Poverty in Russia: A Bird's-Eye View of Trends and Dynamics in the Past Quarter of Century

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Abstract

Hardly any recent study exists that broadly reviews poverty trends over time for Russia. Analyzing the Russian Longitudinal Monitoring Surveys between 1994 and 2019, we offer an updated review of poverty trends and dynamics for the country over the past quarter of century. We find that poverty has been steadily decreasing, with most of the poor having a transient rather than a chronic nature. The bottom 20 percent of the income distribution averages an annual growth rate of 5 percent, which compares favorably with that of 3.3 percent for the whole population. Income growth, particularly the shares that are attributed to labor incomes and public transfers, have important roles in reducing poverty. Our findings are relevant to poverty and social protection policies.

JEL: C15, D31, I31, O10, O57

Key words: poverty, poverty dynamics, income growth, income mobility, RLMS, Russia

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1. Introduction

The transition processes following the breakup of the former Soviet Union have received considerable attention in economic literature (Milanovic, 1998). Indeed, Russia suffered severe economic declines in early transition stages compared to formerly planned economies (Svejnar, 2002). Yet, the country could sharply reduce poverty in the subsequent period, particularly during the past two decades.

In this short paper, we examine three main features of poverty in Russia over the past 25 years: i) its general trends, ii) poverty dynamics, including income mobility, and iii) some key driving factors behind the dramatic reduction in poverty. While we rely on official data for the (headcount) poverty rate, we mostly analyze the Russian Longitudinal Monitoring Survey (RLMS-HSE[1]) from 1994 to 2019 for poverty dynamics. We briefly discuss inequality issues in an appendix, and we also supplement our analysis with reference to the relevant studies. We show that Russia could solidly reduce poverty during the past two decades thanks to the country's transient nature of poverty and significant income mobility. Although increases in labor incomes contributed the most to poverty decrease, public transfers played an important role after the 1998 financial crisis especially for the extremely poor.[2]

Hardly any recent study exists that broadly reviews poverty trends over time for Russia. Lokshin and Yemtsov (2013) is the single exception.[3] But compared to this study, we study a longer time span starting from early 1990s to the present and we examine different indicators of

[1] https://rlms-hse.cpc.unc.edu and http://www.hse.ru/rlms

[2] We loosely refer to individuals with welfare levels much below the poverty line as the "extremely poor".

[3] Ovcharova and Biryukova (2018) offer another review that focuses on the methodology of poverty estimation and its changes from 1992 to 2014. We provide an overview of some selected studies on poverty in Russia since 2000s in Appendix A, which we classify into several headings such as poverty measurement, income mobility, and subjective well-being. We also pay special attention to the data that these studies used.

poverty dynamics, income mobility (and inequality), and decomposition techniques. These helps paint a richer picture of poverty trends.

We discuss in the next section the evolution of poverty, its levels and dynamics, and income growth. We subsequently discuss in Section 3 the drivers of poverty changes using decomposition analysis before offering some further thoughts and concluding in Section 4. We provide a brief review of some selected key studies on poverty in Russia since the 2000s in Appendix A, additional analysis (including inequality trends) in Appendix B, and technical details of the poverty measures that we employ in Appendix C.

2. Poverty Evolution

2.1.Trends in Poverty

The landmarks in the evolution of poverty in Russia are intricately linked to the various post-transition macroeconomic shocks and recessions the country experienced since the early 1990s. Indeed, although poverty in Russia was not a new phenomenon that can be attributed exclusively to market reforms (Klugman and Braithwaite, 1998), price liberalization in the early 1990s resulted in sharply increased poverty compared to the late 1980s.[4] The transition recession in 1992-93 with continuing ruble inflation caused incomes to collapse when three out of ten people were estimated to be living in poverty. From its peak in 1992, the official poverty rate fell from 33.5 percent to 22.4 percent in 1994 and then increased again after the financial crisis of 1994 (Figure 1, Panel A).

The downward trend in poverty reduction took place against the upward trend of GDP in the same period (Figure 1, Panel B). Indeed, after a period of GDP contractions, the Russian

[4] Milanovic (1998) finds that the headcount poverty rate increased from 2 percent in 1987-88 up to 50 percent in 1993-95. Commander *et al.* (1999) also observes that poverty was over 50 percent in 1992.

economy showed signs of recovery in 1997 but subsequently contracted again. Rising unemployment and wage arrears during 1994-1996 were regarded as most damaging for poorer households (Klugman and Kolev, 2001).

We plot in Figure 2 the evolution of poverty trends and average household incomes during the period 1994-2019 and mark the major events that are widely considered to be associated with significant changes in poverty. This figure suggests that all the poverty indicators peaked in 1998, when the financial global crisis hit the Russian economy.[5] Since the social protection system failed to protect the most vulnerable (Lokshin and Ravallion, 2000), increased poverty rates were accompanied by sharp rises in the depth and severity of poverty. The severity index, which is more sensitive to the extremely poor, almost doubled, indicating that poorer households were hurt the most during this period.

The post-1998 period saw steadily decreasing poverty as household incomes recovered. In contrast to the pre-1998 period, the poverty gap index was reduced faster than the headcount index, and the severity of poverty index was reduced even more rapidly. This indicates that the extremely poor benefited more than the average poor household during this recovery period. By the end of 2003, all the poverty measures fell down to the same level as in 1994. Liquidity problems in the banking sector slowed down economic growth in Russia in 2004 (World Bank, 2005), but living standards continued to increase, and poverty kept declining after this year.

After a decade of solid growth, Russia was hit by the global economic crisis in 2008. This resulted in the economy shrinking by almost 8 percent in 2009. Although the crisis caused incomes to decline, there were much milder increases in poverty compared to earlier periods.[6] In 2014,

[5] We employ the Foster-Greer-Thorbecke poverty measures. Further details are provided in Appendix C (C1).
[6] Criticism has been raised over the official poverty measurement approach. We offer a more detailed discussion on these issues in Appendix B, Part 1. Notably, the official poverty lines changed over time, not only when prices changed, but also when the composition of the reference basic needs basket changed due to rising living standards.

Russia's economy experienced two shocks. First, oil prices dropped significantly. Second, Russia became subject to economic sanctions by developed economies resulting from the Russia-Ukraine geopolitical conflict. The subsequent income decline starting in 2015 caused poverty—for the first time since the 1998 crisis—to increase to 13 percent in this year. But poverty appeared to have started on a downward trend in the more recent years, reaching 12 percent (or more than 18 million poor individuals) in 2019.

Given the important points with poverty evolution in 1998, 2004, 2009 and 2015 shown in Figure 2, we divide the 1994-2019 period into five sub-periods of roughly equal lengths for better analysis.[7] These include i) the transition period with financial collapse in 1998 (1994-1998), ii) the first years of economic growth (1998-2004), iii) the period of accelerated economic growth (2004-2009), iv) the global crisis and stagnation period (2009-2014), and v) the most recent period (2014-2019).

Table 1 suggests that the shares of households trapped in chronic poverty become smaller over time, falling from 28 percent in the 1994-98 transition period to 5 percent in the most recent period.[8] For another comparison, this chronic poverty rate (28 percent) was less than half of the transient poverty rate (59 percent) during the transition period. In the 1998-2004 period, the chronic poverty rate (24 percent) decreased to roughly one-third of the transient poverty rate (70 percent) in the same period. The relative difference between these two poverty rates significantly

Because of this, the official Russian poverty lines varied in real terms between years. The revisions of the poverty lines were regarded as helping increase poverty in 2000, 2005 and 2013 (Ovcharova and Biryukova, 2018).

[7] Dividing into sub-periods also helps reduce potential effects due attrition issues with the long-run RLMS panel data. Alternatively, synthetic panel methods can be employed to analyze poverty mobility where actual panel data are inadequate (Dang, Jolliffe, and Carletto, 2019).

[8] We describe poverty persistence according to the portion of individuals that are always, sometimes, or never poor across a survey's rounds for each of the five shorter periods. A transiently poor person in this context is someone who is not poor in all periods but only in some periods, while a chronically poor person is poor throughout the period (Hulme and Shepherd, 2003).

widened in the most recent period, where less than 5 percent of population were chronically poor, and 34 percent of the population were transiently poor.

