NATIONAL RESEARCH UNIVERSITY

# Dynamics of Inequality in the Regions of Russia in 2013-2023

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**10 years of the Turin Centre on Emerging Economies: lessons learned and perspectives for the future**

**10th OEET Workshop, Torino, 28.11.2024**

# Aim

The aim of this study is to investigate the dynamics of inequality in Russia at the regional level over the past 11 years (2013-2023).

Gini coefficients and decile ratios (10/10 ratio) were used as inequality characteristics.

# Literature

- Tikhonova, N. E. (2020). Income stratification in Russia in comparison to other countries. Russian Social Science Review, 61(5), 370-390.

"We show that the model of income stratification in Russian society is normal for European countries. At the same time, when judged by the magnitude of income inequalities, Russia occupies an intermediate position between European countries and the countries of the former Third World."

- Mareeva, S. (2020). Socio-economic inequalities in modern Russia and their perception by the population. The Journal of Chinese Sociology, 7(1), 10.

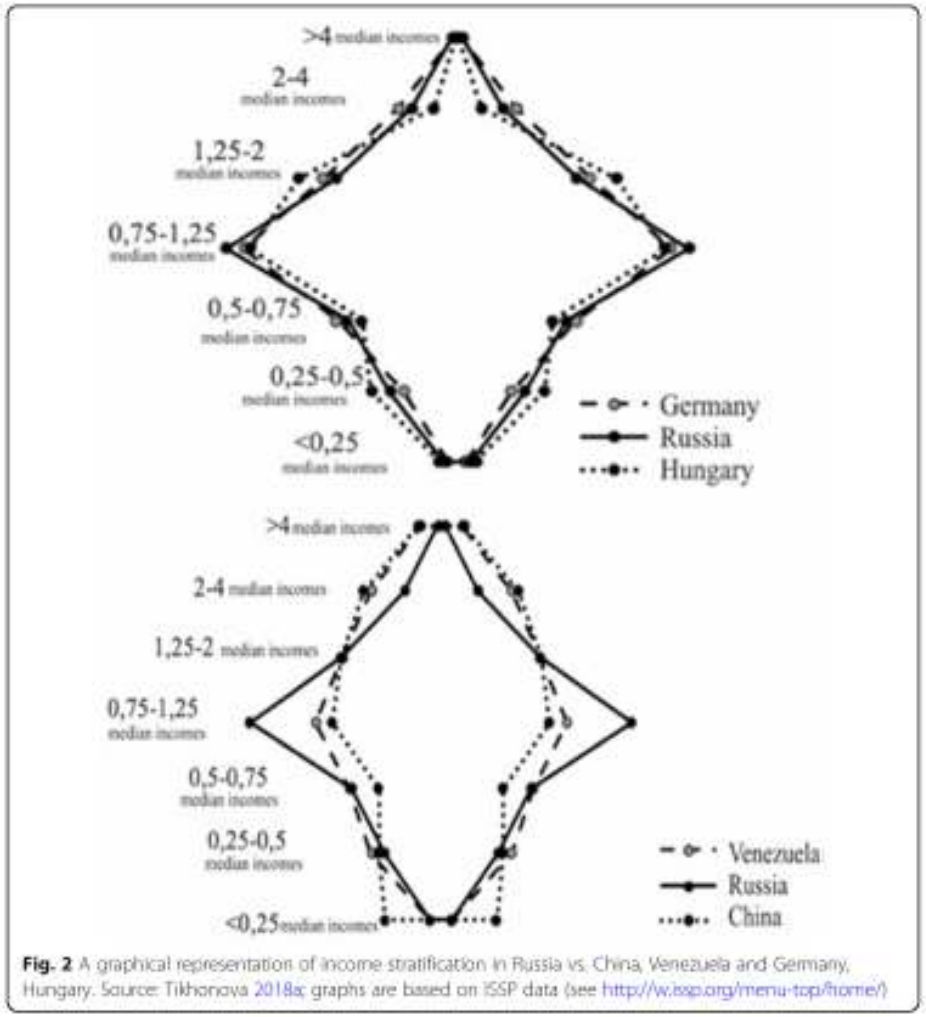
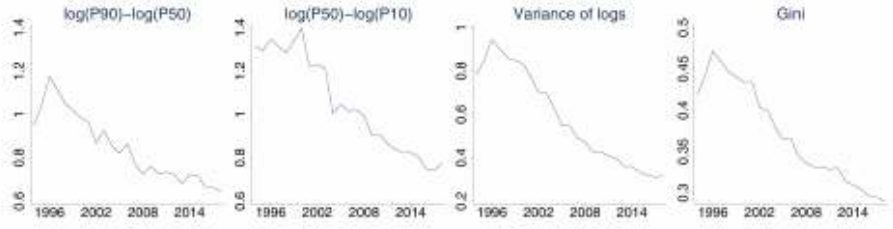



**Fig. 2** A graphical representation of income stratification in Russia vs. China, Venezuela and Germany, Hungary. Source: Tikhonova 2018a; graphs are based on ISSP data (see http://w.issp.org/menu-top/home/)

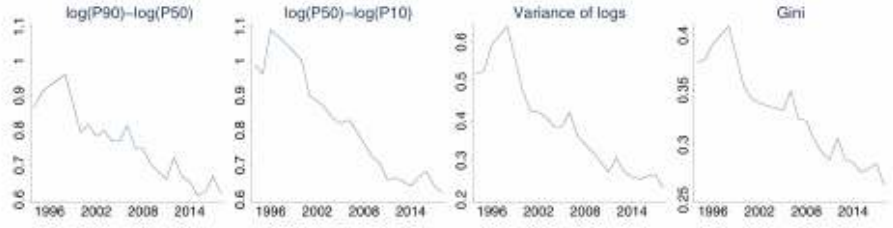
# Literature

- Bryukhanov, Maksym, and Dmytro Hryshko. "Inequality in Russia over time and over the life cycle." The Scandinavian Journal of Economics 126.2 (2024): 289-319.

**Figure 2.** Inequality over time in Russia, RLMS data, 1994–2018




(a) Income




(b) Consumption

"Using Russian longitudinal data for 1994–2018, we document a secular decline in consumption and income inequality. Although within-cohort inequality is also declining, the life-cycle inequality profiles of income and consumption are surprisingly flat. A calibrated life-cycle model with incomplete markets, high initial variance of the persistent income component, and moderately persistent income shocks is consistent with nearly flat life-cycle inequality profiles and the puzzlingly large insurance role of assets found in the Russian data. This is in contrast to the standard calibrations that fail to match the life-cycle inequality profiles and the panel-data evidence on consumption insurance."

# Literature

- Gluschenko, K. P. (2023). Regional inequality in Russia: Anatomy of convergence. Regional Research of Russia, 13(Suppl 1), S1-S12.

"In 2002–2018, the inequality between Russian regions in terms of real personal incomes per capita was decreasing, which indicates convergence. In this context, real incomes mean that they are comparable across regions, being adjusted for regional price levels. This paper reveals the "anatomy" of the convergence process, finding the role of every individual region in it. To do so, regional time series of real incomes per capita are tested for catching-up with the national income per capita. Unlike the widespread methodology of testing convergence with the use of time-series methods, nonlinear asymptotically decaying trends model the convergence processes in this paper. The results obtained suggest that 54.4% of the Russian regions exhibit convergence, and 20.3% of regions maintain a stable (on average) income gap. At the same time, there is a significant proportion of deterministically diverging regions, equaling 22.8%. Two regions only (2.5%) do not exhibit a regular behavior".

