



# The Role of Social Capital in the Russian Mortality Crisis

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**Summary.** — Emerging evidence suggests that the degree of social cohesion is an important determinant of population health status. Citizens living in societies with a high degree of social cohesion — characterized by strong social networks and high levels of interpersonal trust — seem to be healthier than those living in socially disorganized societies. Epidemiologists have become interested in notions of *civil society* and *social capital* to explain variations in health across societies. The purpose of the present paper was to examine the role of social capital in the Russian mortality crisis. Social capital has been defined as those features of social organization — such as the density of civic associations, levels of interpersonal trust, and norms of reciprocity — that act as resources for individuals, and facilitate collective action. A civil society is one that is rich in stocks of social capital. Various scholars have argued that one of the distinguishing characteristics of the Soviet regime was the paucity of civil society. Using household survey data from the All-Russian Center for Public Opinion research (VTsIOM), we carried out a cross-sectional, ecologic analysis of the association between indicators of social capital and mortality rates across 40 regions of Russia. We found associations between indicators of social capital (mistrust in government, crime, quality of work relations, civic engagement in politics) and life expectancy, as well as mortality rates. In the absence of civil society, it is believed that far more people in post-Soviet Russia rely on informal sources of support (friends, family) to deal with their day to day problems. Those lacking such sources of support may have been especially vulnerable to the economic hardships following the transformation to a market economy. © 1998 Elsevier Science Ltd. All rights reserved.

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## 1. INTRODUCTION

Since the collapse of communism in 1989, many formerly socialist countries of Central and Eastern Europe have experienced major declines in life expectancy. The crisis has been particularly severe in Russia, where during 1989–94, life expectancy declined by 6.6 years in men, and by 3.6 years in women (Leon *et al.*, 1997). By 1994, male Russian life expectancy at birth (57.6 years) was lower than in countries such as Pakistan (60.9 years), Botswana (63.3 years), and Bolivia (58.0 years) (UNDP, 1996). Among Russian men, more than half of the excess deaths occurred in the age-group 25–59 years, and the major causes of excess death have been due to cardiovascular diseases and external causes (accidents, injuries, suicide) (Shkolnikov, Meslé and Vallin, 1995). In all, the upsurge in Russian

mortality during this crisis has been estimated to amount to a staggering 1.3 to 2 million extra deaths (Chen, Witgenstein and McKeon, 1996). Yet, the causes of the Russian mortality crisis remain to be established (Brainerd, 1996). The purpose of the present paper is to outline a broad sociocultural hypothesis of a potentially important contributor to the Russian mortality crisis, attributing the phenomenon to the lack of social capital in post-Soviet society.

Increasing evidence points to social cohesion as a crucial determinant of population health (Wilkinson, 1996; Kawachi and Kennedy, 1997; Kawachi, Kennedy and Lochner, 1997). There have been several examples across time and

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culture, where the presence or absence of social cohesion was strikingly correlated with population health status. Wilkinson (1996) offers several cases studies of societies that at certain points in history either enjoyed a high degree of social cohesion (e.g. Britain during the two world wars, as well as post-war Japan), or suffered a rapid deterioration in social cohesion (e.g. the Italian-American community of Roseto in Pennsylvania during the 1960s). In each instance, life expectancy in these societies closely mirrored the population health experience: the more cohesive the society, the lower the population mortality rates. In Britain, the wartime effort was accompanied by a greater sense of solidarity and social cohesion as well as dramatic improvements in life expectancy. For over 25 years, the rural town of Roseto has served as a population laboratory for researchers such as Stewart Wolf and colleagues (Bruhn and Wolf, 1979; Egolf *et al.*, 1992). The town originally came to the attention of medical researchers because the people who lived there had half the death rate from heart attack compared to neighboring towns, despite similar profiles of risk factors such as smoking, obesity, and fat intake. Wolf and colleagues eventually came to the conclusion that the protective factor was the close knit social relationships among inhabitants in the town. Beginning in the mid-1960s however, the town experienced rapid economic growth, which opened the gap between rich people and poor people. The resulting breakdown of community solidarity was followed by a sharp increase in deaths from coronary disease, such that Roseto "caught up" with neighboring towns.

The notion that social cohesion enhances well-being is by now a well-established fact (Kawachi and Kennedy, 1997). Ever since Durkheim's study of the causes of suicide (Durkheim, 1897), numerous epidemiological studies have shown that people who are socially integrated live longer (House, Landis and Umberson, 1988; Kawachi *et al.*, 1996). Socially isolated people die at two to three times the rate of well-connected people, presumably reflecting the former's limited access to sources of emotional support, instrumental support (for example, financial aid), and other forms of support. More recently, researchers have become interested in exploring the connections between a broader conception of social cohesion — or *social capital* — and health outcomes (Kawachi and Kennedy, 1997; Kawachi, Kennedy and Lochner, 1997).

