

Economic Inequality of Citizens beyond Averages: Assessment in the Conditions of its Transformation



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Abstract. Inequality in Russia has been at a consistently high level for 30 years, but it is not permanent or static. New forms of it are emerging, such as digital inequality, inequality of life and work balance, health inequality, inequality of the coronavirus crisis. The difference between the richest and poorest in food consumption in terms of volume is shrinking, but in terms of quality it is growing. The purpose of the study is to substantiate the need to improve approaches to the measurement of economic inequality of citizens on the basis of determining the features of its modern transformation. The hypothesis of the study is that economic inequality in Russia is transforming, and the existing approaches to its assessment do not allow us to comprehensively and objectively determine its current state, which leads to the ineffectiveness of the measures taken by the government to smooth it out. A comparative analysis of the classical indicators of economic inequality was conducted: the Gini coefficient, the Theil, Atkinson, Palma indices, R/P 10% ratio (the ratio of the average income of the richest 10% to the poorest 10%), R/P 20% ratio (the ratio of the average income of the richest 20% to the poorest 20%), decile differentiation ratio (the ratio of the lowest income in the tenth decile to the highest income in the first decile) and quintile differentiation ratio (the ratio of the lowest income in the fifth quintile to the highest income in the first quintile). The results of the assessment of inequality in Russia obtained by eight organizations (Rosstat, CIS Stat, World Bank, Luxembourg Income Study, Credit Suisse, World Inequality Database, UN Development Program, European Bank for Reconstruction and Development) are compared. In Russia, income inequality remains consistently high, wealth inequality is excessive (Credit Suisse estimates the Gini coefficient

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at 0.88), and opportunity inequality is less significant in comparison to them. It is proved that the classical statistical indicators do not reflect the transformation of economic inequality, new markers are needed for this. Rosstat estimates income inequality and consumption inequality, leaving out wealth inequality and nonmonetary manifestations of economic inequality. Four directions for improving approaches to the diagnostics of economic inequality in Russia were identified: a qualitative assessment of the manifestations of consumption inequality, nonmonetary manifestations of economic inequality, wealth distribution and the increase in income differentiation within the groups of the wealthiest citizens.

Key words: income inequality, wealth inequality, consumption inequality, opportunity inequality, transformation of inequality, smoothing, Gini coefficient, Rosstat, inequality assessment.

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Introduction

Inequality is one of the key global socio-economic problems of mankind. The current conditions of geo-economic turbulence, exacerbated by the beginning of the coronavirus crisis and the special military operation in Ukraine, carry the risks of increasing inequality, which may become, to some extent, critical for society. As Nobel Prize laureate in economics J. Stiglitz notes, “inequality gives rise to instability, the instability itself gives rise to more inequality, one of the vicious cycles” (Stiglitz, 2012, p. 156).

For Russia, this instability is exacerbated by sanctions pressure, and also by a sharply increased budget deficit since the beginning of 2023. Against the background of growing risks, it must be stated that inequality in Russia has been at a high level for 30 years since the beginning of market transformations. Thus, the Gini coefficient, as a classic indicator of income inequality of citizens, according to Rosstat, exceeds 0.4 and in 2021 is 0.409¹. Today, the task of overcoming inequality is set in Russia at the highest state level, even under conditions of unprecedented sanction pressure on

the economy². In the current environment, the problem of inequality requires special attention from the government, because the current economic uncertainty in Russia, coupled with a possible exacerbation of the citizens’ inequality problem, can lead to the realization of risks to socio-economic stability. Stiglitz also pointed out, that inequality increases economic instability, which leads to political instability (Stiglitz, 2012, p. 223). This is very important for Russia today because, as V.A. Ilyin and M.V. Morev noted, “long-term unresolved issues related to the increase of the level and quality of life which would be noticeable by wider population, as well as more equitable distribution of national wealth, has a negative impact on the dynamics of public opinion regarding the efficiency of the system of public administration and the President’s activities” (Ilyin, Morev, 2020, p. 29).

Despite the stability of inequality in Russia, it is not permanent or static. Inequality finds new forms of manifestation, such as in access to

¹ Gini coefficient. Rosstat. Available at: <https://rosstat.gov.ru/folder/13723> (accessed: March 3, 2023).

² Meeting on measures of social and economic support of regions. Official website of the RF President, dated March 16, 2022. Available at: <http://www.kremlin.ru/events/president/news/67996> (accessed: March 12, 2023).

medicine (Whitehead, Dahlgren, 2007) and education, on forms of leisure activities (Platt, 2019), environmental³ (Osipova, 2021, p. 81; Hamann et al., 2018) or environmental inequality (Bartone, 2002, p. 158), digital inequality (Schullerr-Zwierlein, Zillien, 2013; Deursen, Dijk, 2014; Robinson et al., 2015; Yates et al., 2015), life and labor balance inequality (Mareeva, 2019), and coronavirus crisis inequality (Milovidov, 2021).

Changes in the manifestation inequality are also expressed in an increase in the qualitative gap, while quantitative indicators may be stable. This applies, for example, to differences in the quality of products and services consumed by the most and least affluent citizens while maintaining the volume of consumption. This may be the reason for an increase in the subjective assessment of citizens' perception of inequality (Belekhova, 2023, p. 180).

In other words, the inequality of citizens is being transformed. By transformation of inequality we propose to understand its changes as a phenomenon in the practical level, the emergence of its new forms and the manifestations and the disappearance of the old ones. For example, while in the first half of the 20th century inequality in access to electricity or kerosene consumption might have been significant, today it is not relevant, and the availability of access to 4G/5G communication and high-speed Internet has become significant. The most significant, in our opinion, are currently the following transformations of economic inequality, which became the focus of this study: qualitative transformation of consumption inequality, not fixed by quantitative statistical indicators, differentiation of nonmonetary manifestations of economic inequality (access to education, medicine, communications, environmental inequality),

increasing income differentiation and inequality in the distribution of wealth. Such trends remain beyond the scope of observation and averages. These are mostly qualitative changes. "The economic factors underlying the "classic" understanding of social inequality, are increasingly moving into the background, giving way to non-economic factors that determine not a quantifiable standard of living, but rather a kind of integral satisfaction with it" (Milovidov, 2021, p. 65).

