108	0,427	0,046	0,258	0,036	0,015	0,225	0,018	0,008	0,208
		City	0,161	0,279	0,045	0,252	0,059	0,017	0,240	0,032	0,009	0,238
		Urban type settlement	0,224	0,055	0,012	0,069	0,087	0,005	0,070	0,049	0,003	0,073
		Village	0,317	0,238	0,075	0,421	0,134	0,032	0,464	0,075	0,018	0,482
1995	120 ¹⁷	General	0,175	1,000	0,175	1,000	0,067	0,067	1,000	0,037	0,037	1,000
		Regional centre	0,098	0,421	0,041	0,235	0,031	0,013	0,193	0,015	0,007	0,176
		City	0,155	0,288	0,044	0,254	0,050	0,014	0,216	0,025	0,007	0,193
		Urban type settlement	0,282	0,056	0,016	0,090	0,112	0,006	0,093	0,057	0,003	0,086
		Village	0,312	0,236	0,074	0,421	0,142	0,033	0,499	0,085	0,020	0,545
1996	158 ¹⁷	General	0,205	1,000	0,205	1,000	0,079	0,079	1,000	0,043	0,043	1,000
		Regional centre	0,146	0,424	0,062	0,303	0,053	0,022	0,284	0,027	0,011	0,267
		City	0,176	0,295	0,052	0,253	0,055	0,016	0,206	0,025	0,007	0,174
		Urban type settlement	0,248	0,061	0,015	0,074	0,096	0,006	0,075	0,053	0,003	0,075
		Village	0,345	0,220	0,076	0,370	0,156	0,034	0,436	0,094	0,021	0,484
1998	206	General	0,201	1,000	0,201	1,000	0,070	0,070	1,000	0,037	0,037	1,000
		Regional centre	0,134	0,403	0,054	0,268	0,043	0,017	0,245	0,021	0,009	0,232
		City	0,183	0,287	0,052	0,260	0,052	0,015	0,211	0,025	0,007	0,190
		Urban type settlement	0,262	0,061	0,016	0,079	0,099	0,006	0,085	0,052	0,003	0,085
		Village	0,318	0,249	0,079	0,393	0,130	0,032	0,460	0,073	0,018	0,493
2000	455	General	0,184	1,000	0,184	1,000	0,069	0,069	1,000	0,037	0,037	1,000
		Regional centre	0,121	0,392	0,048	0,259	0,037	0,014	0,209	0,017	0,007	0,184
		City	0,155	0,273	0,042	0,230	0,060	0,016	0,238	0,032	0,009	0,237
		Urban type settlement	0,161	0,067	0,011	0,059	0,061	0,004	0,059	0,035	0,002	0,063
		Village	0,311	0,268	0,083	0,453	0,127	0,034	0,493	0,072	0,019	0,516

Ending of table 1

¹⁷ Hereinafter taking into account denomination of 1998.

Year	Poverty line, rub.	Characteristic	FGT index									
			$\alpha=0$				$\alpha=1$			$\alpha=2$		
			Estimate	Proportion	Absolute contribution	Relative contribution	Estimate	Proportion	Absolute contribution	Estimate	Proportion	Absolute contribution
2001	667	General	0,194	1,000	0,194	1,000	0,073	0,073	1,000	0,040	0,040	1,000
		Regional centre	0,136	0,418	0,057	0,293	0,049	0,020	0,278	0,025	0,010	0,261
		City	0,123	0,260	0,032	0,165	0,041	0,011	0,145	0,020	0,005	0,130
		Urban type settlement	0,191	0,068	0,013	0,067	0,061	0,004	0,057	0,031	0,002	0,053
		Village	0,362	0,254	0,092	0,475	0,149	0,038	0,520	0,087	0,022	0,557
2002	875	General	0,177	1,000	0,177	1,000	0,065	0,065	1,000	0,035	0,035	1,000
		Regional centre	0,094	0,424	0,040	0,225	0,034	0,014	0,222	0,019	0,008	0,230
		City	0,145	0,255	0,037	0,209	0,050	0,013	0,197	0,026	0,007	0,189
		Urban type settlement	0,269	0,060	0,016	0,091	0,079	0,005	0,073	0,037	0,002	0,063
		Village	0,322	0,261	0,084	0,475	0,126	0,033	0,507	0,070	0,018	0,518
2003	1090	General	0,181	1,000	0,181	1,000	0,067	0,067	1,000	0,036	0,036	1,000
		Regional centre	0,089	0,405	0,036	0,199	0,026	0,011	0,159	0,012	0,005	0,134
		City	0,161	0,269	0,043	0,240	0,055	0,015	0,218	0,028	0,008	0,211
		Urban type settlement	0,223	0,067	0,015	0,083	0,086	0,006	0,086	0,044	0,003	0,082
		Village	0,335	0,258	0,086	0,478	0,140	0,036	0,537	0,080	0,021	0,573
2004	1315	General	0,157	1,000	0,157	1,000	0,054	0,054	1,000	0,028	0,028	1,000
		Regional centre	0,090	0,407	0,037	0,234	0,032	0,013	0,237	0,017	0,007	0,246
		City	0,114	0,277	0,031	0,200	0,032	0,009	0,166	0,015	0,004	0,145
		Urban type settlement	0,180	0,064	0,012	0,074	0,077	0,005	0,092	0,049	0,003	0,113
		Village	0,306	0,252	0,077	0,492	0,108	0,027	0,505	0,055	0,014	0,496
2005	1733	General	0,154	1,000	0,154	1,000	0,054	0,054	1,000	0,027	0,027	1,000
		Regional centre	0,078	0,395	0,031	0,198	0,029	0,011	0,212	0,016	0,007	0,238
		City	0,137	0,277	0,038	0,246	0,039	0,011	0,201	0,018	0,005	0,180
		Urban type settlement	0,179	0,062	0,011	0,072	0,075	0,005	0,086	0,046	0,003	0,104
		Village	0,281	0,265	0,075	0,484	0,102	0,027	0,500	0,049	0,013	0,478

Table 2. Decomposition of FGT index according to social type of household

Year	Poverty line, rub.	Characteristic	FGT index									
			$\alpha=0$				$\alpha=1$			$\alpha=2$		
			Estimate	Proportion	Absolute contribution	Relative contribution	Estimate	Proportion	Absolute contribution	Estimate	Proportion	Absolute contribution
1994	62	General	0,179	1,000	0,179	1,000	0,069	0,069	1,000	0,037	0,037	1,000
		Single adult	0,058	0,055	0,003	0,018	0,015	0,001	0,012	0,007	0,000	0,011
		Two adults without children	0,096	0,172	0,017	0,092	0,031	0,005	0,078	0,016	0,003	0,073
		Two with children	0,196	0,371	0,073	0,406	0,077	0,029	0,416	0,042	0,016	0,421
		One adult with children	0,221	0,044	0,010	0,054	0,064	0,003	0,041	0,030	0,001	0,035
		Multigenerational families	0,214	0,358	0,077	0,429	0,087	0,031	0,453	0,048	0,017	0,460
1995	120	General	0,175	1,000	0,175	1,000	0,067	0,067	1,000	0,037	0,037	1,000
		Single adult	0,060	0,059	0,004	0,020	0,012	0,001	0,010	0,006	0,000	0,009
		Two adults without children	0,092	0,169	0,016	0,089	0,031	0,005	0,079	0,018	0,003	0,082
		Two with children	0,187	0,355	0,066	0,379	0,076	0,027	0,400	0,043	0,015	0,417
		One adult with children	0,217	0,041	0,009	0,051	0,076	0,003	0,046	0,040	0,002	0,045
		Multigenerational families	0,214	0,377	0,081	0,461	0,083	0,031	0,464	0,044	0,017	0,447
1996	158	General	0,205	1,000	0,205	1,000	0,079	0,079	1,000	0,043	0,043	1,000
		Single adult	0,031	0,052	0,002	0,008	0,011	0,001	0,007	0,005	0,000	0,007
		Two adults without children	0,101	0,156	0,016	0,077	0,035	0,005	0,070	0,020	0,003	0,073
		Two with children	0,231	0,363	0,084	0,410	0,092	0,033	0,424	0,049	0,018	0,418
		One adult with children	0,255	0,042	0,011	0,053	0,086	0,004	0,046	0,045	0,002	0,044
		Multigenerational families	0,239	0,387	0,093	0,453	0,092	0,036	0,453	0,051	0,020	0,459

Continuation of table 2

Year	Poverty line, rub.	Characteristic	FGT index									
			$\alpha=0$				$\alpha=1$			$\alpha=2$		
			Estimate	Proportion	Absolute contribution	Relative contribution	Estimate	Proportion	Absolute contribution	Estimate	Proportion	Absolute contribution
1998	206	General	0,201	1,000	0,201	1,000	0,070	0,070	1,000	0,037	0,037	1,000
		Single adult	0,021	0,059	0,001	0,006	0,010	0,001	0,008	0,006	0,000	0,010
		Two adults without children	0,079	0,172	0,014	0,068	0,019	0,003	0,047	0,008	0,001	0,039
		Two with children	0,268	0,337	0,090	0,448	0,102	0,034	0,487	0,056	0,019	0,511
		One adult with children	0,245	0,047	0,012	0,057	0,080	0,004	0,053	0,042	0,002	0,053
		Multigenerational families	0,220	0,385	0,085	0,421	0,074	0,028	0,405	0,037	0,014	0,387
2000	455	General	0,184	1,000	0,184	1,000	0,069	0,069	1,000	0,037	0,037	1,000
		Single adult	0,052	0,063	0,003	0,018	0,009	0,001	0,009	0,005	0,000	0,008
		Two adults without children	0,091	0,167	0,015	0,083	0,027	0,004	0,065	0,013	0,002	0,058
		Two with children	0,216	0,312	0,067	0,367	0,082	0,026	0,371	0,044	0,014	0,368
		One adult with children	0,237	0,048	0,012	0,063	0,094	0,005	0,066	0,051	0,002	0,066
		Multigenerational families	0,211	0,410	0,086	0,470	0,082	0,034	0,490	0,045	0,019	0,500
2001	667	General	0,194	1,000	0,194	1,000	0,073	0,073	1,000	0,040	0,040	1,000
		Single adult	0,061	0,065	0,004	0,020	0,012	0,001	0,011	0,008	0,001	0,013
		Two adults without children	0,100	0,159	0,016	0,082	0,030	0,005	0,064	0,015	0,002	0,061
		Two with children	0,218	0,289	0,063	0,326	0,092	0,027	0,363	0,054	0,016	0,395
		One adult with children	0,260	0,051	0,014	0,069	0,110	0,006	0,077	0,061	0,003	0,079
		Multigenerational families	0,224	0,435	0,098	0,503	0,081	0,035	0,484	0,041	0,018	0,453