Social capital has been defined as those features of social structures that facilitate the actions of members within them. According to

Coleman (1990), three examples of the forms of social capital include: levels of trust within a social structure; appropriable social organizations (civic associations); norms and sanctions; and information channels. The first two of these forms — levels of trust and membership of civic associations — were used by Putnam (1993) in his empirical work on the factors predicting local government performance across the regions of Italy. According to Putnam, the stock of social capital in a region — for example, as measured by the density of citizens' participation in voluntary associations (choral societies, soccer leagues, Rotary clubs, and the like) turned out to be the best predictor of local government performance. Citizens living in regions characterized by high levels of social capital were more likely to trust their fellow citizens and to value solidarity, equality, and mutual tolerance. They were also blessed with high-functioning local governments.

The trustworthiness of the social environment is critical to the proper functioning of obligations and expectations, which are themselves forms of social capital. For example, if *A* does something for *B*, expecting *B* to reciprocate some time in the future, this establishes an expectation in *A* and an obligation on the part of *B*; but the success of the transaction depends crucially on the level of trust between *A* and *B* (Coleman, 1988). As an example of an appropriable social organization, Coleman describes a resident's organization in an urban housing project which formed for the initial purpose of pressuring builders to fix various problems (leaks, crumbling sidewalks, etc). After the problems were solved, the organization remained as available social capital that improved the quality of life for residents. The general point is that an organization, once brought into existence for one set of purposes can also be appropriated for other uses, thus constituting a form of social capital.

Most recently, Kawachi *et al.* (1997) tested the association between social cohesion and mortality rates across the 39 US states. Using indicators of "social capital" developed in political science and sociology (Coleman, 1990; Putnam, 1993, 1995), they demonstrated that states characterized by low degrees of social cohesion tend to exhibit higher mortality rates from all causes, as well as cardiovascular disease, homicides, and infant mortality. The two indicators of social capital examined in this study were survey-based responses of citizens to questions about whether "other people could be trusted," and whether they belonged to a variety of civic and voluntary associations. Both indicators of social capital were strongly correlated with rates

of age-adjusted mortality ( $r = 0.79$  for social mistrust, and  $r = -0.49$  for per capita membership of civic associations;  $P < 0.05$  for both).

In contrast to the examples of democratic societies such as Italy and the United States, one of the hallmarks of a totalitarian regime (such as prevailed in Soviet Russia) is the absence of civil society, characterized by the lack of trust between citizens, lack of trust of state institutions, and the absence of active, private, non-governmental organizations. A totalitarian regime, according to political scientists Carl Friedrich and Zbigniew Brzezinski, is marked by "a central control and direction of the entire economy through the bureaucratic coordination of formerly independent corporate entities, typically including most other associations and group activities" (quoted in Smith and Freedman, 1972, p. 33). Citizens living under such regimens are likely to minimize contact with the state and to rely upon dense horizontal networks of trusted friends to insulate themselves from the state. According to Rose, Mishler and Haerfer (1996), the reaction against totalitarian attempts to mobilize citizens resulted in the development of "an hour-glass society" in Soviet Russia, characterized by a rich social life at the base, consisting of strong informal networks based on trust between friends, relatives and other face-to-face groups (Rose, 1995). At the top of the hour-glass, there developed a separate political and social life, as elites of the *nomenklatura* competed for power, wealth, and prestige. Thus:

In the vast Russian State, cooperation within and between elites and institutions is the normal way for individual officials to secure their own goals. Such a society resembles a civil society insofar as a number of informal and formal institutions are tolerated and now even legally recognized by the state. Yet the result is not a civic community but an hour-glass society, because the exchanges between the top and bottom are constricted and intended to be so (Rose, Mishler and Haerfer, 1996, p. 5).

Rose and colleagues go on to argue that the Soviet Union left a double legacy: individual Russians are likely to have a high degree of trust in their immediate social networks, and a high degree of distrust in the Russian state. In support of this thesis, several social surveys conducted in post-Communist Russia (such as the New Russia Barometer surveys) appear to confirm a high degree of distrust in political and civic institutions. In this climate, far more people in post-Communist Russia rely on informal social capital than on formal institutions of state and markets to deal with their problems. For example, when the 1996 New Russia Barometer

asked people on whose help they rely, only 7% referred to formal organizations (including the state, trade unions, churches or charities). When problems arise, more than half rely on informal sources of social capital, i.e., their network of friends and relatives. Those without social capital rely principally on themselves (Rose, Mishler and Haerfer, 1996).

Thus the historic suppression of civil society in Russia is likely to have stranded a group of vulnerable citizens without means of support, when the state apparatus itself collapsed. The Barometer surveys consistently indicate that half or more of those who have been unemployed have not received any benefit payments from the state (Rose, Mishler and Haerfer, 1996). Informal social networks have then served as the major source of social security. Two-thirds of Russians say that they have a friend who would loan them as much as a week's wages if their household was short of money, and more than two-thirds know someone who would help if they were ill (Rose, Mishler and Haerfer, 1996). But what happens if an individual is socially isolated, and has no friends or relatives to fall back on? Increasingly, evidence suggests that the excess of premature male mortality in post-Communist societies has been overwhelmingly concentrated in the non-married population (Watson, 1995). In other words, the devaluing of the public sphere and the overreliance on the private domain may have contributed to the rising health vulnerability of post-Communist societies.

