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INCOME STRATIFICATION: KEY APPROACHES AND THEIR APPLICATION TO RUSSIA

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INCOME STRATIFICATION: KEY APPROACHES AND THEIR APPLICATION TO RUSSIA[6]

The various approaches to income stratification can be divided into two broad categories – relative and absolute. Our study suggests that the most widely used thresholds of the absolute approach cannot be efficiently applied to contemporary Russian society, which has undergone fundamental changes over the last 15 years regarding income, as they fail to define the subgroups within the population.

Absolute models of stratification which define income groups based on a pre-determined income thresholds rank Russia in line with industrially advanced rather than developing countries, rendering the absolute income bounds, set for the latter group of countries, irrelevant.

The relative approach, based on the median income as the social standard of living, appears more effective for income stratification in Russia. Furthermore, it also implies possibilities for structural adjustments such as regional- and settlement-specific disparities in income distribution, which are relevant for Russia given its regional heterogeneity. The application of the relative approach in authors' version shows that the income stratification model in Russia is quite stable even during the economic crisis. The results of the comparison between the Russian income stratification model and those of other countries confirm that Russia's income stratification model is currently more similar to those of developed rather than developing countries.

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Introduction

Income stratification seems to be one of the most straightforward approaches to analysing the structure of a society as it applies a one-dimensional gradualist scheme of stratification: a "low income – high income" scale. This method can be used to get quantitative estimates of well-off and poor groups, to gauge the risks of increased vulnerability to poverty and low income, to access the degree of inequality and to measure changes in the income of different groups caused by a recession or growth. This model of stratification is widely used for international cross-country comparisons, as it is based on income level which is a universal indicator. It is also important for social policies, setting thresholds defining the poor and needy population eligible for welfare.

However, developing a model for income stratification is not a trivial methodological exercise. The methods used to define groups based on their positions in the income distribution can be summed up in two broad approaches – absolute and relative. Most of these approaches (and the resulting income thresholds) are only to a certain extent applicable to Russia, as they have been developed for different purposes and countries at different stages of social and economic development[7]. Given the variety of methods in use, this paper defines the most efficient approaches to income stratification in contemporary Russia. To achieving this goal requires several steps: reviewing the key approaches to absolute and relative income stratification, applying them to empirical data (monitoring surveys 2014–2016 conducted by the Institute of Sociology of the Russian Academy of Sciences (IS RAS) in 2014–2016 and the Russian Longitudinal Monitoring Survey (RLMS-HSE) of the Higher School of Economics, waves of 2014–2015), developing a specific model of income stratification for Russia and evaluating its heuristic potential both for a comprehensive analysis of the Russian situation and international comparative analysis. The literature mostly focuses on defining certain social groups but not on developing the model of stratification – the aim that we address. In order to develop an income stratification model for Russia, we carry out preliminary testing and a comparison of the relevance of different absolute and relative approaches in describing modern reality.

The first section of this paper includes an analysis of the main theoretical approaches to income stratification, while in the second section we apply some of these methods to the representative all-Russian survey data. We also offer a model of income stratification which works most effectively for Russian society at its current stage of development.

[7] In the paper, we use terms "developed" and "developing" countries to describe societies with different economic and socio-cultural levels of development. In line with other studies, we prefer to apply this terminology rather than to use the World Bank's approach, that of distinguishing high- and low-income countries, because the concept of socio-economic development provides a broader set of analytical tools for understanding the fundamental differences between countries. See, for example: Chun, N., Hasan, R., Rahman, M. H., & Ulubaşoğlu, M. A. (2016) and Mitra, S., Posarac, A., & Vick, B. (2013).

Key methods of income-based social stratification

Income is one of the key indicators of living standards traditionally included in social stratification models. There are at least three methodological issues for income stratification studies. The first relates to justifying the recipients of income – either individuals or households. The second concerns the necessity of applying the most appropriate equivalence scales to adjust recipient income to household size. The third and main methodological issue, which is the focus of our analysis, is to select one of the approaches that apply different criteria for defining income groups and their boundaries: **absolute income thresholds (the absolute approach)**, which distinguishes income groups in relation to a clearly defined amount of income, and **relative income thresholds (the relative approach)** – based on the mean (less often) / median (more often) income, or income distribution by percentile groups.

Absolute income thresholds for income stratification

The **absolute** approach to income stratification is largely borrowed from the corresponding understanding of poverty – via setting a quantitative needs-based poverty line[8], which is typically defined as a monetary cut-off point set at subsistence level which is in turn set at the value of goods and services (the consumer basket) necessary for satisfying essential needs and meeting mandatory payments. Administrative regulations may set the relative share of non-food commodities in the consumer basket.

Following this logic, the Russian Federal Service for State Statistics (FSSS) defines the groups of *poor* for statistical purposes (The Federal State Statistics…, 2015)[9] and the *needy population* for analytical purposes[10]. Statistical services of many other countries, including the joint Statistics Service of the CIS (and not only the low- and middle-income ones), also use the subsistence level to define the poverty threshold (Yasinskiy, 2014). The definition of poverty in the US follows the same principles, but with the additional condition that the relative share of expenditures on food commodities should not exceed one-third of the minimum consumer basket[11].

[8] Starting from Rowntree (1901; 1913).

[9] In Russia, starting from 2013 the subsistence minimum defines the relative share of expenditures on non-food commodities at 50% (see the Federal Law "On general consumer basket in the Russian Federation"). In a quarterly Household Budget Survey (HBS), covering 47,800 households across Russia, this group is referred to as "low income", whereas the group earning half or less than half of subsistence level is called "extremely poor". The HBS is conducted to analyse a structure of households' expenditures and consumption. The data are obtained from daily spending records filled by respondents and from interviews and then adjusted for the general population and re-weighted due to the absence of high-income groups in the HBS samples. The spending represents the sum of actual household expenditures, including both consumer spending and other expenses. Though income data obtained in such a way can be somewhat inaccurate, they are widely employed to describe the general trends of incomes and to calculate the direct and indirect indicators that can be used to assess the stratification of the Russian society by income and to draw comparison with other countries (see more at Chelovecheskij kapital …, 2016; Elefterov, 2011).

[10] To define the needy population, FSSS uses the HBS data.

[11] More information about the methodology may be found at the Census Bureau's official website (https://www.census.gov/topics/income-poverty/poverty/about.html).

National poverty lines, defined in specific geographical, economic, cultural and other contexts, make international comparisons only partly relevant. It is also necessary to take into account the nation's stage of industrialisation when defining boundaries of income groups for a particular country, so they vary in countries that are at different stages of their development (Cowell, 2011).

Several other methods can be used as alternatives to national poverty metrics. Among them is the definition of the poverty threshold as the amount of income/expenditures that corresponds to the consumption of a certain amount of calories (most often 2,100 or 2,400 calories per day, though other options also exist (Report of the expert group…, 2014)). However, since the same amount of calories can be consumed from totally different product sets with different costs, this method has a limited usage.

For comparative research, the methodology of the World Bank (WB) on poverty measures and their variations are widely used (Chen & Ravallion, 2010; Chen & Ravallion, 2011; Ravallion, 2008; Ravallion, Chen, & Sangraula, 2009; Ravallion, Datt, & van de Walle, 1991). This method draws income group thresholds according to the poverty lines of the countries in the WB sample (126 countries in total). It was constructed and used mainly for the analysis of the situation in developing countries (22 in the 1980s), and their poverty lines served as the basis for the poverty threshold in the method in general.

In the past, WB widely used a global poverty measure set at $1 per day. The original "$1-a-day" method was an average of absolute lines (Ravallion et al., 1991), converted to international dollars at purchasing power parity (PPP[12]), for such regions as Africa, East Asia, and the Pacific and South Asia. For middle-income countries (in such regions as Europe and Central Asia, Latin America and the Caribbean, and the Middle East and North Africa), the original poverty headcount ratio was set at $2 per day (the median poverty threshold for all developing nations). However, these values were several times reassessed because of the increased number of countries in the sample for international comparison, inflation in the US, a new methodology of collecting PPPs and other factors (Deaton & Aten, 2014). Numerous WB's reports used various thresholds such as $1, $1.25, $1.45, $2, $2.5 per day. Now, instead of the previously used thresholds values of $1 and $2, WB uses $1.9 and $3.1 per day, respectively (2011 PPP). The amount equal to double the cut-off value of absolute poverty is seen as the threshold of vulnerability to poverty, i.e. indicating high risks of poverty.

