Russia's Mortality Crisis

WILL WE EVER LEARN?

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We do not hear about it often, but the phenomenon is truly unprecedented: the transition to a market economy and democracy in the 1990s in Eastern Europe and post-Soviet Eurasia caused dramatic increases in mortality rates and shortened life expectancies, which led to a depopulation trend throughout the entire region. In particular, the steep upsurge in mortality and decline in life expectancy in Russia were the greatest ever recorded anywhere in peacetime and in the absence of catastrophes such as wars, plague, or famine. Between 1987 and 1994, Russia's mortality rate increased by a degree of 60 percent—from 1.0 to 1.6 percent—a level that has not been seen since the first half of the twentieth century. Even during the last years of Stalin's rule (1950-53), the mortality rate was nearly two times lower than in the 1990s. Meanwhile, in the same period, life expectancy declined from 70 to 64 years (see Figure 1).

The increase in mortality rates in post-communist states is truly exceptional, with only a few analogues in history. One is the transition from the Paleolithic to the Neolithic age from about 7000 to 3000 B.C., when life expectancy fell by several years—possibly due to changes in diet and lifestyle (i.e., the transition from hunting and gathering to horticulture and husbandry). Another comparable case is the increase in mortality during the time of Britain's Enclosure Acts and the Industrial Revolution from the sixteenth to the eighteenth century, when life expectancy fell by approximately 10 years (from about age 40 to slightly over age 30) because of changes in lifestyle, increases in income inequalities, and the impoverishment of the masses (see Figure 2). Other cases of reduced life expectancy due to social changes are rare and do not involve a fall in life expectancy by 6 years for the entire population of a large state.

The implications of Russia's mortality crisis are far reaching. Even the average official forecast envisages a reduction in the Russian population from the current 142 million to 139 million by 2031, whereas a more pessimistic forecast, which independent experts consider reasonable, predicts that the population will decline to 127 million.

Attempts to replenish these losses through immigration would mean adding to ethnic tensions that are already quite high.

Another implication of the crisis is that it is relevant not only for Russia, but for the world as a whole. It has revealed, like nothing before, the role of social stress on life expectancy. In a sense, it has been a natural experiment that happens only once in a thousand years, and it has showed us how much stress a society can take without dying out.

What explains Russia's mortality crisis? Of course, there was a transformational recession in the 1990s, output fell by 45 percent from 1989 to 1998, and the crime rate, murder rate, and suicide rate all sharply increased as well. However, the staggering increase in mortality—most pronounced among middle-aged men and caused mainly by cardiovascular disease—cannot fully be explained by "material" factors. A change in diet from meat and milk products to bread and potatoes cannot cause an increase in cardiovascular disease. Emissions of pollutants actually decreased with the collapse of industrial output. The major impacts of the deterioration in health care, as well as of smoking and changes in diet, could result in an increase in mortality but with a lag of at least several years, which was not the case here.

Whereas most experts would agree that a deterioration in diet, degradation of the health care system, and an increase in deaths from external causes (like accidents, murders, and suicides) contributed to the general rise in mortality in Russia and many other post-communist states, they would mostly not regard them as primary factors. Instead, two major alternative theories compete to explain the mortality crisis. One is that it was generated by stress factors. Another attributes the rise in mortality to alcohol consumption.

Stress factors are associated with the transition to a market economy and are created by a rise in unemployment, labor mobility, migration, divorce, and income inequality. It has been shown that a stress index constructed out of the aforementioned variables serves as a good predictor of changes in life expectancy in post-communist economies. Men in their 40s and 50s who lost their jobs (or had to move to another job or region), whose country or region encountered increased inequality, and who divorced their wives were the first candidates to die prematurely in the 1990s.

This helps explain a paradox of mortality change across Russia. The largest increases in mortality occurred in resource-rich regions (Northern and Eastern), which were relatively successful in terms of the dynamics of output. Resource industries were relatively more competitive than secondary manufacturing. Agriculture and production did not fall in these regions in 1989-98 during the transformational recession as much as they did in Southern and Western Russia.

