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on Demographic Issues

The Russian Federation in an Era of Demographic Crisis: The Special Challenges of Population Aging and Social Security Policy

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The Russian Federation in an Era of Demographic Crisis: The Special Challenges of Population Aging and Social Security Policyⁱ

By Nicholas Eberstadt and Hans Grothⁱⁱ

In the taxonomy of both the United Nations Population Division (UNPD) and the US Bureau of the Census (USBC), the Russian Federation is listed as a member of the contemporary world's "more developed regions". This categorization looks entirely logical in a number of important respects. Like all other countries in this category, for example, modern Russia's population profile is characterized by relatively low levels of fertility, and by a relatively high ratio of older citizens to total population.

But the Russian Federation also exhibits some distinctive features that differentiate it from most of the other "more developed countries" with which it is regularly grouped for purposes of global demographic analysis. For one thing, its income level is markedly lower than in most (although not all) countries of the "more developed regions". (In 2005, according to World Bank estimates, PPP-adjusted GDP for the Russian Federation was about \$11,800, as against the OECD-wide average of \$33,500—in other words, barely one third as high.ⁱⁱⁱ) Hardly less important, Russia—unlike most other "more developed countries"—is in the grip of an acute demographic crisis. The most important manifestations of this crisis are catastrophically high levels of excess mortality for the adult population (a situation especially acute for the population of conventionally defined working ages) which has resulted in a pronounced and more or less progressive depopulation over the nearly two decades since the end of the Soviet era.

All countries in the "more developed regions" face major challenges in coming to grips with the social security and social protection challenges that await their societies in the

decades immediately ahead. By and large, these challenges are being driven by a common set of demographic trends: namely, pronounced population aging, largely generated by several generations of low (or even sub-replacement) fertility levels. Russia's faces these same challenges—but additional ones as well. For the Russian Federation must attempt to provide for the prospective support of a growing pension-age population that stands to be far more frail and infirm than its counterparts in affluent Western societies—and to do so on the basis of a workforce that is unusually debilitated, constrained by relatively low levels of labor productivity, and set to shrink in absolute size quite rapidly over the next several decades. In planning to meet the retirement needs of an aging population over the coming generation, the Russian Federation's options are there much more limited—and perhaps unpleasant—than those available for many other countries in the “more developed regions”.

Russia's Current Peacetime Demographic Crisis: The Backdrop to Tomorrow's Social Security Challenges

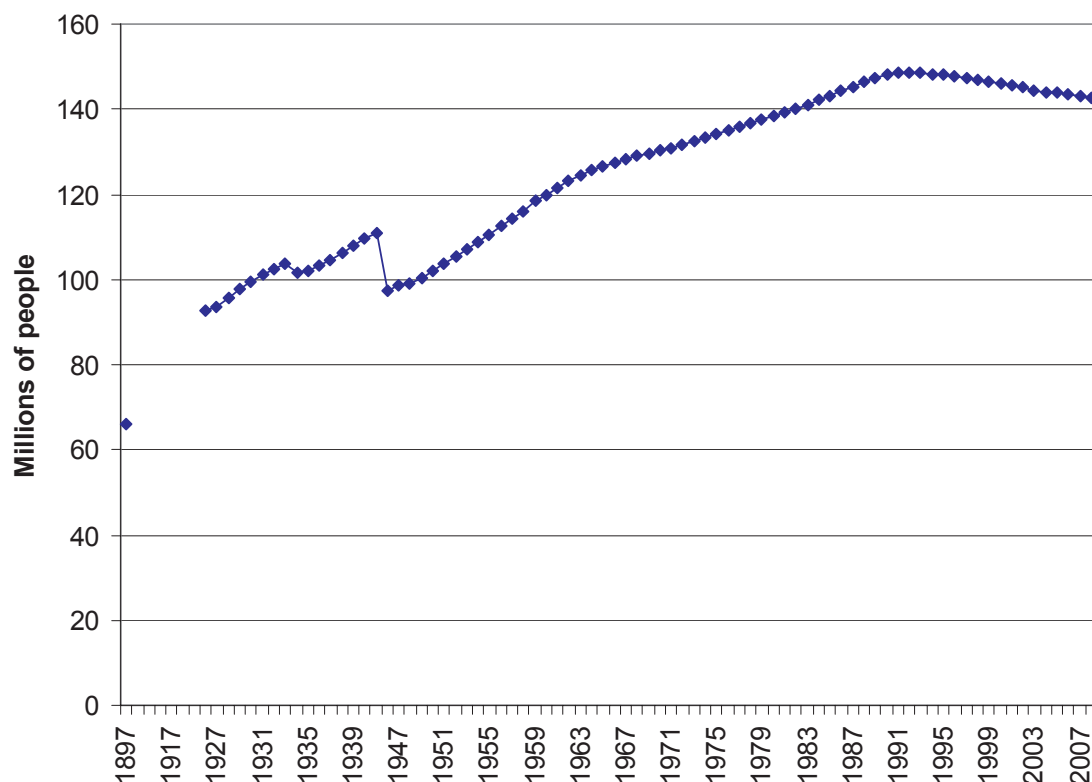
Over the decades since the dissolution of the Soviet Union, the Russian Federation has been in the grip of an unrelenting demographic crisis. Admittedly, “demographic crisis” is a term that is thrown around these days with an all-too-promiscuous—and sometimes quite unwarranted—abandon. But the particulars of the Russian Federation's demographic travails provide empirical demonstration for the proposition that Russian society is beset by severe demographic paroxysms that are directly and adversely affecting both individual wellbeing and economic potential.

Since the end of the Soviet era, the Russian Federation has witnessed a pronounced and continuing depopulation: from 1992 to the present, the country's total population has fallen by about 7 million (almost 5%), with almost continuous year-on-year population declines. Russia, to be sure, was by no means the only country to experience population decline during those years—but the magnitude of this fall-off was exceptional. In

absolute terms, the only drop larger than this one in the postwar era was the bout China suffered in the wake of Mao's catastrophic "Great Leap Forward" campaign (a decline in relative terms roughly similar to Russia's post-Communist population decline to date).

The Russian nation, unfortunately, is no stranger to sudden bouts of depopulation: in fact, it has suffered four of these in the past century alone. [SEE FIGURE 1] The first three of these, however, were the consequence of war, political upheaval, and state-directed violence; depopulation ceased when the afflicting cataclysms abated. Today's depopulation by contrast proceeds in a time of peace—and requirements for reversing it are correspondingly not at all obvious.

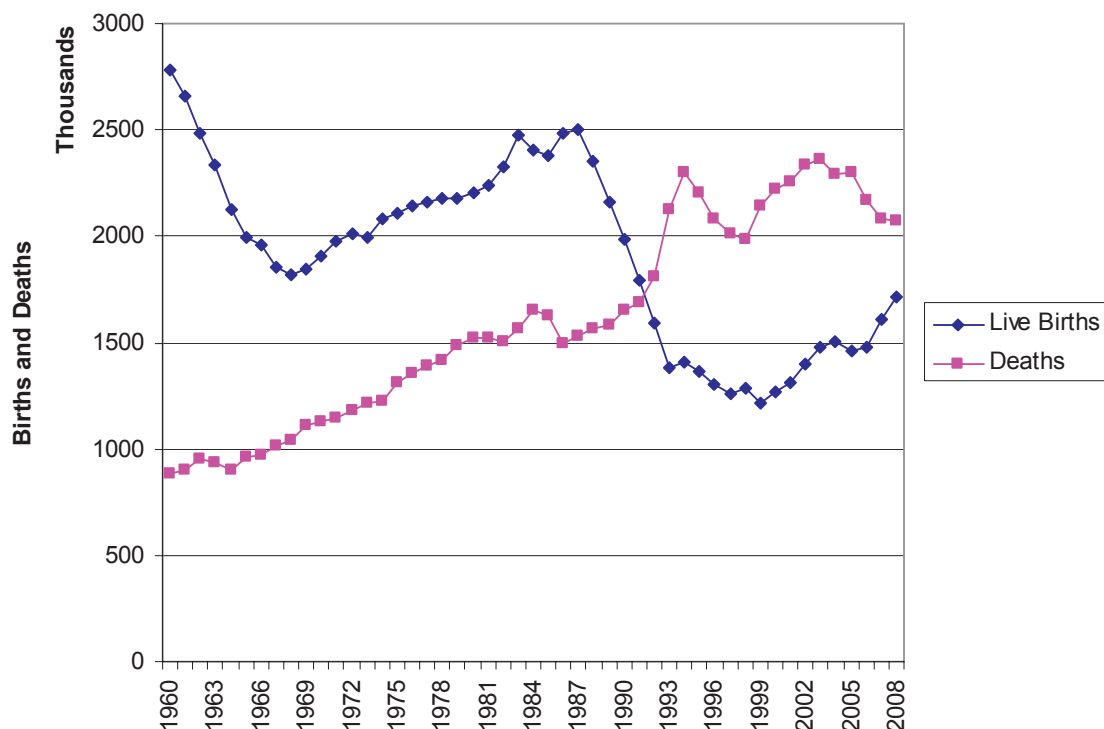
Figure 1: Russia's Estimated Population: 1897-2008



Source: Dalkhat Ediev, "Application of the Demographic Potential Concept to Understanding the Russian Population History and Prospects: 1897–2100," *Demographic Research* 4 (2001) 289–336, Figure 1.1 This graphic has been updated since its initial publication to reflect developments in the 2000–08 period.

In arithmetic terms, Russia's present depopulation has been driven by negative natural increase: more specifically, by a sharp falloff in births conjoined with an upsurge in deaths. [SEE FIGURE 2] Between 1992 and 2008, according to official figures, Russia registered almost 13 million more deaths than births (almost 3 funerals for every 2 live deliveries). Russia's negative natural increase during these years was of a scale equivalent to eliminating the entire contemporary population of the country of Angola. Net immigration partly mitigated the country's population decline over these years, but was by no means sufficient to compensate for it entirely.

Figure 2: Live Births and Deaths in Russia, 1960-2008

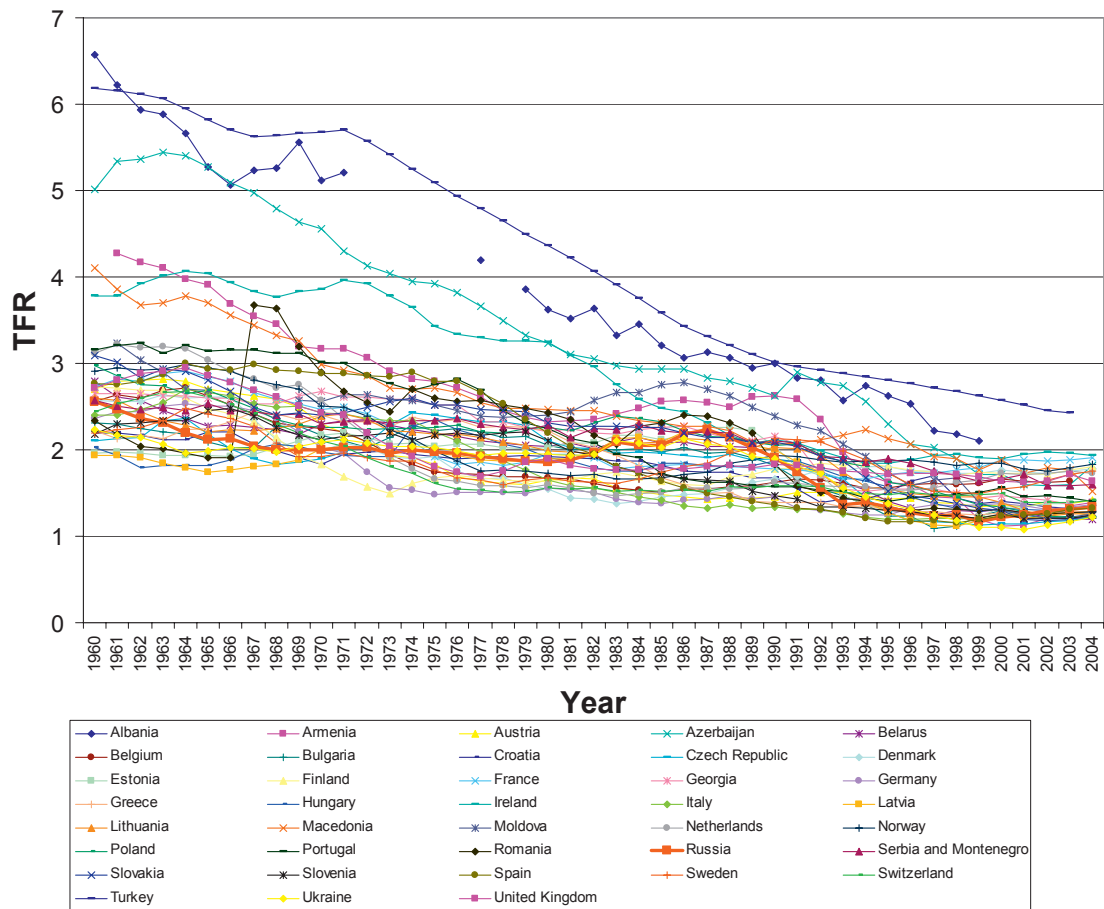


Sources: 1976–2002 data is from Goskomstat (Moscow), “Demographic Yearbook of Russia” (2004), Table 2.25; 2004–07 data is from Goskomstat, “Demographic Yearbook of Russia” (2008); and 2008 data is from Goskomstat website, available at http://www.gks.ru/bgd/regl/b09_06/IssWWW.exe/Stg/2/01-01.htm.

Russia experienced a dramatic drop in births during the “transition” period after the end of Soviet Communism, to be sure. But Russia's low levels of childbearing today cannot be attributed entirely to “systemic shock”. To the contrary: low levels of fertility have

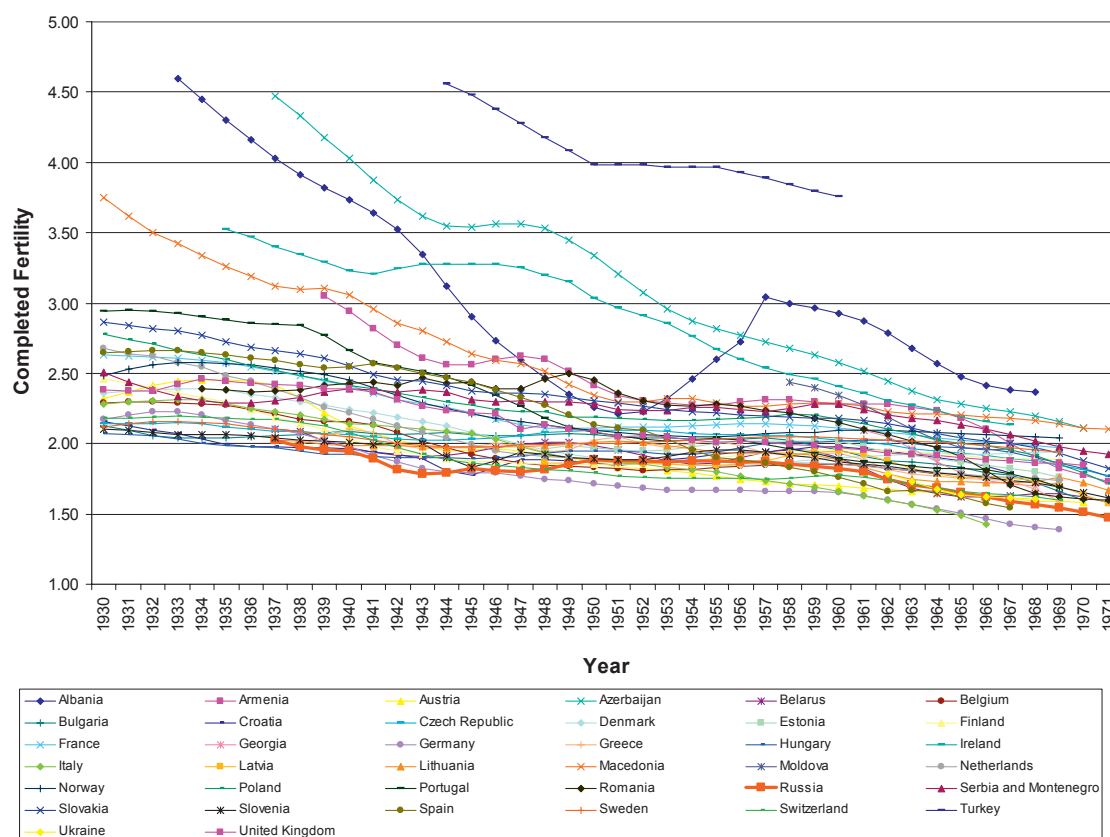
been characteristic of modern Russia, both under Communist rule and in the years since Communism ended. In the days of Khrushchev and Brezhnev, Russia's period ("snapshot") total fertility rate (or TFR—a synthetic measure of births per woman per lifetime, taking age-specific rates of childbearing in all childbearing ages for a given calendar year) was among Europe's very lowest. The same is true today. And the same is true if we examine "completed" TFRs (a measure which eliminates potential distorting effects of intervening changes in birth timing and spacing decisions): here once again, Russia's fertility trends have consistently ranked among Europe's very lowest. Russia's long-term fertility patterns, in short, look entirely "normal" in a European content—although they are close to the lower boundary witnessed in Europe, and stand far below the levels required for long-term population replacement absent compensatory net immigration. [SEE FIGURES 3 AND 4]

Figure 3: Total Fertility Rate - Europe 1960-2004



Source: "Recent Demographic Developments in Europe 2005," Council of Europe, 2006.

