Mortality differentials in Russian biggest cities and their surrounding territories

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Alongside low life expectancy, Russia is characterized by a high degree of spatial heterogeneity in mortality.

- "South-west to north-east" mortality gradient across Russian regions first identified by Andreev (1979) and Shkolnikov (1987) remains.
- This gradient is usually explained via geographical differences in socio economic development, natural conditions and alcohol consumption.

Recent (since mid-2000-s) improvements in Russia did not lead to significant reductions of interregional mortality differentials.

- As mortality levels across Russian regions converged at middle age, disparities at older age widened, the latter was fueled by fast mortality reductions at old ages in Moscow and Saint-Petersburg [Timonin et al. 2016].
- Moscow and Saint-Petersburg two biggest Russian cities concentrating almost 15% of total Russian population has enjoyed since the 2000-s considerably lower mortality than national average.

Like in most other Eastern European countries, urban areas in Russia experience lower mortality than the countryside.

- Yet, except for Moscow and Saint-Petersburg we do not know much about mortality in other Russian biggest cities with at least a million residents, and whether they are in avanguard of mortality reductions in their regions.
Introduction to Russian biggest cities

• There are 15 cities in Russia with a population of over a million people (within administrative borders)

• They are quite evenly distributed across the inhabited part of the country

• They concentrate 23% of total Russian population, and this share is growing fast

• All these cities are “capital cities”, or administrative centers, of their respective regions
Life expectancy at birth (in 2015-2017) in Russian biggest cities and their surrounding territories, by region

1. Rostov region
2. Volgograd region
3. Voronezh region
4. Moscow region
5. Samara region
6. Saint-Petersburg
7. Tatarstan
8. Nijnij Novgorod region
9. Bashkiria
10. Chelyabinsk region
11. Sverdlovsk region
12. Perm krai
13. Omsk region
14. Novosibirsk region
15. Krasnoyarsk region

* only for Moscow and Saint-Petersburg regions
** excl. Moscow, Saint-Petersburg and North Caucasus
Clusters of regions by magnitude of a gap in life expectancy between the “centers” and the “periphery”, from a minimum value to the maximum.
Decomposition of difference in life expectancy at birth by age between the “center” and the “periphery”, by cluster-regions

**Males**

Cluster I - $\Delta e_0 = 1.21$ (all ages)

Cluster II - $\Delta e_0 = 2.4$ (all ages)

Cluster III - $\Delta e_0 = 3.38$ (all ages)

Cluster IV - $\Delta e_0 = 2.71$ (all ages)

Cluster V - $\Delta e_0 = 4.2$ (all ages)

**Females**

Cluster I - $\Delta e_0 = 1.13$ (all ages)

Cluster II - $\Delta e_0 = 1.9$ (all ages)

Cluster III - $\Delta e_0 = 2.94$ (all ages)

Cluster IV - $\Delta e_0 = 2.71$ (all ages)

Saint-Petersburg - $\Delta e_0 = 1.16$ (all ages)

Moscow - $\Delta e_0 = 2.71$ (all ages)
Decomposition of difference in life expectancy at birth by causes of death between the core and the periphery, population-weighted average across 13 regions (excl. Moscow and Saint-Petersburg areas)

**Males** $\Delta e_0 = 2.85$ (all causes)

**Females** $\Delta e_0 = 2.08$ (all causes)
Life expectancy at birth (in 2015-2017) by a city size

**Males**

- Minimum
- Median
- Maximum
- Moscow

**Females**

- Minimum
- Median
- Maximum
- Moscow

- Rus_average
Gaps in life expectancy at birth between administrative centers and their respective regions (excl. cities with a population of over 100,000 residents)
Factors

• Education structure

• Selective migration

• Population change

• Housing amenities (sewage, water supply and hot water supply)

• Population size (for cities)

• Urbanity (for peripheries)

• Density (for peripheries)