Journal of Economic Perspectives—Volume 19, Number 1—Winter 2005—Pages 107–130

Autopsy on an Empire: Understanding Mortality in Russia and the Former Soviet Union

Elizabeth Brainerd and David M. Cutler

The 1990s were a decade of turmoil for the formerly socialist countries. Besides the political, economic and social upheavals endured by these populations, many of these countries experienced a demographic disaster in the form of sharply rising death rates. In Russia, male life expectancy at birth fell from 64.2 years in 1989 to 57.6 years in 1994, a decline of 6.6 years in just half a decade. Female life expectancy at birth fell by 3.3 years over the same period. To put this decline in perspective, it took the past 30 years for the United States to increase life expectancy by this much. Russia's life expectancy today ranks 122nd in the world, at the same level as North Korea and Guyana.

The mortality crisis is not limited to Russia. Across the western countries of the former Soviet Union—the countries that we term "the mortality belt" and that range from Estonia in the north to Ukraine in the south—there have been significant declines in male life expectancy at birth, ranging from 3.3 years (Belarus) to nearly 5 years in Estonia and Latvia. Life expectancy for women fell substantially as well.

But not all countries fared this poorly. The countries that directly border this "mortality belt" and that also experienced a severe economic shock in the 1990s—Poland, the Czech and Slovak Republics, Hungary and Romania—recorded

■ *Elizabeth Brainerd is Associate Professor of Economics, Williams College, Williamstown, Massachusetts. She is also a Research Affiliate, Center for Economic Policy Research, London, United Kingdom; Research Fellow, Institute for the Study of Labor (IZA), Bonn, Germany; and Research Fellow, William Davidson Institute, University of Michigan, Ann Arbor, Michigan. David M. Cutler is Professor of Economics, Harvard University, and Research Associate, National Bureau of Economic Research, both in Cambridge, Massachusetts. Their e-mail addresses are ⟨Elizabeth.Brainerd@williams.edu⟩ and ⟨dcutler@harvard.edu⟩, respectively.*

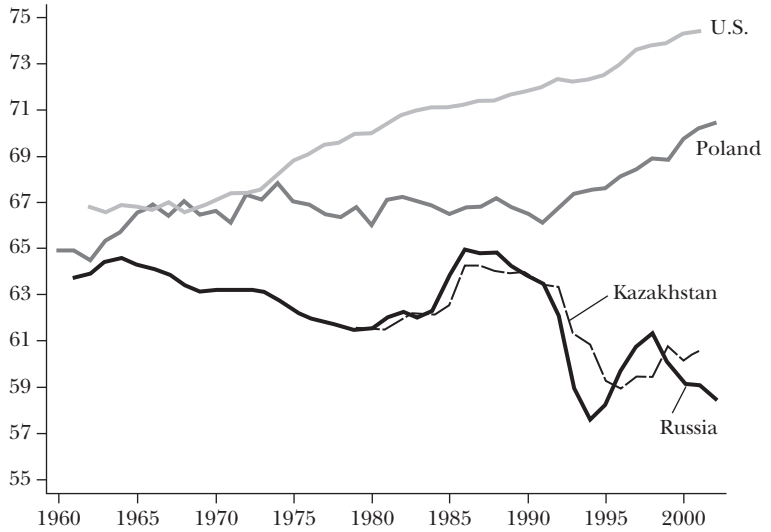
negligible increases in mortality rates during their transition from communism, and since the mid-1990s many of these countries have enjoyed the fastest increases in life expectancy recorded in their recent history.

Understanding why mortality in Russia and many of its neighboring countries increased so rapidly is a central research and policy question. Using both existing findings and our own analysis of cross-country and Russian survey data, we discuss and analyze possible causes of the mortality crisis in the former Soviet Union, as well as the contrasting dramatic improvement in mortality rates in the late 1990s in nearby countries. We begin by describing the overall trends in death rates in the region, providing an overview of changes in mortality by region, age and cause. We next explore the possible causes of the dramatic swings in mortality across the region, focusing on six broad factors that have been discussed in the literature: the breakdown in the medical care system (Ellman, 1994); traditional risk factors such as obesity and smoking; increased alcohol consumption (Leon et al., 1997); changes in the composition of the diet (Ginter, 1996); material deprivation (Field, 1995); and levels of psychosocial stress and changing expectations about the future (Shapiro, 1995; Cornia and Paniccià, 2000). Our results point to two factors as being most important: alcohol, especially as it relates to external causes of death (homicide, suicide and accidents) and stress associated with a poor outlook for the future. However, a large residual remains to be explained.

Mortality Trends in the Former Soviet Union

We start by examining mortality trends in Russia and the other regions of the former Soviet Union. Figure 1 illustrates the erratic changes in life expectancy experienced in most of these countries in recent years, in contrast to the slowly evolving changes in life expectancy recorded in the United States. While life expectancy for the Russian republic had nearly reached that of the United States by the early 1960s, it stagnated over the next decade, resulting in a nearly eight-year gap in life expectancy between Russia and the United States by 1980. The post-1984 period is marked by large swings in life expectancy. Russia experienced a striking improvement in mortality during Gorbachev's anti-alcohol campaign (1985–1987), when life expectancy increased nearly three years. From there, however, the situation deteriorated dramatically. The deterioration began in 1990 and lasted until the mid-1990s, coincident with the period of greatest economic, political and social instability in most countries. The six-year reduction in male life expectancy at birth in Russia between 1989 and 1994 is almost unprecedented in its speed and scope, though it was nearly matched by the declines in life expectancy in many of Russia's western neighbors. Over the same period, male life expectancy fell by 4.6 years in Estonia, 4.5 years in Latvia, 4.2 years in Lithuania and 3.7 and 3.3 years, respectively, in Ukraine and Belarus. After 1994, the situation began to improve. Between 1994 and 1998, life expectancy in Russia increased by over 3 years. Most of the gains were eroded, however, following Russia's 1998 financial crisis; male life

Figure 1
Trends in Male Life Expectancy at Birth, 1958–2002



expectancy fell continually from peak of 61.3 years in 1998 to only 58.5 years in 2002.[1]

Life expectancy also fell in central Asia and the Caucasus, the former Soviet republics to the south and east of Russia, but in most countries the declines were neither as dramatic nor long lasting as in the western former Soviet Union. The evolution of life expectancy in Kazakhstan is also shown for illustration in Figure 1. Kazakhstan registered the largest decline in life expectancy in this group, with male life expectancy at birth falling by five years between 1989 and 1996; the smallest decline in this region occurred in Uzbekistan, where male life expectancy fell by 1.6 years between 1990 and 1994. Among the three Caucacus countries—Armenia, Azerbaijan and Georgia—declines in life expectancy ranged from 1.6 years (Armenia) to 4.2 years (Azerbaijan) in the early 1990s.

In contrast, none of the east European countries experienced a prolonged decline in life expectancy in the 1990s, and some did not see any material setback, despite large declines in per capita income, rising unemployment and sweeping

[1] Although many statistics about the former Soviet bloc are unreliable, demographic data are believed to be an exception: registration of vital events is nearly complete, and the coding of broad categories of death is reasonably accurate (Anderson and Silver, 1997; Shkolnikov et al., 2001). As a result, there is widespread agreement among demographers and epidemiologists that the fluctuations in mortality rates we describe are real and do not reflect a change in how the statistics were collected. However, mortality data are less reliable in some countries of central Asia and the Caucacus. Inconsistencies in the reporting of deaths at the oldest ages have been reported in some countries, and Georgia implemented a fee for death registration in the early 1990s, which likely led to underreporting of deaths (Badurashvili et al., 2001). Data for these countries should be interpreted with caution.

economic and political changes. The most successful economic reformers—the Czech Republic, Poland, Hungary and Slovenia—registered near-continual increases in life expectancy since the start of their reforms. This experience differs not only with the neighboring "mortality belt" countries, but also with the experience of the previous three decades, in which life expectancy stagnated in a pattern similar to that of the Soviet Union. Life expectancy did fall in Bulgaria and Romania, but these declines are small relative to those that occurred in the western region of the former Soviet Union. The life expectancy experience of Poland, which is the largest country by population in eastern Europe and typical for the region, is shown in Figure 1. In general, the patterns for female life expectancy at birth are similar to those for men, although the magnitude of the changes is smaller.[2]

Mortality and the Economy

Changes in mortality are clearly related to the economic health of the country. Figure 2 shows the relation in more detail: we relate the log change in age-standardized male mortality between 1989 and 1994 to the log change in real per capita GDP over the same time period. The two are highly related: the correlation coefficient is –.60. Countries like Ukraine with poor economic growth had very large increases in mortality. Poland, the Czech Republic and Slovenia are on the opposite end. Even in the context of this relationship, however, Russia is an outlier: mortality increased more than could be expected given the change in reported GDP. The mortality increase in Russia is even more extreme if the decline in Russia's GDP is substantially overstated (as Shleifer and Treisman argue is likely in their paper in this symposium). However, the relationship between mortality change and GDP growth is less true over the subsequent years of the 1990s. When we redid this calculation for the period from 1994 to 2000, the best-fit line appears nearly horizontal, with a correlation of just –.13. Moreover, for the period from 1994–2000, Russia is almost exactly on the best-fit line, with a roughly average performance for this group of countries in both economic growth and mortality.

The strong correlation between mortality change and economic growth begs for a more detailed analysis. What mechanisms underlie the link between economic growth and health? Why did the relationship get weaker over time? Why was Russia an outlier in the 1989–1994 period?

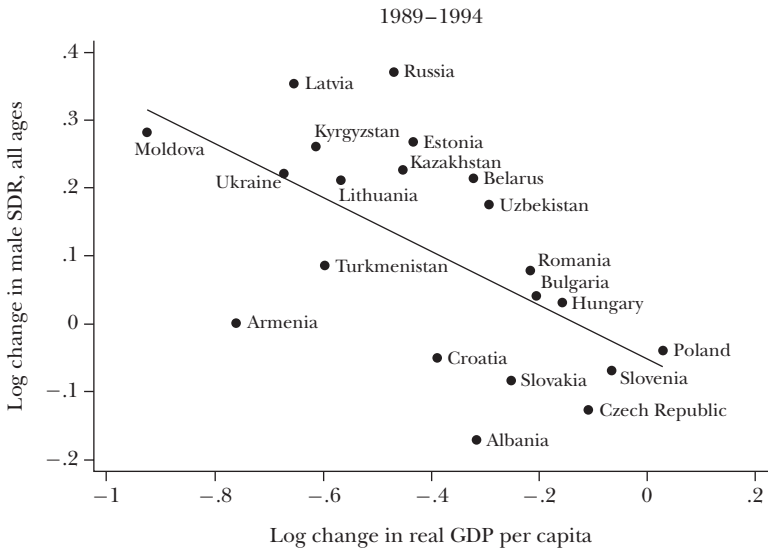
Deaths by Age, Cause and Socioeconomic Status

In countries facing economic shocks, mortality often increases most for infants and the elderly (Cutler et al., 2002). The mortality increases in the countries of the former Soviet Union do not follow this expected pattern, however. During the period from 1989 to 1994, the years of the largest increase in death rates, the death rate for Russian men aged 35–44 rose by 74 percent. Similar although slightly lower

[2] See the appendix of Brainerd and Cutler (2004) for graphs showing trends in male and female life expectancy in all countries of eastern Europe and the former Soviet Union.

Figure 2

Correlation Between Log Change in Male Standardized Death Rate and Log Change in Real GDP Per Capita, 1989 to 1994



Notes: For several countries GDP data are missing for 1989, so Figure 2 uses 1990 data instead. Georgia, Bosnia-Herzegovina, FYR Macedonia and Serbia are omitted due to missing data.

increases were seen throughout men's ages from 25–54. Meanwhile, mortality among Russian men aged 65–74 rose by only 25 percent between 1989 and 1994; for men aged 75–84, mortality rates increased by just 14 percent. The pattern for women is similar, again with a peak around ages 35–44 and substantially smaller increases at older ages. Infant mortality (death during the first year of life) decreased, and death rates for children under the age of 14 changed little.

