Income and Consumption Inequality in Russia

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Abstract

Using the Russian Longitudinal Monitoring Survey HSE, we study inequality in income and consumption in Russia over 1994-2015 years. We find that trends in consumption inequality parallels trends in income inequality, and that consumption inequality is not more equal than income inequality. The joint analysis of income and consumption reveals the following changes in consumption given income behavior: (i) top savers have not changed their consumption behavior since 1994; (ii) low-income top consumers have increased their consumption; while (iii) high-income top consumers have decreased it. These changes have resulted in decrease in consumption inequality and poverty. We also find that half of the existing inequality in consumption is due to differences in income, and the other half is due to differences in preferences to consume.
1 Introduction

Over the last four decades, most of the evidence on inequality trends was phrased in terms of income (Flemming & Micklewright (2000) on inequality in countries of Central and Eastern Europe and the former Soviet Union, Gottschalk & Smeeding (2000) on inequality in industrialized countries, Atkinson (2003) on inequality in nine OECD countries, Atkinson et al. (2011) on evolution of top incomes worldwide, Piketty & Saez (2014) and Piketty (2015) on the historic evolution of inequality in Europe and the US). However, consumption-based inequality may be even more informative from a welfare point of view as economic theory defines individual utility over consumption of goods and services, not income. For that reason, considering inequality in consumption can be regarded as ideal measure of inequality in terms of welfare of households. Furthermore, evolution of income over time is more volatile and might reflect transitory variations in income. These variations might have little impact on household welfare if household can smooth their consumption against transitory shocks. Finally, analysis of inequality in terms of consumption allows researchers to investigate allocation of income to different components of consumption including necessity goods, luxury goods, and leisure.

In this paper, we do not choose between the two measures, but we argue that the joint analysis of income and consumption inequality is relevant in several ways. It reveals presence (or lack) of consumption-smoothing mechanisms available to households caused by technological changes, labour market reforms and so forth. It demonstrates how households react to anticipated and unanticipated income shocks that they encounter during the life-cycle. It also allows to study the nature of permanent and transitory shocks with respect to economic circumstances and household characteristics. Finally, the joint analysis is crucial for evaluating public policies and fiscal packages implemented in response to financial crisis or downturns.
We study the joint evolution of income and consumption inequality over 1994-2015 years in the Russian Federation. We complement and extend the existing literature in a number of directions. First, we address the issue of whether trends in consumption inequality mirror trends in income inequality. Second, we uncover the link between changes in income distribution and changes in consumption distribution by modelling distribution of consumption conditional on income. Finally, our paper brings important insights on the conjoint evolution of income and consumption inequality in Russia over the past two decades. To the best of our knowledge, no other study on Russia has offered a comprehensive picture of income and consumption inequalities.

Since the early 1990s, the Russian economy has been subject to various macroeconomic volatility including inflation, economic stabilization and even growth, economic stagnation caused by oil prices and geopolitical crisis. Furthermore, Russia has experienced extensive reforms, including changes in income taxation, family policies, educational reforms which might have significantly impacted the monetary well-being of individuals. Finally, the country is regionally and ethnically diverse. The combination of these factors presents unique opportunity for studying inequality in income and consumption in Russia since 1994. Fortunately, nationally representative household survey the Russian Longitudinal Monitoring Survey (RLMS-HSE) allows for this.

Our results suggest that Russia experienced a fall in income and consumption inequality since 1994 (see similar evidence from

Second, the joint analysis of income and consumption reveals changes in consumption given income behavior over 1994-2015 years. High- and low-income top savers, characterized by low average propensity to consume, have not changed their consumption behavior since 1994. Furthermore, high-income top consumers have decreased their consumption, while low-income top consumers have increased it. Counterfactual analysis reveals that these changes had led to a decrease in consumption inequality and poverty, in particular at below median part of distribution.
Finally, we perform a between- and within-group decomposition and find that half of the existing inequality in consumption is explained by differences in income and the other half is explained by differences in individuals’ preferences to consume. The counterfactual analysis shows that changes in consumption given income behavior had resulted in decrease in consumption inequality due to preferences to consume and in increase in consumption inequality due to differences in incomes.