Taken together, Table 1 shows that in the past quarter of century 1994-2019, the majority of people that were considered poor were in fact transiently poor rather than chronically poor. This result reflects the significant flows into and out of poverty and large extents of income fluctuations in Russia, which are masked by analysis of cross-sectional data and are only revealed by more in-depth analysis of panel data. This result is also consistent with the findings in studies that analyze earlier periods (Commander *et al.*, 1999; Lokshin and Ravallion, 2004).

2.2. Income Growth and Mobility

Significant income mobility (or instability) was considered the reason that explains why transient poverty was so high for Russian households in the early 1990s (Commander *et al.*, 1999; Jovanovic, 2001). Our updated analysis for the period 1994-2019, shown in Table 2, shows that although a considerable degree of income mobility exists in each period, individuals are less likely to move up by more than one income quintile in recent periods.[9] Slowdown in mobility is noticeable with the poorest quintile: 36 percent of the poorest quintile in remain in the poorest quintile in the period 1998-2004, but this figure increases by around half to 55 percent in the period 2014-19 (Appendix B, Table B1). This increase is larger than the corresponding immobility rate of 30 percent for the two periods in the general population (i.e., 33 and 43 percent of households remain in the same income quintile across two time periods).

Yet, Figure B4 in Appendix B shows that economic growth during the past 25 years has a strong pro-poor nature. The bottom 20 percent of the income distribution grew by 5 percent

[9] Different mobility measures are discussed in Appendix C (C2).

annually, while the corresponding figure for the top 20 percent of the distribution did not exceed 4 percent. The income of the poorest five percent of the income distribution grew by 6.8 percent per year from 1994 to 2019, while the corresponding figure for the richest five percent was much lower at 2 percent. These numbers compare favorably to an average annual growth rate of 3.3 percent (and an average annual growth rate of 4.3 percent for the median income).[10]

3. Understanding Changes in Poverty

Inequality has been decreasing for Russia for the period 1994-2015 (Dang *et al.*, 2020). Our analysis using the updated RLMS data for the period 1994-2019 further confirms this finding. This decreasing trend in inequality implies that poverty reduction in the past 25 years can be driven by either growth or redistribution of in household incomes, or both. Consequently, we decompose the changes in poverty into a growth component and a redistribution component separately for each of the five sub-periods. To keep the overall level of poverty as a function of real mean incomes and the Lorenz function only, we use two fixed poverty lines: the "2005 poverty line" and the "2013 poverty line".

Figure 3 shows that relatively, the growth component took the dominant role in reducing poverty for all the periods and for both the poverty lines (the absolute numbers are shown in Appendix B, Table B2).[11] But while the growth component accounted for at least three-fourths (75%) of the changes in poverty, its importance diminished over time. For example, using the 2013 poverty line, while income growth explained more than 100 percent of the changes for the two

[10] These results are consistent with the findings in Dang *et al.* (2020) that the poorest tercile experienced a growth rate that was more than 10 times that of the richest tercile, leading to less long-term inequality than short-term inequality during the period 1994–2015.

[11] We use Datt and Ravallion's (1992) decomposition (Appendix C (C3)). Both the 2005 and 2013 poverty lines are provided by Rosstat https://rosstat.gov.ru/folder/13397, which we convert them to 2019 prices in our analysis. We do not show the decomposition for the period 2014-19 in Figure 3 because poverty changes were not statistically significant in this period.

periods 1994-98 and 1998-2004, it explained 88 percent in 2004-09 and 75 percent in 2009-14. The fact that the redistribution component became increasingly important over time also implies that income redistribution policies might have become more effective for poor households. This finding is consistent with falling incomes in the recent years as discussed earlier.[12]

Further analysis suggests that the most important contributor to poverty reduction was growth in labor income per adult (Appendix B, Figure B3).[13] In periods of substantial declines in poverty, including 1998-2004, 2004-09, and 2009-14, changes in labor income and employment explained more than 70 percent of the change in poverty (Appendix B, Table B3). During 1994-98, the period with increasing poverty rate, decreasing labor incomes accounted for more than 80 percent of the poverty increase. Another important factor was public transfers, which took a relatively smaller role in explaining changes in poverty but were more beneficial for the extremely poor. Although changes in public transfers explained less than 6 percent in the poverty decrease during the post-crisis period 1998-2014, they accounted for a greater share of the decreases in poverty gap and poverty severity (Appendix B, Figure B2).

4. Conclusion

We provide a broad overview of poverty trends and dynamics in Russia in the past quarter of century. Since the early 1990s, poverty in Russia declined by around two-thirds, from 34 percent in 1994 to 12 percent in 2019. This latter figure is equivalent to more than 18 million people earning an income below the poverty line. Interestingly, most of the poor were transiently poor

[12] These results are further confirmed when we estimate the elasticity of poverty to income growth, which steadily increases in magnitude over time (Appendix B, Table B4). The largest value of the growth elasticity of poverty can be observed in 2014-2019, when one percent increase in income reduced the poverty rate by around three percent.
[13] We use Shapley decomposition proposed by Azevedo *et al.* (2012) (see Appendix C (C4)). Notably, switching from a part-time job to a full-time job, from a lower-skill job to a higher-skill job or staying in the formal sector is found to be positively associated with income growth, but a transition from the private sector to the public sector is negatively associated with income growth (Dang *et al.*, 2020).

rather than chronically poor. Furthermore, economic growth during the past 25 years has a strong pro-poor nature. The bottom 20 percent of the income distribution grew by 5 percent annually, which compare favorably to an average annual growth rate of 3.3 percent for the whole population.

We find that income growth was most important for poverty reduction in Russia, but social protection policies including public transfers were effective in helping the extremely poor. Redistribution policies can also be more useful, particularly in periods when incomes were declining.

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Table 1. Proportion of Individuals That Are Always, Sometimes, or Never Poor, RLMS-HSE 1994-2019

Periods	Always Poor	Sometimes Poor	Never Poor	Sometimes poor as % of ever poor
1994-1998	28.3	59.3	12.4	67.7
1998-2004	23.5	69.5	7.0	74.8
2004-2009	8.9	57.9	33.2	86.6
2009-2014	3.9	40.3	55.9	91.2
2014-2019	4.8	33.5	61.7	87.4

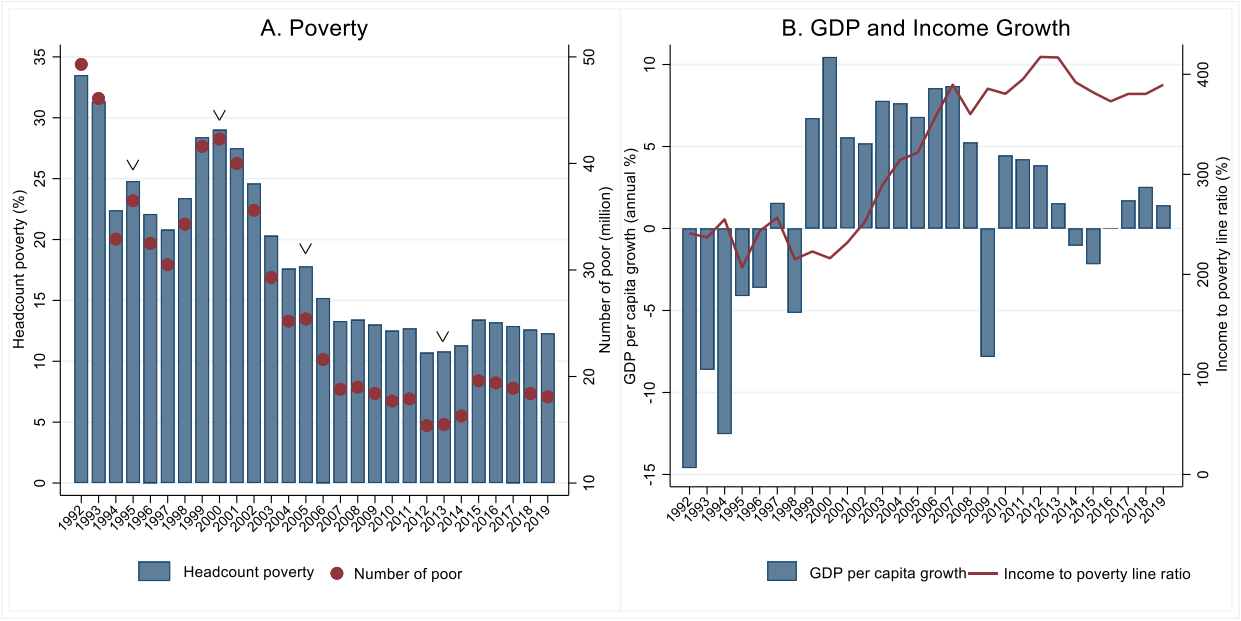
Note: Monetary income per capita is taken as the welfare measure and calculated for the entire population using total household incomes, divided by the number of household members. Incomes are adjusted to 2019 constant rubles. Incomes for rounds 5, 6 and 7 are divided by 1,000 to account for the nominal revaluation of the ruble in January 1998. The official poverty line as a minimum subsistence level at regional level is used. "Sometimes poor" out of those who are ever poor are those who are poor in any wave including those always poor.