[12] The methodology of purchasing power parities (PPPs) is not trivial, so there are many ways to calculate them. The World Bank uses its proprietary International Comparison Program (ICP, 199 countries participating (see at the World Bank official website (http://iresearch.worldbank.org/PovcalNet/index.htm?0,2)). To calculate the PPPs, the ICP holds surveys every six years to collect price and expenditure data for the whole range of final goods and services that comprise GDP including consumer goods and services, government services and capital goods. The latest PPP data from WB is for the 2011 year, however, the ICP published 2011 PPPs only in 2014. The analysis of income distribution based on PPP exchange rate varies significantly from that based on the official rates. For example, the USD/RUB rate used by the Word Bank was 29.35 while the PPP rate was 17.35 rubbles per dollar in 2011.

The WB concept of drawing the poverty line is further applied to defining the middle class in the developing countries[13], though different thresholds are used for this purpose. Ravallion (2010) sets the lower bound of the middle class in developing countries at the poverty line ($2 per day) and the higher bound ($13 per day) – at the poverty line in the US, therefore suggesting that the members of the middle class in these countries are not poor compared to the living standards of the majority of their residents but are poor by the standards of developed or wealthy countries. Ravallion (2010) also notes that it can be useful to single out the upper-middle class in developing countries at a lower bound of at least $9 per day (equal to the poverty line in Uruguay, which has the highest cut-off value of poverty among developing nations studied in Ravallion (2010)). The author believes that in order to be classified as "Western middle class" one should at least have an income above the US poverty line.

Often the following version of the income stratification in Russia and other countries of Europe and Central Asia is proposed in WB publications: poor ($5 or less); vulnerable ($5–10); middle class ($10 and more per day) (Meyer & Sanchez-Paramo, 2014). The middle class can be further subdivided also based on income: $10–25 per day, $25–50 per day, $50 and more per day (Grant & Hansl, 2015). Applying the same approach to other regions, the respective income in dollars is different (see Vakis, Jamele, and Lucchetti, 2015, Dang and Ianchovichina, 2016).

Different authors provide other variations of the absolute approach to income stratification. Milanovic et al. (2002), focusing on defining the global middle class, choose the upper bound of its per capita income at $50 per day, which is equal to the average income in Italy, the least wealthy among G7 members. The lower threshold is set equal to the mean earnings in Brazil ($12 per day). Kharas (2010) chooses the lower threshold of middle-class income in developing countries ($10 per day) equal to the average between poverty lines of the two developed countries with the lowest of such values – Italy and Portugal[14].

Some papers verify the lower and upper bounds of middle class incomes by comparing their estimates to those produced by other approaches – for example, relative ones. For instance, Banerjee et al. (2008) define the middle class of developing countries as the group between the poor in these countries and the middle class in developed countries (e.g. the USA), setting the range of per capita income at $2–10 per day (splitting them further into three groups: $2–4, 4–6 and $6–10), and compare their results to those of Easterly (2001) and Birdsall, Graham, and Pettinato (2000), who define middle class via quintiles.

Other papers justify the lower and upper bounds of income by theoretical arguments. López-Calva and Ortiz-Juarez (2014), for example, define the lower bound of middle-class income to a

[13] In economic literature, the term "class" is widely used in the sense of grouping of people on the basis of income. Among sociologists, this approach is known as a "simple gradational analysis", which is opposed to the measures of a class via 'differential control over income and labour' (Wright, 2004; Tikhonova, 2014).

[14] However, the ground for the upper bound is different – the author proposes $100, which is a doubled median income in Luxembourg, the richest of the developed countries.

maximum of a bearable economic instability for the middle class – i.e. the 10% probability of slipping into a poverty on a five-year horizon (which is the average level of poverty in countries like Argentina, Colombia, Costa Rica but slightly smaller than for the whole region)[15].

Non-academic research centres also work towards income stratification scales using national poverty lines and findings from both WB studies and academic papers (see Tab. 1 regarding PEW Research Centre (2015) and Court et al. (2010)). For instance, Rose (2016) proposes an income stratification for the US setting a 2014 income threshold for poor at 1.5x the federal poverty line (i.e. up to $30,000 equalised annual income for a household of three members), while the rich are defined in line with the survey responses from people regarding the relative number of rich in the country - that is, 1–2%, corresponding to $350,000 annual income. The population with incomes between these thresholds are categorised as middle class with the following subgroups: upper-middle (from $100,000 (5x the official poverty line) to $350,000 per year), middle-middle ($50,000 - $100,000), and lower-middle ($30,000 - $50,000).

Approaches based on WB methodology in general can be considered "weakly relative", since the living standards of high-income countries serve as benchmarks for affluent social groups in developing countries, and income thresholds are based on calibrated national poverty lines. The disparity of the living standards of developing nations for the mass social strata of developed countries leaves little opportunity to propose a unified scale of income-based stratification for them. As for more prosperous nations, researchers either multiply these figures by some factor or use entirely different approaches. Since developed nations are more concerned about the issues of social exclusion and socio-economic deprivation (Townsend, 1987), rather than physical survival (as in African countries, for example), most developed countries apply so-called relative poverty lines (or a "strongly relative approach", whereas the absolute approach is most often used in developing countries.

Tab. 1 presents a systematic review of the existing ways of categorising income groups using the methods based on the absolute approach.

Generally speaking, though there is no consensus in the literature on income stratification thresholds, the views on the upper threshold of the low-income strata and the lower threshold of the middle class are more congruent than estimates of the upper bound of the middle class or thresholds for high-income strata. For example, Rank (1999), Danziger, Gottschalk, and Smolensky (1989) and Hirschl, Altobelli, and Rank (2001) set the upper demarcation of the middle class at 8, 10 and 12x national poverty lines, respectively. Furthermore, theoretical justifications of these thresholds provoke many questions since they are often ad hoc postulated, or superficially considered.

[15] In order to arrive at the amount of income equivalent to this level of vulnerability, researchers explore what income level associates with this by making a model that incorporates demographic and labour force indicators and the shocks that households may encounter.

Tab. 1. Absolute income thresholds for income stratification, by selected papers, US dollars (PPP) per capita per day [16]

Authors, years	Low income			Middle income (MI)			High income	Geography of methodology implementation
	Extremely poor	Poor	Vulnerable to poverty	Lower MI	Middle MI	Higher MI		
Ravallion (2010); Ravallion et al. (2009)		1.25			2- 9	9-13		Developing countries
Vakis et al. (2015)	below 2.5	2.5-4	4-10		10-50			Latin America and the Caribbean
Dang and Ianchovichina (2016)		below 2	2-4.9		above 4.9			The Middle East and North Africa
Meyer and Sanchez-Paramo (2014)		below 5[17]	5-10		10-50	above 50		Russia Federation, Europe and Central Asia
Grant and Hansl (2015)		below 5	5-10	10-25	25-50	above 50		Russia
Milanovic and Yitzhaki (2002)					12-50			Global middle class,1993
Banerjee and Duflo (2008)				2-4	4-6	6-10		11 developing countries[18]
Kharas (2010); Cárdenas, Kharas, and Henao (2011)					10-100			Global middle class; Latin America
López-Calva and Ortiz-Juarez (2014)					10-50			Chile, Mexico, Peru
PEW Research Center (2015)		below 2	2.01-10		10.01-20	20.01-50	Over 50	All countries
Court and Narasimhan (2010)[19]			9	9-15	15-40	40 -77	Over 77	Developing countries, including Russia, Poland
Based on poverty line, multiplication coefficient								
Burkhauser, Smeeding, and Merz (1996)					2-5 and 0.75-5			USA & Germany
Rose (2016)		1.5		1.5-2.5	2.5-5	5-17.5	1-2%	USA
Hirschl et al. (2001)							8, 10 and 12	USA

[16] As various authors focus on different social strata and/or present different configurations of social structures, some cells in the table hereafter (see Tab. 2) left blank, meaning these positions were not mentioned by the respective authors in their publications. The authors of this paper aligned the income groups outlined by the researchers with the categories in the table to their own subjective discretion, as all the authors use their own classifications.