Despite wide of coverage by domestic science of the problem of citizens' inequality and research on the prospects for overcoming it, the issues of the need to change approaches to the diagnosis of inequality of citizens in its modern transformation remain outside the scope of research, which indicates the presence of a gap in scientific knowledge. At the same time, there are proposals to use the experience of foreign statistical services and international organizations in measuring inequality on the basis of equivalent income (Surinov, Luppov, 2020). Of interest are developments in nonmonetary indices of inequality – based on multidimensional poverty, material deprivation and social exclusion (Moiseeva, 2019) and the subjective approach to the definition of poverty by individuals themselves (Slobodenyuk, 2014). Foreign researchers, using economic-mathematical methods, propose an approach to assessing multidimensional inequality – based on income, expenses and ownership (Lugo, 2005; Araar, 2009; Yang et al., 2023), and the multidimensionality may not consist in a combination of these three indicators, but in assessing inequality simultaneously on these three manifestations – in three-dimensional space (Hajdu, 2021).

Most domestic researchers are focused on substantiating changes in approaches to assessing the poverty level within, for example, the expert method of determining equivalent income (Zhmachinskii, Cherneva, 2018) or analyzing the

³ Inequality in the distribution of environmental benefits: inequality in the influence of nature on society and people and the impact on them of the features of the urban environment in which most of the world's population lives today; asymmetric distribution of knowledge about environmental problems and ways to solve them.

possibilities of applying international assessment standards (Kubishin et al., 2021), and the implementation of the Eurostat approach in terms of the AROPE index⁴ (Korchagina et al., 2019). In the applied aspect, there are changes in this direction, in contrast to the approaches to measuring inequality, which remain classical. For example, Rosstat is developing approaches to measuring nonmonetary poverty and multidimensional poverty⁵.

Modern economic science has not developed a unified approach to the definition of economic inequality. In the context of this study, we will understand that approach as inequality of wealth in the broad sense, in distinguishing between inequality of current income, inequality of accumulated capital or wealth, and inequality of consumption. Economic inequality is a narrower category than social or socio-economic inequality, which in addition to differences between income, wealth, consumption and access to benefits is dictated by the impact of various non-economic factors, which differentiate social status, such as sex, age, level of education, birth in urban or rural areas, etc.

The hypothesis of the study is that the economic inequality of citizens in Russia is transforming, and the existing approaches to its assessment do not allow us to comprehensively and objectively determine its current state, which among other

things leads to the inefficiency of the measures taken by the state to smooth it out.

The aim of the study is to substantiate the possibility of improving approaches to the diagnosis of economic inequality of citizens on the basis of determining the directions of its modern transformation.

The objectives of the study, aimed at achieving this purpose:

- to highlight and compare key statistical indicators of economic inequality of citizens;
- to summarize the results of a comparative analysis of economic inequality in Russia according to Rosstat and international organizations;
- to identify opportunities for improving approaches to the diagnosis of economic inequality of citizens in the conditions of its modern transformation.

The scientific novelty of the study consists in substantiating the possibility of improving approaches to the diagnosis of economic inequality of citizens in Russia in conditions of its transformation: the need for a qualitative assessment of inequality, assessment of nonmonetary manifestations of economic inequality, wealth distribution and increasing income differentiation within groups of the most affluent citizens.

The results can be used by Rosstat, other statistical organizations, and scientists for developing more effective ways to measure inequality. This is the practical significance of the study.

Methods and information base of the study

In order to identify promising areas for improving approaches to assessing inequality, we summarized the information on the classical indicators of concentration and entropy: the Gini coefficient, the Theil, Atkinson and Palma indices, R/P 10% ratio (the ratio of the average income of the richest 10% to the poorest 10%) and R/P 20% ratio (the ratio of the average income of the richest 20% to the poorest 20%) and decile differentiation ratio (the ratio of the lowest income in the tenth

⁴ AROPE (at Risk of Poverty or Social Exclusion) is the share of the population at risk of poverty or social exclusion, corresponding to the sum of people who are either at risk of poverty, in a difficult material and social situation, or living in a household with a very low intensity of work. This is the main indicator for monitoring the EU poverty and social exclusion target for the period up to 2030 and for monitoring the poverty target in the EU Strategy 2020. Source: AROPE. Eurostat. Available at: https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Glossary:Persons_living_in_households_with_low_work_intensity (accessed: March 13, 2023).

⁵ Report at the meeting of the Scientific and Methodological Council of the Federal State Statistics Service "On improving the methodological provisions for the calculation of nonmonetary poverty indices based on sample observations of socio-demographic problems". Rosstat. Available at: https://www.gks.ru/free_doc/new_site/rosstat/NMS/doc-frol.pdf. (accessed: March 14, 2023).

decile to the highest income in the first decile) and quintile differentiation ratio (the ratio of the lowest income in the fifth quintile to the highest income in the first quintile), a comparative analysis of these indicators was carried out.

Based on data from eight organizations – Rosstat, CIS Stat, World Bank, Luxembourg Income Study, Credit Suisse, World Inequality Database, UN Development Program, European Bank for Reconstruction and Development (EBRD) – the results of inequality assessment in Russia are compared and the directions of its transformation, requiring improvement of approaches to its assessment in terms of income, wealth and consumption inequality are highlighted.

Statistical analysis and the analysis of series of dynamics are used to illustrate changes in the level of citizens' inequality in Russia. Vertical analysis is used to assess the consumption structure of different income groups.

The information base of the study on the inequality level in Russia and its methodological approaches to its measurement was formed by data from Rosstat and the mentioned international organizations.

Approaches of Rosstat and international organizations to measuring inequality of citizens

Let us consider various approaches to measuring inequality. Information about the indicators of inequality calculated by Rosstat and international organizations is summarized in *Table 1*.

