

FIRST DEMOGRAPHIC READINGS IN MEMORY OF
ANATOLY VISHNEVSKY

"Demographic horizons of Russia and the world in the medium and long term prospective"
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Russian population losses caused by 40-year mortality reversal

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This study is a *remake* of a „What-If“ analysis from the 19th chapter of the book “*Демографическая Модернизация России*” (Demographic Modernization of Russia) edited by A.G.Vishnevski.



Рисунок 19.10. Гипотетическая численность населения России при отсутствии потерь вследствие демографических катастроф первой половины и кризиса смертности последней трети XX века в сравнении с фактической численностью, 1900–2000, млн. человек



In the former analysis, E.M.Andreev and colleagues assessed population losses caused by the long-term mortality crisis of the second part of the 20th century. The population dynamics observed in 1965-2000 was compared to the hypothetical population dynamics based on mortality that was decreasing like the average mortality in the EU, Japan, and the USA.

In this study: 1) we use a different prototype population (Finland); 2) longer prediction period 1965-2019; 3) more detailed comparison between the observed and the hypothetical populations.

Population regimes:

Scenario 0 (Observed). Observed mortality, fertility, and migration.

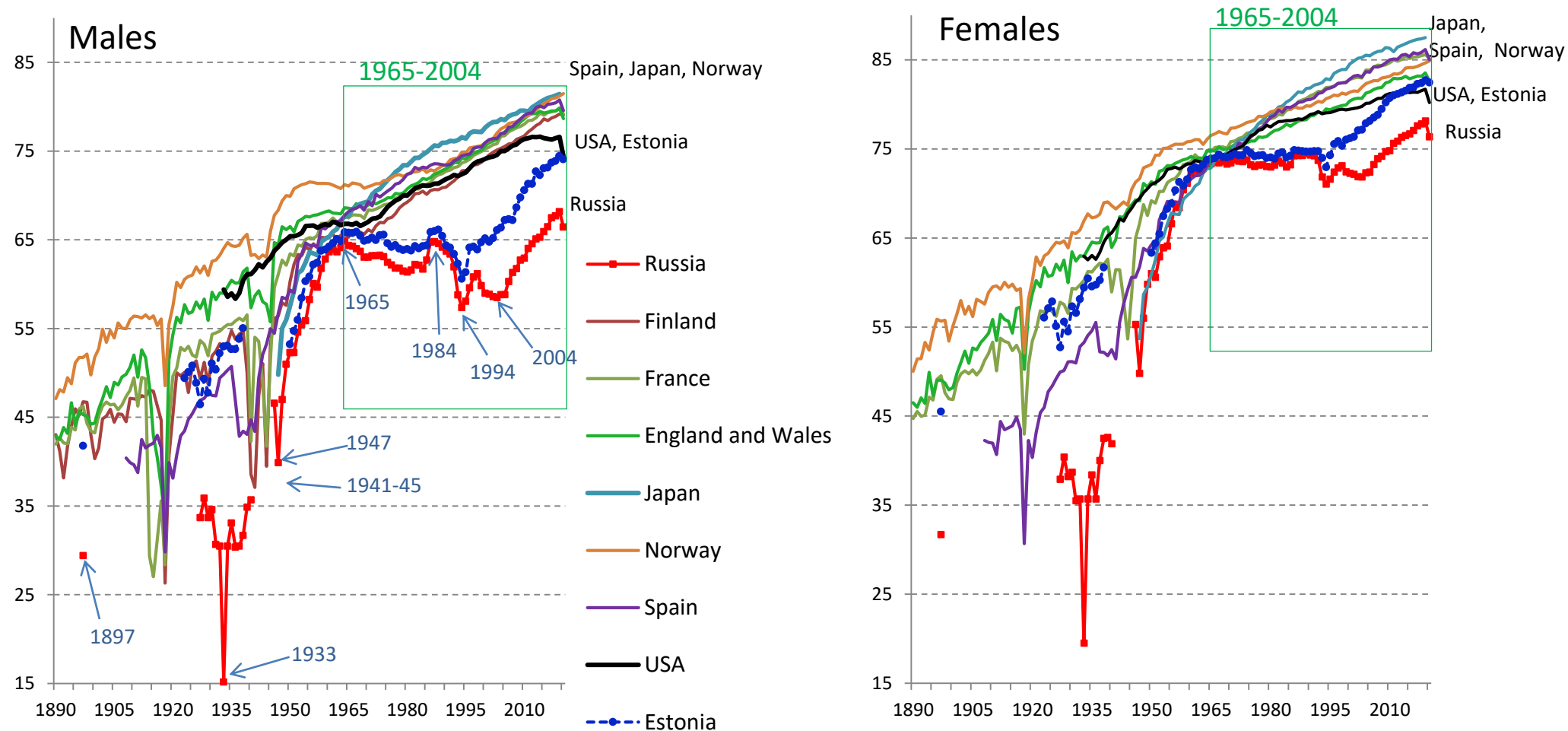
Scenario 1 (Hypothetical): Mortality decline after 1964 *like the one in Finland*. Observed fertility and migration.



Mortality reversal in 1965-2004



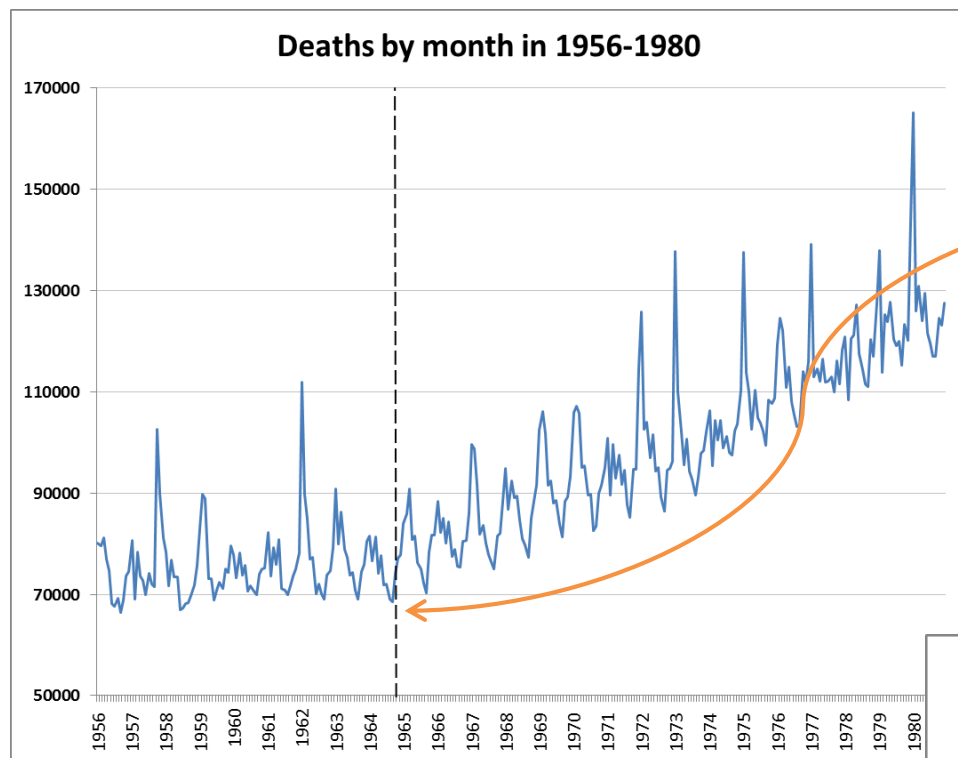
Life expectancy in Russia and selected countries since the 1890s