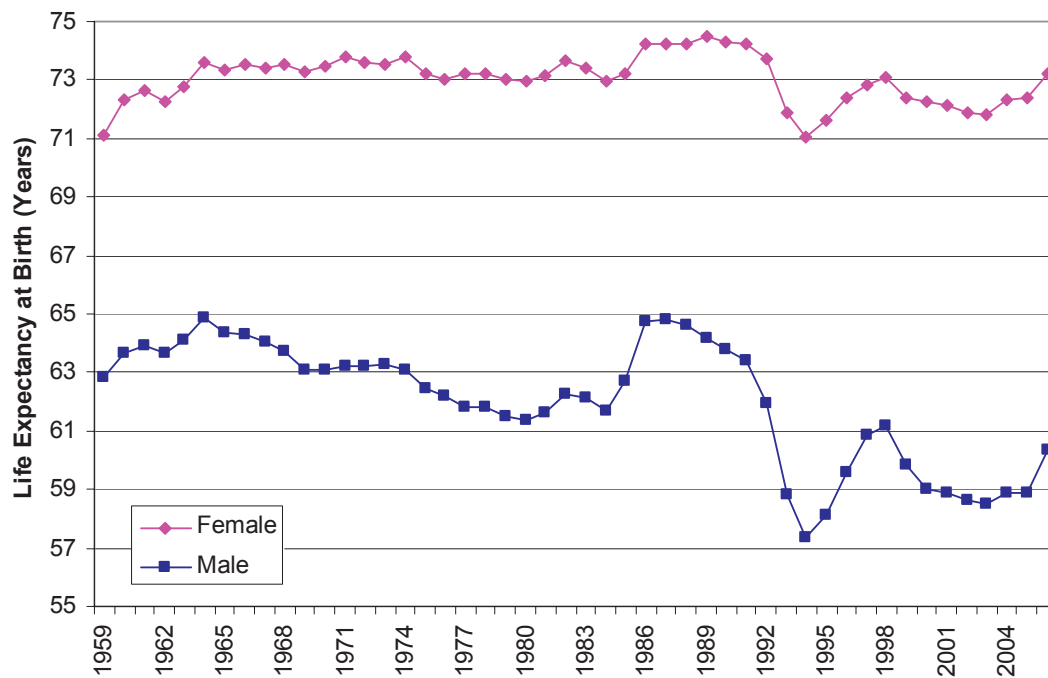
Figure 4: Completed Fertility by Birth Year of Mothers - Europe 1930-1971



Source: "Recent Demographic Developments in Europe 2005," Council of Europe, 2006.

What is entirely distinctive about Russia's vital trends are the country's mortality trends—which are woefully poor, and have been so for literally decades. Estimates from the Human Mortality Database (HMD), maintained by the University of California and the Max Planck Institute for Demographic Research (Rostock, Germany), make the point. By this reckoning, life expectancy at birth for males and females alike was lower in the Russian Federation in 2006 than it had been four decades earlier: a dubious "first" for an urbanized, literate society during peacetime. [SEE FIGURE 5]

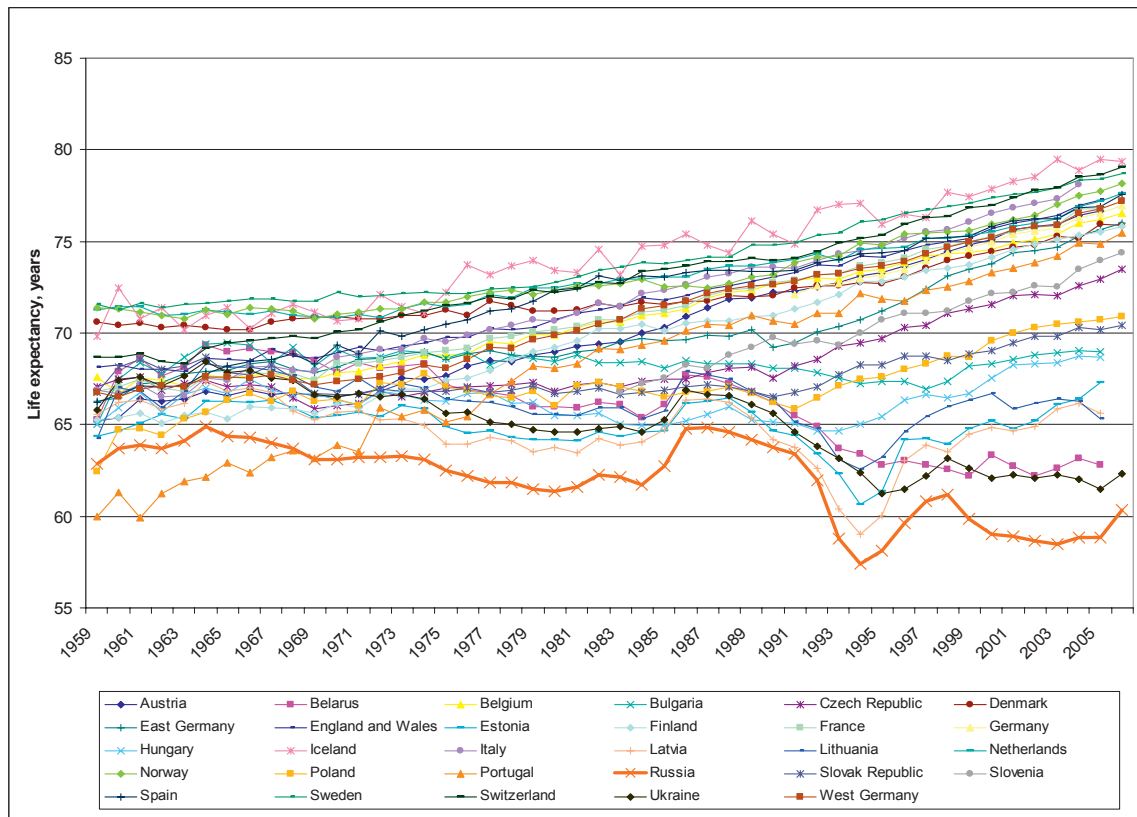
Figure 5: Life Expectancy at Birth: Russian Federation, 1959–2006



Source: Human Mortality Database, University of California, Berkeley, and Max Planck Institute for Demographic Research, <http://www.mortality.org>.

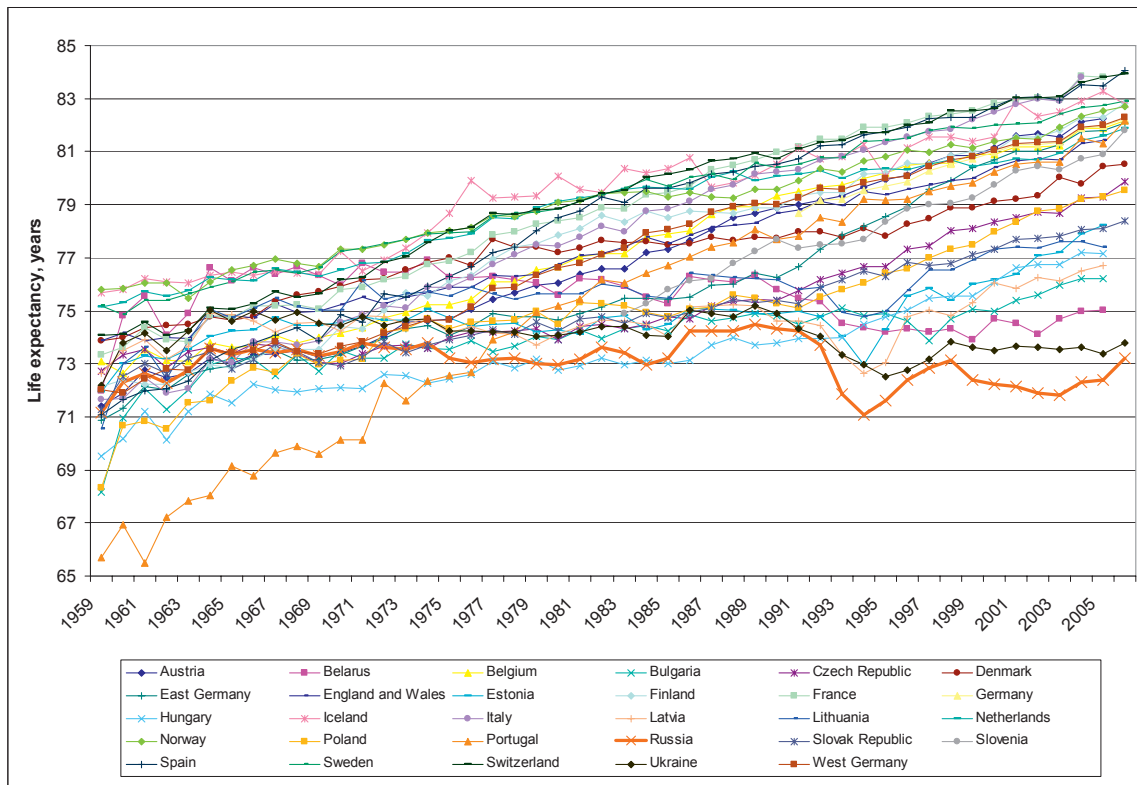
In a European context, moreover, the Russian Federation has been gradually emerging as an extreme “underperformer” in life expectancy for men and women alike—even by comparison with other post-Communist societies such as Belarus and Ukraine, which have also struggled with marked setbacks in general levels of public health during their respective “transition” periods. [SEE FIGURES 6 AND 7]

Figure 6: Life Expectancy in Europe, 1959–2006 (males)



Source: Human Mortality Database, University of California, Berkeley, and Max Planck Institute for Demographic Research, <http://www.mortality.org>.

Figure 7: Life Expectancy in Europe, 1959–2006 (females)



Source: Human Mortality Database, University of California, Berkeley, and Max Planck Institute for Demographic Research, <http://www.mortality.org>.

Post-Soviet Russia's current peacetime demographic crisis, in short, is centrally a crisis in health mortality. Health conditions were by no means glorious during the days of Communist rule—but the toll of “excess mortality” since 1992 has been nothing short of horrendous. Measured against the hardly exacting standard of survival patterns in the early Gorbachev era, Russia would have suffered a total of 6.6 million “excess deaths” between 1992 and 2006 alone, according to HMD life tables (a total, incidentally, almost identical to the country's absolute population decline over those same years). Measured against a higher, Western European bar—such as survival schedules in France circa 1992—Russian “excess mortality” for 1992-2006 would have approached 18 million: a tally of premature mortality that would, if only in arithmetic terms, have matched or exceeded the territories population losses during the catastrophic years of the Great Patriotic War, as it is called in Russia (World War II as it is known elsewhere).

Mortality and Morbidity for Working-Age Adults in the Russian Federation: A Crushing Burden

The Russian Federation's peacetime demographic crisis is characterized not only generalized mortality crisis, but by an especially severe health crisis concentrated in the adult population of working ages (as conventionally defined). This working-age health crisis has important ramifications for Russia's old-age support capacities, both today and in the years to come.

The extraordinary severity of this current health and mortality burden weighing upon Russian working-age adults is suggested by the proxy of life expectancy at age 15. [SEE TABLE 1]

By the World Bank's schema for ranking countries by levels of per capita income, contemporary Russia qualifies as an "Upper Middle Income Economy" (indeed, after PPP adjustments, as one of the more affluent states within this grouping).^{iv} Yet Russia's estimated life expectancy at age 15 was far lower than would have been expected for a country with such a relatively favorable economic ranking. For females, life expectancy at age 15 was a decade or more below levels prevailing among "high income economies"—but it was also lower than in many "upper middle income economies" (such as Turkey and Brazil), and in fact lower than in a number of "lower middle income economies" (such as China or Morocco). Even more striking, combined male and female life expectancy at age 15 was lower for the Russian Federation than for such "lower middle income economies" as India—ranking only just slightly higher than the level for impoverished Haiti. As for male life expectancy at 15, Russia's appears to be one of the world's very lowest—markedly lower, indeed, than in many of the World Bank's "low income economies", including such desperate places as Benin, Haiti or even the "failed state" of Somalia.

Table 1: Estimated Life expectancy at age 15 vs. PPP-Adjusted GDP per capita, 2006:
Russia and selected countries by income groupings
(as categorized by the World Bank)

Country	Males	Females	Males and Females	GDP Per Capita, PPP, 2006 (constant 2005 international \$)
“High Income Economies”				
Singapore	63.5	68.2	65.8	\$43,328
United States	61.2	66.1	63.7	\$42,610
Switzerland	64.7	69.6	67.3	\$36,046
Germany	65.2	62.5	67.7	\$31,324
Italy	63.8	69.3	66.7	\$28,156
“Upper Middle Income Economies”				
Russian Federation	46.3	59.2	52.5	\$12,711
Malaysia	55.4	60.0	57.6	\$12,149
Iran*	56.9	61.2	58.9	\$9,600
Brazil	55.1	61.6	58.3	\$8,673
Turkey	57.8	62.3	60.0	\$8,157
Jamaica	56.2	62.3	59.2	\$7,333
“Lower Middle Income Economies”				
Tunisia	57.2	61.5	59.3	\$6,648
China	58.4	62.5	60.4	\$4,501
Morocco	58.1	62.2	60.1	\$3,794
India	52.2	55.1	53.6	\$2,393
“Low Income Economies”				
Cambodia	50.5	55.6	53.2	\$1,569
Benin	49.2	50.9	50.1	\$1,224
Haiti	50.0	54.4	52.2	\$1,186
Somalia	48.6	51.5	50.0	\$600

Source: Estimated 2006 life expectation at age 15 from “Life Tables for WHO Member States”, World Health Organization, available at http://apps.who.int/whosis/database/life_tables/life_tables.cfm. ; PPP-adjusted per capita GDP data from 2008 World Bank World Development Indicators, CD-ROM. Note: Somalia GDP per capita PPP from CIA World Factbook

*Note: The World Bank officially classifies Iran as a lower-middle income country, even though its per capita GDP ranks among countries in the upper-middle income category.

Russia's peacetime deterioration in general health conditions has been concentrated in its population of working ages, as Figure 8 demonstrates. [SEE FIGURE 8] Over the four decades between 1965 and 2005, in fact, age-specific mortality rates for men in their 30s and 40s typically rose by around 100%. Scarcely less stunning, mortality levels for women in their 30s and 40s shot up by nearly 50% during that same period.

The deterioration of health conditions for Russia's working age population has been a primary driver of divergence in overall health trends between Russia and the rest of Europe. By 2006, according to WHO, age-standardized mortality in the Russian Federation was over twice as high as in "pre-accession" states of the European Union (i.e., Western Europe). Hardly less noteworthy is the divergence in mortality patterns that has emerged between Russia and the "new" EU members (in the main, former Soviet bloc states from the Baltic and Central Europe). At the end of the Soviet era, age-standardized mortality rates were similar for the aggregated "new" EU states and the Russian Federation. Just fifteen years later, mortality levels were about 40% higher in Russia: while the new EU states recorded substantial improvements in overall mortality levels after the demise of Soviet-style rule, Russia's death rates veered erratically upward.^v [SEE FIGURE 9]

What accounts for Russia's strange new patterns of health reversal? We can answer this question in a general manner by referring to cause-of-death data. Overwhelmingly, the mortality divergence between Russia and the rest of Europe can be accounted for by mortality from cardiovascular disease (CVD—heart attacks, strokes etc.) and deaths from "external causes" (injuries, including suicide, homicide, accidents, poisoning, etc.). CVD mortality appears to be the single greatest driver of Russia's adverse mortality trends: while this has been declining in the rest of Europe (and the rest of the OECD, as well as in many lower-income societies), it has been grimly rising in Russia. By 2006, age-standardized CVD mortality was fully four times as high in Russia as in the "old" EU—and

fully 50% higher than in the “new” EU states. Russia’s CVD mortality was far higher than would be predicted on the basis of per capita income alone—indeed, according to WHO estimates for 2002, the Russian Federation was a dreadful “outlier” from the overall international relationship between income and CVD mortality. [SEE FIGURES 10 THROUGH 11]

Entirely apart from its humanitarian meaning, this heavy mortality burden, concentrated in working age groups, has ominous economic implications. These extend well beyond the immediate losses in potential manpower such figures suggest.

