

**RAPID LARGE-SCALE PRIVATIZATION AND
DEATH RATES IN EX-COMMUNIST COUNTRIES:
AN ANALYSIS OF STRESS-RELATED AND
HEALTH SYSTEM MECHANISMS**

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During the transition to capitalism, the postcommunist countries have experienced devastating rises in mortality, although there has been considerable variation within and between countries and regions. Much of this population-level variation remains unexplained, but alcohol and psychological stress are found to be major proximal causes of rising mortality rates. The authors show that implementation of neoliberal-inspired rapid, large-scale privatization programs (“mass privatization”) was associated with significant declines in life expectancy, as well as with greater alcohol-related deaths, heart disease, and suicide rates. The authors interpret these findings as evidence that rapid organizational reform created excess psychosocial stress, which, consistent with the public health literature, increases risk of death at the individual level. However, they also find that rapid privatization modestly contributed to a decline in health care resources, such as the number of physicians, dentists, and hospital beds per capita, although there is weak evidence that these reductions in health system capacity explain substantial differences in mortality at the country level.

The massive economic contraction that followed the disintegration of the Soviet system has attracted a great deal of attention. What has been relatively neglected is, unfortunately, the most troubling aspect of the transition: the explosive rise in “violent mortality,” or epidemic levels of cardiovascular disease and “external” causes of death, such as alcohol poisoning, homicide, and suicide (1–3). Countries

in the “mortality belt,” spanning from Estonia in the north to Ukraine in the south, experienced life-expectancy declines of up to six years within the first half-decade of reform—a peacetime mortality crisis unparalleled in modern history. The United Nation’s MONEE project tabulates that the excess mortality during the 1990s, or deaths that would not have occurred if mortality had remained at 1989 levels, totaled more than 3.2 million (4). This crisis is in no respects over. Fifteen years after the transition, 11 of 25 of the postcommunist countries have failed to recover to pre-transition levels of life expectancy. In 2006, Russia’s life expectancy was 159th in the world, one place worse than Guyana and 11 places worse than Bangladesh (see Figure 1). Early stages of infectious disease crises, such as extensively drug-resistant tuberculosis and multi-drug resistant HIV/AIDS, pose threats to the control of these diseases in the rest of the world.

While the generalized economic crisis that has been labeled the “postcommunist recession” could relate to this increased mortality, it has not followed the typical patterns of development and health and, as a result, can at best be considered only a partial explanation. During the initial stages of reform, from 1989 to 1994, there is a moderately strong correlation between the logarithmic change in gross domestic product (GDP) per capita and the logarithmic change in life expectancy ($r = -0.60$). Over the next six years, however, the unadjusted

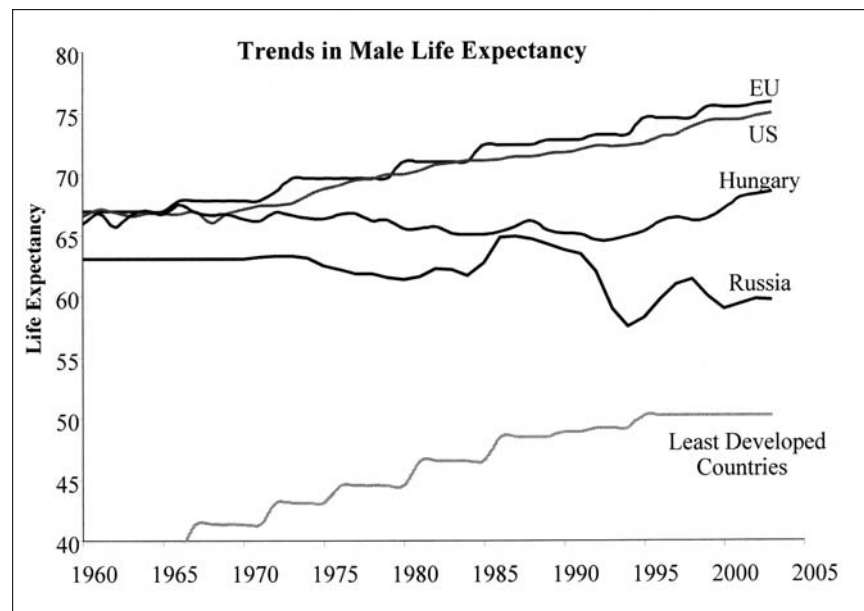


Figure 1. Trends in male life expectancy at birth, 1960–2003. *Source:* World Bank World Development Indicators 2005 edition; also in Brainerd and Cutler (2).

relationship weakens considerably ($r = -0.13$). Several countries, including Russia, exhibit the anomalous experience of continuing declines in mortality even as the economy recovered (1). Another enigmatic aspect of the surge in deaths has been the disproportionate impact on working-age men rather than financially and biologically vulnerable groups such as the very young and elderly.

The social sciences (sociology, political science, economics) have been relatively silent on this human crisis—with their focus on patterns of elite and social stratification, political outcomes, and economic development and change. A major exception to this neglect has been the group of “global ethnographers” studying the living conditions of the population (5, 6). Although these ethnographies do not explicitly address the public health crisis, they do link adverse social outcomes implicated in contributing to the erosion of population health, such as the emergence of poverty, to organizational failure, usually traced back to the destructive effects of the adoption of “neoliberal ideology” on state capacity (for a holistic account of the public health crisis that supports a “state desertion” account, see 7).

Western neoliberal economists were the most influential advisors to the postcommunist policymakers, while domestic neoliberal economists served as crucial political elites directly shaping postcommunist economic policy (8, 9). And yet neoliberals have had very little to say about the mortality crisis and, indeed, believe it to be the most puzzling outcome of the transition (10). They expected that enactment of the correct (i.e., neoliberal) reforms would push countries forward on the linear path from “planned” to “advanced market economies” and thus increase economic growth and prosperity. The lengthening of life expectancy should follow suit (11, 12) as countries undergo an “epidemiological transition” typical of modernizing societies in which neonatal care, modern sanitation infrastructures, and vaccines generate a decline in disease and thus a lengthening of life expectancy (13, 14).

Not surprisingly, the public health field has most directly and extensively studied this crisis. Epidemiological analyses clearly show that the increase in mortality is due to a rise in cardiovascular disease and “external causes” such as alcohol poisoning and violent deaths—homicide, suicide, and accidents. Psychosocial stress levels and alcohol consumption have occupied central roles in these explanations. Yet, even in the most comprehensive analyses, a sizable residual remains unaccounted for.

We will advance a sociological theory of postcommunist mortality, building on the work of the global ethnographers, but using quantitative methods. This analysis complements the public health literature, but poses a major challenge to neoliberal transition theory. Our findings demonstrate that those countries that implemented the neoliberals’ preferred method of privatization (mass privatization) experienced substantial declines in life expectancy. This explains a large part of the postcommunist mortality crisis, although the magnitude of the effect and the variance explained are sensitive to the type of statistical test

employed. Our conservative estimate of the decrease in life expectancy at birth as a result of implementing a mass privatization program is 0.86 years, although estimates from other common econometric methods are as high as 5.14 years (models not reported). We find it difficult to escape the conclusion that rapid large-scale privatization, as embodied in mass privatization programs, was a significant anterior cause of the postcommunist mortality crisis through the mechanism of psychosocial stress.