Continuation of table 2

Year	Poverty line, rub.	Characteristic	FGT index									
			$\alpha=0$				$\alpha=1$			$\alpha=2$		
			Estimate	Proportion	Absolute contribution	Relative contribution	Estimate	Proportion	Absolute contribution	Estimate	Proportion	Absolute contribution
2002	875	General	0,177	1,000	0,177	1,000	0,065	0,065	1,000	0,035	0,035	1,000
		Single adult	0,065	0,066	0,004	0,024	0,012	0,001	0,012	0,005	0,000	0,009
		Two adults without children	0,090	0,159	0,014	0,081	0,024	0,004	0,060	0,010	0,002	0,046
		Two with children	0,233	0,274	0,064	0,361	0,091	0,025	0,383	0,052	0,014	0,401
		One adult with children	0,247	0,052	0,013	0,072	0,074	0,004	0,060	0,038	0,002	0,055
		Multigenerational families	0,182	0,449	0,082	0,461	0,070	0,031	0,486	0,039	0,017	0,489
2003	1090	General	0,181	1,000	0,181	1,000	0,067	0,067	1,000	0,036	0,036	1,000
		Single adult	0,077	0,069	0,005	0,029	0,019	0,001	0,019	0,009	0,001	0,017
		Two adults without children	0,099	0,162	0,016	0,089	0,031	0,005	0,076	0,016	0,003	0,071
		Two with children	0,194	0,274	0,053	0,293	0,077	0,021	0,315	0,044	0,012	0,333
		One adult with children	0,275	0,054	0,015	0,082	0,105	0,006	0,084	0,052	0,003	0,079
		Multigenerational families	0,208	0,441	0,092	0,507	0,077	0,034	0,506	0,041	0,018	0,501
2004	1315	General	0,157	1,000	0,157	1,000	0,054	0,054	1,000	0,028	0,028	1,000
		Single adult	0,085	0,070	0,006	0,038	0,022	0,002	0,028	0,009	0,001	0,023
		Two adults without children	0,085	0,164	0,014	0,088	0,027	0,004	0,081	0,013	0,002	0,078
		Two with children	0,191	0,277	0,053	0,337	0,072	0,020	0,369	0,040	0,011	0,392
		One adult with children	0,324	0,055	0,018	0,114	0,127	0,007	0,130	0,073	0,004	0,143
		Multigenerational families	0,153	0,433	0,066	0,422	0,049	0,021	0,392	0,024	0,010	0,364

Ending of table 2

Year	Poverty line, rub.	Characteristic	FGT index									
			$\alpha=0$				$\alpha=1$			$\alpha=2$		
			Estimate	Proportion	Absolute contribution	Relative contribution	Estimate	Proportion	Absolute contribution	Estimate	Proportion	Absolute contribution
2005	1733	General	0,154	1,000	0,154	1,000	0,054	0,054	1,000	0,027	0,027	1,000
		Single adult	0,076	0,070	0,005	0,034	0,017	0,001	0,023	0,007	0,000	0,018
		Two adults without children	0,093	0,161	0,015	0,097	0,025	0,004	0,076	0,010	0,002	0,060
		Two with children	0,184	0,272	0,050	0,324	0,067	0,018	0,339	0,037	0,010	0,367
		One adult with children	0,273	0,045	0,012	0,079	0,090	0,004	0,075	0,040	0,002	0,066
		Multigenerational families	0,159	0,452	0,072	0,465	0,058	0,026	0,488	0,029	0,013	0,488

Table 3. Decomposition of FGT index according to number of children in household

Year	Poverty line, rub.	Characteristic	FGT index									
			$\alpha=0$				$\alpha=1$			$\alpha=2$		
			Estimate	Proportion	Absolute contribution	Relative contribution	Estimate	Proportion	Absolute contribution	Estimate	Proportion	Absolute contribution
1994	62	General	0,179	1,000	0,179	1,000	0,069	0,069	1,000	0,037	0,037	1,000
		No children	0,108	0,360	0,039	0,217	0,037	0,013	0,193	0,018	0,007	0,178
		One child	0,163	0,313	0,051	0,286	0,060	0,019	0,274	0,031	0,010	0,263
		Two children	0,246	0,256	0,063	0,352	0,098	0,025	0,366	0,055	0,014	0,378
		Three and more children	0,362	0,072	0,026	0,145	0,160	0,011	0,167	0,094	0,007	0,181
1995	120	General	0,175	1,000	0,175	1,000	0,067	0,067	1,000	0,037	0,037	1,000
		No children	0,115	0,371	0,043	0,245	0,037	0,014	0,204	0,019	0,007	0,187
		One child	0,164	0,299	0,049	0,281	0,063	0,019	0,281	0,034	0,010	0,279
		Two children	0,213	0,263	0,056	0,321	0,085	0,022	0,333	0,046	0,012	0,329
		Three and more children	0,405	0,066	0,027	0,154	0,184	0,012	0,182	0,115	0,008	0,205
1996	158	General	0,205	1,000	0,205	1,000	0,079	0,079	1,000	0,043	0,043	1,000
		No children	0,122	0,348	0,042	0,207	0,045	0,016	0,198	0,025	0,009	0,199
		One child	0,196	0,320	0,063	0,306	0,072	0,023	0,293	0,038	0,012	0,286
		Two children	0,267	0,270	0,072	0,351	0,095	0,026	0,326	0,047	0,013	0,293
		Three and more children	0,444	0,063	0,028	0,137	0,227	0,014	0,182	0,151	0,010	0,222
1998	206	General	0,201	1,000	0,201	1,000	0,070	0,070	1,000	0,037	0,037	1,000
		No children	0,105	0,375	0,039	0,195	0,029	0,011	0,152	0,013	0,005	0,130
		One child	0,203	0,324	0,066	0,326	0,068	0,022	0,314	0,034	0,011	0,298
		Two children	0,313	0,248	0,078	0,386	0,110	0,027	0,387	0,058	0,014	0,389
		Three and more children	0,360	0,052	0,019	0,093	0,198	0,010	0,147	0,131	0,007	0,184

Continuation of table 3

Year	Poverty line, rub.	Characteristic	FGT index									
			$\alpha=0$				$\alpha=1$			$\alpha=2$		
			Estimate	Proportion	Absolute contribution	Relative contribution	Estimate	Proportion	Absolute contribution	Estimate	Proportion	Absolute contribution
2000	455	General	0,184	1,000	0,184	1,000	0,069	0,069	1,000	0,037	0,037	1,000
		No children	0,104	0,379	0,040	0,215	0,034	0,013	0,189	0,018	0,007	0,183
		One child	0,207	0,335	0,069	0,377	0,076	0,025	0,367	0,039	0,013	0,352
		Two children	0,234	0,228	0,053	0,290	0,093	0,021	0,305	0,053	0,012	0,322
		Three and more children	0,371	0,059	0,022	0,118	0,162	0,010	0,138	0,091	0,005	0,143
2001	667	General	0,194	1,000	0,194	1,000	0,073	0,073	1,000	0,040	0,040	1,000
		No children	0,124	0,393	0,049	0,251	0,039	0,015	0,208	0,019	0,008	0,190
		One child	0,174	0,337	0,059	0,303	0,061	0,020	0,280	0,032	0,011	0,268
		Two children	0,274	0,209	0,057	0,294	0,108	0,023	0,309	0,060	0,013	0,315
		Three and more children	0,480	0,061	0,029	0,152	0,240	0,015	0,202	0,148	0,009	0,228
2002	875	General	0,177	1,000	0,177	1,000	0,065	0,065	1,000	0,035	0,035	1,000
		No children	0,107	0,403	0,043	0,243	0,029	0,012	0,181	0,013	0,005	0,150
		One child	0,171	0,341	0,058	0,330	0,061	0,021	0,321	0,031	0,011	0,301
		Two children	0,244	0,196	0,048	0,271	0,091	0,018	0,277	0,051	0,010	0,286
		Three and more children	0,464	0,060	0,028	0,156	0,240	0,014	0,221	0,156	0,009	0,263
2003	1090	General	0,181	1,000	0,181	1,000	0,067	0,067	1,000	0,036	0,036	1,000
		No children	0,113	0,404	0,046	0,252	0,038	0,015	0,228	0,020	0,008	0,221
		One child	0,168	0,341	0,057	0,316	0,055	0,019	0,279	0,026	0,009	0,250
		Two children	0,272	0,197	0,054	0,296	0,113	0,022	0,330	0,064	0,013	0,353
		Three and more children	0,424	0,058	0,025	0,136	0,190	0,011	0,164	0,109	0,006	0,175

Ending of table 3

Year	Poverty line, rub.	Characteristic	FGT index									
			$\alpha=0$				$\alpha=1$			$\alpha=2$		
			Estimate	Proportion	Absolute contribution	Relative contribution	Estimate	Proportion	Absolute contribution	Estimate	Proportion	Absolute contribution
2004	1315	General	0,157	1,000	0,157	1,000	0,054	0,054	1,000	0,028	0,028	1,000
		No children	0,100	0,422	0,042	0,269	0,030	0,013	0,234	0,014	0,006	0,204
		One child	0,129	0,342	0,044	0,281	0,044	0,015	0,277	0,022	0,008	0,267
		Two children	0,253	0,187	0,047	0,302	0,090	0,017	0,312	0,048	0,009	0,322
		Three and more children	0,478	0,049	0,023	0,148	0,197	0,010	0,177	0,119	0,006	0,207
2005	1733	General	0,154	1,000	0,154	1,000	0,054	0,054	1,000	0,027	0,027	1,000
		No children	0,116	0,427	0,049	0,320	0,036	0,015	0,281	0,016	0,007	0,252
		One child	0,138	0,348	0,048	0,310	0,045	0,016	0,292	0,022	0,008	0,278
		Two children	0,243	0,175	0,042	0,275	0,089	0,016	0,288	0,047	0,008	0,298
		Three and more children	0,289	0,051	0,015	0,095	0,148	0,008	0,139	0,093	0,005	0,173

Table 4. Decomposition of FGT index according to number of household working members

Year	Poverty line, rub.	Characteristic	FGT index									
			$\alpha=0$				$\alpha=1$			$\alpha=2$		
			Estimate	Proportion	Absolute contribution	Relative contribution	Estimate	Proportion	Absolute contribution	Estimate	Proportion	Absolute contribution
1994	62	General	0,179	1,000	0,179	1,000	0,069	0,069	1,000	0,037	0,037	1,000
		Nobody works	0,175	0,183	0,032	0,179	0,055	0,010	0,148	0,026	0,005	0,130
		One working	0,216	0,314	0,068	0,379	0,084	0,027	0,386	0,045	0,014	0,382
		Two working	0,166	0,399	0,066	0,370	0,069	0,027	0,400	0,039	0,016	0,422
		Three and more working	0,125	0,104	0,013	0,072	0,044	0,005	0,066	0,024	0,002	0,066
1995	120	General	0,175	1,000	0,175	1,000	0,067	0,067	1,000	0,037	0,037	1,000
		Nobody works	0,178	0,188	0,033	0,191	0,052	0,010	0,146	0,025	0,005	0,128
		One working	0,209	0,318	0,067	0,381	0,087	0,028	0,413	0,050	0,016	0,429
		Two working	0,154	0,381	0,059	0,335	0,060	0,023	0,339	0,033	0,012	0,337
		Three and more working	0,145	0,112	0,016	0,093	0,062	0,007	0,103	0,035	0,004	0,106
1996	158	General	0,205	1,000	0,205	1,000	0,079	0,079	1,000	0,043	0,043	1,000
		Nobody works	0,155	0,160	0,025	0,122	0,060	0,010	0,122	0,033	0,005	0,122
		One working	0,237	0,331	0,078	0,383	0,092	0,030	0,385	0,048	0,016	0,374
		Two working	0,207	0,396	0,082	0,401	0,076	0,030	0,385	0,042	0,017	0,391
		Three and more working	0,171	0,113	0,019	0,094	0,075	0,009	0,108	0,043	0,005	0,113
1998	206	General	0,201	1,000	0,201	1,000	0,070	0,070	1,000	0,037	0,037	1,000
		Nobody works	0,185	0,217	0,040	0,199	0,063	0,014	0,194	0,032	0,007	0,190
		One working	0,217	0,333	0,072	0,358	0,076	0,025	0,360	0,042	0,014	0,373
		Two working	0,209	0,354	0,074	0,368	0,076	0,027	0,383	0,040	0,014	0,380
		Three and more working	0,157	0,096	0,015	0,075	0,046	0,004	0,062	0,022	0,002	0,057