# Literature

- Convergence without equity: A closer look at spatial disparities in Russia. Washington, DC: World Bank, 2017. https://openknowledge.worldbank.org/server/api/core/bitstreams/6317fcaa-e0fc-541d-be16-79a12d77a7d0/content.

"Addressing regional disparities is key to unlocking Russia's potential to achieve stronger gains in growth and equity outcomes as well as to improve its institutional environment. While spatial disparities have been an important policy concern in Russia for a long time, inequalities across its vast territory remain stark. … addressing spatial disparities does not necessary imply "balancing" growth across a geographic territory – but rather focusing on creating opportunities for all people, regardless of where they live. The following three key messages emerge from the analysis".

- Message 1: Over the last decade spatial inequalities have declined in terms of incomes, although despite "convergence" in monetary outcomes across regions, the country remains characterized by significant disparities in access to services.
- Message 2: Spatial inequality today is mostly driven by inequality within regions, and particularly by inequality in richer regions.
- Message 3: Regional governments may seek to prioritize different policies as determined by their conditions in terms of endowments, access to markets and fiscal constraints.

# Literature

Bussolo, M., Davalos, M. E., Peragine, V., & Sundaram, R. (2018). Toward a new social contract: Taking on distributional tensions in Europe and Central Asia. World Bank Publications.

## BOX 2.6 A Closer Look at Spatial Disparities in the Russian Federation

An understanding of the obstacles in the Russian Federation's quest for development begins with the country's expansive geography and the difficulties in governing such a vast territory. Russia is the world's largest country, and its geographical endowments encompass harsh climatic conditions and a dominance of natural resources in peripheral regions that have shaped Russia's development policies. During the Soviet era, labor and capital were forcibly moved toward the east to exploit Siberia's vast natural resources, develop military capabilities, and support a more even distribution of population and economic activity. The resulting economic structure was physically more dispersed throughout the territory, yet inefficient and distorted. Efforts to reverse this policy legacy have often been undermined by the inherited economic, social, physical, and relational networks that hindered progress toward more efficient and equitable regional development.

Today, Russia has the highest level of inequality among large, emerging economies such as Brazil, China, and India. Russian regions experienced some convergence in income in the last decade as poorer regions grew more quickly (controlling for other factors). Moreover, there appear to be positive spillovers from one region to another, that is, factors that raise incomes and reduce poverty in one region raise incomes and reduce poverty in neighboring regions. However, immense disparities in living standards persist. Households in Sakhalin Oblast (which has the highest gross regional product per capita) experience living standards similar to those in Singapore, while households in Ingushetia (which has the lowest gross regional product per capita) experience living standards closer to those in Honduras. Poverty rates range from less than 10 percent in resource-rich Tatarstan and large metropolitan areas of Moscow and St. Petersburg to almost 40 percent in the poorest regions in the North Caucuses, Siberia, and the Far East. In the richest and most populous regions, including Moscow, St. Petersburg, and natural resource–rich regions, inequality is high, meaning the numbers of the poor are large, though the areas do not exhibit the highest poverty rates.

The transformation from unbalanced growth to inclusive development requires a shift in policies, including a focus on richer regions where poverty and inequality are concentrated. Russia's prevailing policy approach since the transition has been more equalizing than other countries. Poor regions depend heavily on federal transfers. These drivers of convergence have become less sustainable, which became evident when Russia underwent the recent oil price crisis and sanction regime. The policies also appear to have hindered the ability of poor regions to boost their comparative advantage. Regions are still characterized by significant disparities in access to services, and some regions are affected systematically by the low profile of the state. This invariably translates into disparities in outcomes. Addressing disparities in access to services and thereby leveling the playing field remains at the heart of policies seeking to improve both efficiency and equity.

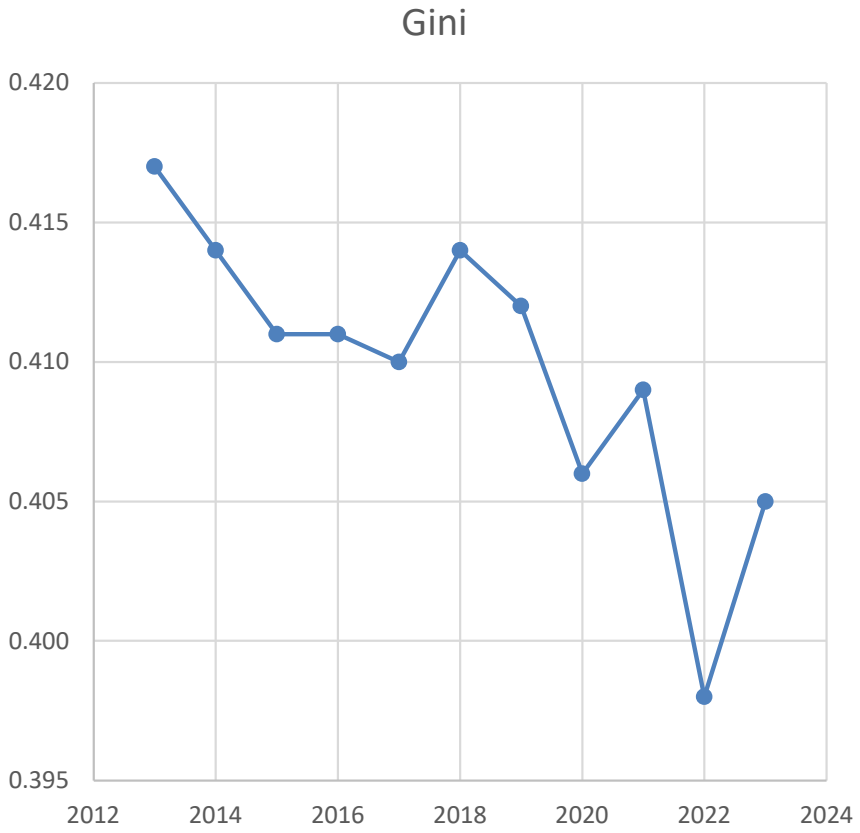
Source: World Bank 2017o.