[17] It should be noted that some publications set the poverty threshold for Russia at $4 per day (Statistika SNG, 2015). The "Extreme poverty" and "poverty" levels for all the countries in the "Europe and Central Asia" region (where the WB places Russia) are set at $2.5 and $5 per day, respectively.

[18] This classification was based on expenditures.

[19] A referential adjustment to comparable indicators is provided.

Relative income thresholds for income stratification

The relative approach to defining the boundaries between groups in income stratification is a major alternative to the absolute approach. It divides groups by income based either on percentile distribution or comparison with the average or median income that indicates an average standard of living in a specific society. The median income is usually preferred as it eliminates the distortion effect of outliers.

The definition of income groups by percentiles usually is done symmetrically. For example, Easterly (2001) and Barro (2000) rank everyone within the second to fourth percentiles (between 20 and 80%) as middle class. Dallinger (2013) applies the same boundaries but also proposes using quintiles 'in order to capture the internal differentiation of the societal middle' (Ibid, p. 88). That is, the middle-middle class in a narrow sense is the middle 20% of the income distribution (quintile 3), lower-middle class is below it (quintile 2), and, above it, lies the upper-middle class (quintile 4). Partridge (1997) defines the middle class as Dallinger's middle-middle class (quintile 3) only.

The quintiles other than the central ones are also used to define the middle class in the academic literature, but less often. Alesina and Perotti (1996) as well as Bellettini and Ceroni (2007), for example, define the middle class as those in the third and fourth quintiles, whereas Solimano (2008) sets out the middle class concerning those within the third and ninth deciles.

The income boundaries of the most affluent groups are the most disputable issue of income stratification, even when divided by deciles. Peichl and Pestel (2011), as well as Bellettini and Ceroni (2007), set the respective upper bound at the 80% percentile, which is in line with most other studies that consider the top bound of middle-class income as the lower threshold of high-income groups (see Tab. 2). There are also approaches that rank a much lower share of population (0.5–10%) as high-income strata: Solimano (2008) sets it at 10%, Dynan, Skinner, and Zeldes (2004) – 1% or 5%, Carroll (2002), Weicher (1997) and Wolff (2010) – 1%, Beeghley (2004) – 0.9%, Feenberg and Poterba (2000) – 0.5%. However, the authors scarcely provide any clear reasons for their choice of income thresholds.

The percentile method is traditionally criticised (e.g. by Birdsall et al. (2000)) because it yields groups of predetermined fixed sizes. This problem does not come up if the income stratification is based on median income.

For poverty, OECD methodology, widely used by various European statistics agencies, defines the poverty line at half the median household income of the total population[20] (though 40%, 60% or 70% levels can be used too). Eurostat views the equivalised income of less than 60% of the

[20] More information about the methodology you may find at the OECD official website (https://data.oecd.org/inequality/poverty-rate.htm).

median income in the country as the at-risk-of-poverty threshold[21]. These figures are widely used by the academic community to define relative poverty indicators.

The relative approach based on median income traditionally defines the middle class as those with incomes "around" the median income – from 0.75x to 1.25x (Thurow (1987), Birdsall et al. (2000), Pressman (2007), Pressman and Scott (2009), Chauvel (2013)). Atkinson and Brandolini (2013) propose a theoretical reasoning for the 0.75x and 1.25x cut-offs. Following Horrigan and Haugen (1988), the authors suppose that the lower endpoint of the middle class should represent 'an income significantly above the poverty level' and 'comfortably clear' secure 'of being at-risk-of-poverty'. In the course of this, the at-risk-of-poverty line is set as 0.6x median (disposable money) income[22], whereas the lower bound of the middle class is defined as the at-risk-of-poverty line increased by 25% – i.e. 0.75x median cut-off. In contrast, a rationale behind setting 1.25x median income as an upper endpoint of the middle class is less obvious, apart from its symmetry with the 0.75x threshold; authors tend to refer to the successful use of this threshold by Pressman (2007). Ultimately, Atkinson and Brandolini (2013) distinguish lower and upper middle classes (0.6–0.75x and 1.25-1.67x median income (a quarter more than 1.25x cut-off), respectively).

Chauvel (2006) defines the lower and upper demarcations of the middle-class income within a wider range – from 0.50x to 2x relative adjusted disposable income[23]. Later Chauvel (2013), taking into account the works of her colleagues, particularly Pressman (2007) and Atkinson and Brandolini (2013), and analysing the equalised relative disposable income distribution curve, concludes that the middle class is not homogeneous and divides it into the "lower" (0.75–1.25x median) and "upper" (1.5-2.5x median) segments. Grabka and Frick (2008) use the 0.7–1.5x median range for Germany, while Blackburn and Bloom (1985) apply values of 0.6-2.25x for the US, Vanneman and Dubey (2013) – 0.5-2x for India, and Ólafsson and Kristjánsson (2013) – 0.75-1.5x for Iceland.

The US-based PEW Research Centre (Fry & Kochhar, 2016) defines the middle class (or the population "with the average income level") as those with the annual income per household of three members (the closest integer number to the average household size in the US in 2015 – 2.5x) from 0.67-2x the nationwide median[24].

The upper threshold of the middle-class income, serving as the lower threshold for rich, also has no consensus definition. Peichl, Schaefer, and Scheicher (2010) see this as 2x median,

[21] More information about the methodology you may find at Eurostat official website (http://ec.europa.eu/eurostat/web/products-datasets/-/tesov016).
[22] Atkinson and Brandolini (2013) define the disposable money income as the sum of all cash incomes earned by the household, net of income taxes and social contributions.
[23] According to Chauvel (2006), the relative adjusted disposable income is a total net income after taxes and transfers, adjusted by household size, where the equivalence scale is the square-root of the number of residents of the household.
[24] More information about the methodology you may find in complete Technical Documentation about the Current Population Survey (CPS) at the Census Bureau's official website (http://www.census.gov/programs-surveys/cps/technical-documentation/complete.html).

Brzezinski (2010) – 2, 3 and 4x median (and the upper 1%, 5% and 10%). According to Medeiros (2006) the affluence line may be considered at the level of 4x standard deviations above average income, which gives 1% of the reach in Brazil.

Attempts to justify the income demarcations of groups within the relative approach to stratification are more typical for studies focused on higher-income strata. Atkinson and Brandolini (2013) believe that high-income groups should be able to hire personnel for some chores, such as babysitters and cleaning, and the net income after expenditures on this kind of services should not lead to the poverty of the family (i.e. should not fall below the 60% cut-off). Checking various ratios of spending for personal needs and the services of hired workers, the authors set the upper bound of the middle-class income at 2x and 3x median income but do not comment on the relevance of their conclusions.

Eisenhauer (2011, p. 297) defines the rich as those who are wealthy enough to liquidate their assets, i.e. 'purchase risk-free bonds, and thereby generate sufficient after-tax interest income to remain above the poverty level indefinitely without incurring risk and without having to earn additional income through employment'.

Medeiros (2006) defines the affluence line as the level of income that enables the elimination of poverty (defined through a set monetary line) in society through redistribution. This approach is based on the national poverty line not on the median income. According to Brazilian data for 1999, the poverty line was at the level of income of 33rd percentile of the population while the affluence line exceeded this level by 26.8x (i.e. $1,142 per month per household in prices of 1999).

There are also attempts to strengthen methods of defining the high-income group by adding wealth indicators. Hauser and Becker (2002), discussing the case of Germany in 1998, set the affluence line at double the median of equalised net income but add a requirement to have an additional one million German marks per household member.

Tab. 2 presents a systematic review of studies on income stratification and social group thresholds using the relative approach. This method is mostly used in the research of income stratification in developed countries. However, the relative approach lacks transparency for international comparison (Ferreira, Messina, Rigolini, López-Calva, Lugo, & Vakis, 2013). The adherents of the relative approach lack consensus in the selection of thresholds in income stratification and in reasoning (as with the absolute approach).