Severe and extreme levels of premature adult mortality, for example, cannot help but have direct and unforgiving effects on the cost-benefit calculus for investments in higher education and other forms of post-secondary training. In 2006, on current survival schedules, 7 out of 8 Swiss mean aged 20 could expect to celebrate a (notional) retirement at age 65—whereas their Russian counterparts faced less than even odds of making it from 20 to 65. Less breathtaking, but nonetheless dramatic, disparities between Swiss and Russian working-age women were also apparent. [SEE FIGURES 12 AND 13] Since “human capital” investments undertaken after the completion of secondary education may prove key in eliciting higher levels of productivity in modern societies, Russia’s adverse adult survival trajectories may therefore have an additional, unfavorable impact upon future growth prospects.

In considering the broader economic implications of Russia’s health and mortality problems with respect to the outlook for labor productivity, we may also wish to consider demographic trends for urban areas (insofar as economic growth in the modern era has been disproportionately generated by urban rather than rural populations). Although Russia today is often classified as a “BRIC” country (an acronym coined for the emerging market economies of Brazil, Russia, India and China) overall life expectancy levels in urban Russia appear to be significantly lower than in China or

Brazil—and may also be lower than in urban India, as well as other urban agglomerations in contemporary low-income societies. Further: where the other BRIC countries are experiencing continuing population growth—and whereas affluent OECD countries currently on the cusp of depopulation (e.g. Germany, Italy, Japan) still see their urban center increasing in size, Russia’s total urban population has been falling since at least 1995. [SEE TABLE 2 AND FIGURE 14] These broad metrics for health and population change, to be sure, can only approximate international health differentials for the population of working age—or for differentials in international growth rates for the urban labor force. Yet these differentials are, we contend, both meaningful and indicative—and they do not portend auspiciously for Russia with respect either to labor productivity or to economic growth.

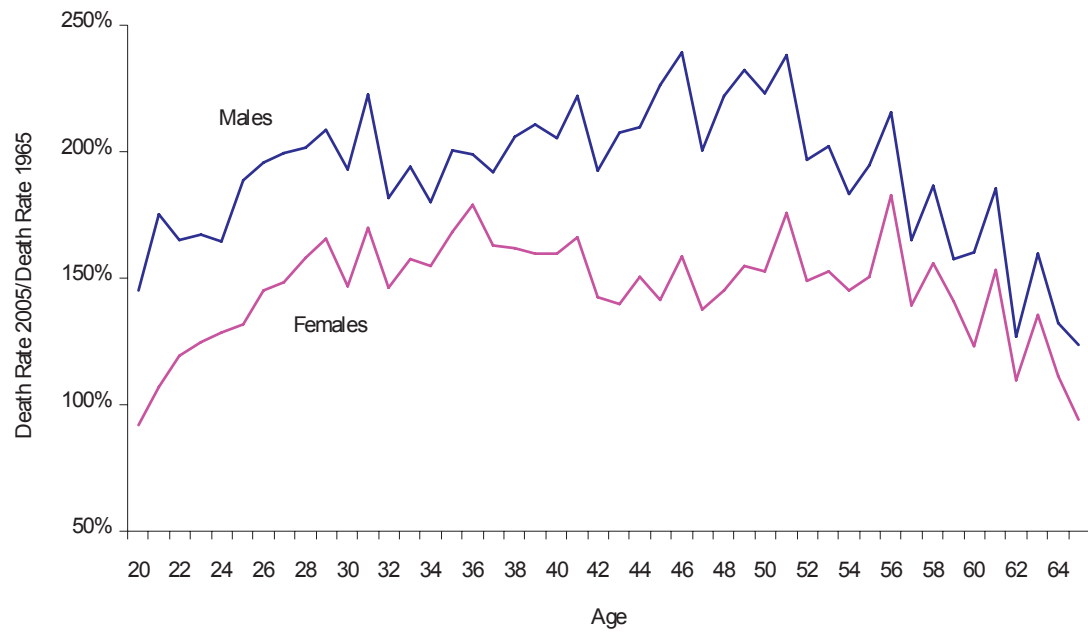
In theory, technological innovation and institutional/economic policy reforms could substantially improve the prospects for labor productivity and economic growth in Russia, despite the poor health situation of the Russian workforce. Given Russia’s present-day particulars, however, the outlook here is less promising than might be ordinarily assumed.

Russia’s current capacities for knowledge generation are distinctly limited: despite the country’s Soviet era achievements in science and high-technology (mainly in the defense area), modern-day Russia is a conspicuous international underperformer in knowledge generation today. The Russian Federation, for example, accounts for about 6% of the world’s total population of university graduates—but between 1995 and 2008 Russia was awarded just 0.1% of all patents issues by the US Patent and Trade Office (PTO), roughly the same international fraction as the US state of West Virginia.^{vi} (This is, admittedly, an “America-centric” measure of knowledge generation—but a similar pattern is seen in a broader measure: international patent applications, as registered by the World International Property Office (WIPO).^{vii}) Moreover, while the total worldwide numbers for scientific articles published in per-review journals has been rising

exponentially since 1990, the number of such studies published by Russian nationals has stagnated over the past two decades, and in fact was slightly lower in 2008 than it had been at the end of the Soviet era.^{viii} In addition, broad embrace of higher technological standards within the Russian workforce in the years ahead stands to be constrained by two demographic factors: 1) the steep drop-off in Russian fertility since 1992, which will sharply reduce the absolute and relative size of the pool of young entrants (typically, the group with the highest level of educational and technical attainment in all modern societies) into the labor force in the years immediately ahead, and 2) Russia's extremely high levels of premature mortality for its current manpower supply, which discourages investments in higher education and training for reasons already mentioned.

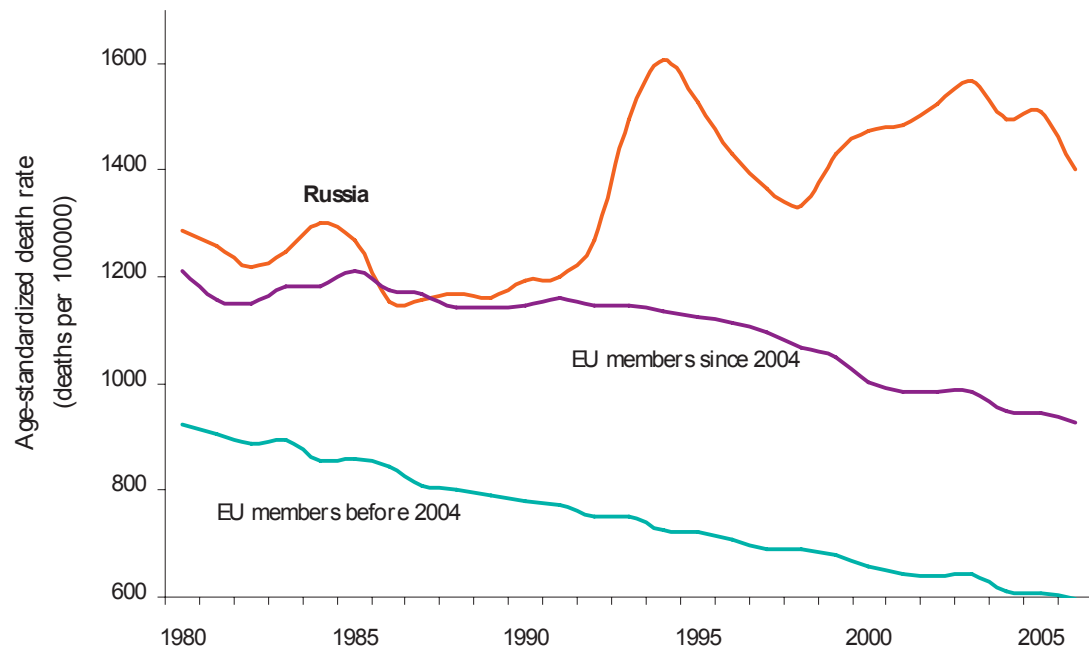
A full discussion of Russia's prospects for institutional and economic policy reform is beyond the scope of this study. We may note, however, that Russia's international rankings by some highly pertinent measures here remain very low, despite the country's transition from Communist central planning to a market economy. In Transparency International's 2009 Corruption Perceptions Index, for example, the Russian Federation rated 148 out of 180 countries surveyed—below Indonesia, Nigeria and the Philippines, among many other countries.^{ix} In the Fraser Institute's 2009 Index of Economic Freedom, Russia ranked somewhat higher—but it was still only 83 out of 141 countries surveyed (below Egypt, Uganda, and Ghana, among others).^x And in the Heritage Foundation's 2010 Index of Economic Freedom, Russia ranked 143 out of 179—well below Kenya, Tanzania, Pakistan and Yemen, to name only a few.^{xi} There is an inescapably subjective element in all these indices, of course. Notwithstanding: these international surveys consistently depict Russia as a country with a forbidding "climate" as regards returns to human capital—and such a climate may be expected to discourage both investments in human capital and economic growth, all other things being equal.

Figure 8: Death Rate Ratio by Gender, Ages 20–65: Russia, 2005 vs. 1965 (1965 = 100)



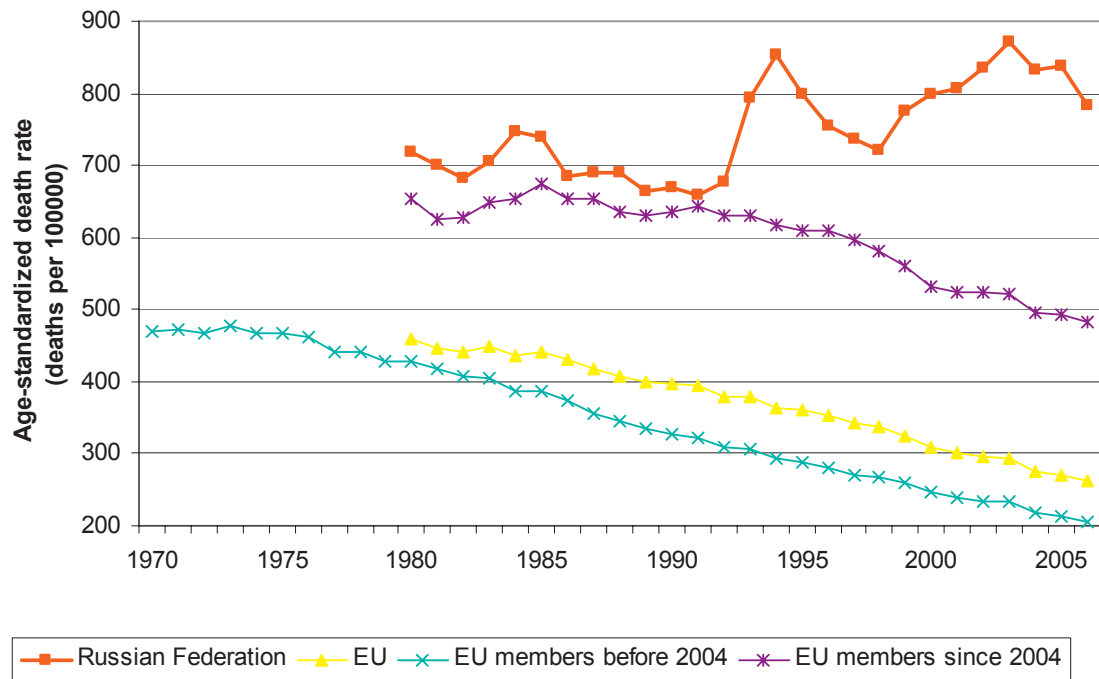
Source: Human Mortality Database

Figure 9: Death rates from all causes, 1980–2006: Russia vs. EU (males plus females)



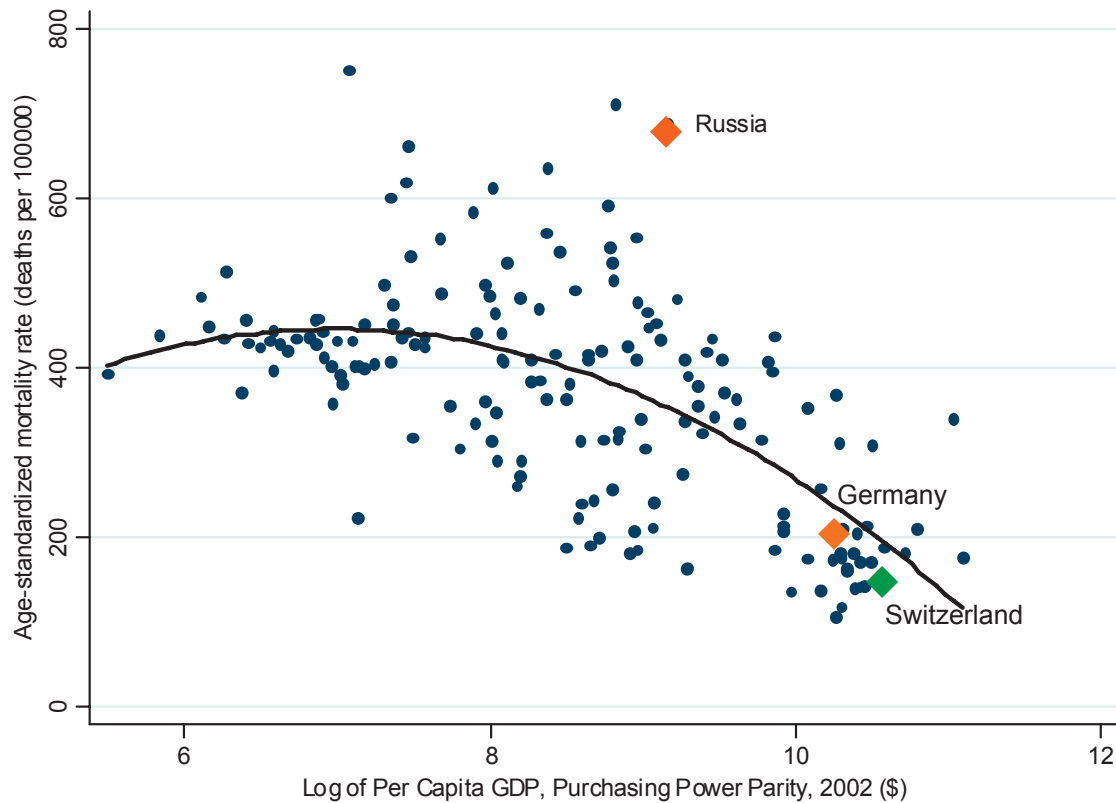
Source: Europe Health for All Database, World Health Organization, August 2009.
<http://www.euro.who.int/HFADB>.

Figure 10: Death Rates from Cardiovascular Disease,
1970-2006: Russia vs. EU (males plus females)



Source: Europe Health for All Database, World Health Organization, August 2009, <http://www.euro.who.int/HFADB>.