Year	Poverty line, rub.	Characteristic	FGT index									
			$\alpha=0$				$\alpha=1$			$\alpha=2$		
			Estimate	Proportion	Absolute contribution	Relative contribution	Estimate	Proportion	Absolute contribution	Estimate	Proportion	Absolute contribution
2000	455	General	0,184	1,000	0,184	1,000	0,069	0,069	1,000	0,037	0,037	1,000
		Nobody works	0,173	0,226	0,039	0,213	0,059	0,013	0,194	0,031	0,007	0,185
		One working	0,231	0,326	0,075	0,409	0,088	0,029	0,416	0,047	0,015	0,410
		Two working	0,170	0,346	0,059	0,320	0,064	0,022	0,320	0,036	0,012	0,331
		Three and more working	0,105	0,102	0,011	0,059	0,048	0,005	0,071	0,027	0,003	0,074
2001	667	General	0,194	1,000	0,194	1,000	0,073	0,073	1,000	0,040	0,040	1,000
		Nobody works	0,230	0,233	0,053	0,276	0,088	0,021	0,281	0,050	0,012	0,290
		One working	0,234	0,336	0,079	0,405	0,087	0,029	0,398	0,046	0,015	0,387
		Two working	0,153	0,324	0,050	0,256	0,058	0,019	0,259	0,032	0,010	0,260
		Three and more working	0,115	0,107	0,012	0,063	0,043	0,005	0,062	0,024	0,003	0,063
2002	875	General	0,177	1,000	0,177	1,000	0,065	0,065	1,000	0,035	0,035	1,000
		Nobody works	0,230	0,220	0,051	0,285	0,090	0,020	0,305	0,051	0,011	0,320
		One working	0,224	0,320	0,072	0,404	0,083	0,027	0,411	0,045	0,014	0,408
		Two working	0,139	0,337	0,047	0,264	0,046	0,016	0,240	0,024	0,008	0,231
		Three and more working	0,067	0,123	0,008	0,047	0,023	0,003	0,045	0,012	0,001	0,042
2003	1090	General	0,181	1,000	0,181	1,000	0,067	0,067	1,000	0,036	0,036	1,000
		Nobody works	0,238	0,223	0,053	0,294	0,092	0,020	0,304	0,049	0,011	0,307
		One working	0,207	0,323	0,067	0,370	0,078	0,025	0,374	0,041	0,013	0,365
		Two working	0,156	0,325	0,051	0,280	0,056	0,018	0,273	0,031	0,010	0,282
		Three and more working	0,079	0,128	0,010	0,056	0,026	0,003	0,050	0,013	0,002	0,046

Year	Poverty line, rub.	Characteristic	FGT index									
			$\alpha=0$				$\alpha=1$			$\alpha=2$		
			Estimate	Proportion	Absolute contribution	Relative contribution	Estimate	Proportion	Absolute contribution	Estimate	Proportion	Absolute contribution
2004	1315	General	0,157	1,000	0,157	1,000	0,054	0,054	1,000	0,028	0,028	1,000
		Nobody works	0,223	0,214	0,048	0,305	0,081	0,017	0,321	0,043	0,009	0,325
		One working	0,201	0,333	0,067	0,425	0,069	0,023	0,428	0,037	0,012	0,435
		Two working	0,111	0,317	0,035	0,223	0,034	0,011	0,198	0,016	0,005	0,182
		Three and more working	0,053	0,136	0,007	0,046	0,021	0,003	0,052	0,012	0,002	0,058
2005	1733	General	0,154	1,000	0,154	1,000	0,054	0,054	1,000	0,027	0,027	1,000
		Nobody works	0,203	0,204	0,042	0,269	0,080	0,016	0,303	0,044	0,009	0,326
		One working	0,224	0,301	0,067	0,436	0,078	0,023	0,433	0,039	0,012	0,428
		Two working	0,112	0,352	0,040	0,256	0,033	0,012	0,216	0,015	0,005	0,198
		Three and more working	0,042	0,143	0,006	0,039	0,018	0,003	0,048	0,009	0,001	0,049

Table 5. Decomposition of FGT index according to gender of the household head

Year	Poverty line, rub.	Characteristic	FGT index									
			$\alpha=0$				$\alpha=1$			$\alpha=2$		
			Estimate	Proportion	Absolute contribution	Relative contribution	Estimate	Proportion	Absolute contribution	Estimate	Proportion	Absolute contribution
1994	62	General	0,179	1,000	0,179	1,000	0,069	0,069	1,000	0,037	0,037	1,000
		Male	0,122	0,559	0,068	0,383	0,046	0,026	0,375	0,024	0,013	0,364
		Female	0,251	0,441	0,110	0,617	0,097	0,043	0,625	0,054	0,024	0,636
1995	120	General	0,175	1,000	0,175	1,000	0,067	0,067	1,000	0,037	0,037	1,000
		Male	0,122	0,545	0,067	0,381	0,049	0,027	0,401	0,029	0,016	0,427
		Female	0,238	0,455	0,108	0,619	0,088	0,040	0,599	0,047	0,021	0,573
1996	158	General	0,205	1,000	0,205	1,000	0,079	0,079	1,000	0,043	0,043	1,000
		Male	0,170	0,538	0,092	0,447	0,065	0,035	0,443	0,035	0,019	0,436
		Female	0,245	0,462	0,113	0,553	0,095	0,044	0,557	0,052	0,024	0,564
1998	206	General	0,201	1,000	0,201	1,000	0,070	0,070	1,000	0,037	0,037	1,000
		Male	0,145	0,519	0,075	0,374	0,049	0,025	0,361	0,026	0,013	0,358
		Female	0,262	0,481	0,126	0,626	0,093	0,045	0,639	0,049	0,024	0,642
2000	455	General	0,184	1,000	0,184	1,000	0,069	0,069	1,000	0,037	0,037	1,000
		Male	0,121	0,534	0,065	0,353	0,049	0,026	0,376	0,028	0,015	0,404
		Female	0,256	0,466	0,119	0,647	0,092	0,043	0,624	0,048	0,022	0,596
2001	667	General	0,194	1,000	0,194	1,000	0,073	0,073	1,000	0,040	0,040	1,000
		Male	0,134	0,541	0,072	0,372	0,049	0,027	0,363	0,027	0,015	0,368
		Female	0,265	0,459	0,122	0,628	0,101	0,046	0,637	0,055	0,025	0,632
2002	875	General	0,177	1,000	0,177	1,000	0,065	0,065	1,000	0,035	0,035	1,000
		Male	0,127	0,552	0,070	0,393	0,046	0,026	0,395	0,025	0,014	0,396
		Female	0,240	0,448	0,107	0,607	0,087	0,039	0,605	0,048	0,021	0,604
2003	1090	General	0,181	1,000	0,181	1,000	0,067	0,067	1,000	0,036	0,036	1,000
		Male	0,120	0,528	0,064	0,351	0,042	0,022	0,333	0,022	0,012	0,327
		Female	0,248	0,472	0,117	0,649	0,095	0,045	0,667	0,051	0,024	0,673
2004	1315	General	0,157	1,000	0,157	1,000	0,054	0,054	1,000	0,028	0,028	1,000
		Male	0,111	0,556	0,062	0,395	0,037	0,021	0,382	0,019	0,010	0,371
		Female	0,214	0,444	0,095	0,605	0,075	0,033	0,618	0,040	0,018	0,629

Year	Poverty line, rub.	Characteristic	FGT index									
			$\alpha=0$				$\alpha=1$			$\alpha=2$		
			Estimate	Proportion	Absolute contribution	Relative contribution	Estimate	Proportion	Absolute contribution	Estimate	Proportion	Absolute contribution
1994	62	General	0,179	1,000	0,179	1,000	0,069	0,069	1,000	0,037	0,037	1,000
		Male	0,122	0,559	0,068	0,383	0,046	0,026	0,375	0,024	0,013	0,364
		Female	0,251	0,441	0,110	0,617	0,097	0,043	0,625	0,054	0,024	0,636
1995	120	General	0,175	1,000	0,175	1,000	0,067	0,067	1,000	0,037	0,037	1,000
		Male	0,122	0,545	0,067	0,381	0,049	0,027	0,401	0,029	0,016	0,427
		Female	0,238	0,455	0,108	0,619	0,088	0,040	0,599	0,047	0,021	0,573
2005	1733	General	0,154	1,000	0,154	1,000	0,054	0,054	1,000	0,027	0,027	1,000
		Male	0,107	0,548	0,059	0,381	0,036	0,020	0,368	0,018	0,010	0,368
		Female	0,212	0,452	0,095	0,619	0,076	0,034	0,632	0,038	0,017	0,632

Table 6. Decomposition of FGT index according to age of household head

Year	Poverty line, rub.	Characteristic	FGT index									
			$\alpha=0$				$\alpha=1$			$\alpha=2$		
			Estimate	Proportion	Absolute contribution	Relative contribution	Estimate	Proportion	Absolute contribution	Estimate	Proportion	Absolute contribution
1994	62	General	0,179	1,000	0,179	1,000	0,069	0,069	1,000	0,037	0,037	1,000
		Before 25 y.o.	0,204	0,076	0,015	0,086	0,087	0,007	0,095	0,052	0,004	0,105
		25-34	0,185	0,211	0,039	0,219	0,070	0,015	0,216	0,038	0,008	0,217
		35-44	0,175	0,261	0,046	0,255	0,068	0,018	0,260	0,038	0,010	0,266
		45-54	0,116	0,141	0,016	0,091	0,041	0,006	0,084	0,021	0,003	0,078
		55-59	0,166	0,092	0,015	0,086	0,063	0,006	0,084	0,031	0,003	0,078
		60-65	0,224	0,087	0,019	0,109	0,093	0,008	0,117	0,052	0,005	0,122
		After 65 y.o.	0,209	0,132	0,028	0,154	0,075	0,010	0,144	0,038	0,005	0,134
1995	120	General	0,175	1,000	0,175	1,000	0,067	0,067	1,000	0,037	0,037	1,000
		Before 25 y.o.	0,193	0,074	0,014	0,082	0,093	0,007	0,102	0,057	0,004	0,115
		25-34	0,169	0,204	0,034	0,197	0,067	0,014	0,204	0,038	0,008	0,208
		35-44	0,169	0,262	0,044	0,254	0,066	0,017	0,259	0,037	0,010	0,261
		45-54	0,168	0,161	0,027	0,154	0,061	0,010	0,148	0,034	0,005	0,147
		55-59	0,174	0,086	0,015	0,086	0,064	0,005	0,082	0,033	0,003	0,076
		60-65	0,193	0,076	0,015	0,084	0,075	0,006	0,086	0,044	0,003	0,091
		After 65 y.o.	0,184	0,137	0,025	0,144	0,059	0,008	0,120	0,027	0,004	0,101
1996	158	General	0,205	1,000	0,205	1,000	0,079	0,079	1,000	0,043	0,043	1,000
		Before 25 y.o.	0,215	0,069	0,015	0,073	0,113	0,008	0,100	0,071	0,005	0,116
		25-34	0,219	0,218	0,048	0,234	0,087	0,019	0,241	0,049	0,011	0,249
		35-44	0,213	0,292	0,062	0,304	0,082	0,024	0,304	0,045	0,013	0,309
		45-54	0,157	0,143	0,022	0,109	0,062	0,009	0,112	0,032	0,005	0,108
		55-59	0,220	0,092	0,020	0,099	0,084	0,008	0,099	0,045	0,004	0,097
		60-65	0,185	0,065	0,012	0,059	0,048	0,003	0,040	0,020	0,001	0,030
		After 65 y.o.	0,208	0,120	0,025	0,122	0,069	0,008	0,105	0,032	0,004	0,090