Table 1 shows data on the share of the total increase in mortality that is accounted for by different causes. Forty-two percent of the increase in male mortality was the result of greater mortality from cardiovascular disease; within this category, 21 percentage points of the total increase in male mortality was due to the increase in deaths due to ischaemic heart disease (a reduced flow of blood to the heart muscle). Cardiovascular disease is the leading cause of death in Russia, as in the United States, so the importance of this change is not surprising. However, we typically think of cardiovascular disease as a long-term process responding to life events building up over many years or decades, so the magnitude of this increase in a short time is unusual.

Second in importance are external causes of death. The most important items in this category are accidental alcohol poisoning, unspecified violent deaths, homicide and suicide. A well-hidden secret of the Soviet Union was the extremely high death rate due to external causes. In 1989, for example, death due to external causes was three times higher among men in Russia than in the European Union.

Table 1
Contribution to Change in Mortality by Cause, all Ages, Russia, 1989–1994

	Men	*Women*
Percentage contribution to change in death rate:		
Circulatory diseases	41.8	46.6
Of which:		
Ischaemic heart disease	21.3	15.5
Cerebrovascular disease	10.4	16.7
Other circ. diseases	10.1	14.4
External causes	32.7	20.1
Of which:		
Accidental alcohol poisoning	7.0	5.7
Homicide	4.7	3.6
Suicide	4.5	1.0
Other external causes	6.3	4.2
Ill-defined conditions	10.0	21.0
Pneumonia	3.3	1.4
Diabetes	0.5	2.0
Bronchitis	2.6	0.0
Tuberculosis	1.9	0.5

Deaths due to external causes rose dramatically in Russia in the early 1990s, virtually doubling for both men and women. These changes account for one-fifth (women) to one-third (men) of the total increase in deaths between 1989 and 1994. Both suicide and homicide are important across the region; by the mid-1990s Lithuania had achieved the dubious distinction of having the highest male suicide rate in the world. We return to this cause, especially as it relates to alcohol, at a later point.

Official Russian data do not differentiate deaths by socioeconomic status (nor do they in the United States), but other evidence suggests that mortality rates increased the most among lower socioeconomic groups. For example, men with low levels of education were disproportionately affected by the increase in mortality (Shkolnikov et al., 1998; Plavinski, Plavinskaya and Klimov, 2003). Data from the Russian Longitudinal Monitoring Survey (described below) support this observation. Over the period 1995–2001, the average annual mortality rate of people aged 30–55 was 0.74 percent. The mortality rate ranged from 1.86 percent of those with primary education to 0.23 percent of those with higher education.

Sources of Data

In the next sections, we assess different explanations for these patterns in mortality. We rely on two main approaches, one using national-level data and one using data from a Russian survey of households.

For the analysis using national data, we focus on the 23 countries of the former Soviet Union and eastern Europe. We use the January 2004 mortality data from the

WHO Mortality database at ⟨http://www.euro.who.int/hfadb⟩, supplemented with data from national statistical yearbooks. When we carry out regression results, we focus on explaining mortality among prime-age men (ages 25–64), since this group is where the mortality crisis is most acute. We have also examined mortality rates for women, and since the results are similar, we do not report them here. To isolate the theories we consider, we look both at overall mortality and also at mortality grouped into three broad causes: cardiovascular disease, external causes of death and all other. Economic and social variables for these countries are from the WHO Health for All Database (2004), the World Bank's *World Development Indicators* (2003), the EBRD *Transition Report* (2003) and the TransMONEE database (2003).

Our second approach is to use panel data from the Russian Longitudinal Monitoring Survey (RLMS). The RLMS is a nationally representative panel survey conducted from 1992–2002; however, because of concerns about data quality in the early years, the results we report use the data from 1994–2002. The sample comprises roughly 4,000 households and 11,000 individuals in each round. The RLMS contains extensive information on income, health status, employment and demographic characteristics of individuals and families, as well as on individual behaviors such as smoking and drinking. A detailed description of the sampling design and implementation of the RLMS is available at the RLMS website at ⟨http://www.cpc.unc.edu/rlms⟩. For families with at least one member surviving, the survey asks if anyone died during the time period. Our analysis of mortality in subsequent sections is based on these multiple-person households (which include about 85 percent of the population).[3] Trends in mortality in the RLMS match trends from the aggregate data, although the level of mortality in the RLMS is 10–20 percent lower than the national data. Using these data, we can control for a number of individual characteristics: age, education, income, year of survey and region of the country. We also control for past medical events such as whether the person ever had a heart attack, was diabetic or had a stroke.

Suspect 1: The Acute Medical Care System

One of the Soviet Union's most remarkable achievements was the development of a universal health care system that extended across the country and provided a wide range of medical services even in the remotest areas; for a description of the Soviet health care system, see Knaus (1981) and Ryan (1989). The system was particularly successful in reducing deaths due to infectious diseases and deaths in infancy. The only medical expenditures paid for out-of-pocket were those for (subsidized) prescription drugs and to hospital staff to ensure better care. (Significant payments to doctors—on the order of one to two months of average

[3] In regressions using these data, we stack each round of the survey so that each regression uses all rounds of the survey and includes multiple observations on individuals. Standard errors are clustered by individual to correct for these multiple observations.

wages—were reported, but relatively uncommon.) Central planning did hamper the effectiveness of the health care system in many areas, however. Soviet central planners emphasized growth in quantitative indicators such as doctors and hospital beds per capita, rather than quality of care or results, and even set quantitative targets for the number of beds occupied and the number of procedures performed in hospitals (Twigg, 1998). There were waits for medical care, as for everything else in the Soviet Union. However, the old Soviet health care system did deliver a substantial volume of care.

This health system has deteriorated since the disintegration of the Soviet Union. Government support for health services declined and out-of-pocket expenditures for patients increased sharply. Many hospitals and clinics in the former Soviet Union have opened fee-paying services to compensate for funding shortfalls. Data from the Russian Longitudinal Monitoring Survey indicate a dramatic increase in the number of patients paying for care in Russia and in the price of that care: in 1994, only 14 percent of individuals hospitalized in the month prior to the survey reported that they paid money for medical care or treatment while in the hospital; of those that paid, the median payment amounted to 41 percent of the median monthly per capita income. By 1998, 45 percent of respondents indicated that they had paid for medical care while in the hospital, and the median payment exceeded two-thirds of the median monthly per capita income. Anecdotal evidence indicates that while modern drugs are prescribed for conditions such as cardiovascular disease, many patients cannot afford to purchase them (Reiss et al., 1996). Funding difficulties may also have led to a decrease in the capacity and effectiveness of the health care system.

Difficulties in Russia's medical care system might help to explain the increase in mortality (Ellman, 1994). We first consider curative acute medical care, like the high-tech treatment of people who have had an adverse health event. We then consider preventive care, like antihypertension medication that reduces the probability of a stroke or heart attack.

To assess the importance of changes in acute care in explaining Russia's mortality crisis, one would like to identify whether the increase in death rates was due to an increase in the number of adverse health events, such as heart attacks and strokes, or whether it is due to an increase in the fatality rate after such events occur, which would suggest a role for declining health care services in explaining the mortality crisis. Although data are limited, the fatality rate after an adverse health event seems to have changed little during the 1990s. For example, an extensive study of stroke incidence and mortality in Novosibirsk (located in western Siberia) between 1987 and 1994 found that while the case fatality rate was relatively high (28–43 percent), case fatality rates remained unchanged over the period; the substantial increase in stroke mortality in Novosibirsk was due to an increase in attacks rather than to higher fatality rates (Stegmayr et al., 2000). Indeed, medical care for some types of illnesses apparently improved in Russia in the 1990s: the recent decline in childhood leukemia deaths, for example, is attributed to improvements in care (Shkolnikov, McKee, Leon and Chenet, 1999).

Other evidence comes from the maternal mortality rate (death during childbirth), which is almost entirely preventable through medical intervention and thus provides a good measure of how the medical care system is providing acute care. The maternal mortality rate did not change appreciably in Russia over the 1990s, rising from 49.0 deaths per 100,000 live births in 1989 to 53.3 deaths in 1995, then falling to 39.7 deaths by 2000. This rate is high compared with high-income countries like the United States, where the maternal mortality rate in 2000 was 9.8 per 100,000 live births. But the Russian figures suggest that the capacity of its basic health care system remained essentially unchanged.

In Table 2, we present a series of cross-country regression results for various explanations discussed throughout this paper. The dependent variable in these regressions is the log change in mortality rates for men aged 25–64, using all countries among the 23 transition economies of the former Soviet bloc for which data are available. The first column of Table 2 reports the relation between log changes in prime age male mortality and log changes in maternal mortality between 1989 and 2000, which in this regression is our measure of the acute care medical system. There is little relation between maternal mortality and male mortality. Indeed, adult male mortality actually fell in countries where maternal mortality rose, though not statistically significantly.

We considered other measures of the efficacy of the medical system as well, focusing more directly on the availability of medical care resources. The second column of Table 2 relates the change in male mortality to the change in public and private medical spending. While such a regression clearly raises endogeneity issues (is a change in health outcomes causing a change in health care spending, or is a change in health care spending causing a change in health outcomes?), our hope is that the massive changes in health care systems over this time period generate large differences in medical spending across countries. However, neither measure is statistically significant. Overall, there is little evidence that a breakdown in the acute health care system is a primary cause of the mortality crisis.

The situation with preventive medications is more difficult to assess. The Russian Longitudinal Monitoring Survey indicates whether a person takes "any medication," but not the type of medication. Still, use of "any medication" did not decline in Russia: in both 1993 and 2000, about 38 percent of Russian adults reported taking any medication. There is no broad-scale evidence that preventive care of this sort decreased.

Suspect 2: Traditional Risk Factors for Cardiovascular Disease

The finding that the case fatality rate for cardiovascular disease did not increase indicates that Russia experienced an increase in the incidence of serious cardiovascular illnesses. Five traditional risk factors for cardiovascular disease have been identified in the (western) literature: hypertension or high blood pressure, high cholesterol, diabetes, obesity and smoking. However, none of these factors

Table 2
Cross-Country Analysis of Factors Leading to Increased Mortality, 1989–2000
(*dependent variable: log change in standardized mortality rate, all causes, men age 25–64*)

Independent variables (log changes)	*(1)*	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*
Medical system							
Maternal mortality rate	−.059						
	(.068)						
Public medical spending		.087					
		(.070)					
Private medical spending		.016					
		(.021)					
Alcohol consumption[a]			.243*				
			(.133)				
Fruit and vegetable consumption[a]				−.178			
				(.121)			
Expectations and stress							
Male suicide rate					.274*		
					(.138)		
Survey expectations[b]						.452	
						(.483)	
Minimum wage/average wage							−.098*
							(.051)
N	22	22	22	23	23	17	18
R^2	.036	.112	.135	.095	.287	.082	.133

Note: Robust standard errors are reported in parentheses.
[a] Change between 1992 and 2000 for most countries.
[b] Change between 1991/1992 and 1996 for most countries.
* Statistically significant at the 10 percent level or less.

changed in Russia during the 1990s in a way that seems likely to explain the sharp increase in cardiovascular disease mortality.

With regard to obesity, a standard measure is the Body Mass Index (BMI)—weight in kilograms divided by height in meters squared. According to the World Health Organization, a person is overweight if the BMI is greater than 25 and less than 29.9 and obese if BMI is 30 or higher. Obesity has a direct impact on health and is also related to high blood pressure, high cholesterol and diabetes. Over the period from 1993–2000, obesity increased only slightly for Russian men (10 percent in 1993 to 12 percent in 2000) and women (27 percent in 1993 to 28 percent in 2000).[4]

We assess the importance of obesity changes using the individual data from the RLMS. Table 3 presents a series of regressions for adult male mortality. In all cases,

[4] The level of obesity among Russian men is only half the level in the United States (Cutler, Glaeser and Shapiro, 2003). For women, obesity rates are about the same.