In the following sections we review the findings from the public health research; discuss the neoliberal analysis and develop a “neoclassical sociological” theory of postcommunist mortality that supplements the public health account, then generate our hypotheses; discuss our methods and data; and present our results. In the conclusion we discuss the implications for public policy and future research.

PUBLIC HEALTH LITERATURE ON THE POSTCOMMUNIST MORTALITY CRISIS

It is well-established that the postcommunist mortality crisis was primarily driven by “violent mortality”: cardiovascular disease and external causes of death such as alcohol poisoning, accidents, homicide, and suicide, especially among working-age adult men. Public health researchers have long understood that there is a strong relationship between low income or socioeconomic status and poor health. Thus, a declining economy should lead to worse health as it lowers living conditions. And indeed, over the entire period 1989–2000 across 22 transition countries, the log of life expectancy and the log of GDP growth have a $-.55$ correlation coefficient, although the relationship holds most strongly in the first five years ($-.60$) and is rather weak thereafter ($-.13$) (2). Clearly, the economic decline had some important effect, but the size of the effect, and the mechanisms that are operative, are not obvious.

Logically, a collapsed medical care system, unable to provide preventive medicine or adequately treat the ill, could account for this rise in mortality (7). Before the transition, the state (and state-owned enterprises) provided much of the universally free access to centrally planned care. Although the principle of universality persists, the introduction of fee-for-service and other cost-shifting reforms levied higher costs on patients at the time when many were the least able to afford them (2, p. 48; 15). This privatization of health care financing, combined with a growing lack of purchasing power among the poor, could account for increased mortality. Surveys from eight postcommunist countries found that more than one in five persons who reported an illness did not visit a doctor even though they felt it was medically necessary (the proportion ranging from roughly 10% in Armenia to 50% in Georgia) (15).

However plausible this account, we are aware of no systematic research (at the national level of Russia or cross-nationally) that supports this position as a

primary determinant of the mortality crisis, and it does not easily explain the precipitous rise in “violent” causes of death. Brainerd and Cutler (2) fail to find a significant relationship between log changes in maternal mortality and log changes in working-age (25 to 64 years) male mortality in 22 postcommunist countries. Infant mortality levels experienced a downward tendency, suggesting sufficient levels of prenatal and neonatal care. We should keep in mind, however, that maternal fatalities may be a weak proxy for care related to the emerging conditions that more heavily relied on utilization of pharmaceuticals, diagnoses, medical procedures, or other areas in which the health system was radically restructured. Brainerd and Cutler also fail to demonstrate a significant relationship between public and private health care spending levels and working-age male death rates (2, p. 12).

The Russian Longitudinal Monitoring Survey (RLMS) also shows that, surprisingly, the traditional risk factors for cardiovascular disease (behavioral risks such as smoking, alcohol, and unhealthy lifestyles/diet; clinical risks such as hypertension and high cholesterol) that are generally estimated to account for 40 to 60 percent of all chronic disease experience explain only a small fraction of the rise in mortality in Russia. Of these, only alcohol consumption changed enough to independently explain surging mortality levels. Nor did the RLMS show an increase in numbers of underweight people (based on body mass index), suggesting that an inability to get enough food is not to blame (2, pp. 13–15). This finding is consonant with Dore, Adair, and Popkin’s study (16) showing that Russian households are able to maintain nutritional levels despite changing economic conditions. This resilience is probably a function of the recourse to informal agriculture as a coping strategy (17) and intra-family gift-giving (6).

It might be the case that while caloric consumption is maintained, securing enough food requires more work, or displaces resources needed for other basic needs such as utilities, shelter, and water. Using the RLMS data for Russia, Brainerd and Cutler (2) include a number of controls for such effects (whether a family was in poverty or extreme poverty, received subsidies for fuel, or had to sell goods to obtain food, and the share of all expenses devoted to food), but fail to find significant effects.

Still, while postcommunist households may have maintained sufficient caloric intake, dietary content may have undergone important changes (i.e., a “nutrition transition”) (18). Several studies suggest that the economic transition affected the composition of diet in ways that influence health outcomes. In most Soviet-style systems, meat and dairy products were heavily subsidized, while fruit and vegetables were hard to come by. Thus, the removal of subsidies could increase the price of meat and dairy, and the liberalization of trade could increase the supply of affordable fruits and vegetables, leading to a predictable shift in food consumption patterns with corresponding mortality effects (insofar as fatty meat and dairy have adverse health effects relative to the consumption of fruits and vegetables). Bobak and colleagues (19) show that average Czech butter

consumption fell from 9.4 to 5.4 kg from 1989 to 1992, while Poledne and Skodova (20) show that the average Czech increased consumption of fruits and vegetables from 68 to 86 kg from 1989 to 1997. Sekula, Babinska, and Petrova (21) showed a similar change in Poland between 1989 and 1994, where there was a decrease in the consumption of animal fat and an increase in the consumption of vegetable fat.

Changes in the availability and prices of different types of food (based on variation in exchange rates and inflation rates) might therefore account for changing mortality rates. In a cross-country regression using World Health Organization mortality data on the availability of fruits and vegetables per person (in kilograms), Brainerd and Cutler (2, p. 49) show that an increase in such availability corresponds to decreased mortality, but the effect is not statistically significant and explains a modest 3 percent of the changing mortality of working-age men. This matched their results obtained for Russia with RLMS data—increasing fruit and vegetable consumption decreases cardiovascular death, but this explains only 2 percent of the increase in such diseases (2, p. 22).

The most significant positive findings from the public health literature focus on increased levels of psychosocial stress and the related increase in alcohol consumption and other risky “coping” behaviors. Stress (the anxiety/fear caused by a person’s perception of a challenge and the perceived inability to meet those challenges) has long been recognized to be associated with cardiovascular disease. The stress response is necessary for all life to respond to various stimuli in the environment, but damage to health comes when stress levels are maintained for long periods of time, because the body cannot adequately recover normal (lower) levels of the hormone cortisol. Elevated cortisol levels have been linked to impaired cognitive performance, suppressed thyroid function, blood sugar imbalances, decreased bone density and muscle tissue, higher blood pressure, suppressed immunity, and increased stomach fat (which in turn is linked to a variety of cardiovascular diseases). Thus, multiple mechanisms have been found by which psychological and social stressors “get under the skin” to affect a wide range of pathologies (22).

Such stress may also reasonably be assumed to be a cause of some of the massive increase in the suicide rate in the postcommunist world, in addition to killing through other types of “violent mortality.” To examine the mortality impact of psychosocial stress levels, Brainerd and Cutler proxy male suicide for overall stress. In a cross-sectional regression, the male suicide rate has a substantively large and statistically significant effect on the increase in male mortality from 1989 to 2000 across 22 transition countries (2, p. 49). If a significant portion of this stress results from an acute fear of a large fall in living standards, then the minimum wage level might also serve as a decent proxy for this type of stress (amplifying this is the fact that minimum wage levels are often used as a benchmark for setting the value of various social benefits). Brainerd and Cutler (2, p. 116) show that the log change in minimum

wage as a percentage of hourly wage has a large deleterious impact on mortality in 18 transition countries.