The rest of the paper is organized as follows. In the following section, we summarize the previous work on income and consumption inequality. We introduce the data in section 3, and present general trends in income and consumption inequality in section 4. Conceptual framework is described in section 5, and empirical results are presented in Section 5. Section 6 concludes the paper.

2 Previous Research

Cutler et al. (1991) and Cutler & Katz (1992) were among the first to look at inequality trends in terms of consumption. They analyzed income and consumption data in the United States during the 1980s and found that changes in consumption distribution parallel changes in distribution of income. In contrast, a study by Slesnick (1994) demonstrated that income-based inequality overstates consumption-based inequality by a substantial amount. He stated that the consumption distribution is less dispersed due to availability of consumption-smoothing mechanisms across the population. A number of later studies (for example, Krueger & Perri (2006); Meyer & Sullivan (2009); Blundell et al. (2008); O. P. Attanasio et al. (2010)) put the main emphasis on studying whether consumption inequality has been rising as much as income inequality by using expenditure data from the US Consumer Expenditure Survey. These studies find evidence similar to Slesnick (1994).

Another group of studies have questioned the validity of data on income and consumption and
argued that once accounted for the measurement error changes in consumption inequality parallels changes in income inequality (see, for example, O. Attanasio et al. (2004, 2015); Aguiar & Bils (2015)). The main contribution of these studies is acknowledgment of the measurement error problem and introduction of sophisticated approaches to overcome this problem. Aguiar & Bils (2015) introduces two alternative measures of consumption to reassess trends in income and consumption inequality. First, they calculate consumption as reported after tax income minus active savings. Second, they use a demand system to correct for systematic measurement error in consumption data. Inequality of consumption using alternative measures show a substantial increase in consumption inequality, similar to increase in income inequality. O. Attanasio et al. (2015) aims to overcome the measurement error problems by (i) focusing on well-measured consumption categories; (ii) using information on diary consumption only; and (iii) by constructing an alternative measure of consumption by comparing spending on necessities relative to luxury goods. They find that consumption inequality based on three alternative measures evolved very similar to income inequality.

Most of the literature, including the mentioned above, aim at documenting and comparing trends in income and consumption inequality. Though it is an essential step for the inequality analysis, they fail to explain how inequalities in income translate to inequalities in consumption. This was addressed in a set of recent papers including Fisher et al. (2016, 2020, 2018); Krueger et al. (2016); Ruiz (2018). Krueger et al. (2016) study how households with different wealth stocks react to changes in income, and how they change their expenditures during the Great Recession in the US 2007-2009. They conclude that the decline of wealth-poor households generated a larger decrease in aggregate consumption. A study by Ruiz (2018) introduces a new multidimensional approach to study evolution of income and consumption jointly, which was inspired by the multidimensional extension of the Atkinson generalized mean framework.
A series of recent and important papers by Fisher et al. (2016, 2020, 2018) come closest to our approach to study the joint evolution of income and consumption inequality. Fisher et al. (2016) estimate the average propensity to consume and Fisher et al. (2020) the marginal propensity to consume to examine the pairwise distributions of income, consumption and wealth for the same individuals. First, they find that inequality in income, consumption and wealth is on the rising path, but changes in these distributions are not perfectly correlated. They find that low income households consume more than higher income households, and at the same time high-wealth households consume modestly and possess low income. The later result suggests that wealth plays a role of a buffer to changes in income. Second, the marginal propensity to consume is found to be lower for the higher-wealth households. This means that lower-wealth households cannot smooth their consumption as much as higher-wealth households, and therefore they react more to changes in income shocks. This result confirms conclusions by Krueger et al. (2016).

Finally, the evidence on joint evolution of income and consumption inequality in Russia is relatively sparse. Gorodnichenko et al. (2010) study trends in income and consumption inequality and, in particular, the response of consumption to permanent and transitory income shocks over 2000-2005 years. They document parallel trends in income and consumption levels, though consumption was higher than income over 1994 - 201 years. Additionally, they also argue that moderation in consumption and income inequality is driven by decline in volatility of transitory shocks.

