

SOCIAL SECURITY AND THE CHALLENGE OF
DEMOGRAPHIC CHANGE

The Russian Federation: Confronting the special challenges of ageing and social security policy in an era of demographic crisis

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Abstract This article focuses on the Russian Federation's demographic crisis and the implications it holds for the ability of the Russian government (or the Russian people through their own efforts) to generate enough funds to provide a reasonable level of old-age economic security. Although Russia's overall population profile structure stands to be broadly similar to that of other more-developed societies, both today and in coming decades, the challenges of providing for an ageing population are far more acute for Russia than for typical Member States of the Organisation for Economic Co-operation and Development. One factor that adds significantly to the problem is that working-age Russians today suffer substantially worse health and higher mortality than residents of other countries at similar — and indeed even at much lower — levels of income. Although the arguments presented focus on pensions, the same factors that will make it difficult to supply adequate pensions also mean that other aspects of social protection will be similarly difficult to fulfil. Successful social

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This article is a substantially revised and extended version of a chapter from Eberstadt (forthcoming). 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.

security policy for Russia, consequently, will depend upon much more than social programmes alone: it will require the reduction of mortality rates for working-age individuals, the revitalization of higher education, and fundamental reform of the country's institutions and economic policies.

Keywords demographic aspect, old age risk, health status, social policy, Russian Federation

Introduction

In the taxonomy of both the United Nations Population Division (UNPD) and the United States Bureau of the Census (hereafter, Census Bureau), 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.

In spite of these similarities, the Russian Federation 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 most countries of the "more developed regions". For example, in 2005, the World Bank estimated that PPP-adjusted GDP per capita for the Russian Federation was about USD 11,800, as against the average for the Member States of the Organisation for Economic Co-operation and Development (OECD) of USD 33,500 — in other words, barely one third as high (World Bank, 2010).¹ Hardly less important, Russia — unlike most other "more developed countries" — is in the grip of an acute demographic crisis, characterized by a pronounced and more or less progressive depopulation over the nearly two decades since the end of the Soviet era. Underlying this depopulation are catastrophically high levels of excess mortality for the adult population, a situation especially acute for the population of conventionally-defined working ages.²

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 ageing, largely generated by several generations of low (or even sub-replacement)

1. Estimates are for 2005 per capita GDP in constant 2005 international dollars.

2. The working-age population is conventionally defined as those aged 15-64.

fertility levels. Russia faces all those 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 labour productivity, and set to shrink in absolute size quite rapidly over the next several decades. In planning to meet the retirement needs of an ageing population over the coming generation, the Russian Federation's options are therefore much more limited — and perhaps more unpleasant — than those available for many other countries in the “more developed regions”.

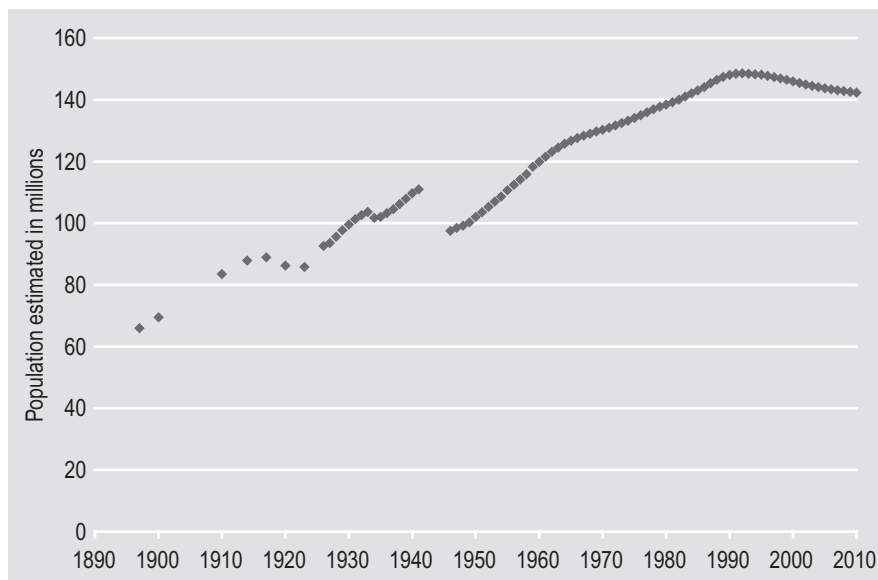
Russia's current peacetime demographic crisis: The backdrop to tomorrow's social security challenges

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 well-being 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 per cent), with almost continuous year-on-year population declines (Eberstadt, forthcoming). 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 post-Second World War era was that which the Republic of China (hereafter, China) suffered in the wake of Mao's “Great Leap Forward” campaign. In relative terms, however, China's decline was 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.

In arithmetic terms, Russia's present depopulation has been driven by negative natural increase; more specifically, by a sharp fall-off 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 three

Figure 1. *Russia's estimated population, 1897-2010*

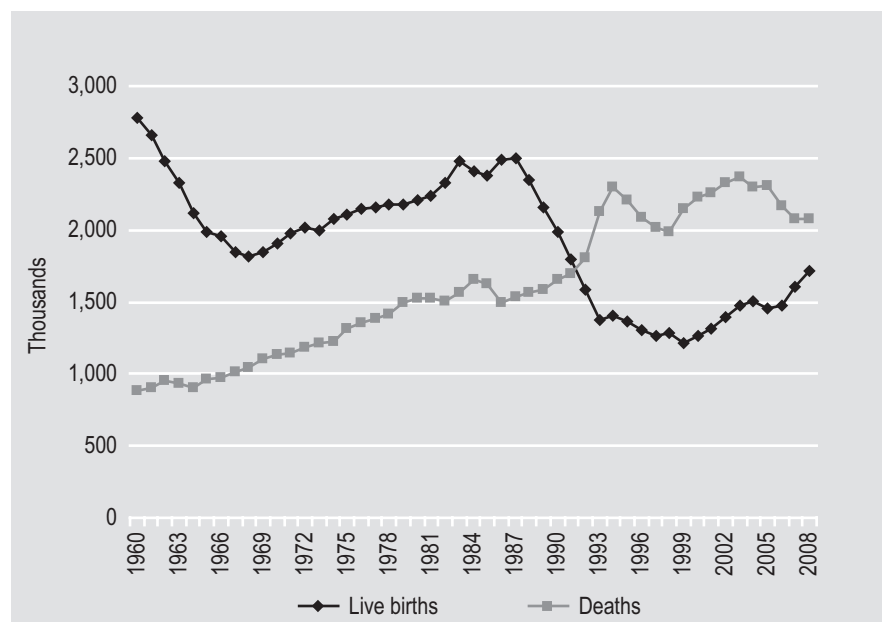
Source: Reproduced and updated from Ediev (2001, Figure 1).

funerals for every two 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 not sufficient to compensate for it entirely.

Russia experienced a dramatic drop in births during the "transition" period after the end of Soviet Communism. 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. Through the period 1950-1980, Russia's period ("snapshot") total fertility rate (TFR)³ was among Europe's very lowest. The same is true today. And the same is true if we examine "completed" TFRs.⁴ 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 context — 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.

3. The TFR is a synthetic measure of births per woman per lifetime, taking age-specific rates of childbearing in all childbearing ages for a given calendar year.

4. The completed TFR is a measure that eliminates the potential distorting effects of intervening changes in birth timing and spacing decisions.

Figure 2. *Live births and deaths in Russia, 1960-2008*

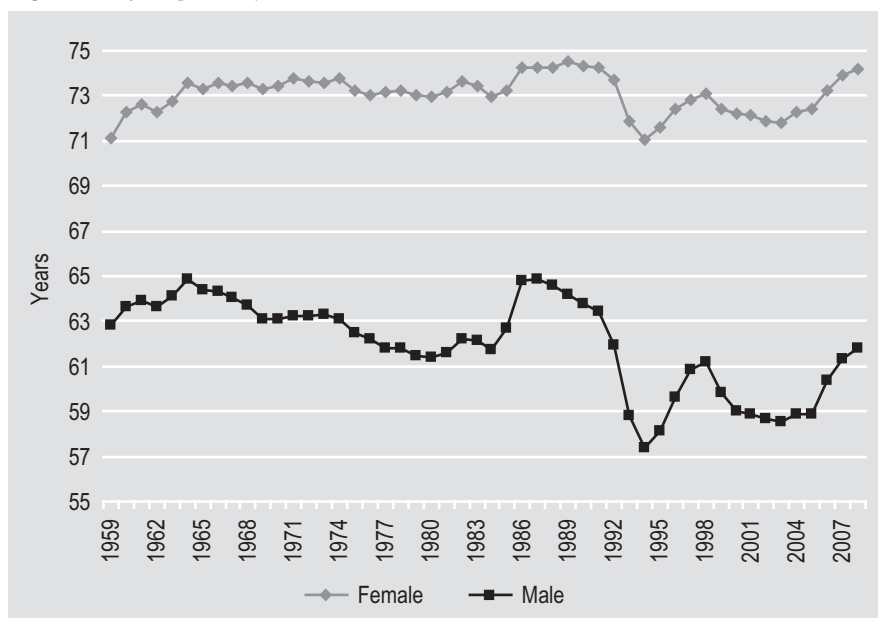
Sources: 1976-2002 data is from Goskomstat (2004, Table 2.25); 2004-07 data is from Goskomstat (2008); and 2008 data is from Goskomstat (2009).