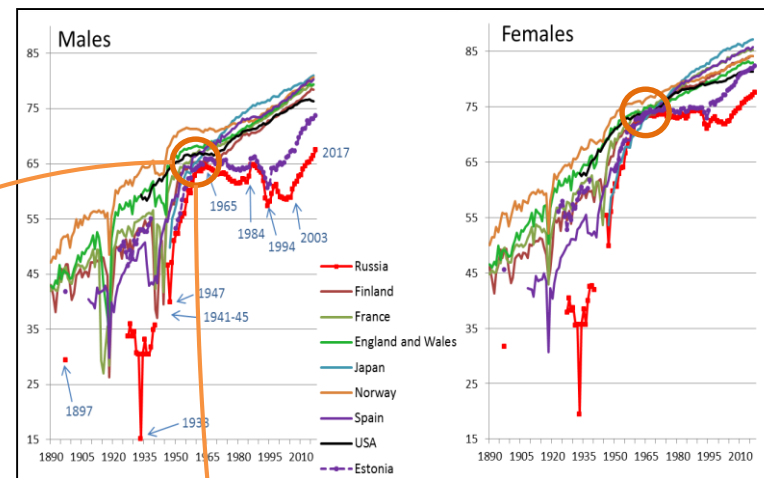
LE-long-term-eng-16-10-2021.xlsx



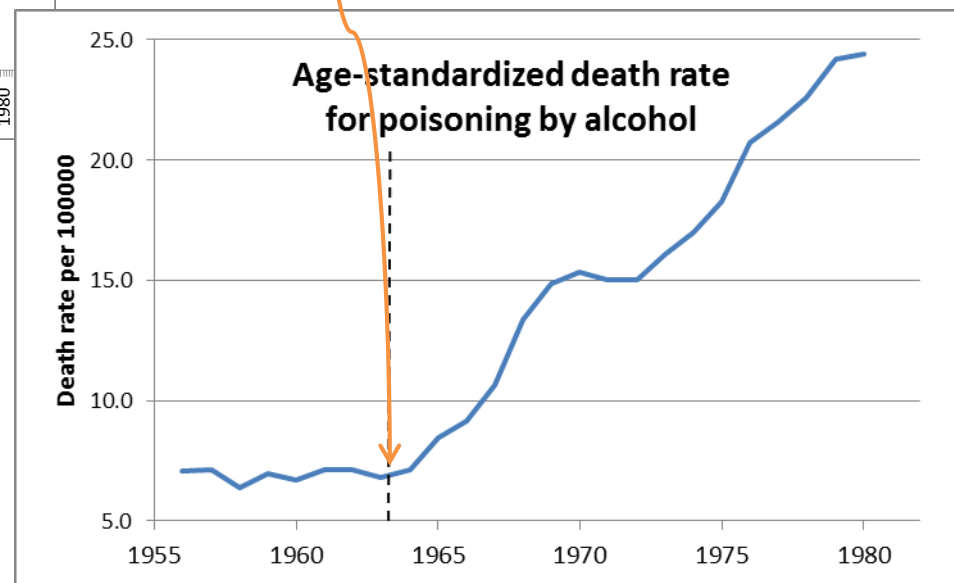
Onset of the mortality increase at the very beginning of Brezhnev's era



Monthly_numbers_of_deaths.xlsx



Accidental-poisoning-by-alcohol.xlsx



Components and drivers of the Russian demographic crisis

Literature has identified two components of the mortality stagnation of 1965-2004:

- 1) excess mortality at ages 15-19 to 55-60 from alcohol-related and external causes and a variety of acute health conditions characteristic (mainly) of males
- 2) excess mortality from cardiovascular diseases at older ages characteristic of both males and females.

Component (1) has been linked by numerous studies to alcoholization with a likely additional impact of the socio-psychological stress during the socio-economic transition of the 1990s.