3 Data

Survey Overview. The analysis is based on the Russia Longitudinal Monitoring Survey - Higher School of Economics (RLMS-HSE 2020). The RLMS-HSE is the largest representative household survey in the former post-soviet states. It was started in 1992 by an initiative of Carolina Population Center, University of North Carolina and the State Committee on Statistics of the Russian
Federation. Since then it is conducted on annual bases (with exception in 1997 and 1999) aiming to collect information on material and non-material well-being of households and individuals in Russia. Additionally, the RLMS-HSE collects data in both urban and rural areas. Our analysis is based on the RLMS-HSE because this is the only survey that collects information on income as well as consumption in Russia.

The RLMS-HSE is the remarkable data source, that has been extensively used by researchers over the past twenty years (Gorodnichenko et al. 2010; Dang et al. 2020; Flemming & Micklewright 2000; Novokmet et al. 2018). However, there are well-known issues with the RLMS-HSE. A particular worry is the missing rich problem. The richest Russians are likely to be under-represented in the RLMS-HSE. We address this issue in several ways. First, we compare RLMS-HSE inequality trends with the trends adjusted by top incomes shares in Novokmet et al. (2018) and find similar trends, but different levels (see Figure 1 in Appendix). Furthermore, within the scope of this study we focus on the analysis of trends rather then levels of inequality. We also use those inequality measures that are not too sensitive to the top incomes (Jenkins & Van Kerm 2012). Finally, it is reassuring that the richest are not represented in the RLMS-HSE, but it may nevertheless be important to analyze income evolution and its determinants for the “Other 99%” of the Russian population, to paraphrase Autor (2014). Thus, we are confident about the relevance of the RLMS-HSE for the purpose of the paper.

Sample Selection. Our sample comprises waves over 1994-2015 years. We include all individuals living in households and children under 14 years old. Our analysis refers to individuals living in households. According to the RLMS-HSE design, households are defined as a group of people living together in a given domicile and sharing a common income and expenditures. Household characteristics are typically answered by the household head, while the individual socio-demographic characteristics are reported by each household member in the individual questionnaire. We in-
clude household and individual characteristics in our analysis including age, gender, educational attainment, occupational status as well as family size and family type. We distinguish between six different types of households: (i) single pensioner households, (ii) multiple pensioner households, (iii) single adults without children, (iv) multiple adults without children, (v) single adults with children, and (vi) multiple adults with children.

Variable Definition. The main variables of our interest are household income and household consumption. According to the RLMS-HSE the total monthly household income is defined as net income including all private sources of income (earnings, home food production, help from other family member etc.), state transfers (pensions, benefits for children, employment benefits etc.) minus taxes. Our consumption measure is similar to the definition offered by Gorodnichenko et al. (2010). It is defined as sum of food and non-food expenditures, exclusive expenditures related to health and education, payment on mortgages, loans, savings and eating out. Income and consumption measures are deflated and adjusted to the regional price differences as prices vary greatly in Russia. Income and consumption measures are converted to single-adult equivalent using the OECD modified equivalence scale. According to this scale the head of household receives a weight of 1, other household members over 14 years receive a weight of 0.5 and those under 14 years are assigned a weight of 0.3. Finally, all individuals are assigned to single-adult equivalent monthly income and consumption of the household to which they belong.

4 Conceptual Framework

In this section, we introduce methodological frameworks to analyze conjoint income and consumption distribution. First, the concept of conditional distribution regression is introduced. Second, the concept of counterfactual analysis is explained. Thirdly, the decomposition approach is explained, and finally, the main measures of distributional change are being presented.
Distribution Regression

The conjoint analysis of income and consumption distribution implies understanding of how changes in income distribution affect changes in consumption distribution. Does increase in income lead to uniform increase in consumption? Is this effect larger for individuals at the lower part of income distribution and smaller for those at the top of the distribution? The standard analysis of two independent from each other distributions is the most common way to answer these questions. However, this analysis does not necessary answer to the questions above. Aiming to learn about the changes in consumption distribution caused by changes in income we establish empirical link between two distributions by modeling the entire distribution of consumption.