In the present paper, we examined the relationships between total and cause-specific mortality, and measures of civil society and social cohesion in post-Soviet Russia.

## 2. METHODS

### (a) *Measurement of regional variations in social capital*

The measures of social capital used in this study were estimated from a series of household surveys conducted in Russia by the All-Russian Center for Public Opinion Research (or VTsIOM, its Russian acronym) in April, May and June 1994. The surveys are based on a stratified random sample of the population and are nationally representative of the adult population of Russia age 16 and over. Each monthly survey comprises 3000 individuals in 121 areas of the country (92 urban areas and 29 rural areas).<sup>1</sup> These areas represent 40 of the 88 regions in Russia; these regions are roughly equivalent to US states. The total sample size for the three

surveys used here is 8868 observations. Table A1 compares the demographic characteristics of the survey respondents with those of the general population. While the age structure and regional distribution of the population in these surveys are roughly similar to that of the population, women and university-educated people are slightly overrepresented in the surveys relative to the population as a whole.

As indicators of the level of social capital across the regions, we took responses to questions regarding civic engagement, trust in government, and social cohesion. Civic engagement is reflected in the share of respondents who did not vote in the December 1993 Parliamentary elections, and in the percentage responding that "I am not at all interested in politics," when queried regarding their interest in politics. Respondents were also asked about their degree of trust in local and regional governments, as well as in the federal government. For each level of government and for each region in Russia, we calculated the percentage of people who responded that the respective government was "completely undeserving of trust." Items that directly inquired about respondents' trust of other people (analogous to the General Social Surveys items in the United States) were not available on the VTsIOM surveys. It has been found in the past, however, that citizens' trust of state institutions correlate quite strongly with levels of social trust in general (Putnam, 1995; Brehm and Rahn, 1997); hence it was felt that citizens' trust of government was a reasonable proxy for social capital.

An additional measure of social cohesion that we used is given by the respondents' assessment of relations at their place of work, in particular the share responding that relations between people at work "...are strained, with conflicts." Finally, the occurrence of crime is increasingly regarded as an indicator of lack of social capital (Wilkinson, Kawachi and Kennedy, 1998). In numerous examples across time and place, crime appears to be a marker for social disorganization and strained social relations (Sampson, Raudenbush and Earls, 1997; Wilkinson, Kawachi and Kennedy, 1998); hence, we used registered crime rates across the regions as an additional proxy for social cohesion.

(b) *Measurement of regional variations in income, unemployment and other variables*

Regional data on average per capita income, unemployment rates and the reported crime rate

were obtained from the 1996 *Russian Statistical Yearbook* (Goskomstat, 1996b). While average incomes are likely to be underreported due to tax avoidance in Russia, we used this measure because it is the best measure of regional income levels available, and because it is unlikely that the underreporting of income varies systematically across regions. Regional unemployment rates are relatively well-measured; the ILO definition of unemployment is used and rates are calculated from the regionally representative labor force survey of 580000 people conducted in October 1994. The percentage of each region's population with incomes below the region's subsistence income level<sup>2</sup> is also included in the statistical work here as an indicator of relative hardship across regions; this measure is also from the 1996 *Statistical Yearbook*. In addition, we also used a variable capturing perceptions of economic hardship, or relative deprivation: the percentage of respondents in each region replying in the VTsIOM survey that "the economic situation in your city or region" is poor or very poor. Finally, divorce rates per 1000 population by region were obtained from the 1996 *Demographic Yearbook of Russia* (Goskomstat, 1996a).

We used a number of measures of mortality to test the relationships with the variables described above. These include male and female life expectancy at birth, and age-standardized death rates for men and women expressed as the number of deaths per 100000 population (age standardization is based on the European age structure). We also examined the relationship between measures of social capital and the major causes of mortality, in particular circulatory diseases, neoplasms and external causes (accidents, homicides and poisonings) for both men and women. All of the mortality and life expectancy data were obtained from the 1996 *Demographic Yearbook of Russia* (Goskomstat, 1996a).

### 3. DATA ANALYSIS

Ordinary least squares (OLS) regression was used to examine the relationships of the social capital indicators and other predictors to mortality rates. We regressed all-cause and cause-specific mortality rates for both males and females separately against the each of the predictors, adjusting the regression models for region variations in the prevalence of poverty and per capita income.