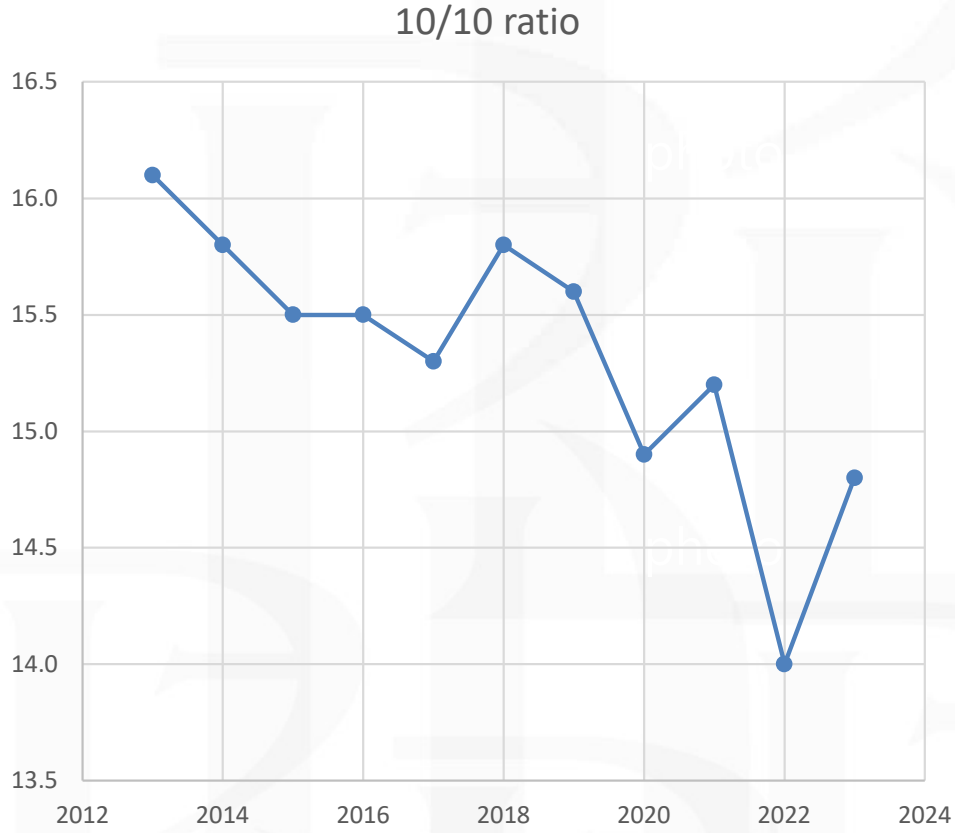
# Data

Time period: 2013-2023

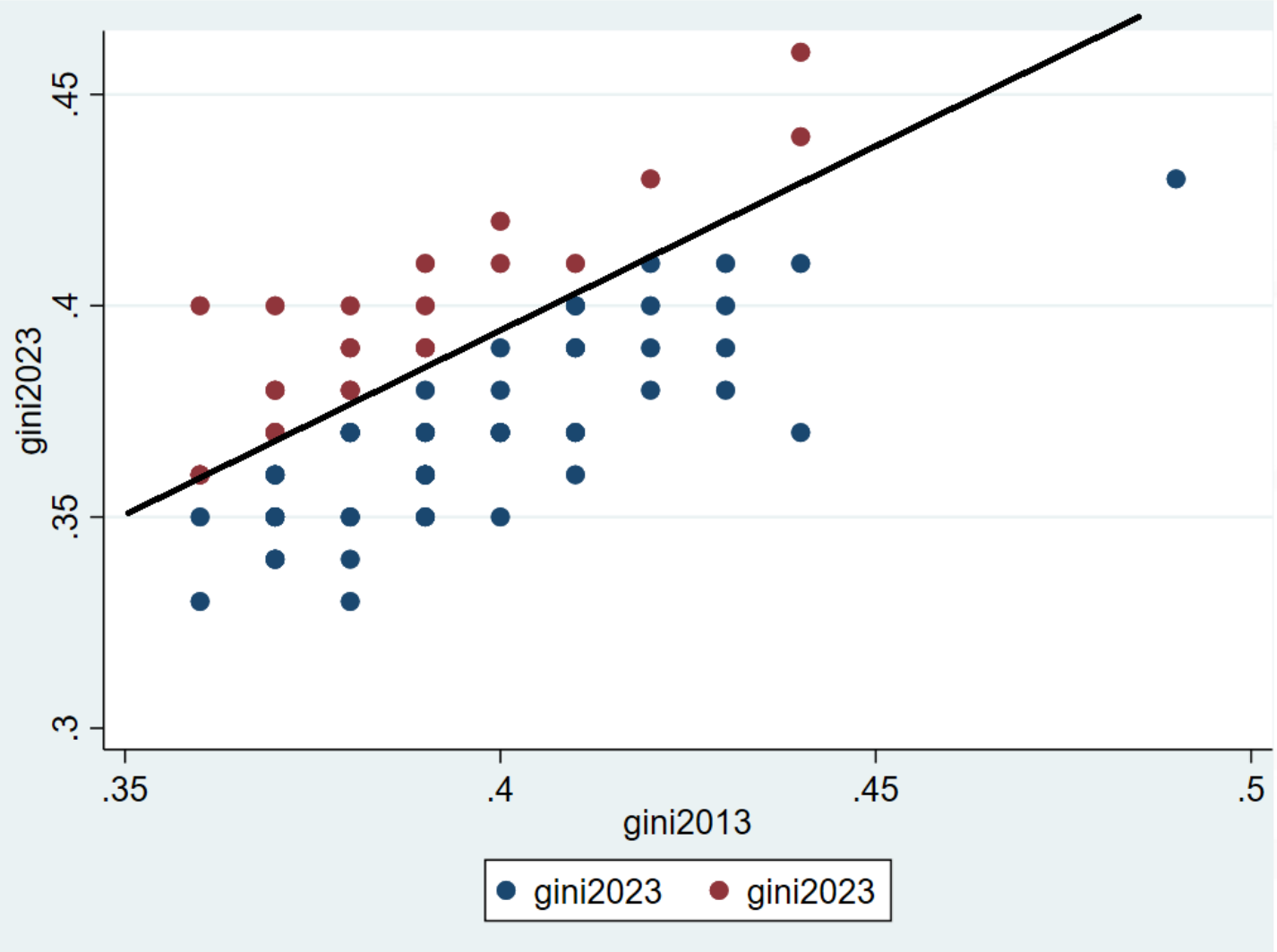
Collection “Regions of Russia”, published annually by the Federal State Statistics Service (regional data).

# Dynamics of Gini coefficients and 10/10 ratio



# Gini coefficients in 2013 and 2023




For most part of the regions the Gini coefficient decreased.

# Linear regressions

We estimated the linear regressions

$Gini = \alpha + \beta 1 \cdot year + \varepsilon$, $year = 2013,\ldots,2023$,

$10/10ratio = \alpha + \beta 2 \cdot year + \varepsilon$, $year = 2013,\ldots,2023$

for all Russian regions.

For most part of the regions the estimates of $\beta 1$ and $\beta 2$ were significant and negative, that also confirms the decrease of inequality in Russia.