We use a binary regression to model and estimate the conditional distribution of consumption given set of covariate. Let us define $F(c)$ a distribution of outcome variable, that is consumption, and $F(y)$ as a distribution of covariate, that is income. Then, conditional distribution of consumption given income is defined as

$$F_{C|Y}(c|y) = Pr(C \leq c|Y = y) = F_c(B(y)\beta(c)) \tag{1}$$

where $c$ is a threshold value of consumption against which a single value of consumption is compared; $F_c$ is a link function that relates outcomes and predictors in a linear way; $B$ is a transformation function of $y$; and $\beta$ is a vector of coefficients associated with predictors. This expression is very flexible in the way that it allows for a variety of models for conditional distribution functions including logistic link function. We estimate the conditional distribution by:

$$\hat{F}_{C|Y}(c|y) = \Lambda(y'\hat{\beta}(c)) \tag{2}$$

where $\Lambda$ is logistic regression function and $\hat{\beta}(c)$ is distribution regression estimator, which is defined
as
\[ \hat{\beta}(c) = \arg \max_{\beta \in \mathbb{R}} \sum_{i=1}^{n} [1\{Y \leq y\} \log \Lambda(X'\beta) + 1\{Y > y\} \log \Lambda(-X'\beta)] \] (3)

After designing the conditional distribution, we construct unconditional distribution of consumption of the following form
\[ F(c) = \int F_{C|Y}(c|y)dM(y) \] (4)

where \( M \) is marginal distribution of covariates values. If \( M \) is defined as income distribution, that is \( F_Y \), then we eventually end up with marginal distribution of consumption, that is \( F(c) = F_C(c) \).

This expression is the key in conducting a counterfactual analysis.

**Counterfactual Analysis**

Counterfactual analysis is the tool that isolates contribution of covariates to the changes in outcome variable. In other words, the method provides answers to a question “What would the consumption distribution be like had the income distribution remain fixed in time?”. Fortunately, the above-introduced expression 4 allows for this.

Let \( F_{Y_0} \) denote a distribution of consumption in base period. Then, \( F_{C|Y_t} \) is a conditional distribution of consumption given distribution of income in period \( t \). Using these distribution we can construct a distribution of consumption in period \( t \) given income distribution of base period as

\[ F_{C|Y_0}(c|y) = \int F_{C|Y_t}(c|y)dF_{Y_0}(y) \] (5)

This expression represents a counterfactual distribution of consumption that would have prevailed had the income distribution, or the income to consumption behavior, remained as in the base year. It is the answer to the question “What would the consumption distribution be like had the income distribution remain fixed in base period?”. Any difference between the counterfactual and actual
distributions are attributed to the changes in income distribution. For the purpose of the current analysis, year 2015 is taken as base year period, which is absolutely arbitrary. Therefore, we also conduct a sensitivity analysis of impact of changes in the base year. Our results are robust which means that the choice of the base year has no impact on the results.

**Within- and Between-Income Groups Decomposition**

The last step of the analysis is the within- and between-income groups decomposition. We use actual $F(c|y)$ and counterfactual distributions $F_{C_t|Y_0}$ to decompose observed differences in consumption into differences arose from income differences and to differences arose from heterogeneous preferences to consume. This decomposition is driven by the argument that individual’s choice to consume depends on income level as well as preferences to consume.

The within- and between-income groups decomposition is performed in two steps. First, we equalize consumption choices within income groups by assigning the average consumption level to individuals within income percentiles. By doing this, we construct a distribution of consumption, where individuals within the same income group chooses to consume on average the same amount of goods and services. The inequality of this synthetic consumption distribution is defined as the within-income groups inequality. This decomposition indicates the level of inequality in consumption that arose from differences in incomes.

Second, we equalize consumption within consumption groups. This means that we group individuals according to their consumption level, and then we assign the average consumption level to those belonging to the same group. Individuals within the same consumption groups are those that choose to consume the same share of their income across different income levels. The inequality of this distribution is represents the between-income groups inequality of consumption. This decomposition approach demonstrates the inequality level due to individual preference to consume.

**Measures of Distributional Changes**
Note that the distribution regression approach as well as the counterfactual analysis construct the entire consumption distribution. This allows to estimate various inequality indicators including the Gini index and percentile ratios, poverty rate, defined as the share of those with less than half of the average income, and an absolute measure such as average levels. We calculate bootstrap confidence intervals for all differences between the observed and the simulated series. The bootstrap takes into account stratification across regions and household-level clustering.