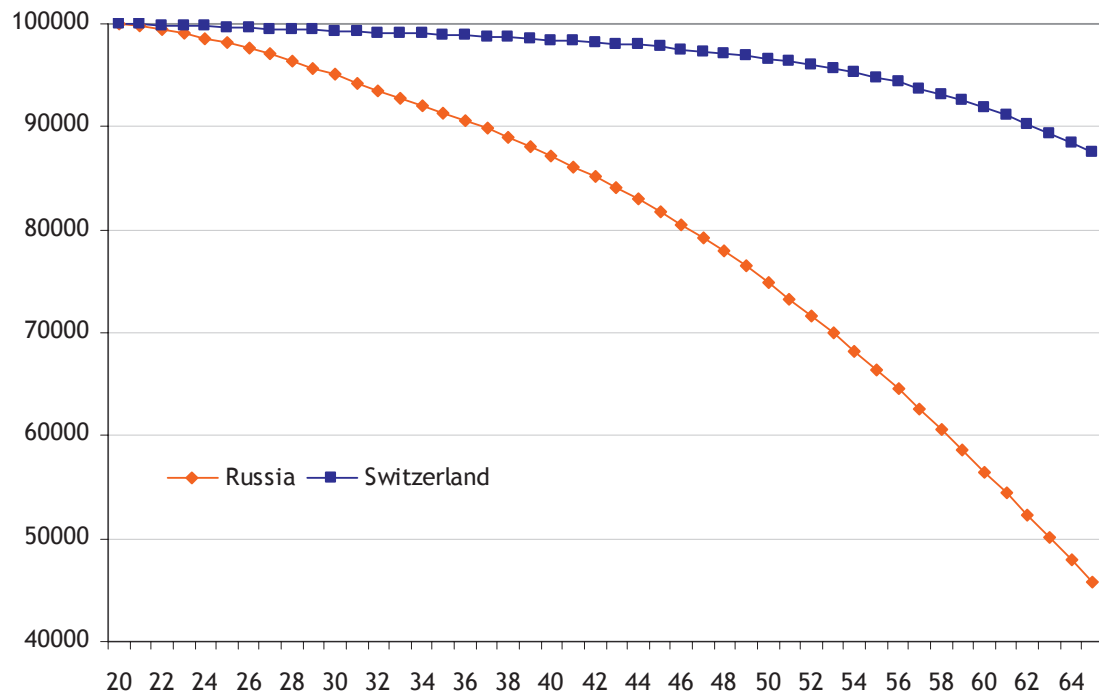
Figure 11: Age-standardized Mortality Rates from Cardiovascular Disease vs. PPP Adjusted Per Capita GDP, 2002



Note: Mortality rates in this figure are weighted against the WHO's "World Standard Population" model; age-standardized mortality figures from the WHO European Health for All Database and from Goskomstat are adjusted against the "European Standard Population" model.

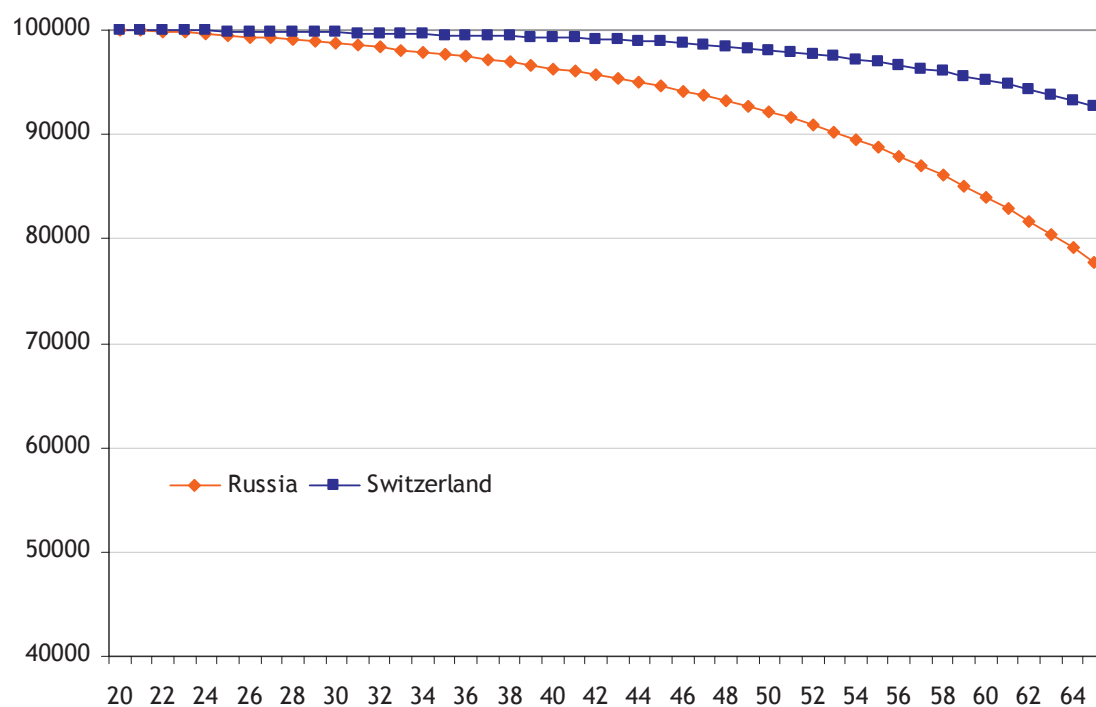
Source: World Development Indicators 2008; and "World Health Report 2004 Annex Tables."

Figure 12: Male Survival Schedules, Ages 20-65: Russian Federation vs. Switzerland, 2006



Source: Human Mortality Database, University of California, Berkeley and Max Planck Institute for Demographic Research, <http://www.mortality.org>.

Figure 13: Female Survival Schedules, Ages 20-65:
Russian Federation vs. Switzerland, 2006



Source: Human Mortality Database, University of California, Berkeley and Max Planck Institute for Demographic Research, <http://www.mortality.org>.

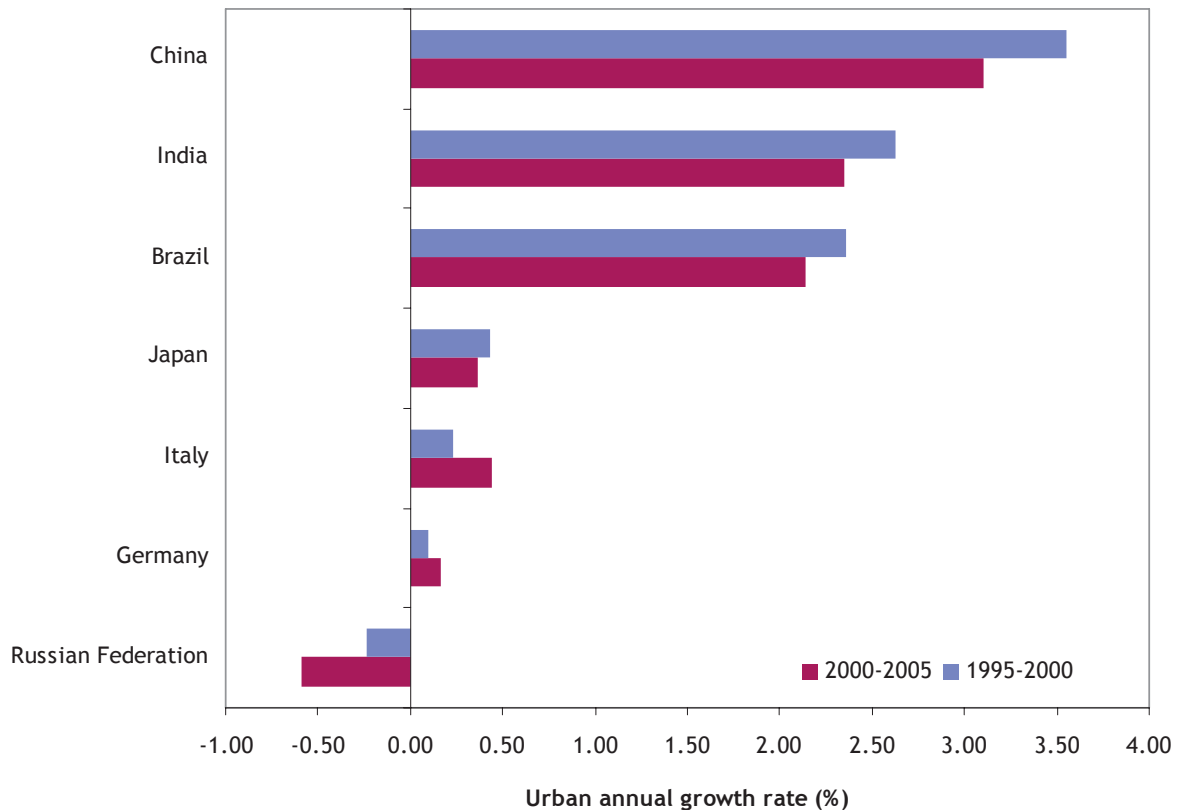
Table 2: Life Expectancy in Urban Areas and Selected Cities:
Russia and Selected Other Countries (most recent year available)

		Male	Female	Total
Russia (2006)		61.03	73.70	67.29
	Moscow (2006)	67.17	76.50	71.81
	St. Petersburg (2006)	62.84	74.83	68.90
China (2000)		73.11	77.51	75.21
	Shanghai (2000)	77.49	81.19	79.36
	Beijing (2000)	76.13	79.92	77.96
India (2002-06)		67.10	70.00	68.80
	Chennai (2004)	77.15	77.56	--
	New Delhi (2000)	69.50	69.50	69.50
	Kolkata (2001)	74.00	75.00	--
	Maharashtra (1998-02)	68.70	72.00	70.30
	Mumbai (2007)	--	--	71.00
Brazil (2005)		68.35	75.93	72.05
	São Paulo (1970)	--	--	58.50
	Rio De Janeiro (1970)	--	--	57.10
	São Paulo (2005)	69.49	78.03	73.66
	Rio De Janeiro (2005)	68.08	77.02	72.44
	Brasília (2005)	71.19	78.74	74.87
Mexico (2004)		71.79	77.21	74.50
	Nuevo Leon (2004)	72.69	77.79	75.24
	Mexico City (2004)	72.81	78.00	74.58
Turkey (2002)	--	--	--	--
	Istanbul (2002)	69.00	74.20	72.40
Indonesia (2002)		64.20	68.10	66.20
	Jakarta (2002)	70.30	74.20	72.30
Egypt (2006)		68.98	73.60	71.30
	Cairo (2006)	70.20	74.80	71.40

Note: Total Mexico and Brazil not divided by urban and rural.

Sources: Russia: Russian Demographic Yearbook, 2007, Goskomstat; China: China Human Development Report, 2005; India: Chennai–City Report of Chennai 2005; Kolkata–West Bengal Human Development Report 2004; Urban Maharashtra–F. Ram, Chander Shekhar and S.K Mohanty, Human Development: Strengthening District Level Vital Statistics in India; India Total–Dr. D.K. Dey, ORGI, MHA, GOI (New Delhi), “Life expectancy at birth by sex and residence, India 1970-75 to 2002-06”; Brazil: Indicadores Sociodemograficos, IBGE, 2006; Brazil 1970 Data (Note: Total LE, not divided by male/female): “Mortality, Income Distribution, and Rural-Urban Residence in Brazil”; Jose Alberto M. de Carvalho and Charles H. Wood, *Population and Development Review* 4, no. 3 (Sep., 1978): 405-420; Mexico: Conapo (2006a). Indicadores de mortalidad y fecundidad, 1990-2006. Serie histórica basada en la conciliación demográfica a partir del XII Censo General de Población y Vivienda 2000 y el II Conteo de Población y Vivienda 2005.; Indonesia: Human Development Report 2004; Turkey: Human Development Report 2004; Egypt: Human Development Report 2008.

Figure 14: Estimated Annual Urban Growth Rates, 1995-2005,
Russia and selected other countries



Source: Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat, World Population Prospects: The 2006 Revision and World Urbanization Prospects: The 2007 Revision, <http://esa.un.org/unup>.

Russia: a Rapidly Graying Society

Paradoxical though it may sound, given modern Russia's horrendous mortality record, the Russian Federation is a society characterized by pronounced population aging, with much more graying still in prospect. The reason is simple: a population's age profile is very largely determined by its fertility patterns (which, so to speak, set the width of the base for society's "population pyramid"). With low or sub-replacement fertility levels, the overall composition of society shifts toward the older age groups—even when mortality rates for those same adults are fearfully high.

Table 3 presents some basic data on Russia's population aging situation, placing the phenomenon in a global perspective.

Table 3: Russian Federation Population Aging in Global Perspective: 1980 vs. 2005

Median Age (years)	1980	2005	Change (years)
Russia	31.3	37.3	6.0
World	23	27.9	4.9
Less Developed Regions	20.1	25.4	5.3
More Developed Regions	32	38.6	6.6
Percentage of Population 65+	1980	2005	Change (percentage points)
Russia	10.2	13.8	3.6
World	5.9	7.3	1.4
Less Developed Regions	4	5.4	1.4
More Developed Regions	11.7	15.3	3.6

Source: Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat, World Population Prospects: The 2008 Revision, <http://esa.un.org/unpp>.

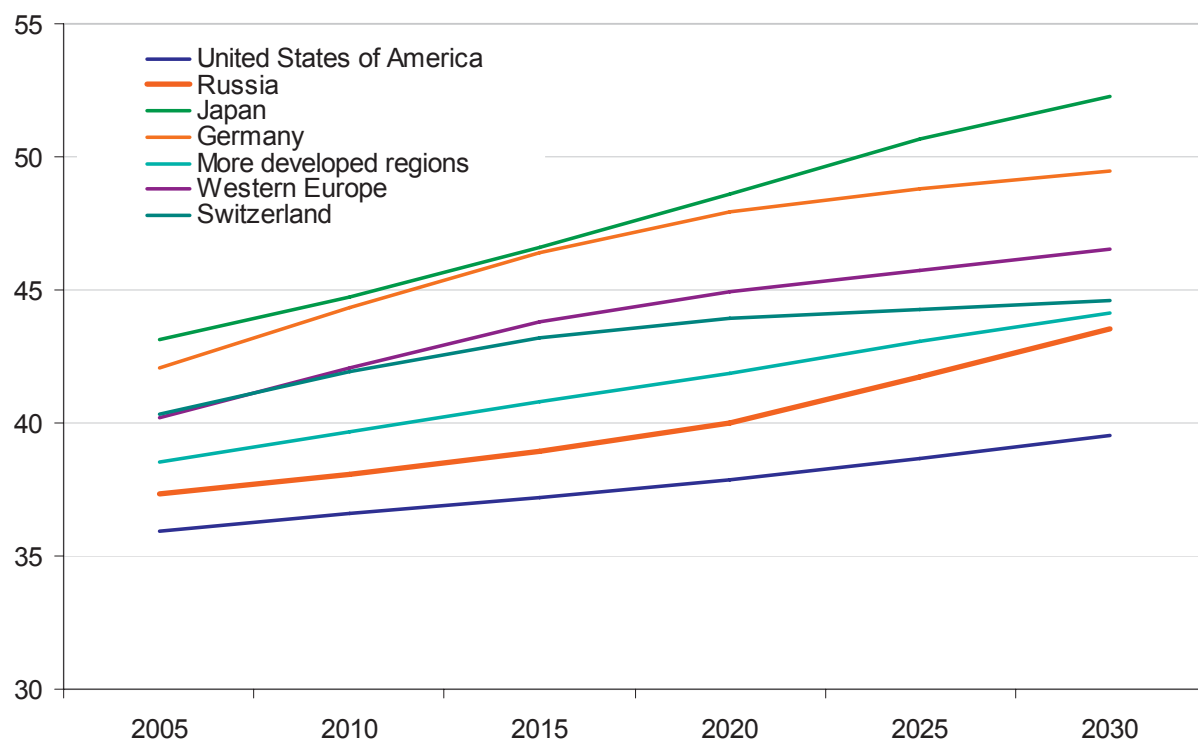
As of the year 2005, Russia's median age—the age marker that would bisect the entire population into two equally sized groups—was just over 37 years. By way of comparison, that was nearly a decade higher than the median age for the world as a whole and almost twelve years higher than the median age prevailing in less developed regions. Russia's median age was very slightly lower than the average for the more developed regions as a whole (37.3 years vs. 38.6 years), but well within the range that characterized the affluent graying societies in Europe, North America, and elsewhere.

By the benchmark of median age, Russia has been aging fairly rapidly in recent decades. Between 1980 and 2005, median age in the Russian Federation rose by 6 years—that is to say, by almost three months each and every calendar year. In absolute terms, Russia's rise in median age over the past generation exceeded the global average (roughly 5 years), falling just below the overall average for the more developed regions (6.0 years vs. 6.6 years). But by this criterion, Russia's trajectory of population aging is not appreciably different from those of other, Western societies today.