Stress can, of course, lead to poor health through an increase in “risky” behavior, such as using alcohol or drugs as a coping mechanism. This behavior would also be influenced by the price and availability of such goods, which would be influenced by liberalization policies (or the effect on imports of such goods from currency fluctuation and inflation). For example, the relative price of alcohol plunged in Russia from 1990 to 1994 by 58 percent (2, p. 17), a result of a flood of cheap imports and low-quality black market vodka. Increasing alcohol consumption contributes to mortality by increasing levels of alcohol poisoning and by contributing to suicides, accidents, and violent deaths. Furthermore, binge drinking may contribute to cardiovascular disease by increasing arrhythmias and heart attacks (23). And there is ample evidence of an increase in alcohol use in Russia. The RLMS data indicate that alcohol consumption increased 27 percent from 1992 to 2000. Official statistics on per capita alcohol consumption show large increases cross-nationally in the Baltics and the European former Soviet Union, but only a slight change in many countries in Central and Southern Europe.

There is evidence that this increased consumption is indeed partially responsible for the mortality crisis. A detailed study of cardiovascular disease and drinking in men in Novosibirsk, Russia, from 1985 to 1994 shows that heavy drinkers experienced increased health problems (24). But the authors find that the level of heavy drinking is too low to account for the increase in cardiovascular disease, and even if it is underestimated by a factor of five on surveys, it could account for only 8 percent of such deaths. Cross-national regression on 22 transition countries reveals a large, statistically significant effect of increased alcohol consumption on mortality, suggesting that it explains about 25 percent of the increased mortality between 1989 and 2000. Regression analysis of the RLMS data for 2000–2002 (when it recorded cause of death) shows that the increase in alcohol consumption in Russia predicts an increase in male mortality from accidental deaths—each 1% increase in consumption increases the likelihood of dying by 0.4%, which if one controls for binge drinking (defined as someone who reports normal consumption in the last 30 days as 120 or more grams of hard alcohol) falls to 0.3 percent, but binge drinking makes one 362 percent more likely to die an accidental death.

Taken together, the major findings of the public health literature are that an increase in stress and an increase in alcohol consumption have had a prominent effect on the postcommunist mortality crisis, but that these factors leave a large amount of variance between countries and variance within countries over time unexplained. The gigantic question this begs is what explains the variation in stress and risky behavior both over time and between countries.

There is evidence to suggest that “transition” policies may have precipitated or contributed to the mortality crises (25). One study found that mortality increases in Russia were greatest in regions that experienced the fastest pace of transition in

terms of job gains and losses in large and medium enterprises (26). Unemployment, which did not exist under the former communist regimes, soared in the wake of social reform. In the Soviet-style economies, employers historically played an important role in ensuring well-being through dispensing various social and consumer goods in the workplace (literally, in enterprise-owned organizations that may or may not be located at the factory), and quite often housing as well. The sudden loss of these benefits could be particularly traumatic for workers. Indeed, many workers continued to work even in the absence of fiscal remuneration to maintain access to these goods (27). Other studies point to the impacts of asset stripping and reprofiling of health delivery institutions, such as pharmacies, under privatization programs (28). We provide a first attempt to operationalize these policies by investigating the effect of implementing large-scale privatization programs on mortality.

NEOLIBERAL ECONOMIC AND NEOCLASSICAL SOCIOLOGICAL THEORIES OF POSTCOMMUNIST HEALTH OUTCOMES

A small group of neoliberal economists with ties to Harvard University provided the intellectual guidance (policy advice) and legitimation (intellectual/political support) for transition policymakers (9). To our knowledge, they have mostly ignored the mortality crisis and have focused instead on explaining variation in rates of annual growth throughout the region.

These economists argued that the radical liberalization, stabilization, and privatization programs were necessary for both economic and political reasons. They have subsequently produced a substantial literature indicating that the closer the adherence to their initial policy advice (usually measured by the de Melo composite indicator of “liberalization”), the better the economic performance as measured by annual growth rates (29). Neoliberals expected that the transition from the planned to the market economy would catalyze the “epidemiological transition” as found in Western societies, in which modernization leads to declines in overall mortality and a decrease in its variability until it reaches a low and stable level.

Neoliberals have never suggested that actually implementing their prescribed policies might have contributed to the public health crisis, and in fact offer no structural account of the mortality crisis at all. They ultimately resort to will-based, or voluntaristic, explanations for the mortality crisis: poor health is related to poor personal choices. Therefore the policy advice is that individuals must decide to make better choices and take better care of themselves, perhaps aided by educational campaigns. A recent study conducted by the World Bank on the Russian mortality crisis concluded that “Russians must ease back on the bottle, cut down on smoking, watch their diet and lead healthier lives if they are to reverse population decline and maintain economic growth. . . . Though the report

referred to the Russian's legendary fondness for vodka, it also cited excessive smoking, poor diet and low personal fitness as contributory factors" (30).

We consider this a non-explanation. It begs the question, *why did people all over the postcommunist world start making worse personal choices, and why much more so in some countries than in others?* Such decisions could in no sense be considered "rational" in the medium or long term—so why did people decide to start discounting the future so heavily? There must be a change in people's environment to trigger this behavior. Individual preferences, willpower, or genetics cannot account for the changing mortality patterns over time. We seek an answer to these questions by providing a sociological analysis of the effects of the most contested of all transition policies, "mass privatization."

Sociology has made substantial contributions to understanding postcommunist poverty through extensive case studies and survey research, but for the most part sociologists have been silent on the unprecedented human disaster. Our neoclassical sociological account is not mutually exclusive with the public health literature. We wish to add to the explanation by seeking to identify the anterior cause of psychosocial stress. We add in privatization policy as one of the potential ultimate causes, or the "causes of the causes of the causes," of the mortality crisis, opening up a whole new set of independent variables (macro and micro economic—i.e., structural adjustment—policies) for explaining public health and demographic change in the postcommunist world.

Neoclassical economics (building on the classics of Smith and Ricardo) fundamentally disagrees with what we term "neoclassical sociology" (building on the classics of Marx, Weber, and Durkheim) about the relationship between the state, the market, and civil society. The neoliberals famously see the state and the market in a zero-sum way: *the more state, the less market*. Civil society (social groups, shared values and symbols) is conflated with the market. The neoclassical sociological position sees the state, the market, and civil society as mutually constitutive (31). Here, civil society refers to groups with "social closure" (class and status groups) as well as a community's shared understandings of the world.

The artificial creation of "private property" overnight, when a class of entrepreneurial capitalists has not emerged over time, will not produce the desired effects, because it neglects the role of "civil society" (a profit-oriented entrepreneurial class) and a strong bureaucratic state in the proper functioning of "Western" or "modern" capitalism (these can be considered the Marx and Weber effects). Moreover, to the extent that traditional social prestige hierarchies are disrupted and many people's traditional understanding of themselves in relation to society is undermined by radical institutional change, we can expect an intensification of social problems (the Durkheim effect).

Our initial causal model identifies supply and demand shocks from mass privatization programs that undermine economic organizations, producing a decline in economic activity and a rise in barter, both leading to declining state revenues, thus producing a decline in its capacity. The state can no longer supply

the inputs necessary for medium- and hi-tech production, including skilled labor, creating a vicious circle of declining enterprises and a failing state (29). The generalized organizational failure resulting from these processes increases physical and emotional stress for all involved and diminishes the organizational strength of care-giving institutions. These two social facts combine to increase mortality.