Continuation of table 6

Year	Poverty line, rub.	Characteristic	FGT index									
			$\alpha=0$				$\alpha=1$			$\alpha=2$		
			Estimate	Proportion	Absolute contribution	Relative contribution	Estimate	Proportion	Absolute contribution	Estimate	Proportion	Absolute contribution
1998	206	General	0,201	1,000	0,201	1,000	0,070	0,070	1,000	0,037	0,037	1,000
		Before 25 y.o.	0,255	0,065	0,017	0,082	0,099	0,006	0,092	0,059	0,004	0,104
		25-34	0,196	0,178	0,035	0,173	0,070	0,012	0,177	0,041	0,007	0,196
		35-44	0,221	0,271	0,060	0,297	0,080	0,022	0,308	0,042	0,011	0,310
		45-54	0,221	0,167	0,037	0,183	0,088	0,015	0,210	0,048	0,008	0,217
		55-59	0,187	0,062	0,012	0,057	0,067	0,004	0,059	0,035	0,002	0,058
		60-65	0,155	0,087	0,013	0,067	0,042	0,004	0,052	0,017	0,001	0,039
After 65 y.o.	0,166	0,170	0,028	0,140	0,042	0,007	0,103	0,017	0,003	0,077		
2000	455	General	0,184	1,000	0,184	1,000	0,069	0,069	1,000	0,037	0,037	1,000
		Before 25 y.o.	0,259	0,065	0,017	0,091	0,125	0,008	0,117	0,078	0,005	0,135
		25-34	0,192	0,170	0,033	0,178	0,084	0,014	0,207	0,049	0,008	0,225
		35-44	0,170	0,271	0,046	0,252	0,060	0,016	0,236	0,031	0,009	0,229
		45-54	0,153	0,196	0,030	0,163	0,065	0,013	0,186	0,038	0,007	0,199
		55-59	0,143	0,040	0,006	0,031	0,042	0,002	0,025	0,017	0,001	0,018
		60-65	0,209	0,099	0,021	0,113	0,057	0,006	0,082	0,023	0,002	0,062
After 65 y.o.	0,199	0,159	0,032	0,172	0,064	0,010	0,147	0,031	0,005	0,132		
2001	667	General	0,194	1,000	0,194	1,000	0,073	0,073	1,000	0,040	0,040	1,000
		Before 25 y.o.	0,178	0,075	0,013	0,069	0,079	0,006	0,081	0,051	0,004	0,096
		25-34	0,175	0,172	0,030	0,155	0,071	0,012	0,166	0,039	0,007	0,168
		35-44	0,169	0,254	0,043	0,222	0,072	0,018	0,249	0,043	0,011	0,272
		45-54	0,198	0,202	0,040	0,207	0,081	0,016	0,223	0,045	0,009	0,231
		55-59	0,221	0,045	0,010	0,051	0,088	0,004	0,054	0,046	0,002	0,052
		60-65	0,250	0,091	0,023	0,118	0,070	0,006	0,087	0,030	0,003	0,069
After 65 y.o.	0,216	0,161	0,035	0,179	0,064	0,010	0,140	0,028	0,004	0,112		

Continuation of table 6

Year	Poverty line, rub.	Characteristic	FGT index									
			$\alpha=0$				$\alpha=1$			$\alpha=2$		
			Estimate	Proportion	Absolute contribution	Relative contribution	Estimate	Proportion	Absolute contribution	Estimate	Proportion	Absolute contribution
2002	875	General	0,177	1,000	0,177	1,000	0,065	0,065	1,000	0,035	0,035	1,000
		Before 25 y.o.	0,242	0,073	0,018	0,100	0,113	0,008	0,128	0,067	0,005	0,138
		25-34	0,161	0,175	0,028	0,159	0,062	0,011	0,166	0,036	0,006	0,179
		35-44	0,176	0,259	0,046	0,258	0,063	0,016	0,253	0,037	0,009	0,269
		45-54	0,143	0,208	0,030	0,168	0,049	0,010	0,158	0,026	0,005	0,151
		55-59	0,158	0,050	0,008	0,045	0,058	0,003	0,045	0,027	0,001	0,038
		60-65	0,200	0,081	0,016	0,091	0,070	0,006	0,087	0,036	0,003	0,082
After 65 y.o.	0,206	0,154	0,032	0,179	0,069	0,011	0,163	0,033	0,005	0,144		
2003	1090	General	0,181	1,000	0,181	1,000	0,067	0,067	1,000	0,036	0,036	1,000
		Before 25 y.o.	0,230	0,064	0,015	0,081	0,107	0,007	0,102	0,061	0,004	0,108
		25-34	0,181	0,186	0,034	0,186	0,070	0,013	0,192	0,038	0,007	0,199
		35-44	0,163	0,245	0,040	0,221	0,060	0,015	0,217	0,031	0,008	0,211
		45-54	0,164	0,210	0,035	0,191	0,062	0,013	0,194	0,036	0,008	0,211
		55-59	0,152	0,064	0,010	0,054	0,048	0,003	0,046	0,025	0,002	0,045
		60-65	0,208	0,068	0,014	0,078	0,080	0,005	0,081	0,042	0,003	0,080
After 65 y.o.	0,208	0,164	0,034	0,188	0,069	0,011	0,168	0,032	0,005	0,146		
2004	1315	General	0,157	1,000	0,157	1,000	0,054	0,054	1,000	0,028	0,028	1,000
		Before 25 y.o.	0,140	0,072	0,010	0,064	0,054	0,004	0,072	0,027	0,002	0,071
		25-34	0,157	0,201	0,031	0,201	0,058	0,012	0,215	0,032	0,006	0,230
		35-44	0,150	0,243	0,037	0,233	0,051	0,013	0,232	0,027	0,007	0,237
		45-54	0,144	0,205	0,030	0,189	0,052	0,011	0,196	0,028	0,006	0,204
		55-59	0,124	0,070	0,009	0,055	0,050	0,003	0,064	0,026	0,002	0,065
		60-65	0,217	0,054	0,012	0,074	0,078	0,004	0,077	0,042	0,002	0,080
After 65 y.o.	0,186	0,155	0,029	0,184	0,050	0,008	0,143	0,021	0,003	0,114		

Ending of table 6

Year	Poverty line, rub.	Characteristic	FGT index									
			$\alpha=0$				$\alpha=1$			$\alpha=2$		
			Estimate	Proportion	Absolute contribution	Relative contribution	Estimate	Proportion	Absolute contribution	Estimate	Proportion	Absolute contribution
2005	1733	General	0,154	1,000	0,154	1,000	0,054	0,054	1,000	0,027	0,027	1,000
		Before 25 y.o.	0,144	0,065	0,009	0,061	0,064	0,004	0,078	0,036	0,002	0,086
		25-34	0,130	0,193	0,025	0,162	0,052	0,010	0,187	0,028	0,005	0,200
		35-44	0,163	0,241	0,039	0,255	0,058	0,014	0,258	0,031	0,007	0,272
		45-54	0,123	0,218	0,027	0,174	0,042	0,009	0,171	0,022	0,005	0,179
		55-59	0,157	0,074	0,012	0,075	0,051	0,004	0,069	0,024	0,002	0,064
		60-65	0,175	0,038	0,007	0,043	0,055	0,002	0,038	0,021	0,001	0,029
		After 65 y.o.	0,207	0,171	0,036	0,230	0,063	0,011	0,200	0,027	0,005	0,170

Table 7. Decomposition of FGT index according to education of household head

Year	Poverty line, rub.	Characteristic	FGT index									
			$\alpha=0$				$\alpha=1$			$\alpha=2$		
			Estimate	Proportion	Absolute contribution	Relative contribution	Estimate	Proportion	Absolute contribution	Estimate	Proportion	Absolute contribution
1994	62	General	0,179	1,000	0,179	1,000	0,069	0,069	1,000	0,037	0,037	1,000
		Primary and incomplete primary	0,280	0,262	0,073	0,409	0,107	0,028	0,409	0,057	0,015	0,402
		Secondary	0,189	0,191	0,036	0,202	0,074	0,014	0,206	0,039	0,008	0,202
		Primary vocational with secondary	0,199	0,135	0,027	0,150	0,076	0,010	0,149	0,042	0,006	0,153
		Secondary vocational	0,149	0,203	0,030	0,169	0,060	0,012	0,177	0,033	0,007	0,181
		Higher and postgraduate	0,060	0,209	0,013	0,070	0,019	0,004	0,059	0,011	0,002	0,061
1995	120	General	0,175	1,000	0,175	1,000	0,067	0,067	1,000	0,037	0,037	1,000
		Primary and incomplete primary	0,260	0,249	0,065	0,371	0,101	0,025	0,373	0,057	0,014	0,380
		Secondary	0,197	0,237	0,047	0,267	0,080	0,019	0,281	0,045	0,011	0,288
		Primary vocational with secondary	0,173	0,129	0,022	0,128	0,075	0,010	0,144	0,044	0,006	0,152
		Secondary vocational	0,145	0,195	0,028	0,162	0,052	0,010	0,150	0,027	0,005	0,141
		Higher and postgraduate	0,068	0,190	0,013	0,073	0,019	0,004	0,053	0,008	0,001	0,039
1996	158	General	0,205	1,000	0,205	1,000	0,079	0,079	1,000	0,043	0,043	1,000
		Primary and incomplete primary	0,250	0,224	0,056	0,274	0,092	0,021	0,261	0,049	0,011	0,256
		Secondary	0,246	0,231	0,057	0,278	0,111	0,026	0,326	0,066	0,015	0,356
		Primary vocational with secondary	0,241	0,134	0,032	0,158	0,086	0,012	0,147	0,044	0,006	0,137
		Secondary vocational	0,189	0,214	0,040	0,197	0,069	0,015	0,188	0,036	0,008	0,177
		Higher and postgraduate	0,099	0,197	0,019	0,095	0,031	0,006	0,078	0,016	0,003	0,074

Year	Poverty line, rub.	Characteristic	FGT index									
			$\alpha=0$				$\alpha=1$			$\alpha=2$		
			Estimate	Proportion	Absolute contribution	Relative contribution	Estimate	Proportion	Absolute contribution	Estimate	Proportion	Absolute contribution
1998	206	General	0,201	1,000	0,201	1,000	0,070	0,070	1,000	0,037	0,037	1,000
		Primary and incomplete primary	0,245	0,247	0,060	0,301	0,078	0,019	0,273	0,037	0,009	0,247
		Secondary	0,272	0,223	0,061	0,302	0,107	0,024	0,340	0,061	0,014	0,367
		Primary vocational with secondary	0,242	0,128	0,031	0,153	0,095	0,012	0,173	0,053	0,007	0,182
		Secondary vocational	0,168	0,208	0,035	0,173	0,054	0,011	0,160	0,029	0,006	0,164
		Higher and postgraduate	0,073	0,194	0,014	0,071	0,019	0,004	0,054	0,008	0,001	0,040
2000	455	General	0,184	1,000	0,184	1,000	0,069	0,069	1,000	0,037	0,037	1,000
		Primary and incomplete primary	0,235	0,222	0,053	0,285	0,083	0,019	0,270	0,044	0,010	0,264
		Secondary	0,215	0,223	0,048	0,261	0,096	0,021	0,312	0,057	0,013	0,344
		Primary vocational with secondary	0,195	0,148	0,029	0,158	0,074	0,011	0,160	0,039	0,006	0,157
		Secondary vocational	0,179	0,214	0,038	0,209	0,056	0,012	0,175	0,027	0,006	0,155
		Higher and postgraduate	0,082	0,193	0,016	0,087	0,030	0,006	0,084	0,015	0,003	0,079
2001	667	General	0,194	1,000	0,194	1,000	0,073	0,073	1,000	0,040	0,040	1,000
		Primary and incomplete primary	0,299	0,216	0,065	0,332	0,104	0,022	0,305	0,053	0,011	0,286
		Secondary	0,210	0,227	0,048	0,246	0,092	0,021	0,284	0,055	0,013	0,314
		Primary vocational with secondary	0,189	0,156	0,030	0,152	0,077	0,012	0,163	0,044	0,007	0,170
		Secondary vocational	0,148	0,199	0,030	0,152	0,054	0,011	0,145	0,027	0,005	0,136
		Higher and postgraduate	0,115	0,201	0,023	0,119	0,037	0,008	0,103	0,019	0,004	0,093