To sum up, it can be claimed that the key argument for the choice of approach to income stratification is the country's level of development. While research in well-developed and high-income countries requires the application of relative income thresholds which correspond with their average standard of living, for the countries with low income and weak progress in modernisation it

is common to appeal to a measure of needs-based poverty and an absolute approach for the stratification model as a whole. For Russia, the question of its classification as developed or developing country is important because of its transitional state. It inevitably perplexes scholars searching for an income stratification model. The next section will address the empirical evidence for this issue in contemporary Russian society.

Tab. 2. Relative income thresholds for income stratification, by selected papers

Authors, years	Low income			Middle income			High income		Geography of methodology implementation
	Extremely poor	Poor	Vulnerable	Lower MI	Middle MI	Higher MI	Affluent	Rich	
Based on quintiles or percentiles, quintiles/ percentiles									
Alesina and Perotti (1996); Bellettini and Ceroni (2007)					3-4 quintiles				71 countries; 22 countries (OECD)
Partridge (1997)					3 quintile				USA
Barro (2000); Easterly (2001)					2-4 quintiles				84 countries; 175 countries
Solimano (2008)					3-9 quintiles				129 countries
Peichl and Pestel (2011)							5 quintile		Germany
Dynan et al. (2004)								upper 1% and 5%	USA
Feenberg and Poterba (2000)								upper 0.5%	USA
Carroll (2002); Weicher (1997); Wolff (2010)								upper 1%	USA
Gornick, Jantti et al. (2013)					2-4 quintiles				High- and middle-income countries (LIS)
Dallinger (2013)				2 quintile	3 quintile	4 quintile			19 (post)industrial countries
Based on median, multiplication coefficient									
OECD		below 0.5							
Eurostat		below 0.6							
Blackburn and Bloom (1985)					0.60 - 2.25				USA
Davis and Huston (1992)					0.5-1.5				USA
Thurow (1984); Birdsall et al. (2000); Pressman (2007); Pressman and Scott (2009)					0.75 - 1.25				USA; 30 countries, including high-income transition economies and Latin America; 11 developed countries (LIS)
Chauvel (2013)				0.75-1.25		1.5-2.5			France, Italy, Norway, USA
Grabka and Frick (2008)		below 0.5	0.5-0.7	0.7-0.9	0.9-1.1+ 1.1-1.3[25]	1.3-1.5	1.5-2	above 2	Germany
Peichl et al. (2010)		below 0.6					over 2		Germany
Eisenhauer (2011)		below 0.6						Calculated a richness line	Italy
Smeeding (2006)		below 0.5							11 developed countries (LIS) including the USA
Kangas (2001)		below 0.5					over 3		
Brzezinski (2010)							2, 3 and 4		Poland
Atkinson and Brandolini (2013)				0.6-0.75	0.75-1.25	1.25-1.67	over 2 or 3		11 European countries, USA, Canada, Taiwan, Mexico
Ólafsson and Kristjánsson (2013)					0.75-1.5				Iceland
Vanneman and Dubey (2013)		below 0.5			0.5-2		over 2		India
PEW Research Center			below 2/3		2/3-2		over 2		USA

[25] Grabka and Frick (2008) define eight income groups, however, with more detailed focus on the middle income groups. To fit our classification, we consider them into one category.

Income stratification of the Russian society: the heuristic potential of applied methods

As shown above, different approaches to income stratification have been designed for various research purposes and countries at different stages of social and economic development – so their efficiency may vary when applied to Russia. We now focus on choosing the most relevant approach to income stratification in Russia by applying different methods to data provided by nationwide representative surveys. The empirical data for the analysis are from monitoring surveys by IS RAS in 2014–2016[26], and the RLMS-HSE conducted by the Higher School of Economics in 2014–2015.[27]

The acceptability of sample survey data for the evaluation of individual and household incomes is debated. As respondents can incorrectly report their income (either by chance or intentionally distorting them), researchers use different imputation methods and readjustment procedures to correct the data. Equivalence scales are sometimes applied to account for the household size and economy on scale. However, here we consciously do not make any of such corrections. As one of the questions about income in the surveys mentioned above was asked in a similar way (self-assessment of monthly monetary income[28]), we expect the probable distribution bias concerning the respondents' replies would be similar[29]. Moreover, similar questions about the self-assessment of monthly income are included in some international comparative surveys, e.g. ISSP[30], so it makes it possible to study the specifics of Russian income stratification model in a global context.

Another issue for proposing the income stratification model is the underrepresentation of high-income groups in representative samples. Absolute approaches suggest a stratification design is applicable for non-extreme population samples. For relative approaches, median values are mostly correct because small groups with both extremely low and extremely high incomes are not included in the sampling.

We apply some of the most widely-used methods based on the absolute approach (stratification about subsistence level, the WB method, the "Western middle class" method) to

[26] Series of all-Russian surveys carried out by the Institute of Sociology RAS as part of a monitoring project "Dynamics of Social Transformation of Modern Russia in Socio-economic, Political, Socio-cultural and Ethno-religious Contexts", sample is representative by gender, age, education, and type of location (October 2014, March 2015, October 2015, March 2016; N=4,000).
[27] RLMS-HSE is conducted by the Higher School of Economics and ZAO Demoscope with the help of the Population Center at the North Carolina University, Chapel Hill, and IS RAS (RLMS-HSE survey websites: http://www.cpc.unc.edu/projects/rlms and http://www.hse.ru/rlms).
[28] The RLMS-HSE data provides the corresponding question "What was the monetary income of your entire family in the last 30 days? Include here all the money received by all members of the family: wages, pensions, stipends, and any other money received, including hard currency converted into rubles". Using the number of households' members, we recalculated it into monthly income per capita. In the IS RAS data the similar question is asked, but on the per capita income.
[29] We expect that this bias will not affect the relative income-based stratification model (assuming that the magnitude of the deviation of reported income data from the actual values is the same across all income groups included in the representative samples).
[30] The International Social Survey Programme – an annual program of cross-national collaboration on surveys (http://www.issp.org, http://www.gesis.org/en/issp/home).

Russian data and propose our version of the relative approach for income stratification model in Russia using the median income.

Stratification Models Based on the Absolute Approach

The absolute approach to income stratification is more familiar to Russian researchers and is applied to both statistical and sociological data. FSSS publishes official data on the number of people with incomes within specific bounds defined in absolute terms. With the data, a regional breakdown of income stratification can be studied and the dynamics in the absolute incomes can be traced. However, the FSSS data on the distribution of the population by income groups is not linked to subsistence levels or the central tendencies of this distribution (mean, mode or median values), so a comprehensive analysis of income stratification is not possible.

The absolute approach is officially used in Russia for defining poverty; for this purpose, a subsistence level is used, and households and individuals can be grouped into poor / not poor according to the relation of their income to the subsistence level. **Income stratification based on the official subsistence level** can be expanded by the further differentiation of the "not poor" group splitting it into subgroups according to the ratio of their income and the subsistence level (see Fig. 1)[31].

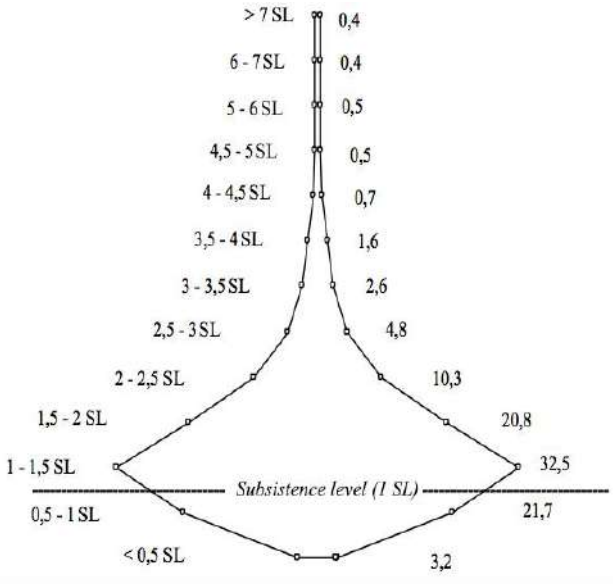

Fig. 1. Income stratification model based on subsistence level, autumn 2015, %[32]
Source: IS RAS, calculation by authors

[31] A structure of households and the regional values of subsistence level are accounted for.
[32] According to the FSSS estimates, 13.3% of Russians lived below the poverty threshold in 2015. The estimates from selected surveys, including those of IS RAS, are higher. This is because of the differences in methodologies (e.g. weighting of the data, use of equalisation scales etc.) and the fact that FSSS estimates income indirectly (through expenses and spending).