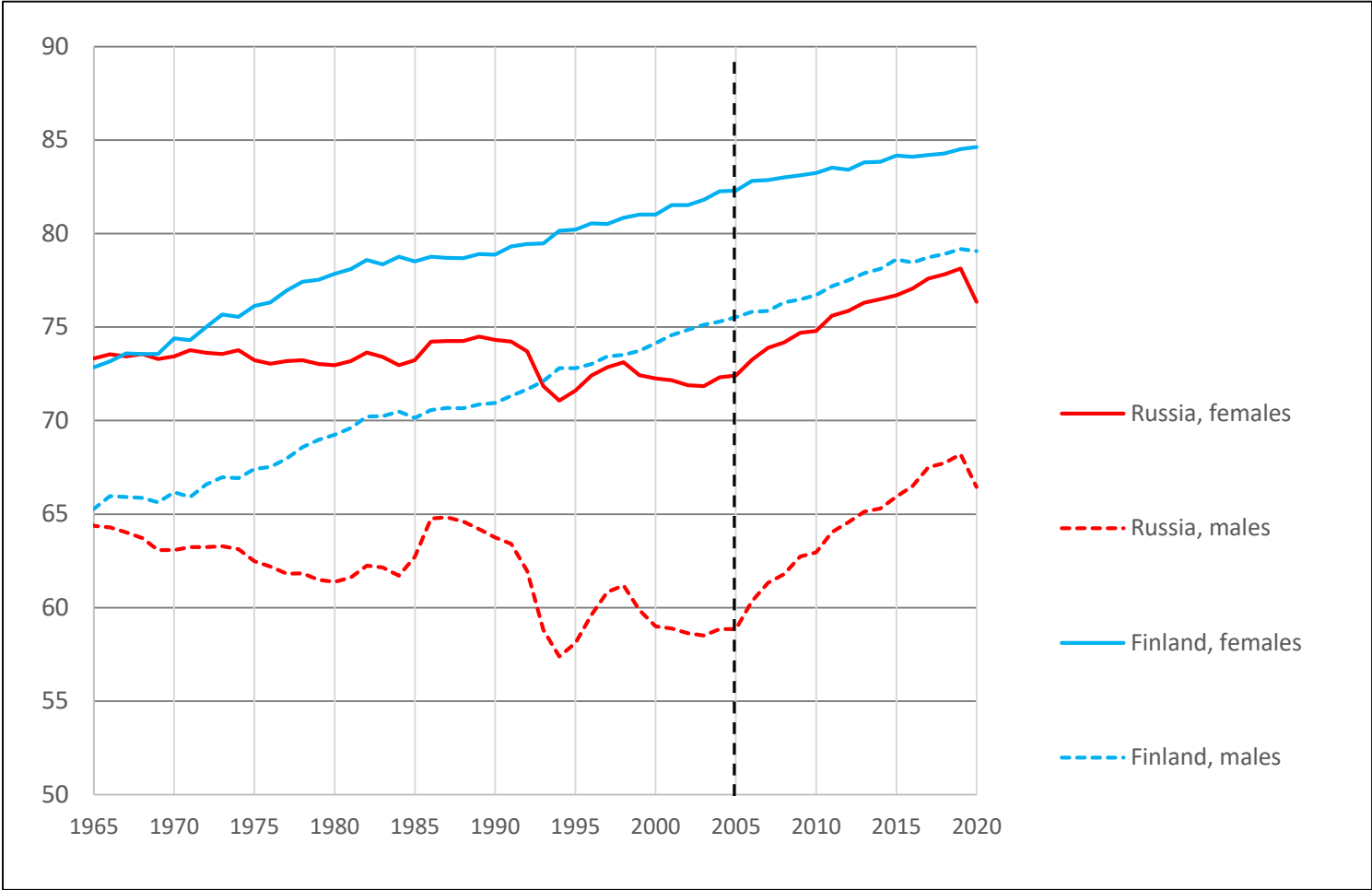
Component (2) has been linked to weakness of the health care system and risk factors cumulating over the life course such as smoking, alcohol, unhealthy nutrition, infections in childhood etc.



Why Finland is chosen as a comparator?



Life expectancy in Russia and Finland since 1964



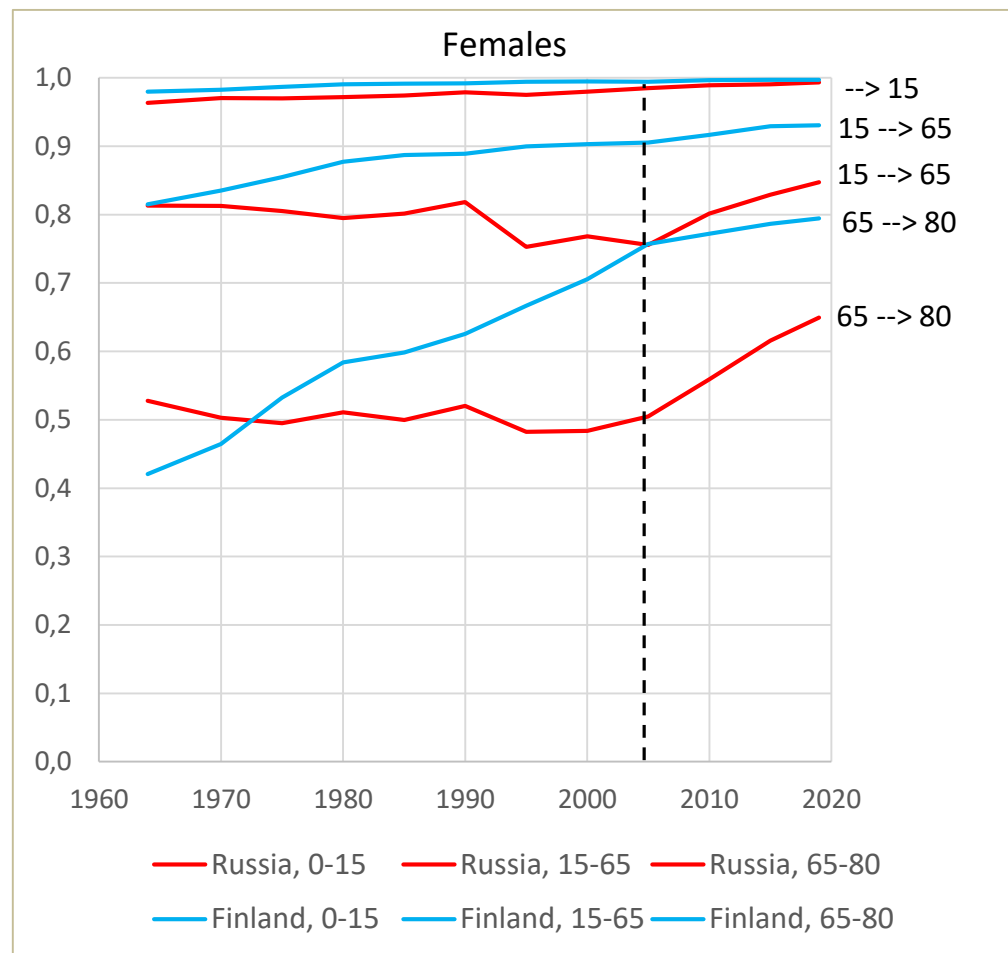
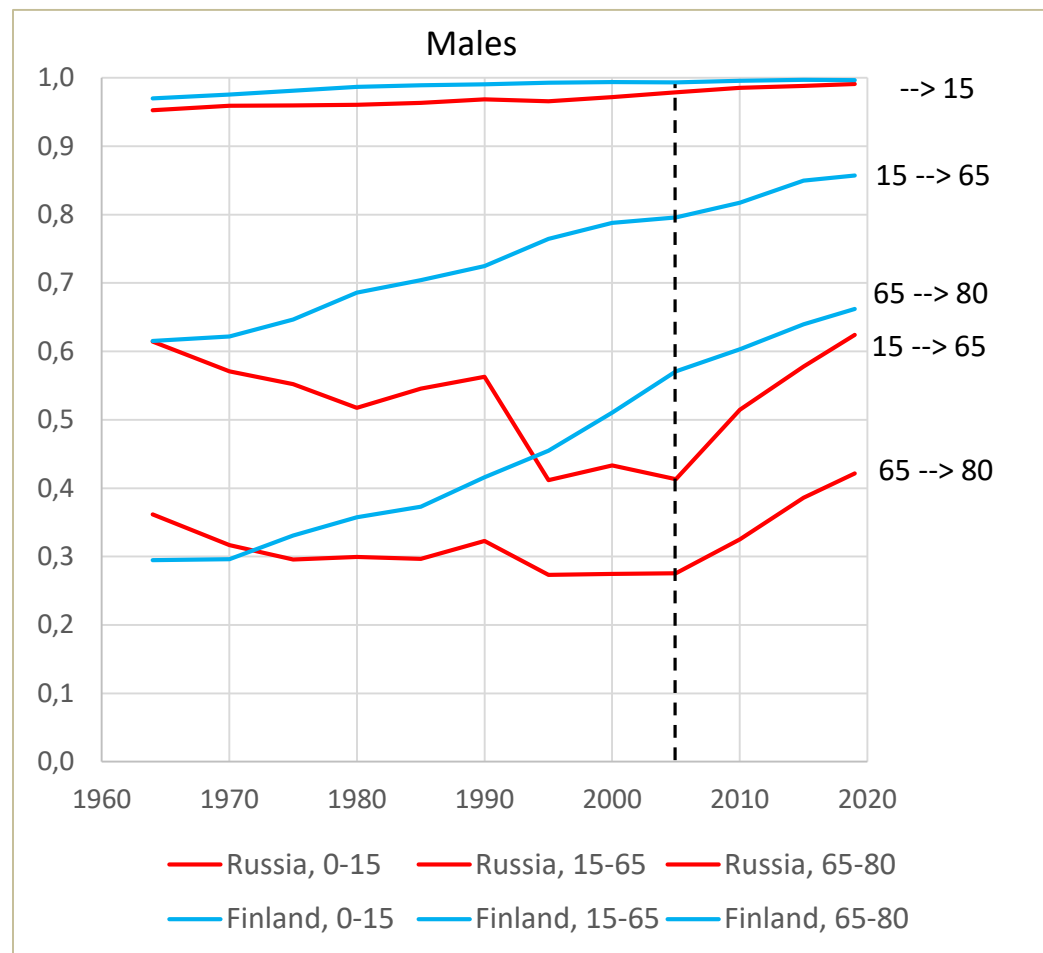
[LE-Russia-Finland.xlsx](#)