What is entirely distinctive about Russia's vital statistics are the country's mortality trends, which are woefully poor, and have been so for decades. Estimates from the Human Mortality Database, maintained by the University of California and the Max Planck Institute for Demographic Research in Rostock, Germany, illustrate the point that post-Soviet Russia's current peacetime demographic crisis is centrally a crisis in health and mortality.

Health conditions were by no means glorious during the days of Communist rule — but the toll of “excess mortality”⁵ since 1992 has been nothing short of horrendous. Measured against the hardly exacting standard of survival patterns in the early Gorbachev era,⁶ Russia would have suffered a total of 6.6 million “excess deaths” between 1992 and 2006 alone, according to Human Mortality Database 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

5. This refers to premature death or to a death that occurs before the average life expectancy, according to the individual's particular demographic category.

6. Mikhail Gorbachev was elected General Secretary of the Communist Party of the Soviet Union in 1985.

Figure 3. Life expectancy at birth: Russian Federation, 1959-2008

Source: Wilmoth (various years).

1992-2006 would have approached 18 million. In other words, a tally of premature mortality that would, if only in arithmetic terms, have matched or exceeded the territory's population losses during the catastrophic years of the Great Patriotic War, as it is called in Russia (i.e. the Second World War).

Such poor mortality trends are reflected in life expectancy estimates. As Figure 3 demonstrates, 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.

In a European context, moreover, the Russian Federation has been gradually emerging as an extreme "underperformer" in life expectancy for men and women alike. This is so 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.

Mortality and morbidity for working-age adults: A crushing burden

The Russian Federation's peacetime demographic crisis is characterized by not only a generalized mortality crisis, but by an especially severe health crisis concentrated

in the adult population of working ages. 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 the 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) (World Bank, 2009).⁷ Yet Russia's estimated life expectancy at age 15 was far lower than would have been expected for a country with such a relatively favourable 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 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. As for male life expectancy at age 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 Benin, Haiti or even Somalia, which has been designated a "failed state" by the Bank.

The deterioration in general health conditions for Russia's population of working ages over the past decades has been dramatic, and indeed extraordinary. This deterioration is mirrored by a general upsurge in death rates for working-age men and women alike, as Figure 4 demonstrates. Over the four decades between 1965 and 2005, age-specific mortality rates for men in their 30s and 40s typically rose by around 100 per cent. No less stunning, mortality levels for women in their 30s and 40s shot up by nearly 50 per cent 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 the World Health Organization (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" European Union (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 15 years later, mortality levels were about 40 per cent higher

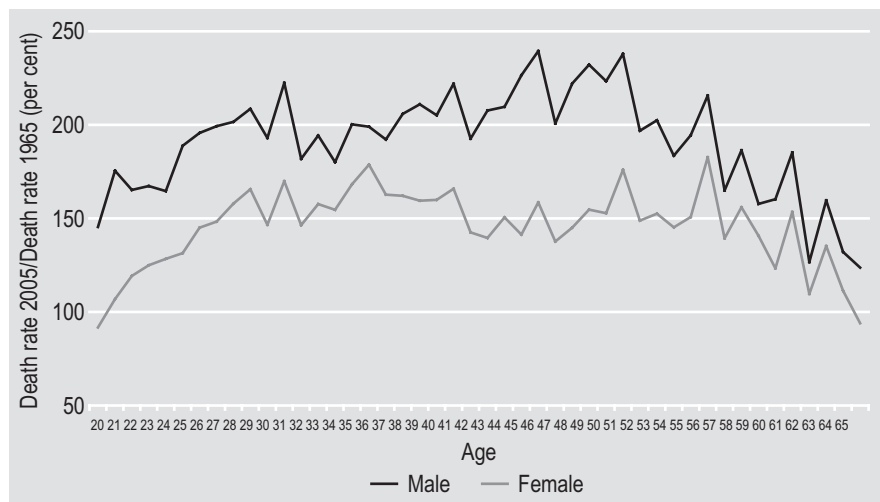
7. For 2007, the cut-off for membership in the "high income economies" grouping was a PPP-adjusted per capita GNI of USD 16,830 (for Lithuania). The Russian Federation's estimated level for that year was USD 14,430 — about 15 per cent below the notional "high income economy" threshold.

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
Islamic Republic of 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

Note: The World Bank officially classifies the Islamic Republic of Iran as a lower-middle income country, even though its per capita GDP ranks among countries in the upper-middle income category. Somalia GDP per capita PPP from Central Intelligence Agency (2008).

Source: Estimated 2006 life expectancy at age 15 from WHO (various years); PPP-adjusted per capita GDP data from World Bank (2008).

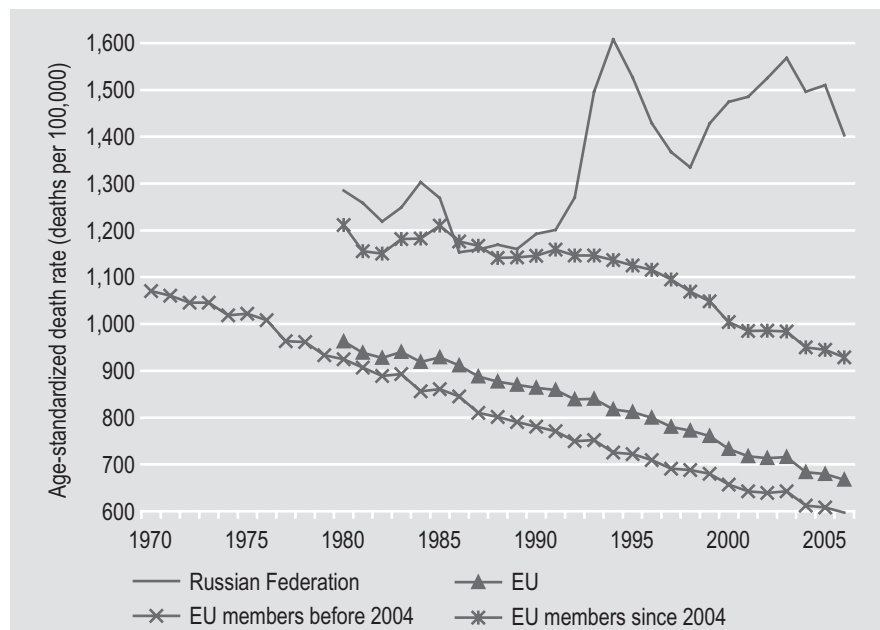
Figure 4. Death rate ratio by gender, ages 20-65: Russia, 2005 vs. 1965 (1965 = 100)

Source: Wilmoth (various years).

in Russia. While the new EU states recorded substantial improvements in overall mortality levels, Russia's death rates veered erratically upward (see Figure 5).⁸

By referring to cause-of-death data, this generally explains Russia's strange new patterns of health reversal. Overwhelmingly, the mortality divergence between Russia and the rest of Europe can be accounted for by two main categories of causes: cardiovascular disease (CVD — heart attacks, strokes etc.) and "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 per cent 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

8. 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 16 years from 1990-2006, overall life expectancy in Eastern Germany is estimated to have risen by over eight 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 higher than life expectancy in the United States: at the time of reunification, it was nearly three years lower than in the United States. For more details on this case, see Eberstadt and Groth (2008).

Figure 5. Death rates from all causes, 1980-2006: Russia vs. EU (males plus females)

Source: WHO (2009).

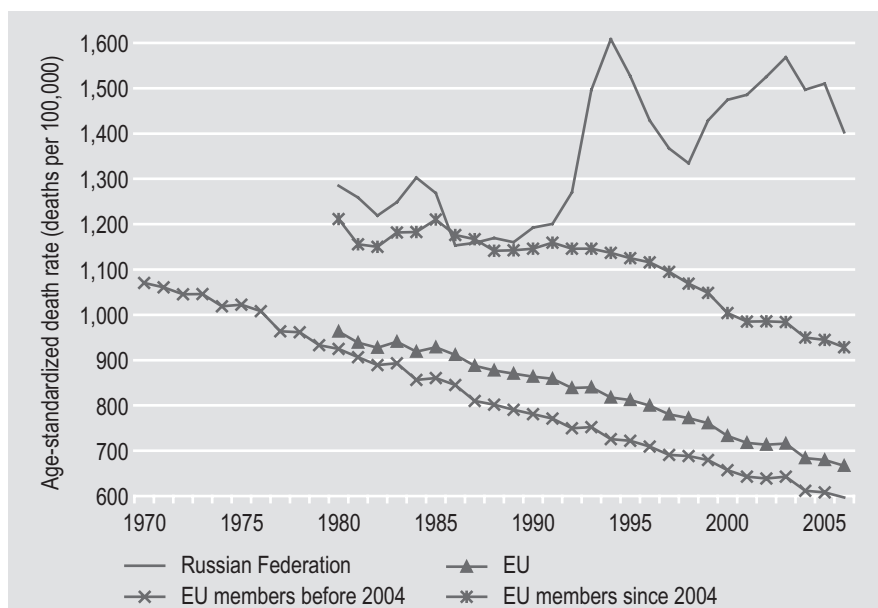
dreadful “outlier” from the overall international relationship between income and CVD mortality (see Figures 6 and 7).