Table 3

Logistic Regressions for Men Age 18 and Over Dying in the Russian Longitudinal Monitoring Survey, 1994–2002

(*dependent variable: dummy variable for whether the person died*)

Independent variable	*(1)*	*(2)*	*(3)*	*(4)*	*(5)*
Age	1.06***	1.06***	1.06***	1.06***	1.06***
	(12.3)	(12.4)	(12.7)	(12.0)	(12.4)
Log (income per capita)	−.903*	−.902*	−.920	−.906*	−.906*
	(1.75)	(1.77)	(1.40)	(1.70)	(1.68)
Poor health (1 = yes)	2.26***	2.27***	2.31***	2.26***	2.27***
	(6.34)	(6.39)	(6.47)	(6.35)	(6.34)
BMI	−.729***	−.729***	−.732***	−.729***	−.728***
	(3.66)	(3.63)	(3.65)	(3.62)	(3.64)
BMI squared	1.005***	1.01***	1.01***	1.01***	1.01***
	(3.38)	(3.35)	(3.39)	(3.32)	(3.36)
Ever had a heart attack	1.50**	1.51**	1.53**	1.52**	1.51**
	(2.31)	(2.34)	(2.39)	(2.37)	(2.36)
Diabetic	1.76***	1.77***	1.79***	1.78***	1.77**
	(2.44)	(2.48)	(2.52)	(2.49)	(2.48)
Ever had a stroke	1.79***	1.81***	1.83***	1.80***	1.82***
	(2.68)	(2.74)	(2.78)	(2.72)	(2.74)
Smoker	1.60***	1.57***	1.56***	1.56***	1.57***
	(3.80)	(3.62)	(3.53)	(3.59)	(3.62)
Alcohol consumption	—	1.001**	1.001**	1.001**	1.001**
		(2.25)	(2.16)	(2.22)	(2.25)
In poverty or extreme poverty	—	—	1.10	—	—
			(0.59)		
Received fuel subsidies	—	—	−0.974	—	—
			(0.06)		
Sold goods for food	—	—	1.19	—	—
			(0.69)		
% expenditures on food	—	—	1.15	—	—
			(0.48)		
Positive expectations	—	—	—	−.706	—
				(1.59)	
Min. wage as % of average wage	—	—	—	—	1.01
					(0.38)
No. died	432	432	432	432	432
N	17092	17092	17092	17092	17092
Pseudo R^2	.163	.165	.165	.165	.165

Notes: Coefficients are reported as odds ratios. Z-statistics in parentheses. Standard errors are calculated using the Huber/White method and are corrected for individual clustering. All regressions include controls for marital status, education level, year of the survey and large region (North, Central, Volga, North Caucacus, Urals, West Siberia, East Siberia, Moscow/St. Petersburg). A binge drinker is defined as someone who reports their "usual" alcohol consumption in the last 30 days as 120 grams or more of hard alcohol per day.

*** Statistically significant at the 1 percent level or less.

** Statistically significant at the 5 percent level or less.

* Statistically significant at the 10 percent level or less.

the dependent variable is a dummy variable for whether a person died. The coefficients are presented as "odds ratios" for death among men; that is, the coefficient is the chance of death for those with this factor divided by the chance of death for those without it. Thus, a coefficient of 1 means that this factor does not alter the chance of death; a coefficient of 1.5 means that an individual's odds of dying are 50 percent greater if they have this factor. The first column includes controls for age, income,[5] health and other factors. Both Body Mass Index and its square are also included, because there is typically a U-shaped relation between obesity and mortality risk. Across households, obesity clearly is a significant predictor of mortality. But the very slight change in obesity observed in Russia predicts only minor changes in mortality risk: the change in BMI over the 1990s predicts an increase in mortality rates of only .02 percent.

Smoking is associated with higher rates of cardiovascular disease, along with many cancers. About 60 percent of Russian men smoke, nearly twice the share as in Europe. Russian women smoke less than their European counterparts. The regression in the first column of Table 3 shows that for male smokers in Russia the odds of dying are 60 percent higher than for nonsmokers. However, use of tobacco products did not increase greatly in Russia over the 1990s. The share of adults who smoke was flat for men and rose only slightly for women. Indeed, lung cancer death rates in Russia have fallen sharply since the early 1990s, suggesting that cardiovascular disease mortality increase is not a result of a long-term response to smoking trends (Shkolnikov et al., 1999).

Hypertension, high cholesterol and diabetes are other well-known risk factors for cardiovascular disease. Data on these factors in countries of the former Soviet Union are difficult to obtain. (Even in western countries, precise data on the prevalence of elevated risk are sparse, since most people with moderately elevated risk are asymptomatic and thus may not enter the medical system.) Still, the evidence suggests that these traditional risk factors did not change materially and, indeed, that they are no higher in Russia and the Baltics than in western populations. For example, the Novosibirsk stroke study found that the risk factors for stroke remained stable or even improved in the Novosibirsk population over the period (Stegmayr et al., 2000). Epidemiological studies of cardiovascular risk factors in the Baltic countries also find mildly favorable trends in these risk factors throughout the 1990s (Kristenson et al., 1997; Domarkiené et al., 2003).

Traditional risk factors for cardiovascular disease thus explain relatively little of the increase in mortality in Russia. This finding leads us, as it has others, to consider nontraditional risk factors for mortality.

[5] The income control perhaps warrants some comment. In the cross-country data, we do not control for GDP, since we are interested in the total effect of the variables we examine on mortality, not the partial effect controlling for economic conditions. One could make the same argument about income in the micro data. We include the income control, however, to pick up the person's relative income in society, which is strongly indicative of mortality. In practice, our results are relatively similar if we include or omit the control for income.

Suspect 3: Alcohol

Alcohol consumption can affect mortality in many ways. Alcohol is a direct cause of many accidental deaths. In addition, heavy alcohol consumption—especially binge drinking—could increase mortality from cardiovascular disease.

Alcohol consumption is actually slightly lower in Russia than in Europe. Per capita consumption of pure alcohol in Russia was 10.8 liters per capita, compared with 11.1 liters per capita in the European Union in 2000, according to the WHO data. But compared to their European counterparts, Russians consume a great deal more alcohol in the form of spirits rather than as beer or wine. In addition, alcohol consumption in Russia is much more likely to be binge drinking.

Figure 3 shows the trend in annual consumption of alcohol (in liters of pure alcohol per year) from two sources. The WHO data is based on official alcohol sales and have the advantage of being present for all countries, but they have the disadvantage in most countries (Russia is an exception) that they likely omit the unrecorded imports that flooded into these countries in the early 1990s. The RLMS asks individuals what alcoholic beverages they drank during the last 30 days and converts the answers into pure alcohol consumed. For comparison purposes, the graph also shows the prime age male death rate.

Both surveys show a substantial increase in alcohol consumption in the early 1990s—on the order of 25–30 percent between 1992 and 1994. The increase in alcohol consumption is consistent with a substantial reduction in price: the relative price of alcohol fell by 58 percent between December 1990 and December 1994. The change in alcohol consumption (using the WHO data) is consistent with a price elasticity of demand for alcohol of –.36, which is in the range of elasticities for other countries. Increased alcohol consumption may also be related to the increased political and economic uncertainty in Russia in the early 1990s as the transition to a market economy began in earnest.

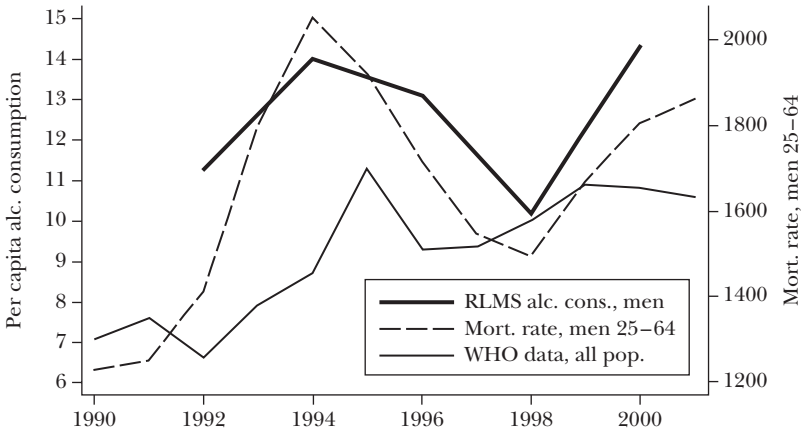
Both surveys also show a reduction in alcohol consumption between 1994 and 1996, a time period when alcohol prices rose. After 1996, the surveys diverge. In the RLMS, alcohol consumption decreased substantially until 1998 and then increased thereafter. The WHO data show a smooth increase over most of the period. Over the entire 1992–2000 time period, alcohol consumption increased in Russia by between 27 percent (using the RLMS data) and 63 percent (using the WHO data).

The RLMS data in particular track closely the changes in the male standardized death rate over time: alcohol consumption increased and so did mortality. Alcohol consumption also increased significantly in some of the "mortality belt" countries in the early 1990s—in particular, in Lithuania and Moldova—while it changed little or declined in the countries of eastern Europe. This pattern suggests an alcohol-based explanation for at least part of the mortality crisis.

Alcohol and Violent Deaths

One way in which alcohol may affect mortality is through violent death. Accidental alcohol poisoning represents 7 percent of the increase in male mortality

Figure 3
Alcohol Consumption and Male Standardized Death Rate (Age 25–64) in Russia



between 1989 and 1994 and 6 percent of the increase in female mortality. In addition, alcohol may play some role in instigating murder or suicide.

Table 4 follows up on the cross-country regressions of Table 2, but the focus is now on explaining specific causes of death. The dependent variable in the first column is the change in the mortality rate from external causes among men; the dependent variable in the second column is the change in the mortality rate due to cardiovascular disease; and the dependent variable in the third column is the change in the mortality rate due to all other causes.[6] The first entry in the first column of Table 4 shows the relation between changes in alcohol consumption and changes in death from external causes. The coefficient on alcohol consumption is not statistically significant, but it is quite large: the 45 percent increase in alcohol consumption in Russia between 1989 and 2000 is predicted to account for 34 percent of the increase in all external causes of death.[7]

For 2000–2002, the RLMS also provides information on causes of death; we examine these data to look at the impact of alcohol on accidental deaths (see the working paper version of the paper for the specific results). Alcohol consumption, especially binge drinking, is positively and significantly related to accidental deaths. Men who binge drink are nearly four times more likely to die of accidental deaths than are people who do not drink. Based on the observed change in alcohol

[6] Alcohol consumption data for Kazakhstan appear to be substantially in error, so we omit that country from this part of the analysis. Kazakhstan is also omitted from the alcohol regression in column 3 of Table 2.

[7] This figure is calculated by multiplying the coefficient on alcohol consumption by the log change in the WHO measure of alcohol consumption in Russia over this period (.432 × .450 = .194) and dividing by the log change in external cause mortality in Russia (.194/.565 = .34). The contributions of other factors to the increase in death rates in Russia based on the cross-country regressions, discussed below, are calculated similarly.

Table 4

Analysis of Cross-Country Mortality, by Cause, 1989–2000

(*dependent variable: log change in standardized mortality rate, men age 25–64*)

Independent variables (log changes):	*External causes*	*Cardiovascular disease*	*All other causes*
Alcohol consumption[a]	.432	.221	.177*
	(.379)	(.137)	(.093)
N	22	22	22
R^2	.084	.079	.107
Fruit and vegetable consumption[a]	−.145	−.277**	−.171
	(.304)	(.123)	(.137)
N	23	23	22
R^2	.008	.095	.090
Expectations and stress			
Male suicide rate[b]	.590***	.229	.230a*
	(.187)	(.156)	(.113)
N	23	23	23
R^2	.354	.125	.281
Survey expectations[c]	.886	.338	.355
	(.525)	(.605)	(.430)
N	17	17	17
R^2	.121	.031	.070
Minimum wage/average wage	−.013	−.184***	−.061*
	(.098)	(.059)	(.034)
N	18	18	18
R^2	.001	.261	.109

Notes: Robust standard errors are reported in parentheses.