The model of income stratification relative to the subsistence level helps gauge the proportion who are poor, and define the groups that are characterised by higher poverty risks – population with incomes close to the poverty line. The incomes of the largest group – almost one-third of the entire population – fall within 1-1.5x of subsistence level; this is also where the median income lies. This model of income stratification based on the subsistence level is important for the analysis of the poverty zone and the risks of its expansion; it also helps identify those who need welfare assistance most. However, to analyse the groups higher on the income scale, income thresholds in relation to the subsistence level must be further studied and validated.

Let us now turn to another well-cited version of the absolute approach that is used by the WB to define various income groups across countries. **The income stratification model based on the WB methodology** for Russia in 2014 and 2015 (using PPP calculated by WB at USD/RUB PPP rate at 22.57 in 2014 and 23.97 in 2015[33]) is shown in Table 3.

Tab. 3. Income stratification based on the World Bank methodology

Income groups	Daily income, $[34]	2014			2015		
		Monthly per capita income, PPP, rubbles	% income groups		Monthly per capita income, PPP, rubbles	% income groups	
			RLMS-HSE	IS RAS		RLMS-HSE	IS RAS
Poor	2.5 and less	1,693 and less	0.4	0.3	1,798 and less	0.3	0.3
	2.5 - 5	1,693.1 – 3,386	2	1	1,798.1 – 3,596	1.2	1.1
Vulnerable	5 - 10	3,386.1 – 6,771	10.3	7.8	3,596.1 – 7,191	9.9	9.5
Middle class	10 - 25	6,771.1 – 16,928	54.6	56.2	7,191.1 – 17,978	56.3	57.7
	25 - 50	16,928.1 – 33,855	27.3	26.8	17,978.1 – 35,955	27	27.6
	Over 50	Over 33,855	5.4	7.9	Over 35,955	5.3	3.7

Source: IS RAS and RLMS-HSE, calculation by authors

The application of WB methodology to two different datasets yields similar results. The model shows an extremely low share of the poor in Russia (just 1–2% even during the economic crisis) and those at high risk of poverty were about 10%. The overwhelming majority of the population falls within the middle class (though the lower-middle class prevails). Given that the minimum middle-class per-capita income ($10 per day) in this methodology equals around 7,000 rubles per month in PPP, it is not surprising. This threshold is about 50% of the median income (which was 14,000 rubles per month in 2014 according to both IS RAS and RLMS-HSE datasets, and 20,594 rubles per month according to FSSS; the former figure was unchanged in 2015 while

[33] Data source: World Bank (http://data.worldbank.org/indicator/PA.NUS.PRVT.PP?locations=RU).

[34] As mentioned above, the World Bank changed the boundaries of extreme poverty from $1.25 to $1.9 in 2015, which entails changing the poverty line from $2.5 to $3.1. However, this does not bring any significant changes in the income stratification model in Russia, since less than 0.5% of the population live on less than $ 3.1 per day.

FSSS estimate increased to 22,729 rubles) and cuts off only the poorest group (0.5x median income is a widely used threshold of relative poverty). This threshold for the middle class is even lower than the official Russian subsistence level. Hence the middle class by this definition is disproportionally large and heterogeneous, and even its division into three subgroups does not help analyse its inner structure, as over half of the population still falls within one subgroup (lower-middle class).

However, the followers of the WB's approach highlight that these poverty thresholds are developed for the purposes of international comparison and have a limited application for the analysis of poverty in any given country (Lokshin & Yemtsov, 2013). In the course of international comparison, both statistical and survey data show that Russia is better off regarding population incomes than the other BRICS countries and developing nations. FSSS publishes the data showing changes in the share of people with income below various monetary poverty thresholds used by the WB, and it proves that Russia has crucial differences from other BRICS countries. In Russia, per capita incomes below $5 per day are almost non-existent, but this income is typical for 30% of Brazilians, nearly 60% in South Africa and China and most of the population in India[35]. ISSP data shows that income stratification in Russia is much closer to that of Western Europe (where over 75% population are in the middle class and the relative number of the poor is small) rather than China or Latin America (where the shares of poor and vulnerable groups are large and the middle class makes up about half of the population) (see Tab. 4).

Tab. 4. Income stratification based on the World Bank model, 2012, %

Groups	Germany	Russia	Hungary	Venezuela	China
Poor	0	2.4	5.0	14.0	23.6
Vulnerable	0.9	11.7	19.2	32.0	25.8
Middle class	99.1	85.9	75.8	54.0	50.6

Source: ISSP, calculation by authors.

This situation is the result of fundamental changes in Russian society which have occurred over the last 15 years and can be traced using this methodology. The calculations by the WB show that only slightly more than a quarter of the Russian population (27%) belonged to the middle class in 2000, while this share increased to 60% by 2010. Sociological surveys show that the expansion of the middle class further continued in 2014–2015. Such drastic changes in personal income make the use of such poverty/middle-class income ranges inefficient at the current stage of Russia's economic development – they cannot define income subgroups within the largest part of the population and only cut off the population with lowest and highest incomes. Russian society has

[35] The FSSS data. Disparity and poverty (http://www.gks.ru/free_doc/new_site/population/bednost/tabl/2-6.html). The data are compiled on the selective survey of household budgets and the macroeconomic indicator of personal cash income, the World Bank's "Poverty and Inequality Database".

already moved away from the minimum physical survival standard for the population that these ranges are based on, (Dinamika Monetarnykh…, 2014), so different methods of income-based stratification are needed. Most methods based on the absolute approach that set the middle-class income threshold at $10–13 per day cannot be used for an income stratification model of contemporary Russia.

If, following the approach of Ravallion et al. (2009), we turn to the concept of the "**Western middle class**" including those who are not poor by the US standards (see Tab. 5), the calculations based on the US poverty thresholds[36] on the RLMS-HSE data for 2015 show that 45.9% of the Russian population can be considered poor while the rest 54.1% enter the "Western middle class" (data from 2014 show similar results – 44.6% were poor and 55.6% belonged to "Western middle class"). In US, official poverty rate was 14.8% in 2014 and 13.5% in 2015[37].

Tab. 5. Official poverty thresholds in the US, 2015 (the "Western middle class" bounds) in US dollars and Russian rubles (PPP)

Number of household members	Annual household income, $	Monthly household income, $	Monthly household income, PPP, rubbles	Monthly household per capita income, PPP, rubbles
1	11,770	980.8	23,510.6	23,511
2	15,930	1,327.5	31,820.2	15,910
3	20,090	1,674.2	40,129.8	13,377
4	24,250	2,020.8	48,439.4	12,110
5	28,410	2,367.5	56,749.0	11,350
6	32,570	2,714.2	65,058.6	10,843
7	36,730	3,060.8	73,368.2	10,481
8	40,890	3,407.5	81,677.8	10,210
9	45,050	3,754.2	89,987.4	9,999
10	49,210	4,100.8	98,297.0	9,830
11	53,370	4,447.5	106,606.6	9,692
12	57,530	4,794.2	114,916.2	9,576
13	61,690	5,140.8	123,225.8	9,479
14	65,850	5,487.5	131,535.4	9,395

Source: RLMS-HSE, calculation by authors

These results provide entirely different estimates of poverty and the middle class in Russia. However, this approach cannot be used as a working model of income stratification as it defines only two groups, without taking into account their internal heterogeneity and the existence of other

[36] There are two different versions of the federal poverty measure. Poverty thresholds are more detailed and used for statistical purposes. They differ for households of different size, taking into account household members of different age and the number of children. The poverty guidelines are a simplified version of poverty thresholds and are used for administrative purposes (for instance, determining financial eligibility for certain federal programs). For the calculation of "Western middle class" in Russia, the latter are used.

