

Searching for a New Silver Age in Russia: The Drivers and Impacts of Population Aging

Overview Report



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The authorship of the notes is as follows:

- **“From Demographic Dividend to Demographic Burden? Regional Trends of Population Aging in Russia”** was written by Mikhail Matytsin, Lalita Moorty, and Kaspar Richter.
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Abbreviations

CEFIR	Center for Economic and Financial Research
CIS	Commonwealth of Independent States
CPE	continuous professional education
DD	demographic dividend
ECA	Europe and Central Asia region
ECD	early childhood development
EFTA	European Free Trade Association (Iceland, Liechtenstein, Norway, and Switzerland)
EU	European Union
EU-11	Estonia, Latvia, Lithuania, the Czech Republic, Hungary, Poland, the Slovak Republic, Bulgaria, Croatia, Romania and Slovenia
EU-15	Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden, and the United Kingdom
GDP	gross domestic product
GNI	gross national income
HSE	Higher School of Economics
HH	household
ICT	information and communication technology
ILO	International Labor Organization
IMF	International Monetary Fund
LFP	labor force participation
OECD	Organization for Economic Co-operation and Development
PIAAC	Programme for the International Assessment of Adult Competencies (OECD)
PIRLS	Progress in International Reading Literacy Study
PISA	Programme for International Student Assessment
Pp(s)	percentage point(s)
RLMS	Russian Longitudinal Monitoring Survey
SAGE	Study on Global AGEing and Adult Health
TFP	total factor productivity
UN	United Nations
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNPD	United Nations Population Division
WHO	World Health Organization

Executive Summary

Russia's population is expected to age significantly over the next few decades. Declining fertility, increasing life expectancy, and the retirement of the large numbers of people born in the 1950s are expected to reduce the working-age population by perhaps 14 percent over the next 35 years. If there is no change in labor force participation (LFP) rates, Russia's workforce could decline by more than 20 million workers, and the dependency ratio could rise by more than 50 percent.

The coming decline in Russia's working-age population will pose serious social and economic challenges, but it can also open up opportunities. All too often, aging is viewed as a malevolent social force that will depress investment and productivity, disrupt fiscal balances, impose intolerable care burdens on the relatively young, and severely impair the health, finances, and life satisfaction of the elderly. The gloomiest forecasts for the impact of aging generally extrapolate current behavior and institutions onto a future, older society. For example, a lot more elderly people suffering from cancer and cardiovascular disease at unchanged age-incidence rates would overwhelm health care systems. Similarly, a large increase in the elderly dependent population with unchanged lifecycle savings patterns and retirement ages would overburden pension systems. Fortunately, individual behavior does change in reaction to aging – and policies can. Thus, better health services and changes in lifestyle could dramatically improve health outcomes for the elderly and, in conjunction with changes to discourage early retirement, encourage them to work to older ages and ease pressures on financing pensions. The right policies would help Russians achieve longer, more prosperous, and more satisfying lives.

Without adequate adjustments of policies and behaviors, an aging population could impair national growth and fiscal sustainability. Since the early 1990s, increases in the working-age population have accounted for about a third of the growth in per capita GDP. Absent changes in individual behavior and government policies, over the next few decades the rise in the dependency ratio could reduce growth by 2 percentage points (pp) a year. One important channel is savings, which with unchanged, lifecycle-based savings rates could plunge as the population ages. Aging could also substantially increase spending on health care and pensions, leading to protracted deficits that boost the debt-to-GDP ratio from 20 percent of GDP now to over 100 percent by 2050.

These pessimistic forecasts, however, are based on the unrealistic assumption that individuals and government policy will not change. Adjustments to policies and behavior could markedly reduce the impact of aging on savings, LFP, growth, the fiscal accounts, and the incidence of disease. Individuals who expect to live longer could save more and work longer, in anticipation of a longer retirement. An increase in the official retirement age, which is low in Russia by international standards, would encourage longer working lives and reduce the fiscal burden of pensions. The government also could help the elderly to work longer, and improve their productivity, by encouraging firms to introduce age-appropriate management policies (for example, reducing the physical demands of the workplace) and by vigorously enforcing bans on age discrimination. And since poor health is the most common reason for retirement, screening and preventive services, coupled with cutting down on habits that are all too widespread in Russia (smoking, excessive alcohol consumption, poor diets, and limited exercise), could markedly improve the health status of the elderly, again lengthening their working lives and raising their productivity.