5 The Evolution of Income and Consumption Inequality

Before delving in the evidence, we present trends in consumption and income distribution. Note that consumption and income trends over the 1990s should be taken with cautious, because household consumption is larger than household income for substantial share of families. We believe this is due to income under-reporting and wage delays, which have been common issues for this period in Russia (see Gorodnichenko et al. (2010) for similar evidence).

Figure 1 shows dynamics of inequality, poverty, average value, and percentile ratios over the 1994-2015 years. Poverty rate is defined as the share of individuals with less than 50% of the average level. Clearly, inequality and poverty measured by income and consumption is declining. Trends rose rapidly since the fall of the Soviet Union, reaching its peak in 1998 and then fell over 2000-2015 years. The distribution of income was more unequal than distribution of consumption, but this has reversed after 2005. We document similar trends for the poverty dynamics: share of income poor was larger than consumption poor, but this has reversed after 2005. The poverty rate has decreased by one-third from 27% in 1995 to 18% 2015. Changes in deciles ratios in income and consumption indicate that decline in inequality and poverty is coming from the improved well-being at the bottom part of distributions.

We also document increase in levels of income and consumption, though income levels increased
Figure 1: Income and Consumption Inequality in Russia: 1994-2015
much faster than consumption. The gap between two measures is persistently increasing. In 2000
the average level of income and consumption was 11,000 Rubles and 6,2000 Rubles, respectively;
while in 2015 the average income jumped to 32,000 Rubles, while the consumption increased to the
18,000 Rubles only. Trends in percentiles ratios indicate relative increase in levels at lower part
and relative decrease in the upper part of income and consumption distributions. Note, that 1998
year’s peak in inequality, poverty and average levels is explained by the Russian financial crisis and
governmental default. 1996 year’s peaks in income are not observed in consumption distribution
which indicates the consumption smoothing mechanisms among poor in Russia.

Figure 2 shows growth rate income and consumption across different percentiles of the dis-
tributions. Due to uneven changes in levels we distinguish between two periods: 1994-1998 and
2000-2015. Over 1994-1998 years income and consumption levels increased equally for each per-
centile of distributions, but the very top deciles enjoyed larger increases. Dynamics over 2000-2015
years differs substantially from these trends. Over 2000-2015 years incomes at the lower part of
distribution increased by six times, while incomes of the richest by three times only. Consumption
at the lower percentiles increased by three times, while consumption at the higher percentiles - by
two times. Other deciles experienced a homogenous increase in consumption. The differences in
consumption levels of the richest and of the poorest are much smaller than the same difference in
incomes. The bottom of income and consumption distributions experienced much higher growth
rates than the top. In overall, the period 1994-1998 is characterized by equalized growth, while
2000-2015 years are characterized by growth at the bottom.

In overall, we document a fall in inequality in Russia since 1994. Fall in income inequality
parallels fall in consumption inequality. The income inequality experienced larger decrease in
relative terms and larger increase in absolute terms. The consumption levels did not increase as
much as did the income levels. Most of changes occured the lower part of distributions. The 1998
year’s spike in income is not observed for trends in consumption which indicates a consumption smoothing mechanism in Russian households. These trends are in line with the previous studies on inequality dynamics in Russia Gorodnichenko et al. (2010); Dang et al. (2020); Novokmet et al. (2018).

6 Results

6.1 Joint Evolution of Income and Consumption

We now examine our full set of results. The conditional distribution of consumption is constructed by using the information on adjusted household disposable income, family’s size and composition. The relationship between consumption and income is nonlinear and quadratic. The family composition takes into account age and gender of household members. The goodness of conditional distribution of consumption is tested by comparing actual and conditional distributions. Results are depicted in Table 1 in Appendix. The conditional distribution of consumption approximate
the observed values of consumption well. The entire analysis is based on conditional on income
distribution of consumption.

Figure 3 presents trends in conjoint evolution of income and consumption for 1995-2015 years
including trends from counterfactual analysis. Each graph depicts (i) changes in income distri-
bution shown by bars; (ii) changes in consumption (y-axis) given income (x-axis), in particular,
changes in the 10th percentile of consumption (solid black line), average consumption, and 90th
percentile of consumption; (iv) counterfactual estimates of changes in consumption (dashed lines).
Solid lines represent the actual estimates, while the dashed line shows counterfactual estimates.
The counterfactual trends depicts what would have happened to the joint distribution had the
consumption given income behavior remained as in year 2015.