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 their current survival schedules, seven out of eight Swiss men aged 20 could have expected to celebrate a (notional) retirement at age 65 — whereas their Russian counterparts faced less than even odds of making it from age 20 to age 65. Less breathtaking, but nonetheless dramatic, disparities between Swiss and Russian working-age women were also apparent (see Figures 8 and 9). 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, unfavourable impact upon future growth prospects.

In considering the broader economic implications of Russia's health and mortality problems with respect to the outlook for labour productivity, we may also

Figure 6. Death rates from cardiovascular disease, 1970-2006: Russia vs. EU (males plus females)

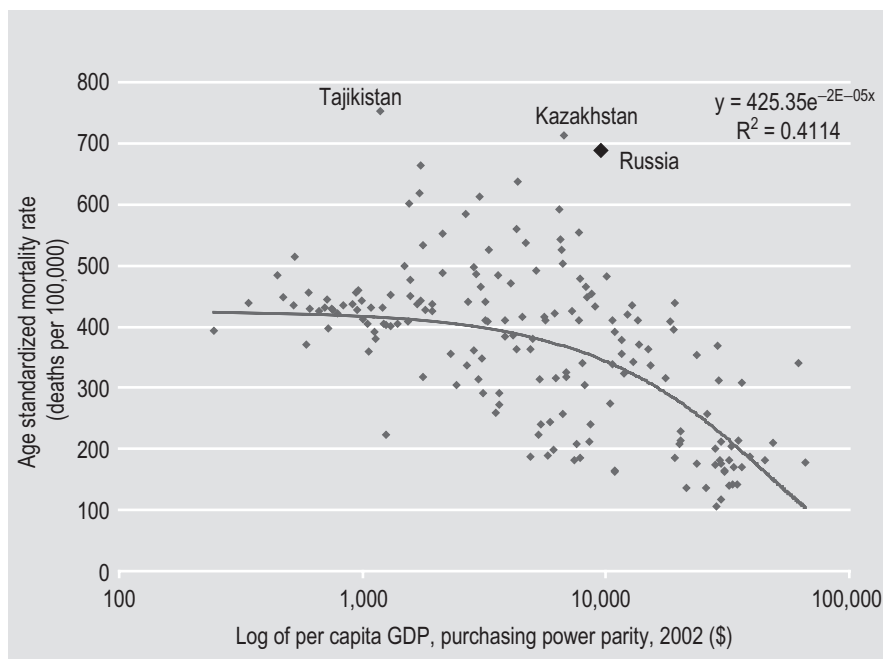


Source: WHO (2009).

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 as a whole — and may also be lower than in urban India, as well as other urban agglomerations in contemporary low-income societies. Furthermore, whereas the other BRIC countries are experiencing continuing population growth and whereas affluent OECD countries that are currently on the cusp of depopulation (e.g. Germany, Italy, Japan) still see their urban centre increasing in size, Russia’s total urban population has been falling since at least 1995 (see Table 2 and Figure 10). 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 labour force. Yet these differentials are, we contend, both meaningful and indicative; they do not portend auspiciously for Russia with respect either to labour productivity or economic growth.

Despite the poor health situation of the Russian workforce, technological innovation and institutional/economic policy reforms could theoretically

Figure 7. 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.

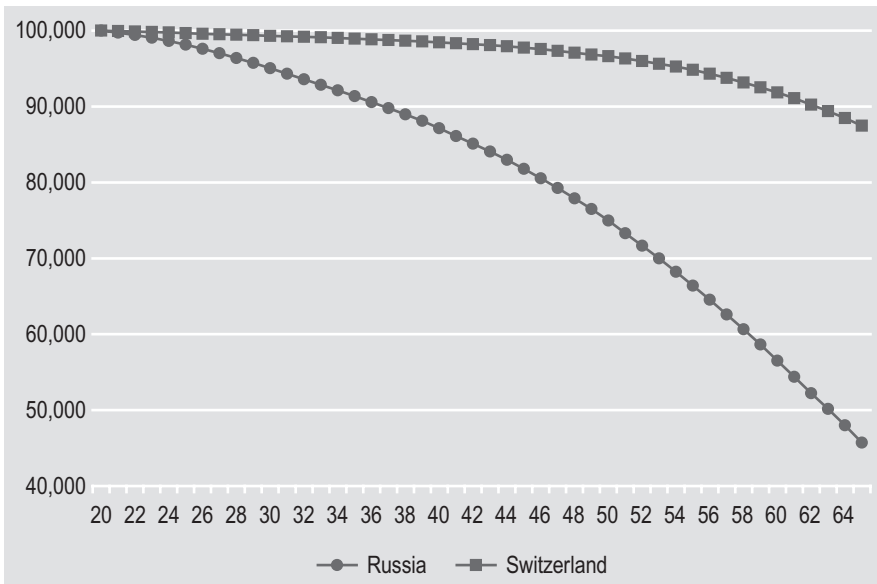
Source: World Bank (2008); and WHO (2004, Figure 7: Age-standardized mortality rates from cardiovascular disease vs. PPP adjusted per capita GDP, 2002).

contribute to a substantial improvement in the prospects for labour productivity and economic growth in Russia. However, given Russia's present-day particulars, 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 defence area), modern-day Russia is a conspicuous international underperformer in knowledge generation. The Russian Federation, for example, accounts for about 6 per cent of the world's total population of university graduates — but between 1995 and 2008 Russia was awarded just 0.1 per cent of all patents issued by the United States Patent and Trade Office (PTO), roughly the same international fraction as the state of West Virginia in the United States (Eberstadt, forthcoming).⁹ Moreover, while the total worldwide numbers for scientific articles

9. This is, admittedly, an "America-centric" measure of knowledge generation, but a roughly similar pattern is seen in a broader measure: international patent applications, as registered by the World

Figure 8. Male survival schedules, ages 20-65: Russian Federation vs. Switzerland, 2006



Source: Wilmoth (various years).

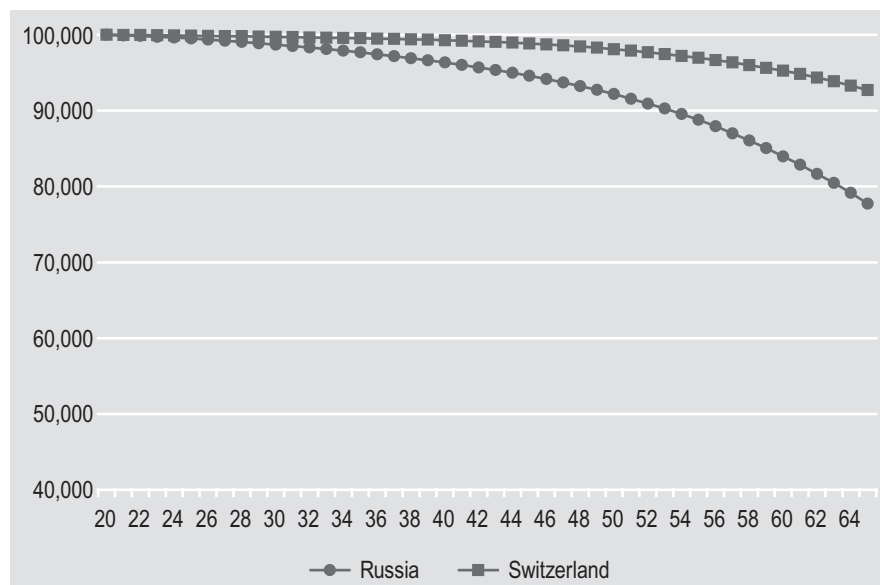
published in peer-reviewed journals has been rising exponentially since 1990, the number of such studies published by Russian nationals has stagnated over the past two decades, and in fact was slightly lower in 2008 for Russia than it had been at the end of the Soviet era for the Soviet Union (Nature, 2010, pp. 141-142).¹⁰ In addition, the broad embrace of higher technological standards within the Russian workforce in future stands to be constrained by two demographic factors. The first is 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 labour force in the years immediately ahead. The second is 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 article. 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

International Property Office (WIPO), where Russia accounted for less than 0.2 per cent of global out-of-country patent applications for 1995-2007 (Eberstadt, forthcoming).

10. See also the *Economist* (2010).

Figure 9. Female survival schedules, ages 20-65: Russian Federation vs. Switzerland, 2006



Source: Wilmoth (various years).

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 (Transparency International, 2009). 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) (Gwartney et al., 2009). And in the Heritage Foundation's 2010 Index of Economic Freedom, Russia ranked 143 out of 179 — well below Kenya, the United Republic of Tanzania, Pakistan and Yemen, to name only a few (Heritage Foundation, 2010). 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. Such a climate may be expected to discourage both investments in human capital and economic growth, all other things being equal.