Table 2. Estimates of Income Mobility, RLMS-HSE 1994-2019

Periods	Upward mobility by more than one quintile	Upward mobility by one quintile	Immobility	Downward mobility by one quintile	Downward mobility by more than one quintile
		Unconditional			
1994-1998	14.6	20.5	34.6	18.0	12.4
1998-2004	17.9	18.1	32.9	18.4	12.7
2004-2009	10.6	15.9	38.3	22.8	12.3
2009-2014	11.7	20.3	40.9	17.4	9.7
2014-2019	10.7	21.2	42.6	17.0	8.6
		Conditional			
1994-1998	23.1	24.9	34.6	22.9	21.9
1998-2004	27.0	21.3	32.9	24.1	23.0
2004-2009	17.4	19.5	38.3	27.9	20.3
2009-2014	18.6	24.6	40.9	22.3	17.0
2014-2019	16.9	25.8	42.6	21.9	15.1

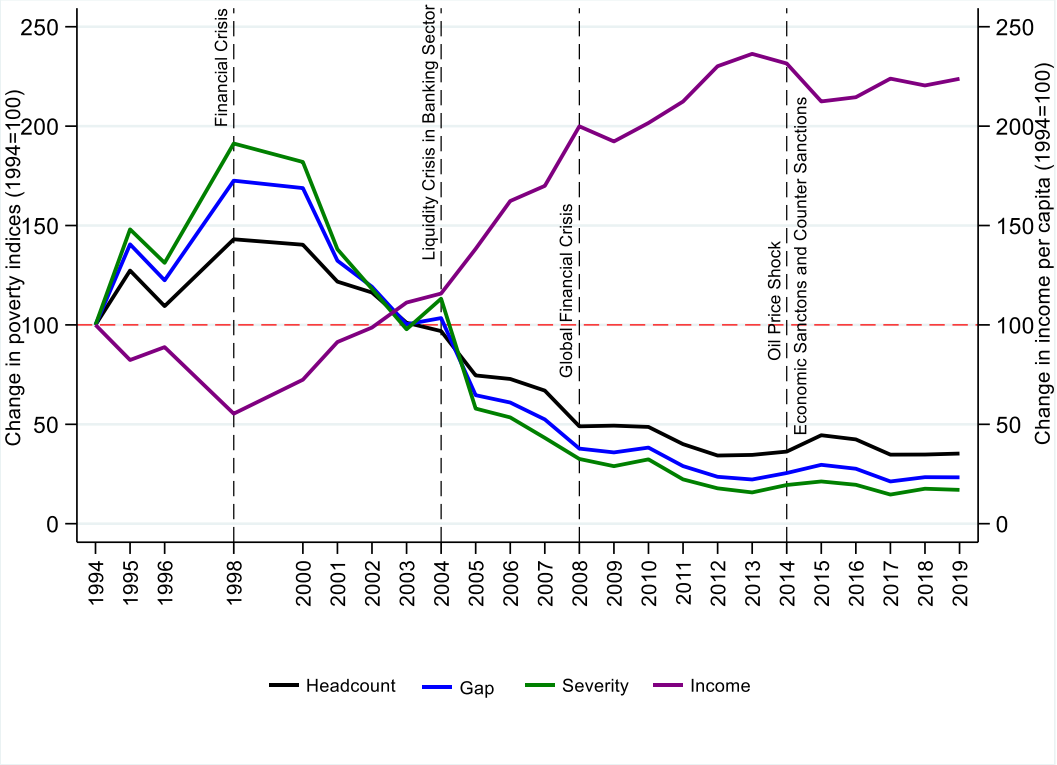
Note: Monetary income per capita is taken as the welfare measure and calculated for the entire population using total household incomes, divided by the number of household members. Incomes are adjusted to 2019 constant rubles. Incomes for rounds 5, 6 and 7 are divided by 1,000 to account for the nominal revaluation of the ruble in January 1998. The quintile thresholds are obtained from the cross-sectional sample for each year, which are subsequently used for analysis of the panel sample. All numbers are weighted with population weights, where the second survey round in each period is used as the base year.

Figure 1. Growth and Poverty in Russia 1992-2019



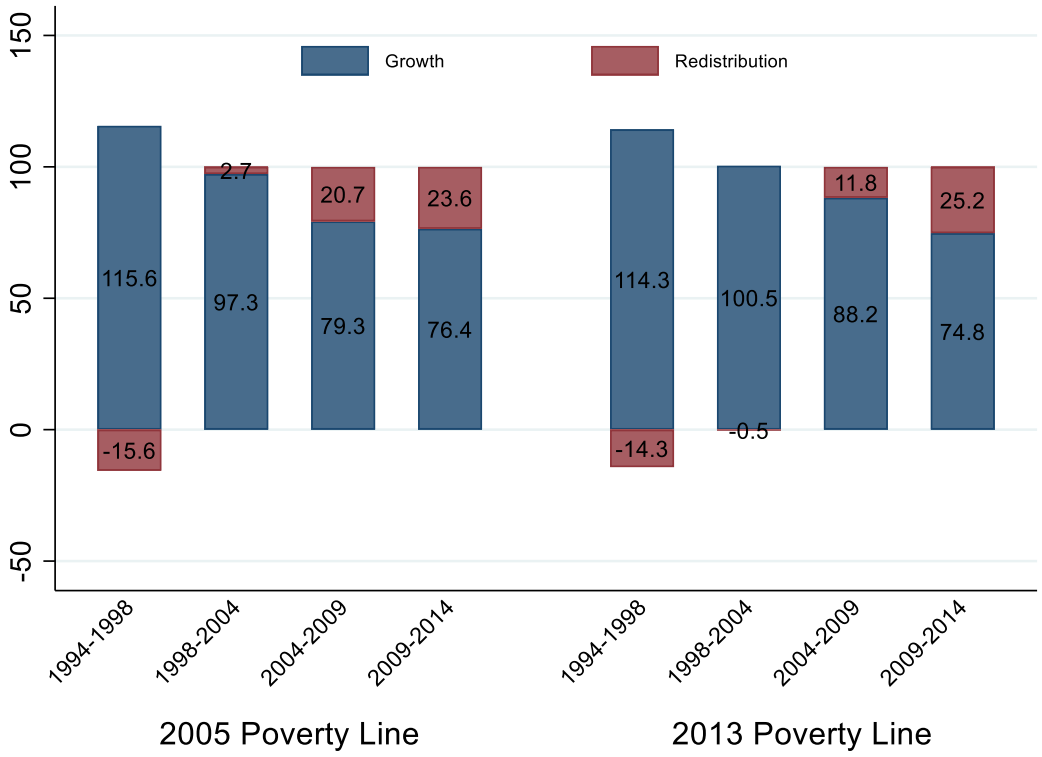
Source: Rosstat, WDI
Note: The ticks on Panel A are referred to official revisions of the poverty line.