Another aperture on the aging phenomenon is afforded by proportion of total population comprised by people 65 years of age and older. In 2005, just under 14 percent of Russia's total population was 65 or older—roughly speaking, every seventh citizen. As recently as 1980, the corresponding fraction would have been every eleventh citizen. In fact, Russia is now on the verge of becoming an “aged society”—a term commonly applied to populations where 14 percent or more have reached their 65th birthdays.^{xii}

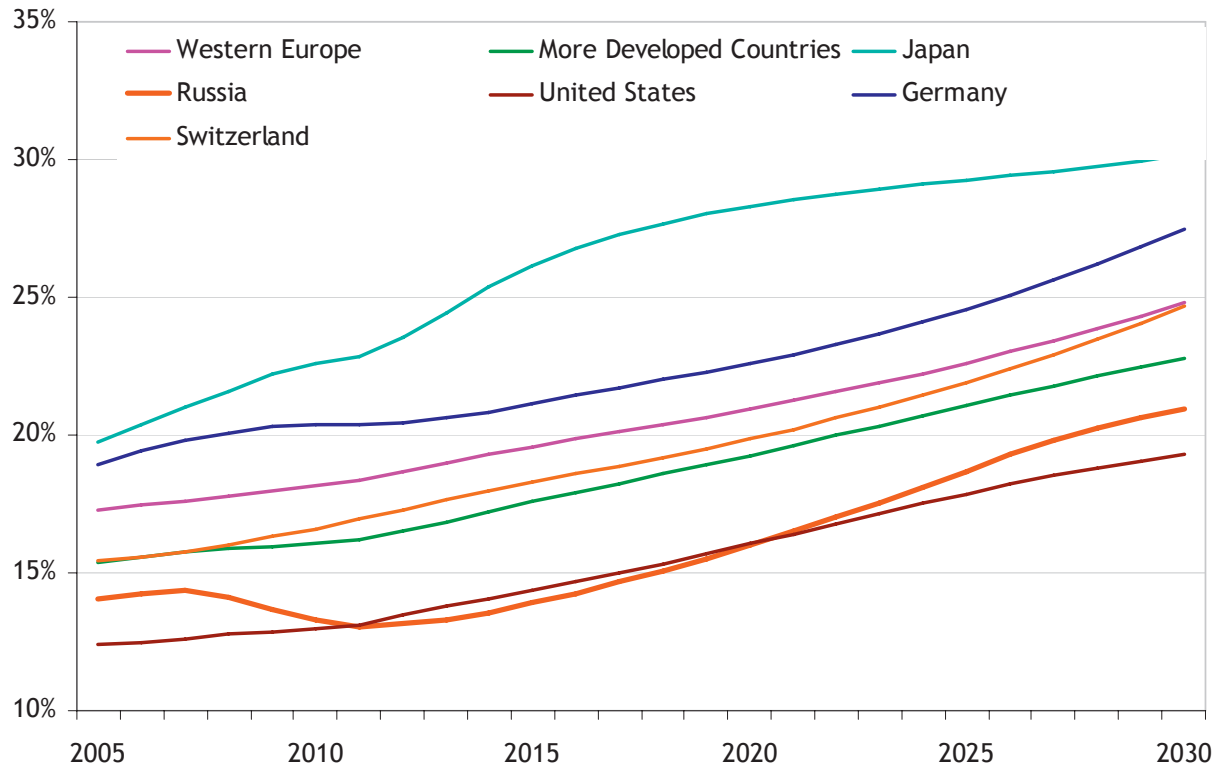
Over the coming generation, Russia stands to become a progressively more aged society. We can be fairly confident about this outlook, insofar as the country's future senior citizens are already in Russia here and now—they are the cohorts currently advancing into middle age. The prospect is illustrated by projections to the year 2030 produced by the US Census Bureau's International Programs Center and the United Nations' World Population Division. Over the generation 2005-2030, median age in Russia is envisioned as increasing by another six years, to just under 44 years. The percentage of population 65 and older, for its part, is seen as jumping from today's 14 percent to about 21 percent—meaning over one Russian in every five—by 2030.

Figure 15, Projected Median Age, 2005-2030: Russia in International Perspective
(Median age in years)



Source: Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat, World Population Prospects: The 2008 Revision, <http://esa.un.org/unpp>.

Figure 16, Projected Percentage of Population aged 65+, 2005-2030:
Russia in International Perspective



Source: U.S. Census Bureau, International Data Base, available at <http://www.census.gov/ipc/www/idb/>, accessed on April 2, 2010.

By these projections, Russia will certainly not be the most elderly society on earth—that accolade looks likely to rest securely with Japan’s populace, at least for the coming several decades. But Russia is not likely to be the most youthful of the developed region’s steadily aging societies, either. Russia’s median age is currently higher than corresponding levels in a number of Western societies—the most populous of these being the United States. That gap in median ages between Russia and America, in fact, is slated to widen in the years ahead: from just over a year in 2005 to roughly 4 years in 2030. In 2030, Russia’s 65-plus group is likewise seen as accounting for a somewhat greater share of total population than America’s (21 percent versus 19 percent). In terms of its degree and pace of aging, then, Russia’s prospective trajectory is expected

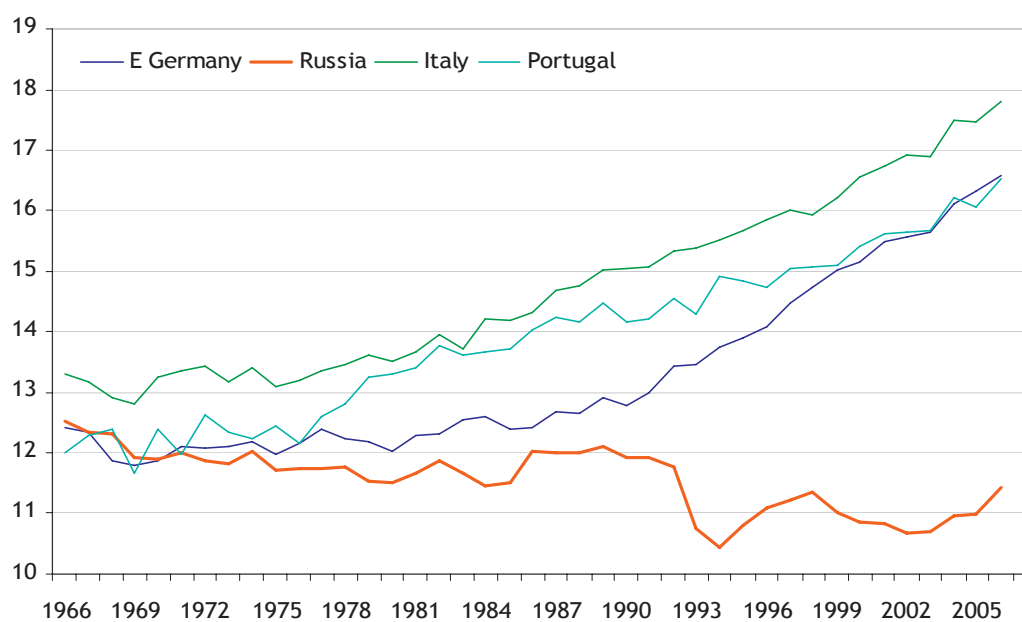
to remain slightly below the average for the more developed regions as a whole over the coming decades, but it is a trajectory that is unmistakably characteristic of the more developed societies.

Unhealthy Aging: a Russian Specialty

Viewed in the context of the more developed societies, in short, there is absolutely nothing exceptional about the magnitude of the graying that Russia is set to experience in the years immediately ahead. This is very bad news for Russia—for the health of Russia's older men and women is exceptionally poor. The elderly tend to be weaker and frailer than younger adults in every society, but Russia's elderly are unusually unhealthy and infirm. For Russia, the prospect of population aging on a major scale almost certainly portends a serious increase in debilitation and dependence with which Russian society--a looming reality with which Russian policy will be forced to contend.

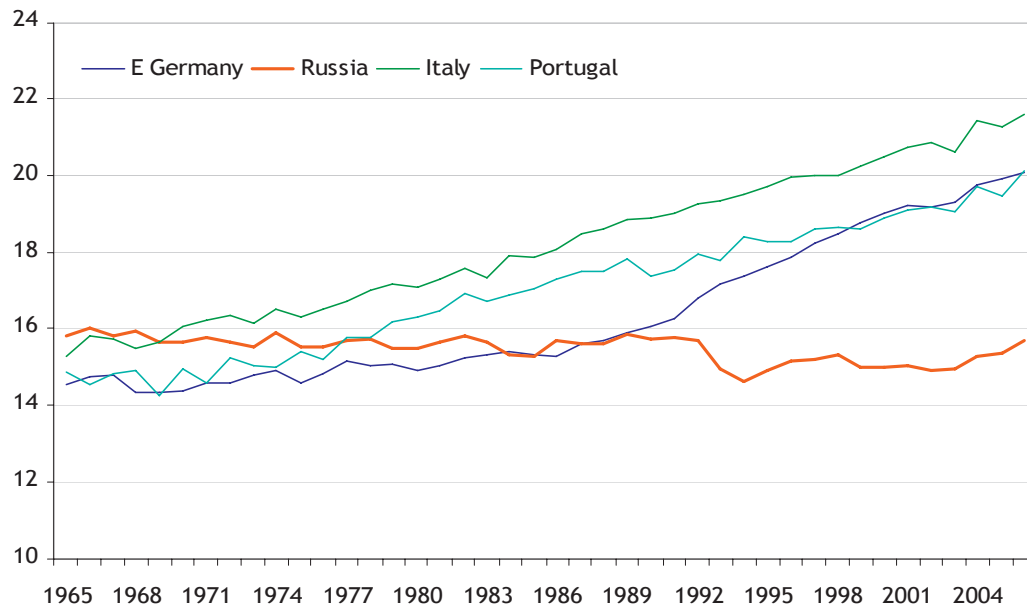
In Western Europe, North America, and the rest of the affluent West, the past several generations have been a period of progressive and appreciable improvement of health for older persons.^{xiii} (As best we can tell, in fact, continuing and meaningful improvements in elder health have been characteristic in most modern societies, both rich and poor, in recent decades.). But Russia presents as a striking exception to this general global rule. Russia's predicament is highlighted by long-term trends in life expectancy for people 65 years of age, as estimated by researchers in the Human Mortality Database project. Over the period 1965-2006, Russian life expectancy at age 65 fell for men and women alike. For older Russian males, the estimated decline (a drop of a little more than one year) amounted to a reduction of nearly one tenth of remaining life expectancy—a more than trivial compression at that stage of life. But older women in Russia also faced a reduction in life expectancy, although of less severe magnitude.

Figure 17: Male Life Expectancy at age 65: Russia and selected countries, 1965-2006 (life expectancy in years)



Source: Human Mortality Database. University of California, Berkeley and Max Planck Institute for Demographic Research. <http://www.mortality.org>.

Figure 18: Female Life Expectancy at age 65: Russia and selected countries, 1965-2006 (life expectancy in years)



Source: Human Mortality Database. University of California, Berkeley and Max Planck Institute for Demographic Research. <http://www.mortality.org>.

Meanwhile, elder life expectancies in most of the European countries with which Russia might be compared underwent tremendous improvement. The contrast with Italy, Portugal and former East Germany seems particularly apposite. Italy and Portugal were still relatively poor Western societies as late as 1965, and 1965 East Germany was, like Russia, under the command of a Marxist-Leninist state that was directing (or perhaps misdirecting) its planned socialist economy.

In the mid-1960s, furthermore, life expectancy for their older populations looked pretty similar in Russia, East Germany, Italy and Portugal. In 1965, female life expectancy was actually higher in Russia than in Italy, Portugal or East Germany; male life expectancy was a bit higher in Italy than Russia, but was in fact slightly higher in Russia than in Portugal or East Germany. By 2006, female life expectancy at age 65 was three and a half years lower in Russia than in East Germany or Portugal and four years lower than in Italy. Elder male life expectancy in Russia was fully five years lower than in East Germany

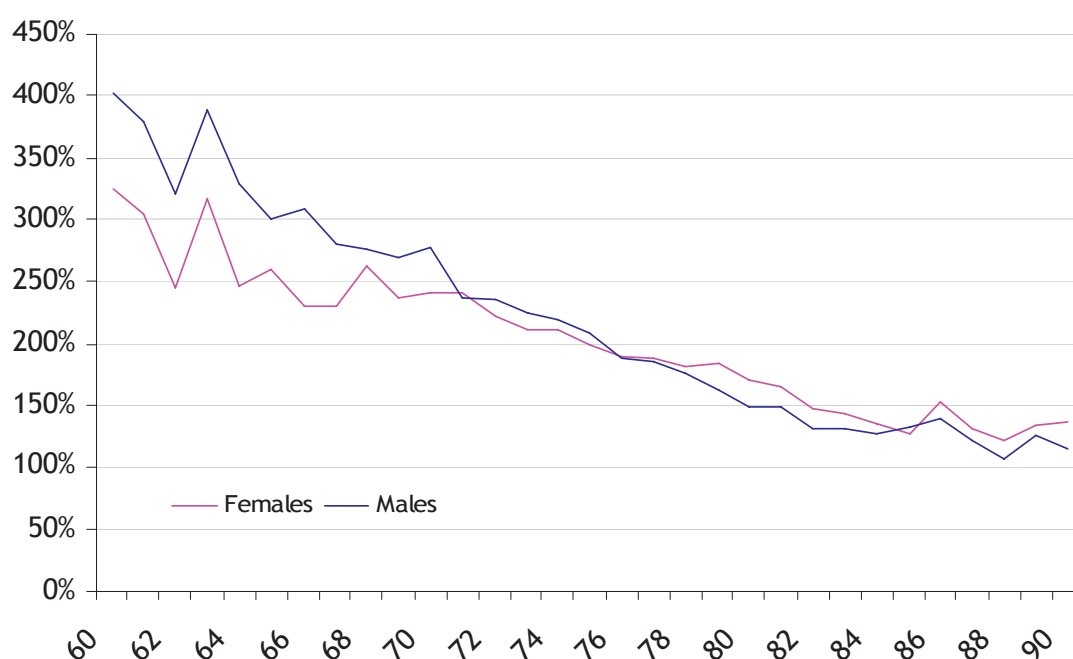
or Portugal by 2006, and it was almost six and a half years lower than in Italy. Nowadays, older men in Italy can expect to live fully half again as long, and Italian women can expect to live well over a third longer, than their counterparts in Russia.

Elder life expectancy in Russia today, indeed, appears to be akin to levels witnessed in contemporary Third World countries (settings, incidentally, where the 65-plus population accounts for a far smaller share of total population than is the case for the contemporary Russian Federation). According to “life tables” prepared by the WHO Statistical Information System (WHOSIS), for example, as of the year 2006, life expectancy at age 65 was lower in Russia than in Paraguay for men and women alike. Elder life expectancy in Russia was higher than in Bangladesh for females, but for elder males, life expectancy actually was estimated to be higher in Bangladesh than in Russia.^{xiv} But of course Paraguay and Bangladesh are far poorer than Russia. According to the reckoning of economic historian Angus Maddison, as of 2006 per capita GDP in Paraguay was less than two-fifths the Russian level; Bangladesh’s was not even one seventh Russia’s.^{xv}

In Western Europe (and in major parts of post-Communist Europe), mortality levels for older people today are much lower than they were 40 years ago, irrespective of the number of candles on the birthday cake. This fact is even true at age 90: according to estimates from the HMD, death rates for those nonagenarians were on average 25 percent lower in Portugal in 2005 than in 1965, 40 percent lower in Italy, and almost 45 percent lower in the former East Germany. On the other hand, death rates in the Russian Federation were higher—often dramatically higher—in 2005 than in 1965 at every calendar age from 60 through 90 for both men and women. Consequently, the risk of death for older people is now vastly higher in Russia than in the developed West. This may be seen by contrasting age-specific death rates at older ages in Russia and Portugal, as in Figure 19. The contraposition is especially meaningful, as Portugal currently seems to have poorest health and the lowest life expectancy of any state in Western Europe.

As of 2005, the risk of death at age 60 in Russia was over three times higher for women and over four times higher for men than in Portugal (Western Europe's 'poorest' society). Those differentials diminish with age but stay very high nonetheless over the remainder of the life cycle. At age 75, for example, death rates for men and women are over twice as high in Russia as in Portugal. By age 90, death rates are "only" 35 percent higher for women, and 15 percent higher for men, in Russia than in Portugal, but then again people in this age group tend to be hardy survivors, especially in Russia.

Figure 19: Ratio of Age-standardized death rates in 2005:
Russia vs. Portugal, ages 60-90 [Portugal = 100]



Source: Human Mortality Database. University of California, Berkeley and Max Planck Institute for Demographic Research. <http://www.mortality.org>.

Today's Russia-Portugal mortality differentials mean that a Portuguese man will not face the same risk of death as a 65-year-old Russian until he is around 75 years of age (and for Portuguese women, not until they are 73).^{xvi} These disadvantageous disparities in death rates for older Russians may suggest that the health status of Russia's senior citizens has been correspondingly compromised. Drawing such inferences, of course, requires some presumption of homogeneity and representativeness: that is to say,

presumptions that the recorded death rates actually mirror underlying health risks among the population of survivors rather than reflecting the problems of some specific high-risk sub-population with Russia's growing pool of elderly men and women. To be sure: there is plenty of evidence to indicate that Russia is a country with tremendous heterogeneity in socioeconomic health patterns. But there is also compelling evidence that the overall health status of Russia's older cohorts of men and women is far more unfavorable today than their counterparts in other countries undergoing big surges in population aging.