Life expectancy difference between Finland and Russia in selected years

	1964	1980	1990	1995	2005	2010	2019	2020
Males	0.6	7.9	7.2	14.7	16.7	13.8	11.0	12.6
Females	-0.6	4.9	4.6	8.6	9.9	8.4	6.4	8.3



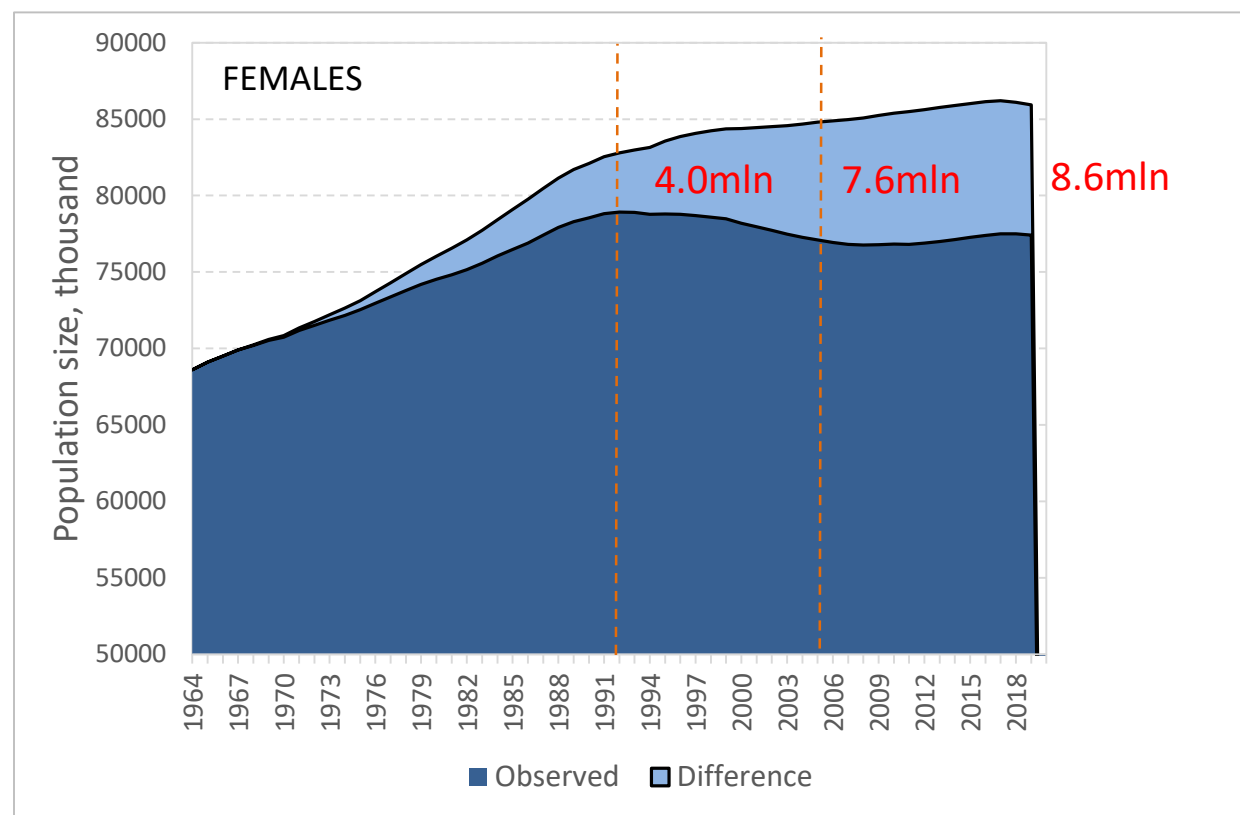
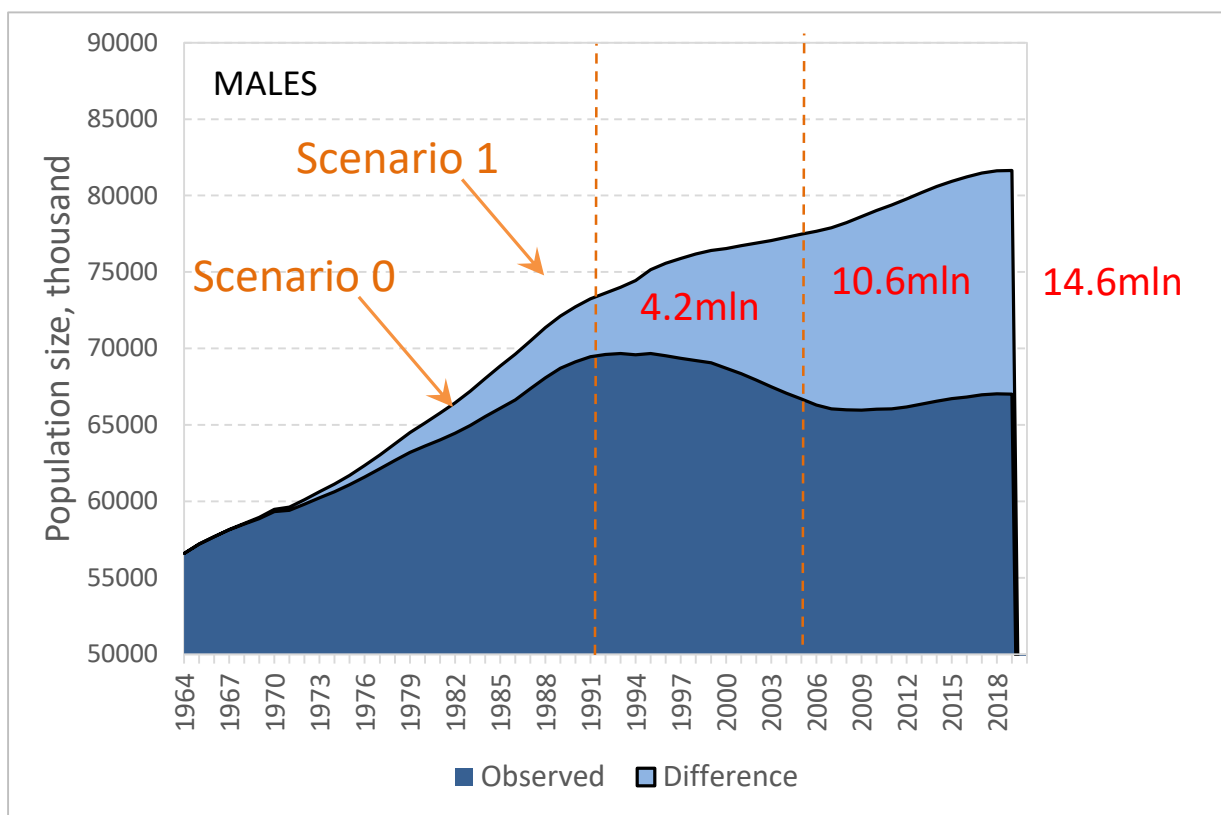
Survival from 0 to 15, from 15 to 65, and from 65 to 80 in Russia and Finland since 1964