[a] Change between 1992 and 2000 for most countries.

[b] For the external causes regression, the dependent variable is the mortality rate for all causes minus the suicide mortality rate.

[c] Change between 1991/1992 and 1996 for most countries.

*** Statistically significant at the 1 percent level or less.

** Statistically significant at the 5 percent level or less.

* Statistically significant at the 10 percent level or less.

consumption, the RLMS data indicate that the increase in alcohol use accounts for 8 percent of the increase in accidental deaths.[8]

Alcohol and Cardiovascular Disease

Mild alcohol consumption may be good for health, but heavy alcohol consumption may be harmful, by increasing the risk of blood clots (thrombosis) and hemorrhagic stroke and reducing the protective effects of HDL (“good”)

[8] Because the coefficients on the logistic regressions are not directly comparable with those of the cross-country regressions, we re-estimate the RLMS regressions as linear probability models in order to calculate the contribution of each coefficient to the probability of dying.

cholesterol (McKee and Britton, 1998). A small study of adult male deaths in Udmurtia, for example, showed that cardiovascular deaths are strongly associated with heavy drinking (Shkolnikov, Meslé and Leon, 2001). Further, the number of cardiovascular deaths among men in Russia in 1993–1995 was significantly higher on Saturdays, Sundays and Mondays than on other days of the week, which may be connected to increased alcohol consumption on weekends (Chenet, Leon, McKee and Vassin, 1998). However, the fact that mortality increased so much among women, who drink much less, and in the traditional Muslim countries of Uzbekistan and Turkmenistan suggests alcohol may not be so important (Bobak and Marmot, 1999). Further, frequent heavy drinkers are a relatively small group of the population (about 4 percent of Russian men), so it is implausible that their experience can explain much of the overall increase in cardiovascular disease mortality (Malyutina et al., 2002).

To examine the link between alcohol consumption and cardiovascular disease mortality, we use both the cross-section and individual data. Our two data sources differ on the importance of alcohol consumption for cardiovascular disease mortality. The second column of Table 4 shows that alcohol consumption is positively, but not statistically significantly, associated with cardiovascular deaths in the cross-country data. The magnitude is relatively large, even if not statistically significant. An increase in alcohol consumption like that seen in Russia would increase cardiovascular disease mortality by 10 percent. The micro data from the RLMS, in contrast, suggest no impact of alcohol consumption on cardiovascular mortality. The coefficient implies a slight protective effect of drinking for cardiovascular health, but is not statistically significant.

Total Effect of Alcohol on Mortality

The total effect of alcohol consumption on mortality in the international data is shown in Table 2. Greater alcohol use is positively and statistically significantly related to mortality: the increase in alcohol consumption in Russia explains about 25 percent of the increase in mortality in Russia between 1989 and 2000.

The RLMS data also suggest an effect of alcohol consumption on mortality from all causes, as shown in the second column of Table 3.[9] The increase in alcohol consumption seen in Russia over 1989–2000 is predicted to increase mortality by 13 percent, which is 22 percent of the total increase in mortality. The estimates from the micro and macro data for overall mortality impacts are thus consistent: about one-quarter of the increase in Russian mortality stems from the increase in alcohol consumption over the 1990s.

[9] In other results (not shown), we have divided alcohol into different types. Vodka and samogon (homemade alcohol) seem to be most harmful to health, while wine consumption appears to be protective.

Suspect 4: The Composition of the Diet

While weight has fluctuated little in Russia over the course of the transition, Russian households have responded to the income shocks by shifting the composition of their diets toward cheaper foods. This dietary shift may be one of the causes of the increase (and subsequent decrease) in cardiovascular mortality among the population (Ginter, 1996, 1998).

When cells metabolize oxygen, they produce "free radicals," natural byproducts that travel through surrounding cells and damage them. Antioxidants from consuming fruit and vegetables neutralize the effects of these free radicals. The Russian diet has long been low in fruit and vegetable content, due to the difficulty of growing such foods in the Russian climate and the priority placed by the country's leadership, beginning with Khrushchev, on increasing the consumption of meat and dairy products. As a result, research has shown severe antioxidant deficiencies in some Russian populations. For example a 1992 study found that 93 percent of men living in Karelia, Russia, had severe vitamin C deficiency, as compared with 2 percent of Finnish men in a neighboring region (Matilainen et al., 1996). Although fruits and vegetables became much more widely available in Russia as market reforms were implemented in the early 1990s, consumption of these goods remained extremely low in comparison with western countries and declined sharply during the first half of the decade. Consumption of fruits and vegetables increased as Russian incomes stabilized after 1994, then fell sharply again following the 1998 financial crisis. This decline, rise and then fall in vegetable consumption roughly tracks the changes in male life expectancy in Russia.

Meat consumption is also much lower in Russia than in the west and was declining over the time period. But meat may have a positive or negative effect on health, especially the fatty meats commonly consumed in Russia.

Two recent studies suggest that these dietary imbalances may heighten the risk of cardiovascular disease in the former Soviet population. A study of 50-year old Lithuanian and Swedish men conducted in 1993–1994 showed that plasma concentrations of antioxidant vitamins were lower in Lithuanian men than Swedish men; the authors argue that antioxidant deficiency likely contributes to the much higher mortality rates from coronary heart disease among Lithuanian men compared with Swedish men (Kristenson et al., 1997). A study of St. Petersburg residents showed a dramatic increase in the number of men with dangerously low levels of HDL cholesterol in the 1990s: in 1986–1988, 6 percent of St. Petersburg men age 40 to 49 had low levels of HDL cholesterol; by 1995–1997, 36.4 percent of men in this age group had low levels of HDL cholesterol (Plavinski et al., 1999).

Dietary change may also be one of the few factors that can explain (in part) the divergent patterns of mortality across eastern Europe and the former Soviet Union (Bobak, Škodová, Pisa, Poledne and Marmot, 1997; Poledne and Škodová, 2000; Zatonski et al., 1998). Across eastern Europe, price liberalization, the removal of subsidies and an increase in food imports led to a dramatic reduction in the relative

price of fruits and vegetables, and a significant increase in their consumption, in marked contrast to what happened in Russia.

Cross-country regression results for the impact of the change in fruit and vegetable consumption on the overall change in mortality rates are presented in the fourth column of Table 2. The coefficient on fruit and vegetable consumption is negative as expected, but is statistically significant only at the 16 percent level. As Table 4 shows, increased fruit and vegetable consumption is statistically significantly negatively associated with cardiovascular disease mortality. Even taken at face value, however, the impact of changes in the composition of the diet for overall mortality is small. Fruit and vegetable consumption in Russia fell by less than 4 percent over the entire time period, implying a change in mortality only 3 percent of what was observed.[10]

While declining fruit and vegetable consumption cannot explain the increase in Russian mortality over the 1990s, it might be a factor in the early part of the crisis. Over the 1992–1994 period, the decline in fruit and vegetable consumption in Russia explains 28 percent of the increase in cardiovascular disease mortality. Also, the change in diet is a distinguishing factor between Russia and eastern Europe. If fruit and vegetable consumption in Russia had mirrored that in Slovenia between 1992 and 2000, our regression results suggest that Russian mortality would have fallen by nearly 10 percent over the 1990s, narrowing the prime-age male mortality gap with eastern Europe by nearly 50 percent.

Suspect 5: Material Deprivation

The transition from communism led to a significant devaluation of human capital. In Russia, for example, the wages of men with 30 or more years of work experience actually fell below the wages of new entrants to the work force (Brainerd, 1998). Coupled with this is a very weak government safety net—weaker in Russia than in many other mortality belt countries. Russia, for example, lacks a national means-tested benefit program for families living below the poverty line. One hypothesis for increased mortality is thus that severe economic hardship increased and this led to increased mortality (Lynch, Smith, Kaplan and House, 2000).

Being underweight is one measure of material deprivation. However, the share of the Russian population that is underweight did not change over the time period.[11] Still, this is only one measure of material deprivation. For example, some

[10] Unfortunately, we cannot examine the dietary composition theory using the RLMS data. The RLMS does ask respondents to provide detailed information on the type and quantity of food consumed in the previous 24 hours, but these data have not yet been released for public use.

[11] Other studies have corroborated the finding that overall nutritional status in Russia is remarkably resilient to the extreme fluctuations in household income that families have experienced in the last decade (Dore, Adair and Popkin, 2003; Thomas and Stillman, 2004).

people might have cut back on heating oil to pay for food, or may have taken work in particularly dangerous jobs. Our RLMS data allow us to examine additional aspects of material deprivation. The third column of Table 3 includes various measures of hardship in the mortality regressions—whether the family is in poverty or extreme poverty;[12] whether the family received subsidies for fuel; whether the family had to sell goods to obtain money for food; and the share of total household expenditures on food. All of these variables are statistically insignificant in these regressions, and many of the coefficients are very small. These results suggest that material deprivation is unlikely to explain the upsurge in mortality in Russia.

Suspect 6: Psychosocial Factors

Before 1989, Russians lived in a country that provided substantial economic security: unemployment was virtually unknown, pensions were guaranteed and provided a standard of living perceived to be adequate, and macroeconomic instability did not much affect the average citizen. The economic reforms implemented in the early 1990s meant that for the first time, the average Russian confronted a highly unpredictable future.

Unpredictability is an example of a psychosocial factor that may influence health. The impact of stress on health is the most explored factor. "Stress" arises when an individual perceives a discrepancy between the demands of a situation and the physical or psychological capacity to respond to those demands (Shapiro, 1995). A high level of stress seems related to the development of cardiovascular disease, although the physiological mechanisms by which this occurs is not yet clear (Labarthe, 1998).

Other psychosocial factors may affect health as well. Greater despair or hopelessness among middle-aged men is associated with higher risk of heart disease and heart attack, as well as earlier onset of artery disease, even controlling for risk factors such as alcohol consumption and smoking (Everson et al., 1997). People who have more social support are similarly likely to have improved outcomes over those with less support (Berkman, Leo-Summers and Horwitz, 1992).

A number of indicators suggest increased psychosocial problems in the former Soviet Union, especially Russia. As noted above, suicide rates rose dramatically in the early years of transition, particularly among middle-aged men. By 1994, the suicide rate for Russian men aged 50–54 was over six times higher than in the United States. In contrast, suicide rates remained constant or fell in eastern Europe.

Russians also tend to have more negative expectations about the future than do their east European counterparts. The Central and East European Barometer

[12] The poverty measure is based on the official Russian poverty measure, which in turn uses a representative subsistence food basket and a food to total expenditure multiplier to determine the poverty line. A household is in extreme poverty if its income is less than half of the poverty line.

(CEEB) program has conducted surveys of Russia and eastern European countries since the early 1990s, available at ⟨http://www.icpsr.umich.edu⟩. We focus on a question about future financial circumstances: "Over the next twelve months, do you expect that the financial situation of your household will: (1) get a lot better; (2) get a little better; (3) stay the same; (4) get a little worse; (5) get a lot worse." In 1992, Russian men aged 25–64 had an average score of 3.45 on this question, which was more pessimistic than most other countries in the region (Armenians and Hungarians were the most pessimistic populations of all; Russians were third). For most of the more successful east European countries, this indicator suggests a more positive outlook on the future; for example, in the Czech Republic and Slovenia the average responses among this group in 1992 were 3.15 and 2.83, respectively.

The CEEB program asked this expectations question from 1991 to 1996, and the RLMS started asking a similar question in 1994. Specifically, the RLMS asked: "Do you think that in the next twelve months your family will live better than today, or worse?" Answers range from "much better (= 1)" to "much worse (= 5)." The RLMS and CEEB measures for Russia are nearly identical in the years in which they overlap. The combination of the surveys indicate surprisingly little change in future expectations from 1991 to 1998. After 1998, Russians started to view the future more optimistically, and by 2002 the score for Russian men aged 25–64 was 2.89.