Figure 2. Evolution of Poverty in Russia, RLMS-HSE 1994-2019



Note: Monetary income per capita is taken as the welfare measure and calculated for the entire population using total household incomes, divided by the number of household members. Incomes are adjusted to 2019 constant rubles. Incomes for rounds 5, 6 and 7 are divided by 1,000 to account for the nominal revaluation of the ruble in January 1998. All numbers are weighted with population weights. The official poverty line as a minimum subsistence level at regional level is used.

Figure 3. Growth and Redistribution Decomposition of Changes in Headcount Poverty (percent of total change), RLMS-HSE 1994-2019



Note: Monetary income per capita is taken as the welfare measure and calculated for the entire population using total household incomes, divided by the number of household members. Incomes are adjusted to 2019 constant rubles. Incomes for rounds 5, 6 and 7 are divided by 1,000 to account for the nominal revaluation of the ruble in January 1998. All numbers are weighted with population weights. Period 2014-2019 is not shown because changes in poverty headcount were not statistically significant during that period.

Appendix A: Selected Studies on Poverty in Russia since the 2000s

No	Authors	Data	Overview
		Poverty Measurement (incl. poverty dynamics)	
1	Lanjouw et al., 2004	HEIDE	Poverty profiles are sensitive to economies of scale in consumption and significant changes in demographic profiles appear to be at values below 0.4. The impact of relative price changes increases economies of scale in consumption significantly.
2	Lokshin and Ravallion, 2004	RLMS-HSE 1994-1998	Households generally bounce back from transient shocks, though the adjustment process is slower for poorer households. Households with children, single-parent households, and with poorly educated heads tend to have a lower long-run incomes. The presence of elderly people has a negative impact on total household income.
3	Ravallion and Lokshin, 2006	RLMS-HSE, Rosstat, 2002	Regional poverty lines were tested for utility consistency that is based on their consistency with nutritional requirements and found to be not utility consistent. People living at the poverty line in different demographic or geographic groups do not have the same level of welfare.
4	Wall and Johnston, 2008	RLMS-HSE 1996–2004	Asset index can be used to identify the poor population when no income or expenditure data is available. Quintile approach is used to set the poverty line.
5	Gibson et al., 2008	RLMS-HSE 1992-2001	Measurement bias in the CPI affects the measurement of poverty rate after 1998 crisis. According to bias-adjusted data, the crisis is preceded by some years of growth, rather than the decline that is apparent in the official data.
6	Takeda, 2010	RLMS-HSE 1994, 2002	Poverty rates measured with Engel's food share method and subjective economic well-being method can be used for poverty evaluation. Official approach underestimates poverty rate.
7	Denisova, 2012	RLMS-HSE 1994-2009	While larger families are doing better when getting out of poverty, the presence of children increases chances to get into poverty and decreases chances to leave it. High share of adults with university degree and living in urban areas reduce entry to poverty and increases exit from it.
8	Abanokova et al., 2020	RLMS-HSE 1994-2017	Chronic poverty and poverty dynamics are sensitive to the scale parameter, regardless of the poverty measure. Income mobility could be classified as either upward or downward depending on the specific scale parameters that are employed.
		Subjective poverty and poverty adaptation	
9	Ravallion and Lokshin, 2001	RLMS-HSE 1994-1996	Household income is a highly significant predictor of individual's subjective economic welfare. Becoming unemployed or sick lower subjective economic welfare, even if there is full replacement of the income loss shocks.
10	Ferrer-i-Carbonell and Van Praag, 2001	RUSSET 1997, 1998	While subjective measures of poverty showed strong consistency and are comparable between each other, measures based on the respondents' feelings of income poverty should be prefered. Well-being poverty is lower than income poverty measured using a subjective question.
11	Ravallion and Lokshin, 2002	RLMS-HSE 1994-1996	Differences between the subjective and objective types of welfare data. For example, 60% of the poorest eighth of adults in terms of cur- rent household income relative to the poverty line did not place themselves on either the poorest or second poorest rungs of the subjective ladderThe discrepancies with self-rated welfare are due in part to the weight- ing of the demographic and geographic variables that go into the Russian poverty lines used for assessing diGerences in needs at a given income.
12	Frijters et al., 2006	RLMS-HSE 1995-2001	Changes in real incomes were important in explaining the swings in life satisfaction in the post-transition period. Life satisfaction rises significantly in response to moving from unemployment to employment, and falls in response to wage arrears, poor health and marital dissolution.
13	Nivorozhkin et al., 2010	NOBUS 2003	Differences in the perception of income and perception of poverty across settlements of different size. People in larger settlements require more money to make ends meet than those living in smaller settlements.
14	Dang et al., 2019	RLMS-HSE 2001-2017	Did not find poverty adaption for life satisfaction and subjective wealth. Longer poverty spells being associated with more dissatisfaction. Women, those who are living in rural areas or foreign born adapt less, particularly for longer poverty duration
		Income mobility/growth	
15	Ravallion and Lokshin, 2000	RLMS-HSE 1992-1996	Support for redistribution is higher amongst those who expect their welfare to fall, while resistance to redistribution is strongest amongst those who have been on a rising consumption path over recent years, and expect incomes to raise.
16	Lukiyanova and Oshchepkov, 2012	RLMS-HSE 2000-2005	While there was pro-poor growth during that period, inequality decreased only slightly. Relative and absolute mobility are significantly higher than in developed countries. Mobility is higher and mostly smoothes out income differences at the very top and the very bottom of the distribution.
17	Nissanov and Pittau, 2016	RLMS-HSE 1992-2008	Shrinking of the middle class in the years 2000–2008 lead to high degree of polarization and affected incomes below the median. The mass of the distribution moved mostly to lower quantiles of the income distribution.
18	Dang et al., 2020	RLMS-HSE 1994-2015	Decreasing inequality was caused by pro-poor growth. Transition to a full-time job or a higher-skills job is positively associated with reducing downward mobility, while transition to the formal sector, a full-time job, or a higher-skills job is positively associated with higher income levels.
19	Borisov and Pissarides, 2020	RLMS-HSE 1994-2016	Intergenerational correlations between the parents' and children's income is higher than in Nordic countries, but at the same level as in US, UK and France. Education explained about 20% of the overall correlation, while living area and unobservable charactristics contributed equal amounts of 40% each.