Russia: A rapidly greying society

Paradoxical though it may sound, given modern Russia's horrendous mortality record, the Russian Federation is a society characterized by pronounced population

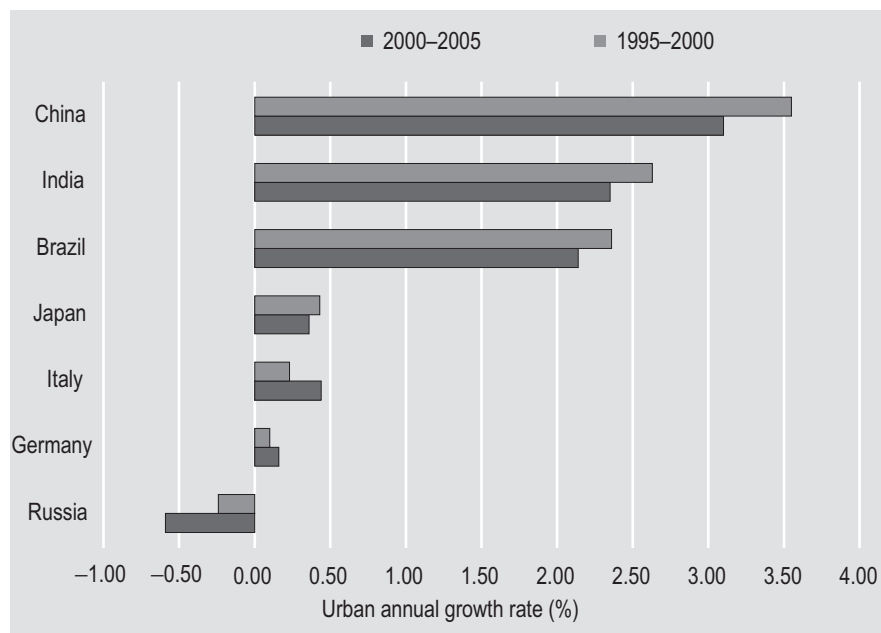
Table 2. *Life expectancy in urban areas and selected cities: Russia and selected other countries (selected recent years)*

	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.

Source: Eberstadt (forthcoming).

Figure 10. *Estimated annual urban growth rates, 1995-2005: Russia and selected other countries*



Source: ESA (2008).

ageing, with much more greying still in prospect. The reason is simple: a population's age profile is very largely determined by its fertility patterns. 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. These changes are reflected in the narrowing base of a society's "population pyramid".

As of the year 2005, by UNPD (ESA, 2007) estimates, 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 12 years higher than the median age prevailing in "less developed regions". Russia's median age, by UNPD estimates, 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 greying societies in Europe, North America, and elsewhere.

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

By the benchmark of median age, Russia has been ageing fairly rapidly in recent decades. Between 1980 and 2005, the median age in the Russian Federation rose by six years — that is to say, by almost three months each and every calendar year. In

Table 3. *Russian population ageing in global perspective: 1980 vs. 2005*

Median age (years)	1980	2005	Change (years)
Russia	31.3	37.3	6.0
World	23.0	27.9	4.9
Less developed regions	20.1	25.4	5.3
More developed regions	32.0	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	4.0	5.4	1.4
More-developed regions	11.7	15.3	3.6

Source: ESA (2009).

absolute terms, Russia's rise in median age over the past generation exceeded the global average (roughly five 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 ageing is not appreciably different from other, Western societies today.

Another aperture on the ageing phenomenon is afforded by the proportion of total population comprised by people aged 65 or older. As recently as 1980, just over 10 per cent of Russia's total population was aged 65 or older. In 2005, the corresponding proportion was almost 14 per cent. By that year, Russia was on the verge of becoming an "aged society" — a term commonly applied to populations where 14 per cent or more have reached age 65.¹¹

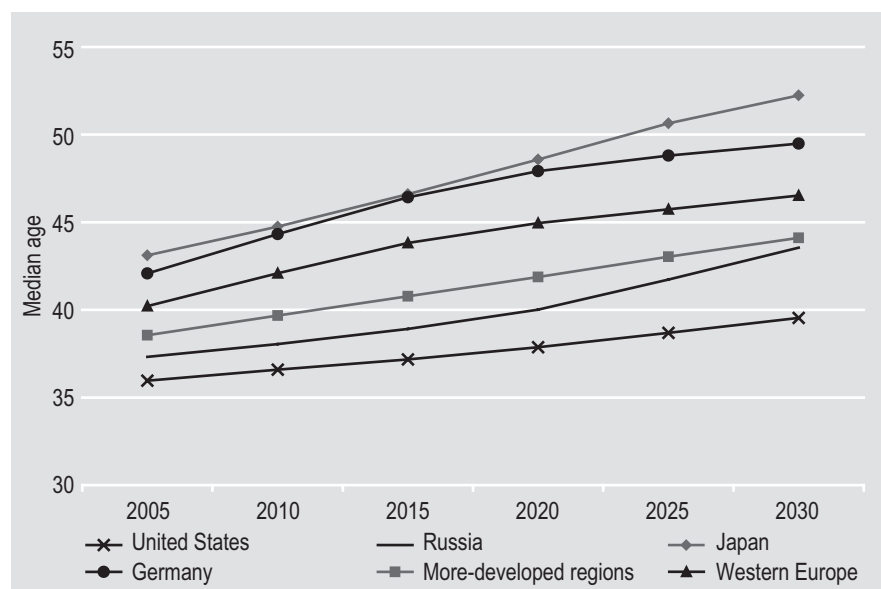
Over the coming generation, Russia stands to become a progressively more-aged society. We can be fairly confident about this outlook, insofar as the country's future senior citizens are already in Russia now — they are the cohorts currently advancing into middle age. The prospect is illustrated by projections to the year 2030 produced by the UNPD and the Census Bureau. Over the generation 2005-2030, the median

11. Students of demography today are generally under the impression that the United Nations has defined an "ageing society" as one where 7 per cent or more of the citizens are aged 65 or older, with an "aged society" benchmarked at 14 per cent or more aged 65 or older. The documentation for these formal thresholds, as it turns out, is somewhat problematic (authors' personal correspondence with H. Zlotnik, Head of the UN Population Division, and J. Chamie, former-Head of the UN Population Division). But the 7 per cent and 14 per cent notional thresholds for "ageing societies" and "aged societies" are widely used by students of demography nowadays nonetheless.

age in Russia is projected to increase by another six years, to just less than 44 years (see Figure 11). The percentage of population aged 65 or older, for its part, is seen as jumping from today's 14 per cent to about 21 per cent (i.e. over one Russian in every five) by 2030.

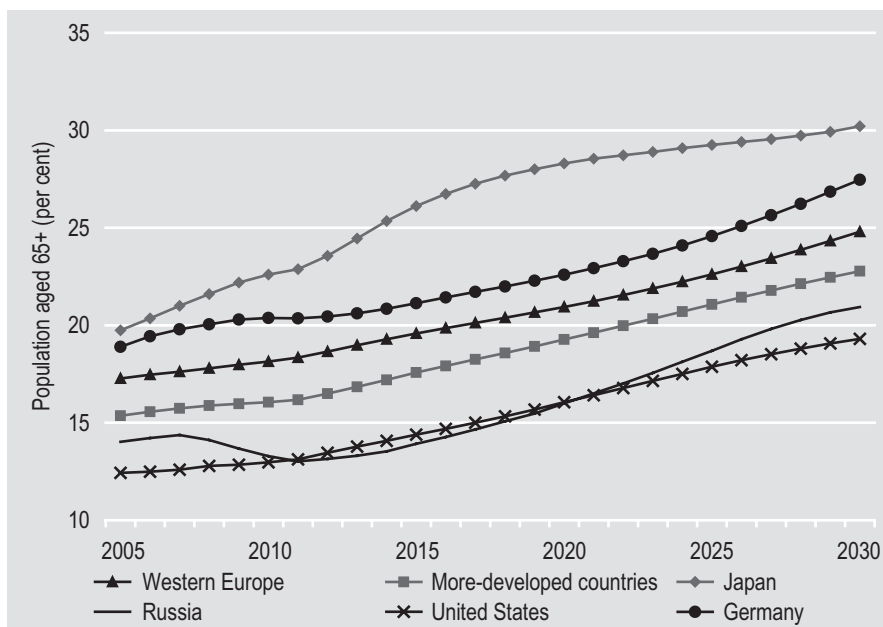
By these projections, Russia will certainly not be the most elderly society on earth in the years immediately ahead; that accolade looks likely to rest securely with Japan's populace, at least for the coming several decades (see Figure 12). But Russia is not likely to be the most youthful of the developed region's steadily-ageing 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 the United States, in fact, is slated to widen in the years ahead: from just over a year in 2005 to roughly four years in 2030. In 2030, Russia's population aged 65 or older is likewise seen as accounting for a somewhat greater share of total population than will be the case in the United States (21 per cent versus 19 per cent). In terms of its degree and pace of ageing, 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.

Figure 11. *Projected median age, 2005-2030: Russia in international perspective (median age in years)*



Source: ESA (2009).

Figure 12. Projected percentage of population aged 65+, 2005-2030: Russia in international perspective



Source: Census Bureau (various years).