#### 4. RESULTS — RELATIONSHIP BETWEEN SOCIAL CAPITAL AND MORTALITY

##### (a) *Trust in government and civic engagement*

We examined the relationship of trust in government (percentages of people who agreed that their local, regional and national governments respectively were “completely undeserving of trust.”) to all-cause and major causes of mortality and life-expectancy (Tables 1–3; Figure 1). Regions with high levels of distrust in local government had higher male age-adjusted rates of total mortality ( $r = 0.33$ ;  $P < 0.05$ ) (Figure 1). In our regression model, variations in the level of trust in local government explained an additional 14% ( $R^2 = 0.31$ ) of the variance in total male mortality after controlling for variations in per capita income and poverty (Table 2). A one unit change in the percentage of inhabitants agreeing that their local government was “completely undeserving of trust,” was associated with an increase in overall male age-adjusted mortality rates of 6.33 deaths per 100000. The effects of distrust of government were similar for women, accounting for an additional 7% of the variance in female age-adjusted overall mortality after controlling for per capita income and poverty, although the magnitude of the effect was not as large ( $B = 2.11$ ,  $t = 1.93$ ,  $P < 0.0611$ ).

A higher level of distrust in local government was also associated with lowered life-expectancy for both men and women across regions independent of per capita income and poverty (Table 3). The relationship to major causes of mortality was strongest for circulatory disease rates in both males and females (Table 3). Distrust in local government was marginally associated with deaths due to neoplasms and external causes for males ( $P < 0.10$ ) for males but not for females (Table 3).

The effects of government distrust only held for the local government variable. Distrust in the regional government was only weakly associated with mortality and life-expectancy (Tables 1–3) and the effects of distrust of the national government was actually inverse ( $r = -0.30$ , Table 1) but in our multivariate regression models controlling for income and poverty this relationship approached zero (not shown). Thus, the relationship of trust to mortality was strongest for the most proximal institutions (local government), weaker for regional government, and non-existent for distal (national) government.

The relationship between trust in governmental and civic engagement (interest in politics and voting participation) followed a similar

pattern, where high levels of distrust in local government was associated with a higher percentage of persons not voting ( $r = 0.37$ , Table 1). This relationship was weaker at the levels of regional and national government ( $r = 0.10$  and  $r = 0.13$ , respectively). In addition, disinterest in politics (percentage responding that “not at all interested in politics”) was also strikingly associated with lack of voting participation ( $r = 0.45$ , Table 1). This civic engagement variable was in turn, strongly associated with male overall mortality, life-expectancy and deaths due to circulatory diseases when controlling for per capita income and poverty across regions (Tables 2 and 3). The relationship was similar for female mortality and life-expectancy, although only marginally significant for overall death rates after controlling for income and poverty ( $B = 2.86$ ,  $t = 1.67$ ,  $P < 0.10$ ). As with the males, the relationships to life-expectancy and deaths due to circulatory diseases were the strongest (Table 3).

##### (b) *Social cohesion*

Our two measures of social cohesion — crime and conflicts at work (percentage responding that “...the relations between people at work are strained, with conflicts”) — were both associated with overall male mortality (Table 2). Crime was a particularly strong predictor of both male and female life-expectancy, and associated with all major causes of death (Table 3). Work conflict also strongly predicted life-expectancy. Its association with major causes of death was less clear however (Table 3). Divorce rates were associated with male ( $r = 0.44$ ) and female ( $r = 0.48$ ) overall death rates in univariate analyses (Table 1). After controlling for income and poverty, however, these relationships were not statistically significant.

It is particularly interesting to note the positive relationships among divorce, crime and per capita income (Table 1), where higher per capita income is associated with higher crime and divorce rates. This may help to account for the surprising positive association between higher per capita income and higher mortality and lower life-expectancy (Tables 1 and 2). In fact, with crime in the regression model, the effects of per capita income and poverty on life-expectancy drop out (not shown). This was also seen for male overall mortality where the effects of per capita income, while still marginally significant, were reduced dramatically when crime was added to the model (Table 2). As a potential explanation for these paradoxical findings, we

Table 1. Correlations among region-level ( $n = 40$ ) social capital indicators and male and female age-adjusted mortality rates

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1 MDTH94	1.00													
Male death rate														
2 FDTH94	0.93*	1.00												
Female death rate														
3 LNINC94	0.45*	0.48*	1.00											
Per capita income														
4 Pov94	-0.29	-0.13	-0.37*	1.00										
Poverty														
5 UNEMP94	0.21	0.28	-0.19	0.30	1.00									
Unemployment rate														
6 DIVCRD94	0.44*	0.37*	0.33*	-0.01	0.03	1.00								
Divorce rate														
7 Crime94	0.68*	0.73*	0.27	-0.06	0.29	0.34*	1.00							
Per capita crime rate														
8 ECSITB45	0.50*	0.50*	0.16	-0.07	0.17	0.33*	0.36*	1.00						
Economic situation poor														
9 TRUSTLC3	0.33*	0.25	-0.05	0.18	0.23	0.37*	0.18	0.27	1.00					
Distrust of local government														
10 TRUSTRG3	0.16	0.15	-0.12	0.38*	0.27	0.33*	0.07	0.37*	0.73*	1.00				
Distrust of regional government														
11 TRUSTGV3	-0.30	-0.23	-0.24	0.18	-0.06	0.01	0.00	-0.10	0.27	0.46*	1.00			
Distrust of national government														
12 EXPOL7 <sup>a</sup>	0.25	0.20	-0.06	-0.18	0.15	0.06	0.04	0.28	0.16	0.27	-0.07	1.00		
Uninterested in politics														
13 VOTED2 <sup>a</sup>	0.13	0.07	-0.12	-0.15	0.08	0.09	0.23	-0.04	0.37*	0.10	0.13	0.45*	1.00	
Percent not voting														
14 RELWORK3 <sup>a</sup>	0.30	0.19	-0.13	-0.26	0.03	-0.06	-0.01	0.40*	0.05	0.01	-0.37*	0.49*	0.34*	1.00
Work relations strained														

$P < 0.05$ .