# Descriptive statistics

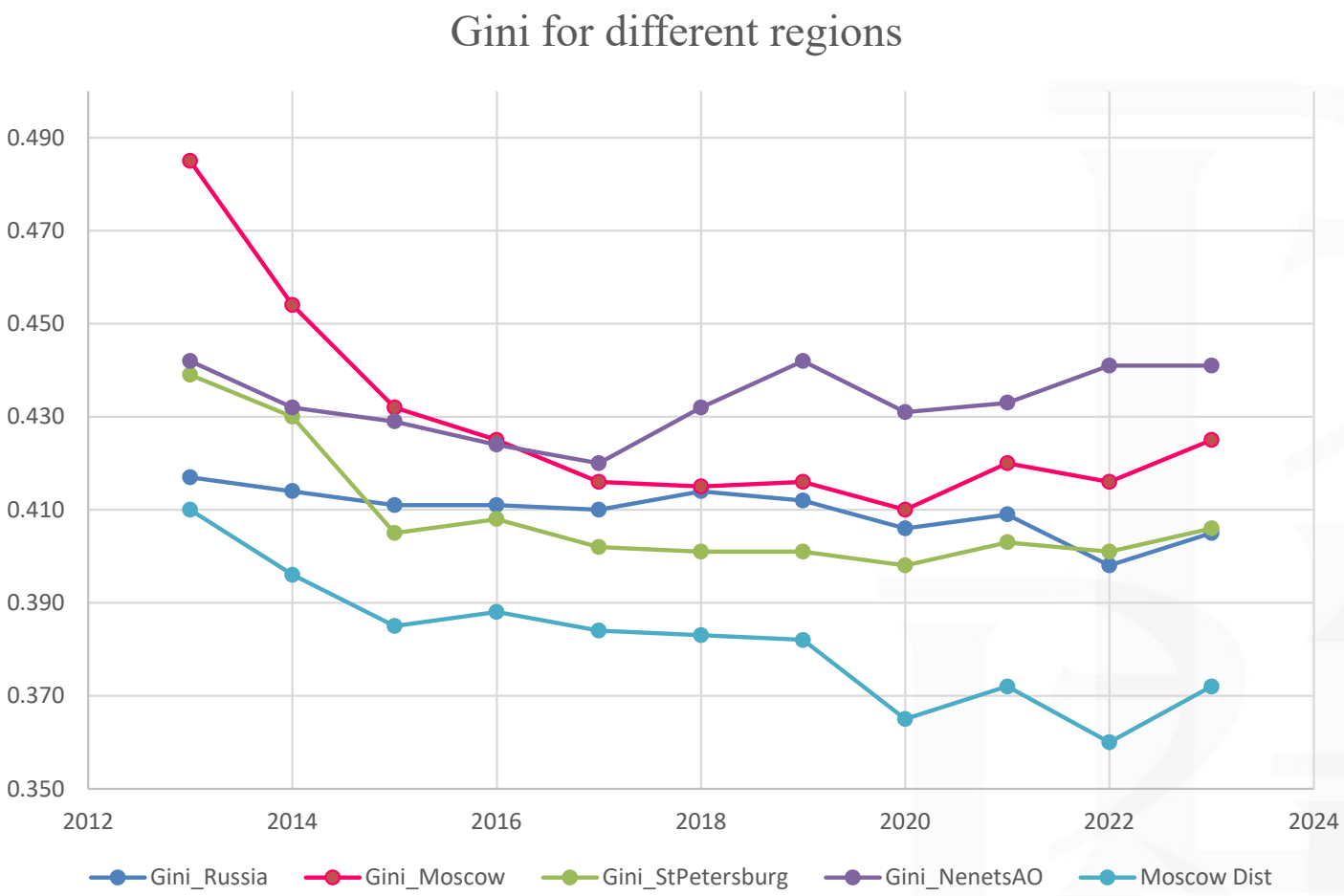
| Variable | | Mean | Std. dev. | Min | Max | Observations | |
|---|---|---|---|---|---|---|---|
| gini | overall | .3767689 | .0245434 | .32 | .49 | N = | 913 |
| | between | | .0216732 | .3436364 | .4436364 | n = | 83 |
| | within | | .0117388 | .347678 | .4358598 | T = | 11 |
| ratio~10 | overall | 12.23406 | 2.268827 | 7.9 | 26.9 | N = | 913 |
| | between | | 2.014591 | 9.527273 | 19.55455 | n = | 83 |
| | within | | 1.06466 | 9.561337 | 21.30679 | T = | 11 |

Between variation reflects time-independent differences between objects.

Within variation reflects fluctuations of individual observations around the time average.

Differences between regions are sufficient.

# Comparison




Different changes of Gini coefficient for different regions.

# Kuznets Hypothesis

Kuznets Hypothesis: *Inequality in income distribution increases at lower income levels and then decreases after a threshold level of per capita income is reached.*

Panel fixed effect models:

$$GINI_{it} = \alpha_i + \beta_1 \cdot mean\_min_{it} + \beta_2 \cdot mean\_min_{it}^{\,2} + c_t + \varepsilon_{it} \quad (1)$$

$$GINI_{it} = \alpha_i + \beta_1 \cdot median\_min_{it} + \beta_2 \cdot median\_min_{it}^{\,2} + c_t + \varepsilon_{it} \quad (2)$$

$$10/10share_{it} = \alpha_i + \beta_1 \cdot mean\_min_{it} + \beta_2 \cdot mean\_min_{it}^{\,2} + c_t + \varepsilon_{it} \quad (3)$$

$$10/10share_{it} = \alpha_i + \beta_1 \cdot median\_min_{it} + \beta_2 \cdot median\_min_{it}^{\,2} + c_t + \varepsilon_{it} \quad (4)$$

where $i$ is the region number, $t = 2013, \ldots, 2023$ is a year,
$GINI_{it}$ is the Gini coefficient for region $i$ at year $t$,
$10/10share_{it}$ is the decile ratio for region $i$ at year $t$ (GINI and $10/10share$ are the dependent variables in our models);
$\alpha_i$ are fixed effects, $c_t$ are time effects, *mean_min* is a ratio of per capita mean income and minimum subsistence level, *median_min* is a ratio of median per capita income and minimum subsistence level, $\varepsilon_{it}$ are the errors.

# Results of estimation

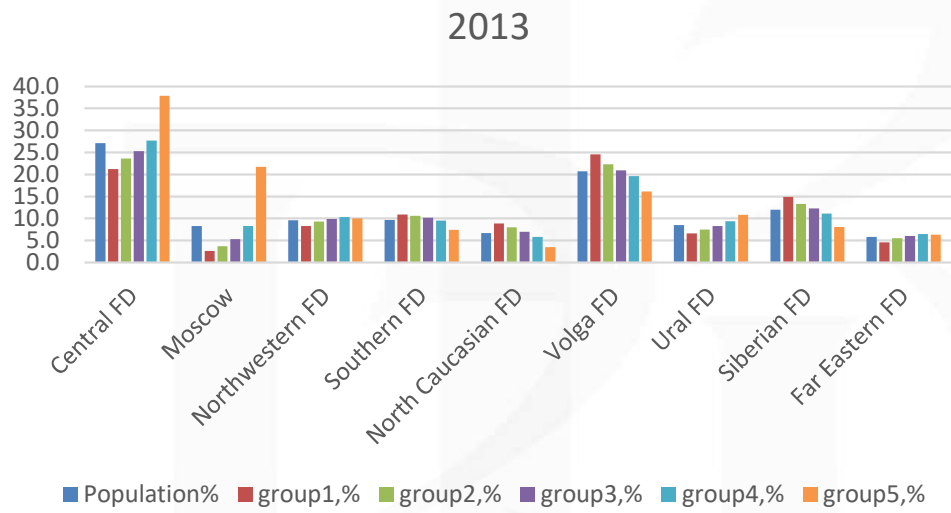
| Variable | GINI | GINI | 10/10share | 10/10share |
|---|---|---|---|---|
| mean_min | 0.082*** | | 6.160*** | |
| mean_minsq | -0.006*** | | -0.300*** | |
| median_min | | 0.117*** | | 8.768*** |
| median_minsq | | -0.011*** | | -0.620*** |
| year | | | | |
| 2014 | -0.001 | -0.002* | -0.195** | -0.277*** |
| 2015 | 0.001 | -0.001 | -0.049 | -0.243** |
| 2016 | 0 | -0.003** | -0.129 | -0.354*** |
| 2017 | -0.004*** | -0.007*** | -0.422*** | -0.706*** |
| 2018 | -0.006*** | -0.009*** | -0.609*** | -0.897*** |
| 2019 | -0.007*** | -0.011*** | -0.716*** | -1.033*** |
| 2020 | -0.012*** | -0.017*** | -1.121*** | -1.554*** |
| 2021 | -0.013*** | -0.018*** | -1.287*** | -1.681*** |
| 2022 | -0.022*** | -0.027*** | -2.009*** | -2.466*** |
| 2023 | -0.021*** | -0.025*** | -2.020*** | -2.368*** |
| _cons | 0.199*** | 0.183*** | -1.977*** | -3.064*** |
| turning point | 6.83 | 5.318 | 10.267 | 7.07 |
| min | 1.485 | 1.217 | 1.485 | 1.217 |
| max | 7.074 | 4.832 | 7.074 | 4.832 |