Table 1. Indicators of citizens' inequality

Indicators	Identifier	Characteristic	Calculation formula	Organizations
Gini coefficient	G	The concentration ratio. Demonstrates how much the actual distribution of income deviates from a completely uniform distribution. It takes values from 0 to 1, where 0 is a situation of absolute equality, 1 is absolute inequality. The entire set is taken into account, it allows us to compare the inequalities of different sets.	$G = \left 1 - \sum_{i=1}^{k-1} (Y_{i+1} + Y_i) \times (X_i - X_{i+1}) \right $, where Y_i – cumulative share of income indicator, X_i – cumulative share of observations (population/households), k – number of intervals in the cumulative series	Rosstat, CIS Stat, Eurostat, OECD, World Bank, Luxembourg Income Study, Credit Suisse (by wealth), World Inequality Database (by wealth), UN Development Program, EBRD (by opportunities)
Theil index	T	The entropy indicator, shows how far from equality the distribution of income is. It ranges from 0 to infinity, where 0 is an absolutely equal distribution. The entire set is taken into account.	$T = \frac{1}{N} \times \sum_{i=1}^N \left(\frac{x_i}{\bar{x}} \times \ln \frac{x_i}{\bar{x}} \right)$, where x_i – income of the i -th citizen, N – number of citizens	World Bank
Atkinson index	A	The entropy indicator, which allows us to take into account the degree of non-acceptance of inequality by citizens. Accepts values from 0 to 1, where 0 is absolute equality, 1 is absolute inequality.	$A = 1 - \left(\frac{1}{N} \times \sum_{i=1}^N \left(\frac{x_i}{\bar{x}} \right)^{1-\varepsilon} \right)^{\frac{1}{1-\varepsilon}}$, where x_i – income of the i -th citizen, N – number of citizens, ε – a parameter of society's perceptions of the permissible depth of inequality	Luxembourg Income Study, UN Development Program

End of Table 1

Indicators	Identifier	Characteristic	Calculation formula	Organizations
Palm coefficient	P	The concentration indicator, represents the ratio of total incomes of the tenth decile to the 40% of citizens with the lowest incomes. Does not take into account the distribution in the middle groups.	$P = \frac{x_{10}}{x_1 + x_2 + x_3 + x_4},$ where x_i – total monetary income of the i -th decile	UN Development Program, OECD
R/P 10% ratio	k_1	The ratio of average income of the tenth and first decile. Does not take into account the income distribution of 80% of the population	$k_1 = \frac{\bar{x}_{10}}{\bar{x}_1},$ where \bar{x}_{10} – average income of the tenth decile, \bar{x}_1 – average income of the first decile	Rosstat, CIS Stat, OECD, World Bank
Decile differentiation ratio	k_2	The ratio of the lowest income in the tenth decile to the highest income in the first decile.	$k_2 = \frac{x_9}{x_1},$ where x_9 – income of the poorest citizen in the tenth decile, x_1 – income of the richest citizen in the first decile	Rosstat, Luxembourg Income Study
R/P 20% ratio	k_3	Ratio of average income of the fifth and first quintile. It is the analogue to the decile, but allows us to track changes in a larger group of citizens due to the coverage of data for 40% of the population.	$k_3 = \frac{\bar{x}_5}{\bar{x}_1},$ where \bar{x}_5 – average income of the fifth quintile, \bar{x}_1 – average income of the first quintile	Rosstat, CIS Stat, Eurostat, World Bank, UN Development Program
Quintile differentiation ratio	k_4	The ratio of the lowest income in the fifth quintile to the highest income in the first quintile.	$k_4 = \frac{x_4}{x_1},$ where x_4 – income of the poorest citizen in the fifth quintile, x_1 – income of the richest citizen in the first quintile	Luxembourg Income Study
According to: (Kostyleva, 2011, pp. 30–41; Salmina, 2019; Klasen et al., 2016; Pyatt et al., 1980).				

Rosstat collects and summarizes a lot of information for assessing inequality. On the official website of Rosstat, in the section “Inequality and poverty”⁶, data since 1995 are accumulated in the following areas:

- inequality in the money income distribution;
- differentiation of salary;
- inequality in consumption.

For the Russian Federation as a whole and in the regional context, inequality in the distribution of the population’s money income is estimated by decile (10%) or quintile (20%) groups and also by the Gini coefficient, R/P 10% ratio and R/P 20% ratio, decile and quintile differentiation ratio. These

⁶ Inequality and poverty. Rosstat. Available at: <https://rosstat.gov.ru/folder/13723> (accessed: March 18, 2023).

data are generated annually based on a random survey of household income and participation in social programs (VNDP) for 60,000 households. Salary, income of the self-employed, income from property, pensions and benefits are taken into account. Also, the source of data is the official statistical reporting of economic entities.

Differentiation in salary is assessed not only in the regional, but also in the industry section, and also according to the forms of ownership of organizations-employers. These data are used to calculate the decile differentiation ratio. In addition to the official statistical reporting to assess the differentiation of salary, Rosstat conducts a sample survey of the number of employees’ distribution by the size of accrued salary. Inequality in consumption

is estimated by Rosstat by final consumption expenses, the structure of consumer spending, food consumption and daily ration of households by decile groups. The data on the resource are presented since 2005, there is no regional context.

The CIS Stat relies on data from national statistical authorities and summarizes information on the Gini coefficient and R/P 10% ratio and R/P 20% ratio⁷.

Eurostat assesses citizens' income inequality by the Gini coefficient and the R/P 20% ratio based on the concept of equivalent disposable income, and also pays serious attention to age and gender inequality⁸. There are no data about Russia.

The OECD calculates the Gini coefficient, the Palm Index and the R/P 10% ratio to measure income inequality and inequality in the distribution of wealth. The assessments of gender inequality, inequality in entrepreneurship, employment, level of education, self-assessment of health and life satisfaction are original. The OECD database contains standardized measures of inequality, derived from the concept of equivalent disposable household income from household finance surveys, carried out by the national statistical authorities of participating countries⁹. There are no data about Russia.

The World Bank estimates the level of inequality across countries by accumulating separate data since the 1980s on such indicators as the Gini index, the Theil index, average consumption rates of citizens, shares of income by decile and quintile groups, using which we can also calculate R/P 10% and R/P 20% ratios¹⁰. The World Bank estimates the level of inequality in Russia based on Rosstat data, using adjustments to approximate the income distribution.

⁷ Population, employment and living conditions in the countries of the Commonwealth of Independent States – 2020. CIS Statistics Database. Available at: <http://www.cisstat.info/0base/frame-rus.htm> (accessed: March 18, 2023).

⁸ Database. Eurostat. Available at: <https://ec.europa.eu/eurostat/web/main/data/database> (accessed: March 18, 2023).

⁹ Social protection and well-being. OECD.Stat. Available at: <https://stats.oecd.org/> (accessed: March 18, 2023).

¹⁰ Poverty and Inequality Platform. The World Bank Data. Available at: <https://pip.worldbank.org/#> (accessed: March 18, 2023).