Achieving healthy, active, and prosperous aging will require policy changes across a host of areas. Many of the policies required to confront the challenges of aging – such as reducing Russia's high rates of cardiovascular disease and cancer, providing adult workers with the education they need to succeed in a globalized economy, and supporting gender equality to improve the tradeoffs that women face between work and having a family – would in any event improve the economic and physical well-being of Russian citizens, young and old. Population aging makes policy reform more urgent and may affect what issues move to the top of the agenda, but it does not dramatically alter the desirability of individual policies.

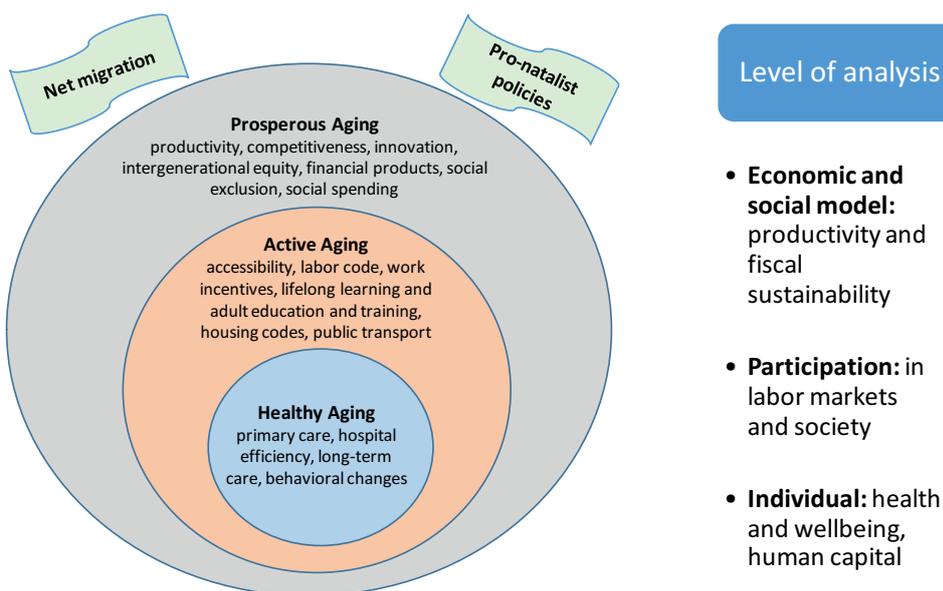
Policies to support women could both limit population aging and increase labor force participation. Demographic trends are primarily determined by the age structure of the population. However, while many Russian families have only one child, most parents would like to have at least two, indicating that there may be some scope for policy to facilitate the attainment of desired fertility. Adequate resources are critical to decisions to have children. However, Russian pro-natalist policies are excessively focused on financial transfers, which tend to affect the timing of births but not the ultimate number of children. And some aspects of these policies, such as extended and partially-unpaid maternity leave, may reduce the attachment of young mothers to the labor force. Inadequate formal childcare options also prevent mothers from returning to the labor market. Providing more stable employment and career opportunities, adequate childcare services, and greater flexibility in work arrangements for women and their spouses could improve their ability to reconcile family and work, thus supporting both higher fertility rates and employment.

Changes in behavior and policy could greatly mitigate the impact of aging on growth and fiscal sustainability. Longer working lives and policies to encourage greater LFP could markedly improve the prospects for growth. For example, raising the official retirement age to 65 for both men and women could significantly improve the impact of the demographic structure on GDP growth, so that demographic change would increase GDP by 0.6 percent for the next 15 years. By 2050, policies to promote LFP, coupled with more optimistic forecasts for demographic trends and natural resource revenues, would reduce the forecasts for pension fund deficits by more than 1 percent of GDP per year and for public debt from about 100 percent of GDP to essentially zero. Modifying the rule for setting aside a portion of oil and gas revenues to guarantee a certain level of savings annually could also help make the fiscal position more sustainable.