But there was probably a tradeoff between performance and employment downsizing/restructuring. In absolute terms, the levels of unemployment in the better performing regions were very close to the national average despite their more favorable dynamics of output. Another "price of success" was higher labor outflows, and also growth in income inequalities (regions with smaller declines in industrial output in the 1990s did not exhibit lower income inequalities). As a result, it turns out that relatively

better-off regions in terms of output change were relatively worse off in terms of stress factors leading to higher increases in mortality and greater reductions of life expectancy.

The major alternative explanation for the mortality crisis attributes it to the increased consumption of alcohol that occurred in the early 1990s (see Figure 3). Some put forward the "demographic echo" theory, whereby the increase in mortality between 1989 to 1994 was a mere echo of the decrease that occurred during Mikhail Gorbachev's anti-alcohol campaign of 1985-87. The problem with this theory is that the echo in this case turns out to be several times larger than the initial shock.

Nonetheless, at first glance, it does appear that alcohol consumption is closely related to deaths from external causes (murders, suicides, and accidents) as well as to the general mortality rate (see Figures 1 and 3). Death rates per 100,000 inhabitants due to alcohol poisoning increased from 10 in 1990-91 to nearly 40 in 1994, exceeding the number of deaths due to suicide and murder (see Figure 3). Increased intake of alcohol, in turn, is attributed to a decline in the relative prices of spirits in the early 1990s.

But there are problems with the alcohol explanation. First, there are some periods when per capita alcohol consumption and the overall death rate were moving in opposite directions. Between 2002 and 2009, death rates from external causes, including murders, suicides, and poisoning, fell against the background of rising or stable alcohol consumption levels. Also, already by 2007, deaths from alcohol poisoning fell to late Soviet-era levels even though the overall mortality rate remained considerably higher (see Figures 1 and 3). This is to suggest that there were other reasons for high mortality.

Second, according to official statistics and alternative estimates, the levels of per capita alcohol consumption in the 1990s were equal to or lower than the early 1980s (before Gorbachev's anti-alcohol campaign), whereas the death rate from external causes doubled and the total death rate increased by half. It appears, therefore, that what occurred was a simultaneous increase in variables in the early 1990s (total death rate and death rate from external causes, as well as alcohol consumption) all driven by another factor, very likely to be stress.

Third, there is abundant evidence that stress factors played a role in influencing mortality irrespective of alcohol consumption, when one compares Russia with other communist and post-communist states. Research indicates that a stress index (composed of the above-mentioned variables: increases in unemployment, labor turnover, migration, income inequalities, and divorces) is a good predictor of cross-country differences in mortality growth in the first five years of a transition. Some post-Soviet states that proceeded with more gradual reforms (Uzbekistan and Belarus, for example) managed also to preserve their institutional capacity and to mitigate a collapse of output and increase in mortality. In Central Europe, both the reduction of output and the increase in mortality was less pronounced than in the post-Soviet states. In Asia, China and Vietnam did not have any transformational recession during their transitions. Life expectancy in these countries grew constantly (although in China, it was slow compared to previous periods and to other countries with similar levels of GDP per capita and life expectancy). And there is at least one case, Cuba, where a reduction of output (about 40

percent in 1989-94) did not translate into a mortality crisis: life expectancy in Cuba increased from 75 years in the late 1980s to 78 years in 2006.

To summarize, the Russian mortality crisis of the 1990s was caused by a shock-therapy-type marketization of the economy, which led to a dramatic rise in stress factors. These included income inequality, unemployment, labor turnover, migration, crime, and divorce. Such factors were mostly responsible for the unprecedented 60 percent increase in Russia's mortality rate. Alcohol consumption, although strongly correlated with the mortality rate, was most likely not the core cause but a symptom of the same stress factors.

For further details see:

- Vladimir Popov, "Mortality Crisis in Russia Revisited: Evidence from Cross-Regional Comparison," MPRA Paper No. 21311, March 2010.