For example, in a 2004 study led by Martin Bobak of the University College of London, based on survey data from the late 1990s, found that Swedes and Russians assessed their own health overall health status and difficulties with physical disabilities very differently. The results implied that men and women who managed to survive to older ages were far more brittle in Russia than in Sweden. In Sweden, for instance, just over a fourth of men in their early 70s, and just under a third of women, rated their own health as "poor." In contrast, over half of Russian men in their early 70s rated their own health as "poor," while over two-thirds of Russian women in their early 70s said they suffered from "poor" health. The survey also showed that Russians, whether male or female, reported a much higher prevalence of impairment with "physical functioning" at ages 65-74 than did people from Sweden.^{xvii}

By the same token, a 2009 study by Vladimir Shkolnikov of the Max Planck Institute for Demography and colleagues investigated differences in grip strength between older (ages 55 to 89) populations in Moscow City, Denmark, and England and found that older Muscovites, male and female alike, demonstrated less physical strength by this measure than counterpart populations of the same age in Western Europe.^{xviii} These results appear especially meaningful not only because grip strength is a fair predictor of cardiovascular risk but also because Moscow is one of Russia's most prosperous, best educated, and healthiest regions.

Not least important, survey data on lifestyle patterns and behavioral health risks seems to corroborate this picture of exceptional health risks at older ages in Russia. As T. Paul Schultz of Yale University showed, risky health behaviors among Russian adults are pronounced even among senior citizens. Schultz's analysis of the 2004 round of the Russia Longitudinal Monitoring Survey (RLMS) found that older people in Russia were reporting remarkably high alcohol consumption and remarkably low consumption of health and medical services.^{xix} In his analysis of the 2004 RLMS survey, shown in Table 4, Russian men 65-74 years of age reported an *average* alcohol intake equivalent to a liter of vodka per week—the equivalent of over 22 liters of pure alcohol per year. Further, only 10 percent of Russian men 65-74 and 12 percent of Russian women of those same ages said they had undergone any sort of medical check-up or treatment in the three months before they were surveyed in 2004. Extrapolating on the assumption that such medical treatment patterns were probabilistic with respect to time, these results would imply that at nearly 60 percent of Russian men 65-74 and over half of Russian women of those same ages would have no medical contact over the course of that given year. By way of comparison, for the calendar year 2005, only 6 percent of American men and women aged 65-74 said they had no medical check-ups or treatment by health professionals.^{xx}

Table 4: Selected Health-Related Characteristics and Behaviors of Older Russians, by Sex and Age: 2004

	Years of schooling	Cigarettes per day	Alcohol intake (grams per day)	Medical checkup in last 3 months (per 1000)
<hr/>				
Males				
65–74	9.46	6.48	62.2	123
75+	9.52	2.67	36.2	171
Females				
65–74	9.44	0.24	12.0	105
75+	7.34	0.12	5.0	70

Note: One liter of 40° vodka contains approximately 400g pure alcohol.

Sources: Russia Longitudinal Monitoring Survey 2004; Derived in T. Paul Schultz, “Health Disabilities and Labor Productivity in Russia in 2004: Consequences Beyond Premature Death”, in Cem Mete, ed., *Economic implications of chronic illness and disability in Eastern Europe and the former Soviet Union*, (Washington, DC: World Bank Publications, 2008), Table 3, p. 94.

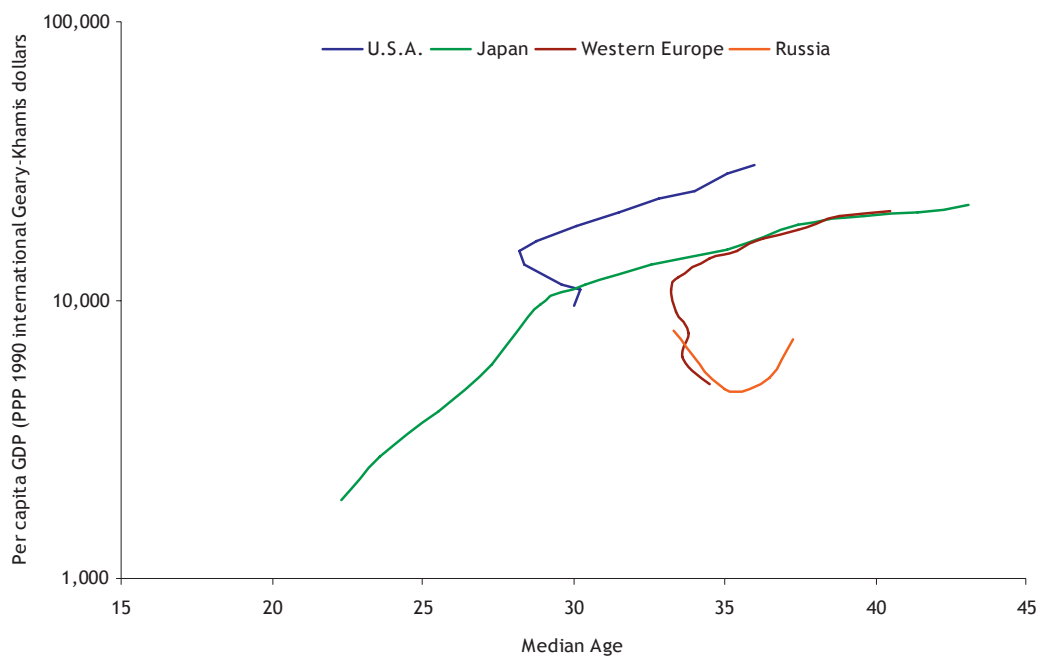
Russia’s Dilemma: Pervasive Population Aging in the Face of Low Incomes and Poor Health

The lack of contact between Russia’s sick and aged citizens and the Russian health care system may partly be a matter of ill-advised custom and habit, but it also speaks to the severe resource constraints that press elderly men and women in Russia today. Older men and women in Russia are not only much less healthy than their Western counterparts—they are also much poorer. In fact, Russia may virtually be the world’s poorest aged society—at least, to date. Certainly none of the now-affluent Western societies ever entered into the grey terrain that Russia is now traversing on such low levels of per capita income.

Figures 20 through 22 make this point. They trace the aging-to-income trajectories of Russia and the affluent Western societies over the postwar era, utilizing UNPD estimates for median age and percent of population 65+ and the economic historian Angus

Maddison's estimates of long-term international trends in PPP-adjusted GDP per capita. (We exclude Maddison's estimates of output trends in the Russian Federation for the Soviet era, owing to the problems of comparability between market-oriented and centrally-planned economic systems.)

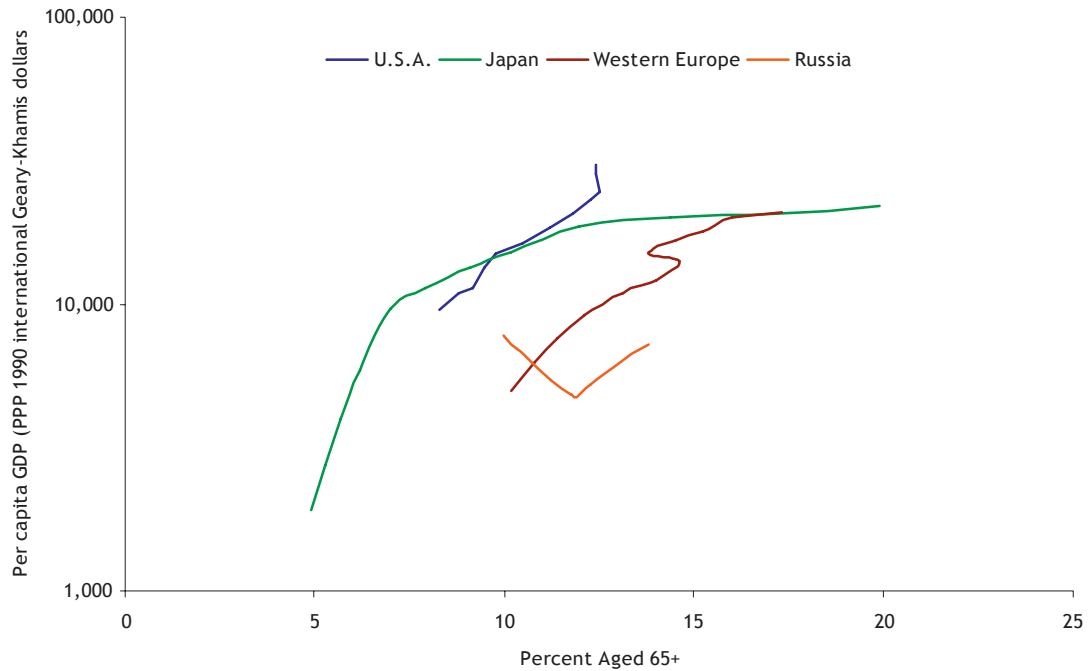
Figure 20: Median Age vs. Per Capita GDP PPP, 1950-2005:
The Russian Federation in Western Perspective



Note: Data for Russia only cover post-Communist years 1995-2005.

Sources: Angus Maddison, "Per Capita GDP PPP (in 1990 Geary-Khamis dollars)," Historical Statistics for the World Economy: 1-2006 AD, table 3, <http://www.ggdc.net/maddison/> (accessed June 6, 2009). Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat, World Population Prospects: The 2008 Revision, <http://esa.un.org/unpp>.

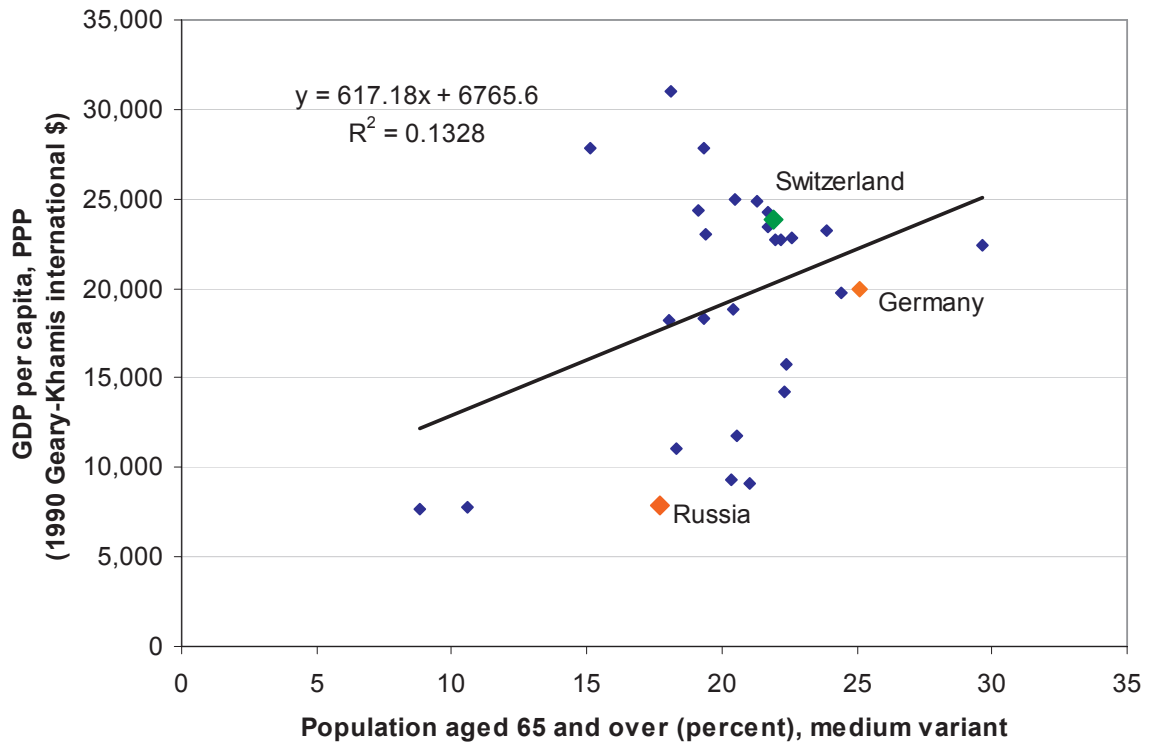
Figure 21: Percent Aged 65+ vs. Per Capita GDP PPP, 1950-2005:
The Russian Federation in Western Perspective



Note: Data for Russia only cover post-Communist years 1995-2005.

Sources: Angus Maddison, "Per Capita GDP PPP (in 1990 international Geary-Khamis dollars)," Historical Statistics for the World Economy: 1-2006 AD, table 3, <http://www.ggdc.net/maddison/> (accessed June 6, 2009).; Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat, World Population Prospects: The 2008 Revision, <http://esa.un.org/unpp>.

Figure 22: GDP Per Capita, PPP, 2006 (Angus Maddison) vs. Percent of Population aged 65+, 2025 in OECD Countries and Russia



Sources: United Nations, Department of Economic and Social Affairs, Population Division, World Population Prospects: The 2008 Revision, New York, 2009; Angus Maddison, Statistics on World Population, GDP and Per Capita GDP, 1-2006 AD, available at http://www.ggdc.net/maddison/Historical_Statistics/horizontal-file_03-2009.xls.

In 2005, Russia's median age was a little over 37 years. When Western Europe's median age reached that same level, however, per capita GDP there was on average nearly two and a half times as high as Russia's today. The same was true for Japan. America's median age is still a little lower than Russia's, but the US per capita income level, by Maddison's reckoning, is about four times higher than Russia's.

So too, with the proportion of population 65 and older: when Western Europe first attained Russia's current levels, its average per capita GDP was over 75 percent higher

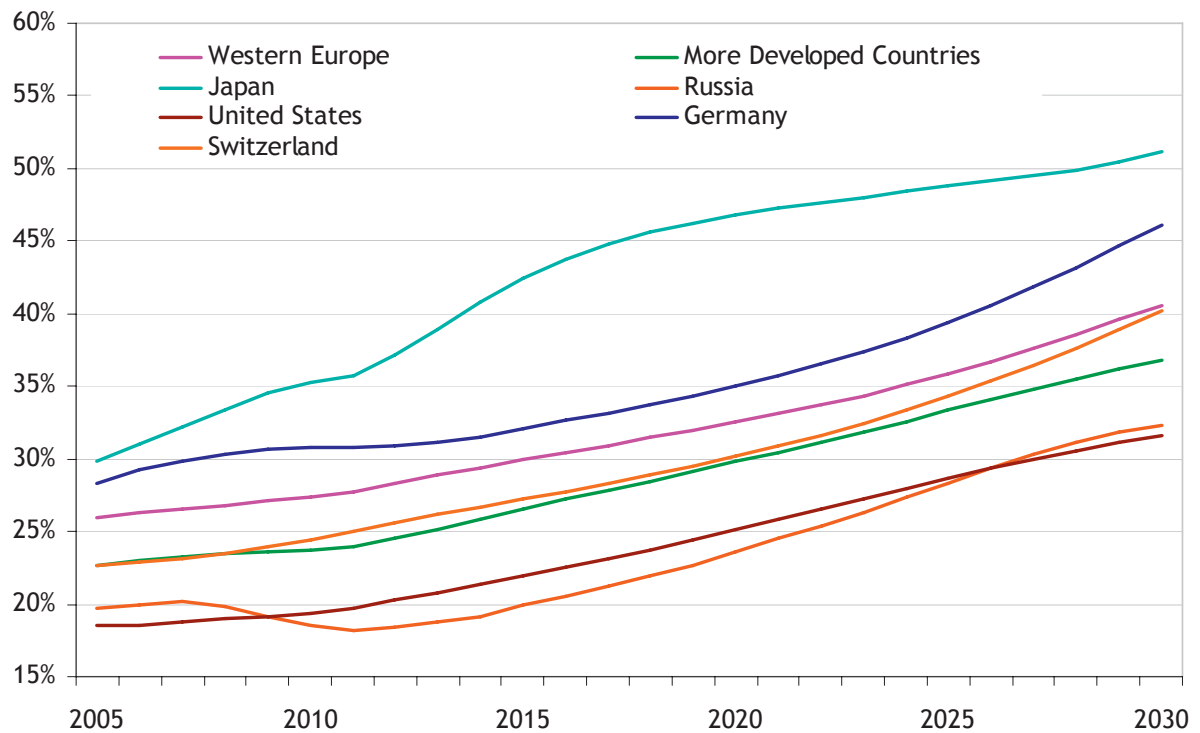
than Russia's today. Japan was twice as rich in terms of GDP per capita. America still has a lower percentage of 65+ population than contemporary Russia, but when Russia's share was the same as America's today, her per capita income level was barely a fifth of that of the US.