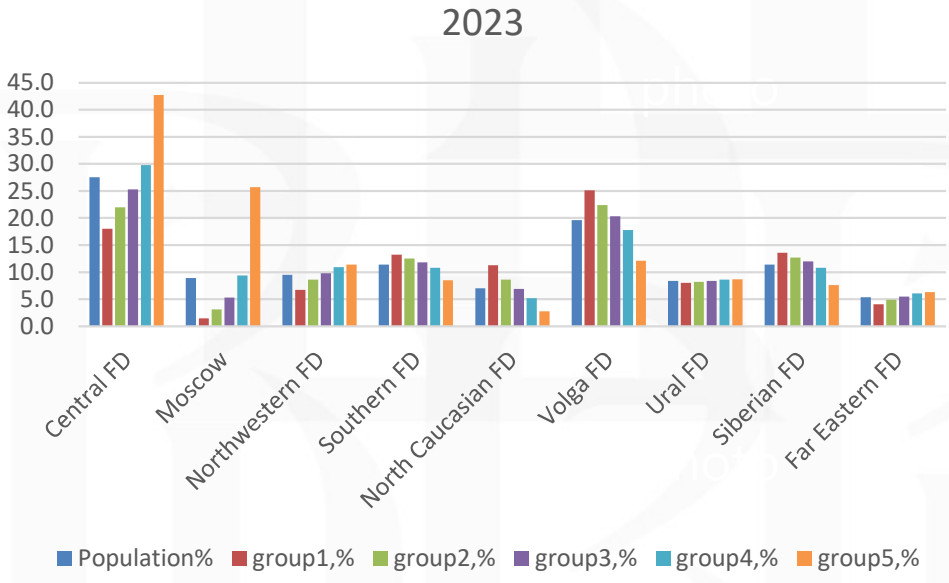
- Almost all regions of Russia are on the ascending branch of the parabola and have not yet reached the level after which inequality will begin to decline.
- Several Russian regions are close to the turning point (Moscow, Yamalo-Nenets Autonomous Okrug).
- Starting in 2017, the level of inequality has been steadily decreasing, especially actively in 2022 and 2023.

# Spatial disparities

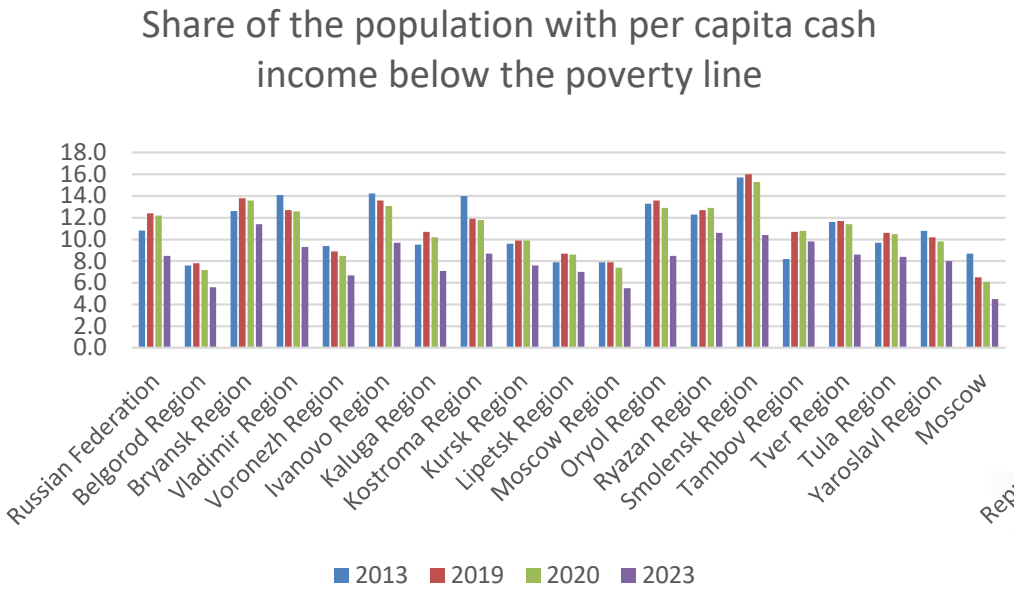
| 2013 | Population % | group1, % | group2, % | group3, % | group4, % | group5, % |
|---|---|---|---|---|---|---|
| Central FD | 27.1 | 21.2 | 23.6 | 25.3 | 27.7 | 37.9 |
| Moscow | 8.3 | 2.6 | 3.7 | 5.3 | 8.3 | 21.7 |
| Northwestern FD | 9.6 | 8.3 | 9.3 | 9.9 | 10.3 | 10.0 |
| Southern FD | 9.7 | 10.9 | 10.6 | 10.2 | 9.5 | 7.4 |
| North Caucasian FD | 6.7 | 8.9 | 8.0 | 7.0 | 5.8 | 3.5 |
| Volga FD | 20.7 | 24.6 | 22.3 | 20.9 | 19.6 | 16.1 |
| Ural FD | 8.5 | 6.6 | 7.5 | 8.3 | 9.4 | 10.8 |
| Siberian FD | 12.0 | 14.9 | 13.3 | 12.3 | 11.1 | 8.1 |
| Far Eastern FD | 5.8 | 4.6 | 5.5 | 6.0 | 6.5 | 6.3 |

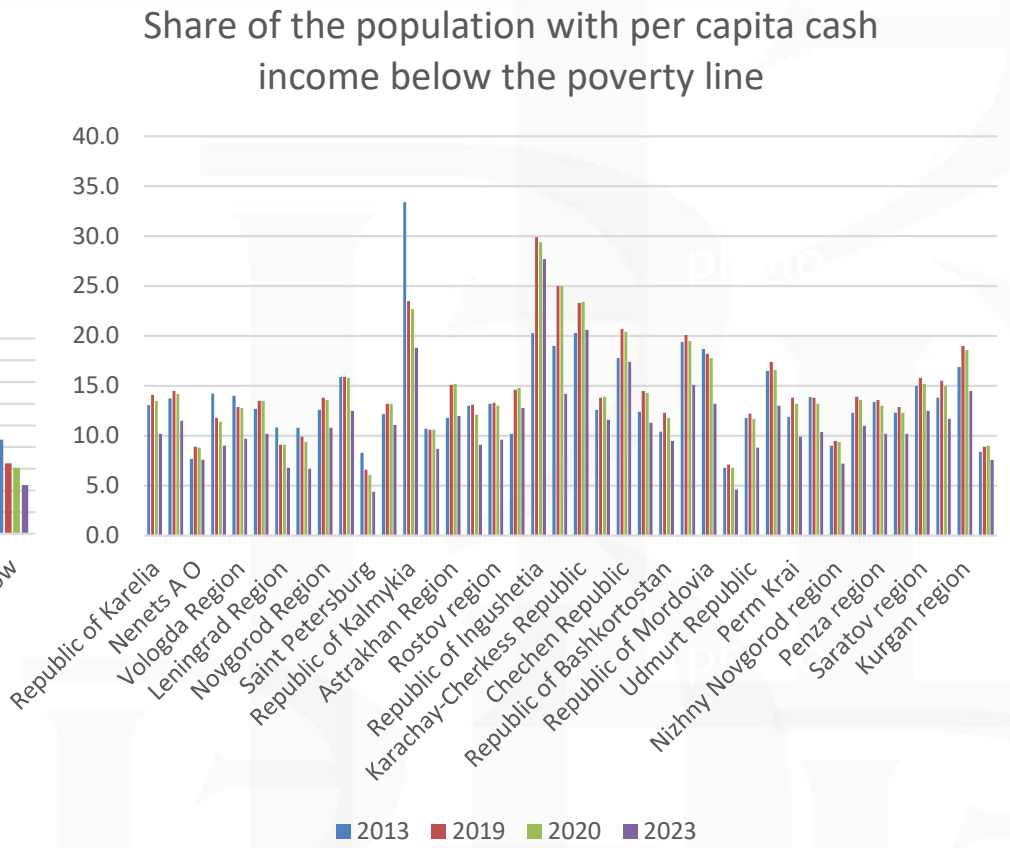
| 2023 | Population % | group1, % | group2, % | group3, % | group4, % | group5, % |
|---|---|---|---|---|---|---|
| Central FD | 27.5 | 18.0 | 22.0 | 25.3 | 29.8 | 42.7 |
| Moscow | 8.9 | 1.5 | 3.1 | 5.3 | 9.4 | 25.7 |
| Northwestern FD | 9.5 | 6.7 | 8.6 | 9.8 | 10.9 | 11.4 |
| Southern FD | 11.4 | 13.2 | 12.5 | 11.8 | 10.8 | 8.5 |
| North Caucasian FD | 7.0 | 11.3 | 8.6 | 6.9 | 5.2 | 2.8 |
| Volga FD | 19.6 | 25.1 | 22.4 | 20.3 | 17.8 | 12.1 |
| Ural FD | 8.4 | 8.0 | 8.2 | 8.4 | 8.6 | 8.7 |
| Siberian FD | 11.4 | 13.6 | 12.7 | 12.0 | 10.8 | 7.6 |
| Far Eastern FD | 5.4 | 4.1 | 4.9 | 5.5 | 6.1 | 6.3 |