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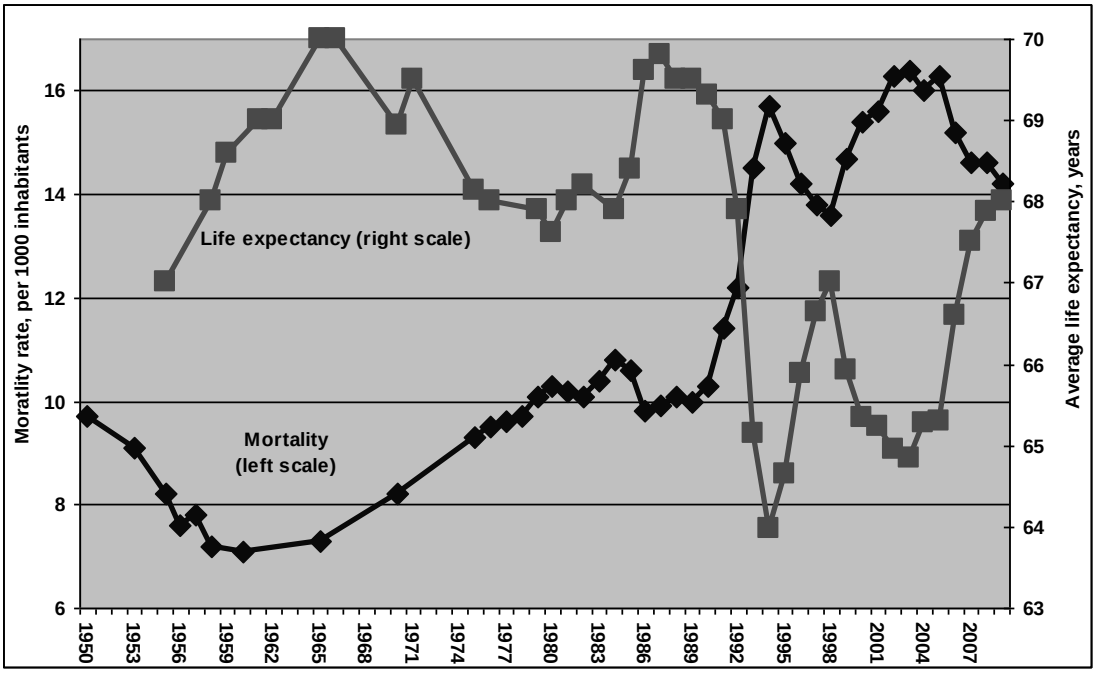
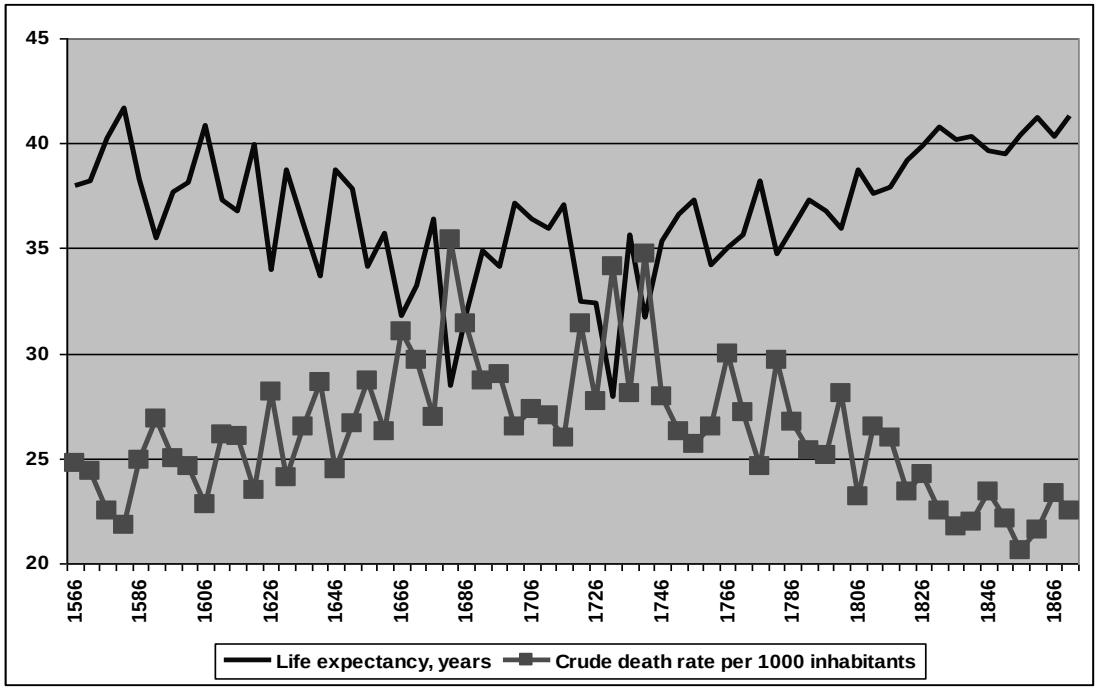
Figure 1. Mortality Rate (per 1000) and Average Life Expectancy (years).