We begin the empirical examination of psychosocial theories by relating changes in overall mortality to changes in suicide rates, the broadest measure of psychosocial distress. Table 2 shows cross-sectionally that the male suicide rate is positively and significantly correlated with the change in the overall death rate. The coefficient is reasonably large; one-quarter of the overall increase in mortality in Russia over the time period is associated with increases in suicide. Of course, suicide is a part of total mortality, but the impact here is substantially greater than just the direct effect. The direct effect of suicide on mortality is only about 4.5 percent of the total mortality increase for men and 1 percent for women, as shown in Table 1. Table 4 shows that suicide is significantly correlated with nonsuicide other external causes of death, but not cardiovascular disease mortality.

Our ability to test specific theories of psychosocial distress is limited, but we can examine some possible explanations. We start by relating mortality to expectations about the future. We use the log change in the average value of the CEEB indicator (for men aged 25–64) between 1991 or 1992 and 1996 as our measure of future expectations; an increase in this value indicates more pessimism about the future. Column 6 of Table 2 shows that countries where expectations got worse had increases in mortality, although the coefficient is not statistically significantly different from zero.

At the individual level, the fourth column of Table 3 relates mortality to an indicator of whether the person is likely to live much or somewhat better in the next year. Men who have positive expectations about the future are 30 percent less likely to die than are men with worse expectations (the coefficient is significant at the 11.3 percent level); in a parallel regression for women, the odds of dying are

50 percent lower. Note that this effect is found controlling for income; thus, this finding shows that those suffering economic stress are in worse health, even given their income.

While expectations are important for health, the time series of expectations makes clear that changes in outlook for the future cannot be the whole explanation for the increase in mortality in Russia. Expectations about the future improved slightly in Russia in the early years of transition, then worsened after 1993, and by 1996 were back to the same level as the early 1990s. Over this time period, however, mortality increased substantially. Moreover, expectations improved substantially after the initial shock of the 1998 financial crisis, but mortality rates increased.[13]

Psychosocial distress may be related not to average expectations about the future, but to stress associated with the fear of very bad outcomes. To test this hypothesis, we relate changes in mortality rates across countries to the change in the minimum wage as a percentage of the average wage. We choose the minimum wage relative to the average wage as our measure of poor outcomes because of its direct effect on wages, because many countries use the minimum wage as a base for setting the level of other social benefits such as child-care allowances and student stipends, and because other measures of government support such as the level of unemployment benefits or government spending on social benefits are not consistently available.

In Russia, the minimum wage fell from 30 to 35 percent of the average wage in the late 1980s to less than 6 percent of the average wage by 2000. This reduced minimum wage is far below—over 75 percent below—the "subsistence minimum" calculated by the government for determining poverty rates. In contrast, many east European countries maintained a relatively high minimum wage throughout the 1990s: for example, 34 percent of average wages in Poland and 42 percent of average wages in Hungary in 2001.

The last column of Table 2 shows that changes in the minimum wage as a share of the average wage are negatively and significantly related to changes in mortality. This is particularly true about cardiovascular disease mortality, as shown in Table 4. The coefficient on the minimum wage in Table 2 indicates that the reduction in the minimum wage can explain 34 percent of the increase in deaths in Russia over the 1989–2000 period.

We also included the minimum wage as a share of the average wage for different regions of Russia in regressions using the RLMS data. As the last column of Table 3 shows, this variable is statistically insignificant in the regressions for all causes mortality; however, it is related to cardiovascular disease mortality at the 8 percent level. The coefficient on the minimum wage is large; changes in the minimum wage can explain nearly all of the increase in male cardiovascular disease deaths in Russia, and roughly 40 percent of the increase in all male deaths in the country.

[13] There might, of course, be a lagged effect of expectations on health, but our data are not refined enough to permit such an analysis.

Recall that the minimum wage is not a proxy for poor individual circumstances. Direct measures of material deprivation such as poverty and having enough food do not predict mortality. Rather, mortality appears to be associated with the prospect of suffering a substantial reduction in income and, hence, living standards.

Both our micro and macro data thus show clear impacts of psychosocial factors on mortality. Our best estimate is that psychosocial distress explains about one-quarter of the increase in mortality over time. Our best guess is that this outcome is related to the increased fear of very low incomes brought about by economic dislocation and the absence of a social safety net, though the exact factors behind this effect still require some work.

Conclusion

Our analysis of mortality in Russia and other countries of the former Soviet Union leads us to highlight two significant causes of the mortality crisis. The first cause is increased alcohol consumption. Our results in the cross-country and micro data are fairly consistent; in each case, about a quarter of the increase in mortality in Russia is due to increased alcohol use. Much of this alcohol use is a reflection of the lower price of alcohol over time, though factors such as the loosening of the Gorbachev-era restrictions on alcohol availability almost certainly played a role as well. Increased stress from the transition to a market economy also seems to play a role in Russia's mortality crisis. We suspect that another quarter of the mortality increase results from the stress of transition. Other theories for higher Russian mortality, like a reduction in the effectiveness of medical care or changes in diet find little support in our data—though more favorable dietary changes in eastern Europe seem to explain some of the good demographic news enjoyed by those countries.

Approximately half of the mortality reduction is unaccounted for by the factors we identify. Perhaps the factors we identify are the right ones, and the uncertainty of these estimates encompasses the full mortality change. Alternatively, researchers need to identify other factors to explain Russian mortality crisis.

■ *Elizabeth Brainerd's research for this paper was supported in part through Grant Number S-LMAQM-00-H-0146 provided by the United States Department of State and administered by the William Davidson Institute, University of Michigan. David Cutler's research was supported by the National Institutes on Aging. The opinions, findings and conclusions or recommendations expressed herein are those of the author(s) and do not necessarily reflect those of any of the sponsoring organizations. For more discussion of many of the issues in this paper, readers are referred to the working paper version of the paper, available through the National Bureau of Economic Research at ⟨http://www.nber.org/papers/W10868⟩. The authors are grateful to Andrei Shleifer, Jim Hines, Timothy Taylor and Michael Waldman for helpful comments and suggestions.*

References

Anderson, Barbara A. and Brian D. Silver. 1997. "Issues of Data Quality in Assessing Mortality Trends and Levels in the New Independent States," in *Premature Death in the New Independent States.* J.-L. Bobadilla, C. Costello and F. Mitchell, eds. Washington, D.C.: National Academy Press, pp. 120–55.

Badurashvili, I., M. McKee, G. Tsuladze, F. Mesle, J. Vallin and V. Shkolnikov. 2001. "Where There are No Data: What Has Happened to Life Expectancy in Georgia Since 1990?" *Public Health.* 115:6, pp. 394–400.

Berkman, L. F., L. Leo-Summers and R. I. Horwitz. 1992. "Emotional Support and Survival After Myocardial Infarction: A Prospective, Population-Based Study of the Elderly." *Annals of Internal Medicine.* 117:12, pp. 1003–009.

Bobak, Martin and Michael Marmot. 1999. "Alcohol and Mortality in Russia: Is It Different Than Elsewhere?" *Annals of Epidemiology.* 9:6, pp. 335–38.

Bobak, Martin, Zdenka Skodova, Zbvnek Pisa, Rudolf Poledne and Michael Marmot. 1997. "Political Changes and Trends in Cardiovascular Risk Factors in the Czech Republic, 1985–1992." *Journal of Epidemiology and Community Health.* 51:3, pp. 272–77.

Brainerd, Elizabeth. 1998. "Winners and Losers in Russia's Economic Transition." *American Economic Review.* 88:5, pp. 1094–116.

Brainerd, Elizabeth and David M. Cutler. 2004. "Autopsy on an Empire: Understanding Mortality in Russia and the Former Soviet Union." NBER Working Paper No. 10868, November.

Chenet, Laurent, David Leon, Martin McKee and Serguei Vassin. 1998. "Deaths from Alcohol and Violence in Moscow: Socio-Economic Determinants." *European Journal of Population.* 14:1, pp. 19–37.

Cornia, Giovanni Andrea and Renato Paniccià. 2000. "The Transition Mortality Crisis: Evidence, Interpretation and Policy Responses," in *The Mortality Crisis in Transitional Economies.* Giovanni Andrea Cornia and Renato Paniccià, eds. Oxford, UK: Oxford University Press, pp. 3–37.

Cutler, David M. et al. 2002. "Financial Crisis, Health Outcomes and Aging: Mexico in the 1980s and 1990s." *Journal of Public Economics.* May, 84:2, pp. 279–303.

Cutler, David M., Edward Glaeser and Jesse Shapiro. 2003. "Why Have Americans Become More Obese?" *Journal of Economic Perspectives.* Summer, 17:3, pp. 93–118.

Domarkiené, Stanislava, A. Tamosiunas, R. Reklaitiene, D. Sidlauskiene, K. Jureniene, L. Margeviciene, K. Buivydaite and M. Kazlauskaite. 2003. "Trends in Main Cardiovascular Risk Factors among Middle-Aged Kaunas Population between 1983 and 2002." *Medicina.* 39:12, pp. 1193–199.

Dore, Anna R., Linda S. Adair and Barry M. Popkin. 2003. "Low Income Russian Families Adopt Effective Behavioral Strategies to Maintain Dietary Stability in Times of Economic Crisis." *Journal of Nutrition.* 133:11, pp. 3469–475.

Ellman, Michael. 1994. "The Increase in Death and Disease Under 'Katastroika.'" *Cambridge Journal of Economics.* August, 18:4, pp. 329–55.

Everson, Susan A., George A. Kaplan, Debbie E. Goldberg, Riitta Salonen and Jukka T. Salonen. 1997. "Hopelessness and 4-Year Progression of Carotid Atherosclerosis: The Kuopio Ischemic Heart Disease Risk Factor Study." *Arteriosclerosis, Thrombosis, and Vascular Biology.* 17:8, pp. 1490–495.

Field, Mark G. 1995. "The Health Crisis in the Former Soviet Union: A Report from the 'Post-War' Zone." *Social Science and Medicine.* 41:11, pp. 1469–478.

Ginter, Emil. 1996. "High Cardiovascular Mortality in Postcommunist Countries: Participation of Oxidative Stress?" *International Journal of Vitamin and Nutrition Research.* 66:3, pp. 183–89.

Ginter, Emil. 1998. "Cardiovascular Disease Prevention in Eastern Europe." *Nutrition.* 14:5, pp. 452–57.

Knaus, William A. 1981. *Inside Russian Medicine.* New York: Everest House.

Kristenson, Margareta, Bo Zieden, Zita Kucinskiene, L. S. Elinder, B. Bergdahl, B. Elwing, A. Abaravicius, L. Razinkoviene, H. Calkauskas and A. G. Olsson. 1997. "Antioxidant State and Mortality from Coronary Heart Disease in Lithuanian and Swedish Men: Concomitant Cross Sectional Study of Men Aged 50." *British Medical Journal.* 314:7081, pp. 629–33.

Labarthe, Darwin R. 1998. *Epidemiology and Prevention of Cardiovascular Diseases: A Global Challenge.* Gaithersburg, Md.: Aspen.

Leon, David A., Laurent Chenet, Vladimir M. Shkolnikov, S. Zakharov, J. Shapiro, G. Rakhmanova, S. Vassin and M. McKee. 1997. "Huge Variation in Russian Mortality Rates 1984–94: Artefact, Alcohol, or What?" *Lancet.* 350:9075, pp. 383–88.

Lynch, J. W., G. Davey Smith, G. A. Kaplan

and J. S. House. 2000. "Income Inequality and Mortality: Importance to Health of Individual Income, Psychosocial Environment, or Material Conditions." *British Medical Journal.* 320:7243, pp. 1200–204.

Malyutina, Sofia, Martin Bobak, Svetlana Kurilovitch, Valery Gafarov, Galina Simonova, Yuri Nikitin and Michael Marmot. 2002. "Relation Between Heavy and Binge Drinking and All-Cause and Cardiovascular Mortality in Novosibirisk, Russia: A Prospective Cohort Study." *Lancet.* 360:9344, pp. 1448–454.