Promoting adult education and better age-management human resources policies at the firm level is essential to improve the employment prospects for older workers and raise productivity across the age spectrum. It has recently been found that older workers retain the ability to concentrate and to learn new skills well past retirement age. Improvements in social skills and increased experience tend to compensate for a decline in some other skills, such as mental speed and physical strength. In Russia, however, a lack of opportunities to polish skills and prepare for a second career limits the contribution that older workers can make; it also reduces their incentive to continue working. Less than 30 percent of adult workers participate in either informal or formal training, well below the average of OECD countries and some Eastern European neighbors. Participation by older workers is particularly low. For example, the participation rate of workers over 60 years in continuous professional education (CPE) is less than half that of prime-age workers. Certain age-management strategies, such as deployment of mixed-age teams and workplace adjustments to suit the needs of older workers, can help firms to retain their mature talent and can not only enhance the productivity of older workers but also have spillovers on younger and prime-aged colleagues.

This volume presents research from the World Bank on the impact of demographic trends in Russia. A comprehensive agenda on population aging would encompass three interrelated policy areas aiming at healthy, active, and prosperous aging (Figure 1). It could also include policies aimed at slowing down population aging by raising fertility rates and/or encouraging net migration. The current report is not intended to cover all the aspects of the multi-faceted aging agenda. Instead, in consultation with Russian policymakers and academics, several understudied topics were selected. Some issues, like the reform of health care services and migration policy, were thus left for future research. The first section focuses on the macroeconomic impacts of aging and considers how aging has affected GDP growth and convergence among Russian regions since the early 1990s; it also offers alternative approaches to forecasting the relationship between aging and growth. This is followed by an analysis of the effect of aging on household savings and a discussion of the fiscal implications of aging. The second section, dealing with the relationship of human development outcomes and demographics, discusses how family policies can help women have more children and still attain greater and longer participation in the labor force. Changes in retirement incentives, health services, social protection policies, and the rules governing the labor market that could promote active aging are then considered. The last part of this section addresses the role of adult education in improving Russia's competitiveness and enabling longer and more productive working lives. A final section pulls together the main conclusions.

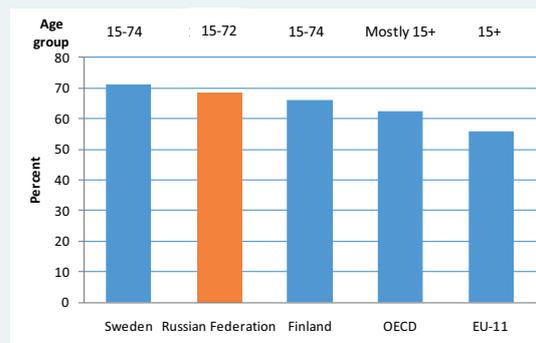
Figure 1. Policy Framework for Healthy, Active, and Prosperous Aging



1. The Macroeconomic Impact of Aging

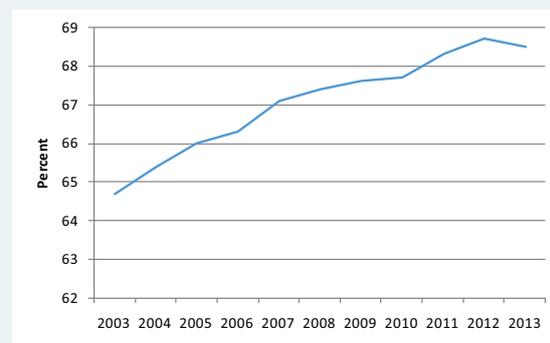
Over the past few decades Russia has benefited from a demographic dividend. During the transition of the early 1990s, the population was predominantly young, the dependency ratio low, and large cohorts of people were entering the labor market. The ratio of the dependent population (aged less than 15 or more than 64) to the working-age population (aged 15 to 64) dropped between 1995 to 2010 by more than 11 percentage points, as the working-age population expanded but total population fell. Many emerging markets experienced an even greater increase in the share of the working-age population and have grown rapidly as a result (see, for example, Aiyar and Mody 2011 and Bloom and Finlay 2009 for South Asia; and Wang and Mason 2008 for China). During the transition to a market economy in Russia, however, the impact of this demographic dividend was swamped by profound economic and political disruptions. Still, demographic trends made a significant contribution to growth after the transition period ended. Since 2000 the rise in the workforce has been boosted by the high and increasing LFP rate (Figures 2 and 3).

Figure 2. Labor Force Participation Rate, Russia and Comparator Countries, 2012



Source: ECA Employment Monitor database: Labor Market Indicators (based on ILO Short-term Indicators).

Figure 3. Trends in Labor Force Participation Rate, Russia, 2003–13



Source: Rosstat data.