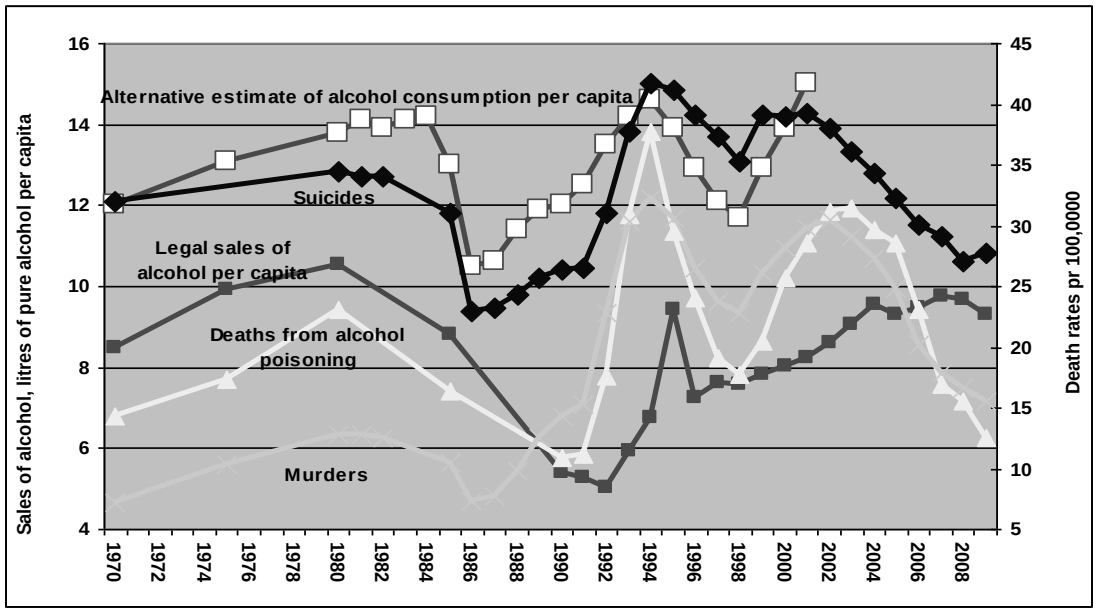
Source: *Goskomstat.*

Figure 2. Mortality Rates and Life Expectancy (at Birth) in the Course of Early Urbanization in England Between 1540-1870.



Source: E. A. Wringley and R.S. Schofield, *The Population History of England, 1541–1871: A Reconstruction*. London: Edward Arnold, 1981.

Figure 3. Sales of Alcohol, Liters of Pure Alcohol per Capita, and Death Rates per 100,000 from Alcohol Poisoning, Murders, and Suicides.



Source: For death rates, WHO database and *Goskomstat*. For legal sales of alcohol, *Goskomstat*. For alternative estimates of alcohol consumption, *Demoscope*, No. 263-264, Oct. 30–Nov. 12, 2006