The Luxembourg Income Study includes data on the Gini and Atkinson indices, the decile and quintile differentiation ratios, and the ratios of income of the bottom of the upper decile to the average income. In all key measures of inequality, the Luxembourg Income Study uses equivalent income, which is equal to the unadjusted household income divided by the square root of the number of household members, assuming that all household members have the same equivalent income, regardless of age, sex or relationship to the head of household¹¹. The source of the Luxembourg Income Study for Russia is Rosstat data.

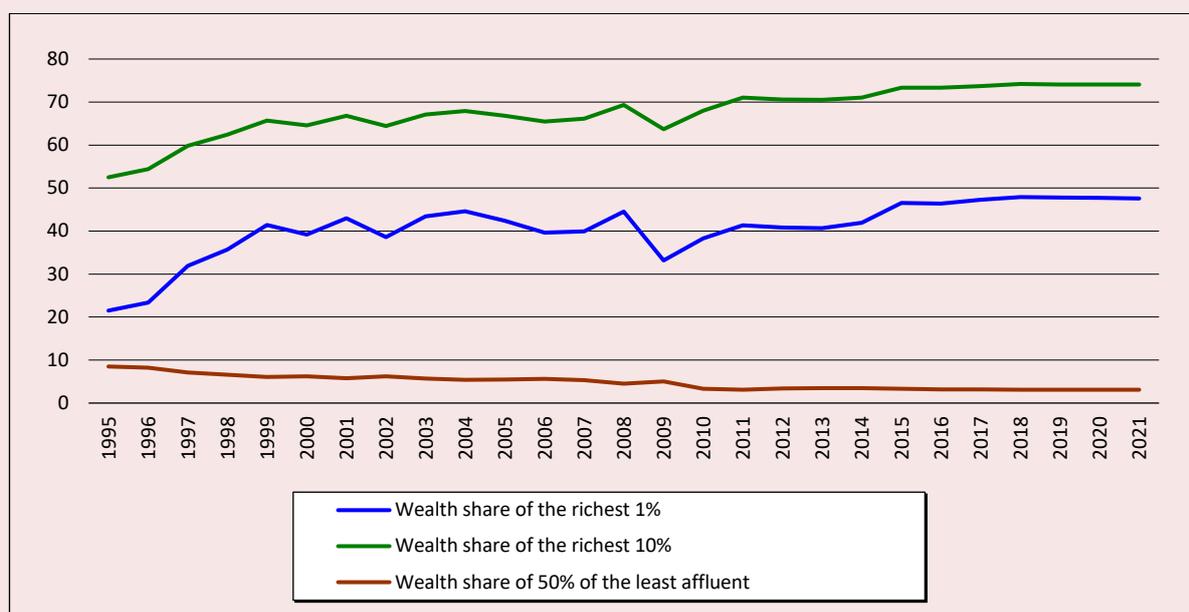
A fundamentally different manifestation of inequality is estimated by Credit Suisse and the World Inequality Database – inequality in the distribution of wealth.

The World Inequality Database collects information on income and wealth inequality by such indicators as the share of income of the richest 1% and 10%, the share of income of the poorest 50%, and the Gini index. For Russia, data on income inequality has been available since 1905, and on wealth inequality since 1820. This is the broadest set of data, including periods not only of the USSR, but also of the Russian Empire. In 2021, the wealth of the richest 1% of Russians was 47.6% and the richest 10% had 74.1% of total wealth, while the 50% of the least wealthy Russians had 3.1% of wealth¹². The dynamics of wealth concentration indicators is presented in *Figure 1*. Since 1995 the wealth of the richest 1% has grown 2.2-fold from 21.5% to 47.6%, i.e. nowadays 1% of the wealthiest citizens in Russia owns almost half of all the wealth. Against this background, the welfare of the poorest 50% of Russians has declined significantly: the share of their wealth in its total volume has declined 2.7-fold since 1995, from 8.5% to 3.1%.

¹¹ LIS Inequality and Poverty Key Figures. Luxembourg Income Study. Available at: <http://www.lisdatacenter.org> (accessed: March 18, 2023).

¹² Russian Federation. World Inequality Database. Available at: <https://wid.world/country/russian-federation/> (accessed: March 18, 2023).

Figure 1. Dynamics of inequality in the distribution of wealth in Russia, 1995–2021



Source: Russian Federation. World Inequality Database. Available at: <https://wid.world/country/russian-federation/> (accessed: March 18, 2023).

The database of Credit Suisse, one of the largest financial and banking groups in Switzerland¹³, reports on the global distribution of wealth. The report is based on the integration of estimates of household financial assets, an estimate of the relationship between the distribution of total wealth and the distribution of income, and Forbes data on the number of billionaires by country. The degree of inequality is estimated on the basis of the Gini index of wealth in individual countries. For Russia, the data in the 2022 report are shown in the dynamics from 2000 to 2021. They indicate an increase in wealth inequality: the Gini index of wealth rose from 0.84 in 2000 to 0.88 in 2021, reaching 0.9 in 2010. This is an excessive level of inequality in the distribution of wealth. By comparison, it was 0.647 in Japan and 0.701–0.726 in China, France, the UK and Canada. In addition, the report accumulates

data on the concentration of wealth. For the richest 1%, 5% and 10% of Russians, it is 58%, 77% and 83%, respectively¹⁴.

Particularly noteworthy is the assessment of nonmonetary inequality of citizens, conducted by the UN Development Program and the European Bank for Reconstruction and Development (EBRD).

The UN Development Program estimates the Human Development Index (HDI) for countries adjusted for inequalities in life expectancy, education and income. Income inequality is measured by the Gini index, the Palm index and R/P 20% ratio. In its calculations, the UN is guided both by its own data and by data from the World Bank, the Luxembourg Income Study and Eurostat. For Russia, nonmonetary inequality is significantly lower than monetary inequality. For example, in

¹³ In March 2023, absorbed by the largest financial conglomerate in Switzerland – UBS. See: UBS bought Credit Suisse. RBC. Available at: https://www.rbc.ru/finances/19/03/2023/641756b59a79473e297de03a?from=article_body (accessed: March 18, 2023).

¹⁴ Global Wealth Report 2022. Credit Suisse. Available at: <https://www.credit-suisse.com/about-us/en/reports-research/global-wealth-report.html> (accessed: March 18, 2023).

2019, the inequality in education was 4.2%, and for life expectancy it was 7.1%¹⁵.