Moreover, if we compare current (2006) per capita income levels with prospective (2025) proportions of total population 65 years of age and older, we can see that Russia's coming income-to-aging outlook appears generally—one is tempted to say exceptionally--unfavorable by comparison with the countries in today's OECD.

Pervasive population aging by a sick and fragile citizenry on what qualifies historically as an unusually low trajectory for general income levels begs the question of how Russia's steadily growing proportion of senior citizens will be supported in the decades ahead.

An initial glimpse at the outlook is afforded by USBC projections of "old age dependency ratios," the ratio of the 65+ population to people of conventionally defined working ages (15-64). By these projections, Russia's old-age dependency ratio is slated to rise in the years ahead from about 20 percent in 2005 to something like 32 percent in 2030. Put another way, there are about 5 people of notional working age for every notional retirement age Russian now, but the ratio would be down to about 3:1 in a little over two decades.

Figure 23: Projected Old Age Dependency Ratios, 2005-2030:
Russian Federation vs. Selected More Developed Regions
[Persons 65+/Persons 15-64 years of age]



Source: U.S. Census Bureau, International Data Base, available at <http://www.census.gov/ipc/www/idb/>, accessed on June 25, 2009.

On its face, Russia's coming old-age dependency burden looks to be milder than those facing most other developed societies. Russia's projected ratio for 2030 is about the same as America's (32 percent), but it is lower than the average for the more developed regions (37 percent), considerably lower than the projected average for Western Europe (41 percent) and far lower than the prospective ratio for Japan (51 percent), where there may be fewer than 2 persons in the notional working age group for each notional retiree.

These numbers might seem to suggest that Russia will be more favorably positioned to weather the coming graying wave that is set to sweep all developed societies. But any such inference would be badly mistaken. Figure 23 does not offer an “apples to apples” comparison. In Russia, population aging is associated with a far worse overall health profile than for corresponding more developed societies from OECD countries—and this makes the challenge of coping with aging much greater.^{xxi} Russia’s senior citizens are significantly more frail and unhealthy than their counterparts in the affluent West; moreover, their health trends have been heading in the wrong direction for almost two generations. In the affluent West, “healthy aging” is transforming the demographic profile of older men and women. These salutary changes, in tandem with ongoing changes in the nature of work in Western societies (inter alia, the decline of manual labor and the expansion of employment in a less physically taxing service sector) is opening new possibilities for continuing labor force participation for a robust and active, albeit graying, population.^{xxii} In Russia, on the other hand, “unhealthy aging” is not only limiting the possibilities for older Russians to engage in economically productive activity: it is also restricting the scope for younger adults to support Russia’s steadily growing older generations.

Poor health may help to explain contemporary Russia’s distinctive labor force participation patterns. From age 55 onwards, workforce participation in Russia drops off very sharply—more sharply, indeed, than in most Western societies. According to Russia’s 2002 census, only about half of Russians in their late fifties were still in the country’s workforce. Less than 30 percent of those in their early 60s were economically active, among those 65 and older, the labor force participation rate was under 5 percent. According to those same statistics, essentially no Russians over the age of 73 were economically active.^{xxiii} For the “more developed regions” as a whole, labor force participation rates today at older ages are consistently higher than in Russia. In 2002, by ILO estimates, the corresponding rates for the more developed countries as a whole were 62 percent for persons in their late 50s, 35 percent for persons in their early 60s, and about 10 percent for persons 65 and older.

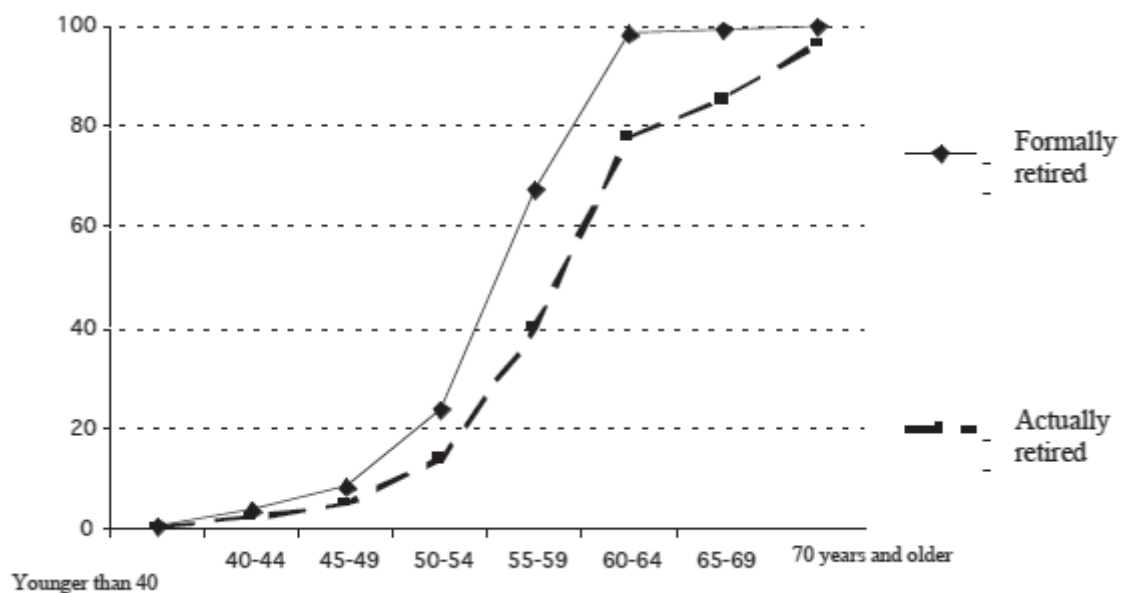
Even this comparison, however, is confounded by income effects—by the preference for leisure of more affluent populations. In recent decades, there has been a retreat from the workforce at older ages across Western Europe, but this shift is explained in some measure by rising affluence and a broad preference for enjoying leisure during a healthy old age. Russia’s exceedingly low workforce participation patterns at older age, by contrast, may be conditioned much more by sheer exigency: the plain inability of frail seniors to meet the demands that the Russian workplace imposes.

That latter distinction emerges more sharply when we compare labor force participation rates for older men and women in Russia today to the rates that prevailed in Western Europe when Western European societies reported per capita income levels similar to Russia’s nowadays.^{xxiv} Consider France and Italy—two paragons of early retirement in Western Europe today. By the reckoning of the economic historian Angus Maddison, France’s per capita GDP roughly matched the Russia 2002 level in 1954 and Italy in 1960. In 1961, according to the Italian Census, labor force participation rates in Italy for the 65+ group were over two and a half times higher than Russia’s four decades later. As for France, its 1962 Census recorded labor force participation rates over three times the Russia 2002 level for persons 65 and older and nearly twice as high per persons in their early 60s. Note further that combined male and female life expectancy at age 55 was higher in both Italy and France in the early 1960s than it was in Russia in 2002.^{xxv} Why did older Western Europeans do more work in the early postwar era than Russians today? Perhaps part of the answer is: because they could.

In Russia today, retirement age is conventionally set at 60 for men and 55 for women. Correspondingly, official Russian statistics regard the working ages as 16-59 for men, 16-54 for women. To be sure: some pension-aged men and women in Russia today are still actively engaged in remunerative labor—but the proportion is very low indeed. Figure 24 below makes the point. According to estimates by the Russian Federation Pension Fund, in fact, fully three quarters of Russia’s pensionable population did not work at all in the year 2006^{xxvi}—this despite the meager benefits guaranteed by official Russian

social security programs.^{xxvii} As of 2006, Russia’s average public pension payments actually fell below the country’s official “minimum subsistence” level—meaning that the typical pensioners who relied on these benefits alone for support without outside income from work or other sources would have to live below Russia’s own stringent “poverty line”.

Figure 24: Share of respondents and their partners, who receive pensions and who have ceased to work, % of respective age groups



Source: National Human Development Report, Russian Federation, 2008, UNDP Russia, Moscow, 2009, Page 118, Figure 6.9. Available at <http://78.136.31.142/en/reports/nationalreports/europethecis/russia/name,18666,en.html>.

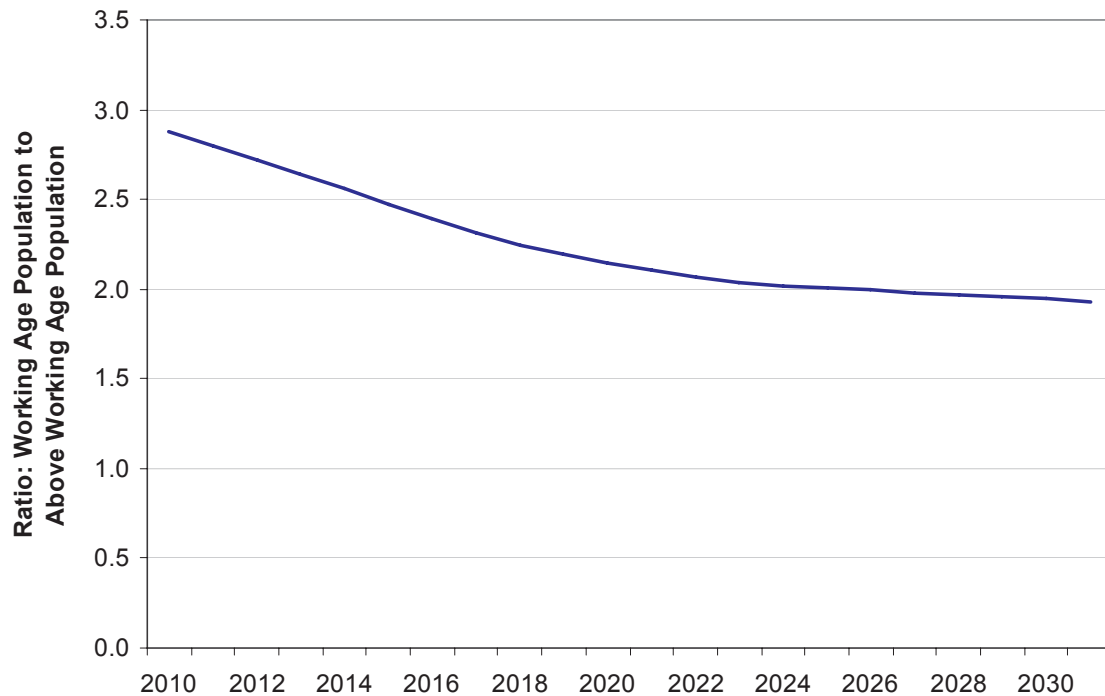
Under real existing Russian conditions, then, Russia’s current and relatively low official retirement ages may be more realistic thresholds for calculating Russia’s true “old age dependency ratios” than the conventional international formulas used in Figure 23. When we employ this Russian conception for calculating old-age dependency level, however, we find that the implied demographic burden is already much higher than may be commonly appreciated.

According to official estimates by Goskomstat/Rosstat (the Russian Federal Statistical Service), Russia had just 3 persons “at working age” for every person “over working age” at the start of 2008. But of course not all of Russia’s working age population was actively engaged economically. In 2008 (that is, before the impact of the current world economic crisis on local demand for labor), Russia had a workforce of about 70 million, and a pension-age population of nearly 30 million—meaning the ratio of earners to pensionable population was just 2.5 to 1. Over the years ahead, that ratio is set only to decline further.

Pension and Old Age Support: A Looming Dilemma for the Russian Federation

By Goskomstat’s own “medium variant” projections, Russia’s ratio of “working age” to “over working age” population is on track to fall below 2:1 by the year 2030—just 20 years from now. [SEE FIGURE 25] And, of course, in 2030—as now—not all of Russia’s population of working age will actually be employed. Projections by the Russian Ministry of Education and the Institute of Demography at Moscow State University suggest that, on the current trajectory, Russia’s pension-age population will nearly equal the country’s workers by the mid-2020s—and that there could be more pensioners than workers in Russia as early as the year 2029.^{xxviii}

Figure 25: Ratio of Working Age to Above Working Age Population (medium variant), Russia, 2010-2031



Source: “1.8. Total population by selected age groups,” Federal State Statistics Service (Goskomstat), Russian Federation, Available at http://www.gks.ru/free_doc/new_site/population/demo/progn3.htm.

In the decades ahead, the Russian Federation will face at the same time the full panoply of challenges and claims attendant to social protection programs for a modern welfare state: family benefits (child support, maternity benefits and the like), unemployment insurance programs, occupational health and safety programs, and health care benefits, among others. In recent years, the Russian government has begun to address some of these issues. It has implemented a pro-natalist program of child allowances^{xxix}, for example, and has moved in the direction of reforming its health care system (although outsiders have argued these health reform measures are as yet halting, inefficient and incomplete with evident gaps in securing broad access at reasonable quality).^{xxx}

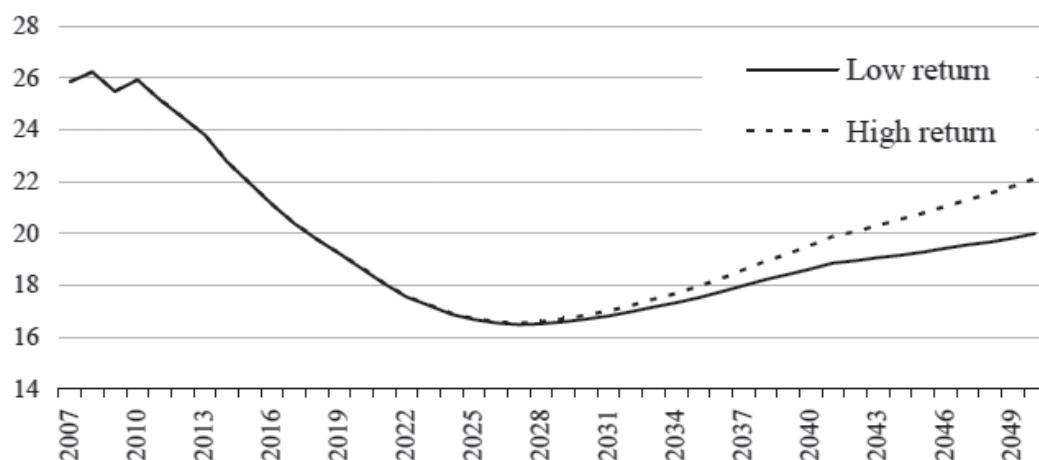
The following discussion will not address these broader questions of social protection, effective healthcare provision and preventive measures, focusing instead only on the demographic implications of the country's prospective old age-support challenges. It is important to remember, however, that the full range of social protection obligations will place additional and likely growing fiscal pressure on the Russian budget and the economy that must support it, above and beyond pressures on the for old-age support system described below.

In 2002 the Russian Federation adopted a pension reform strategy modeled broadly on the World Bank's "three pillars" schema (i.e., a pay-as-you-go (PAYG) defined-benefit nationwide public pension system, a mandatory privately funded defined-contribution system, and a notional supplementary privately funded defined-contribution system).^{xxxix} Although the World Bank was involved in advising the government on this reform, and provided financial support for this overhaul, a World Bank project evaluation assessment has concluded that the pension reform has not been successful, at least to date.^{xxxix} Given the uncertainties (and lack of transparency) surrounding Russia's current financial system and markets for bonds and equities, Russian workers have remained understandably cautious with their private retirement system investments—opting largely for holdings in cash or other instruments bearing distinctly negative real returns in an inflationary environment. Thus the "first" pillar—the basic PAYG Russian public pension system—remains dominant, and is likely to serve as the primary source of pension-based old-age support for Russia's retirees in the years immediately ahead.