<sup>a</sup>Due to missing data (regions 19, 52, 55, 70), correlations with these variables are based on 36 regions.

Table 2. Effects of social capital variables on male age-adjusted mortality rates (40 regions)

Independent variables	Model													
	1	2	3	4	5	6	7							
	B (S.E.)	P <	B (S.E.)	P <	B (S.E.)	P <	B (S.E.)	P <						
LNINC94	348.74 (138.69)	0.016	3340.53 (127.10)	0.0111	342.93 (133.22)	0.0143	288.34 (124.07)	0.0261	420.58 (135.87)	0.0041	372.11 (137.71)	0.0110	196.18 (108.36)	0.0736
Log Per capita income	-5.72 (6.33)	0.3716	-8.65 (5.87)	0.1511	-10.58 (6.53)	0.1141	-5.51 (5.60)	0.3322	-0.39 (6.45)	0.9523	-3.018 (6.46)	0.6366	-6.74 (4.77)	0.1669
POV94														
Poverty														
TRUSTLC3														
Distrust of local government														
TRUSTREG3														
Distrust of regional government														
ECONSTB45														
Economic situation poor														
RELWORK3														
Work relations strained														
EXPOL7														
Completely uninterested in politics														
CRIME94*100														
Per capita crime rate														
Adjusted R <sup>2</sup>	0.17		0.31		0.24		0.35		0.28 <sup>a</sup>		0.22 <sup>a</sup>		0.53	
F <sub>3,36</sub>	5.01		6.74		5.06		8.08		5.50		4.35		15.67	
(P < ...)	(0.0110)		(0.0009)		(0.0049)		(0.0003)		(0.0036)		(0.0111)		(0.0000)	

<sup>a</sup>Due to missing data (regions 19, 52, 55, 70) these models are based on 36 regions.

Table 3. Effects of social capital variables on male and female cause specific mortality and life-expectancy adjusted for per capita income and poverty across 40 regions

Independent variables	Male mortality						Female mortality									
	MLIFEX94		MCIRC94		MNEO94		MEXT94		FLIFEX94		FCIRC94		MNE094		FEXT94	
	B (S.E.)	P<	B (S.E.)	P<	B (S.E.)	P<	B (S.E.)	P<	B (S.E.)	P<	B (S.E.)	P<	B (S.E.)	P<	B (S.E.)	P<
TRUSTLC3	-0.041 (0.016)	0.0167	3.97 (1.39)	0.0045	0.61 (0.32)	0.0609	1.77 (1.01)	0.0874	-0.029 (0.014)	0.0528	2.03 (0.82)	0.0187	0.17 (0.14)	0.2311	0.34 (0.35)	0.3351
Distrust of local government																
TRUSTREG3	-0.031 (0.019)	0.1516	4.35 (1.47)	0.0054	0.49 (0.36)	0.1811	1.24 (1.16)	0.2891	-0.021 (0.021)	0.2372	2.03 (0.93)	0.0362	0.057 (0.15)	0.7041	0.32 (0.39)	0.4284
Distrust of regional government																
ECONSTB45	-0.071 (0.023)	0.0069	5.43 (1.94)	0.0081	0.98 (0.45)	0.0371	3.67 (1.40)	0.0128	-0.057 (0.021)	0.0085	3.03 (1.19)	0.0154	0.25 (0.19)	0.2158	1.03 (0.48)	0.0411
Economic situation poor																
RELWORK3 <sup>a</sup>	-0.096 (0.033)	0.0069	1.78 (3.14)	0.5752	1.11 (0.72)	0.1277	2.87 (2.22)	0.2019	-0.063 (0.031)	0.0433	0.69 (1.91)	0.7194	0.042 (0.31)	0.8917	1.22 (0.72)	0.0996
Work relations strained																
EXPOL7 <sup>a</sup>	-0.06 (0.025)	0.0167	4.55 (2.19)	0.0456	0.57 (0.54)	0.2914	0.31 (1.68)	0.8545	-0.045 (0.022)	0.0552	2.27 (1.35)	0.1037	0.03 (0.22)	0.9080	0.58 (0.55)	0.2912
Completely uninterested in politics																
CRIME94*100	-0.22 (0.04)	0.0000	15.75 (4.36)	0.0009	3.39 (1.0)	0.0017	14.21 (2.78)	0.0000	-0.22 (0.04)	0.0000	11.27 (2.45)	0.0000	0.84 (0.45)	0.0736	4.15 (1.01)	0.0002
Per capita crime rate																

<sup>a</sup>Due to missing data (regions 19, 52, 55 and 70) these models are based on 36 regions.