Russian population dynamics in 1965-2019: observed vs. hypothetical



Observed and hypothetical population dynamics in Russia since 1964



Scenario 0: Observed mortality, fertility, and migration.

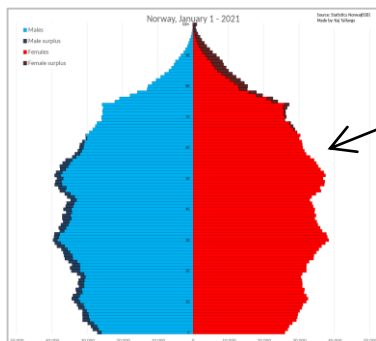
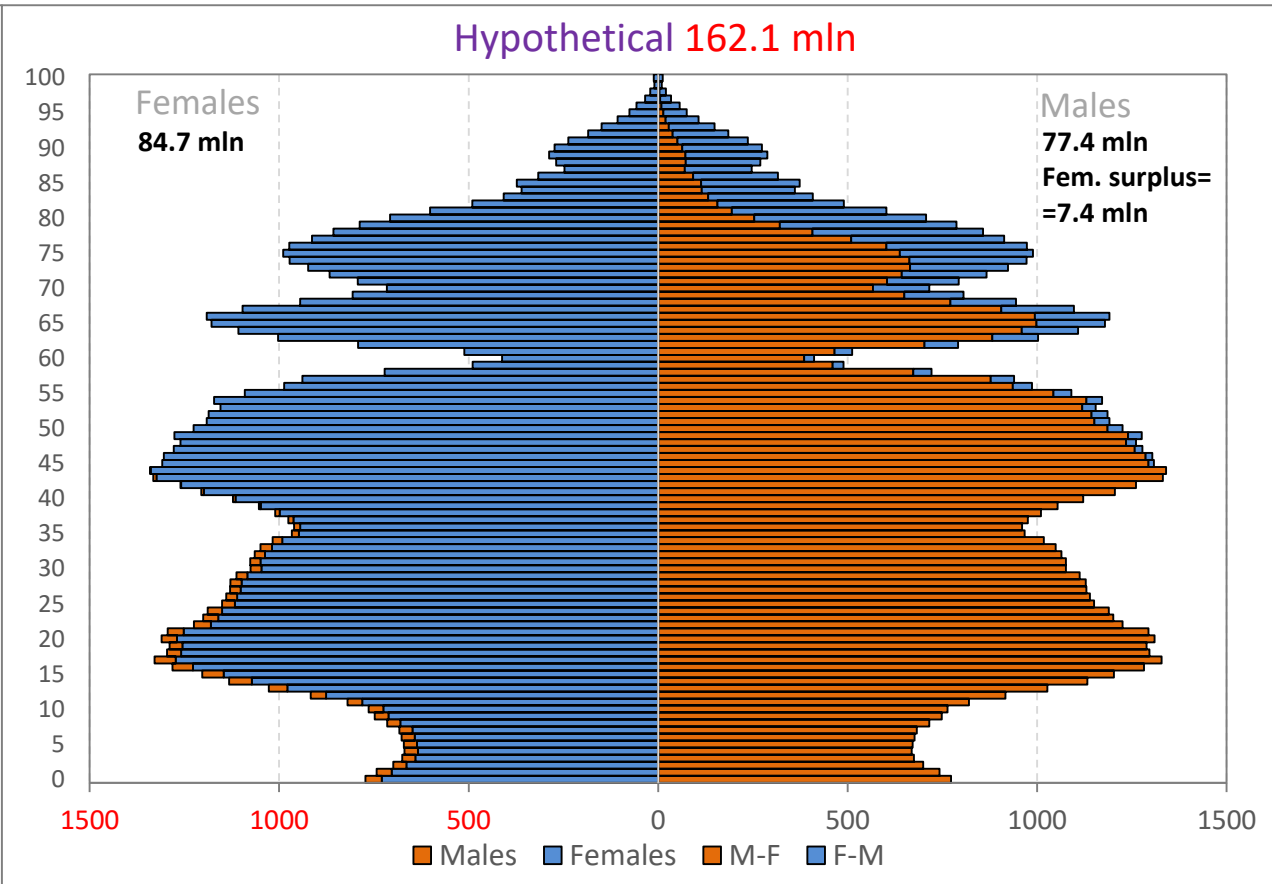
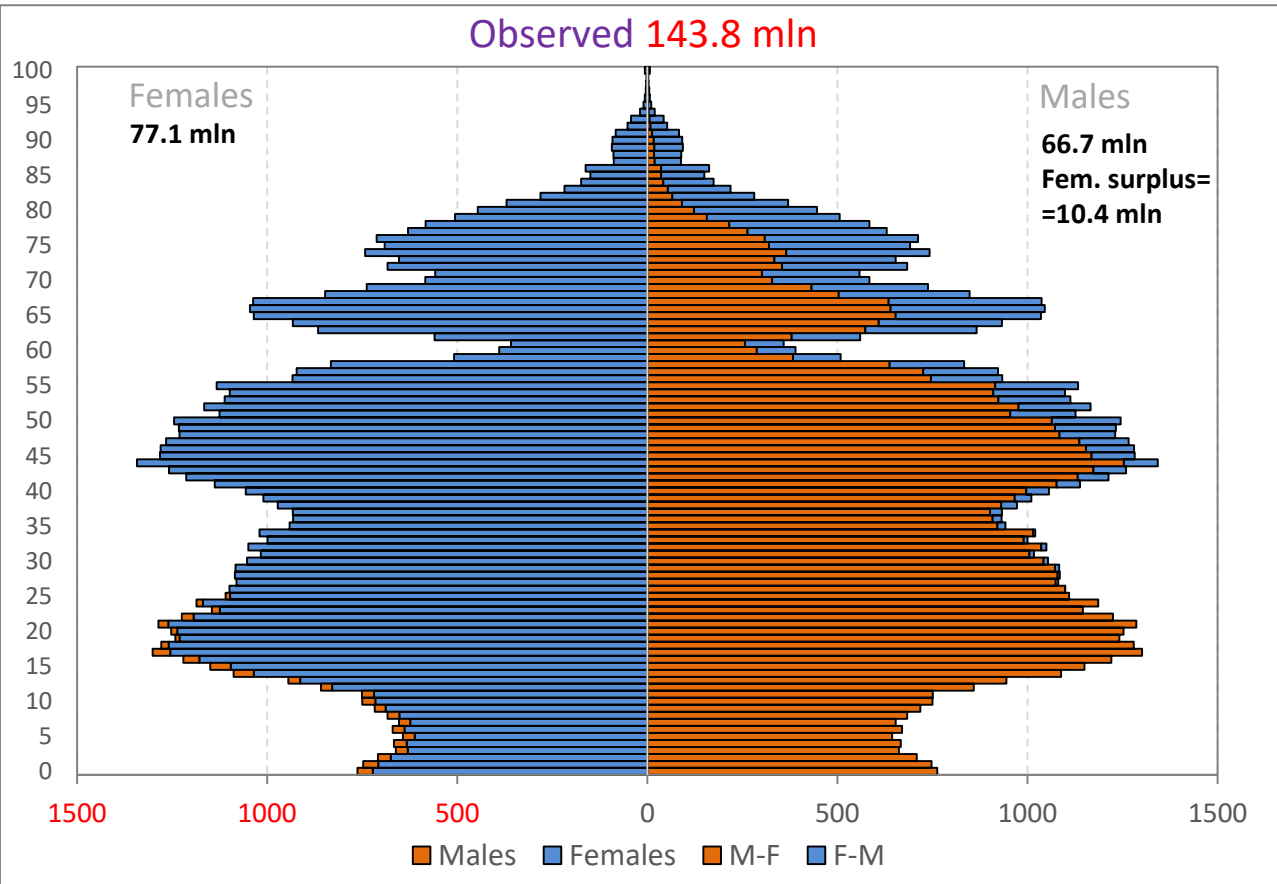
Scenario 1: Mortality decline after 1964 like the one in Finland. Observed fertility and migration.