Unhealthy ageing: A Russian speciality

Viewed in the context of the more-developed societies, in short, there is absolutely nothing exceptional about the magnitude of the greying 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 Russian society, the prospect of population ageing on a major scale almost certainly portends a serious increase in debilitation and dependence — 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.¹² As best we can tell, in fact, continuing and meaningful

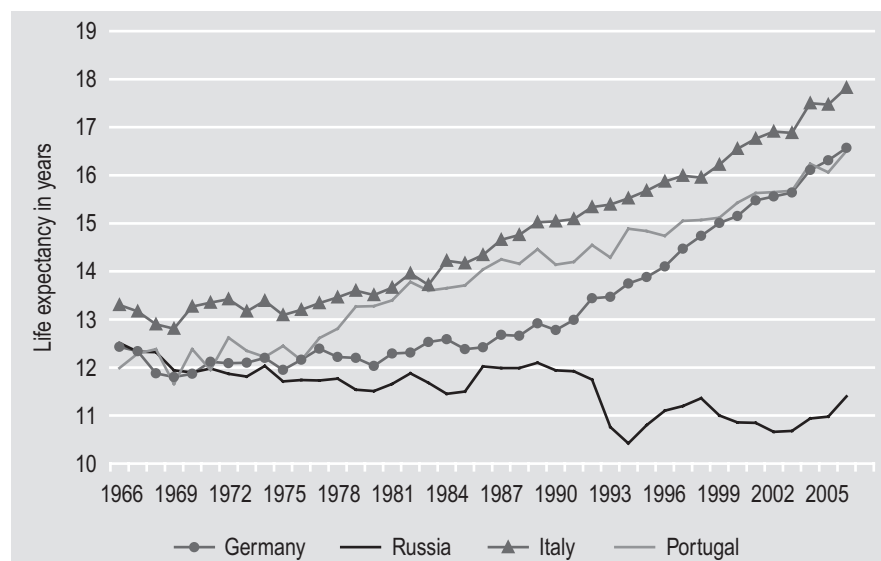
12. For some details and evidence concerning the correspondence of improved health status with declining mortality levels for older citizens in some of the OECD countries, see Eberstadt and Groth (2007).

improvements in elder health have been characteristic in most modern societies, both rich and poor, in recent decades. But Russia is a striking exception to this general global rule. Russia's predicament is highlighted by long-term trends in life expectancy for people aged 65, as estimated by 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 (see Figures 13 and 14).

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 in 1965 East Germany was, like Russia, a planned socialist economy.

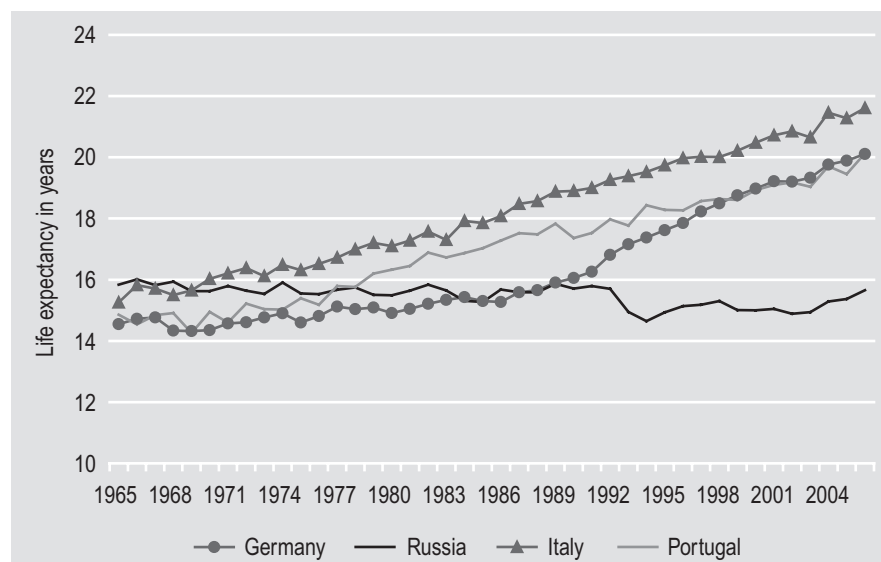
In the mid-1960s, furthermore, life expectancy for their older populations looked pretty similar in Russia, East Germany, Italy and Portugal. In 1965, female life expectancy was actually higher in Russia than in Italy, Portugal or East Germany; male life expectancy was a bit higher in Italy than Russia, but was slightly higher in Russia than in Portugal or East Germany. By 2006, female life

Figure 13. Male life expectancy at age 65: Russia and selected countries, 1965-2006 (life expectancy in years)



Source: Wilmoth (various years).

Figure 14. Female life expectancy at age 65: Russia and selected countries, 1965-2006 (life expectancy in years)



Source: Wilmoth (various years).

expectancy at age 65 was three-and-a-half years lower in Russia than in the former East Germany or Portugal and four years lower than in Italy. Elder male life expectancy in Russia was fully five years lower than in the former 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.

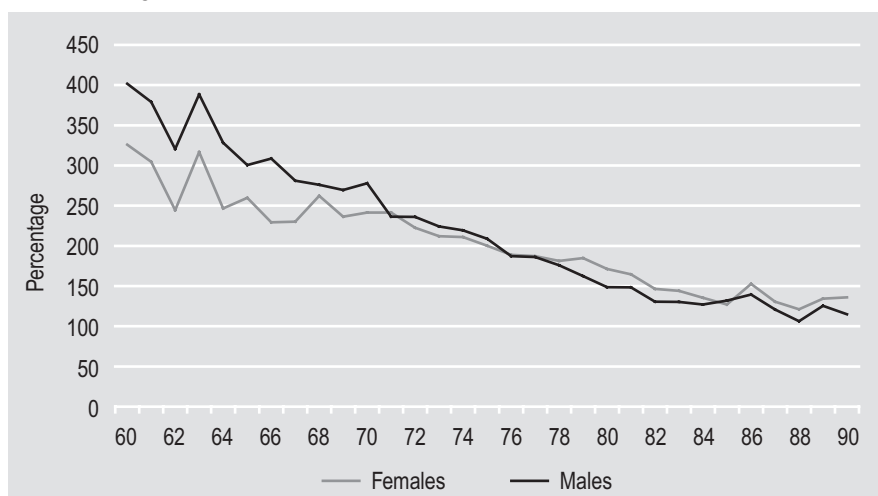
Elder life expectancy in Russia today, indeed, appears to be akin to levels witnessed in contemporary less-developed countries (settings, incidentally, where the population aged 65 or older accounts for a far smaller share of total population than is the case for the contemporary Russian Federation). 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 (WHO, various years). 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 of Russia's (Maddison, 2009a).

In Western Europe (and in major parts of Europe that were formerly in the Soviet-bloc), 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 Human Mortality Database, death rates for those nonagenarians were on average 25 per cent lower in Portugal in 2005 than in 1965, 40 per cent lower in Italy, and almost 45 per cent lower in the former East Germany. In contrast, 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 15. The contraposition is especially meaningful, as Portugal currently seems to have the 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 lifecycle. 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 per cent higher for women, and 15 per cent higher for men, in Russia than in Portugal, but then again people in this age group tend to be hardy survivors, especially in Russia.

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

Figure 15. Ratio of age-standardized death rates in 2005: Russia vs. Portugal, ages 60-90 (Portugal = 100)



Source: Wilmoth (various years).

of age (and for Portuguese women, not until they are age 73) (Wilmoth, various years). 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 in general 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 unfavourable today than their counterparts in other countries undergoing big surges in population ageing.

For example, 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 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 one-fourth of men and just under one-third of women in their early 70s rated their own health as "poor". In contrast, over half of Russian men in their early 70s rated their own health as "poor," as did over two-thirds of Russian women in their early 70s. 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 (Bobak et al., 2004, pp. 767-771).

By the same token, a 2009 study led by Vladimir Shkolnikov of the Max Planck Institute for Demography 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 (Shkolnikov et al., 2009). These results appear especially meaningful not only because grip strength is a fair predictor of cardiovascular risk, but because Moscow is one of Russia's very most prosperous, educated, and comparatively healthy regions.

Not least important, survey data on lifestyle and behavioural patterns seems to corroborate this picture of exceptional health risks at older ages in Russia. As T. Paul Schultz of Yale University showed, risky health behaviours 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 (Schultz, 2008, pp. 85-109). In his analysis of the 2004 RLMS survey (see Table 4), Russian men aged 65-74 reported an

Table 4. Selected health-related characteristics and behaviours of older Russians, by sex and age: 2004

	Years of schooling	Cigarettes per day	Alcohol intake (grams per day)	Medical check-up in last 3 months (per 1,000)
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 litre of 80-proof vodka contains approximately 400 grams of pure alcohol.

Source: Derived from Schultz (2008, Table 3, p. 94).