Year	Poverty line, rub.	Characteristic	FGT index									
			$\alpha=0$				$\alpha=1$			$\alpha=2$		
			Estimate	Proportion	Absolute contribution	Relative contribution	Estimate	Proportion	Absolute contribution	Estimate	Proportion	Absolute contribution
2002	875	General	0,177	1,000	0,177	1,000	0,065	0,065	1,000	0,035	0,035	1,000
		Primary and incomplete primary	0,288	0,192	0,055	0,311	0,114	0,022	0,336	0,065	0,012	0,351
		Secondary	0,199	0,238	0,047	0,268	0,080	0,019	0,295	0,044	0,010	0,295
		Primary vocational with secondary	0,171	0,143	0,025	0,138	0,056	0,008	0,123	0,029	0,004	0,117
		Secondary vocational	0,140	0,209	0,029	0,166	0,045	0,009	0,146	0,022	0,005	0,130
		Higher and postgraduate	0,095	0,218	0,021	0,117	0,030	0,007	0,101	0,017	0,004	0,107
2003	1090	General	0,181	1,000	0,181	1,000	0,067	0,067	1,000	0,036	0,036	1,000
		Primary and incomplete primary	0,304	0,192	0,058	0,324	0,111	0,021	0,315	0,057	0,011	0,306
		Secondary	0,204	0,237	0,048	0,268	0,082	0,019	0,288	0,046	0,011	0,301
		Primary vocational with secondary	0,164	0,142	0,023	0,129	0,058	0,008	0,122	0,031	0,004	0,121
		Secondary vocational	0,170	0,218	0,037	0,205	0,064	0,014	0,208	0,035	0,008	0,215
		Higher and postgraduate	0,063	0,210	0,013	0,074	0,021	0,004	0,066	0,010	0,002	0,057
2004	1315	General	0,157	1,000	0,157	1,000	0,054	0,054	1,000	0,028	0,028	1,000
		Primary and incomplete primary	0,249	0,171	0,043	0,272	0,087	0,015	0,276	0,046	0,008	0,283
		Secondary	0,183	0,244	0,044	0,284	0,061	0,015	0,279	0,032	0,008	0,275
		Primary vocational with secondary	0,120	0,150	0,018	0,115	0,048	0,007	0,135	0,028	0,004	0,149
		Secondary vocational	0,149	0,211	0,032	0,201	0,046	0,010	0,180	0,021	0,004	0,159
		Higher and postgraduate	0,089	0,224	0,020	0,128	0,031	0,007	0,130	0,017	0,004	0,133

Ending of table 7

Year	Pover-ty line, rub.	Characteristic	FGT index									
			$\alpha=0$				$\alpha=1$			$\alpha=2$		
			Esti-mate	Pro-portion	Abso-lute con-tribution	Relative con-tribution	Estimate	Propor-tion	Absolute contribu-tion	Estimate	Propor-tion	Absolute contribu-tion
2005	1733	General	0,154	1,000	0,154	1,000	0,054	0,054	1,000	0,027	0,027	1,000
		Primary and incomplete primary	0,236	0,180	0,043	0,277	0,077	0,014	0,257	0,036	0,007	0,238
		Secondary	0,164	0,239	0,039	0,256	0,066	0,016	0,294	0,037	0,009	0,326
		Primary vocational with secondary	0,119	0,153	0,018	0,118	0,045	0,007	0,127	0,023	0,003	0,128
		Secondary vocational	0,172	0,202	0,035	0,226	0,053	0,011	0,199	0,025	0,005	0,181
		Higher and postgraduate	0,084	0,226	0,019	0,123	0,029	0,007	0,122	0,015	0,003	0,127

Table 1. Decomposition of the FGT index across growth and redistribution effects (Datt&Ravallion approach)

t_1	t_2	Index		Difference of indexes	Growth effect	Redistribution effect	Residual
		t_1	t_2				
$\alpha = 0$							
1994	1995	0,1789	0,0604	-0,1185	-0,1170	-0,0040	0,0025
1995	1996	0,1749	0,1339	-0,0410	-0,0685	0,0365	-0,0089
1996	1998	0,2048	0,1244	-0,0804	-0,0655	-0,0095	-0,0053
1998	2000	0,2015	0,0516	-0,1499	-0,1560	-0,0224	0,0286
2000	2001	0,1838	0,1051	-0,0787	-0,0839	0,0040	0,0012
2001	2002	0,1940	0,1091	-0,0849	-0,0620	-0,0293	0,0064
2002	2003	0,1771	0,1298	-0,0473	-0,0680	0,0181	0,0026
2003	2004	0,1808	0,1086	-0,0722	-0,0488	-0,0171	-0,0063
2004	2005	0,1569	0,0945	-0,0624	-0,0452	-0,0235	0,0062
$\alpha = 1$							
1994	1995	0,0687	0,0230	-0,0456	-0,0469	-0,0014	0,0027
1995	1996	0,0670	0,0492	-0,0178	-0,0252	0,0132	-0,0058
1996	1998	0,0786	0,0434	-0,0352	-0,0267	-0,0106	0,0021
1998	2000	0,0703	0,0177	-0,0526	-0,0524	-0,0035	0,0032
2000	2001	0,0690	0,0389	-0,0302	-0,0320	0,0028	-0,0010
2001	2002	0,0731	0,0411	-0,0320	-0,0235	-0,0123	0,0037
2002	2003	0,0648	0,0463	-0,0185	-0,0238	0,0087	-0,0034
2003	2004	0,0673	0,0377	-0,0296	-0,0195	-0,0117	0,0017
2004	2005	0,0540	0,0315	-0,0226	-0,0150	-0,0101	0,0025
$\alpha = 2$							
1994	1995	0,0372	0,0124	-0,0248	-0,0260	-0,0001	0,0013
1995	1996	0,0370	0,0269	-0,0101	-0,0139	0,0068	-0,0029
1996	1998	0,0428	0,0232	-0,0197	-0,0145	-0,0070	0,0018
1998	2000	0,0371	0,0087	-0,0284	-0,0271	-0,0010	-0,0002
2000	2001	0,0372	0,0209	-0,0164	-0,0178	0,0019	-0,0005
2001	2002	0,0399	0,0225	-0,0173	-0,0130	-0,0066	0,0023

t_1	t_2	Index		Difference of indexes	Growth effect	Redistribution effect	Residual
		t_1	t_2				
$\alpha = 0$							
2002	2003	0,0353	0,0243	-0,0110	-0,0128	0,0041	-0,0023
2003	2004	0,0359	0,0200	-0,0159	-0,0108	-0,0071	0,0020
2004	2005	0,0281	0,0158	-0,0122	-0,0074	-0,0060	0,0012

Table 2. Decomposition of the FGT index across growth and redistribution effects (Shapley approach)

t_1	t_2	Index		Difference of indexes	Growth effect	Redistribution effect
		t_1	t_2			
$\alpha = 0$						
1994	1995	0,1789	0,0604	-0,1185	-0,1157	-0,0028
1995	1996	0,1749	0,1339	-0,0410	-0,0730	0,0320
1996	1998	0,2048	0,1244	-0,0804	-0,0682	-0,0122
1998	2000	0,2015	0,0516	-0,1499	-0,1417	-0,0081
2000	2001	0,1838	0,1051	-0,0787	-0,0833	0,0046
2001	2002	0,1940	0,1091	-0,0849	-0,0589	-0,0261
2002	2003	0,1771	0,1298	-0,0473	-0,0667	0,0194
2003	2004	0,1808	0,1086	-0,0722	-0,0520	-0,0202
2004	2005	0,1569	0,0945	-0,0624	-0,0421	-0,0204
$\alpha = 1$						
1994	1995	0,0687	0,0230	-0,0456	-0,0455	-0,0001
1995	1996	0,0670	0,0492	-0,0178	-0,0281	0,0103
1996	1998	0,0786	0,0434	-0,0352	-0,0256	-0,0096
1998	2000	0,0703	0,0177	-0,0526	-0,0507	-0,0019
2000	2001	0,0690	0,0389	-0,0302	-0,0325	0,0023
2001	2002	0,0731	0,0411	-0,0320	-0,0216	-0,0104
2002	2003	0,0648	0,0463	-0,0185	-0,0255	0,0070
2003	2004	0,0673	0,0377	-0,0296	-0,0187	-0,0109

t_1	t_2	Index		Difference of indexes	Growth effect	Redistribution effect
		t_1	t_2			
$\alpha = 0$						
2004	2005	0,0540	0,0315	-0,0226	-0,0137	-0,0088
$\alpha = 2$						
1994	1995	0,0372	0,0124	-0,0248	-0,0254	0,0005
1995	1996	0,0370	0,0269	-0,0101	-0,0154	0,0053
1996	1998	0,0428	0,0232	-0,0197	-0,0136	-0,0061
1998	2000	0,0371	0,0087	-0,0284	-0,0272	-0,0011
2000	2001	0,0372	0,0209	-0,0164	-0,0181	0,0017
2001	2002	0,0399	0,0225	-0,0173	-0,0119	-0,0055
2002	2003	0,0353	0,0243	-0,0110	-0,0140	0,0030
2003	2004	0,0359	0,0200	-0,0159	-0,0099	-0,0061
2004	2005	0,0281	0,0158	-0,0122	-0,0069	-0,0054

Table 3. Decomposition by income sources

Year	The salary and natural payments	Pension	Scholarship	Benefits	Transfers	Incomes from sale and lease of property	Incomes from personal subsidiary plot	Other incomes	Alimony	Children's allowances
$\alpha=0$										
1994	0,587	0,260	0,003	0,003	0,037	0,014	0,022	0,058	0,002	0,010
1995	0,594	0,253	0,003	0,003	0,028	0,011	0,028	0,060	0,002	0,010
1996	0,595	0,243	0,003	0,004	0,032	0,008	0,031	0,059	0,003	0,011
1998	0,547	0,298	0,003	0,008	0,031	0,011	0,030	0,054	0,004	0,008
2000	0,595	0,244	0,002	0,005	0,028	0,013	0,053	0,043	0,004	0,007
2001	0,619	0,237	0,001	0,006	0,023	0,009	0,045	0,044	0,002	0,006
2002	0,658	0,230	0,002	0,011	0,022	0,008	0,023	0,030	0,004	0,005
2003	0,637	0,233	0,002	0,010	0,023	0,010	0,034	0,037	0,003	0,003
2004	0,657	0,218	0,001	0,011	0,018	0,009	0,030	0,041	0,003	0,005
2005	0,671	0,211	0,001	0,014	0,017	0,008	0,030	0,033	0,003	0,004
$\alpha=1$										
1994	0,531	0,290	0,006	0,004	0,041	0,015	0,021	0,070	0,005	0,026
1995	0,532	0,289	0,006	0,006	0,033	0,012	0,025	0,072	0,004	0,027
1996	0,561	0,254	0,005	0,007	0,036	0,009	0,029	0,074	0,006	0,027
1998	0,513	0,313	0,005	0,012	0,038	0,011	0,028	0,066	0,006	0,015
2000	0,543	0,287	0,004	0,010	0,033	0,012	0,047	0,050	0,006	0,015
2001	0,560	0,278	0,004	0,013	0,029	0,010	0,043	0,053	0,005	0,012
2002	0,587	0,276	0,004	0,017	0,029	0,011	0,025	0,038	0,006	0,012
2003	0,568	0,276	0,003	0,023	0,030	0,011	0,036	0,044	0,006	0,010
2004	0,592	0,262	0,003	0,021	0,027	0,011	0,029	0,045	0,006	0,009
2005	0,600	0,248	0,004	0,034	0,025	0,010	0,032	0,038	0,006	0,007
$\alpha=2$										
1994	0,507	0,297	0,008	0,005	0,042	0,015	0,021	0,077	0,006	0,039
1995	0,507	0,295	0,008	0,008	0,036	0,013	0,025	0,078	0,005	0,040
1996	0,544	0,255	0,006	0,010	0,037	0,009	0,029	0,080	0,006	0,038
1998	0,500	0,314	0,006	0,017	0,040	0,011	0,028	0,072	0,007	0,020
2000	0,520	0,298	0,006	0,015	0,035	0,012	0,046	0,056	0,007	0,020