[Losses_04-10-21.xlsx](#)



Observed and hypothetical age pyramids for Russia as of 01.01.2005

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Age pyramid in a country with unproblematic demographic history (Norway 2021)

[Losses_04-10-21.xlsx](#)



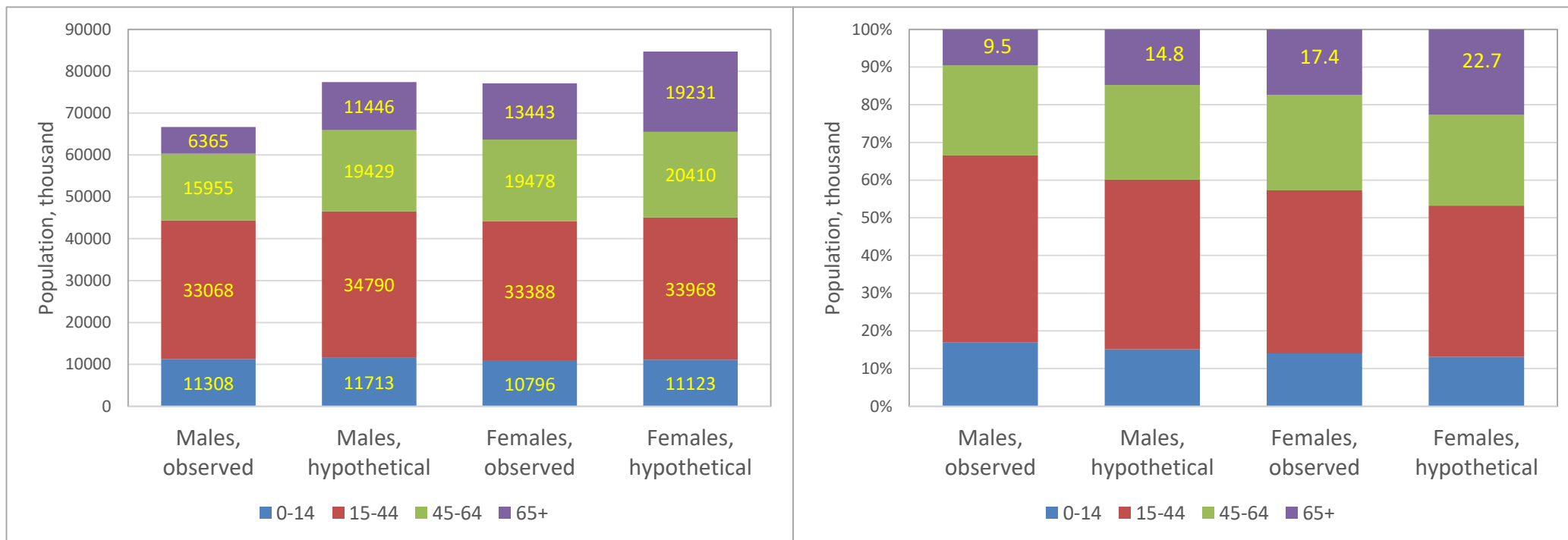
Population size and cumulative population losses by sex and age group as of 01.01.2005