Matilainen, T., E. Vartiainen, P. Puska, G. Alfthan, S. Pokusajeva, N. Moisejeva and M. Uhanov. 1996. "Plasma Ascorbic Acid Concentrations in the Republic of Karelia, Russia and in North Karelia, Finland." *European Journal of Clinical Nutrition.* 50:2, pp. 115–20.

McKee, M. and Annie Britton. 1998. "The Positive Relationship Between Alcohol and Heart Disease in Eastern Europe: Potential Physiological Mechanisms." *Journal of the Royal Society of Medicine.* August, 91, pp. 402–07.

Plavinski, S. L., S. I. Plavinskaya and A. N. Klimov. 2003. "Social Factors and Increase in Mortality in Russia in the 1990s: Prospective Cohort Study." *British Medical Journal.* June, 326, pp. 1240–242.

Plavinski, S.L.; S. I. Plavinskaya, V. Richter, F. Rassoul, W. Schilow and A. N. Klimov. 1999. "The Total and HDL-Cholesterol Levels in Populations of St. Petersburg (Russia) and Leipzig (Germany)." *Nutrition, Metabolism and Cardiovascular Diseases.* 9:4, pp. 184–91.

Poledne, R. and Z. Škodová. 2000. "Changes in Nutrition, Cholesterol Concentration, and Cardiovascular Disease Mortality in the Czech Population in the Past Decade." *Nutrition.* 16:9, pp. 785–86.

Reiss, James Arthur, Nathan Every and W. Douglas Weaver. 1996. "A Comparison of the Treatment of Acute Myocardial Infarction between St. Petersburg, Russia and Seattle, Washington." *International Journal of Cardiology.* 53:1, pp. 29–36.

Ryan, Michael. 1989 *Doctors and the State in the Soviet Union.* London: Macmillan.

Shapiro, Judith. 1995. "The Russian Mortality Crisis and Its Causes," in *Russian Economic Reform in Jeopardy?* Anders Aslund, ed. London and New York: Pinter Publishers, pp. 149–78.

Shkolnikov, Vladimir, Martin McKee and David A. Leon. 2001. "Changes in Life Expectancy in Russia in the Mid-1990s." *Lancet.* March 24, 357, pp. 917–21.

Shkolnikov, Vladimir, France Meslé and David A. Leon. 2001. "Premature Circulatory Disease Mortality in Russia: Population- and Individual-Level Evidence," in *Heart Disease: Environment, Stress and Gender.* G. Weidner, S. M. Kopp and M. Kristenson, eds. NATO Science Series, Series I: Life and Behavioural Sciences. Amsterdam: IOS Press, pp. 39–68.

Shkolnikov, Vladimir M., Martin McKee, David A. Leon and Laurent Chenet. 1999. "Why is the Death Rate from Lung Cancer Falling in the Russian Federation?" *European Journal of Epidemiology.* 15:3, pp. 203–06.

Shkolnikov, Vladimir M., David A. Leon, Sergey Adamets, Eugeniy Andreev and Alexander Deev. 1998. "Educational Level and Adult Mortality in Russia: An Analysis of Routine Data 1979 to 1994." *Social Science and Medicine.* 47:3, pp. 357–69.

Stegmayr, Birgitta, Tatyana Vinogradova, Sofia Malyutina, Markku Peltonen, Yuri Nikitin and Kjell Asplund. 2000. "Widening Gap of Stroke Between East and West: Eight-Year Trends in Occurrence and Risk Factors in Russia and Sweden." *Stroke.* January, 31:1, pp. 2–8.

Thomas, Duncan and Steven Stillman. 2004. "The Effect of Economic Crises on Nutritional Status: Evidence from Russia." Unpublished manuscript.

Twigg, Judyth L. 1998. "Balancing the State and the Market: Russia's Adoption of Obligatory Medical Insurance." *Europe-Asia Studies.* 50:4, pp. 583–602.

Zatonski, Witold A., Anthony J. McMichael and John W. Powles. 1998. "Ecological Study of Reasons for Sharp Decline in Mortality from Ischaemic Heart Disease in Poland since 1991." *British Medical Journal.* April, 316:4, pp. 1047–1051.

This article has been cited by:

1. Siarhei Kandrychyn. 2023. Health beyond clinical protocol: institutional traps and limitations of modern medicine. *Sociology: Theory, Methods, Marketing* :3, 90-115. [Crossref]
2. Timur Natkhov, William Pyle. 2023. Revealed in Transition: The Political Effect of Planning's Legacy. *European Economic Review* **17**, 104567. [Crossref]
3. Gábor Scheiring, Aytalina Azarova, Darja Irdam, Katarzyna Doniec, Martin McKee, David Stuckler, Lawrence King. 2023. Deindustrialisation and the post-socialist mortality crisis. *Cambridge Journal of Economics* **47**:2, 341-372. [Crossref]
4. Liqun Diao, Yechao Meng, Chengguo Weng, Tony Wirjanto. 2023. Enhancing Mortality Forecasting through Bivariate Model–Based Ensemble. *North American Actuarial Journal* **10**, 1-20. [Crossref]
5. E. K. Papanova, N. M. Vorobyeva, Yu. V. Kotovskaya, O. N. Tkacheva, L. N. Ovcharova, E. V. Selezneva. 2022. Healthy Life Expectancy of People Over Age 65: Results of the Russian Epidemiological Study EVCALIPT. *Advances in Gerontology* **12**:4, 347-356. [Crossref]
6. Lawrence King, Gábor Scheiring, Elias Nosrati. 2022. Deaths of Despair in Comparative Perspective. *Annual Review of Sociology* **48**:1, 299-317. [Crossref]
7. John P. A. Ioannidis. 2022. The end of the COVID-19 pandemic. *European Journal of Clinical Investigation* **52**:6. . [Crossref]
8. Val Bellman, Vaishalee Namdev. 2022. Suicidality Among Men in Russia: A Review of Recent Epidemiological Data. *Cureus* **9**. . [Crossref]
9. Yuka Minagawa. 2022. Trends in happy life expectancy in Russia, 1994–2015. *SSM - Population Health* **17**, 101005. [Crossref]
10. Elizabeth Brainerd. 2021. Mortality in Russia Since the Fall of the Soviet Union. *Comparative Economic Studies* **63**:4, 557-576. [Crossref]
11. Olena Nizalova, Edward C. Norton. 2021. Long-term effects of job loss on male health: BMI and health behaviors. *Economics & Human Biology* **43**, 101038. [Crossref]
12. Alícia Adserà, Francesca Dalla Pozza, Sergei Guriev, Lukas Kleine-Rueschkamp, Elena Nikolova. 2021. Height and well-being during the transition from plan to market. *Economic Policy* **36**:105, 77-120. [Crossref]
13. Timothy Frye, Brian D. Taylor, Will Pyle, Klaus Segbers, Gulnaz Sharafutdinovae. 2021. Roundtable on Gulnaz Sharafutdinova's the red mirror: putin's leadership and russia's insecure identity. *Post-Soviet Affairs* **37**:4, 404-412. [Crossref]
14. Lorenz Kueng, Evgeny Yakovlev. 2021. The Long-Run Effects of a Public Policy on Alcohol Tastes and Mortality. *American Economic Journal: Economic Policy* **13**:1, 294-328. [Abstract] [View PDF article] [PDF with links]
15. Richard A. Easterlin. Can Government Increase My Happiness: Transition Countries 59-70. [Crossref]
16. Christopher J. Gerry. Explaining the Heterogeneity of Health Outcomes in Post-Communist Europe 589-615. [Crossref]
17. Rossano Schifanella, Dario Delle Vedove, Alberto Salomone, Paolo Bajardi, Daniela Paolotti. 2020. Spatial heterogeneity and socioeconomic determinants of opioid prescribing in England between 2015 and 2018. *BMC Medicine* **18**:1. . [Crossref]
18. Inna Danilova, Vladimir M. Shkolnikov, Evgeny Andreev, David A. Leon. 2020. The changing relation between alcohol and life expectancy in Russia in 1965–2017. *Drug and Alcohol Review* **39**:7, 790-796. [Crossref]

19. Peter Huber, Josef Montag. 2020. Homeownership, Political Participation, and Social Capital in Post-Communist Countries and Western Europe. *Kyklos* **73**:1, 96-119. [Crossref]
20. Denis Gerstorf, Christiane A. Hoppmann. Longevity 1309-1312. [Crossref]
21. Olga Lazareva. 2020. The effect of labor market shocks on health: The case of the Russian transition. *Economics & Human Biology* **36**, 100823. [Crossref]
22. Nino Lomia, Nino Berdzuli, Ekaterine Pestvenidze, Lela Sturua, Nino Sharashidze, Maia Kereselidze, Marina Topuridze, Tamar Antelava, Babill Stray-Pedersen, Arne Stray-Pedersen. 2020. Socio-Demographic Determinants of Mortality from Chronic Noncommunicable Diseases in Women of Reproductive Age in the Republic of Georgia: Evidence from the National Reproductive Age Mortality Study (2014) . *International Journal of Women's Health* **Volume 12**, 89-105. [Crossref]
23. Ernesto R. Ferreira, João D. Monteiro. 2019. In an Era of Social, Civic and Political Disengagement, do Health Care and Social Welfare Protection Still Matter to Population Health? Evidence from OECD Mortality Data. *Society and Economy* **41**:4, 415-432. [Crossref]
24. Liubov V. Borisova. 2019. Objective and subjective determinants of self-rated health in Central and Eastern Europe: a multilevel approach. *Central European Journal of Public Health* **27**:2, 145-152. [Crossref]
25. Rokas Gylys, Jonas Šiaulys. 2019. Revisiting Calibration of the Solvency II Standard Formula for Mortality Risk: Does the Standard Stress Scenario Provide an Adequate Approximation of Value-at-Risk?. *Risks* **7**:2, 58. [Crossref]
26. Gabor Scheiring, Darja Irdam, Lawrence P. King. 2019. Cross-country evidence on the social determinants of the post-socialist mortality crisis in Europe: a review and performance-based hierarchy of variables. *Sociology of Health & Illness* **41**:4, 673-691. [Crossref]
27. S. A. Shalnova, A. V. Kapustina, A. D. Deev, Yu. A. Balanova. 2019. Factors Associated with Cause-Specific Death in Russia. Data from Longitudinal Prospective Study 1977-2001. *Rational Pharmacotherapy in Cardiology* **15**:1, 4-16. [Crossref]
28. Sara Paulone, Artjoms Ivlevs. 2019. Emigration and alcohol consumption among migrant household members staying behind: Evidence from Kyrgyzstan. *Social Science & Medicine* **221**, 40-48. [Crossref]
29. Olga Lazareva. 2019. The Effect of Labor Market Shocks on Health: The Case of Russian Transition. *SSRN Electronic Journal* . [Crossref]
30. Christopher J. Gerry, Yulia Raskina, Daria Tsyplakova. 2018. Convergence or Divergence? Life Expectancy Patterns in Post-communist Countries, 1959–2010. *Social Indicators Research* **140**:1, 309-332. [Crossref]
31. Wenyun Zuo, Sha Jiang, Zhen Guo, Marcus W. Feldman, Shripad Tuljapurkar. 2018. Advancing front of old-age human survival. *Proceedings of the National Academy of Sciences* **115**:44, 11209-11214. [Crossref]
32. Yuka S. Minagawa. 2018. Changing Life Expectancy and Health Expectancy Among Russian Adults: Results from the Past 20 Years. *Population Research and Policy Review* **37**:5, 851-869. [Crossref]
33. Irina A. Denisova. 2018. Adult Mortality in Russia: A Microanalysis (translation: Marina Beletskaya). *Scientific Research of Faculty of Economics. Electronic Journal* **10**:3, 53-89. [Crossref]
34. Vladimir I Starodubov, Laurie B Marczak, Elena Varavikova, Boris Bikbov, Sergey P Ermakov, Julia Gall, Scott D Glenn, Max Griswold, Bulat Idrisov, Michael Kravchenko, Dmitry Lioznov, Enrique Loyola, Ivo Rakovac, Sergey K Vladimirov, Vasiliy Vlassov, Christopher J L Murray, Mohsen Naghavi. 2018. The burden of disease in Russia from 1980 to 2016: a systematic analysis for the Global Burden of Disease Study 2016. *The Lancet* **392**:10153, 1138-1146. [Crossref]