[37] Source: The Current Population Survey (CPS), Annual Social and Economic (ASEC) Supplement (https://www.census.gov/data/tables/time-series/demo/income-poverty/cps-pov/pov-01.2015.html#par_textimage_10).

groups between them (vulnerable/needy population and so forth). The straightforward use of the US poverty criteria introduced in the concept of the "Western middle class" for Russia is also debatable.

Therefore, the income group thresholds set for developing countries by the widely cited income stratification methodologies based on the absolute approach turn out to be inefficient for Russia regarding its stage of socio-economic development, and the general aim to construct an income stratification model for the whole society and not only to define specific income groups.

Income Stratification Models Based on the Relative Approach

There are different versions of relative approaches and the income bounds defined on their basis. Some of them predetermine the size of these groups while attributing specific **income quintiles or deciles** to certain income groups. In Russia, the data on the per capita income distribution by deciles and quintiles are published by FSSS. This distribution was changing slowly over the last 20–25 years but the relative share of the two lower quintiles in total income was decreasing; the recent economic crisis stopped this trend (see Tab. 6). The FSSS data (and the sociological data) also show that income disparity is particularly significant between the upper decile (10%) and the rest of the population, and the same holds for the lower decile as well. The income increase in deciles two to nine is smoother (roughly at the delta of 1.1x), which demonstrates that there are fundamental differences between the higher and the lower income groups and the rest of population.

Tab. 6. Distribution of cash income in Russia by quintiles (20 per cent intervals), 1980-2015, %

Year	Distribution of cash income in Russia by quintiles				
	First quintile (lowest income)	Second quintile	Third quintile	Fourth quintile	Fifth quintile (highest income)
1980	10.1	14.8	18.6	23.1	33.4
1990	9.8	14.9	18.8	23.8	32.7
1995	6.1	10.8	15.2	21.6	46.3
1999	6.0	10.5	14.8	21.1	47.6
2003	5.5	10.3	15.3	22.7	46.2
2007	5.1	9.8	14.8	22.5	47.8
2011	5.2	9.9	14.9	22.6	47.4
2015	5.3	10.0	15.1	22.8	47.0

Source: FSSS. Distribution of the total cash income and the specifics of cash personal income differentiation (http://www.gks.ru/free_doc/new_site/population/bednost/tabl/1-2-2.doc). The data for the year 2015 are preliminary and do not include the data for Crimea and Sevastopol.

However, this approach does not uncover the structural changes in income stratification and the size of the particular income groups; it only gauges the change in incomes and income distribution and says little about the dynamics of the income stratification model itself.

The second group of approaches sets income groups by **measuring their incomes against the median values across the population.** This method does not predetermine the sizes of low/ middle/high-income groups – they will differ depending on the patterns of income distribution. It allows an assessment of the changes in income groups size, given the entire population. As this model measures the per capita / household income against the median income, the structure and sizes of groups do not change if incomes grow or decrease evenly across all groups; changes to the model can occur only when patterns of income distribution change.

FSSS provides some data based on this approach, but it mainly shows the share of low-income groups – those with less than 0.4-0.6x median income (Tab. 7).

Tab. 7. Shares of population with average per capita income below the relative thresholds (mean, median, and modal), 2013-2015, %

Year	Size of population groups with average per capita income below the thresholds:					
	Mean	Median	of which below the median share of:			Modal
			40%	50%	60%	
2013	65.1	50.0	12.0	18.7	25.6	21.8
2014	65.0	50.0	11.8	18.5	25.4	22.0
2015	64.9	50.0	11.5	18.2	25.2	22.2

Source: FSSS. The share of the population with average cash income per capita below the thresholds based on the actual cash income data (average, median, and modal per capita), total for Russia and breakdown by regions (http://www.gks.ru/free_doc/new_site/population/bednost/tabl/tab-bed2-7.htm; updated 25.05.2016).

The sociological data can be used while defining other income groups under this approach. The key issue here, and with the absolute approach, is to set the appropriate income bounds. Typically, the poverty level is set at 0.5–0.6x median income; the middle-class threshold, as shown in the first section, is often set at 0.75–1.25x median, and the upper middle-class bound is 1.5–3x median income. These approaches are combined in different ways in various studies and publications.

Based on the literature review and the empirical data for Russia, we suggest three strata (low-, middle-, and high-income) further divided into a total of seven income groups. The poverty threshold is set at 0.5x median income. The low-income stratum also includes the vulnerable population – those with income lower than 0.75x median (the typical lower demarcation for the middle class), and the group of the poor includes the extremely poor with income no higher than 0.25x median income (in Russia, that means having income well below the subsistence level). The middle-income stratum (0.75-2x median income) is divided into lower-middle income (0.75-1.25x) and upper-middle income (1.25-2x median income) groups – empirical analysis shows that for

Russia, these groups fundamentally differ from each other. Ultimately, the population with income higher than 2x median income falls into the high-income stratum, also divided into two subgroups.

In order to choose the appropriate thresholds of poverty (0.5x or 0.6x median income) and affluence (2 or 2.25x), we examined whether there are any statistically significant differences between the defined income groups. For this purpose, drawing on the IS RAS 2015 data, we used the income variable as an input for auto-clustering (aplying a log-likelihood measure of distance) to obtain robust statistical clusters of people solely grouped on the basis of income. The broader details on the results of auto-clustering are in Annex 1. Then, we cross-tabulated these clusters with income groups defined based on the literature review (see Tab. 8). Table 8 suggests that the differences between the income groups are more salient when the respective thresholds are set at 0.5x and 2x median income.

Tab. 8. Statistical clusters and literature-based income groups, % (by column).

	Income groups, according to literature				
	1	2	3	4	5
Statistical clusters based on income	Less than 0.5	0.5 – 0.75	0.75 – 1.25	1.25 – 2.00	More than 2.00
1 «Lower»	100	100	76		
2 «Middle»			24	75	
3 «Upper»				25	100
Total:					
Observations (N)	232	689	1,610	927	216
%, by row	6	19	44	25	6

Source: IS RAS, calculation by authors
Note: Hereafter, all the values are statistically significant at level $\alpha < 0.001$. The result was bootstrapped (1000)
We have excluded outlier cluster that embraced 33 observations.

These thresholds were also validated empirically given a set of indicators of social deprivation. One example of these indicators is access to required medical care. We included this indicator as an input for two-step clustering, along with the income variable. Table 9 summaries the distribution of literature-based income groups across the statistical clusters shaped on income and access to required medical care. It is clear that the group of 0.75-1.25x is homogeneously defined. The analysis suggests that the thresholds seem to perform well for Russia and can be accepted for the purposes of further analysis.

Tab. 9. Statistical clusters and literature-based income groups, % (by column).

	Income groups, according to literature				
	1	2	3	4	5
Statistical clusters based on income and access to medical care	Less than 0.5	0.5 – 0.75	0.75 – 1.25	1.25 – 2.00	More than 2.00
1 «Lower»	100	100	91		
3 «Upper»			9	100	100
Total:					
Observations (N)	212	604	1,413	844	184
%, by row	6	19	43	26	6

Source: IS RAS, calculation by authors
Note: We have excluded outlier cluster embraced 450 observations (11.3% of the sample)

The proposed model based on the relative approach to income stratification yields, as expected, similar results for the both sets of data (see Tab. 10). The major part of the population in autumn 2015 belonged to the middle-income stratum (with a larger share of the lower-middle subgroup), the proportion of low-income stratum (extremely poor, poor, and vulnerable) was about one-third of the population, and the proportion of high-income groups was about 10%. Apparently, extreme poverty is no longer typical for the Russian society even during the crisis, and most Russians have a close-to-median income.