		Welfare impacts of the shocks and coping strategies	
20	Lokshin and Ravallion, 2000	RLMS-HSE 1996-1998	Identification of "gainers" and "losers" among the poor poplation due to 1998 crisis. Social safety net did not respond efficiently to 1998 crisis in order to protect people from poverty.
21	Lokshin et al., 2000	RLMS-HSE 1992-1996	Co-residence with relatives was coping strategies single-parent families used druing economic instability. Higher labor and non labor incomes increased the likelihood that the single parent family lives separately from other relatives.
22	Klugman and Kolev, 2001	RLMS-HSE 1994-1996	Negative changes in labor market, such as wage arrears, and weak state welfare programs accounted for a substantial part of the welfare decline during 1994-1995. The rise in unemployment and increase in wage arrears were much more important in explaining the decline in bottom than at the top of the distribution.
23	Skoufias, 2003	RLMS-HSE 1994-2000	Households was able to protect their consumption from 1998 crisis by adjusting non-food expenditures. Households differed in their ability to protect themselves from shocks and combined self-insurance strategies of borrowing, adjusting their labour supply and selling assets, with informal strategies, such as networks.
24	Jahns et al., 2003	RLMS-HSE 1992-2000	Women have higher rates of both overweight and obesity than men. While there was no negative effect of economic reforms on macronutrient intake, there was income effects on the diet and overweight status of Russian men.
25	Lokshin and Yemtsov, 2004	RLMS-HSE 1996-1998	Type of survival strategy during 1998 crisis depends on the level of human capital in the household. The higher the household human capital, the more likely it chooses active strategies. Social protection system was not able to protect the most vulnerable efficiently.
26	Kuhn and Stillman, 2004	RLMS-HSE 1994-2000	Private transfers used as coping strategies. Transfers largely flow from elderly and "empty-nest" households to younger households. Transfers helped young adults as they transition to the job market and the most vulnerable elderly respondents.
27	Skoufias and Quisumbing, 2005	RLMS-HSE 1994-2000	Ability to smooth consumption is positively associated with the level of household consumption and negatively associated with the incidence of poverty. Adjustments in labour supply and selling assets helped households to spread risk over time.
28	Mu, 2006	RLMS-HSE 1994-2003	Households can partially protect their consumption from income shocks. Their ability to smooth consumption correlates with the level of assets at the initial period for rural households and with education level of household members for urban households.
29	Stillman and Thomas, 2008	RLMS-HSE 1994-2000	There was no negative effect of 1998 crisis on nutritional status of households. Switching to cheaper diets and lower quality of calories were the strategies households used to maintain energy intake.
30	Gerry and Li, 2010	RLMS-HSE 1996-2000	Households with children and unemployed members are the most vulnerable group to income shocks. Ability to smooth consumption depends on welfare level and education. Informal networks and home production are the important coping strategies households used to protect themselves.
31	Abanokova and Lokshin, 2015	RLMS-HSE 1994-2011	Changes in household structure were important coping strategy during 1998 and 2008 crisis. Households that experienced decline in their incomes were more likely to increase their size compared to households whose post-crisis income did not change or increased.
		Regional Poverty	
32	Kolenikov and Shorrocks, 2005	Rosstat 1995	Regional differences in contributions of income and inequality to poverty. Inequality has a greater impact on the poverty rate than real income per capita in about half of the regions
33	Gerry et al., 2008	RLMS-HSE 2000-2004	Urban-rural gap in poverty levels and rates of poverty decline. Those living in urban areas enjoying a higher decline of poverty than those in rural areas. Observable characteristics explained less than a fifth of rural–urban poverty gap and did not affect the rate of poverty decline.
34	Zubarevich, 2019	Rosstat 2000-2017	Regional differences in income, poverty levels and rates of poverty reduction. Substistance minimum level, income inequality and urbanization level are significant factors of regional differences.
		Effect of reforms/policy programs on poverty	
35	Rutherford and Tarr, 2008	National Accounts, HBS, RLMS-HSE, 2003	Welfare gains from accession to the World Trade Organization. While all households across income distibution would gain from the accession to the WTO, poor households gain slightly more than rich households and rural households gain less than urban households.
36	Kapelyuk, 2015	RLMS-HSE 2006-2011	The effect of minimum wage policy on poverty. Minimum wage increase reduced the incidence of poverty and the transitions into poverty but the size of this effect was moderate

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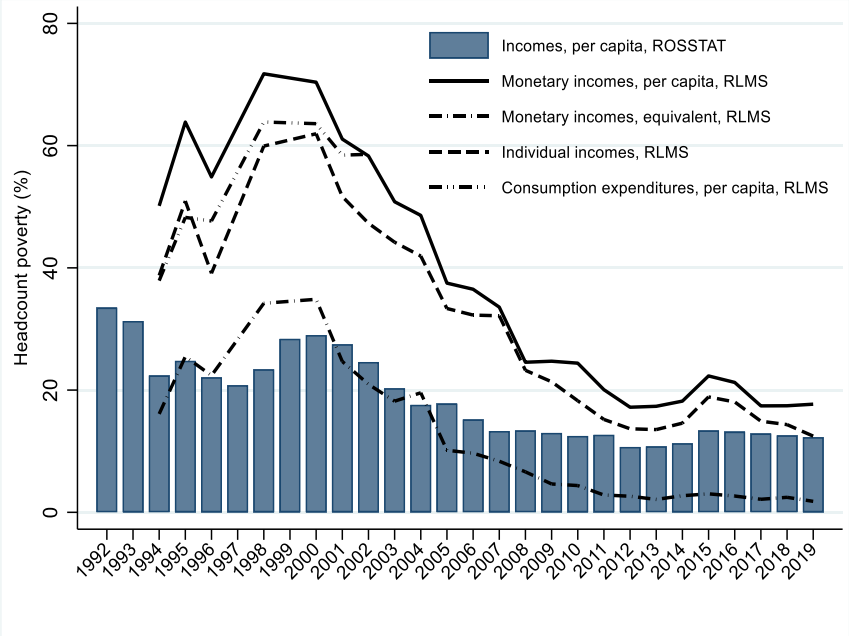
Appendix B: Additional Analysis, Tables, and Figures

Part 1. Poverty Measurement in Russia

Official methods of collecting data and its accuracy in calculating poverty indicators have been criticized in the literature (Klugman and Braithwaite, 1998; Clarke, 2000; Wall and Johnston, 2008). RLMS-HSE data on incomes and expenditures show a qualitatively similar trend to that from the official data, although official data sources dramatically underestimate poverty rates during the 1990s (Figure B1). The differences can be explained by Rosstat's adjustments to make the distributions of survey incomes close to those of macroeconomic data.

Although welfare indicators in the RLMS-HSE are found to be prone to underreporting and misreporting (Aivazian and Kolenikov, 2001; Gorodnichenko et al., 2009; Murashov and Ratnikova, 2016), we use total household monetary income as the main welfare measure in our analysis. While consumption data can be more appropriate for measuring poverty in Russia (because of less measurement error and income underreporting in the early 1990s), changes to consumption items in the RLMS-HSE after 2000 make consumption variable incomparable over time. Although the official poverty rates are lower than the RLMS-HSE in 2004-2012, they are close to each other between 2012-2019. The official poverty estimates are consistently higher than those based on the RLMS-HSE equivalence adjusted data in the late 2000s.

Figure B1. Poverty in Russia, ROSSTAT vs. RLMS-HSE, 1992-2019



Source: Rosstat (1992-2019), RLMS-HSE (1994-2019)

Note: Consumption per capita is defined as monthly average household expenditure on items for the purpose of consumption. These include items purchased, consumption from own production and income in kind, goods and services purchased by the household to be given to private persons or bodies as gifts or allowances, expenditures on durable goods. Household incomes are adjusted with equivalence scale weights where baseline elasticity equals 0.407 and every child has a weight 0.048. Both the poverty

thresholds and household incomes are converted to constant prices of 2019 using CPI indices provided by the Rosstat.

Part 2. Additional Tables, and Figures

Table B1. Estimates of Income Mobility for Households in the Bottom Quintile, RLMS-HSE 1994-2019

Periods	Upward mobility by more than one quintile	Upward mobility by one quintile	Immobility
1994-1998	30.8	26.1	43.1
1998-2004	39.0	24.9	36.1
2004-2009	31.8	15.2	53.0
2009-2014	23.4	26.0	50.6
2014-2019	20.8	23.9	55.2

Note: Monetary income per capita is taken as the welfare measure and calculated for the entire population using total household incomes, divided by the number of household members. Incomes are adjusted to 2019 constant rubles. Incomes for rounds 5, 6 and 7 are divided by 1,000 to account for the nominal revaluation of the ruble in January 1998. The quintile thresholds are obtained from the cross-sectional sample for each year, which are subsequently used for analysis of the panel sample. All numbers are weighted with population weights, where the second survey round in each period is used as the base year.

Table B2. Datt-Ravallion Decomposition of Changes in Poverty Headcount, RLMS-HSE 1994-2019

Period	Growth	Redistribution	Total Change (p.p.)
		2005 Poverty Line	
1994-1998	23.1	-3.1	20.0
1998-2004	-34.0	-1.0	-35.0
2004-2009	-27.6	-7.2	-34.9
2009-2014	-5.9	-1.8	-7.8
2014-2019	0.5	-1.1	-0.6
		2013 Poverty Line	
1994-1998	16.0	-2.0	14.0
1998-2004	-25.6	0.1	-25.5
2004-2009	-31.9	-4.3	-36.2
2009-2014	-9.9	-3.3	-13.2
2014-2019	1.3	-1.2	0.0

Note: Monetary income per capita is taken as the welfare measure and calculated for the entire population using total household incomes, divided by the number of household members. Incomes are adjusted to 2019 constant rubles. Incomes for rounds 5, 6 and 7 are divided by 1,000 to account for the nominal revaluation of the ruble in January 1998. All numbers are weighted with population weights.