35. Andrey Korotayev, Daria Khaltourina, Kira Meshcherina, Elena Zamiatnina. 2018. Distilled Spirits Overconsumption as the Most Important Factor of Excessive Adult Male Mortality in Europe. *Alcohol and Alcoholism* **18**. . [Crossref]
36. Filip Novokmet, Thomas Piketty, Gabriel Zucman. 2018. From Soviets to oligarchs: inequality and property in Russia 1905-2016. *The Journal of Economic Inequality* **16**:2, 189-223. [Crossref]
37. Dina Rosenberg, Vladimir Kozlov, Alexander Libman. 2018. Political regimes, income and health: Evidence from sub-national comparative method. *Social Science Research* **72**, 20-37. [Crossref]
38. Vladimir A. Kozlov, Dina Y. Rosenberg. 2018. Institutional deficit and health outcomes in post-communist states. *Economic Systems* **42**:1, 119-131. [Crossref]
39. Nicolas Da Silva. 2018. L'impact des conditions macroéconomiques sur l'état de santé. *La Revue de l'Ires* **n° 91-92**:1, 49-75. [Crossref]
40. Lucia Mangiavacchi, Luca Piccoli. 2018. Parental alcohol consumption and adult children's educational attainment. *Economics & Human Biology* **28**, 132-145. [Crossref]
41. Gábor Scheiring, Darja Irdam, Lawrence King. 2018. The wounds of post-socialism: a systematic review of the social determinants of mortality in Hungary. *Journal of Contemporary Central and Eastern Europe* **26**:1, 1-31. [Crossref]
42. Evgeny Yakovlev. 2018. Demand for Alcohol Consumption in Russia and Its Implication for Mortality. *American Economic Journal: Applied Economics* **10**:1, 106-149. [Abstract] [View PDF article] [PDF with links]
43. Mireia Jofre-Bonet, Victoria Serra-Sastre, Sotiris Vandoros. 2018. The impact of the Great Recession on health-related risk factors, behaviour and outcomes in England. *Social Science & Medicine* **197**, 213-225. [Crossref]
44. Peter Huber, Josef Montag. 2018. Homeownership, Political Participation, and Social Capital in Post-Communist Countries and Western Europe. *SSRN Electronic Journal* . [Crossref]
45. Pavel Grigoriev, Domantas Jasilionis, Daumantas Stumbrys, Vladislava Stankūnienė, Vladimir M. Shkolnikov. 2017. Individual- and area-level characteristics associated with alcohol-related mortality among adult Lithuanian males: A multilevel analysis based on census-linked data. *PLOS ONE* **12**:7, e0181622. [Crossref]
46. Katerina Lisenkova, Kateryna Bornukova. 2017. Effects of population ageing on the pension system in Belarus. *Baltic Journal of Economics* **17**:2, 103-118. [Crossref]
47. Aytalina Azarova, Darja Irdam, Alexi Gugushvili, Mihaly Fazekas, Gábor Scheiring, Pia Horvat, Denes Stefler, Irina Kolesnikova, Vladimir Popov, Ivan Szelenyi, David Stuckler, Michael Marmot, Michael Murphy, Martin McKee, Martin Bobak, Lawrence King. 2017. The effect of rapid privatisation on mortality in mono-industrial towns in post-Soviet Russia: a retrospective cohort study. *The Lancet Public Health* **2**:5, e231-e238. [Crossref]
48. Kazuhiro Kumo. Changes in Mortality: Meta-Analysis 219-259. [Crossref]
49. Matthias Staudigel. 2016. A soft pillow for hard times? Economic insecurity, food intake and body weight in Russia. *Journal of Health Economics* **50**, 198-212. [Crossref]
50. Christopher J. Ruhm. 2016. Health Effects of Economic Crises. *Health Economics* **25**, 6-24. [Crossref]
51. Ryan D. Edwards. 2016. Commentary: U.S. mortality, geography, and the anti-social determinants of health. *Preventive Medicine* **89**, 324-326. [Crossref]
52. Megan A. Todd, Vladimir M. Shkolnikov, Noreen Goldman. 2016. Why are well-educated Muscovites more likely to survive? Understanding the biological pathways. *Social Science & Medicine* **157**, 138-147. [Crossref]

53. Helena R. Slobodskaya, Nadezhda B. Semenova. 2016. Child and adolescent mental health problems in Tyva Republic, Russia, as possible risk factors for a high suicide rate. *European Child & Adolescent Psychiatry* **25**:4, 361-371. [Crossref]

54. Pavel Grigoriev, Domantas Jasilionis, Vladimir M. Shkolnikov, France Meslé, Jacques Vallin. 2016. Spatial variation of male alcohol-related mortality in Belarus and Lithuania. *The European Journal of Public Health* **26**:1, 95-101. [Crossref]

55. Lorenz Kueng, Evgeny Yakovlev. 2016. Long-Run Effects of Public Policies: Endogenous Alcohol Preferences and Life Expectancy in Russia. *SSRN Electronic Journal* **97**. . [Crossref]

56. Evgeny Yakovlev. 2016. Demand for Alcohol Consumption and Implication for Mortality: Evidence from Russia. *SSRN Electronic Journal* . [Crossref]

57. Ellen Meara, Jonathan Skinner. 2015. Losing ground at midlife in America. *Proceedings of the National Academy of Sciences* **112**:49, 15006-15007. [Crossref]

58. Zhanna Kravchenko, Andrew Stickley, Ai Koyanagi. 2015. Close Relationships Matter: Family Well-being and its Effects on Health in Russia. *Europe-Asia Studies* **67**:10, 1635-1655. [Crossref]

59. Pavel Grigoriev, Evgeny M. Andreev. 2015. The Huge Reduction in Adult Male Mortality in Belarus and Russia: Is It Attributable to Anti-Alcohol Measures?. *PLOS ONE* **10**:9, e0138021. [Crossref]

60. Jiaan Zhang, Lydia W. Li. 2015. Provincial Variation in Marketization and Successful Aging in China: A Multilevel Analysis. *Journal of Population Ageing* **8**:3, 203-222. [Crossref]

61. Daria Khaltourina, Andrey Korotayev. 2015. Effects of Specific Alcohol Control Policy Measures on Alcohol-Related Mortality in Russia from 1998 to 2013. *Alcohol and Alcoholism* **50**:5, 588-601. [Crossref]

62. Christine Burggraf, Lena Kuhn, Qi-ran ZHAO, Ramona Teuber, Thomas Glauben. 2015. Economic growth and nutrition transition: an empirical analysis comparing demand elasticities for foods in China and Russia. *Journal of Integrative Agriculture* **14**:6, 1008-1022. [Crossref]

63. Leandro Prados de la Escosura. 2015. World Human Development: 1870–2007. *Review of Income and Wealth* **61**:2, 220-247. [Crossref]

64. Y. E. Razvodovsky. 2015. The Effect of Beverage Type on Alcoholic Psychoses Rate in Russia. *Alcohol and Alcoholism* **50**:2, 200-205. [Crossref]

65. Koen Deconinck, Johan Swinnen. 2015. Peer effects and the rise of beer in Russia. *Food Policy* **51**, 83-96. [Crossref]

66. Christopher J. Gerry, Tomasz M. Mickiewicz, Zlatko Nikoloski. 2014. MORTALITY AND FINANCIAL CRISES. *Journal of International Development* **26**:7, 939-948. [Crossref]

67. Sonya Huffman, Marian Rizov. 2014. Body weight and labour market outcomes in Post-Soviet Russia. *International Journal of Manpower* **35**:5, 671-687. [Crossref]

68. Dennis Petrie, Kam Ki Tang. 2014. Relative health performance in BRICS over the past 20 years: the winners and losers. *Bulletin of the World Health Organization* **92**:6, 396-404. [Crossref]

69. Thomas Herzfeld, Sonya Huffman, Marian Rizov. 2014. The dynamics of food, alcohol and cigarette consumption in Russia during transition. *Economics & Human Biology* **13**, 128-143. [Crossref]

70. Pavel Grigoriev, France Meslé, Vladimir M. Shkolnikov, Evgeny Andreev, Agnieszka Fihel, Marketa Pechholdova, Jacques Vallin. 2014. The Recent Mortality Decline in Russia: Beginning of the Cardiovascular Revolution?. *Population and Development Review* **40**:1, 107-129. [Crossref]

71. Marco Innamorati, Gianluca Serafini, David Lester, Mario Amore, Paolo Girardi, Maurizio Pompili. 2014. Violent deaths among Russian and EU male older adults. *International Journal of Social Psychiatry* **60**:1, 89-94. [Crossref]

72. Leandro Prados de la Escosura. Capitalism and human welfare 501-529. [Crossref]

73. Tatiana Kossova, Elena Kossova, Mariia Sheluntcova. 2014. Investigating the Volume and Structure of Alcohol Consumption and Their Impact on Life Expectancy in Russian Regions. *SSRN Electronic Journal* . [Crossref]
74. Adrianna Murphy, Nataliia Levchuk, Andrew Stickley, Bayard Roberts, Martin McKee. 2013. A country divided? Regional variation in mortality in Ukraine. *International Journal of Public Health* **58**:6, 837-844. [Crossref]
75. Yuka Minagawa. 2013. Inequalities in Healthy Life Expectancy in Eastern Europe. *Population and Development Review* **39**:4, 649-671. [Crossref]
76. Gianna Claudia Giannelli, Lucia Mangiavacchi, Luca Piccoli. 2013. Do parents drink their children's welfare? Intra-household allocation of time between market labour, domestic work and child care in Russia. *IZA Journal of Labor & Development* **2**:1. . [Crossref]
77. Alexander M. Danzer. 2013. Benefit Generosity and the Income Effect on Labour Supply: Quasi-Experimental Evidence. *The Economic Journal* **123**:571, 1059-1084. [Crossref]
78. Andrew Stickley, Ai Koyanagi, Bayard Roberts, David Rotman, Martin McKee. 2013. Criminal victimisation and health: Examining the relation in nine countries of the former Soviet Union. *Social Science & Medicine* **91**, 76-83. [Crossref]
79. Sarah Missinne, Bart Meuleman, Piet Bracke. 2013. The popular legitimacy of European healthcare systems: A multilevel analysis of 24 countries. *Journal of European Social Policy* **23**:3, 231-247. [Crossref]
80. Mike Haynes. 2013. Social Inequality and the Continuing Russian Mortality Crisis. *Debatte: Journal of Contemporary Central and Eastern Europe* **21**:1, 25-49. [Crossref]
81. Pavel Grigoriev, Gabriele Doblhammer-Reiter, Vladimir Shkolnikov. 2013. Trends, patterns, and determinants of regional mortality in Belarus, 1990–2007. *Population Studies* **67**:1, 61-81. [Crossref]
82. Y. Minagawa. 2013. The Social Consequences of Postcommunist Structural Change: An Analysis of Suicide Trends in Eastern Europe. *Social Forces* **91**:3, 1035-1056. [Crossref]
83. Jay Bhattacharya,, Christina Gathmann,, Grant Miller. 2013. The Gorbachev Anti-Alcohol Campaign and Russia's Mortality Crisis. *American Economic Journal: Applied Economics* **5**:2, 232-260. [Abstract] [View PDF article] [PDF with links]
84. Yuka Minagawa. 2013. Gender Differences in Alcohol Choice among Russians: Evidence from a Quantitative Study. *European Addiction Research* **19**:2, 82-88. [Crossref]
85. Gianna Claudia Giannelli, Lucia Mangiavacchi, Luca Piccoli. 2013. Do Parents Drink Their Children's Welfare? A Joint Analysis of Intra-Household Allocation of Time. *SSRN Electronic Journal* **60**. . [Crossref]
86. RICHARD A. EASTERLIN. 2013. HAPPINESS, GROWTH, AND PUBLIC POLICY †. *Economic Inquiry* **51**:1, 1-15. [Crossref]
87. Sunnee Billingsley. 2012. Intragenerational mobility and mortality in Russia: Short and longer-term effects. *Social Science & Medicine* **75**:12, 2326-2336. [Crossref]
88. Pavel Grigoriev. 2012. Crise sanitaire et tendances de la mortalité par cause en Biélorussie (1965-2008). *Population* **Vol. 67**:1, 7-39. [Crossref]
89. Christopher J. Gerry. 2012. The journals are full of great studies but can we believe the statistics? Revisiting the Mass Privatisation – Mortality Debate. *Social Science & Medicine* **75**:1, 14-22. [Crossref]
90. David Stuckler, Lawrence King, Martin McKee. 2012. The disappearing health effects of rapid privatisation: A case of statistical obscurantism?. *Social Science & Medicine* **75**:1, 23-31. [Crossref]
91. David Stuckler, Lawrence King, Martin McKee. 2012. Response to Michael Gentile 'Mass Privatisation, Unemployment and Mortality'. *Europe-Asia Studies* **64**:5, 949-953. [Crossref]