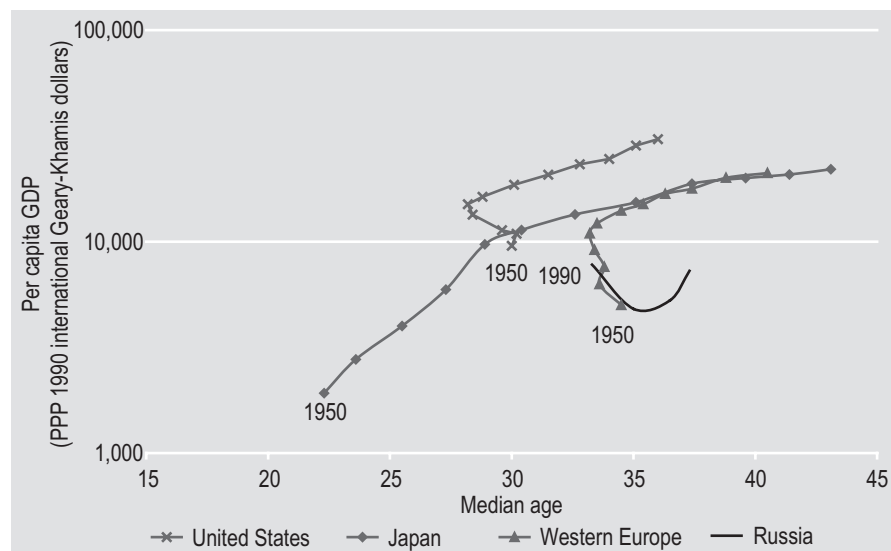
“average” alcohol intake equivalent to a litre of vodka per week (the equivalent of over 22 litres of pure alcohol per year). Further, only 10 per cent of Russian men aged 65-74 and 12 per cent of Russian woman of those same ages said they had undergone any sort of medical check-up or treatment in the 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 nearly 60 per cent of Russian men aged 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 per cent of American men and women aged 65-74 said they had no medical check-ups or treatment by health professionals (US National Center for Health Statistics, 2009).

Pervasive population ageing, 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 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 16 through 18 demonstrate this point. Figures 16 and 17 trace the ageing-to-income trajectories of Russia and the affluent Western societies over the

Figure 16. 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: Maddison (2009a) and ESA (2009).

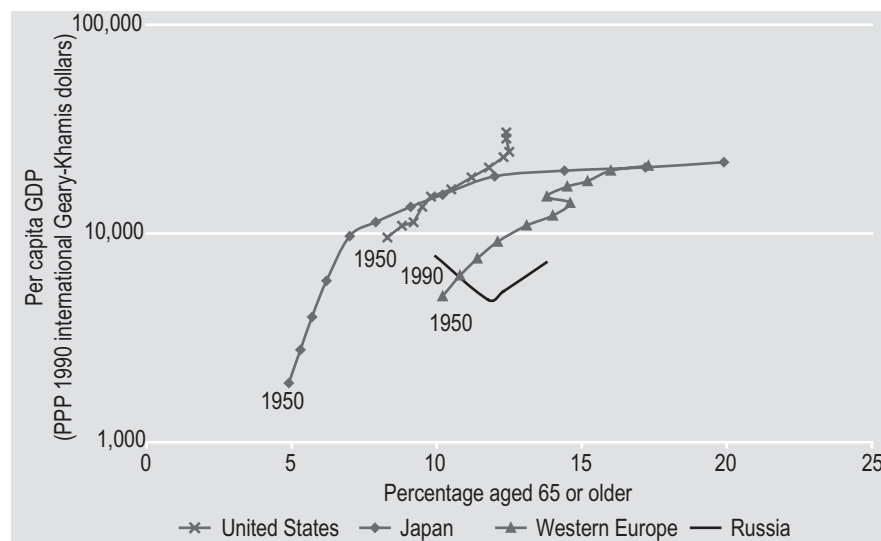
post-Second World War era, utilizing UNPD estimates of population ageing (median age; percentage of population aged 65 or older) and Angus Maddison's estimates of long-term international trends in PPP-adjusted GDP per capita.¹³

As Figure 16 demonstrates, 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. The United States' median age is still a little lower than Russia's, but its per capita income level, by Maddison's reckoning, is about four times higher than Russia's.

So too, with the proportion of population aged 65 or older: when Western Europe first attained Russia's current levels, its average per capita GDP was over 75 per cent higher than Russia's today. Japan was twice as rich in terms of GDP per capita. The United States still has a lower percentage of its population aged 65 or older than contemporary Russia, but when Russia's share was the same as America's today, its per capita income level was barely one-fifth of that of the United States (see Figure 17).

13. 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 17. *Percentage aged 65+ vs. per capita GDP PPP, 1950-2005: The Russian Federation in western perspective*



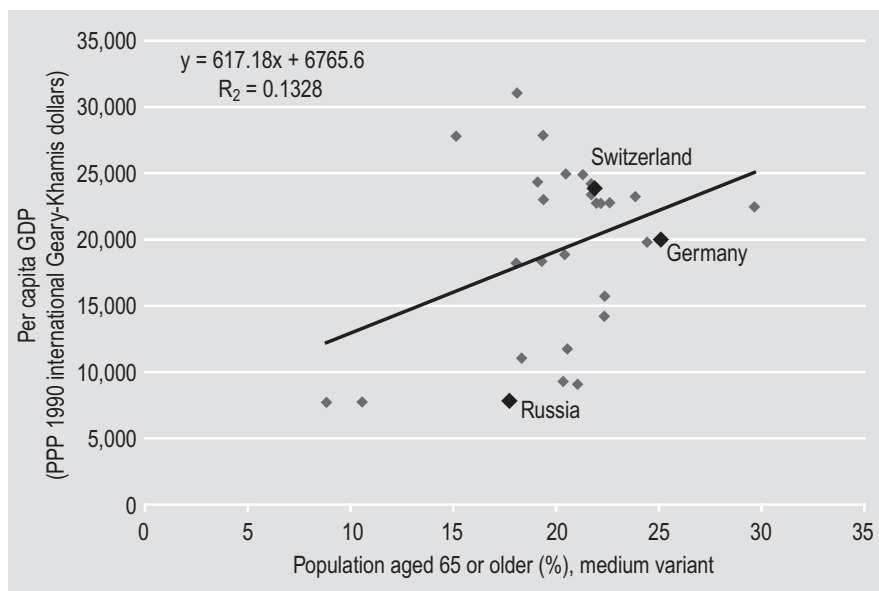
Note: Data for Russia only cover post-Communist years 1995-2005.
Sources: Maddison (2009a) and ESA (2009).

Moreover, if we compare current (2006) per capita income levels with prospective (2025) proportions of total population aged 65 or older, we can see that Russia's coming income-to-ageing outlook appears generally — one is tempted to say exceptionally — unfavourable by comparison with the countries in today's OECD (see Figure 18).

Pervasive population ageing 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 Census Bureau projections of "old age dependency ratios," the ratio of the population aged 65 or older to the working-age population (aged 15-64). By these projections, Russia's old-age dependency ratio is slated to rise in the years ahead from about 20 per cent in 2005 to something like 32 per cent in 2030. Put another way, there are about five 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.

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 the United States' (32 per cent), but it is lower than the average for the more developed regions (37 per cent). It is considerably lower than the projected average

Figure 18. GDP per capita, PPP, 2006 vs. percent of population aged 65+, 2025 in OECD countries and Russia



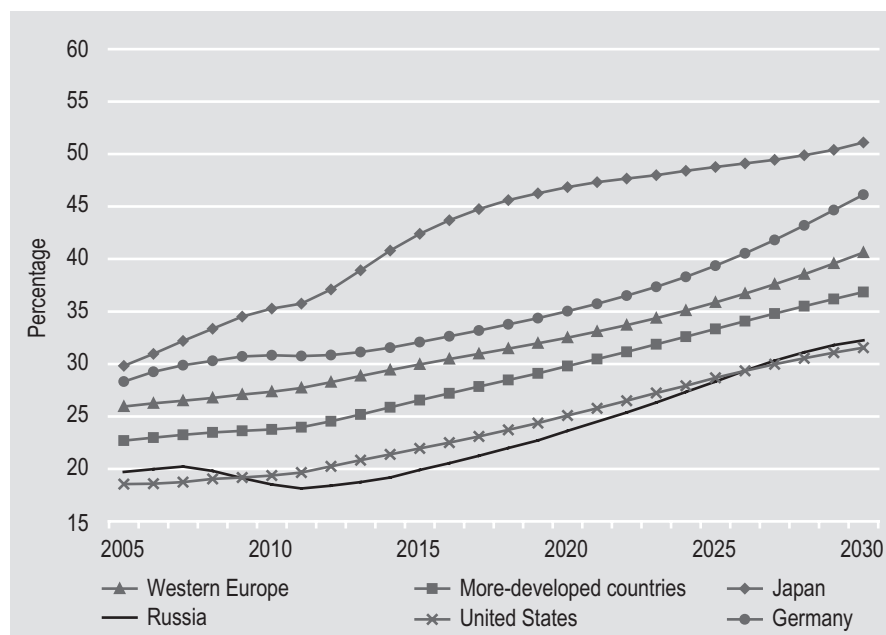
Sources: Maddison (2009b) and ESA (2009).

for Western Europe (41 per cent) and far lower than the prospective ratio for Japan (51 per cent), where there may be fewer than two persons in the notional working-age group for each notional retiree.