The demographic dividend was responsible for about one-third of Russia's per capita GDP growth from 1997 to 2011. To calculate the impact of demographic changes on growth, the historical growth rate was compared with growth estimates generated by an econometric model (Box 1), with the assumption that the age structure had remained constant from 1997 on. The difference between these two scenarios, which equals almost one-third of per capita GDP growth from 1997 to 2011, represents the effect of demographic change on growth. This finding is similar to the estimates for the demographic dividend in East Asia and slightly lower than the estimate of 40 percent for India.

Box 1. An Econometric Estimation of the Impact of Aging on Growth

Econometric analysis can be used to measure the relationship between demographic change and growth across Russia's regions. On the conditional convergence assumption, per capita GDP growth in each region depends on the distance between the level of GDP per capita and a steady-state level, plus a parameter that indicates the speed at which the economy approaches the steady state. This relationship, along with a series of control variables, can measure the impact of the share of the population that is of working age on per capita GDP.

Many different econometric specifications of the model have been explored. In the main one, which follows Aiyar and Mody (2011), the sample is split into five-year time periods. This approach recognizes that demographic variables tend to change slowly, even in Russia, which experienced relatively fast demographic shifts during this period.

The relationship between per capita GDP in the initial period and the growth rate of per capita GDP is negative and significant (see Table B1.1), confirming economic convergence. A 1 pp rise in the working-age ratio, adjusted for migration, increases the growth of GDP per capita by 1.6 percent.

Table B1.1. Estimated Impact of Demographic Trends on Growth (5-year periods)

Variable (in logs)	(1) Panel Estimation Growth in GDP per capita	(2) Panel Estimation Growth in GDP per capita (Adjusted for migration)
Initial GDP per capita	-0.056*** (0.019)	-0.048** (0.019)
Initial working-age ratio	0.190 (0.150)	0.244* (0.139)
Working-age ratio growth	0.993 (0.892)	
Adjusted working-age ratio growth		1.627*** (0.601)
Observations	234	234
R-squared	0.481	0.494
Number of regions	78	78

Notes: Robust standard errors in parentheses.

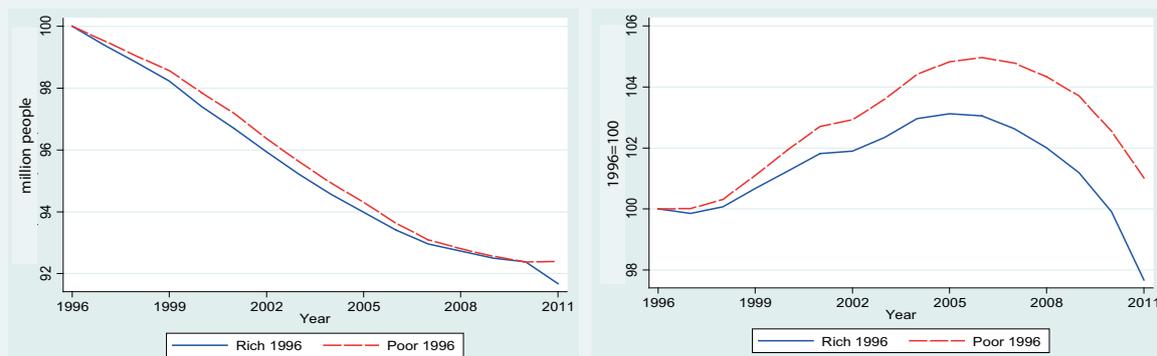
*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Source: Authors' calculations based on Rosstat data.

Since the mid-1990s, demographic trends also have helped to reduce inequality across Russian regions. Regions with per capita GDP below the median of regional averages in 1996 ("poor" regions) grew more rapidly than regions with per capita GDP above the median ("rich" regions). This convergence was in part due to differences in demographic trends: poor regions experienced a larger increase in the working-age population up to 2007, and since the early 2000s a faster drop in dependency ratios compared to rich regions (Figure 4). Using the econometric model described in Box 1, and controlling for differences in economic, geographic,

and institutional factors, the contribution of demographic change to growth in the poor regions from 1997 to 2011 is estimated at 1.7 percent per year, while the corresponding contribution for rich regions was 1.3 percent (Table 1).

Figure 4. Working-age Population in Russia, Poor and Rich Regions, 1996–2011



Source: Authors' calculations based on Rosstat data.