For pensioners relying solely on public pension income for old-age support, living standards are determined by the "replacement rate": the ratio of monthly pension benefits to working income (both net of taxes). The International Labor Office recommends that this replacement rate should be no lower than 40%—and in OECD countries, "the lowest replacement rates are around 40%, but most are well above that level".^{xxxix} In Russia as of 2007, however, the replacement rate for the public pension system was an estimated 26%. In practice, this meant that average public pension

benefits that year were barely above the country's penurious poverty line ("minimum subsistence level"); in some earlier years, as already noted, average benefits had actually been lower than that "minimum subsistence level". According to one widely-accepted analysis by a Russian economist, Evsey Gurvich, Russia's public pension system was so seriously underfunded that it could not maintain even that low replacement rate into the future: absent changes in the then-existing arrangements, the system's replacement rate was projected to fall to a mere 16% by 2027. [SEE FIGURE 26] All things have *not* remained equal since 2007: the Russian government has decreed annual increases in public pension benefits in 2008 and 2009, and 2010 ; in 2009, furthermore Prime Minister Putin declared that "Poverty among pensioners will be fully eliminated" (implicitly acknowledging that this was a work still in progress)..^{xxxiv} Welcome as they were, however, it is essential to recognize that these declarations and adjustments in pension benefits were *ad hoc*—entirely provision in nature. No regular mechanism is in place within the Russian public pension system to assure that replacement rates will not resume their downward decline in the future. Given its actuarial imbalance, moreover, the budgetary implications of maintaining a even a steady replacement ratio—even a meager one—in Russia over the years immediately ahead appear to be imposing. Calculations by Evsey Gurvich, for example, suggest that it would take fully 3% of Russian GDP in 2027 just to keep the pension system's replacement rate at its 2007 level; by these estimates, raising that rate slightly, to 30%; would require supplementary budgetary commitments exceeding 4% of GDP. [SEE FIGURE 27] (Achieving the ILO's desideratum of a minimum 40% replacement rate would of course mean a far greater allocation of public funds; Gurvich did not even consider this possibility.)

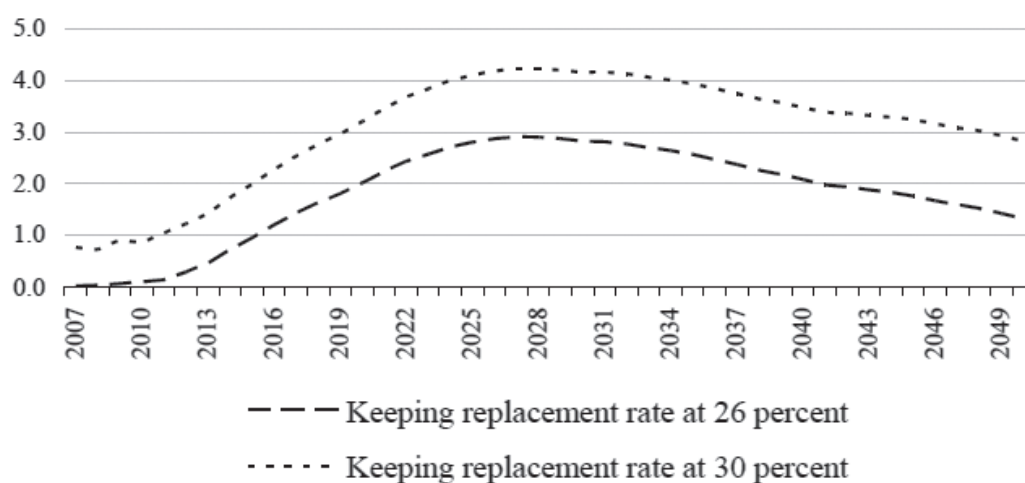
Figure 26: Projected Replacement Rate of Russia's Public Pension System, 2007-2050
(projections as of 2007)



Source: Gurvich (2007).

Source: David Hauner, "Macroeconomic Effects of Pension Reform in Russia," *IMF Working Paper*, International Monetary Fund, August 2008.

Figure 27: Additional Funding Need under Two Scenarios, Percent of GDP

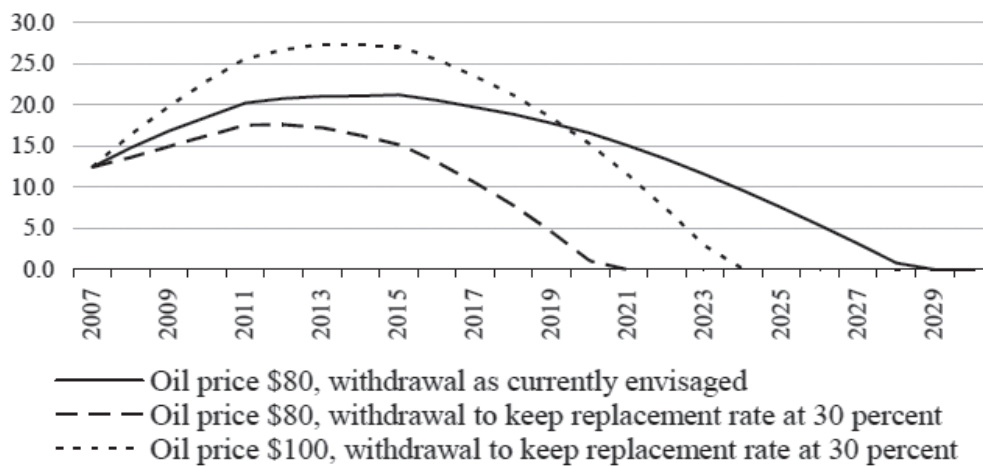


Source: Gurvich (2007).

Source: David Hauner, "Macroeconomic Effects of Pension Reform in Russia," *IMF Working Paper*, International Monetary Fund, August 2008.

By 2009, according to official Russian sources, the country was already devoting fully 10% of GDP to old-age pensions.^{xxxv} Could such additional commitments be sustainable? Russia, of course, is blessed with an abundance of natural resources—most notably today its oil and gas reserves. These resources present the government an opportunity to finance social policies and other initiatives that would be unavailable to a country in Russia's position, but lacking such natural wealth. Yet the public means afforded by Russian oil and gas are by not unlimited. One International Monetary Fund (IMF) analysis has attempted to estimate just how long the monies in Russia's Oil Stabilization Fund would last if they were devoted exclusively to supporting the unfunded balances of the existing PAYG public pension system. [SEE FIGURE 28] Under the assumptions of a 30% replacement rate and \$80/barrel oil, the Fund would be completely spent by 2021—eleven years from now. With oil at \$100/barrel and a 30% replacement rate, the date of full depletion for the Fund would be postponed—but by just 4 years. Even under more optimistic assumptions (i.e., lower replacement rates) and \$80/barrel oil, the Fund would be bankrupt before 2030—that is to say, in less than two decades, and at precisely the time when Russia's pension aged population could exceed population of actively engaged workers under the assumptions of aforementioned Moscow State University study.

Figure 28: Oil Stabilization and National Welfare Funds in Percent of GDP



Source: Fund staff calculations.

Source: David Hauner, "Macroeconomic Effects of Pension Reform in Russia," *IMF Working Paper*, International Monetary Fund, August 2008.

To sum up: it is no secret that population aging represents a major prospective social and economic challenge for all affluent Western societies in the decades ahead. What is less generally recognized is that population aging poses more acute challenges to Russia than to today's Western societies – a challenge driven by poor health indicators, an unfavorable ratio between working age and retired population cohorts, and pension system by no means sufficient to meet present and future needs of an upper middle income economy such as Russia. In fact, far more than in today's affluent Western societies, population aging and the consequent "aging burden" in Russia may prove to be both a social problem and constraint on economic development in the decades ahead.

The challenges for social policymakers in Russia over the years ahead stand to be especially pressing. (To reiterate: in focusing on old age support, we have been examining but one of many social support issues that will be confronting the country.) Devising sustainable social programs in such areas as old-age support and health care promises to be a vastly more daunting challenge for Russia than for the aging, but affluent and relatively healthy, societies of the OECD. What should be apparent from

this study is that meeting Russia's future needs will take more than another plaintive call for "integrated, coherent, comprehensive" policies in the social sector. No less crucial is the imperative of generating the wealth that an aging Russia will need to meet its social policy claims. Enhancing labor productivity through new skills and better health is the critical task to tackle. To a degree perhaps not yet fully appreciated, the fate of Russia's social security situation on the years ahead will depend on the success with which three efforts-- 1) policies for radically reducing adult mortality and the working age in particular 2) policies for revitalizing Russian higher education and knowledge production and 3) a fundamental reform on institutions and economic policies—are pursued today.

ⁱ This essay is a substantially revised and extended version of a chapter from Nicholas Eberstadt, *Russia's Peacetime Demographic Crisis: Dimensions, Causes, Implications* (Seattle, WA: National Bureau of Asian Research, forthcoming). An abridged version of the present study will be appearing in *The International Social Security Review*.

The authors would like to salute Mr. Apoorva Shah for his superb research assistance in the present work. Any remaining errors are of course the authors' own.

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ⁱⁱⁱ Estimates are for 2005 per capita GDP in constant 2005 international dollars. World Bank, *World Development Indicators Online (WDI online)*, available electronically at <http://ddp-ext.worldbank.org/ext/DDPQQ/showReport.do?method=showReport>; accessed January 15, 2010.

^{iv} For 2007, the cutoff for membership in the "high income economies" grouping was a PPP-adjusted per capita GNI of \$16,830 (for Lithuania). The Russian Federation's estimated level for that year was \$14430—about 15% below the notional "high income economy" threshold. World Bank, *World Development Indicators 2009*. (CD-ROM).

^v One particularly dramatic post-Communist transformation in health and mortality conditions for a former Soviet Bloc state was the case of the former German Democratic Republic (now Eastern Germany within the reunified Federal Republic of Germany). Life expectancy in Eastern Germany has soared since reunification: in the sixteen years from 1990-2006, overall life expectancy in Eastern Germany is estimated to have risen by over 8 years—over three and a half days for every passing calendar week. Despite four decades of Communist-era disadvantage, life expectancy at birth for the population in Eastern Germany has converged with that of Western Germany, standing today just a few months of the Western German level. Overall life expectancy at birth in Eastern Germany is now in fact higher than life expectancy in the United States: at the time of reunification, it was nearly three years lower than in America. For more details on this case, see Nicholas Eberstadt and Hans Groth, *Die Demografiefalle: Gesundheit als Ausweg für Deutschland und Europa*. (Stuttgart: Thieme Verlag, 2008).

^{vi} Cf. Nicholas Eberstadt, *Russia's Peacetime Demographic Crisis: Dimensions, Causes, Implications* (Seattle, WA: National Bureau of Asian Research, forthcoming).

vii *Ibid.*

viii Cf. “Scientific glasnost”, *Nature*, 464 , 141-142 (11 March 2010) | doi :10.1038/464141b ; Published online 10 March 2010; see also “Data Everywhere” *The Economist*, February 25, 2010, available electronically at http://www.economist.com/specialreports/displaystory.cfm?story_id=15557507.

ix Transparency International, “Corruption Perceptions Index 2009”, available electronically at http://www.transparency.org/policy_research/surveys_indices/cpi/2009/cpi_2009_table

x James D. Gwartney et al., *Economic Freedom of the World: 2009 Report*, (Vancouver: Fraser Institute, 2009), Chapter 1, available electronically at http://www.freetheworld.com/2009/reports/world/EFW2009_ch1.pdf

xi Heritage Foundation, “2010 Index of Economic Freedom—Ranking The Countries”, available electronically at <http://www.heritage.org/index/ranking.aspx>.

xii Students of demography today are generally under the impression that the United Nations has defined an “aging society” as one where 7 percent or more of the citizens are 65+, with an “aged society” benchmarked at 14 percent or more over the age of 65. The documentation for these formal thresholds, as it turns out, is somewhat problematic. (Personal correspondence with Dr. Hania Zlotnik, head of the UN Population Division, and Dr. Joseph Chamie, former head of UNPD, July 2009) But the 7 percent and 14 percent notional thresholds for “aging societies” and “aged societies” are widely used by students of demography nowadays nonetheless.

xiii For some details and evidence concerning the correspondence of improved health status with declining mortality levels for older citizens in some of the OECD countries,, see Nicholas Eberstadt and Hans Groth, *Europe’s Coming Demographic Challenge: Unlocking the Value of Health*, (Washington, DC: AEI Press, 2007).

xiv “Life Tables for WHO Member States”, WHO Statistical Information System, available electronically at http://apps.who.int/whosis/database/life_tables/life_tables.cfm, accessed July 23, 2009.

xv Angus Maddison, “Statistics on World Population, GDP and Per Capita GDP, 1-2006 AD”, available electronically at http://www.ggdc.net/maddison/Historical_Statistics/bertical-file_03-2009.xls , accessed July 20 2009.

xvi Cf. The Human Mortality Database, available electronically at www.mortality.org, accessed July 10, 2009.

xvii Martin Bobak, Margareta Kristenson, Hynek Pikhart, Michael Marmot, “Life span and disability: a cross sectional comparison of Russian and Swedish community based data”, *British Medical Journal*, vol. 329, p. 767-771 (September 17, 2004).

xviii Shkolnikov V.M., Andreev E.M., Demakakos P., Oksuzian A., Christensen K., Shkolnikova M.A. and J.W.Vaupel, “Patterns of grip strength in Moscow as compared to Denmark and England”, 21st REVES Conference “Reducing gaps in health expectancy” 26-29 May 2009, Copenhagen, available electronically at www.ined.fr/.../telechargement_fichier_en_772_shkolnikov_andreev_demakakos_oksuzyan_christensen_ppt.pdf, accessed July 20, 2009.

xix T. Paul Schultz, “Health Disabilities and Labor Productivity in Russia in 2004”, in Cem Mete, ed., *Economic Implications of Chronic Illness and Disability in Eastern Europe and the Former Soviet Union*, (Washington DC: World Bank, 2008), pp. 85-109.

xx Health United States 2008 (Hyattsville, MD: US National Centers for Health Statistics, 2009) Table 83, available electronically at <http://www.cdc.gov/nchs/hs/hs08.pdf> , accessed July 7, 2009.

xxi In all graying societies, the goal should be to age in good health—and many Western countries are recognizing this approach as the viable strategy. This is the reason, for example, why Switzerland is discussing implementation of a preventive health strategy to promote aging in good health. Among the other potential benefits of such an approach, a focus on healthy aging may help the county’s citizens consume less in the way of healthcare service and stay longer in the labor force

xxii These possibilities are described and examined in Nicholas Eberstadt and Hans Groth, *Europe’s Coming Demographic Challenge: Unlocking the Value of Health*, (Washington, DC: AEI Press, 2007).

xxiii ILO LABORSTA database, available electronically at <http://laborsta.ilo.org>.

xxiv Cf. Angus Maddison estimates, *loc. Cit.*

xxv Human Mortality Database, *loc. Cit.*

xxvi Cf. UN DP Russia, *National Human Development Report: Russia 2008—Russia Facing Demographic Challenges*, (Moscow: UNDP Russia, 2009), Figure 6.8, p.117.

^{xxvii} According to calculations by UNDP Russia, the “substitution rate” for the Russian pension system—pension income as a proportion of immediate pre-retirement income—was just 25 percent in 2007. This is a far lower rate than in any Western country today. *National Human Development Report: Russia 2008*; *loc. Cit.*, Figure 7.2; p. 135.

^{xxviii} *Ibid.*; Figure 7.4, p. 138.

^{xxix} Cf. Nicholas Eberstadt, *Russia Peacetime Demographic Crisis*, *loc. Cit.*

^{xxx} See, for example, William Tompson, “Healthcare reform in Russia: problems and prospects” *Economics Department Working Paper No 538. ECO/WKP (2006)66*, Organisation for Economic Co-operation and Development(2007), available electronically at [http://eprints.bbk.ac.uk/504/1/ECO-WKP\(2006\)66.pdf](http://eprints.bbk.ac.uk/504/1/ECO-WKP(2006)66.pdf).

^{xxxi} Cf. World Bank, *Averting the Old Age Crisis: Policies To Protect the Old and Promote Growth*, (New York: Oxford University Press, 1994). For details on the World Bank’s advice to Russia on pension reform, see “Pension Reform in Russia: Design and Implementation”, (Washington, DC: World Bank, Human Development Sector Unit, Europe and Central Asia Region, November 2002).

^{xxxii} See Elsa Fornero and Pier Marco Ferraresi, “Pension Reform and the Development of Pension Systems: An Evaluation of World Bank Assistance—Background Paper, Russia Country Study” (Washington, DC: Independent Evaluation Group, 2007)

^{xxxiii} David Hauner, “Macroeconomic Effects of Pension Reform in Russia,” *IMF Working Paper*, WP08/201, International Monetary Fund, August 2008, p.5.

^{xxxiv} “State pensions to grow 20% annually in 2009-2011”, *RIA-Novosti*, May 14, 2008; “Putin promises to eliminate poverty among pensioners”, *Itar-Tass*, November 25, 2009; “Over 11 mln Russian to get higher valorized penions—Golikova”, *Itar-Tass*, March 16, 2010.

^{xxxv} “Russia’s pensions next year to grow by 46 pct—Putin”, *Itar-Tass*, September 23, 2009.

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