Table B3. Shapley Decomposition of Changes in Poverty Headcount, RLMS-HSE 1994-2019

Period	Share of adults	Labor income	Home production income	Capital income	Public transfers	Private transfers	Total change (p.p.)
			2005 Poverty Line				
1994-1998	-0.5	18.5	0.0	0.1	2.7	1.7	22.5
1998-2004	-3.5	-28.1	-1.0	-0.2	-3.5	-1.2	-37.6
2004-2009	-1.1	-21.7	0.0	-0.0	-6.0	-0.8	-29.7
2009-2014	1.3	-6.5	-0.3	-0.0	-1.8	-0.2	-7.4
2014-2019	0.8	-1.8	0.5	0.0	0.3	0.2	0.1
			2013 Poverty Line				
1994-1998	-1.2	14.1	-0.1	0.2	1.4	1.4	15.7
1998-2004	-1.9	-23.3	-1.0	-0.2	-2.2	-1.1	-29.6
2004-2009	-1.6	-24.1	-0.1	-0.0	-5.7	-0.7	-32.2
2009-2014	1.1	-9.2	-0.2	-0.1	-2.6	-0.3	-11.2
2014-2019	1.2	-1.9	0.7	-0.0	-0.3	0.4	0.1

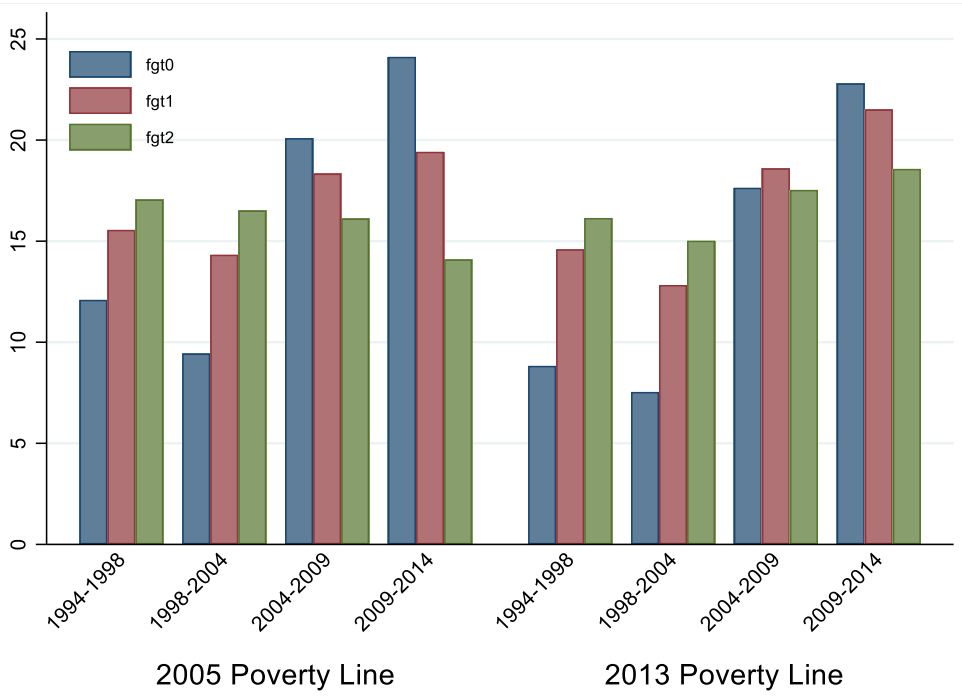
Note: Disposal income per capita is taken as the welfare measure and calculated for the entire population using total household disposal incomes, divided by the number of household members. Incomes are adjusted to 2019 constant rubles. Incomes for rounds 5, 6 and 7 are divided by 1,000 to account for the nominal revaluation of the ruble in January 1998. All numbers are weighted with population weights.

Table B4. Elasticity of Poverty with Respect to Average Income Growth, RLMS-HSE 1994-2019

Periods	Poverty Headcount	Poverty Gap	Poverty Gap Squared
	2005 Poverty Line		
1994-1998	-0.7	-1.0	-1.1
1998-2004	-0.8	-1.1	-1.2
2004-2009	-1.8	-1.8	-1.7
2009-2014	-2.5	-2.5	-2.5
2014-2019	-2.8	-2.8	-3.0
	2013 Poverty Line		
1994-1998	-0.4	-0.8	-1.0
1998-2004	-0.5	-0.9	-1.1
2004-2009	-1.4	-1.7	-1.7
2009-2014	-2.3	-2.4	-2.4
2014-2019	-2.6	-2.7	-2.8

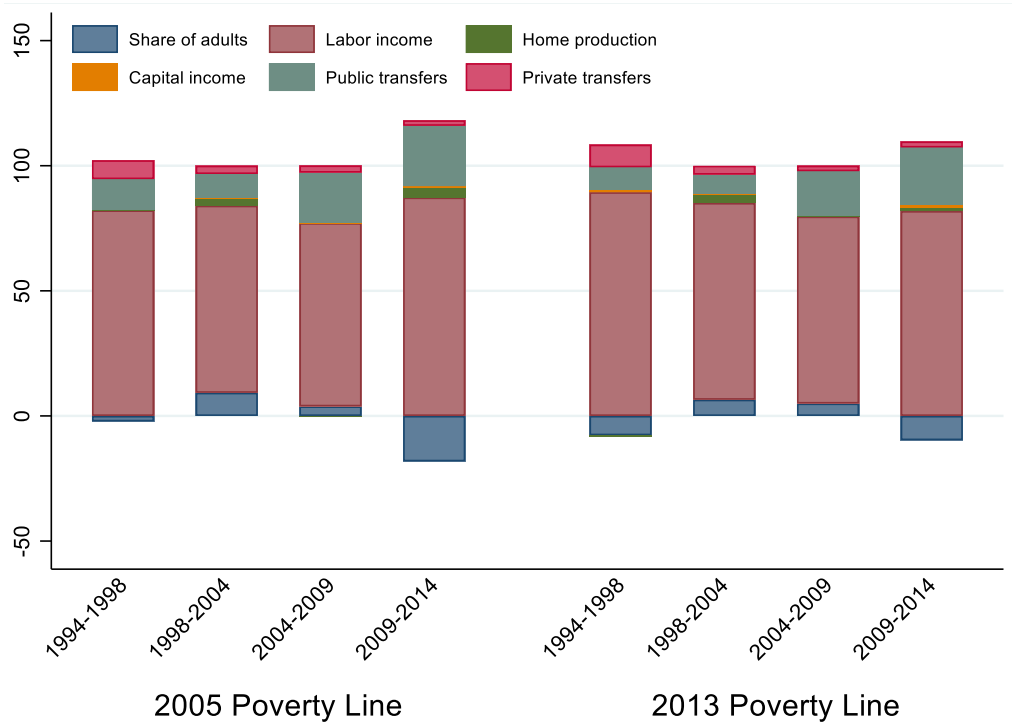
Note: Monetary income per capita is taken as the welfare measure and calculated for the entire population using total household incomes, divided by the number of household members. Incomes are adjusted to 2019 constant rubles. Incomes for rounds 5, 6 and 7 are divided by 1,000 to account for the nominal revaluation of the ruble in January 1998. All numbers are weighted with population weights.

Figure B2. Contribution of Public Transfers to Changes in Different Poverty Measures (percent of total change), RLMS-HSE 1994-2014



Note: Disposal income per capita is taken as the welfare measure and calculated for the entire population using total household disposal incomes, divided by the number of household members. Incomes are adjusted to 2019 constant rubles. Incomes for rounds 5, 6 and 7 are divided by 1,000 to account for the nominal revaluation of the ruble in January 1998. All numbers are weighted with population weights. Period 2014-2019 is not shown because changes in poverty headcount were not statistically significant during that period.

Figure B3. Component Decomposition of Changes in Headcount Poverty (percent of total change), RLMS-HSE 1994-2014



Note: Disposal income per capita is taken as the welfare measure and calculated for the entire population using total household disposal incomes, divided by the number of household members. Incomes are adjusted to 2019 constant rubles. Incomes for rounds 5, 6 and 7 are divided by 1,000 to account for the nominal revaluation of the ruble in January 1998. All numbers are weighted with population weights. Period 2014-2019 is not shown because changes in poverty headcount were not statistically significant during that period.