The Figure 3 show four important trends in joint analysis of income and consumption. First,
income distribution has changed dramatically over 1994-2015 years by shifting towards more indi-
viduals with higher incomes and less individuals with lower incomes. This finding is in line with the
increase in income levels. Second, individuals with higher incomes consume more than individuals
with lower incomes, which is indicated by a positive slope of consumption given income behavior.
Third, despite the shift towards higher incomes the period over 1994 - 2015 years is characterized
by a reduction in consumption among individuals belonging to the same income classes. That is a
reduction in consumption given income differences. Individuals with similar incomes consume more
equally in 2015 than they did in 1994. Finally, consumption became more homogeneous among
individuals belonging to the same consumption classes, which means that in 2015 individuals tend
to consume more equally across consumption classes then they did in 1994 independently on their
income.

The Figure 3 also provides results of the counterfactual analysis shown by dashed lines. The
dashed line shows what would have happened to the distribution of consumption had the consump-
Figure 3: Joint Evolution in Income and Consumption Inequality in Russia: 1994-2015

Note: The base year for the counterfactual analysis is 2015.
tion to income ratio remain as in 2015. When the dashed line is above the solid line, this indicates that consumption would be higher had the consumption to income ratio would be as in 2015; when the dashed line is below the solid line, then the consumption would be lower had the consumption to income ratio would be as in 2015. When the solid line matches the dashed line, then consumption given income ratio is equal to the 2015 value. In overall, consumption given income behavior has been changed over 1994-2015 period: no change in consumption of top savers, an increase in consumption of poor top-consumers and a decrease in consumption of rich top-consumers.

Given these changes, we re-estimate trends in inequality and poverty. Figure 4 shows actual (solid line) and counterfactual (dashed line) results. Had the consumption given income behavior remained at 2015 value, consumption inequality would be lower and stabilize at 0.32 value, consumption poverty rate would remain constant, that is at 20% of poor people. Consumption levels would somewhat increase over 1994-2010 years compare to the actual consumption levels. P90/P10 and P90/P50 ratios would be lower than the actual values, while P10/P50 ratio would be higher. Summing up, counterfactual analysis reveals that changes in consumption behavior had resulted in decrease in consumption inequality and poverty, and decrease in consumption levels over 1994-2010 years. This result is driven by catching-up at below median part of the consumption distribution.

In overall, the joint analysis reveals that there were a change in consumption given income behavior towards more equalized and homogenous consumption behavior despite the increase in number of people with higher incomes and decrease in number of those with lower incomes. The counterfactual analysis reveals that changes in consumption given income behavior had resulted in decrease in consumption inequality and poverty.

Within- and Between-Income Groups Decomposition

The last stage of the analysis consists of decomposing consumption inequality into within- and between-income group components. We perform decomposition by (1) equalizing consumption
Figure 4: Counterfactual Analysis: Trends in Inequality and Poverty in Russia, 1994-2015
within income levels, the so-called within-income component, and by (2) equalizing consumption within consumption percentiles, the so-called between-income component. The final result of each decomposition approach is the synthetic distributions of consumption. Using these distribution we re-estimate inequality and evaluate the results in absolute and relative terms against the actual inequality.

Figure 5 shows absolute and relative change in decomposition components measured by Gini index. Grey solid trends in inequality shall be interpreted as inequality that would have resulted had individuals within income classes consume equally (within-income decomposition) or had the individuals within consumption classes consume equally (between-income decomposition). We document a parallel decrease in within and between components of inequality. Furthermore, the share of within-income component accounts for 50% of the overall inequality over 1994-2015 years. This means that half of the observed inequality in consumption is due to the existing differences in individual preference to consume within income class. And the other half of inequality in consumption is due to difference in incomes. We also analyze the effect of changes in consumption given income behavior on changes in decomposition components by applying the counterfactual analysis. The results are shown by grey dashed lines. Had the consumption behavior remain fixed as in 2015, consumption inequality caused by differences in preferences to consume would be higher, and consumption inequality due to differences in income would be lower. Thus, changes in consumption given income behavior had resulted in decrease in consumption inequality due to preferences to consume and in increase in consumption inequality due to differences in incomes.