Table 1. Demographic Dividend, 1997–2011

Area	Demographic dividend (DD) (%)	GDP per capita growth (%)	GDP per capita growth net of DD (%)
Russia	1.5	4.9	3.4
Rich regions	1.3	4.6	3.2
Poor regions	1.7	5.1	3.5

Source: Authors' calculations based on Rosstat data.

Russia's labor force is set to shrink. Assuming no sudden changes in LFP rate profiles, Russia's labor force could shrink by 20–23 million workers between 2010 and 2050, based on the Rosstat low and UNPD medium-fertility demographic projections (Figure 5).¹ Some shrinkage of both the younger (aged 15–39) and prime-aged (40–64) labor force is expected in the current decade, with a much more drastic decrease in the 2020s, when Russia is projected to lose more than 7 million younger workers as the small cohorts born during the transition years of the 1990s enter the workforce. Although the prime-aged labor force will still be increasing, the 2020s is to be the first real decade of aging in the labor force, as the median age of workers goes up significantly and the total workforce shrinks by about 5 million people. The massive declines in young workers during the 2020s will reverberate through the age pyramid in the 2030s and 2040s, when almost 10 million older workers are expected to leave the workforce. Although the number of younger workers will go up slightly, by less than a million, in the 2030s, in the 2040s this age group begins to shrink again, reflecting the likely results of the low fertility rate of the 2000s.

In principle, population aging can act as a drag on growth. An aging population can constrain growth through four channels: (1) Aging can reduce the number of workers, which could lower output. (2) The elderly may save less than those of working age, so that population aging could lead to lower savings and thus lower investment. (3) To the extent that the workforce is aging and skills become progressively obsolete, labor productivity may fall. (4) An aging population is likely to increase demands on public resources, due to greater needs for health care and long-

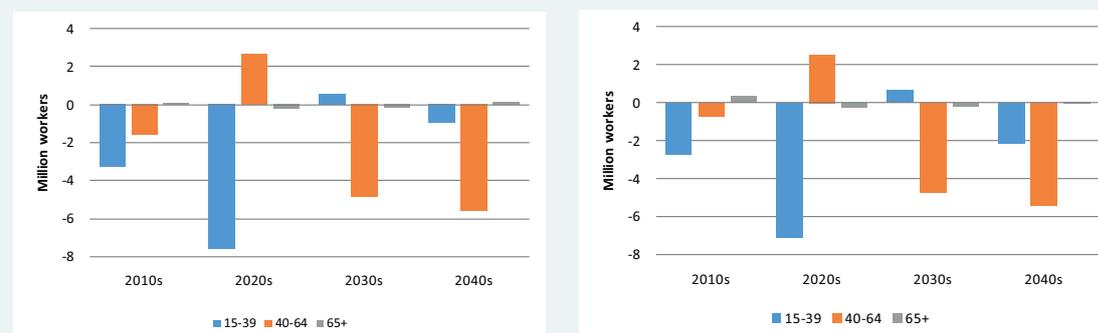
¹ The data on demographic trends for age-gender combinations are from Rosstat and the United Nations Population Division (UNPD); LFP rates disaggregated by age and gender are from the International Labour Organization (ILO).

term care, and because the change in the age structure of the population could have a profound effect on pension revenues and expenditures. The increased burden of spending for an aging population could in turn reduce the resources available for public investment.

Figure 5. The Labor Force in Russia, by Age Group, 2010s–2040s

A. UNPD Medium-Fertility Scenario

B. Rosstat Low Scenario



Source: Methodology from Koettl 2008.

Assuming no change in individual behavior or government policies, population aging could reduce the growth of Russia’s per capita GDP. The past relationship between the increase in the working-age population and the growth in per capita GDP (as calculated above) can be combined

with a forecast of the working-age population to generate a forecast for growth. While in the past the rise in the working-age population helped to boost growth in GDP, in future a decline in that population could constrain growth. Rosstat’s official demographic forecast envisions three scenarios (low, medium, and high demographic), with the contribution of population aging to growth in per capita GDP ranging from a negative 1.5 percent to a negative 2.3 percent (Table 2).² Absent any changes in policy, GDP growth is projected to average about 1.3 percent for 2015–40 for growth in the medium demographic scenario; in the low demographic scenario annual growth is unlikely to exceed 1.0 percent. The demographic burden up to 2030 is actually higher in the high demographic scenario, as most of the additional children enter the labor market only after 2030. In all three scenarios, the dependency rate rises more in poor regions than in rich, so that demographic change may increase inequality between regions (Table 2).