The EBRD's 2016–2017 Transition Report explores inequality of opportunity – the impact of birth circumstances (sex, ethnicity, place of birth, parents' education and membership in the Communist Party) on opportunities for quality education, jobs and high income. The Gini index of opportunity and the index of relative inequality of opportunity, which characterizes the share of income inequality of citizens, explained by the dispersion of opportunity inequality, are assessed.

In Russia in 2016, the Gini index of opportunity exceeded 0.3, and the index of relative inequality of opportunity was about 0.35. Among the factors under consideration, sex, place of birth (urban or rural), and parents' education had a more significant effect on income inequality in Russia. Ethnicity and parents' membership in the Communist Party had no significant effect on income inequality¹⁶.

Generalized data on the economic inequality of Russians as estimated by Rosstat and international organizations are shown in *Table 2*.

Table 2. Indicators of economic inequality of Russian citizens according to Rosstat and international organizations in 2000–2020

Indicator	Source	2000	2010	2020*
Gini coefficient by income	Rosstat	0.395	0.421	0.406
	CIS Stat	0.397	0.421	0.403
	World Bank	0.371	0.395	0.36
	Luxembourg Income Study	0.427	0.342	0.323
	UN Development Program	no data	no data	0.377
Gini coefficient by wealth	Credit Suisse	no data	0.706	0.878
	World Inequality Database	0.60	0.55	0.58
Theil index	World Bank	0.263	no data	no data
Atkinson index ($\epsilon = 0.5$)	Luxembourg Income Study	0.159	0.101	0.085
Palm coefficient	UN Development Program	no data	no data	1.6
R/P 10% ratio	Rosstat	13.9	16.6	14.9
	CIS Stat	13.9	16.6	14.5
	World Bank	11.0	12.2	9.4
Decile differentiation ratio	Rosstat	н/д	н/д	6.9
	Luxembourg Income Study	6.9	4.8	4.3
R/P 20% ratio	Rosstat	7.9	9.2	8.6
	CIS Stat	8.0	9.2	8.4
	World Bank	6.8	7.3	5.9
	UN Development Program	no data	no data	6.6
Quintile differentiation ratio	Luxembourg Income Study	3.39	2.69	2.55

* Or data for the last available year.

According to: Inequality and poverty. Rosstat. Available at: <https://rosstat.gov.ru/folder/13723> (accessed: March 18, 2023); Population, employment and living conditions in the countries of the Commonwealth of Independent States – 2020. CIS Statistics Database. Available at: <http://www.cisstat.info/Obase/frame-rus.htm> (accessed: March 18, 2023); Poverty and Inequality Platform. The World Bank Data. Available at: <https://pip.worldbank.org/#> (accessed: March 18, 2023); LIS Inequality and Poverty Key Figures. Luxembourg Income Study. Available at: <http://www.lisdatacenter.org>. (accessed: March 18, 2023); Russian Federation. World Inequality Database. Available at: <https://wid.world/country/russian-federation/> (accessed: March 18, 2023); Global Wealth Report 2022. Credit Suisse. Available at: <https://www.credit-suisse.com/about-us/en/reports-research/global-wealth-report.html> (accessed: March 18, 2023); Human Development Reports. United Nations Development Programme. Available at: <https://web.archive.org/web/20190728091531/http://hdr.undp.org/en/composite/IHDI> (accessed: March 18, 2023).

¹⁵ Human Development Reports. United Nations Development Program. Available at: <https://web.archive.org/web/20190728091531/http://hdr.undp.org/en/composite/IHDI> (accessed: March 18, 2023).

¹⁶ Transition Report 2016–17. European Bank for Reconstruction and Development. Available at: <https://www.ebrd.com/news/publications/transition-report/transition-report-201617.html> (accessed: March 18, 2023).

A comparative analysis of economic inequality indicators in Russia shows significant differences in the estimates of different organizations and even the absence of a single trend in their dynamics, and also the difference in the characteristics of the level of inequality on these indicators. For example, Rosstat estimates income inequality according to the Gini coefficient at a stable level of ≈ 0.4 , which is a high level; the World Bank and the UN Development Program estimate it at a lower level of 0.36–0.38, but it is also stable, while the Luxembourg Income Study records a decline in the Gini coefficient for income in Russia from 0.427 in 2000 to a moderate 0.323 in 2020.

Thus, at present Rosstat, just like international organizations, currently analyzes income inequality, which in Russia is estimated as high. Rosstat, unlike many international organizations, estimates inequality of consumption of citizens. However, there are no data on wealth inequality and nonmonetary manifestations of economic inequality, which makes it impossible to study inequality in Russia in all its manifestations, taking into account that wealth distribution inequality is estimated as excessive.

Directions for improving the assessment of inequality in its transformation

“Assessing inequalities in human development demands a revolution in metrics”, – such was the conclusion of the UN Development Program’s 2019 Human Development Report¹⁷. It is obvious that the task set at the highest state level in Russia to smooth the inequality of citizens in the conditions of its transformation requires the development of new adaptive approaches to its measurement.

Rosstat has made significant progress in measuring income and consumption inequality among citizens, but inequality is now finding new

manifestations that need to be diagnosed and assessed. According to thesis of the UN Development Program’s 2019 Human Development Report, “tackling inequality starts with good measurement”¹⁸. Therefore, we will consider four key areas, in our opinion, requiring the development of approaches to assessing inequality for its further study and development of proposals for its smoothing: the qualitative transformation of consumption inequality; nonmonetary manifestations of economic inequality; increasing income differentiation of the wealthiest citizens; inequality of wealth distribution.

1. The qualitative transformation of consumption inequality.

Compared with the 1990s and the early 2000s, the level of poverty and extreme poverty in Russia has significantly decreased, but income inequality remains stably high. At the same time, gaps in consumption indicators between the extreme social groups – the most and the least affluent citizens – are narrowing. Thus, R/P 10% ratio for final consumption expenditures from 2012 to 2021, according to Rosstat¹⁹, decreased from 8.28 to 7.97-fold. Final consumption expenditures in 2021 for the tenth decile group amounted to 55,3 thousand rubles per month per person, and for the first decile group – 6,9 thousand rubles. The indicators of the consumption structure by the first and tenth decile groups in 2012 and 2021 are presented in *Table 3*.