These numbers might seem to suggest that Russia will be more favourably positioned to cope with the process of ageing that is set to impact all developed societies. But any such inference would be badly mistaken. Figure 19 does not offer an “apples to apples” comparison. In Russia, population ageing 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 ageing much greater.¹⁴ 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 ageing” 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

14. In all ageing 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 the implementation of a preventive health strategy to promote ageing in good health. Among the other potential benefits of such an approach, a focus on healthy ageing may help the country’s citizens consume less in the way of health care services and stay longer in the labour force.

Figure 19. Projected old-age dependency ratios, 2005-2030: Russian Federation vs. selected more developed regions (persons 65+ /persons 15-64 years of age)



Source: Census Bureau (various years).

(inter alia, the decline of manual labour and the expansion of employment in a less physically taxing service sector) is opening new possibilities for continuing labour force participation for a robust and active, albeit greying, population.¹⁵ In Russia, on the other hand, “unhealthy ageing” is not just limiting the possibilities for older Russians to engage in economically productive activity, it is restricting the scope for younger adults to support Russia’s steadily growing older generations.

Poor health may help to explain contemporary Russia’s distinctive labour 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 one-half of Russians in their late 50s were still in the country’s workforce. Less than 30 per cent of those in their early 60s were economically active, among those aged 65 or older, the labour force participation rate was under 5 per cent. According to those same statistics, essentially no Russians over the age of 73 were economically active (ILO, 2010). For the “more developed regions” as a whole, labour force participation rates today at older ages are consistently higher than in Russia. In 2002, by International Labour

15. These possibilities are described and examined in Eberstadt and Groth (2007).

Organization (ILO) estimates, the corresponding rates for the more-developed countries as a whole were 62 per cent for persons in their late 50s, 35 per cent for persons in their early 60s, and about 10 per cent for persons aged 65 or older.

Even this comparison, however, is confounded by income effects (i.e. 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 labour 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 (Maddison, 2009a). Consider France and Italy — currently, two paragons of early retirement in Western Europe. By Maddison's reckoning, the per capita GDP of France in 1954 and of Italy in 1960 roughly matched that of Russia in 2002. In 1961, according to the Italian Census, labour force participation rates in Italy for those aged 65 or older were over two-and-a-half times higher than Russia's four decades later. As for France, its 1962 Census recorded labour force participation rates over three times the Russia 2002 level for persons aged 65 or older and nearly twice as high for 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 (Wilmoth, various years). When searching to understand why older Western Europeans did more work during this previous era than their Russian counterparts do today, maybe part of the answer is simply because they could.

In Russia, the retirement age is conventionally set at age 60 (men) and age 55 (women). Correspondingly, official Russian statistics regard the working ages as age 16-59 (men) and age 16-54 (women). Certainly, some pension-aged men and women in Russia today are still actively engaged in remunerative labour, but the proportion is very low indeed. According to estimates by the Russian Federation Pension Fund, fully three-quarters of Russia's pensionable population did not work at all in the year 2006 (UNDP, 2009, p. 117). This is despite the meagre benefits guaranteed by official Russian social security programmes (UNDP, 2009, p. 135).¹⁶ As of 2006, Russia's average public pension payments actually fell below the country's official "minimum subsistence" level, meaning that the typical pensioners

16. 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 per cent in 2007. This is a far lower rate than in any Western country today.

who relied on these benefits for support without outside income from work or other sources would have to live below Russia's own stringent "poverty line".

Under real existing Russian conditions, then, Russia's current and relatively-low official retirement ages may represent more realistic thresholds for calculating Russia's true "old-age dependency ratios" than the conventional international formulas used in Figure 19. When we employ this Russian conception for calculating the 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 three persons "at working-age" for every person "over working-age" at the start of 2008. However, 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 labour), Russia had a workforce of about 70 million, and a pension-age population of nearly 30 million; meaning that 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.

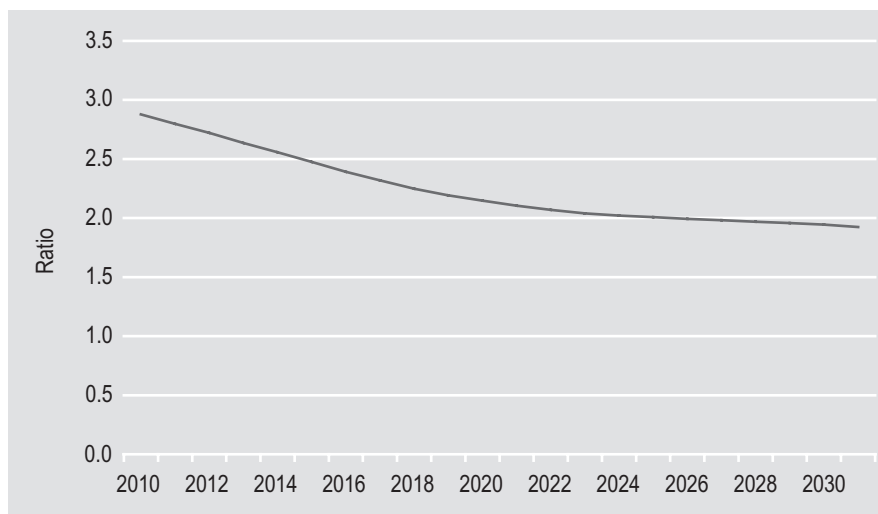
Pension and old-age support: A looming challenge

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 after the year 2025, reaching a ratio of 1.9:1 in the year 2030 (see Figure 20). 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 (UNDP, 2009, p. 138).

In the decades ahead, the Russian Federation will face at the same time the full panoply of challenges and claims attendant to social protection programmes for a modern welfare state: family benefits (child support, maternity benefits and the like), unemployment insurance programmes, occupational health and safety programmes, 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 programme of child allowances (Eberstadt, forthcoming), for example, and has moved in the direction of reforming its health care system.¹⁷

17. Some argue these health reform measures are as yet halting, inefficient and incomplete with evident gaps in securing broad access at reasonable quality. See, for example, Tompson (2007).

Figure 20. *Ratio of working age to above working age population (medium variant): Russia, 2010-2031*



Source: Goskomstat (2010).

The following discussion will not address these broader questions of social protection, effective health care provision or 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 old-age support system described below.

In 2002 the Russian Federation adopted a pension reform strategy modelled broadly on the World Bank's original "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 supplementary privately funded defined-contribution system) (World Bank, 1994).¹⁸ 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.¹⁹ 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

18. For details on the World Bank's advice to Russia on pension reform, see Rashid et al. (2002).

19. See Fornero and Ferraresi (2007).

holdings in cash or other instruments bearing distinctly negative real returns in an inflationary environment. Thus the “first” pillar (the basic PAYG 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 ILO recommends that this replacement rate should be no lower than 40 per cent. In OECD Member States, “the lowest replacement rates are around 40 per cent, but most are well above that level” (Hauner, 2008, p. 5). In Russia as of 2007, however, the replacement rate for the public pension system was an estimated 26 per cent. 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, Russia’s public pension system was so seriously under-funded 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 17 per cent by 2027 (Gurvich, 2007).

All things have not remained equal since 2007: the Russian government has decreed annual increases in public pension benefits in 2008, 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) (RIA-Novosti, 2008; Itar-Tass, 2009a; Itar-Tass, 2010). Welcome as they were, however, it is essential to recognize that these declarations and adjustments in pension benefits were ad hoc and entirely provisional 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 even a steady replacement ratio — even a meagre one — in Russia over the years immediately ahead appear to be imposing. Calculations by Gurvich (2007), for example, suggest that it would take fully 3 per cent 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 per cent; would require supplementary budgetary commitments exceeding 4 per cent of GDP.²⁰

By 2009, according to official Russian sources, the country was already devoting fully 10 per cent of GDP to old-age pensions (Itar-Tass, 2009b). Could such additional commitments be sustainable? Russia, of course, is blessed with an abundance of natural resources, most notably its oil and gas reserves. These

20. Achieving the ILO’s desideratum of a minimum 40 per cent replacement rate would of course mean a far greater allocation of public funds; Gurvich did not even consider this possibility.

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 not unlimited. One International Monetary Fund (IMF) analysis (Hauner, 2008), 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. Under the assumptions of a 30 per cent replacement rate and oil priced at USD 80/barrel, the Fund would be completely spent by 2021. With oil at USD 100/barrel and a 30 per cent replacement rate, the date of full depletion for the Fund would be postponed, but by just four years to the end of 2024. Even under more optimistic assumptions (i.e. lower replacement rates) and USD 80/barrel, the Fund would be depleted before 2030, at precisely the time when Russia's pension-aged population could exceed the population of actively-engaged workers under the assumptions of the aforementioned Moscow State University study.

To sum up: it is no secret that population ageing 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 ageing poses more acute challenges to Russia than to today's Western societies; a challenge driven by poor health indicators, an unfavourable ratio between working-age and retired population cohorts, and a 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 ageing and the consequent "ageing burden" in Russia may prove to be both a social problem and constraint on economic development in the decades ahead.

The challenges for social policy-makers in Russia 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 programmes, in such areas as old-age support and health care, promises to be vastly more daunting for Russia than for the ageing, but affluent and relatively healthy, societies of the OECD. What should be apparent 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 ageing Russia will need to meet its social policy claims. Enhancing labour 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 in the years ahead will depend on the success with which three efforts i) policies for radically reducing adult mortality and for working-ages in particular ii) policies for revitalizing Russian higher education and knowledge production and iii) a fundamental reform of institutions and economic policies, are pursued today.