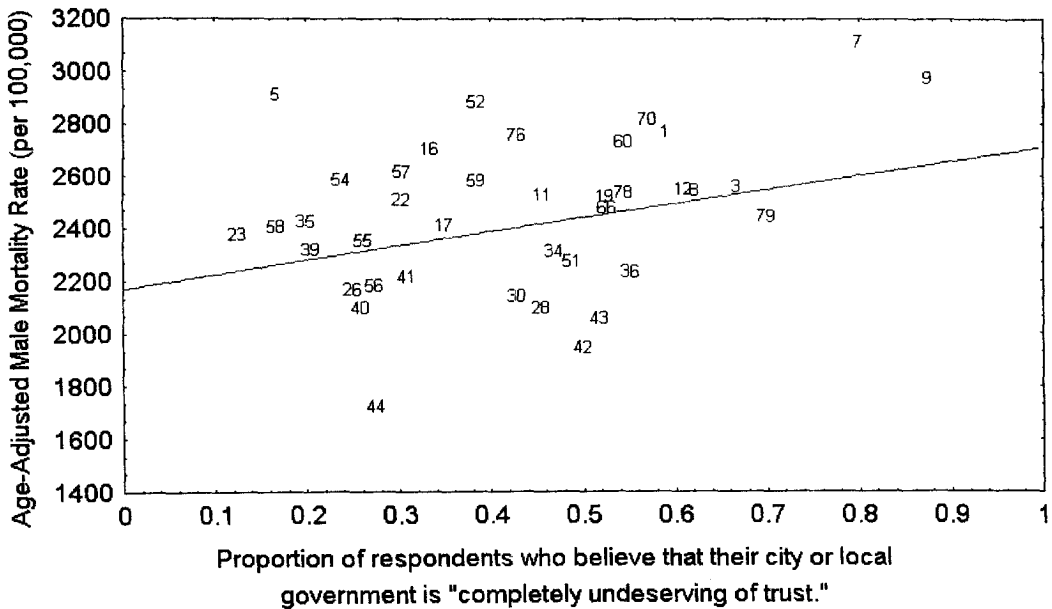


Figure 1. Age-adjusted male mortality rates by social capital (trust in government).

conjecture that rapid growth in some regions (measured by higher per capita income) has been associated with a socially destabilizing effect as evidenced by high divorce and crime rates.

### (c) Perceived economic hardship

Perceived economic hardship (percentage responding that "the economic situation in your city or region?" was poor or very poor) was associated with a number of the social capital variables as well as life-expectancy and mortality from a number of causes (Tables 1–3). Economic hardship was correlated with crime ( $r = 0.36$ ) and divorce ( $r = 0.33$ ) and although not statistically significant, it was positively associated with per capita income (Table 1). It was also associated with work conflicts ( $r = 0.40$ ) and government distrust (Table 1).<sup>3</sup>

## 5. DISCUSSION

Among the many potential explanations for the recent Russian mortality crisis, we have attempted in the present paper to provide a test of a specific hypothesis — that the lack of social capital in Russian society is an important factor in the human security crisis. Although we were

unable to examine secular trends in the stock of social capital in Russian society (i.e. before and after the collapse of the Soviet Union), our analysis nonetheless suggests that indicators of social capital could account for an important portion of the cross-sectional variation in mortality and life expectancy across the regions of the country. Social capital measured by a variety of indicators — trust in local government, political participation, crime and divorce rates, and conflicts in the work place — was strongly associated with all cause age-adjusted mortality, life-expectancy, and cause specific mortality (especially CHD) for both males and females. Moreover, the relationship of social capital to mortality persisted after controlling for per capita income and a measure of poverty.

Trust in government seemed to only matter at the local level and there was a clear gradient from local to national. This was true also for the economic situation variable where only the regional or city economic situation mattered and not beliefs about the national economy. This suggests a more localized effect of social capital where the proximally experienced social context is more significant to health than the general national economic and social context.

As with any cross-sectional data, there is difficulty in establishing causal relations in this study with any certainty, and thus, these results should be interpreted with appropriate caution.

Arguably, the mortality-social capital link could go either way — higher mortality rates in a region could serve to erode social cohesion rather than the reverse. Indeed, crude death rates in 1980, (adjusted for the percentage of the population of retirement age) predict most of the variables used in our models.<sup>4</sup> This finding suggests that at least some of the observed relationship could be due to the influence of high mortality on social cohesion rather than the reverse. Although this finding complicates the picture somewhat, it is conceivable that regional differences in social capital were already present in 1980 and that these structural influences on mortality persist into the present. In fact, 1980 and 1994 crude death rates are quite strongly associated ( $r = 0.79$ ) which suggests that some underlying structural variables may be accounting for the regional mortality differences. Whether one of these factors is social capital is difficult to tell due to the lack of historical data. As Rose (1995) has argued however, a key consequence of Soviet society was the distortion of social relations, and subsequently the erosion of civil society which may have made populations of certain regions more vulnerable to economic and social transformations.