Part 3. Trends in Inequality

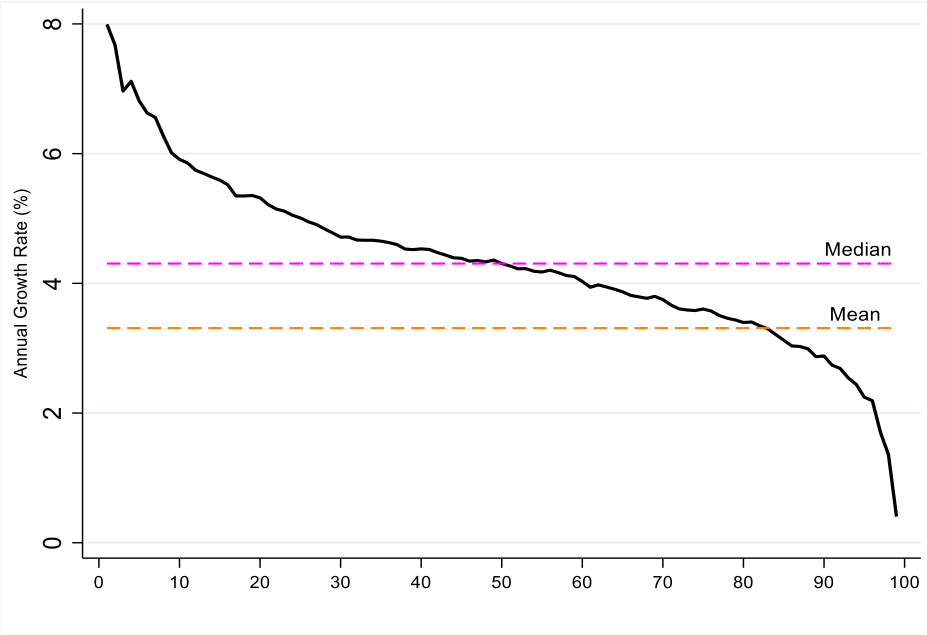
Changes to Russia's economy in the early 1990s led to significantly increased inequality, which remained high in the early stages of the transition and reached its peak in 1996 with a Gini ratio of 0.48 (Figure B5, Panel B).[14] High inequality throughout the transition was a major source of rising poverty (Kolenikov and Shorrocks, 2005). The percentile ratios between the median income and the lowest (or highest) income percentiles reached a maximum in the period 1996-1998.

All inequality measures started falling since 2000, after staying relatively high during 1994-1998.[15] Although poorer households suffered relatively more income loss during the crisis, they have caught up with richer households after 2005 (Figure B5, Panel A). The 90^{th}/ 10^{th} percentiles income ratio also decreased, reflecting strong income growth for the poorest. The Gini index fell from 0.47 in 1994 to 0.3 in 2019. Other inequality indexes even show a steeper decrease than the Gini index. In particular, the Atkinson index of inequality, which is more sensitive to changes at the bottom of the income distribution, decreased from 0.33 in 1994 to 0.14 in 2019.

[14] Gini coefficient increased from 0.26 in the late 1980s to just below 0.40 by the early 1990s (Svejnar, 2002). High inequality in the early 1990s was fueled by a combination of factors including privatization and subsequent growth of the private sector on one hand, and unequally distributed social safety net and progressive taxation on another hand (Commander *et al.*, 1999).

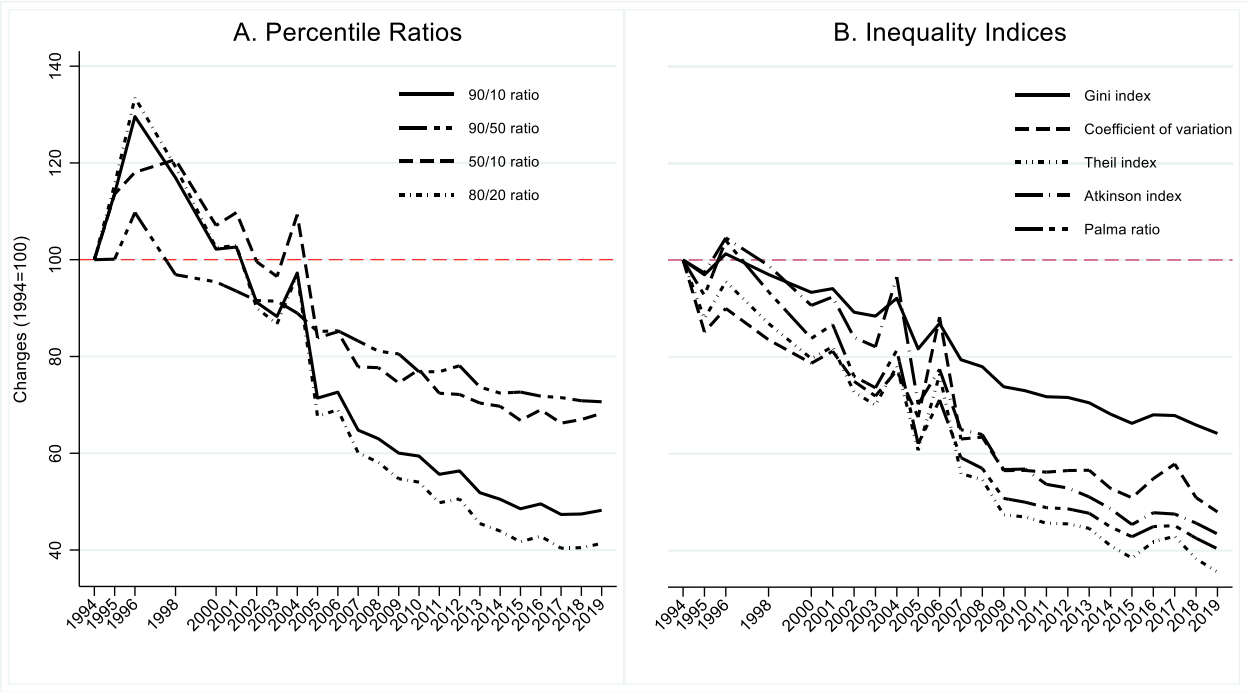
[15] Regional differences in growth rates in Russia has increased since the beginning of transition (Fedorov, 2002), but decreasing inequality during 1994-2015 was mostly caused by pro-poor growth rather than redistribution (Dang *et al.*, 2020).

Figure B4. Growth Incidence Curve, RLMS-HSE 1994-2019



Note: Monetary income per capita is taken as the welfare measure and calculated for the entire population using total household incomes, divided by the number of household members. Incomes are adjusted to 2019 constant rubles. Incomes for rounds 5, 6 and 7 are divided by 1,000 to account for the nominal revaluation of the ruble in January 1998. All numbers are weighted with population weights. The median is the income growth of the 50th percentile and the mean is the growth of average per capita income.

Figure B5. Trends in Percentile Ratios and Inequality Indices, RLMS-HSE 1994-2019



Note: Monetary income per capita is taken as the welfare measure and calculated for the entire population using total household incomes, divided by the number of household members. Incomes are adjusted to 2019 constant rubles. Incomes for rounds 5, 6 and 7 are divided by 1,000 to account for the nominal revaluation of the ruble in January 1998. All numbers are weighted with population weights.

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Appendix C: Brief Review of Relevant Poverty Measurement Techniques

C1. Aggregate Poverty Measures

For a particular year, FGT indices (Foster *et al.* 1984) are defined as follows:

$$P_\alpha = \frac{1}{N}\sum_{i=1}^{N}\left(\frac{z-y_i}{z}\right)^\alpha \qquad I(y_i < z), \alpha \geq 0 \tag{C1}$$

where z is the poverty line, y_i is the measure of living standards of individual i, N is the population size and $I(y_i < z)$ is the indicator function equals to 1 if individual is poor and equals to 0 otherwise. Parameter α is the poverty aversion parameter: larger values give greater weight to poorer individuals. The headcount ratio is the case when α = 0, poverty gap index is the case when α = 1, squared poverty gap if α = 2.