Bibliography

- Bobak, M.; et al.** 2004. "Life span and disability: A cross sectional comparison of Russian and Swedish community based data", in *British Medical Journal*, Vol. 329, September.
- Census Bureau.** various years. *International data base (IDB)*. Suitland, MD. <<http://www.census.gov/ipc/www/idb/>> (accessed on 02.04.2010).
- CIA.** 2008. "Somalia", in Central Intelligence Agency, *The world factbook 2008*. Washington, DC. <<https://www.cia.gov/library/publications/the-world-factbook/geos/so.html>> (accessed on 19.07.2010).
- Eberstadt, N.** (forthcoming). *Russia's peacetime demographic crisis: Dimensions, causes, implications*. Seattle, WA, National Bureau of Asian Research.
- Eberstadt, N.; Groth, H.** 2007. *Europe's coming demographic challenge: Unlocking the value of health*. Washington, DC, AEI Press.
- Eberstadt, N.; Groth, H.** 2008. *Die Demografiefalle: Gesundheit als Ausweg für Deutschland und Europa*. Stuttgart, Thieme Verlag.
- The Economist.** 2010. "Data everywhere", in *The Economist*, 25 February.
- Ediev, D.** 2001. "Application of the demographic potential concept to understanding the Russian population history and prospects: 1897-2100", in *Demographic Research*, Vol. 4, Art. 9. <<http://www.demographic-research.org/volumes/vol4/9>> (accessed on 19.07.2010).
- ESA.** 2007. *World population prospects: The 2006 revision*. New York, NY, United Nations Department of Economic and Social Affairs — Population Division. <<http://157.150.195.10/esa/population/publications/wpp2006/wpp2006.htm>> (accessed on 19.07.2010).
- ESA.** 2008. *World urbanization prospects: The 2007 revision*. New York, NY, United Nations Department of Economic and Social Affairs — Population Division. <<http://esa.un.org/unup/index.asp?panel=6>> (accessed on 19.07.2010).
- ESA.** 2009. *World population prospects: The 2008 revision*. New York, NY, United Nations Department of Economic and Social Affairs — Population Division. <<http://esa.un.org/unpp/index.asp>> (accessed on 19.07.2010).
- Fornero, E.; Ferraresi, P. M.** 2007. *Pension reform and the development of pension systems: An evaluation of World Bank assistance — Background paper: Russia country study*. Washington, DC, Independent Evaluation Group.
- Goskomstat.** 2004. *Demographic yearbook of Russia, 2004*. Moscow, Federal State Statistics Service.
- Goskomstat.** 2008. *Demographic yearbook of Russia, 2008*. Moscow, Federal State Statistics Service.
- Goskomstat.** 2009. *Vital statistics*. Moscow, Federal State Statistics Service. <http://www.gks.ru/bgd/regl/b09_06/IssWWW.exe/Stg/2/01-01.htm> (accessed on 19.07.2010).

- Goskomstat.** 2010. *Chislennost naseleniya po otdehnim vozrastnim grupam, 2010-2031* [Total population by selected age groups, 2010-2031]. Moscow, Federal State Statistics Service. <http://www.gks.ru/free_doc/new_site/population/demo/progn3.htm> (accessed on 19.07.2010).
- Gurvich, E.** 2007. "Prospects for the Russian pension system", in *Voprosy Ekonomiki*, No. 9.
- Gwartney, J. D. et al.** 2009. *Economic freedom of the world: 2009 report*. Vancouver, Fraser Institute. <http://www.freetheworld.com/2009/reports/world/EFW2009_ch1.pdf> (accessed on 19.07.2010).
- Hauener, D.** 2008. *Macroeconomic effects of pension reform in Russia* (IMF Working Paper, No. 08/201). Washington, DC, International Monetary Fund. <<http://www.imf.org/external/pubs/ft/wp/2008/wp08201.pdf>> (accessed on 16.07.2010).
- Heritage Foundation.** "Ranking the countries", in *2010 Index of economic freedom*. Washington, DC. <<http://www.heritage.org/index/ranking.aspx>> (accessed on 19.07.2010).
- ILO.** 2010. *LABORSTA Internet*. Geneva, International Labour Office. <<http://laborsta.ilo.org>> (accessed on 19.07.2010).
- Itar-Tass.** 2009a. "Putin promises to eliminate poverty among pensioners", in *Itar-Tass*. 25 November.
- Itar-Tass.** 2009b. "Russia's pensions next year to grow by 46 pct", in *Itar-Tass*, 23 September.
- Itar-Tass.** 2010. "Over 11 million Russians to get higher valorized pensions", in *Itar-Tass*, 16 March.
- Maddison, A.** 2009a. "Per capita GDP PPP (in 1990 international Geary-Khamis dollars)", in *Historical Statistics for the World Economy: 1-2006 AD*. <http://www.ggd.net/maddison/Historical_Statistics/horizontal-file_03-2009.xls> (accessed on 19.07.2010).
- Maddison, A.** 2009b. "Population levels, GDP levels and per capita GDP levels, 1-2006 AD", in *Historical Statistics for the World Economy: 1-2006 AD*. <http://www.ggd.net/maddison/Historical_Statistics/vertical-file_03-2009.xls> (accessed on 19.07.2010).
- Nature.** 2010. "Scientific Glasnost", in *Nature*, No. 464, March. <<http://www.nature.com/nature/journal/v464/n7286/full/464141b.html>> (accessed on 19.07.2010).
- Rashid, M.; et al.** 2002. *Pension reform in Russia: Design and implementation*. Washington, DC, World Bank.
- RIA-Novosti.** 2008. "State pensions to grow 20% annually in 2009-2011", in *RIA-Novosti*. 14 May.
- Schultz, T. P.** 2008. "Health disabilities and labor productivity in Russia in 2004: Consequences beyond premature death", in Mete, C. (ed.), *Economic implications of chronic illness and disability in Eastern Europe and the Former Soviet Union*. Washington, DC, World Bank.
- Shkolnikov, V. M. et al.** 2009. *Patterns of grip strength in Moscow as compared to Denmark and England* (Conference paper, 21st REVES Conference "Reducing gaps in health expectancy", Copenhagen, 26-29 May). <http://www.ined.fr/fichier/t_telechargement/>

21121/telechargement_fichier_en_772_shkolnikov_andreev_demakakos_oksuzyan_christensen_ppt.pdf> (accessed on 19.07.2010).

- Tompson, W.** 2007. *Healthcare reform in Russia: Problems and prospects* (Economics Department working paper, No 538). Paris, Organisation for Economic Co-operation and Development. <http://www.oecd.org/LongAbstract/0,3425,en_33873108_36016497_37976677_1_1_1_1,00.html> (accessed on 19.07.2010).
- Transparency International.** 2009. *Corruption perceptions index 2009*. Berlin. <http://www.transparency.org/policy_research/surveys_indices/cpi/2009/cpi_2009_table> (accessed on 19.07.2010).
- UNDP.** 2009. *National human development report: Russian Federation 2008 — Russia facing demographic challenges*. Moscow, United Nations Development Programme — Russia. <<http://78.136.31.142/en/reports/nationalreports/europethecis/russia/name,18666,en.html>> (accessed on 19.07.2010).
- US National Center for Health Statistics.** 2009. *Health United States 2008*. Hyattsville, MD. <<http://www.cdc.gov/nchs/data/hus/hus08.pdf>> (accessed on 19.07.2010).
- WHO.** 2004. *World health report 2004: Statistical annex*. Geneva, World Health Organization. <<http://www.who.int/whr/2004/annex/en/index.html>> (accessed on 19.07.2010).
- WHO.** 2009. *European health for all database*. Geneva, World Health Organization. <<http://data.euro.who.int/hfadb>> (accessed on 19.07.2010).
- WHO.** various years. *Life tables for WHO member States*. Geneva, World Health Organization — Statistical Information System. <http://apps.who.int/whosis/database/life/life_tables/life_tables.cfm?path=whosis,evidence,life,life_tables&language=english> (accessed on 19.07.2010).
- Wilmoth, J. R. (ed.)**, various years. *Human mortality database*. Berkeley, CA, University of California; Rostock, Max Planck Institute for Demographic Research. <<http://www.mortality.org>> (accessed on 19.07.2010).
- World Bank.** 1994. *Averting the old age crisis: Policies to protect the old and promote growth*. New York, NY, Oxford University Press.
- World Bank.** 2008. *World development indicators (WDI) 2008*. Washington, DC. <<http://data.worldbank.org/data-catalog/world-development-indicators/wdi-2008>> (accessed on 19.07.2010).
- World Bank.** 2009. *World development indicators (WDI) 2009*. Washington, DC. <<http://data.worldbank.org/data-catalog/world-development-indicators/wdi-2009>> (accessed on 19.07.2010).
- World Bank.** 2010. *World development indicators online (WDI online)*. Washington, DC. <<http://ddp-ext.worldbank.org/ext/DDPQQ/showReport.do?method=showReport>> (accessed on 15.01.2010).