92. Elizabeth Brainerd. The Demographic Transformation of Post-Socialist Countries: Causes, Consequences, and Questions 57-83. [Crossref]
93. Javier Mejía Cubillos. 2012. Libertad y Desempeño Económico (Freedom and Economic Performance). *SSRN Electronic Journal* . [Crossref]
94. Tatiana Kossova, Elena Kossova, Vladimir Suhodoev. 2012. Revealing Macroeconomic Determinants of Alcohol Abuse and its Influence on Life Expectancy in Russia. *SSRN Electronic Journal* . [Crossref]
95. Koen Deconinck, Johan F. M. Swinnen. 2012. Peer Effects in Alcohol Consumption: Evidence from Russia's Beer Boom. *SSRN Electronic Journal* . [Crossref]
96. Ketevan Rtveladze, Tim Marsh, Laura Webber, Fanny Kilpi, Yevgeniy Goryakin, Anna Kontsevaya, Antonina Starodubova, Klim McPherson, Martin Brown. 2012. Obesity trends in Russia. The impact on health and healthcare costs. *Health* **04**:12, 1471-1484. [Crossref]
97. Liubov V Borisova. 2011. Health care systems as determinants of health outcomes in transition countries: Developing classification. *Social Theory & Health* **9**:4, 326-354. [Crossref]
98. Thor Norström. 2011. The role of alcohol in the Russian mortality crisis. *Addiction* **106**:11, 1957-1965. [Crossref]
99. Andrei Markevich, Mark Harrison. 2011. Great War, Civil War, and Recovery: Russia's National Income, 1913 to 1928. *The Journal of Economic History* **71**:3, 672-703. [Crossref]
100. HwaJung Choi. 2011. Parents' Health and Adult Children's Subsequent Working Status: A Perspective of Intergenerational Transfer and Time Allocation. *Journal of Family and Economic Issues* **32**:3, 493-507. [Crossref]
101. Michel Guillot, Natalia Gavrilova, Tetyana Pudrovska. 2011. Understanding the "Russian Mortality Paradox" in Central Asia: Evidence from Kyrgyzstan. *Demography* **48**:3, 1081-1104. [Crossref]
102. John S Earle, Scott Gehlbach. 2011. Did Post-communist Privatization Increase Mortality?. *Comparative Economic Studies* **53**:2, 239-260. [Crossref]
103. Sunnee Billingsley. 2011. Exploring the Conditions for a Mortality Crisis: Bringing Context Back into the Debate. *Population, Space and Place* **17**:3, 267-289. [Crossref]
104. Elizabeth Frankenberg, Duncan Thomas. Global Aging 73-89. [Crossref]
105. John S. Earle, Scott Gehlbach. 2011. Did Postcommunist Privatization Increase Mortality?. *SSRN Electronic Journal* . [Crossref]
106. Andrei Markevich, Mark Harrison. 2011. Great War, Civil War, and Recovery: Russia's National Income, 1913 to 1928. *SSRN Electronic Journal* . [Crossref]
107. Jayanta Bhattacharya, Christina Gathmann, Grant Miller. 2011. The Gorbachev Anti-Alcohol Campaign and Russia's Mortality Crisis. *SSRN Electronic Journal* . [Crossref]
108. Pavel Grigoriev, Olga Grigorieva. 2011. Self-perceived health in Belarus: Evidence from the income and expenditures of households survey. *Demographic Research* **24**, 551-578. [Crossref]
109. Michael Murphy. Adult Mortality in the Former Soviet Union 83-100. [Crossref]
110. Pavel Grigoriev, Vladimir Shkolnikov, Evgueni Andreev, Domantas Jasilionis, Dmitri Jdanov, France Meslé, Jacques Vallin. 2010. Mortality in Belarus, Lithuania, and Russia: Divergence in Recent Trends and Possible Explanations. *European Journal of Population / Revue européenne de Démographie* **26**:3, 245-274. [Crossref]
111. Sergei Guriev. 2010. Introduction. *Economics of Transition* **18**:2, 245-248. [Crossref]
112. Daniel Treisman. 2010. Death and prices. *Economics of Transition* **18**:2, 281-331. [Crossref]
113. Irina Denisova. 2010. Adult mortality in Russia. *Economics of Transition* **18**:2, 333-363. [Crossref]
114. Sonya K. Huffman, Marian Rizov. 2010. The Rise of Obesity in Transition: Theory and Empirical Evidence from Russia. *Journal of Development Studies* **46**:3, 574-594. [Crossref]

115. Y. E. Razvodovsky. 2010. Beverage-Specific Alcohol Sale and Cardiovascular Mortality in Russia. *Journal of Environmental and Public Health* **2010**, 1-6. [Crossref]

116. John S. Earle, Scott Gehlbach. 2010. 'Mass Privatisation and the Post-Communist Mortality Crisis': Is There Really a Relationship?. *SSRN Electronic Journal* . [Crossref]

117. Alexandra Avdeenko, Tilman Brück, Carlos Bozzoli. 2010. Legacy from the Transition?: Alcohol Consumption by Young Adults in Ukraine. *SSRN Electronic Journal* . [Crossref]

118. Sinéad Boylan, Ailsa Welch, Hynek Pikhart, Sofia Malyutina, Andrzej Pajak, Ruzena Kubinova, Oksana Bragina, Galina Simonova, Urszula Stepaniak, Aleksandra Gilis-Januszewska, Lubomíra Milla, Anne Peasey, Michael Marmot, Martin Bobak. 2009. Dietary habits in three Central and Eastern European countries: the HAPIEE study. *BMC Public Health* **9**:1. . [Crossref]

119. Sara Ferlander, Ilkka Henrik Mäkinen. 2009. Social capital, gender and self-rated health. Evidence from the Moscow Health Survey 2004. *Social Science & Medicine* **69**:9, 1323-1332. [Crossref]

120. Brian P. Hinote, William C. Cockerham, Pamela Abbott. 2009. Post-Communism and Female Tobacco Consumption in the Former Soviet States. *Europe-Asia Studies* **61**:9, 1543-1555. [Crossref]

121. Brian P. Hinote, William C. Cockerham, Pamela Abbott. 2009. Psychological distress and dietary patterns in eight post-Soviet republics. *Appetite* **53**:1, 24-33. [Crossref]

122. Richard A. Easterlin. 2009. Lost in transition: Life satisfaction on the road to capitalism. *Journal of Economic Behavior & Organization* **71**:2, 130-145. [Crossref]

123. Andrew Stickley, Sara Ferlander, Tanya Jukkala, Per Carlson, Olga Kislitsyna, Ilkka Henrik Mäkinen. 2009. Institutional Trust in Contemporary Moscow. *Europe-Asia Studies* **61**:5, 779-796. [Crossref]

124. Lawrence King, Patrick Hamm, David Stuckler. 2009. Rapid Large-Scale Privatization and Death Rates in Ex-Communist Countries: An Analysis of Stress-Related and Health System Mechanisms. *International Journal of Health Services* **39**:3, 461-489. [Crossref]

125. Sergei Guriev,, Ekaterina Zhuravskaya,. 2009. (Un)Happiness in Transition. *Journal of Economic Perspectives* **23**:2, 143-168. [Abstract] [View PDF article] [PDF with links]

126. Sergei Guriev, Ekaterina Zhuravskaya. 2009. (Un)Happiness in Transition. *Journal of Economic Perspectives* **23**:2, 143-168. [Crossref]

127. A. Stickley, Y. Razvodovsky. 2009. Alcohol Poisoning in Belarus: A Comparison of Urban-Rural Trends, 1990-2005. *Alcohol and Alcoholism* **44**:3, 326-331. [Crossref]

128. Yuriy Gorodnichenko, Klara Sabirianova Peter, Dmitriy Stolyarov. 2009. Inequality and Volatility Moderation in Russia: Evidence from Micro-Level Panel Data on Consumption and Income. *SSRN Electronic Journal* **104**. . [Crossref]

129. Sonya Kostova Huffman, Marian Rizov. 2009. The Rise of Obesity in Transition: Theory and Empirical Evidence from Russia. *SSRN Electronic Journal* . [Crossref]

130. Alexander Golub, Elena Strukova. 2008. Evaluation and Identification of Priority Air Pollutants for Environmental Management on the Basis of Risk Analysis in Russia. *Journal of Toxicology and Environmental Health, Part A* **71**:1, 86-91. [Crossref]

131. Karen Macours, Johan F.M. Swinnen. 2008. Rural–Urban Poverty Differences in Transition Countries. *World Development* **36**:11, 2170-2187. [Crossref]

132. Natalia S. Gavrilova, Victoria G. Semyonova, Elena Dubrovina, Galina N. Evdokushkina, Alla E. Ivanova, Leonid A. Gavrilov. 2008. Russian Mortality Crisis and the Quality of Vital Statistics. *Population Research and Policy Review* **27**:5, 551-574. [Crossref]

133. David Stuckler, Lawrence P King, Sanjay Basu. 2008. International Monetary Fund Programs and Tuberculosis Outcomes in Post-Communist Countries. *PLoS Medicine* **5**:7, e143. [Crossref]

134. Dagmar Radin. 2008. World Bank Funding and Health Care Sector Performance in Central and Eastern Europe. *International Political Science Review* **29**:3, 325-347. [Crossref]

135. Sonya Kostova Huffman, Marian Rizov. 2008. The Rise of Obesity in Transition Economies: Theory and Evidence from the Russian Longitudinal Monitoring Survey. *SSRN Electronic Journal* . [Crossref]

136. Richard A. Easterlin. 2008. Lost in Transition: Life Satisfaction on the Road to Capitalism. *SSRN Electronic Journal* **97**. . [Crossref]

137. Sonya K. Huffman, Marian Rizov. 2007. Determinants of obesity in transition economies: The case of Russia. *Economics & Human Biology* **5**:3, 379-391. [Crossref]

138. Ekaterina Zhuravskaya. 2007. Whither Russia? A Review of Andrei Shleifer's A Normal Country. *Journal of Economic Literature* **45**:1, 127-146. [Abstract] [View PDF article] [PDF with links]

139. Massimo Pivetti. 2006. The 'principle of scarcity', pension policy and growth. *Review of Political Economy* **18**:3, 379-390. [Crossref]

140. Louise Grogan. 2006. Alcoholism, Tobacco, and Drug Use in the Countries of Central and Eastern Europe and the Former Soviet Union. *Substance Use & Misuse* **41**:4, 567-571. [Crossref]

141. Elena Strukova, Alexander Golub, Anil Markandya. 2006. Air Pollution Costs in Ukraine. *SSRN Electronic Journal* . [Crossref]

142. Lawrence P. King, Patrick Hamm. 2005. Privatization and State Capacity in Postcommunist Society. *SSRN Electronic Journal* . [Crossref]