We thus generate our main hypothesis that we will test in this article:

H_{1SOC}: All things held equal, countries that implemented mass privatization programs will have had greater declines in life expectancy than countries that didn't implement such programs.

Neoliberals would predict the opposite, even if there was a lag between the policy and the positive effect while resources were reallocating:

H_{1NL}: All things held equal, countries that implemented mass privatization programs, possibly after a brief lag of time, will have a greater increase in life expectancy than countries that didn't implement such programs.

We will test the robustness of the basic finding with several additional dependent variables. Because men were disproportionately employed in the heavy industrial sector (32), which makes up a disproportionate number of the large enterprises that were included in mass privatization programs, we would expect men to suffer from more psychosocial stress than women. We look at the difference between male and female changes in life expectancy as one test for robustness. Thus, contingent on H_{1SOC} being supported, we test:

H_{2SOC}: All things held equal, mass privatization programs will have a larger negative effect on male life expectancy than female life expectancy.

To further test for the robustness of our psychosocial stress mechanism, we compare the effect of mass privatization on the rate of two causes of death that we can reasonably assume are, to a significant extent, the result of increased psychosocial stress—alcohol-related deaths and suicides. As a final variable to test for the psychosocial stress mechanism, we add ischemic heart disease or coronary artery disease, which has been shown to be related to anger and socio-emotional distress (33):

H_{3ASOC}: All things held equal, countries that implemented mass privatization programs will have higher increases in the rates of alcohol-related deaths, suicide, and ischemic heart disease than countries that didn't implement such programs, and;

H_{3BSOC}: The increase in these rates will be greater for men than for women.

Our initial “neoclassical sociological” explanation for the postcommunist collapse emphasizes that the economic crisis that contributes to the psychosocial stress will also undermine state capacity, and thus medical provision, further contributing to the mortality crisis. In the analysis we use a variety of measures of health provision (per capita number of physicians, nurses, dentists, hospital beds, inpatient admissions, as well as public health spending as percentage of GDP, and finally the log of absolute levels of public health spending). Thus we generate additional hypotheses:

- H_{4ASOC}: All things held equal, countries that implemented mass privatization programs will have declining health provision (hospital beds, physicians, nurses, dentists, public health spending, inpatient admissions); and
 H_{4BSOC}: The decrease in health provision will increase mortality.

Definitions and descriptive statistics for all variables are presented in the Appendix (p. 486).

DATA AND METHODS

We construct a panel using the January 2005 mortality data from the WHO Mortality Database and the January 2006 European Health for All Mortality Database for 26 transition countries in Central and Eastern Europe, including the Baltics, Russia, and other members of the former Soviet Union. Economic and social variables are from the World Bank’s World Development Indicators (2005), the European Bank for Reconstruction and Development’s (EBRD) Transition Report (2003), the TransMONEE database (2003), and the World Bank/EBRD Business Environment and Enterprise Performance Survey (1999). Econometric analyses are conducted using LimDep version 8.0 and Stata version 9.

The validity and reliability of health surveillance during transition could be a possible limitation for analyses of the mortality crisis. More specifically, there are concerns about shifts in mortality stemming from the development of new monitoring and detection methods, as well as inaccurate classification or misclassification of death resulting from the transformation of health systems. Such unobserved relationships or measurement error may obscure the relationship between health outcomes and privatization programs. Some countries, such as Georgia, implemented fees for death registration, which has led to high levels of underreporting. Countries that adopted these types of market-driven health care delivery reforms also tended to be the ones that have more closely embraced the free-market model (34), hence inclusion of these countries in our analysis may conservatively bias the results of mass privatization on health outcomes. While the proportion of deaths with undefined causes escalated at the peak of the health decline between 1991 and 1994 to approximately 3 percent, we assume

that this categorization is random across causes of death and will not qualitatively skew results.

Overall, the consensus among scholars is that despite these limitations, the data during reform periods are sufficiently valid and reliable to permit empirical analyses for comparative purposes (2). In Russia, for example, more than 94 percent of deaths have been medically certified, and background cancer mortality expressed temporal stability, which indicates internal consistency. Indeed, mortality data have been argued to be far more reliable for comparative analysis than all macro-economic data (35).

Modeling Framework

Our analysis follows a “quasi-natural experiment” approach that has been strongly advocated by statisticians as well as economists for evaluating the effects of policy interventions (36). The key advantage claimed by this approach is that country participation can be treated as independent, such that outcome differentials across these strata can be directly attributed to the policy. Mass privatization seems to be a promising candidate for this framework, particularly since the reform itself was intended to operate as an “economic shock,” rapidly inducing the formation of a capitalist class.

The quasi-natural experimental design does have some notable limitations. The independence assumption that underlies evaluating the treatment effect of the policy may not be unbiased if policy changes are driven by politicians’ and stakeholders’ motives in ways that relate to health outcomes.

Fixed versus Random Effect

To specify the appropriate modeling approach with panel data, we need to decide between the more efficient random effects model and the more conservative fixed effects model. The question is whether there are unmeasured unit (country) effects that are correlated with the explanatory variables and the outcome variables. We formally test this assumption using the Hausman test, which essentially compares the predicted parameters under random effects and fixed effects. We find that the unobserved heterogeneity cannot be assumed to be unrelated to the predictors of health outcomes ($\chi^2 = 44.27, p < .001$). Therefore, the fixed effects model is favorable because it removes this heterogeneity altogether by explicitly allowing it to freely correlate with the explanatory variables. In essence, this is like putting in a set of country dummy variables. While the random effects model explains a weighted sum of the overall variance caused by differences between countries over time and differences within countries over time, the fixed effects approach only explains within-country variation. As a result, differences in changes in life expectancy that arise from differences between countries are excluded from the analysis. This allows us to isolate the

effect of our policy variable (mass privatization) without worrying about differences between countries that might affect changes in public health. Fixed effect estimation is also less efficient than random effects, as it loses degrees of freedom, thereby making it more difficult to have a strong and statistically significant result and thus a more conservative estimate.

Serial Correlation and Heteroskedasticity

Testing our data for non-constant variance with the Breusch-Pagan method indicates the presence of heteroskedasticity. We also find evidence of first-order autocorrelation, AR(1), in our panel. To account for these distortions, we estimate an AR(1) model and use White's robust-covariance matrix to produce asymptotically consistent parameters and corrected standard errors. Similar results were observed by clustering the standard errors, which renders them unbiased to any arbitrary serial correlation. Jackknife standard errors are also used to test the model's robustness to potential outliers.

Health Production Function

Our main specification follows the standard health production model (37). The theory that underlies this model is based on the concept of the individual-specific health production function (38, 39):

$$(1) \quad H_{it} = f(Q_{it}, D_{it}, HC_{it}, N_{it}, Z_{it}, V_{it}, S_{it})$$

where Q_{it} is a vector of macroeconomic variables; D_{it} is a vector of demographic characteristics; HC_{it} is non-health human capital; N_{it} is a vector of dietary and nutritional inputs; Z_{it} is a vector of medical resources; V_{it} is a vector of environmental conditions; and S_{it} is a vector of individual country characteristics; i denotes country and t denotes time.