Year	The salary and natural payments	Pension	Scholarship	Benefits	Transfers	Incomes from sale and lease of property	Incomes from personal subsidiary plot	Other incomes	Alimony	Children's allowances
2001	0,534	0,288	0,005	0,018	0,032	0,010	0,044	0,058	0,006	0,018
2002	0,556	0,287	0,005	0,024	0,033	0,012	0,026	0,043	0,007	0,018
2003	0,538	0,288	0,005	0,033	0,033	0,011	0,038	0,047	0,007	0,014
2004	0,561	0,274	0,005	0,031	0,032	0,012	0,030	0,048	0,008	0,013
2005	0,566	0,259	0,005	0,047	0,030	0,011	0,034	0,042	0,007	0,010

Table 1. Decomposition of inequality by income sources by Lerman&Yitzhaki approach

Characteristic	Year	The salary and natural payments	Pension	Scholarship	Benefits	Transfers	Incomes from sale and lease of property	Incomes from personal subsidiary plot	Other incomes	Alimony	Children's allowances
The impact that a 1% change in the respective income source will have on inequality	1994	0,043	-0,137	-0,002	-0,001	0,008	0,025	0,004	0,074	-0,001	-0,014
	1995	0,048	-0,140	-0,001	-0,002	0,002	0,033	0,017	0,058	-0,001	-0,014
	1996	0,025	-0,105	-0,001	-0,002	0,012	0,025	0,010	0,046	0,000	-0,010
	1998	-0,006	-0,130	-0,001	-0,003	0,000	0,083	0,026	0,036	-0,001	-0,004
	2000	0,030	-0,147	-0,001	-0,003	0,011	0,021	0,034	0,063	-0,001	-0,008
	2001	0,046	-0,133	-0,001	-0,004	0,001	0,019	0,028	0,054	-0,001	-0,008
	2002	0,048	-0,136	-0,001	-0,008	0,002	0,034	0,012	0,059	-0,002	-0,008
	2003	-0,007	-0,128	-0,001	-0,010	0,009	0,052	0,016	0,076	-0,002	-0,006
	2004	-0,027	-0,122	-0,001	-0,011	0,003	0,053	0,008	0,104	-0,003	-0,006
	2005	0,023	-0,119	-0,001	-0,014	0,004	0,007	-0,004	0,112	-0,003	-0,005
The source Gini G_k	1994	0,601	0,707	0,952	0,989	0,945	0,986	0,973	0,938	0,986	0,771
	1995	0,600	0,705	0,971	0,969	0,956	0,992	0,974	0,935	0,989	0,817
	1996	0,609	0,748	0,976	0,968	0,961	0,994	0,969	0,938	0,989	0,873
	1998	0,628	0,695	0,976	0,948	0,950	0,996	0,974	0,942	0,989	0,951
	2000	0,602	0,691	0,971	0,922	0,951	0,988	0,955	0,961	0,989	0,926
	2001	0,596	0,705	0,969	0,910	0,948	0,993	0,967	0,952	0,989	0,857
	2002	0,572	0,700	0,971	0,885	0,947	0,994	0,976	0,963	0,986	0,861
	2003	0,563	0,694	0,972	0,851	0,954	0,995	0,964	0,969	0,986	0,852
	2004	0,534	0,710	0,974	0,855	0,946	0,997	0,970	0,974	0,982	0,867
	2005	0,523	0,711	0,978	0,835	0,942	0,990	0,965	0,970	0,979	0,893

Characteristic	Year	The salary and natural payments	Pension	Scholarship	Benefits	Transfers	Incomes from sale and lease of property	Incomes from personal subsidiary plot	Other incomes	Alimony	Children's allowances
The Gini correlation of income from source k with the distribution of total income R_k	1994	0,839	0,123	0,259	0,383	0,593	0,838	0,559	0,803	0,245	0,037
	1995	0,841	0,096	0,280	0,174	0,521	0,877	0,684	0,755	0,311	0,098
	1996	0,839	0,193	0,261	0,331	0,643	0,894	0,635	0,739	0,471	0,218
	1998	0,806	0,177	0,249	0,367	0,535	0,956	0,771	0,749	0,460	0,311
	2000	0,816	0,058	0,299	0,244	0,607	0,826	0,719	0,794	0,365	0,076
	2001	0,834	0,121	0,219	0,247	0,506	0,846	0,692	0,775	0,317	-0,104
	2002	0,845	0,117	0,102	0,135	0,506	0,886	0,640	0,805	0,288	-0,029
	2003	0,837	0,093	0,179	0,120	0,617	0,925	0,668	0,861	0,179	-0,048
	2004	0,843	0,063	0,151	0,059	0,547	0,932	0,597	0,890	0,200	-0,017
	2005	0,831	0,115	0,176	0,186	0,501	0,673	0,375	0,875	0,183	-0,048
The share of each income source in total income S_k	1994	0,583	0,168	0,004	0,003	0,043	0,033	0,026	0,122	0,003	0,015
	1995	0,587	0,164	0,004	0,003	0,032	0,038	0,040	0,113	0,003	0,016
	1996	0,595	0,149	0,003	0,005	0,046	0,031	0,040	0,110	0,004	0,017
	1998	0,519	0,171	0,003	0,008	0,037	0,097	0,055	0,096	0,005	0,010
	2000	0,570	0,161	0,003	0,007	0,048	0,028	0,072	0,099	0,004	0,009
	2001	0,609	0,163	0,002	0,008	0,032	0,023	0,063	0,090	0,004	0,007
	2002	0,629	0,167	0,002	0,011	0,034	0,035	0,030	0,082	0,004	0,007
	2003	0,583	0,148	0,002	0,013	0,041	0,056	0,047	0,102	0,004	0,006
	2004	0,596	0,134	0,002	0,012	0,033	0,055	0,034	0,124	0,004	0,005
	2005	0,636	0,148	0,002	0,023	0,035	0,012	0,027	0,109	0,005	0,004

Characteristic	Year	The salary and natural payments	Pension	Scholarship	Benefits	Transfers	Incomes from sale and lease of property	Incomes from personal subsidiary plot	Other incomes	Alimony	Children's allowances
The share of each income source in total inequality	1994	0,626	0,031	0,002	0,003	0,052	0,059	0,030	0,196	0,002	0,001
	1995	0,635	0,024	0,002	0,001	0,034	0,071	0,057	0,171	0,002	0,003
	1996	0,621	0,044	0,001	0,003	0,058	0,057	0,050	0,156	0,004	0,006
	1998	0,513	0,041	0,001	0,006	0,037	0,179	0,081	0,132	0,004	0,006
	2000	0,601	0,014	0,002	0,003	0,059	0,049	0,106	0,161	0,003	0,001
	2001	0,655	0,030	0,001	0,004	0,033	0,042	0,091	0,143	0,002	0,000
	2002	0,676	0,030	0,000	0,003	0,037	0,068	0,042	0,141	0,003	0,000
	2003	0,576	0,020	0,001	0,003	0,050	0,108	0,064	0,177	0,001	0,000
	2004	0,569	0,013	0,001	0,001	0,037	0,109	0,041	0,228	0,002	0,000
	2005	0,659	0,029	0,001	0,009	0,039	0,018	0,023	0,221	0,002	0,000

Table 2. Components of the Gini coefficient of income

Year	Poverty line, rub.	Characteristic	All population	The poor	The rich	Between
1994	62	Population share	11027	0,1832	0,8168	
		The average income	183,75	37,99	216,44	
		Gini coefficient	0,4700	0,2315	0,4111	0,1453
		Share in overall Gini	1,0000	0,0034	0,6874	0,3092
1995	120	Population share	10161	0,1795	0,8205	
		The average income	355,36	73,62	417	
		Gini coefficient	0,4664	0,2373	0,4083	0,1423
		Share in overall Gini	1	0,0034	0,6916	0,3051

Year	Poverty line, rub.	Characteristic	All population	The poor	The rich	Between
1996	158	Population share	9095	0,2079	0,7921	
		The average income	483,12	97,02	584,46	
		Gini coefficient	0,4903	0,2343	0,4243	0,1661
		Share in overall Gini	1	0,0041	0,6569	0,3389
1998	206	Population share	9715	0,2021	0,7979	
		The average income	654,10	132,08	786,29	
		Gini coefficient	0,5122	0,2245	0,4561	0,1613
		Share in overall Gini	1	0,0036	0,6815	0,3149
2000	455	Population share	10986	0,1858	0,8142	
		The average income	1326,50	282,66	1564,68	
		Gini coefficient	0,4664	0,2234	0,4073	0,1462
		Share in overall Gini	1	0,0035	0,6829	0,3135
2001	667	Population share	12259	0,1957	0,8043	
		The average income	1922,67	411,89	2290,25	
		Gini coefficient	0,4622	0,2313	0,3978	0,1538
		Share in overall Gini	1	0,0041	0,6632	0,3327
2002	875	Population share	12635	0,1767	0,8233	
		The average income	2492,96	555,16	2908,72	
		Gini coefficient	0,4489	0,2239	0,3919	0,1374
		Share in overall Gini	1	0,0035	0,6904	0,3060
2003	1090	Population share	12755	0,1790	0,8210	
		The average income	3348,32	681,45	3929,72	
		Gini coefficient	0,4772	0,2248	0,4211	0,1426
		Share in overall Gini	1	0,0031	0,6981	0,2988
2004	1315	Population share	12882	0,1570	0,8430	
		The average income	4083,86	857,16	4684,99	
		Gini coefficient	0,4717	0,2156	0,4251	0,1240
		Share in overall Gini	1	0,0024	0,7347	0,2630

Year	Poverty line, rub.	Characteristic	All population	The poor	The rich	Between
2005	1733	Population share	12383	0,1601	0,8399	
		The average income	4762,63	1108,18	5459,02	
		Gini coefficient	0,4194	0,2131	0,3652	0,1228
		Share in overall Gini	1	0,0030	0,7041	0,2929