Table 2. The Effect of Demographic Change on Growth in GDP per Capita, 2012–30

Area	Low Demographic	Medium Demographic	High Demographic
Russia	-1.5	-2.0	-2.3
Rich regions	-1.4	-1.9	-2.2
Poor regions	-1.5	-2.0	-2.4

Source: Authors’ calculations based on Rosstat data.

The impact of future demographic change on growth can also be estimated using a standard growth accounting framework (Box 2). Two sets of projections are developed for each of Rosstat’s three demographic scenarios. The first set (scenarios A) projects potential GDP growth assuming adoption of labor market policies to enlarge the size of Russia’s workforce. The second set (scenarios B) projects potential GDP growth without such labor market policies. The policy scenarios are described below:

² UN definitions and data are used for cross-country comparisons but Rosstat data and definitions for Russian regions. Although levels may differ slightly, because the trends and structures are similar in both, they do not make a material difference to the conclusions.

- **Baseline scenario A** – *medium demographic scenario with policy reform*. This scenario assumes a gradual increase in the fertility rate from the current 1.6 live births to 1.9 by 2050 and an increase in life expectancy from 70.0 years to 77.4. The government adopts policy improvements that increase LFP. This scenario also assumes that institutional changes have a moderately positive impact on total factor productivity (TFP) growth.
- **Upper-bound scenario A** – *high demographic scenario with policy reform*. This scenario reflects optimistic demographic assumptions, including the convergence of life expectancy to OECD levels and gradually increasing fertility rates that reach 2.2 live births by 2050. As in the baseline A, this scenario assumes that labor market policies have a positive effect on the workforce and institutional changes have a similar positive impact on TFP growth.
- **Lower-bound scenario A** – *low demographic scenario with policy reform*. This scenario reflects Rosstat's pessimistic demographic scenario, which assumes a decline in the fertility rate from 1.6 live births to 1.4 in 2020–40 and then an increase to 1.5 by 2050. Life expectancy is expected to increase marginally, to 71.2 years by 2050. As in the baseline scenario A, this scenario assumes that labor market policies have a positive effect on the workforce and institutional changes have a similar positive impact on TFP growth.
- **Baseline scenario B** – *medium demographic scenario without policy reform*. This scenario is based on the same demographic projections as the baseline scenario A. However, the government does not adopt any changes to labor market policies or improve the institutional environment.
- **Upper-bound scenario B** – *high demographic scenario without policy reform*. This scenario is based on the same demographic projections as the upper-bound scenario A. However, the government does not adopt any changes to labor market policies or improve the institutional environment..
- **Lower-bound scenario B** – *low demographic scenario without policy reform*. This scenario is based on the same demographic projections as the lower-bound scenario A. However, the government does not adopt any changes to labor market policies or improve the institutional environment.

If there are no changes in policies, aging especially reduces potential GDP growth in 2015–20 (Table 3). A comparison of growth forecasts in the three demographic scenarios provides an estimate of the marginal impact of aging and the fall in the labor force on growth. In the scenarios without labor market reforms – baseline (B), upper-bound (B) and lower-bound (B) – continued structural weakness coupled with negative demographics limit the growth rate of potential output in 2015–40 to 1.6 percent a year in baseline (B), 1.3 percent in upper-bound (B), and 0.9 percent in lower-bound (B). The differences between the growth rates of potential output between scenarios, 0.3 and 0.4 pps a year, reflect more pessimistic assumptions for demographic change. Potential GDP growth looks particularly bleak in 2015–20, with annual average growth forecast to be in the range of 0.4–0.5 percent for all three scenarios. The differences in the growth rate of potential output between the B scenarios rise over time, reaching 0.6 percent in the last decade (2031–40) of the forecast period (potential GDP rises at 2.3 percent a year in the upper-bound scenario, 1.7 percent in the baseline, and 1.1 percent in the lower-bound).