We obtain a basic model that depends on policy variables and a set of social and economic determinants:

$$(2) \quad LE_{it} = \alpha + \beta_1 MPRIV_{it} + \beta_2 LIB_{it} + \beta_3 GDP_{it} + \beta_4 URBAN_{it} + \beta_5 EDUC_{it} + \beta_6 DEP_{it} + \beta_7 FERT_{it} + \varepsilon_{it}$$

where i denotes country and t time. LE is life expectancy. MPRIV is coded as 0 for years preceding mass privatization and 1 for years following implementation of mass privatization. We define a mass privatization program as a reform that transferred the ownership of at least 25 percent of large state-owned enterprises to the private sector by relying on citizen vouchers and give-aways to firm insiders. This coding is taken from the text of the historical narratives for each country in

the EBRD's 1996 and 1999 *Transition Reports*. LIB is the EBRD's 1–4.3 scale of price liberalization. GDP is the log of per capita GDP in constant US\$. URBAN is the percentage of the population living in urban settings. Urbanization is included as a broad indicator of macro-development. In addition, urban settings often correspond to greater access to health resources and nutritional inputs, but have been associated with increased risk for chronic diseases, including cardiovascular diseases, malignant neoplasms, and diabetes (33). Recent studies have found that rural patients in postcommunist settings are less likely to receive care, effects bolstered by a larger health literature showing differential access to health resources and services in rural relative to urban settings (15). EDUC is used to assess the educational components of human capital on the basis of tertiary enrollment rates. DEP is the dependency ratio (the fraction of the population composed of elderly persons and children). FERT is the fertility rate in expected births per woman.

To assess the mechanism by which mass privatization affects mortality, in subsequent models we introduce controls for behavioral risks (alcohol consumption per capita, protein availability and fruit and vegetable availability per capita) and measures of health system resources (number of physicians, nurses, hospital beds, and dentists per capita and hospital bed occupancy rates) as proxies for health system performance. We test the psychosocial stress mechanism by regressing a series of mortality causes related to stress on the transition policy variables. We also differentiate the potential effects of mortality on men and women.

MAIN RESULTS

The result of the basic equation using fixed effects with adjustment for first-order autocorrelation is presented in Table 1. Mass privatization is estimated to lower overall life expectancy by 0.86 years. Our analysis corroborates previous work finding that the impact of GDP per capita on health is positive. We find that an order of magnitude increase in GDP per capita corresponds to a 1.4 year increase in life expectancy. By this measure, the “break-even” point for the health benefits resulting from increased economic performance to offset adverse effect of mass privatization would require a 4.2-fold increase in GDP. Of course, no transition country has grown anywhere near this much. Moreover, previous simple cross-sectional regression analysis by King and Hamm (29) shows that mass privatization programs exert a large negative effect on the overall rate of growth (about 46%), which would further contribute to declining population health levels.

We performed several robustness checks on how we estimated our basic equation. Including time dummies for each year (not presented) did not significantly modify the direction or magnitude of the covariates, indicating that the results are not artifacts of the turbulent transition period. Other covariance matrices, calculated using either White's robust covariance matrix or jackknife

Table 1

Effect of mass privatization on life expectancy
in transition countries

Covariates	Fixed effects
<i>Mass privatization</i>	-0.86 (0.22)**
GDP	1.38 (0.24)**
Urbanization	-0.00 (0.07)
Dependency	0.15 (0.04)**
Fertility	-0.77 (0.32)*
Price liberalization	-0.02 (0.11)
Education	0.07 (0.01)**
Number of observations	313
Number of countries	26
R^2	0.93

Note: Hausman test $\chi^2 = 44.27$, $p < .001$, favors fixed effects model; constant not reported; one-way fixed effects with country-specific effects presented, period effects do not alter results; Prais-Winsten transformation used to calculate AR(1) error structure; mass privatization significant at $p < .05$ using either White robust covariance matrix or jackknife estimated standard errors (deleting one group with iterations for each of 26 countries to obtain averaged estimates of the pseudo-variances). Other robustness checks (not presented) remove potential outliers, such as Russia and Kazakhstan, from the analysis and generate consistent results.

* $p < .05$; ** $p < .01$ (two-tailed tests).

standard errors, do not modify the significance of these findings. Using a series of distributed lag models, we find that the significant negative association of mass privatization with mortality takes place in the first two years and that, even in the long run, this association never turns positive, as might be expected from the neoliberal political economy model of “short-term” pain/“long-term” gain.

In Table 2 we adjust for a broad set of additional control variables to determine whether changes in health care resources, dietary inputs, and other policy variables contributed to the mortality crisis and could alternatively explain (or could have mediated) the relationship between mass privatization and mortality. We find that the number of physicians, nurses, hospital beds, and inpatient care admissions scaled to population size neither have the expected statistically significant effect on life expectancy nor significantly change the coefficient on mass privatization. We must interpret this with caution, however. In turbulent

Table 2

Control variables		
Control variables	Coefficient of control	Coefficient of mass privatization
<i>Health resources</i>		
Physicians (per 1,000)	0.10 (0.23)	-0.87 (0.24)**
Nurses (per 100,000)	0.00 (0.00)	-0.89 (0.23)**
Dentists (per 100,000)	0.04 (0.01)**	-0.67 (0.22)**
Hospital beds	-0.10 (0.08)	-0.96 (0.24)**
Bed occupancy rate	-0.02 (0.01)*	-0.93 (0.30)**
Inpatient care	0.01 (0.04)	-0.88 (0.23)**
<i>Dietary and nutritional inputs</i>		
Fruits and vegetables	-0.01 (0.00)**	-0.69 (0.25)**
Protein	-0.16 (0.10)	-0.98 (0.23)**
Energy availability (kcal)	0.00 (0.00)	-0.85 (0.22)**
Alcohol consumption	-0.12 (0.05)*	-0.80 (0.24)**
<i>Policy variables</i>		
de Melo liberalization index	-2.10 (0.75)**	-0.71 (0.22)**
EBRD foreign exchange and trade liberalization	-0.17 (0.10)	-0.69 (0.26)**
Political freedom	0.21 (0.08)**	-0.98 (0.22)**

Note: Fixed effects model adjusted for log (GDP), European Bank for Reconstruction and Development price liberalization index, percentage of population urban, age-dependency ratio, fertility rate, and percentage population with tertiary education; Prais-Winsten transformation to accommodate AR(1) error structure.

* $p < .05$; ** $p < .01$ (two-tailed tests).

periods, money flowing toward health systems may not be a suitable indicator of health system performance, particularly given the documented rise of informal health care payment mechanisms.

The only finding that may indicate that shrinking health care capacity is contributing to life expectancy trends is the positive effect of the number of dentists. During periods of economic flux, dentists, substituting for surgeons, may play a more prominent role in ensuring population health (for example, due to the diverse nature of dentists' abilities, many military establishments favor the enlistment of dentists over that of physicians). Another interpretation of this finding may relate to the migration experience of dentists relative to physicians. The period of transition was marked by high levels of cross-country migration, particularly for the specialist classes. The promise of better compensation under market-driven health-financing reforms may have lured dentists, whose services

tend to be more privately funded than other care providers, away from countries with bleaker economic outlooks, whereas physicians may have had less opportunity to benefit from emigration. The positive effect of dentists on life expectancy may therefore indicate that countries that retained dentists fared better socially and economically during transition than others, possibly accounting for the observed effect in a manner unrelated to health care delivery. At any rate, one statistically significant effect out of five indicators is not very strong—and is moving dangerously close to being indistinguishable from a result of chance.