The basis of consumption expenses of the poorest citizens is represented by expenses for homemade food – 51.3%, the share of these expenses has increased since 2012. For the most affluent citizens, the basis of expenditures consists of expenditures on transportation – 25.8%, homemade food – 19.8%. In the structure of expenses of the most affluent citizens over the least

¹⁷ Human Development Report 2019. Beyond income, beyond averages, beyond today: Inequalities in human development in the 21st century. UN Development Program. Available at: http://hdr.undp.org/sites/default/files/hdr_2019_ru.pdf (accessed: March 20, 2023).

¹⁸ Ibid.

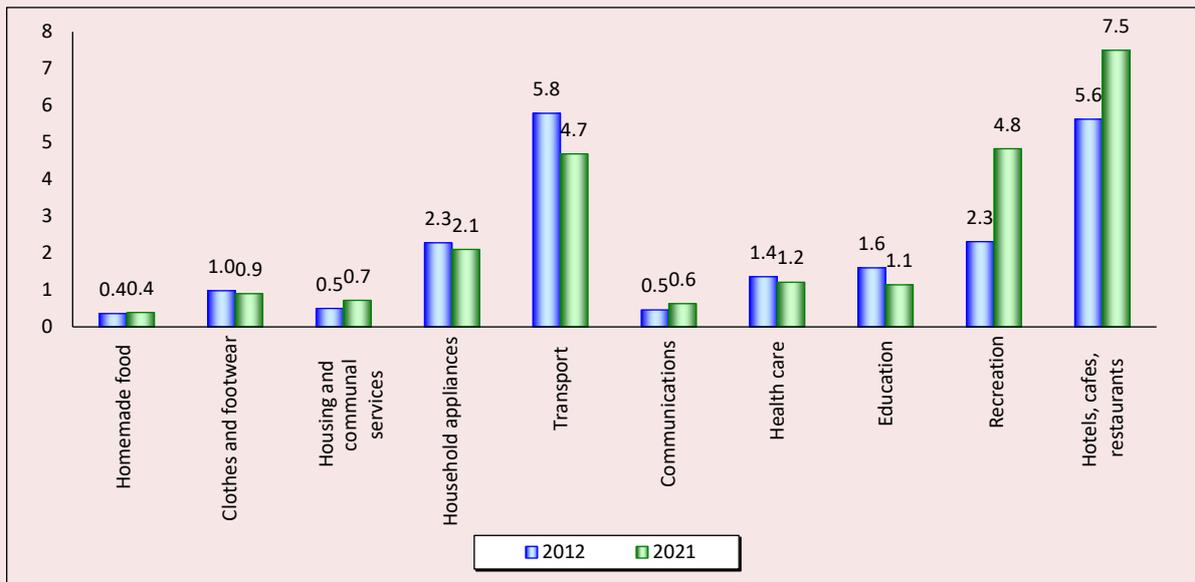
¹⁹ Inequality and poverty. Rosstat. Available at: <https://rosstat.gov.ru/folder/13723> (accessed: March 18, 2023).

Table 3. Consumption patterns of the first and tenth decile groups in 2012 and 2021

Item of expenditure	First R/P 10% group			Tenth R/P 10% group		
	2012, %	2021, %	Change, p.p.	2012, %	2021, %	Change, p.p.
Homemade food	48.0	51.3	3.3	17.1	19.8	2.7
Clothes and shoes	8.0	7.7	-0.3	7.8	6.9	-0.9
Housing and communal services	15.7	13.5	-2.2	7.8	9.7	0.9
Household appliances	2.9	2.9	0	6.6	6.1	-0.5
Transport	6.1	5.5	-0.6	35.3	25.8	-9.5
Communications	4.8	5.6	1.2	2.2	3.5	1.3
Health care	2.2	2.9	0.7	3.0	3.5	0.5
Education	0.5	1.2	0.7	0.8	0.8	0
Recreation	2.9	1.8	-0.9	6.7	8.7	2.0
Hotels, cafes, restaurants	0.8	0.6	-0.2	4.5	4.5	0

According to: Inequality and poverty. Rosstat. Available at: <https://rosstat.gov.ru/folder/13723> (accessed: March 18, 2023).

Figure 2. Dynamics of the ratio of the structure of expenditures of the tenth and the first R/P 10% in Russia in 2012, 2021, fold



According to: Inequality and poverty. Rosstat. Available at: <https://rosstat.gov.ru/folder/13723> (accessed: March 18, 2023).

affluent are the expenses for transport, recreation, hotels, cafes, restaurants, household appliances. The differences in the consumption patterns of the first and tenth decile groups and also their dynamics are presented in *Figure 2*.

A steady excess of the share of expenditures of the tenth decile group over the first decile group was in hotels, cafes and restaurants (7.5-fold more), recreation (4.8-fold more), transport (4.7-fold

more). At the same time, the excess in hotels, cafes and restaurants, and recreation has increased significantly from 2012 to 2021. A greater share of the least affluent citizens than of the rich, was formed for homemade food, housing and communal services, communications, clothes and shoes. In total, expenditures on these items of expenditure account for up to 80% in the consumption structure of poor citizens, while the rich have up to 40%.

Despite the decrease in absolute differences in consumption, there is a divergence in the latter. The poor began to consume more in kind, but there is a question about the qualitative difference in this consumption. The most affluent citizens choose the highest quality products and services: healthy foods without GMOs and animal fat substitutes, fast and stable Internet access, paid medical and educational services, etc. The most affluent citizens have the option of ordering ready-to-eat meals from restaurants, organic products from specialized online stores (such as VkusVill) or directly from farmers, which allows them to provide a better quality of consumption while saving time. While the least affluent citizens are forced to consume lower-quality goods and services, and this demand is currently being satisfied, for example, with the expansion of supermarkets of everyday goods of so-called “underselling price” (Svetofor, Mayak), which are becoming more popular with citizens of middle-income groups as well.

The transformation of consumption inequality in the qualitative aspect becomes more significant than in the quantitative aspect, and increases the divergence in consumption between citizens of different income groups. Such qualitative shifts in consumption inequality are not monitored by quantitative measurements, they are beyond averages.

The qualitative transformation of inequality requires the development of new approaches to the definition of contemporary transforming consumption inequality. If this problem is not solved, we will not be able to obtain an objective assessment of inequality dynamics, we will not be able to develop effective measures to overcome it. The solution could be a double assessment of indicators – in kind and in value terms, and also accounting for quality markers, where it is possible, for example, the quality of the Internet and communication by standard/technology – 5G, 4G, etc. (Pugachev, 2022, p. 1329).