Tab. 10. Income stratification by the relative approach using the country's median value, survey data by IS RAS and RLMS-HSE, 2015, %

Income groups		**Household per capita income about income median**	**RLMS-HSE, 2015**	**IS RAS, 2015**
Low income	*Extremely poor*	Lower or equal to 0.25 median	1.4	1.4
	Poor	0.25 - 0.5	9.5	9.5
	Vulnerable	0.5- 0.75	19.0	23.0
Middle income	*Lower middle income*	0.75 - 1.25	36.8	34.5
	Higher middle income	1.25 - 2	22.7	21.9
High income	*Affluent*	2 - 4	9.4	8.5
	Top income	Over 4 median	1.2	1.1

Source: IS RAS and RLMS-HSE, calculation by authors

The empirical data demonstrate the stability of the general configuration of the income stratification model in times of recent economic crisis of 2014-2016. The on-going economic crisis has not changed the general ratio of higher and lower income groups. The most visible changes occurred in vulnerable and the lower middle-income groups: the former increased in size, taking

part of the latter as the crisis began, and the share of the poor increased too. The extremely poor and top income (i.e. analogue to "rich" in other papers) groups have not changed.

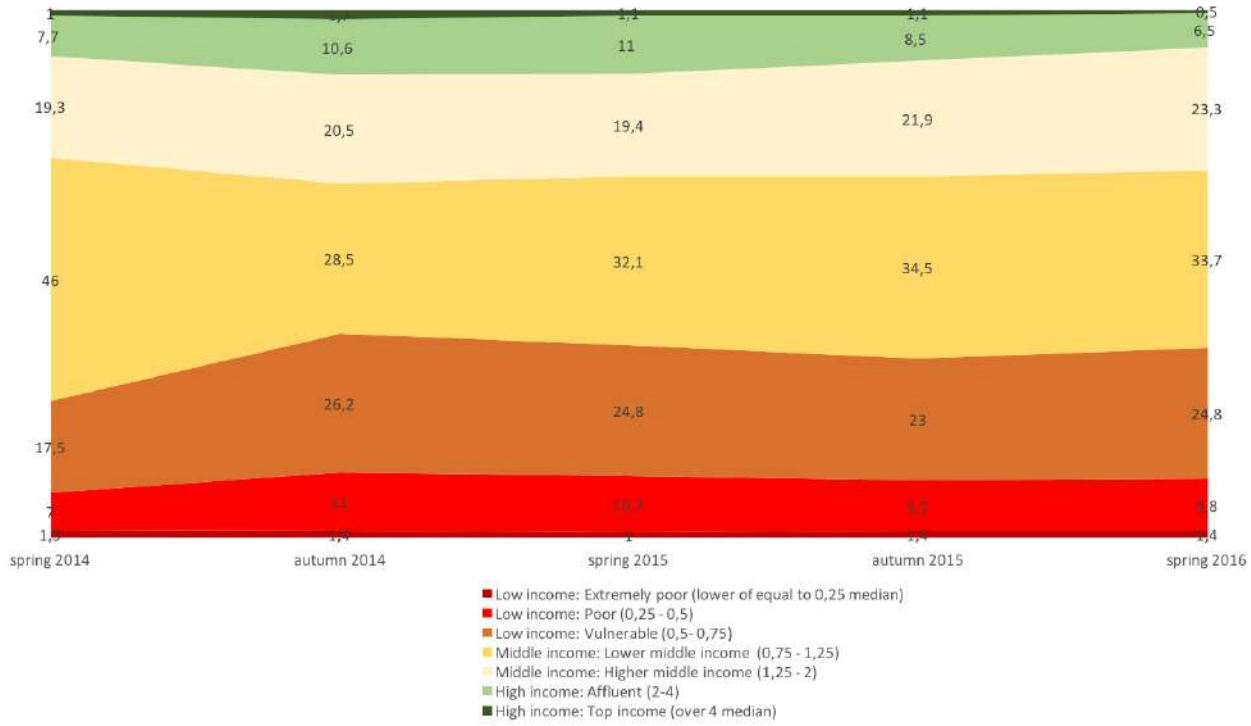

Fig. 2. Income stratification by the relative approach using the country's median income dynamics in 2014-2016, %
Source: IS RAS calculation by authors

So far we have been discussing the relative approach which uses the country's median income. However, in Russia, it is necessary to account for the various living standards across regions as well as in the urban and rural areas – the cost of living can vary widely and the same income can indicate fundamentally different living standards. The model above can be adjusted for these inequalities with the use of region-specific and settlement-specific median income values. There are countries with a greater disparities between urban and rural incomes (India, China), while in Russia differences in the socio-economic development of regions are more important (Ovcharova, 2014).

We reassessed the proposed **stratification model** using **regional / settlement median income values**, however, its general composition remained unchanged. Moreover, the share of middle-income groups increased, while the shares of extremely poor and extremely rich declined. This impact was lower for median values adjusted for types of settlement and higher in the case of regional median values (see Tab. 11).

Tab. 11. Income stratification based on the relative approach using the median values adjusted for regions and types of settlement, 2015, %

Income groups		Household per capita income about income median	Income median		
			by country	by settlement	by region
Low income	*Extremely poor*	Lower or equal to 0.25 median	1.4	1.0	1.0
	Poor	0.25 - 0.5	9.5	8.4	7.9
	Vulnerable	0.5 - 0.75	19.0	18.8	17.5
Middle income	*Lower middle income*	0.75 - 1.25	36.8	39.1	42.1
	Higher middle income	1.25 - 2	22.7	22.9	23.9
High income	*Affluent*	2 - 4	9.4	8.6	6.8
	Top income	Over 4 median	1.2	1.1	0.8

Source: RLMS-HSE, calculation by authors

It is also important to assess the heuristic potential of the proposed stratification methodology for **international comparative research**. The analysis showed that the proposed income stratification model efficiently captures the specifics related to various types of society. Figure 3 shows three developing nations (Russia, Venezuela, and China) which are located on different continents, have different levels of social and economic development, and are characterised by unique cultural and historical backgrounds. These countries significantly differ from one another regarding their income stratification. While Venezuela and China share many similarities (first of all, the relatively small middle-income groups and the large proportion of low-income groups), Russia's model of income stratification has fundamental differences.

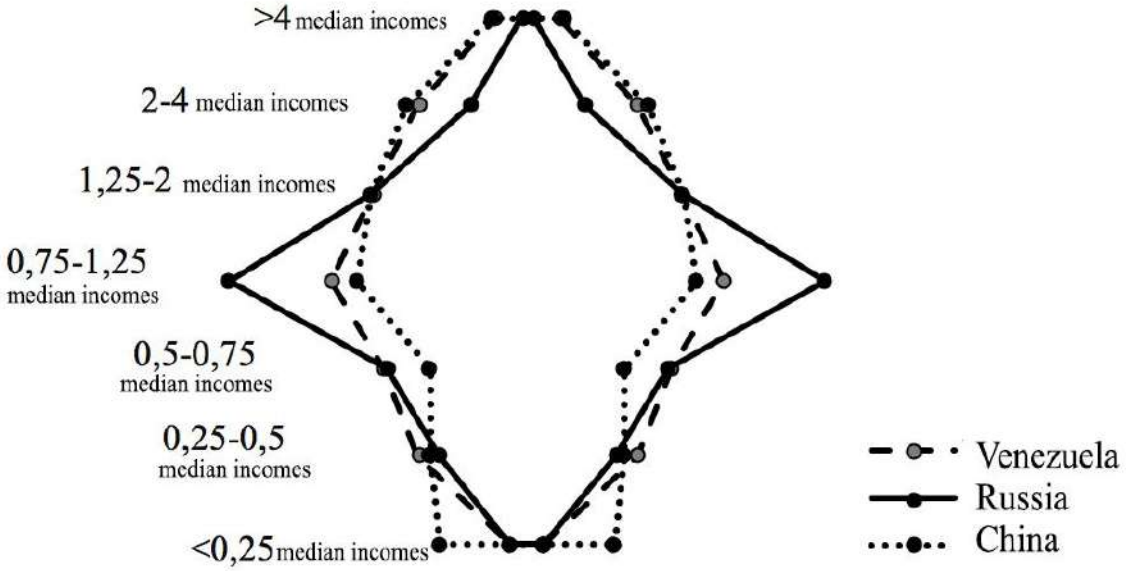

Fig. 3. A graphical representation of income stratification in Russia, China, and Venezuela, 2012, %
Source: ISSP, calculation by authors

In Venezuela, where the population in general has a larger income than that of China (see Tab. 12), the share of middle-class income is higher, while the relative proportion of extremely poor with income of 0.25x median or below is several times smaller.