Rose (1995) used the term “hour-glass society” to describe the bifurcation of social relations in Soviet society. At the top of the hour-glass, the ruling *apparatchik* maintained a mesh of social connections and mutual obligations. At the bottom of the hour-glass, Soviet citizens sought to minimize contact with the state, relying instead on dense horizontal networks of friends to insulate themselves from the state. Very little bridging occurred between these two poles of social relations, so that when the regime that created such behavior finally collapsed, the legacy was a country of citizens with an “uncivic” objective. According to the New Russia Barometer surveys conducted by Rose and colleagues, very few Russians work through civic associations to solve local problems:

Only one in ten (Russian citizens) sometimes or often participated in local community associations. The very idea of locally initiated community associations appeared unfamiliar to many respondents socialized in a community in which the Communist Party was the guiding force. When Russians are asked to characterize what kind of people participate in local groups, as many as a third reply that they have no idea (Rose, 1995, p. 38).

Consistent with the VTsIOM surveys, the New Russia Barometer surveys also paint a picture of high levels of mistrust in Russian society. Although Russians trust people within their circle of intimate contacts, 75% respond that

“other people can’t be trusted”. As a point of comparison, 63% of Americans responded the same way in the General Social Survey in 1993, up from 42% in 1960 (Putnam, 1995). Mistrust of political institutions in post-Soviet society is similarly very high. Political parties were actively distrusted by 83% of respondents in the 1994 New Russia Barometer. Distrust of Parliament was almost as high, 72%. The majority of trade union members distrust their union officials. Only 15% of Russian workers say they trust their national union officials (Rose, 1995).

To a considerable extent, mistrust of Russian government today may reflect the inability of the Russian Federation to guarantee its citizens an income. According to the 1995 New Russia Barometer:

[O]ne in seven of the labor force has been unemployed in the past year, but only a third of those received any unemployment benefit while without work, and usually only for a fraction of the period of their unemployment. The ineffectiveness of the state to help the unemployed is compounded by the inability of employers to pay wages on time. More than half of Russian workers report that they have been paid late or not at all for at least one month during the past year (Rose, 1995, p. 37).

Since people in an hour-glass society do not look to the state for protection, when they find themselves in trouble, they look to their friends. Again, as Rose (1995) said: “The ability of Russians to build strong social networks to keep the state out is historically understandable. In an inflationary era, 100 friends are worth far more than ten million rubles.” The problem is when people have no friends they can turn to for support. The most vulnerable group in an uncivic society consists of those socially-isolated individuals who lack informal networks of support (spouses, friends, close relatives), and who are forced to rely on the official economy for their survival. Whereas such individuals were already vulnerable during the Soviet era (forced as they were to rely on the state for support), the collapse of the regime left them exposed to the turmoil of economic transformation. The more “uncivil” the region, the greater the vulnerability of those at the bottom of the hour-glass.

To be sure, social capital is abundantly evident today in the thriving enterprises of the new Russian entrepreneurs. After the collapse of the old regime, those individuals who had access to political and social connections (typically drawn from the ranks of the *apparatchik*) were able to capitalize on the new opportunities opened up by the economic reforms. But the social capital generated in such a context is likely to be segregated to the top of the hour-glass society. The

result is an increasing polarization of social capital in Russian society. Those who have access to social capital get ahead; those who do not get sick and die.

Perhaps the most worrisome trend picked up by the New Russia Barometer is that a significant portion of Russians appear to be "anticitizens," actively wanting to keep the center of the hour-glass as narrow as possible in order to limit what

the state can do to them (Rose, 1995). Unfortunately, as our study found, distrust in government is likely to translate into poorer voter turnout and disinterest in politics. In turn, a disengaged electorate is unlikely to give rise to good governance. Ultimately, the price that citizens will pay (and we argue, have already paid) will be in the form of the human toll of ill-health and diminished quality of life.

## NOTES

1. The sample selection procedure is described in detail in Metodologia (1993) and Kozerenko (1994).
2. Each region's subsistence income level is calculated monthly, and reflects the income needed to purchase a minimal basket of goods in each region.
3. We also disaggregated the survey responses by gender (for example, trust in government) and used these to predict gender specific mortality rates. The results of these analyses suggested that there was little difference between using overall and gender specific

responses. In addition, we also reran the analyses using White-corrected standard errors to adjusted for the possibility of heteroskedastic errors across regions. These analyses also indicated little change, suggesting that our initial models were robust.

4. For example, the partial correlation coefficient (after adjusting for age) for 1980 crude death rates and trust in local government was 0.33,  $P < 0.05$ . The partial correlation with the 1994 crime rate was surprisingly strong ( $r = 0.54$ ,  $P < 0.0003$ ).