2. The nonmonetary manifestations of economic inequality.

J. Stiglitz notes, that the fundamental contribution to the development of income inequality in the US over the last 30 years has been made by rent-seeking behavior (Stiglitz, 2012). We suppose, that for Russia it is more clearly expressed in terms of dependence on the export of raw materials.

The objective causes of inequality lie in the different conditions of access of social groups to limited economic resources, social benefits and political power (Rossoshanskii, 2019). On the other hand, economic inequality also affects inequality of access to goods. Nonmonetary manifestations of economic inequality, i.e. nonmonetary manifestations of income, wealth and consumption inequality, consist of differentiation in access to education, professional development, medicine, public goods, transportation and communications, infrastructure, inequality in self-assessment of health, inequality in employment specifics (respect for basic employee rights, availability of an influence resource at work, additional social benefits from the employer), access to social networks, inequality of social capital (for example, the presence of people who can help solve problems), inequality of subjective well-being (for example, planning one’s life, confidence in the future).

Nonmonetary manifestations of economic inequality in Russia are also currently undergoing transformation. For example, the concentration of favorable conditions of employment, opportunities for professional development, self-assessment of health, the availability of social capital in the income group of the most affluent citizens is increasing. Researchers have noted the deterioration in the position of the middle class in recent years. For key nonmonetary inequalities, the differentiation between income groups is quite high. The position in the coordinate system of nonmonetary inequalities distinguishes to a greater extent the most, rather than the least prosperous strata of the population

from all other Russians (Mareeva, 2021, p. 89). The digital inequality and inequality in access to social networks stand out here. Today, it is not the availability of access to the Internet and social networks that differentiates the wealthiest citizens from the others, but rather the lack of such access distinguishes the poor. Thus, economic inequality in its nonmonetary manifestations generally rises by increasing the concentration of well-being in the upper income groups.

At the same time, according to the international estimates we discussed above, inequality of opportunity in Russia is at a relatively low level. However, these assessments raise some questions, such as the effect of parents' wealth on opportunity inequality. For today's working-age citizens, indeed, the impact of this factor is low due to the legacy of their parents' Soviet equalization. We can expect that for future generations, the children of the current working-age population, this factor is expected to be significant.

Inequality in access to education and health care is of concern. The development of the private sector in these markets has given rise to increasing differentiation. At the same time, the introduction of the Unified State Exam had a positive impact on smoothing inequality in access to higher education, but the emergence of private schools and medical clinics significantly increases inequality, as the wealthiest citizens can get better medical and educational services at high cost, objectively unaffordable for the poor.

The evaluation of nonmonetary manifestations of economic inequality according to official statistical data is not carried out in Russia today. The Rosstat has data for such an assessment, first of all, these are data characterizing the standard of living and quality of life (for example, the degree of penetration of high-speed Internet, the share of university students in the total population, the provision of medical institutions, etc.), formed in the framework of households' surveys, among other

things. These data should be systematized, primarily in the context of decile groups, in order to provide an assessment of inequality.

3. The increasing income differentiation of the wealthiest citizens

One of the trends, which is not assessed by domestic statistics, is an increase in income differentiation of the wealthiest citizens. One of the significant causes of inequality is a large gap in the incomes of company management and ordinary employees. In general, such a gap in large companies now reaches 320-fold. In 1989, more than 30 years ago, this difference was significantly smaller – 61:1 (Sokolova, 2022).

This trend also remains outside the scope of official statistics, as Rosstat does not assess it. Thus, since the 1990s, the share of income of the richest 20% of citizens has remained stable – 50% of income²⁰, which in total is about 8–10-fold higher, than the income of the poorest 20%. At the same time, this is not evidence of static inequality: during the same period there was an increase in inequality in the tenth decile group, and income differentiation intensified. A positive shift in this direction was the fact, that in 2022 Rosstat assessed income inequality not only by quintile groups, but also by decile groups.

Before 2022, Rosstat assessed income inequality by the Gini coefficient and the R/P 20% ratio. In 2022, Rosstat has assessed inequality by decile groups. According to data for the 2nd quarter of 2022, the average income of the most affluent Russians reached 132.9 thousand rubles, which is 15-fold higher, than the average income of the first decile group, which was only 8.86 thousand rubles, that is, almost 40% below the minimum subsistence level. Rosstat emphasized, that “the transition to the 10% breakdown is needed in order

²⁰ Distribution of total monetary income by 20 percent of the population. EMISS. State Statistics. Available at: <https://www.fedstat.ru/indicator/31400> (accessed: March 4, 2023).

to see more deeply and concretely the situation with the incomes of low-income groups in particular, and to make targeted, maximally focused decisions”²¹. Of course, this is a necessary step, but today it is no longer sufficient, because it is also important to monitor the differentiation within the group of the most affluent citizens. In this regard, a more detailed, fractional assessment of income in the top tenth decile group with the allocation of the most affluent 1%, 0.1%, 0.01%, etc. is necessary.

4. The inequality of wealth distribution.

Russia also does not have a statistical basis for wealth inequality, which, according to Credit Suisse and the World Inequality Database, is excessive, as we have shown above. The key trend in the dynamics of monetary inequality in Russia is the continued accumulation of wealth by a narrow circle of citizens. 0.0001% of the adult population in Russia – about 500 “super-rich” citizens – own 40% of all financial assets of Russians, or \$640 billion²². According to Forbes²³, in a pandemic year (March 2020–March 2021), the combined wealth of Russian billionaires grew by \$207 billion, to a record \$663 billion. 84.8% of Russia’s wealth is concentrated among the richest 10% of Russians. The main wealth is in the hands of a narrow circle of people, who continue to accumulate the main results of economic growth. Fewer dollar millionaires in Russia compared to other countries also confirms the uneven distribution of wealth (Anisimova, 2018). Since there are no official statistics on wealth inequality in Russia, the introduction of appropriate indicators and the beginning of the production of

statistical information on them opens up broad prospects for the development of assessment and research on inequality in the distribution of wealth.

Discussion

Solving the problem of citizens’ inequality in Russia requires a comprehensive approach, which also involves a reliable assessment of the economic inequality of citizens in all its manifestations – inequality of current income, wealth and consumption. The current approaches to the assessment do not allow us to diagnose the transformation of inequality, which makes it necessary to improve its indicators. The relevance of solving this problem increases the interrelation of inequality with economic growth. Moreover, inequality in consumption affects not only economic growth, but also inequality in regional development, which, in turn, in a spiral lead to inequality in the distribution of goods, and, accordingly, consumption (Shatalova, Kasatkina, 2022). This is very significant for Russia as a state with a high level of disparities in regional development. Under the conditions of increasing inequality of RF constituent entities, the need to identify directions of stimulation of final consumption, that reduce regional disproportions, increases (Leonidova, 2020).