Observed and hypothetical population sizes on the 1st of January 2005 (in thousand)

	Observed (Scenario 0)			Scenario 1			Difference			
	Males	Females	Female surplus	Males	Females	Female surplus	Males	Females	Both sexes	Female surplus
Population in thousand										
0-14	11308	10796	-512	11713	11123	-590	406	327	733	-79
15-44	33068	33388	320	34790	33968	-822	1722	580	2302	-1142
45-64	15955	19478	3522	19429	20410	981	3474	932	4406	-2541
65+	6365	13443	7078	11446	19231	7786	5080	5788	10868	708
All ages	66696	77105	10409	77378	84732	7354	10682	7627	18309	-3054
Age structure in percent										
0-14	17.0	14.0	-4.9	15.1	13.1	-8.0	3.8	4.3	4.0	2.6
15-44	49.6	43.3	3.1	45.0	40.1	-11.2	16.1	7.6	12.6	37.4
45-64	23.9	25.3	33.8	25.1	24.1	13.3	32.5	12.2	24.1	83.2
65+	9.5	17.4	68.0	14.8	22.7	105.9	47.6	75.9	59.4	-23.2
All ages	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0



The observed and the hypothetical population by broad age group as of 01.01.2005



Mean age

Males 35.5 → 38.9

Females 40.4 → 43.2

[Losses_04-10-21.xlsx](#)



Summary

Under the hypothetical scenario:

- By the beginning of 1992 (just after disintegration of the Soviet Union), the Russian population would be larger by 8 mln. By the beginning of 2005 (the year when the continuous mortality decrease began), the surplus would be about 18 mln. By the beginning of 2019 (the last year before the COVID-19 pandemic), the surplus would reach 23 mln.
- Although in 2005-19, the widening of the difference between the hypothetical and the real population sizes was slower than before, the widening continued because the mortality is still higher than that in Finland.
- By the beginning of 2005, the female surplus would diminish by about 3 mln. At ages 65+, the female to male ratio would be 1.7 instead of 2.1 in reality.
- By the beginning of 2005, the mean age of the population would increase by about 3 years, and the share of people aged 65+ would be 18.9% instead of 13.8% in reality.



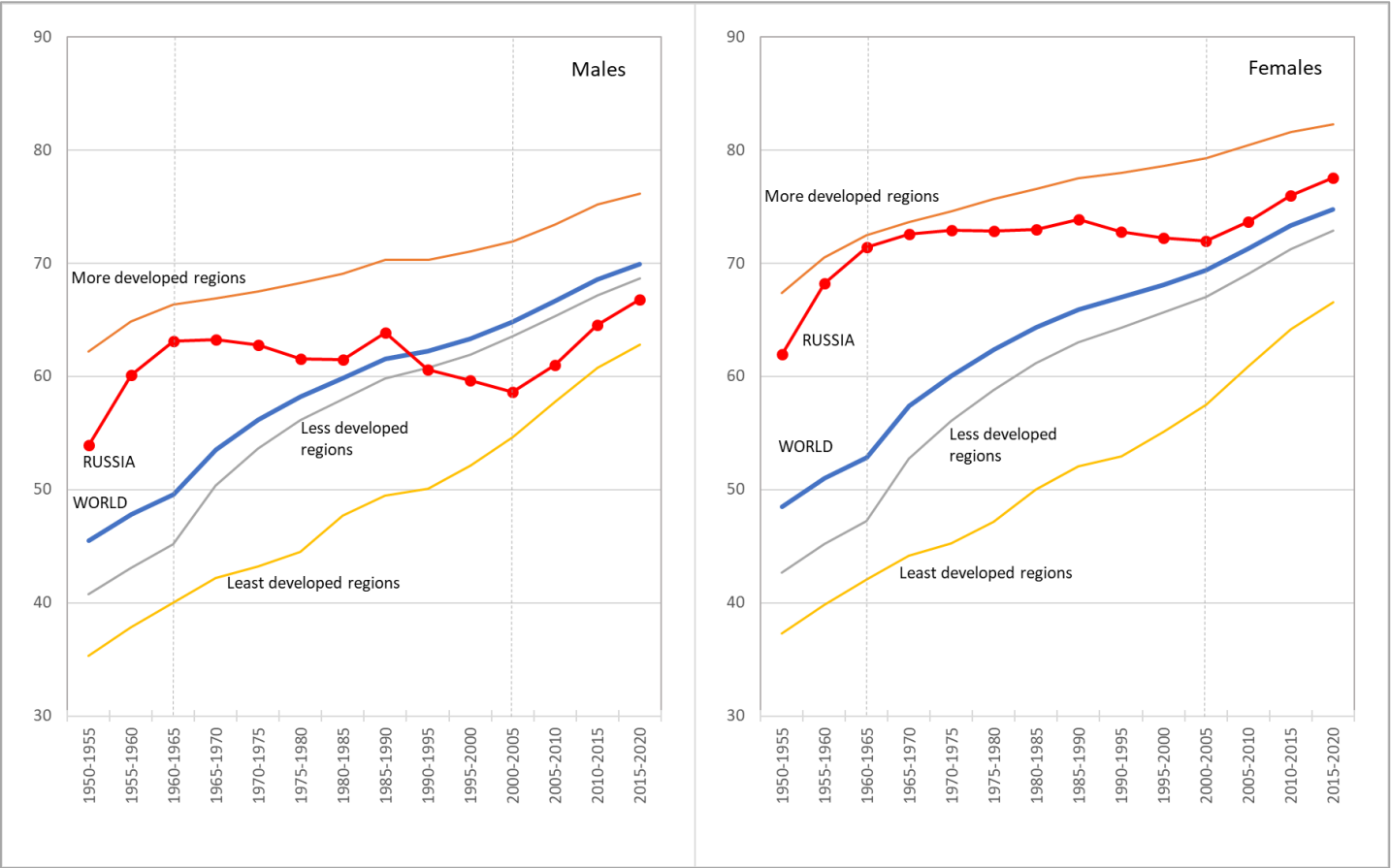
Thank you for your attention !