Table 2 also assesses the effect of dietary and nutritional health inputs on the cross-country mortality experiences, and shows that these controls do not affect the main finding. Only alcohol consumption had the expected direction, with an increase in alcohol consumption of one liter per capita decreasing life expectancy by 0.12 years. The results from the other variables, measuring availability rather than consumption directly, are counterintuitive, suggesting that increases in both the availability of fruits and vegetables and the percentage of total energy derived from protein decrease life expectancy. Overall caloric intake was not significant.

A major limitation to the nutritional factors is that during the transition period, availability certainly increased following price and trade liberalization, while consumption may well have decreased for a substantial part of the population (i.e., the shelves were finally full, but most people could no longer afford to buy the goods). A one-point higher categorization of price liberalization (on the 1–4.3 scale), using the main model specification, increases the availability of fruits and vegetables by roughly 6 kg, whereas privatization did not have a significant effect. There is a small effect of fruit and vegetable availability, but it is in the wrong direction. However, the data do not distinguish between an increase in availability of potatoes and more nutritious fruits and vegetables. Thus the negative effect of fruit and vegetable availability could be due to the increased reliance on the produce of *dacha* garden plots, a non-market response to increased hardship (17). Neither price liberalization nor mass privatization shaped the availability of protein.

Lastly, Table 2 examines the impact of other transition policies on health outcomes. Adding the widely used de Melo liberalization index (which produces a single summary value for all transition reforms, including privatization, with a 0 for “planned” economies and a 1 for “market” economies) indicates a strongly negative effect of 2.10 years. Because the de Melo index was only produced until 1997, the number of observations is reduced to 159, with 25 of the 26 sample countries covered. The estimated coefficient on mass privatization, which is slightly attenuated although not significantly, combined with the de Melo index is gigantic—roughly 2.8 years. Inclusion of the EBRD’s foreign exchange and trade liberalization index (scale 1–4.3) is non-significant and does not change the results. Finally, the Heritage Foundation’s political freedom index (positively coded, 1–7) demonstrates that increasing political freedom has a positive effect on life expectancy of 0.21 years, in a manner that leaves the basic finding unaffected.

Thus, if we can rule out health resources and nutritional changes as mechanisms linking mass privatization and decreased life expectancy, we are left with psychosocial stress. We do a series of tests of the robustness of this explanation. First, since men were disproportionately employed in the big enterprises subjected to mass privatization, we would expect a bigger effect on men than women. As can be seen in Table 3, mass privatization knocks 1.99 years off male life expectancy, far more than the 0.70 years for women (models 1 and 2). Urbanization exerts a strongly negative effect on life expectancy (-0.5), but only for men. Fertility also exhibits a larger effect on men, roughly 4-fold higher than the non-significant effect on women. Fertility declined in nearly all of the postcommunist countries, in some plummeting to dangerously low sub-replacement levels with profound demographic implications. Using the main specification to regress fertility on mass privatization roughly suggests that mass privatization suppressed fertility by -0.20 births per woman (results not shown). This follows a rich body of literature that finds fertility is determined by social and economic factors, primarily those that shape a household's desired number of children. Since the mortality effects of fertility are only prominent among men, we think that fertility is absorbing some of the effects of psychosocial stress, but the nature of these effects is not yet clear. The institutional determinants of fertility change remain to be assessed.

Models 3 and 4 demonstrate the increase in alcohol-related mortality (unintentional alcohol poisoning, liver cirrhosis, etc.) associated with the main covariates. As with life expectancy, there are marked differences between men and women. Mass privatization programs increased rates of alcohol-related mortality by 41.2 per 100,000 in men but only 6.68 in women—an approximately 6-fold difference. These results are similar in magnitude to the health-promoting effect of a 10-fold increase in GDP. We find the same patterns for fertility and urbanization as in models 1 and 2. Higher educational levels significantly decrease alcohol-related mortality, but only among women.

For suicide and intentional causes of death (models 5 and 6), mass privatization explains an increase of 5 suicides per 100,000 people for men, quite large given the rareness of suicide. By rough comparison, in the United States in 1996, suicide claimed the lives of 10.8 males per 100,000 population members (40). The effect for women is only 0.25 and is not statistically significant. Models 7 and 8 compare ischemic heart disease between men and women. The results follow the pattern observed in previous models: the effect on both sexes is statistically significant and large, but is three times larger for men.

Of the covariates, it is noteworthy that the direction of the effect of fertility reverses, corresponding to decreases in male suicide. This may relate to the psychosocial benefits of family size in the face of economic stress, possibly indicating a role of fertility experience as a coping mechanism for men. Increased levels of education also appear to buffer against suicide risk and ischemic heart disease—and this effect holds for women as well, although the effect is much

Table 3
Associations of mass privatization with mortality in transition countries, by gender and disease

Covariates	Models 1 & 2 Life expectancy		Models 3 & 4 Alcohol-related		Models 5 & 6 Suicide		Models 7 & 8 Heart disease	
	Male	Female	Male	Female	Male	Female	Male	Female
<i>Mass privatization</i>	-1.99** (0.33)	-0.70** (0.25)	41.19** (11.78)	6.68** (2.56)	5.29** (1.08)	0.25 (0.25)	20.49** (4.33)	7.24** (1.54)
GDP	1.98** (0.36)	1.16** (0.28)	-42.16** (13.26)	-10.74** (2.88)	-3.97** (1.16)	-0.30 (0.27)	-37.54** (4.63)	-10.54** (1.65)
Urbanization	-0.51** (0.11)	-0.04 (0.08)	13.22** (3.63)	0.02 (0.79)	1.43** (0.34)	0.08 (0.08)	11.67** (1.35)	3.67** (0.48)
Dependency	-0.01 (0.06)	0.08 (0.05)	-2.46 (2.08)	-0.41 (0.45)	0.29 (0.19)	0.02 (0.04)	-1.29 (0.75)	-0.24 (0.27)
Fertility	-1.65** (0.59)	-0.44 (0.45)	42.42* (17.68)	7.66* (3.84)	-4.61* (1.66)	0.07 (0.38)	10.77* (6.62)	3.94 (2.35)
Price liberalization	0.18 (0.17)	0.02 (0.13)	-14.42* (5.99)	-2.26 (1.30)	1.45 (0.56)	0.04 (0.13)	-1.55* (2.23)	-0.57 (0.79)
Education	0.04** (0.02)	0.06** (0.01)	-0.94 (0.49)	-0.38** (0.11)	-0.26** (0.05)	-0.07** (0.01)	-1.01** (0.18)	-0.25** (0.07)
Number of countries (N)	25	25	24	24	25	25	25	25
Number of observations (N × T)	235	235	275	275	297	297	297	297
R ²	0.93	0.91	0.86	0.92	0.97	0.95	0.93	0.93

Note: Models 3–8 report mortality rates per 100,000 population; constant not reported; fixed effects with country effects presented, period effects do not alter results; Prais-Winsten transformation used to accommodate AR(1) error structure.
*p < .05; **p < .01 (two-tailed tests).

smaller. This variable may capture the ability of people with higher education to find new, better jobs in the private sector.