Table 3. Gini income elasticities

Characteristic	Year	The salary and natural payments	Pension	Scholarship	Benefits	Transfers	Incomes from sale and lease of property	Incomes from personal subsidiary plot	Other incomes	Alimony	Children's allowances
All	1994	1,07	0,19	0,53	0,81	1,19	1,76	1,16	1,60	0,52	0,06
Poor		(0,006)	(0,003)	(0,0002)	(0,0003)	(0,002)	(0,004)	(0,001)	(0,005)	(0,0002)	(0,0004)
Rich		1,06*	1,02*	0,93*	2,08	1,63	0,78*	0,77*	0,86*	-0,51	0,33
Between		(0,021)	(0,024)	(0,002)	(0,002)	(0,006)	(0,001)	(0,005)	(0,005)	(0,003)	(0,005)
		1,08	-0,07	0,40	0,84*	1,20	1,93	1,16	1,77	0,45	-0,01
		(0,008)	(0,004)	(0,0003)	(0,0003)	(0,002)	(0,004)	(0,002)	(0,006)	(0,0003)	(0,0005)
		1,04	0,73	0,82	0,78	1,12	1,24	1,11	1,16	0,75	0,20
All	1995	1,08	0,14	0,57	0,35	1,07*	1,87	1,43	1,51	0,67	0,17
Poor		(0,013)	(0,002)	(0,0002)	(0,0003)	(0,002)	(0,014)	(0,003)	(0,007)	(0,0003)	(0,0006)
Rich		0,81	1,22	0,45*	1,18*	1,33*	1,36*	1,03*	1,49	1,24*	0,46
Between		(0,020)	(0,020)	(0,002)	(0,004)	(0,006)	(0,003)	(0,003)	(0,008)	(0,002)	(0,006)
		1,09	-0,12	0,46	0,25	1,09*	2,09	1,50	1,66	0,53	0,12
		(0,016)	(0,005)	(0,0003)	(0,0003)	(0,002)	(0,017)	(0,004)	(0,009)	(0,0004)	(0,0007)
		1,05	0,71	0,83	0,59	1,02	1,22	1,18	1,12	0,96	0,29
All	1996	1,04	0,29	0,52	0,66	1,26	1,81	1,25	1,41	0,95	0,39
Poor		(0,008)	(0,002)	(0,0002)	(0,0003)	(0,003)	(0,007)	(0,002)	(0,007)	(0,0005)	(0,0007)
Rich		0,89	1,32	1,10*	1,45*	0,83*	-0,06	1,08*	1,30	0,92*	0,52
Between		(0,020)	(0,017)	(0,001)	(0,002)	(0,005)	(0,001)	(0,004)	(0,008)	(0,002)	(0,005)
		1,07	-0,02	0,32	0,50	1,33	2,05	1,27	1,57	0,95*	0,32
		(0,011)	(0,004)	(0,0003)	(0,0005)	(0,006)	(0,010)	(0,004)	(0,010)	(0,0005)	(0,0007)
		1,00	0,88	0,91	0,96	1,10	1,22	1,16	1,08	0,95	0,55
All	1998	0,99*	0,24	0,46	0,68	0,99*	1,86	1,47	1,38	0,88*	0,58
Poor		(0,017)	(0,004)	(0,0002)	(0,0004)	(0,003)	(0,023)	(0,005)	(0,007)	(0,0004)	(0,0006)
Rich		0,94*	1,16	0,98*	0,90*	1,58	3,00	1,16*	0,35	1,38*	0,74*
Between		(0,020)	(0,021)	(0,002)	(0,003)	(0,007)	(0,002)	(0,004)	(0,008)	(0,002)	(0,005)
		0,99*	-0,04	0,52	0,57	0,98*	2,07	1,56	1,49	0,86*	0,61
		(0,019)	(0,006)	(0,0002)	(0,0006)	(0,003)	(0,027)	(0,007)	(0,010)	(0,0004)	(0,0009)
		0,99	0,82	0,43	0,93	1,00	1,24	1,17	1,09	0,92	0,59

Characteristic	Year	The salary and natural payments	Pension	Scholarship	Benefits	Transfers	Incomes from sale and lease of property	Incomes from personal subsidiary plot	Other incomes	Alimony	Children's allowances
All	2000	1,05	0,09	0,62	0,48	1,24	1,75	1,47	1,64	0,78	0,14
Poor		(0,010)	(0,003)	(0,0001)	(0,0003)	(0,004)	(0,005)	(0,004)	(0,007)	(0,0004)	(0,0004)
Rich		0,76	1,32	0,89*	0,94*	1,42	0,96*	1,14*	1,44	0,45	0,30
Between		(0,024)	(0,025)	(0,001)	(0,002)	(0,007)	(0,001)	(0,006)	(0,008)	(0,002)	(0,004)
		1,06	-0,22	0,56	0,31	1,33	1,92	1,58	1,83	0,77	0,11
		(0,013)	(0,004)	(0,0002)	(0,0004)	(0,005)	(0,007)	(0,005)	(0,011)	(0,0004)	(0,0005)
		1,04	0,71	0,77	0,84	1,03	1,26	1,17	1,15	0,88	0,23
All	2001	1,07	0,18	0,45	0,48	1,04*	1,81	1,45	1,60	0,67	-0,19
Poor		(0,006)	(0,002)	(0,0001)	(0,0003)	(0,002)	(0,004)	(0,005)	(0,005)	(0,0003)	(0,0003)
Rich		0,91	1,33	-0,13	0,80*	1,09*	0,82*	0,92*	1,01*	0,67*	-0,32
Between		(0,018)	(0,019)	(0,002)	(0,002)	(0,004)	(0,002)	(0,004)	(0,004)	(0,001)	(0,003)
		1,08	-0,10	0,50	0,30	1,06*	2,06	1,57	1,77	0,53	-0,08
		(0,010)	(0,004)	(0,0002)	(0,0003)	(0,002)	(0,005)	(0,006)	(0,007)	(0,0004)	(0,0003)
		1,05	0,72	0,46	0,84	0,99	1,21	1,15	1,16	0,94	-0,44
All	2002	1,08*	0,18	0,22	0,27	1,07*	1,96	1,39	1,73	0,64	-0,06
Poor		(0,011)	(0,003)	(0,0001)	(0,0004)	(0,005)	(0,011)	(0,003)	(0,008)	(0,0003)	(0,0002)
Rich		1,03*	1,10*	0,25	1,23*	0,89*	1,67	1,14*	0,51	-0,10	-0,07
Between		(0,018)	(0,020)	(0,002)	(0,003)	(0,005)	(0,003)	(0,003)	(0,005)	(0,002)	(0,004)
		1,08	-0,06	0,25	0,06	1,07*	2,23	1,49	1,92	0,47	0,03
		(0,012)	(0,004)	(0,0002)	(0,0004)	(0,002)	(0,009)	(0,004)	(0,008)	(0,0004)	(0,0004)
		1,06	0,69	0,21	0,72	1,04	1,22	1,12	1,19	1,05	-0,24
All	2003	0,99*	0,14	0,33	0,21	1,23*	1,93	1,35	1,75	0,36	-0,09
Poor		(0,010)	(0,003)	(0,0001)	(0,0003)	(0,005)	(0,010)	(0,003)	(0,008)	(0,0002)	(0,0002)
Rich		1,06*	1,00*	-0,03	1,00*	1,06*	2,11	0,64	0,96*	1,84	-0,23
Between		(0,020)	(0,019)	(0,001)	(0,004)	(0,005)	(0,002)	(0,004)	(0,004)	(0,002)	(0,002)
		0,97*	-0,12	0,22	0,03	1,30*	2,16	1,42	1,94	0,26	-0,17
		(0,013)	(0,005)	(0,0001)	(0,0004)	(0,006)	(0,015)	(0,004)	(0,010)	(0,0003)	(0,0003)
		1,03	0,69	0,60	0,61	1,05	1,23	1,14	1,19	0,58	0,05

Characteristic	Year	The salary and natural payments	Pension	Scholarship	Benefits	Transfers	Incomes from sale and lease of property	Incomes from personal subsidiary plot	Other incomes	Alimony	Children's allowances
All	2004	0,96*	0,09	0,33	0,10	1,10*	1,97	1,23	1,84	0,41	-0,04
Poor		(0,017)	(0,004)	(0,0001)	(0,0004)	(0,003)	(0,021)	(0,003)	(0,010)	(0,0003)	(0,0003)
Rich		1,00*	1,08*	0,69*	0,79*	0,75*	1,42*	0,66*	1,19*	2,03	0,32
		(0,018)	(0,018)	(0,001)	(0,003)	(0,007)	(0,002)	(0,005)	(0,005)	(0,004)	(0,004)
Between		0,93	-0,12	0,12	-0,11	1,14*	2,17	1,25	2,01	0,37	0,04
	(0,021)	(0,006)	(0,0002)	(0,0006)	(0,004)	(0,028)	(0,003)	(0,015)	(0,0004)	(0,0003)	
		1,02	0,67	0,95	0,68	0,98	1,23	1,12	1,22	0,55	-0,26
All	2005	1,04	0,19	0,43	0,37	1,13*	1,59	0,86	2,02	0,43	-0,11
Poor		(0,008)	(0,002)	(0,0002)	(0,0006)	(0,003)	(0,002)	(0,002)	(0,007)	(0,0003)	(0,0003)
Rich		0,98*	1,14	2,05	1,42	0,50	1,36*	0,71*	0,11	2,08	-0,51
		(0,021)	(0,019)	(0,003)	(0,007)	(0,006)	(0,002)	(0,004)	(0,004)	(0,003)	(0,002)
Between		1,02*	-0,01	0,42	0,21	1,17*	1,72	0,79	2,28	0,29	-0,16
	(0,011)	(0,004)	(0,0002)	(0,0009)	(0,003)	(0,003)	(0,002)	(0,010)	(0,0004)	(0,0004)	
		1,05	0,65	0,49	0,77	1,02	1,18	1,04	1,25	0,75	-0,04

The note. Jackknife standard errors appear in parenthesis. The insignificant on 5 % level elasticities are marked by sign * (in the assumption of asymptotic normality distributions of estimations).

Table 4. Income shares

Characteristic	Year	The salary and natural payments	Pension	Scholarship	Benefits	Transfers	Incomes from sale and lease of property	Incomes from personal subsidiary plot	Other incomes	Alimony	Children's allowances
All	1994	0,583	0,168	0,004	0,003	0,043	0,033	0,026	0,122	0,003	0,015
Poor		0,495	0,340	0,006	0,006	0,023	0,003	0,014	0,047	0,006	0,060
Rich		0,587	0,161	0,004	0,003	0,044	0,035	0,026	0,125	0,003	0,013
All	1995	0,587	0,164	0,004	0,003	0,032	0,038	0,040	0,113	0,003	0,016
Poor		0,469	0,343	0,005	0,008	0,030	0,006	0,012	0,062	0,003	0,061
Rich		0,592	0,157	0,004	0,003	0,032	0,039	0,041	0,115	0,003	0,015
All	1996	0,595	0,149	0,003	0,005	0,046	0,031	0,040	0,110	0,004	0,017
Poor		0,602	0,217	0,004	0,006	0,029	0,004	0,014	0,074	0,005	0,046
Rich		0,595	0,146	0,003	0,005	0,047	0,032	0,041	0,112	0,004	0,015
All	1998	0,519	0,171	0,003	0,008	0,037	0,097	0,055	0,096	0,005	0,010
Poor		0,540	0,290	0,009	0,011	0,037	0,003	0,017	0,062	0,006	0,027
Rich		0,518	0,166	0,003	0,008	0,037	0,101	0,057	0,097	0,005	0,009
All	2000	0,571	0,161	0,003	0,007	0,048	0,028	0,072	0,099	0,005	0,009
Poor		0,492	0,334	0,005	0,010	0,043	0,002	0,028	0,046	0,008	0,034
Rich		0,574	0,153	0,003	0,006	0,048	0,029	0,074	0,101	0,004	0,008
All	2001	0,609	0,163	0,002	0,008	0,032	0,023	0,063	0,090	0,004	0,007
Poor		0,500	0,333	0,006	0,013	0,033	0,005	0,030	0,035	0,004	0,042
Rich		0,614	0,156	0,002	0,008	0,031	0,024	0,065	0,092	0,004	0,005
All	2002	0,629	0,167	0,002	0,011	0,034	0,035	0,030	0,082	0,005	0,007
Poor		0,503	0,346	0,007	0,022	0,029	0,009	0,017	0,027	0,004	0,038
Rich		0,634	0,159	0,002	0,010	0,035	0,036	0,030	0,084	0,005	0,006
All	2003	0,583	0,148	0,002	0,013	0,041	0,056	0,047	0,102	0,004	0,006
Poor		0,513	0,327	0,004	0,032	0,033	0,006	0,023	0,028	0,009	0,027
Rich		0,585	0,141	0,002	0,012	0,041	0,058	0,048	0,104	0,003	0,005
All	2004	0,596	0,134	0,002	0,012	0,034	0,055	0,034	0,124	0,004	0,005
Poor		0,542	0,303	0,004	0,025	0,036	0,006	0,018	0,023	0,012	0,031
Rich		0,598	0,129	0,002	0,011	0,033	0,057	0,034	0,128	0,004	0,005

Characteristic	Year	The salary and natural payments	Pension	Scholarship	Benefits	Transfers	Incomes from sale and lease of property	Incomes from personal subsidiary plot	Other incomes	Alimony	Children's allowances
All	2005	0,636	0,148	0,002	0,023	0,035	0,012	0,027	0,109	0,005	0,004
Poor		0,529	0,318	0,006	0,041	0,032	0,005	0,024	0,018	0,008	0,019
Rich		0,640	0,142	0,002	0,022	0,035	0,012	0,027	0,113	0,005	0,004

Shapley decomposition (from paper (Shorrocks, 1999)).