6.2 Sensitivity Analysis

Thus far, the analysis of changes in income and consumption inequality has been phrased in terms of changes in equivalized household income or consumption. The choice of equivalence may have
Figure 5: Within- and Between-Income Groups Decomposition of Consumption Inequality in Russia: 1994-2015


Note: The base is year 2015.
implications for the empirical results. For this reason, we now conduct a robustness check of our results by using different equivalence scales. We restrict our attention to two alternative equivalence scales - square root scale and square root scale with the economy-of-scale parameter 0.8. Figure 2 in Appendix summarize the implications for changes in inequality and poverty trends due to changes in equivalence scale. Trends in inequality and poverty estimates remain unchanged, but its levels differ. Thus, we remain confident about the empirical results in terms of changes, not levels.

Another factor of possible bias is the choice of the reference year for the counterfactual analysis. We choose year 2015 as the reference year. However, it might be that our conclusions are sensitive to this choice. For this reason, we conduct additional series of counterfactual analysis by using another reference year - 1995, 2000, 2005, and 2010. Figure 3 in Appendix shows the results of changes in the reference year on counterfactual analysis. Inequality and poverty trends are unchanged, but the levels are different. This is due to the fact that levels increased substantially over 1994-2015 period. Keeping low values of consumption given income constant leads to decrease in counterfactual measures such as mean, P10/P50, P90/P10, P90/P50, but keeping high values of consumption results in increase in counterfactual measures. Despite that, results based on the counterfactual analysis are robust to changes in the reference year. Changes in consumption given income behavior had resulted in decrease in consumption inequality and poverty, led to larger in levels at below bottom of consumption distribution.

7 Conclusion

This paper aims to document and analyze joint evolution in income and consumption inequality in Russia over 1994-2015 years. Although inequality in Russia remains high by international standards, we observe a decline in consumption and income inequality and poverty. We observe that, first, consumption inequality is not much more equal than income inequality, and, second,
the decline in income inequality parallels decline in consumption. The later result is in line with the previous evidence on conjoint analysis from the US (Meyer & Sullivan (2009); Blundell et al. (2008); O. P. Attanasio et al. (2010)).

The conjoint analysis reveals the following trends: (i) low- and high-income top-savers have not changed their consumption behavior since 1994, (ii) high-income top-consumers have decreased their consumption given income ratio, and (iii) low-income top-consumers have increased it. Counterfactual analysis shows that these changes had resulted in decrease in consumption inequality and poverty, in particularly by increase in consumption levels at below median part of the distribution. Finally, we decompose consumption into within- and between-income components and find that half of the existing inequalities in consumption are due to differences in preferences to consume and the other half is due to differences in income. Changes in consumption given income behavior had resulted in decrease in consumption inequality due to preferences to consume and in increase in consumption inequality due to differences in incomes.

Further research could potentially focus on analysis of changes in income and consumption inequality in a dynamic setting, and, fortunately, the RLMS-HSE data allows for this. Additionally, information on wealth inequality would compete the understanding of changes in income and consumption inequality, as it seems to serve as an important explanatory component.
References


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25
Figure 1: Inequality Trends in RLMS-HSE, LIS and WID

Source: RLMS-HSE (2020); Novokmet et al. (2018); LIS (2020)

Note: LIS estimates are based on the RLMS-HSE survey over 1994-2010 years and on the PIS (Survey of the Population Income and participation in Social programs) by Rosstat over 2011-2015 years. P90P10 estimates from Novokmet et al. (2018) are scaled on the right-hand side.
Figure 2: Sensitivity to Changes in Equivalence Scale


Note: OECD stands for Equivalence scale; SqR stands for square root scale; SqR 0.8 for square root scale with the economy-of-scale parameter 0.8.
Figure 3: Sensitivity of Counterfactual Analysis to Changes in the Reference Year

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<th>Mean(DR)</th>
<th>Median</th>
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Note: DR stands for estimate based on conditional distribution of consumption.