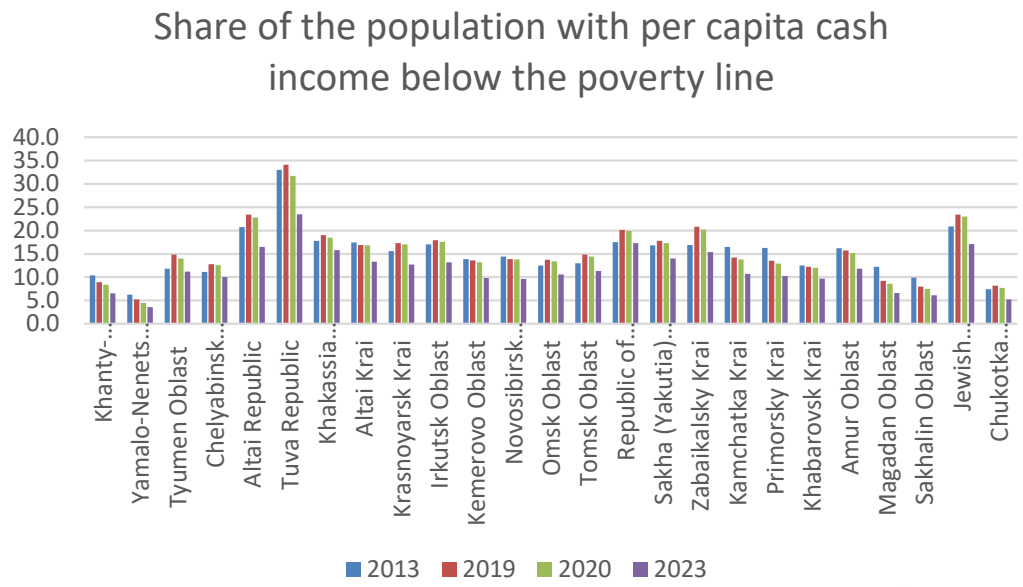



# Share of the population with per capita cash income below the poverty line



# Share of the population with per capita cash income below the poverty line




Share of the population with per capita cash income below the poverty line has decreased in most regions, but still varies greatly across regions.

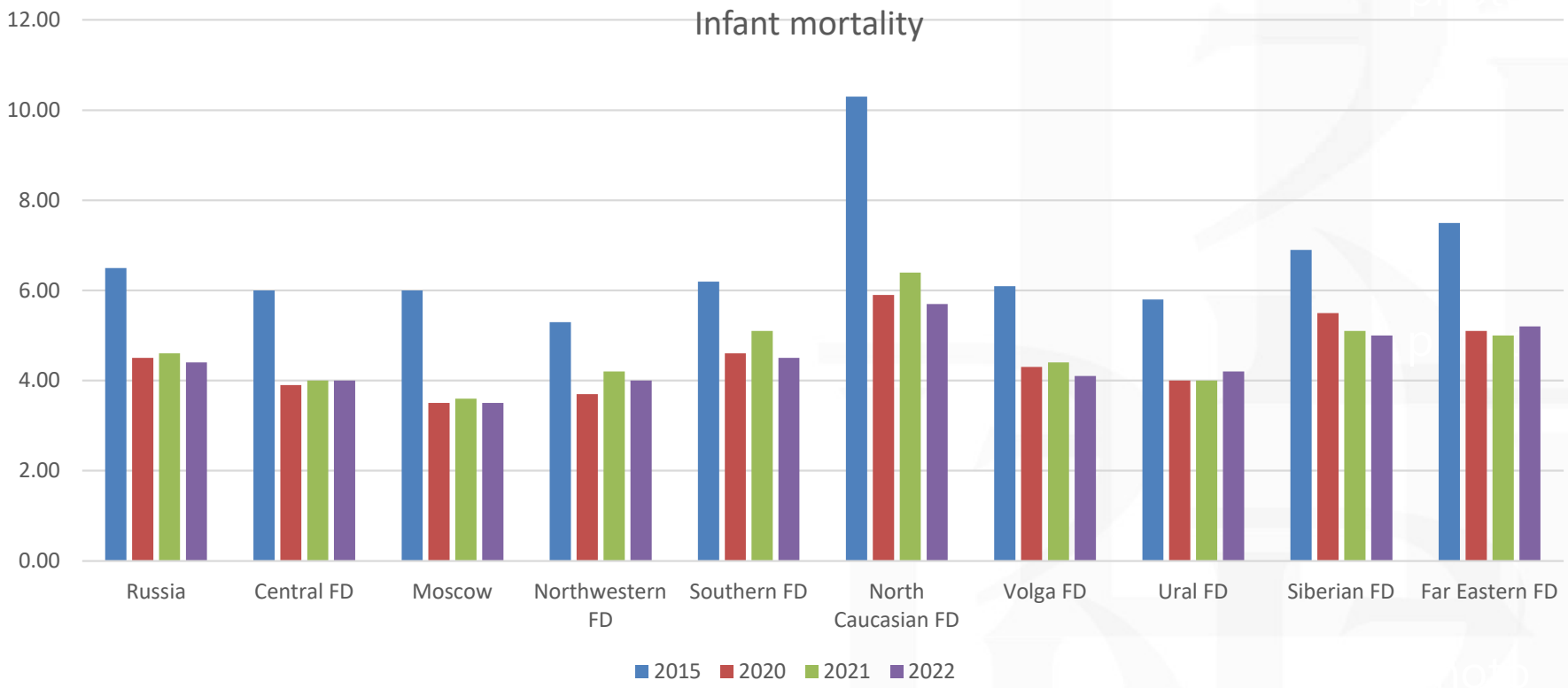
# Have lessons been learned?

Lessons (Convergence without equity: A closer look at spatial disparities in Russia. Washington, DC: World Bank, 2017) :

- Spatial disparities does not necessary imply "balancing" growth across a geographic territory – but rather focusing on creating opportunities for all people, regardless of where they live.
- Inequality in access to services across a country's territory matter particularly for equity outcomes in non-monetary dimensions of well-being.
- To better analyze these challenges, Ceriani and Lopez-Calva (2016) propose a methodology for quantifying regional disparities in state effectiveness for key service domains. Applying this methodology in Russia reveals that some regions are systematically affected by a low state presence. Infant mortality incidence, education outcomes, and access to utilities vary significantly across regions.

# State effectiveness

Child mortality has decreased in all federal districts of Russia since 2015, but still varies by region.