Let I represent an aggregate statistical indicator, such as the overall level of poverty or inequality, and let X_k , $k \in K$, $K = \{1, 2, \dots, m\}$ denote a set of contributory factors which together account for the value of I :

$$I = f(X_1, X_2, \dots, X_m), \quad (1)$$

where $f(\cdot)$ is a suitable aggregator function representing the underlying model.

The indicator I will represent the overall level of poverty or inequality in the population, or the change in poverty over time. The factor X_k may refer to a conventional scalar or vector variable.

In what follows, we imagine scenarios in which some or all of the factors are eliminated, and use $F(S)$ to signify the value that I take when the factors X_k , $k \notin S$, have been dropped. As each of the factors is either present or absent, it is convenient to characterize the model structure $\langle K, F \rangle$, in terms of the set of factors (or, more accurately, «factor indices») K , and the function $F: \{S \mid S \subseteq K\} \rightarrow \mathcal{Y}$. Since that the set of factors completely accounts for I , it will also be convenient to assume throughout that $F(\emptyset) = 0$: in other words, that I is zero when all the factors are removed.

A decomposition $\langle K, F \rangle$ is a set of real values C_k , $k \in K$, indicating the contribution of each of the factors. A decomposition rule is a function which yields a set of factor contributions

$$C_k = C_k(K, F), \quad k \in K, \quad (2)$$

for any possible model $\langle K, F \rangle$.

In seeking to construct a decomposition rule, several desiderata come to mind. First, that it should be symmetric (or anonymous) in the sense that the contribution assigned to any given factor should not depend on the way in which the factors are labeled or listed. Secondly, that the decomposition should be exact (and additive), so that

$$\sum_{k \in K} C_k(K, F) = F(K), \quad \text{for all } \langle K, F \rangle. \quad (3)$$

When condition (3) is satisfied it is meaningful to speak of the proportion of observed inequality or poverty attributable to factor k .

It is also desirable that the contributions of the factors can be interpreted in an intuitively appealing way. In this respect, the most natural candidate is the rule which equates the contribution of each factor to its (first round) marginal impact

$$M_k(K, F) = F(K) - F(K \setminus \{k\}), \quad k \in K. \quad (4)$$

A second possibility is to consider the marginal impact of each of the factors when they are eliminated in sequence. Let $\sigma = (\sigma_1, \sigma_2, \dots, \sigma_m)$ indicate the order in which the factors are removed, and let $S(\sigma_r, \sigma) = \{\sigma_i \mid i > r\}$ be the set of factors that remain after factor σ_r has been eliminated. Then the marginal impacts are given by

$$C_k^\sigma = F(S(k, \sigma) \cup \{k\}) - F(S(k, \sigma)) = \Delta_k F(S(k, \sigma)), k \in K, \quad (5)$$

where

$$\Delta_k F(S) \in F(S \cup \{k\}) - F(S), \quad S \in \mathcal{H}K \setminus \{k\} \quad (6)$$

is the marginal effect of adding factor k to the set S . Using the fact that $S(\sigma_r, \sigma) = S(\sigma_{r+1}, \sigma) \cup \{\sigma_{r+1}\}$ for $r = 1, 2, \dots, m-1$, we deduce

$$\begin{aligned} \mathbf{e}_{k \in K} C_k^\sigma &= \mathbf{e}_{r=1}^m C_{\sigma_r}^\sigma = \mathbf{e}_{r=1}^m [F(S(\sigma_r, \sigma) \cup \{\sigma_r\}) - F(S(\sigma_r, \sigma))] = \\ &= F(S(\sigma_1, \sigma) \cup \{\sigma_1\}) - F(S(\sigma_m, \sigma)) = F(K) - F(\emptyset) = F(K). \end{aligned} \quad (7)$$

The decomposition (5) is therefore exact. However, the value of the contribution assigned to any given factor depends on the order in which the factors appear in the elimination sequence σ , so the factors are not treated symmetrically. This «path dependence» problem may be remedied by considering the $m!$ possible elimination sequences, denoted here by the set Σ , and by computing the expected value of C_k^σ when the sequences in Σ are chosen at random. This yields the decomposition rule C^S given by

$$\begin{aligned} C_k^S(K, F) &= \frac{1}{m!} \mathbf{e}_{\sigma \in \Sigma} C_k^\sigma = \frac{1}{m!} \mathbf{e}_{\sigma \in \Sigma} \Delta_k F(S(k, \sigma)) = \\ &= \mathbf{e}_{s=0}^{m-1} \mathbf{e}_{\substack{S \in \mathcal{H}K \setminus \{k\} \\ |S|=s}} \frac{1}{m!} \mathbf{e}_{\substack{\sigma \in \Sigma \\ S(\sigma, \sigma) = S}} \Delta_k F(S) = \mathbf{e}_{s=0}^{m-1} \mathbf{e}_{\substack{S \in \mathcal{H}K \setminus \{k\} \\ |S|=s}} \frac{(m-1-s)!s!}{m!} \Delta_k F(S) \end{aligned} \quad (8)$$

Using $\pi(s, m-1) = (m-1-s)!s!/m!$ to indicate the relevant probability, equation (8) is expressed more succinctly as

$$C_k^S(K, F) = \mathbf{e}_{S \in \mathcal{H}K \setminus \{k\}} \pi(|S|, |K \setminus \{k\}|) \Delta_k F(S) = \mathbf{E}_{S \in \mathcal{H}K \setminus \{k\}} \Delta_k F(S), k \in K, \quad (9)$$

where $\mathbf{E}_{S \in \mathcal{H}L}$ – is the expectation taken with respect to the subsets of L .

From (7) it is clear that C^S is an exact decomposition rule, and also one which treats the factors symmetrically. Furthermore, the contributions can be interpreted as the expected marginal impact of each factor when the expectation is taken over all the possible elimination paths. Expression

(8) corresponds to the Shapley value for the cooperative game in which «output» or «surplus» $F(K)$ is shared amongst the set of «inputs» or «agents» K . The formula (8) is the Shapley decomposition rule.

Literature

Aivazian S.A., and S.O. Kolenikov (2001). Poverty and expenditure inequality in Russia, *EERC Working Paper* No. 01/01, Moscow: EERC.

Brown, A. (1999), The Russian Crisis: Beginning of the End or End of the Beginning?, *Post-Soviet Affairs*, 15 (1), pp. 56-73.

Buchs, T. (1999), Financial Crisis in the Russian Federation: Are the Russians Learning to Tango?, *Economics of Transition*, 7(3), pp. 687-716.

Commander, S., A. Tolstopiatenko and R. Yemtsov (1999). “Channels of Redistribution: Inequality and Poverty in the Russian Transition,” *Economics of Transition* 7(2):411–47.

Datt, G., Ravallion, M., (1992). Growth and redistribution components of changes in poverty: A decomposition with application to Brazil and India. *Journal of Development Economics* 38, 275–295.

Denisova I., Kartseva M. (2006) Poverty Is No Crime: Measuring Poverty in Russian Regions. NES Working Paper # WP/2006/054.

Duclos, J-Y. and Araar, A. (2003) Poverty and Equity : Measurement, Policy and Estimation with DAD, Université Laval, Québec.

Foster, J.E., J. Greer, E. Thorbecke (1984) A Class of Decomposable Poverty Indices, *Econometrica* 52, pp.761-766.

Gustafsson, B. and Nivorozhkina L. (1996) Relative Poverty in Two Egalitarian Societies: a Comparison Between Taganrog, Russia During the Soviet Era and Sweden, *The Review of Income and Wealth*, 42 (3), 321-334.

Gustafsson, B. and Nivorozhkina L. (2004) Changes in Russian poverty during transition. *The Economics of Transition*, 12 (4), 747-777.

Gustafsson, B. and Nivorozhkina L. (2005) How and Why Transition made Income Inequality Increase in Urban Russia: a Local Study. *Journal of Comparative Economics*, 33, 772-787.

Kolenikov, S. and A. Shorrocks (2005) A Decomposition Analysis of Regional Poverty in Russia, *Review of Development Economics*, 9(1), 25-46.

Kolenikov, S. and A. Shorrocks (2001) Regional poverty in Russia: Is it geography or economics that matter? *Mimeo*

Lerman, R., Yitzhaki S. (1985) Income Inequality Effects by Income Source: A New Approach and Applications to the United States, *The Review of Economics and Statistics*, Vol. 67 (1), pp. 151-156.

Milanovic, B. (1998). "Income, Inequality, and Poverty during the Transition from Planned to Market Economy," World Bank: Washington DC.

Ovcharova, L., E. Turunsev and I. Korchagina (1998) Indicators of Poverty in Transitional Russia, *EERC Working Paper* No. 98/04, Moscow: EERC.

Ovcharova, L., Tesliuc, E. (2006) Sensitivity of poverty and inequality statistics to alternative definitions of household welfare. Illustration using the Nobus survey. Moscow: IISP.

Ravallion M. (1992) Poverty Comparisons: A Guide to Concepts and Methods. LSMS Working paper, 88, Washington D.C.: World Bank.

Ravallion, M. and M.Huppi (1991) Measuring Changes in Poverty: A Methodological Case Study of Indonesia During an Adjustment Period, *World Bank Economic Review*, 5, 57-84.

Russian Federation: Reducing Poverty through Growth and Social Policy Reform (2005) Poverty Assessment Report on Russia No.28923, Washington D.C.: World Bank.

Shapley, L. (1953) A value for n -person games, in *Contributions to the Theory of Games*, ed. by H.W.Kuhn and A.W.Tucker, Princeton: Princeton University Press, vol. 2 of *Annals of Mathematics Studies*, 303-317.

Shorrocks, A.F. (1999) Decomposition procedures for distributional analysis: A unified framework based on the shapley value. Tech. rep., University of Essex.

Shorrocks, A.F., and Kolenikov S. (2001). Poverty Trends in Russia during the Transition." Mimeo. Helsinki: UNU/WIDER.

Wodon, Q., and S. Yitzhaki. 2001. Inequality and Social Welfare. In J. Klugman, editor, *Poverty Reduction Strategies Source Book*, World Bank, Washington, D.C.

Yitzhaki S. 2002. Do we need a separate poverty measurement? *European Journal of Political Economy*, Vol. 18, 61-85.

Bogomolova T.JU., Tapilina V.S. Bednost' v sovremennoj Rossii: masshtaby i territorial'naja differenciacija//JEKO. – 2004. – № 11. s. 41-56.

Dohody i social'nye uslugi: neravenstvo, ujazvimost', bednost' / Ruk. avt. koll. L.N. Ovcharova; Nezavisimyj institut social'noj politiki. M.: GU—VSHJE, 2005.

Ovcharova L.N., Popova D.J. Detskaja bednost v Rossii. Trevozhnie tendenzii I vibor strategicheskikh dejstvij. M. JUNISEF, 2005.

Kislicyna O.A. Neravenstvo dohodov v Rossii v perehodnyj period: chem ono ob#jasnja-etsja? – Nauchnyj doklad 03/08. M.: EERC, 2003.

Spryskov D.S. Za chertoj bednosti: issledovanie dlitel'noj bednosti v Rossii. Nauch-nyj doklad №03/04. M.: EERC, 2003.

Predlozhenija k strategii sodejstvija sokrawenija bednosti v Rossii: analiz i rekomendacii / Izdatel'stvo bjuro MOT v Rossii. M., 2002.

Obzor social'noj politiki v Rossii. Nachalo 2000-h/ pod red. T.M.Malevoj/ N.V.Zubarevich,
D.H.Ibragimova i dr.; Nezavisimyj institut social'noj politiki. – M.: NISP, 2007.