Tab. 12. Income distribution in various countries, ISSP, 2012, US dollars PPP

Indicators	Germany	Russia	Hungary	Venezuela	China
Mean household monthly per capita income	1,512.7	650.2	505.3	465.4	523.3
Median household monthly per capita income	1,250.0	565.0	484.1	337.1	300.3
Relation of median income to mean	0.83	0.87	0.96	0.72	0.57
GDP per capita, PPP (yearly, World Bank data, 2012)	*43,600.1*	*23,519.7*	*22,701.5*	*18,019.6*	*11,214.8*
Gini coefficient (2011 / 2012, World Bank / CIA data)	30.1	41.6	30.5	39.0	42.2

Source: WB. Household incomes were calculated using the PPP rate for private consumption provided by the World Bank (http://data.worldbank.org/indicator/PA.NUS.PRVT.PP; as of 19.07.2016). The World Bank also calculates GDP per capita using the PPP rate version for GDP (http://data.worldbank.org/indicator/PA.NUS.PPP ; as of 19.07.2016)

The income stratification looks different in Europe (both Western and Eastern). Figure 4 suggests that all three given countries are more similar to one another regarding income stratification (despite the differences in economic development and income distribution) than the countries in Fig. 3. The most salient difference between European and non-European countries is that the former have a smaller share of population below the poverty line (particularly those in

extreme poverty), and a relatively larger middle-income strata. Russia is somewhere between Germany and Hungary regarding income distribution in low-income groups; at the same time, it is more similar to Venezuela than to Germany by GDP per capita, PPP (see Tab. 12). While Russia, China and Venezuela are all classified as upper middle income countries by WB, Germany and Hungary are among high income. However, the income stratification models in Russia and China and Venezuela have distinctly different shapes due to their cultural and historical backgrounds.

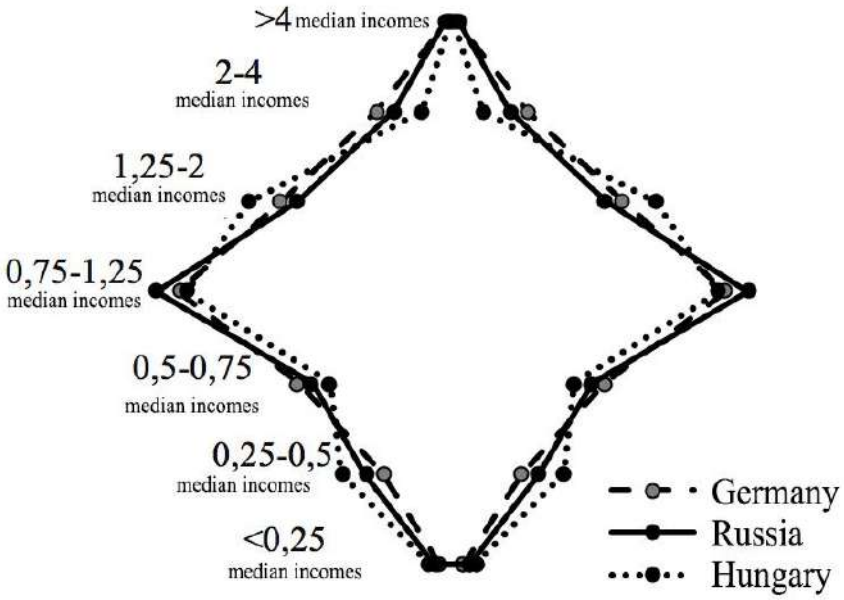

Fig. 4. A graphical representation of income stratification in Russia, Hungary and Germany, 2012, %
Source: ISSP, calculation by authors

Conclusion

Constructing a model of income stratification which can be used in sociological research is not a trivial task. Different approaches can show different efficiency when applied to specific socio-economic conditions in a certain country. There are various approaches to income stratification that can be divided into two broad categories – relative and absolute. The choice between them should take into account their heuristic potential tested on empirical data reflecting the current conditions of the specific society in focus.

Empirical analysis shows that most widely used thresholds of the absolute approach cannot be efficiently applied to contemporary Russian society, which has undergone fundamental changes over the last 15 years regarding income, as they fail to define subgroups within the population. At the beginning of the 2000s, the situation in Russia was quite different and such approaches were relevant. Now absolute models of stratification rank Russia in line with developed rather than

developing countries (in particular, the issue of extreme poverty – on the brink of physical survival – is gone), rendering absolute income bounds, set for the latter group of countries, irrelevant.

The relative approach, based on the median income as the social standard of living, can be efficiently applied to Russian conditions. The application of the relative approach proposed by the authors shows that the income stratification model in Russia has been quite stable even under the influence of the economic crisis during the last two years (2014–2016). Middle-income groups dominate; however, the lower-middle class outnumbers the upper-middle class. Incomes of both these groups are not high in absolute terms, and their living standards are quite modest. As of autumn 2015, about a third of the Russian population was poor or at risk of poverty, while high-income groups made up around 10%. Extreme poverty is not typical for Russia, and the income of most Russians is close to the median income of the country as a whole.

The proposed methodology was also tested on sociological data from several other countries and showed a high heuristic potential. The results of the analysis confirm that Russia's income stratification model is currently more similar to those of developed rather than developing countries, even though it is behind developed countries in terms of the monetary level of income.

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Annex 1.

Auto-clustering. Input variable: per capita income of a household adjusted to the regional median (standardised).

Number of Clusters	Bayesian Information Criterion (Schwarz's BIC)	BIC Change (are from the previous number of clusters in the table)	Ratio of BIC Changes (are relative to the change for the two-cluster solution)	Ratio of Distance Measures (are based on the current number of clusters against the previous number of clusters)
1	335.397			
2	141.193	-194.204	1.000	2.808
3	81.006	-60.187	0.310	2.851
4	**68.943**	**-12.062**	**0.062**	**2.738**
5	73.390	4.447	-0.023	3.511
6	84.629	11.238	-0.058	2.793
7	97.603	12.975	-0.067	.[a)]

Note: Hereafter, the row in bold indicates the optimal number of clusters for the current model. The criterion is the minimal values of Schwarz's BIC and the Ratio of Distance Measures.

[a)] Since the distance at the current number of clusters is zero, auto-clustering will not continue.

The average Silhouette measure of coherence and separation for this model equals to 0.7 (out of 1), what indicates "good" cluster quality.

Cluster profiles

Clusters	Distribution			Cluster centroids	
				Mean	St. deviation
	N	% of Combined	% of Total		
1	2,141	57.8	53.5	0.78	0.209
2	1,088	29.3	27.2	1.37	0.162
3	445	12	11.2	2.22	0.449
Outlier cluster (excluded)	33	0.9	0.8	4.29	0.914
Combined	3,707	100	92.7	1.16	0.618
Missing	293		7.3		
Total	4,000		100		

Annex 2.

Auto-clustering. Input variables: (1) per capita income of a household adjusted to the regional median (standardised), (2) access to medical care

Number of Clusters	Bayesian Information Criterion (Schwarz's BIC)	BIC Change (are from the previous number of clusters in the table)	Ratio of BIC Changes (are relative to the change for the two-cluster solution)	Ratio of Distance Measures (are based on the current number of clusters against the previous number of clusters)
1	340.958			
2	144.819	-196.140	1.000	4.070
3	112.298	-32.521	0.166	2.299
4	**109.891**	**-2.407**	**0.012**	**1.159**
5	110.658	0.767	-0.004	5.575
6	127.841	17.183	-0.088	1.518
7	146.248	18.407	-0.094	2.774
8	166.167	19.919	-0.102	.

Cluster profiles

Clusters	Distribution			Cluster centroids		Sociological indicator (no access to medical care)			
				Mean	Mean	0		1	
	N	% of Combined	% of Total			N	%	N	%
1	1,157	31.3	28.9	1.67	0.431	1,157	34.9	0	0
2	2,100	56.6	52.5	0.82	0.234	2,100	63.5	0	0
Outlier cluster (excluded)	450	12.1	11.3	1.40	1.065	54	1.6	396	100
Combined	3,707	100	100	1.16	0.618	3,311	100	396	100
Missing	293		7.3						
Total	4,000		100						

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