# State effectiveness

"Education" is measured by the mean test score from Russia's university entrance exam (Unified State Examination).

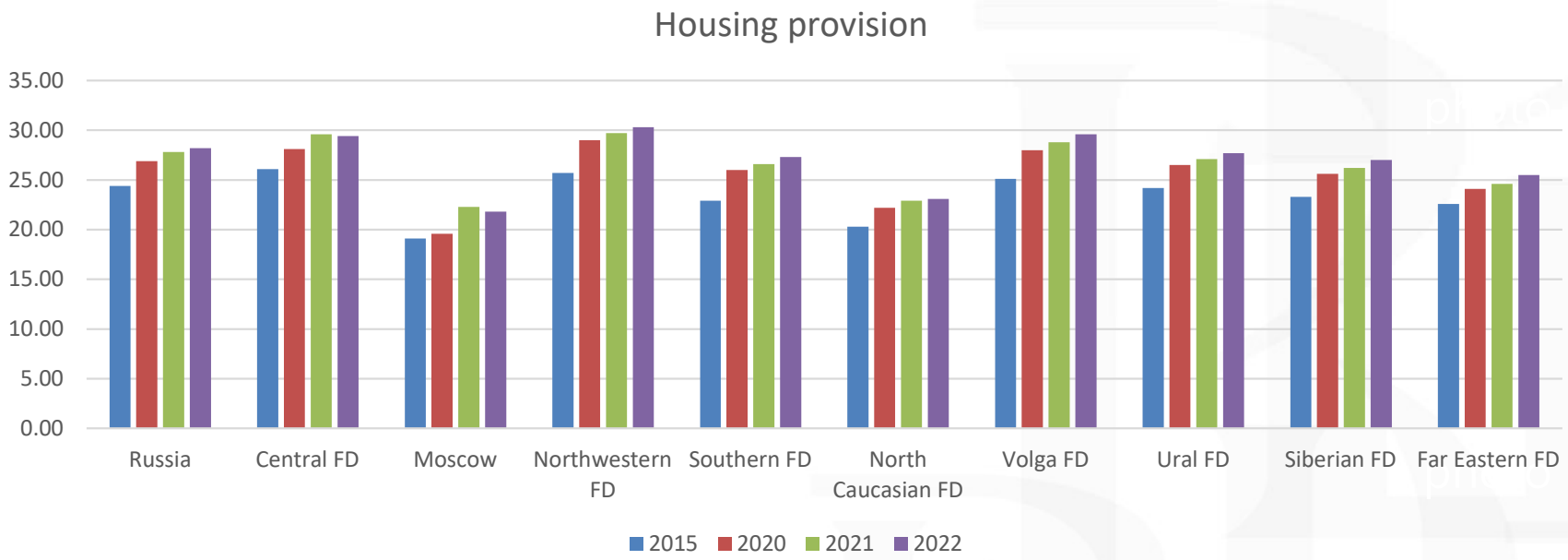
Regions with the highest average USE score of students admitted to the budget in 2022: Moscow and the Moscow region — 75 points, St. Petersburg — 74.3 points, Tomsk region — 71.3 points, Republic of Tatarstan — 70.6 points, Novgorod region — 70.5 points, Republic of Bashkortostan — 69.9 points, Kaliningrad region — 69.7 points, Republic of Karelia — 69.4 points, Nizhny Novgorod region — 69.3 points, Sverdlovsk region — 68.7 points.

Regions with the lowest average USE score for students admitted to the budget in 2022: Tyva Republic - 57.4 points, Sakhalin Region - 58.1 points, Zabaykalsky Krai - 58.2 points, Republic of Kalmykia - 58.5 points, Amur Region - 58.6 points, Karachay-Cherkess Republic - 58.6 points, Kamchatka Krai - 59.2 points, Republic of Khakassia - 59.6 points, Chechen Republic - 60.3 points, Republic of Buryatia - 60.5 points.

There is quite a significant difference

# State effectiveness

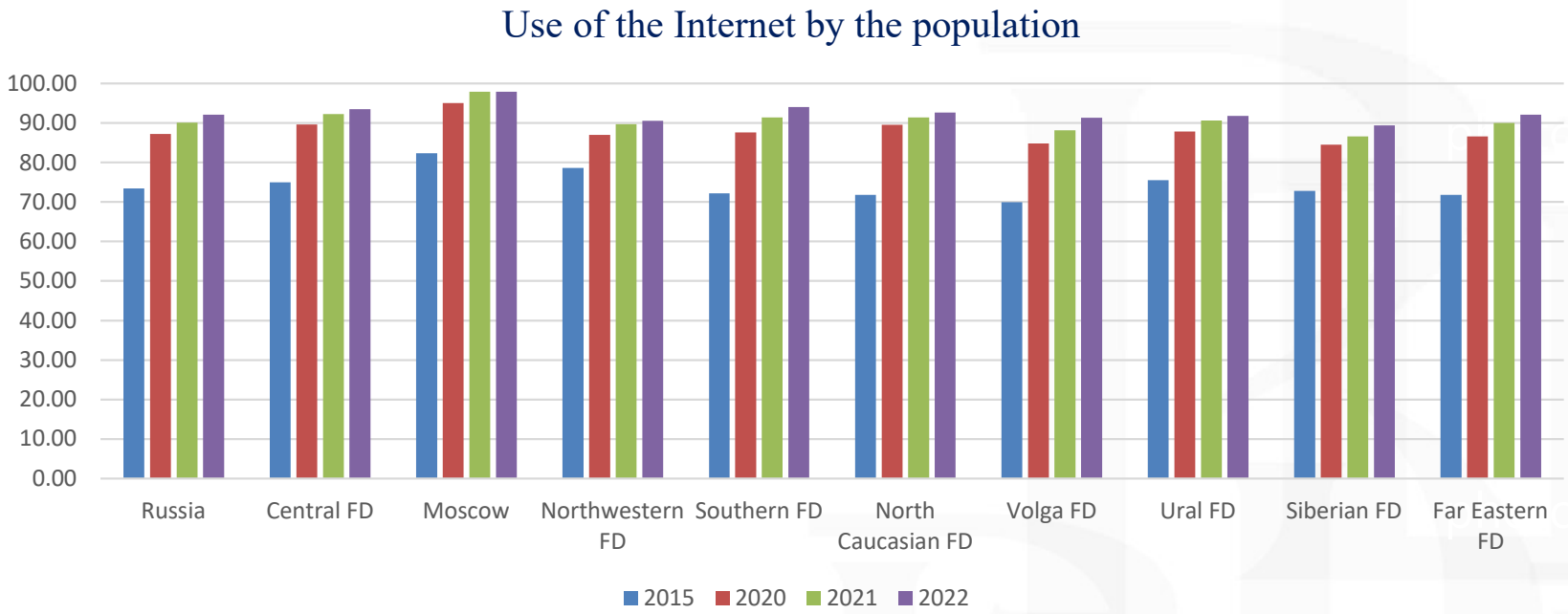
## Housing provision (Number of square meters for living per person)




Housing provision is improving, but regional differences persist.