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## APPENDIX A: ABBREVIATIONS TO TABLES 1-3

Variable descriptions	
Dependent variables	
MLIFEX94	Male life expectancy at birth, 1994
FLIFEX94	Female life expectancy at birth, 1994
MDTH94	Standardized death rate per 100000 population, men
MNEO94	Standardized death rate per 100000 population due to neoplasms, men
MCIRC94	Standardized death rate per 100000 population due to diseases of the circulatory system, men
MEXT94	Standardized death rate per 100000 population due to accidents, poisoning and injuries, men
FDTH94	Standardized death rate per 100000 population, women
FNEO94	Standardized death rate per 100000 population due to neoplasms, women
FCIRC94	Standardized death rate per 100000 population due to diseases of the circulatory system, women
FEXT94	Standardized death rate per 100000 population due to accidents, poisoning and injuries, women
Independent variables	
LNINC94	Log of nominal income per capita, thousand rubles, 1994
POV94	Percent of population with incomes below the region subsistence minimum, 1994
UNEMP94	Unemployment rate, 1994
DIVCRD94	Divorce rate per 1000 population, 1994
CRIME94	Number of registered crimes per 100000 population, 1994
ECONSITB45	Percent responding that 'the economic situation in your city or region?' was poor or very poor.
EXPPOL7	Percent responding that 'I'm not at all interested in politics'
RELWORK3	Percent responding that '...the relations between people at...work are strained, with conflicts'
TRUSTGV3	Percent responding that 'The Government of Russia...is not at all deserving of trust...'
TRUSTRG3	Percent responding that 'The regional (state) organs of power...are not at all deserving of trust...'
TRUSTLC3	Percent responding that 'The city or local organs of power...are not at all deserving of trust...'
VOTED2	Percent that didn't vote in last election

TABLE A1: SURVEY DATA BY REGION

Region number	Region	Number of survey respondents
1	Arkhangelskaya	232
3	Vologodskaya	63
5	Karelia	122
7	Leningradskaya obl.	170
8	St Petersburg	291
9	Pskovskaya	50
11	Vladimirskaya	311
12	Ivanovskaya	291
16	Moskovskaya	508
17	City of Moscow	560
19	Smolenskaya <sup>a</sup>	140
22	Nizhegorodskaya	276
23	Kirovskaya	51
26	Chuvash	183
28	Belgorodskaya	213
30	Voronezhskaya	259
34	Lipetskaya	247
35	Samarskaya	111
36	Penzenskaya	402
39	Saratovskaya	239
40	Tatarstan	222
41	Krasnodarsky krai	148
42	Rep. of Adygeya	251
43	Stavropol'skii krai	174
44	Karachaevo-Cherk.	207
51	Rostovskaya	410
52	Permskaya <sup>a</sup>	31
54	Sverdlovskaya	142
55	Chelyabinskaya <sup>a</sup>	125
56	Rep. of Bashkortosta	220
57	Udmurtskaya	212
58	Altaiskii krai	74
59	Gorny Altai Rep.	174
60	Kemerovskaya	435
66	Novosibirskaya	356
67	Krasnoyarskii krai	111
70	Khakassiya rep. <sup>a</sup>	43
76	Primorsky krai	39
77	Khabarovskii krai	242
79	Amurskaya obl.	74

<sup>a</sup>Data for the variables: EXPPOL7, VOTED2 and RELWORK3 were missing for these regions.

TABLE A2: REPRESENTATIVENESS OF SURVEY DATA

	VTsIOM survey data, Apr–Jun 1994	Official data, 1994
Sex (%) (population age 20–69)		
Men	40.1	46.4
Women	59.9	53.6
Age (%) (population age 15–72)		
15–19	3.3	3.5
20–24	9.4	9.9
25–29	11.7	9.8
30–49	60.0	58.2
50–54	7.4	7.7
55–59	5.8	7.4
60–72	2.4	3.5
Education (economically active population, age 16–72)		
Higher	24.4	17.5
Incomplete higher	2.8	1.7
Specialized secondary	30.8	32.0
Secondary	30.6	32.7
Incomplete secondary	9.8	13.8
Primary or less	1.6	2.3
Major region, all population (%)		
North	4.7	4.1
Northwest	5.8	5.5
Central (excluding Moscow)	14.1	14.4
Volga-Vyatsky	5.8	5.7
Central Chernozem	5.3	5.3
Povolzhsky	11.4	11.3
North Caucasus	11.3	11.8
Urals	14.6	13.8
Western Siberia	9.8	10.2
Eastern Siberia	5.8	6.2
Far East	5.0	5.2
Moscow City	6.3	5.9

Sources of official data: Goskomstat (1994) *Chislennost' naseleniya rosskiiskoi federatsii (Population of the Russian Federation)*, Moscow; Goskomstat (1995) *Trud i zanyatost' v rossii (Labor and Employment in Russia)*, Moscow.