C2. Mobility Measures

We provide the following discussion on mobility measures based on Dang *et al.* (2020). Let y_j and z_{jk} respectively represent individuals' income (consumption) and the income threshold *k* in year *j*, where *j*= 1 or 2, and *k*= 0, 1,…, K, with a higher number for *k* indicating a higher income threshold. As is the usual practice, both y_j and z_{jk} are expressed in logarithmic form. The minimal and maximal thresholds z_0 and z_K correspond to -∞ and +∞ respectively. Let M^{lo} represent the population's relative mobility measure of interest, where *l*= *u* (upward mobility) or *d* (downward mobility), and *o*= *n* (unconditional mobility) or *c* (conditional mobility).

We define the unconditional (probability of) upward mobility for individuals in income category *k* (M_k^{un}) as its probability of moving to a higher income category in the second year.

$$M_k^{un} = P\left(z_k \leq y_1 \leq z_{k+1}\ and\ y_2 \geq z_{k+1}\right) \tag{C2}$$

Note that this higher income category is not just the next higher income category, but can generally include any higher income category. If we condition individuals' movement on their income levels in the first period, we can obtain the corresponding conditional version of upward mobility

$$M_k^{uc} = P\left(y_2 \geq z_{k+1} | z_k \leq y_1 \leq z_{k+1}\right) \tag{C3}$$

Put differently, M_k^{un} represents individuals' unconditional (or joint) upward mobility for both periods considered together, while M_k^{uc} represents their conditional probability of upward mobility that is conditional on the fact that their income level is in income category *k* in the first year.

We similarly define the corresponding probabilities of unconditional and conditional downward mobility by simply reversing the inequality signs in the two equations above for individuals' income level in the second year.

$$M_k^{dn} = P\left(z_k \leq y_1 \leq z_{k+1}\ and\ y_2 \leq z_k\right) \tag{C4}$$

$$M_k^{dc} = P\left(y_2 \leq z_k | z_k \leq y_1 \leq z_{k+1}\right) \tag{C5}$$

Aggregating over the k income categories gives us the measure of unconditional upward or downward mobility for the whole population

$$M^{ln} = \sum_{k=1}^{K} M_k^{ln} \tag{C6}$$

Further aggregating over the unconditional upward and downward mobility categories gives us the general measure of unconditional mobility for the whole population

$$M^{n} = M^{un} + M^{dn} \tag{C7}$$

However, note that for the conditional mobility measures M^{lc}, a similar aggregation formula as that in Equation (C7) does not hold because of the different conditions (denominators) in Equations (C3) and (C5). But if we focus on the income category k in year 1, we can have the following conditional mobility measure for this specific income category

$$M_k^{c} = M_k^{uc} + M_k^{dc} \tag{C8}$$

To derive the measure of conditional upward and downward mobility for the whole population, we respectively use the following equation instead

$$M^{uc} = \sum_{j=k+1}^{K} P\left(y_2 \geq z_j | z_k \leq y_1 \leq z_{K-1}\right) \tag{C9}$$

$$M^{dc} = \sum_{j=k}^{K-1} P\left(y_2 \leq z_j | z_{k+1} \leq y_1 \leq z_K\right) \tag{C10}$$

Thus, there is no general measure of conditional mobility for the whole population that corresponds to M^n in Equation (C7). A closely related, but opposite measure of mobility is immobility (i.e., individuals remain in the same income category in both periods). For the unconditional mobility measures M^{ln} or M^n defined above, we can simply subtract them from one to obtain the corresponding unconditional immobility. For the same reason as earlier discussed, we can only apply the same procedure to the conditional mobility index M_k^c in Equation (C8) to obtain its corresponding conditional immobility index.

C3. Datt-Ravallion Decomposition of Poverty Changes

Poverty can be determined by mean income of the distribution - μ_t , fixed poverty line - z and the structure of relative income inequalities presented by Lorentz curve - L_t:

$$P_\alpha = P(L_t, \mu_t, z) \tag{C11}$$

where α can take three possible values: 0 (or the headcount index), 1 (or he poverty gap index) and 2 (or the squared poverty gap index).

The level of poverty between two periods may change due to a change in the mean income or due to a change in relative inequalities:

$$\Delta P_\alpha = P_1(L_1, \mu_1, z) - P_0(L_0, \mu_0, z) \tag{C12}$$

Datt and Ravallion (1992) splits the change in poverty into impact of income growth (difference in mean income), redistribution component (difference in relative income shares) and error term:

$$P_1 - P_0 = P(L_0, \mu_1, z) - P(L_0, \mu_0, z) + P(L_1, \mu_0, z) - P(L_0, \mu_0, z) + R \quad \text{(C13)}$$

where $P(L_0, \mu_1, z) - P(L_0, \mu_0, z)$ – the growth component of poverty, $P(L_1, \mu_0, z) - P(L_0, \mu_0, z)$ – the inequality component of poverty for t = 0.

$$P_1 - P_0 = P(L_1, \mu_1, z) - P(L_1, \mu_0, z) + P(L_1, \mu_1, z) - P(L_0, \mu_1, z) + R \quad \text{(C14)}$$

where $P(L_1, \mu_1, z) - P(L_1, \mu_0, z)$ – the growth component of poverty, $P(L_1, \mu_1, z) - P(L_0, \mu_1, z)$ – the inequality component of poverty for t = 1.

The growth component gives the impact on poverty change in the mean income while holding the Lorenz curve constant at the reference level. The redistribution component gives the change in poverty due to a change in the Lorenz curve while keeping the mean income at the reference level. The residual (R) measures the effect of interaction between growth and redistribution terms on poverty.

Using the Shapley values to decompose of the impact of growth and redistribution and to eliminate residual:

$$P_1 - P_0 = \frac{1}{2}[P(L_0, \mu_1, z) - P(L_0, \mu_0, z) + P(L_1, \mu_1, z) - P(L_1, \mu_0, z)] + \frac{1}{2}[P(L_1, \mu_0, z) - P(L_0, \mu_0, z) + P(L_1, \mu_1, z) - P(L_0, \mu_1, z)] \quad \text{(C15)}$$

C4. Shapley Decomposition by Components of Welfare

Let`s define individual income y_j as a function of household income per-capita:

$$y_i = \frac{1}{n}\sum_{i=1}^{n} y_i \quad \text{(C16)}$$

Income per adult can be written as the sum of labor income, y_{iL}, and nonlabor income y_{iNL}, where nonlabor income includes public social transfers, pensions, remittances and other private transfers:

$$y_i = \frac{n_a}{n}\left(\frac{1}{n_a}\sum_{i=a}^{n} y_i^L + \frac{1}{n_a}\sum_{i=a}^{n} y_i^{NL}\right) = \frac{n_a}{n}\left[\frac{n_o}{n_a}\left(\frac{1}{n_o}\sum_{i=a}^{n} y_i^L + \frac{1}{n_a}\sum_{i=a}^{n} y_i^{NL}\right)\right] \quad \text{(C17)}$$

where $n_a$is the number of employed adults.

Let F(.) be the cumulative density function of the income distribution. We can write any distributional statistic θ as a function of each of the components above:

$$\theta = \varphi\left(F\left(y_i\left(n, \frac{n_a}{n}, \frac{n_o}{n_a}, y_{PO}^L, y_{PA}^{NL}\right)\right)\right) \quad \text{(C18)}$$

where $y_{PO}^L = \frac{1}{n_o}\sum_{i=a}^{n} y_i^L$ and $y_{PA}^{NL} = \frac{1}{n_a}\sum_{i=a}^{n} y_i^{NL}$

To address path-dependence, Azevedo et al. (2012) propose to calculate the cumulative decomposition in every possible order and then average the results for each component. For example, the contribution of transfers will be:

$$\theta = \varphi\left(F\left(y_i\left(n, \frac{n_a}{n}, \frac{n_o}{n_a}, y_{PO}^{L}, y_{PA}^{Pens}, y_{PA}^{Transf}, y_{PA}^{Capit}, y_{PA}^{Other}\right)\right)\right) \quad \text{(C19)}$$

A counterfactual unconditional distribution of the welfare is measured by changing each component at a time to calculate their contribution to the observed changes in welfare.