# State effectiveness

## Information and communication technologies.



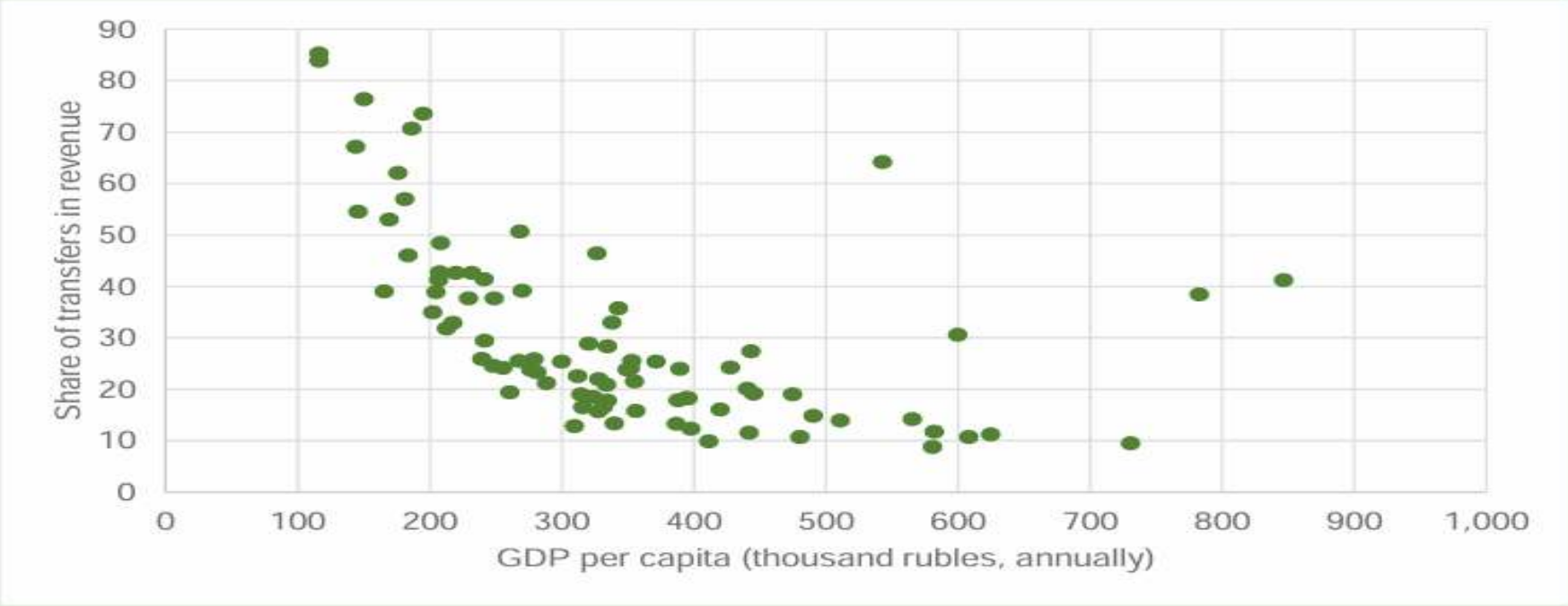

The level of Internet access is quite high for residents of all regions.

# Transfers from federal budget

**Box 3: Poorer regions are most dependent on transfers**

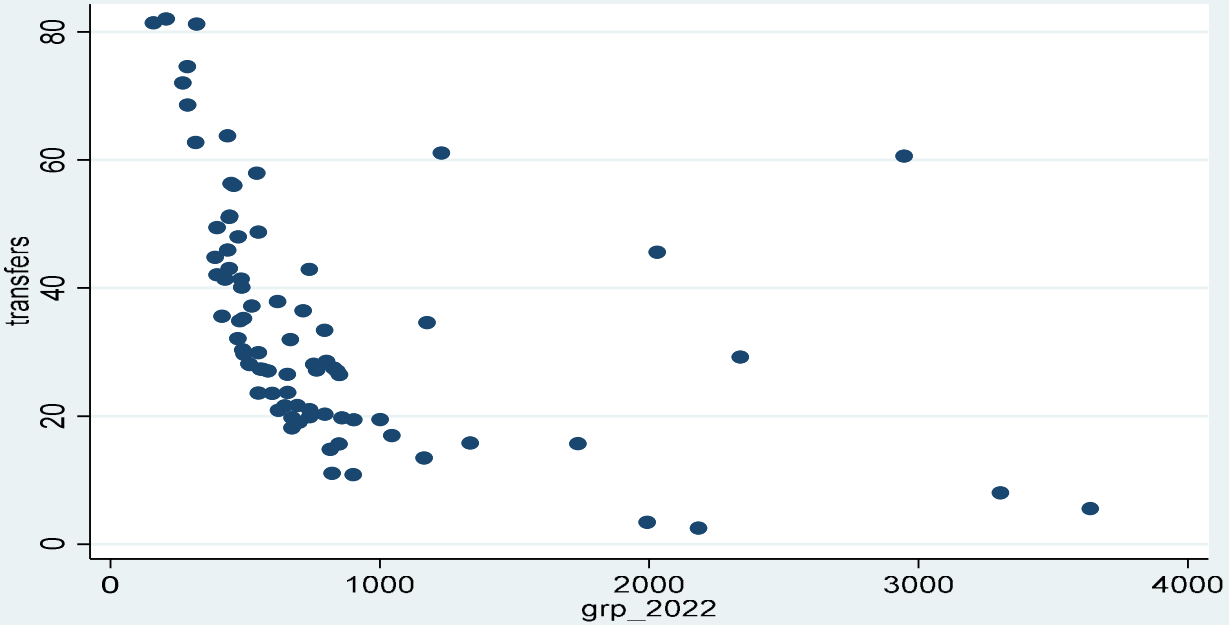
Many regions heavily depend on transfers from the federal budget. According to the latest data (2011-2015) there are 11 regions that had average share of transfers from federal budget in their fiscal revenues over the 5-year period higher than 50 percent. And there are another 18 regions that have a share of transfers between one third and one half of their total revenue. The median share of transfers exceeds one quarter. The highest shares of transfers are in the republics of the North Caucuses (Ingush – 85 percent, Chechnya – 84 percent, Dagestan – 71 percent) and South of Siberia (Tyva – 76 percent and Altai – 74 percent). There is also a strong relation that the richer the region, the lower the share of transfers in its budget (see figure B2.1). The lowest share of transfers is in the resource-rich regions of Khanty-Mansiysk, Yamalo-Nenetsk and Sakhalin and metropolitan areas of Moscow and St. Petersburg.

**Figure B2.1: Share of transfers from federal budget in the regional revenues and GDP per capita**



# Transfers from federal budget in 2022

## Share of transfers from federal budget in the regional revenues and GDP per capita in 2022




"Transfers appear to be effectively targeting poorer regions. Yet poorer regions have been bypassed by the big investment flows, that have gone to oil and gas producing regions and big metropolitan areas, thereby reinforcing the dependence of poorer regions from federal transfers". This remark still applies.

# Conclusions

- Almost all regions of Russia are on the ascending branch of the parabola and have not yet reached the level after which inequality will begin to decline. Thus, the conducted analysis showed that so far, the better the economic development in the region, the higher the level of inequality in the region. However, several Russian regions are close to the turning point (Moscow, Yamalo-Nenets Autonomous Okrug).
- The concentration of wealthy citizens in the Central Federal District and especially in Moscow is increasing.
- The share of poor citizen in some regions (Kurgan, Kalmykia, North Caucasian) remains very high.
- Inequality of opportunities in Russia's regions has decreased, but still exists.

# Policy implication

"Given these prospects, how can policies better support regional development in Russia? Addressing spatial disparities does not necessary imply "balancing" growth across a geographic territory – but rather focusing on creating opportunities for all people, regardless of where they live. From a policy perspective this may imply investing in spatially targeted interventions with concentrated economic activity in few places, and spatially connective infrastructure to connect more those living in more distant regions with these areas. Critically underpinning both of these strategies are investments in spatially blind institutions, which ensure equal provision of basic services – such as education, health, or utilities - to all, regardless of their geographic location (World Bank 2009)".

This recommendation is still valid.

# Thank you!

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