Finally, we turn to the effects of mass privatization on the supply of health care, even though we have already seen that we have only very weak evidence of the decline of health services having a statistically significant impact on the rise in mortality. As we can see from models 9 to 13 in Table 4, which regresses health resource indicators on the basic equation, there are modest but statistically significant negative effects on the number of physicians per 1,000 people (−0.15), dentists per 100,000 people (−3.92), and hospital beds per 100,000 people (−0.72)—roughly 10 percent declines from the mean country values in the panel.

Returning to our hypotheses: We fail to reject H_{1SOC} , “All things held equal, countries that implemented mass privatization programs will have had greater declines in life expectancy than countries that didn’t implement such programs,” and reject H_{1NL} , the neoliberal alternative, “All things held equal, countries that implemented mass privatization programs, possibly after a brief lag of time, will have a greater increase in life expectancy than countries that didn’t implement such programs.”

We also find strong evidence in favor of accepting H_{2SOC} , “All things held equal, mass privatization programs will have a larger negative effect on male life expectancy than female life expectancy”; and H_{3ASOC} , “All things held equal, countries that implemented mass privatization programs will have higher increases in the rates of alcohol-related deaths, suicide, and ischemic heart disease than countries that didn’t implement such programs”; and H_{3BSOC} , “The increase in these rates will be greater for men than for women.”

We find slight evidence on H_{4ASOC} , “All things held equal, countries that implemented mass privatization programs will have declining health provision (hospital beds, physicians, nurses, dentists, public health spending, inpatient admissions).” We find a modest negative effect on the availability of physicians, dentists, and hospital beds per capita.

Most surprisingly, we find only very weak evidence for H_{4BSOC} , “The decrease in health provision will increase mortality.” Only one of five indicators (number of dentists) had a statistically significant effect—and this might be picking up differential opportunities for emigration.

We must use caution when interpreting this final negative result. It might be that informal networks are able to compensate for the reduction in health resources somehow (6). It might be a problem in measuring health resources in the chaotic and highly informalized postcommunist economies that results in this weak finding. It also might be that even if “civil society” has somehow been able to mitigate the effects of declining official resources, this does not mean it will be able to do so in the future. Russia, for example, faces multiple looming epidemics in HIV and drug-resistant tuberculosis that will necessitate substantially more resources to address once they reach fruition (41).

Table 4

Associations of mass privatization with health resources

Covariates	Model 9	Model 10	Model 11	Model 12	Model 13
	Physicians	Nurses	Dentists	Hospital beds	Inpatient admissions
<i>Mass privatization</i>	-0.15* (0.07)	-30.31 (16.32)	-3.92** (1.37)	-0.72** (0.20)	0.08 (0.36)
GDP	0.10 (0.07)	-44.31* (18.61)	4.00** (1.47)	0.22 (0.22)	2.05** (0.41)
Urbanization	0.07** (0.02)	18.21** (5.23)	0.41 (0.42)	0.32** (0.06)	0.74** (0.11)
Dependency	-0.01 (0.01)	6.21* (2.66)	0.70** (0.22)	0.16** (0.04)	0.11 (0.06)
Fertility	0.11 (0.11)	37.99 (23.81)	-1.89 (2.01)	1.53** (0.33)	2.98** (0.58)
Price liberalization	-0.06 (0.03)	-18.40 (8.69)	1.24 (0.70)	-0.31** (0.10)	-0.34 (0.19)
Education	0.00 (0.00)	0.81 (0.72)	0.16** (0.06)	-0.01** (0.00)	0.11** (0.02)
Number of countries (N)	26	25	25	26	26
Number of observations (N × T)	286	296	299	278	303
R^2	0.93	0.94	0.96	0.94	0.96

Note: Model 9 scaled per 1,000, models 10–12 per 100,000, model 13 per 100; constant not reported; fixed effects with country effects presented, period effects do not alter results; Prais-Winsten transformation used to accommodate AR(1) error structure.

* $p < .05$; ** $p < .01$ (two-tailed tests).

CONCLUSION

Our primary findings show that the implementation of mass privatization policies was associated with substantial decreases in life expectancy through the mechanism of psychosocial stress. We also find that these policies are associated with external causes of death, including suicides and homicides, and partially resolve some of the mortality differences between men and women. This analysis goes beyond the existing understanding of both the public health literature and the economics literature at the individual level—that the

postcommunist mortality crisis can be explained by unhealthy and risky lifestyles (especially drinking) as well as psychological stress (2)—by identifying one of the macro-policies that induced this stress and the variations in mortality throughout the postcommunist world.

One peculiarity of the transition—that working-age men, not the weakest and poorest (the aged and small children), were disproportionately hit by the rise in mortality—is consistent with our model. We find it likely that the dangerous behavior identified in the public health literature is related to a psychological state (be it of alienation, anomie, or disenchantment, or some combination) that is related to the destruction of people's understandings of their place in the world. The psychological trauma confronted by a middle-aged skilled worker, previously the backbone of the socialist economy, with high prestige and high income, relegated to a now useless relic of a defeated system, was enormous.

Mass privatization also helps explain the mortality differences between Central Eastern Europe and the former Soviet Union. Only the Czech Republic implemented a large enough mass privatization to meet the 25 percent of state assets cutoff, but even this program was far smaller in scale and scope than the Russian version. It is likely that the Czech Republic's extremely low unemployment rate and the provision of social democratic welfare benefits (42) mitigated the increase in stress associated with mass privatization. Poland had a much smaller program (about 10% of small and medium enterprises privatized) implemented only in 1995, mostly because of workers' resistance. Here, too, it is important that considerable micro-evidence finds that enterprises privatized in this way also seemed to have poor performance (43).

An alternative explanation for our findings would be that implementing mass privatization proxies for the propensity of countries to implement radical policy reforms more generally and that it is not mass privatization per se that directly affects life expectancy. Future work needs to operationalize the other transition policies and to assess their individual and combined effects on life expectancy, as well as whether the sequence of these reforms is important. We wish to stress that these are just a set of first findings relating specific economic policies to specific demographic outcomes. Much more work needs to be done. This includes expanding the list of policies to include price, trade, and foreign exchange liberalization, as well as stabilization programs. We believe this will explain even more of the variation in mortality patterns in the postcommunist world, such as the spike in Russian mortality following the 1998 default and devaluation—as this was a result of the International Monetary Fund condition of funding government spending with special bonds (the super high-yield GKO), creating a huge financial pyramid (and a stock market bubble) on top of a crumbling real economy, combined with current account convertibility. If the mechanism is economically induced psychosocial stress, these other policies might reasonably be expected to have effects similar to those of mass privatization.

Future analyses should also attempt to better evaluate the possibilities of feedback from declining growth (itself caused by neoliberal policies such as mass privatization) to poor health. We also need better data on spending on public health care. As noted above, we are not comfortable dismissing the hypothesis that declining support for health care is related to the mortality crisis (as Brainerd and Cutler find; 2).