This study does not pretend to fully identify directions of transformation of citizens’ economic inequality or to define specific indicators that allow us to unambiguously, objectively and reliably assess inequality. We have substantiated the possibility of improving approaches to the diagnosis of economic inequality of citizens in the conditions of its transformation. The identified directions of inequality transformation can be supplemented or clarified. Taking into account the fact, that the economic inequality of citizens is not permanent, it is certainly possible to discuss the four directions highlighted in the article.

The conducted research correlates with the earlier results of scientists in that, despite the growth

²¹ Rosstat has measured income inequality in the country in a new way. RBC. Available at: <https://www.rbc.ru/economics/13/10/2022/63453c3d9a79470c2cdf05ca> (accessed: March 4, 2023).

²² Experts estimated the value of assets of 500 “super-rich” Russians. RBC. Available at: <https://www.rbc.ru/economics/10/06/2021/60c0c14f9a79476c014a3263> (accessed: March 4, 2023).

²³ Russia’s 200 Richest Businessmen – 2021. Forbes ranking. Forbes. Available at: <https://www.forbes.ru/rating/426935-200-bogateyshih-biznesmenov-rossii-2021-reyting-forbes> (accessed: March 4, 2023).

of qualitative gaps in consumption (Pugachev, 2022), the strengthening of nonmonetary manifestations of inequality (Milovidov, 2021) and, in general, the urgent need to solve the problem, new approaches or directions for assessing manifestations of inequality have not yet been implemented in Russia. At the same time, research in this area has serious results, which have the potential to be implemented in practice. For example, of interest in this regard is the concept of assessing inequality on the basis of the allocation of population macrostrata and the implementation of a family of centile coefficients of citizens' inequality (Lapin et al., 2020), or the concept of assessing normal and excessive income inequality (Shevyakov, Kiruta, 2009).

The study confirmed the hypothesis that the inequality of citizens in Russia is transforming, and the existing approaches to its assessment do not allow to comprehensively and objectively determining its current state, which, among other things, leads to the inefficiency of the measures taken by the state to smooth it out.

The issues of measuring inequality of opportunity, wealth inequality and nonmonetary manifestations of economic inequality in Russia offer broad prospects for further research. In practice, these estimates are not realized, and their importance can be very significant from the perspective of sustainable development, especially since the level of wealth inequality is excessive, and its concentration continues to increase: more than 70% of national wealth is concentrated in the hands of the richest 10% of citizens (in 1995 – 50%), and 50% of the least wealthy citizens own less than 5% of wealth (in 1995 – 10%) (Ilyin, 2017, p. 14).

Conclusion

The conducted research contributes to the understanding of modern transformation directions of citizens' economic inequality, and also to the substantiation of possibilities of diagnosis improvement of citizens' economic inequality,

which constitutes the scientific novelty of the research. Such directions of inequality transformation are as follows:

qualitative transformation of consumption inequality, not captured by quantitative statistical indicators, also noted in earlier studies (Pugachev, 2022);

increasing differentiation in nonmonetary manifestations of economic inequality (access to education, medicine, communication, etc.), also proven in previous works (Mareeva, 2021);

increase in income differentiation, also noted in earlier works (Sokolova, 2022);

inequality in the distribution of wealth, which we substantiated with statistical data from Credit Suisse and the World Inequality Database.

For each of the directions, the possibility of developing approaches to its assessment, based on the analysis of existing practices of eight statistical organizations and the recommendations of scientists, is substantiated. These results will be useful both to researchers, including for the purpose of developing proposals for smoothing inequality, and to statistical organizations that estimate inequality.

According to the results of the study, the following conclusions were formulated.

1. The most common, classic statistical indicators of inequality are the Gini coefficient, the Theil, Atkinson, Palm indices, R/P 10% and R/P 20% ratio and differentiation ratio. However, they do not reflect the modern transformation of inequality, new markers are needed.

2. At present, both Rosstat and international organizations, first of all, estimate the income inequality of citizens. Rosstat in Russia has more detailed data in the regional and sectoral (in terms of salary differentiation) context. The approaches of different organizations have methodological peculiarities, but despite these approaches, a high level of inequality in the distribution of current income of Russians is recorded by all of the

organizations. A distinguishing feature of Rosstat as compared to international organizations here is the assessment of the inequality of citizens' consumption, which characterizes the volume and structure of consumption, the energy value of the food set by income groups. Credit Suisse and the World Inequality Database estimate inequality in the distribution of wealth. In Russia, there is an excessive level of inequality, which has increased repeatedly since the beginning of market reforms. The Gini index of wealth was 0.88 in 2021. Since 1995, the wealth share of 1% of the most affluent citizens has increased 2.2-fold from 21.5% to 47.6%. The EBRD and UN estimate nonmonetary inequality, inequality of opportunity and the impact of inequality on the HDI. In Russia, according to these estimates, measures of inequality of opportunity (sex, ethnicity, place of birth, life expectancy and level of education, and parents' education level and membership in the Communist Party) are quite low compared to income and wealth inequality. Rosstat does not measure inequality of wealth, inequality of opportunity, and nonmonetary manifestations of economic inequality, which does not allow us to study inequality in all its manifestations in Russia.

3. Inequality of citizens does not remain static or permanent, it finds new manifestations, such as a qualitative transformation of consumption inequality, not monitored by quantitative statistical indicators, differentiation in nonmonetary manifestations of economic inequality, increasing income differentiation within groups of the most affluent citizens and inequality of wealth distribution. Inequality is transforming, and such trends remain beyond observation and averages. This requires the development of approaches to the assessment of citizens' economic inequality in order to further study it and develop proposals for its smoothing.

4. The transformation of inequality requires the development of new approaches to its assessment, which is a new challenge for economic science and domestic statistics. Without changing the approaches to measuring inequality in the future, we will not be able to obtain an objective assessment of its dynamics, and therefore we will not be able to develop effective measures to smooth it out. The solution may be a double assessment of indicators – in kind and in value terms, and also taking into account quality markers, where it is possible.

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