Additional



Life expectancy in Russia in the worldwide context



Annual life expectancy change in Russia, the whole world, and three groups of countries. In years.

	World	More developed regions	Less developed regions	Least developed countries	Russia
Males					
1950-1965	0.41	0.41	0.44	0.47	0.92
1965-2005	0.38	0.14	0.46	0.36	-0.11
2005-2020	0.34	0.28	0.34	0.55	0.55
Females					
1950-1965	0.44	0.51	0.46	0.48	0.95
1965-2005	0.41	0.17	0.50	0.39	0.01
2005-2020	0.36	0.20	0.39	0.60	0.37



Summary

In 1965, the Soviet Union was already an industrialized country with a majority of people living in urban areas, a high level of education, and universally available and free of charge primary health care. The economy was rapidly growing and the country was at the maximal height of economic and military power. The USSR and Russia as its core part had a realistic opportunity to cope with newly emerging health threats such as growing cardiovascular pathology and rising “man-made” diseases including the spread of unhealthy habits, accidents and violence, and environmental pollution.

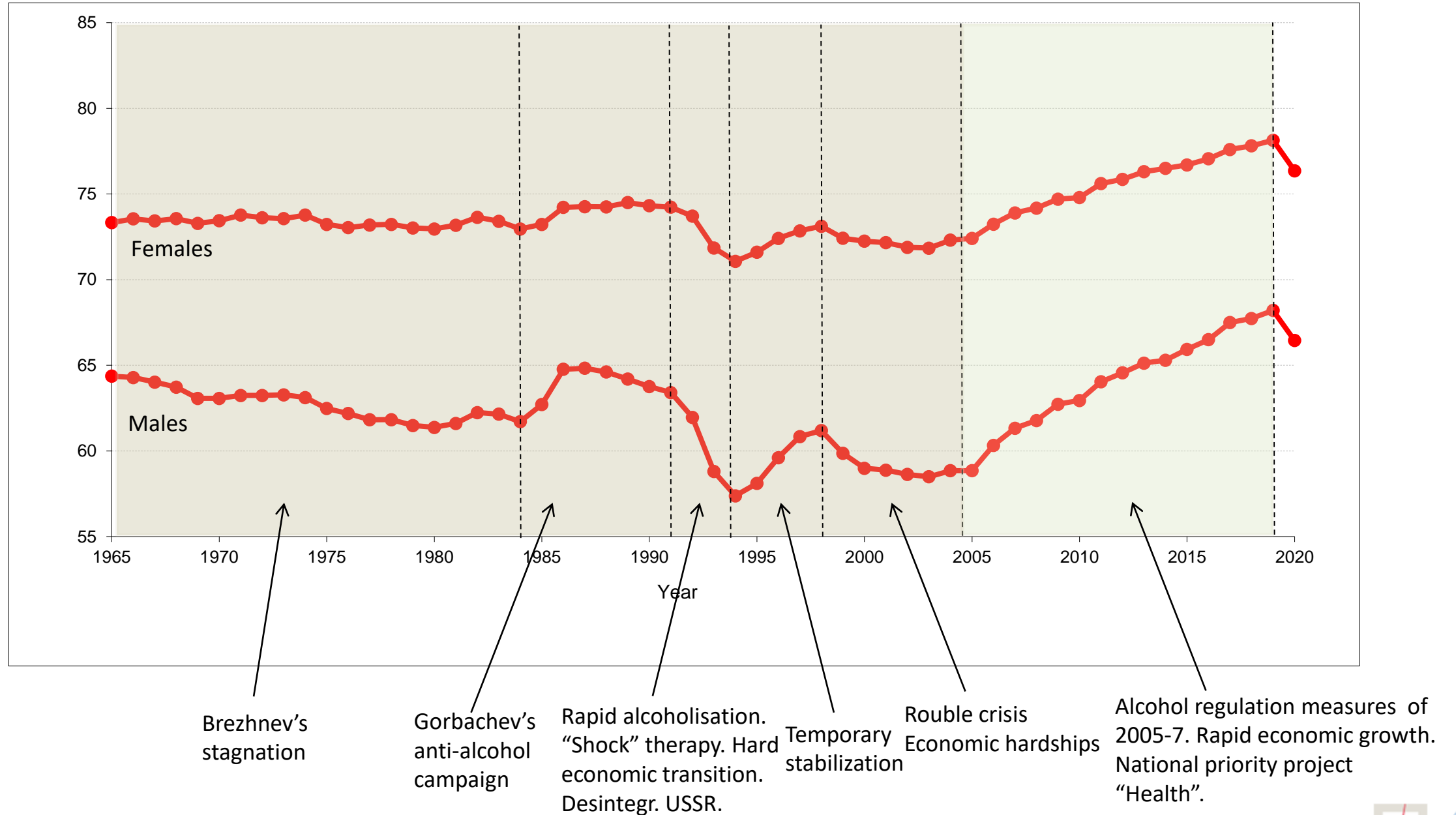
We know that (unlike most of the other industrialized countries) the USSR and Russia have been unable to address these challenges and experienced mortality increase during four decades from 1965 to 2004 with only two very short periods of recovery.

Among all industrialized countries, Finland (a part of the former Russian Empire before 1918) was the closest to Russia in terms of life expectancy and the age curve of mortality.

This study shows how the Russian population would look like in 1965-2019 if mortality in 1965-2019 did not increase but declined at the same speed as mortality in Finland.



LE changes and events in Russia's life



Linear growth of life expectancy at birth. A discovery by J.Oeppen & J.Vaupel (2002)