Finally, since there is always a potential for ecological fallacy in macro-level analysis, we also believe much more definitive results could be obtained by getting more fine-grained data—ideally, data at the individual level. Only then will we be able to see what is occurring at the level of mechanisms.

Still, we think our findings are sufficient to pose a gigantic problem for the neoliberal political economy of mass privatization, which poses that more and faster privatization (as long as it's not to workers with a legal device to centralize their shares!) is always better. Even if it could be shown that mass privatization policies are economically beneficial, the human catastrophe would not be worth the price (at least according to most traditional and modern value systems). Of course, none of the countries that adopted mass privatization to date has achieved anything close to sufficient GDP gains to offset the negative effects on public health. Moreover, studies have found that poor public health decreases the value of human capital, and thus future economic growth. The World Bank and the World Health Organization estimate that the cumulative losses from increased mortality in Russia from 2005 to 2015 will amount to US\$303.2 billion, or 5 percent of GDP (1). There is an urgent moral and economic need to understand in greater detail the causal effects of macro-economic and micro-economic reforms on public health.

The most obvious policy implication is that reforms must not aim to shatter the existing organizational base of the economy, but instead build on existing institutions. This does not necessarily mean slower reforms, for simple management and employee buyouts in which the non-managerial employees have a legal device to centralize their shares can be *even faster* than mass privatization programs. Such reforms, by giving the de facto ownership rights of employees de jure status, have the massive economic benefit of eliminating the principle-agent problems that devastated so many postcommunist firms.

Class formation cannot be infinitely “telescoped.” Policymakers should allow for rapid transfer to firm insiders (with protection from predatory outsiders) to improve incentives, but this will be practical mostly in small and medium firms. For industrial giants too large to be controlled in this way, and on which many additional firms and indeed industries will be dependent, a superior policy is restructuring during prolonged state ownership prior to privatization by strategic investors (when this benefits the firm), with due consideration of state revenues. In some cases, this may mean maintaining state ownership indefinitely, and in

some cases forging joint ventures between state-owned enterprises and multinational corporations.

The neoliberals' political prediction—that delays in large-scale privatization will result in lack of “transition progress” or even a reversal of reforms—has been shown to be false. Both Poland and Slovenia greatly delayed mass privatization, but they have not suffered economically or ended up any less “Western.” In fact, they have the highest overall growth rates in the postcommunist world (excluding East Asia). Ironically, by increasing stress to catastrophic levels, mass privatization is likely to do substantially more harm than good for the long-term prospects for capitalism in the region (1). Mass privatization is not the second or third best way to privatize, as key members of the World Bank thought (9), but very likely the second worst way—the worst being to directly transfer the nation's most valuable enterprises to cronies in a flagrantly corrupt manner in exchange for political support (e.g., Russia's infamous “loans for shares program”).

Furthermore, when disruptive economic reforms are deemed necessary, they must be accompanied by social policy that shields the population's health from associated shocks. Finland and Cuba are examples in this regard. The Finnish economy was hugely reliant on trade with the Soviet Union. Therefore, the collapse of the Soviet economy was experienced as a massive exogenous economic shock. However, an inclusive social policy was able to detach developments in mortality entirely from the health of the economy (44). Similarly, Cuba suffered enormous external supply-and-demand shocks from the collapse of the Soviet Union (and the intensification of the U.S. economic sanction regime), and yet its health care system was able to handle this, avoiding a mortality crisis.

Some might question where the revenue for these programs would come from. But arguing that these policies are too expensive is merely delaying this expense, for the economic consequence of the public health crisis will be paid eventually—only, in the future, they are paid for in lives in addition to money. If the predicted epidemic of drug-resistant strains of TB and other diseases comes to fruition, and if it is globalized, the cost to the world will be exponentially higher still.

Therefore, it would be appropriate for the Bretton Woods global institutions (the IMF and World Bank), whose role in the global economy is now subject to furious calls for fundamental reconstruction from both the left and the right, to consider making non-conditional grants for such social programs in countries in need of economic reform.

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APPENDIX

Definitions of Variables and Descriptive Statistics

Variable	Definition	Mean	S.D.	Min.	Max.
<i>Health outcome</i>					
Life expectancy	Life expectancy at birth	69.96	2.86	61.67	75.91
Male ischemic heart disease (IHD)	Deaths per 100,000 among working-age population (15–64) due to heart attacks and coronary heart disease, for males	131.63	55.05	30.26	285.37
Female IHD	As above, for females	40.27	19.61	5.19	100.21
Male suicide	Deaths per 100,000 due to suicide and other intentional causes of death, for males	30.48	21.70	1.03	87.43
Female suicide	As above, for females	6.07	3.56	0.17	16.16
Male alcohol-related mortality	Deaths per 100,000 from combined selected causes of death known to relate to alcohol; includes alcohol dependence syndrome, liver cirrhosis, and chronic liver disease, for males	221.16	94.92	65.81	546.40
Female alcohol-related mortality	As above, for females	66.46	28.68	18.75	152.73
<i>Policy variables</i>					
Mass privatization	0 prior to implementation, 1 thereafter	0.32	0.47	0.00	1.00
Log GDP	Gross domestic product per capita, current US\$ 2000	23.11	1.47	20.38	26.97
Political freedom	Heritage Foundation political freedom index, scale of 1–7	3.55	1.99	1.00	7.00
Price liberalization	European Bank for Reconstruction and Development (EBRD) liberalization index, scale of 1–4.3	3.15	0.93	1.00	4.30
Foreign exchange and trade liberalization	EBRD foreign exchange liberalization index, scale of 1–4.3	3.15	1.24	1.00	4.30
Years of central planning	Number of years under planned economic regime	56.72	13.08	41.00	74.00
Foreign direct investment (FDI) International	Log FDI as percentage of GDP	0.28	0.37	–0.50	0.28
Monetary Fund (IMF) credit/external debt	Percentage of IMF credit to external debt level	8.80	10.67	0.00	53.56

<i>Sociodemographic</i>						
Urbanization						
Fertility	Percentage of population living in urban areas	56.70	12.44	25.13	75.20	
Dependency	Fertility rate (births per woman)	1.85	0.75	1.07	5.04	
Education	Percentage of population youth + elderly	53.85	10.60	39.49	88.33	
	Percentage tertiary enrollment	23.38	12.04	2.60	69.30	
<i>Health resources</i>						
Physicians	Number per 1,000 people	3.05	0.85	1.28	5.19	
Nurses	Number per 100,000 people	680.54	229.58	143.40	1,244.20	
Dentists	Number per 100,000 people	33.66	22.45	1.20	83.00	
Hospital beds	Number per 100,000 people	8.49	2.68	3.02	13.71	
Bed occupancy rate	Hospital bed occupancy rate (%) in acute care facilities	73.17	14.98	25.60	97.00	
Inpatient care	Inpatient care admissions per 100	16.67	5.82	4.57	30.02	
<i>Dietary and nutritional inputs</i>						
Alcohol consumption	Pure alcohol consumption (liters per capita)	6.08	3.83	0.17	14.33	
Fruit and vegetable	Availability of fruits and vegetables (10 kg)	151.31	42.53	56.40	304.60	
Caloric intake	Average number of calories available per person per day	2,831.23	393.64	1,675.10	3,767.90	
Protein	Percentage of total energy available from protein	11.92	1.18	9.37	17.00	

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