Table 3. Potential GDP Growth Rate, Annual Average, 2015–40

	Scenarios with Policies (A)			Scenarios without Policies (B)		
	Baseline	Upper-bound	Lower-bound	Baseline	Upper-bound	Lower-bound
2015–40	1.68	2.18	1.27	1.29	1.63	0.93
2015–20	0.85 (0.5)	1.07 (0.9)	0.77 (0.3)	0.43 (0.3)	0.50 (0.6)	0.39 (0.2)
2021–30	1.78	2.28	1.47	1.34	1.70	1.07
2031–40	2.00	2.70	1.32	1.67	2.25	1.07

Note: Numbers in brackets indicate the actual GDP projections for 2015–16.

Source: Authors' calculations based on Rosstat data.

The forecasts from both models, which anticipate slow growth due to population aging, depend crucially on the assumption that individual behavior and government policy will not change in reaction to aging. While useful in gauging the challenge that aging may present, this assumption is unrealistic. People do change their behavior in reaction to demographic changes. For example, individuals who expect to live longer may increase their savings or work longer to ensure that they have sufficient resources to support their longer lives. Governments can change the rules governing pensions to ensure their financial sustainability, which will in turn encourage changes in the willingness of individuals to work. Such changes could mitigate or even reverse the expected impact of aging on income. Studies of the effect of population aging on growth in developed economies emphasize the essential role of policy responses related to retirement incentives, investments in health care and education, migration, and flexible labor-force policies in mitigating the negative effects of aging on LFP and economic growth (see Bloom, Canning and Fink, 2008 and 2011; and Kelly and Schmidt, 2005).

Policy reform could have a significant impact on dependency ratios and growth in Russia.

Russia has a relatively low statutory retirement age, currently 55 for women and 60 for men. Increases in the retirement age, which may be entirely feasible given expected improvements in life expectancy, could encourage people to work longer, thus mitigating the impact of aging on growth. Based on the growth convergence model (Box 1), an increase in the retirement age from 55 to 65 for women and from 60 to 65 years for men would sufficiently increase the size of the labor force that demographic change would make a net positive contribution to growth through 2050: based on the growth accounting framework (see Box 2), the higher retirement age would add 2–3 million people to the labor force by 2050. The projections show two main results: (1) The marginal impact on growth of raising the retirement age is similar in all three scenarios, reflecting the similar growth rate of the pension-eligible population. (2) The marginal impact on growth is estimated to be negligible in the early years of the forecast period but more significant later, reaching 0.22 pps a year in the last five years.

Box 2. A Growth Accounting Framework

To forecast Russia's long-term growth, a standard growth accounting framework was applied using a production function. The simulation framework has three main components: a labor force block, a savings block, and a current account block. In the labor force block, the size of the economically active population is estimated based on official demographic projections. In the savings block, gross savings by households, businesses, and the general government are estimated to calculate the aggregate national savings rate. The current account block is estimated using the IMF methodology^a for projecting the long-run equilibrium ratio of the current account to GDP. Fixed capital stock is forecast based on estimates for national savings and the current account. Finally, the labor force

$$d\log(gdp) = 0.352 * d\log(u_k * k_a) + 0.674 * d\log\left(\left(1 - \frac{u}{100}\right) * eap_total\right) + \frac{tfp_g}{100}$$

where

u_k – capital utilization rate

k_a – fixed capital stock

u – unemployment rate

eap – economically active population

tfp_g – total factor productivity growth

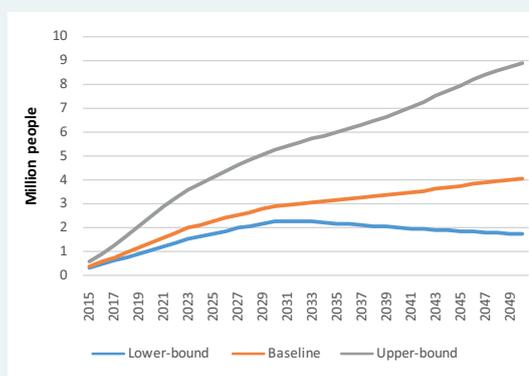
^a Available at <http://www.imf.org/external/np/res/eba/pdf/080913.pdf>

Reforms that could mitigate the impact of demographic change on growth go well beyond changing the retirement age. The Russian government has articulated a number of measures to increase the participation in the labor force of women, youth, and older adults, including developing child care infrastructure, reducing informal employment, and allowing more flexible work arrangements (policies that could improve incentives for older adults to keep working are discussed in detail in the second section of this report). Scenario analysis based on growth accounting can be used to estimate the impact of these reforms. The scenarios also include educational and health reforms that would heighten human capital and productivity, based on calculations using the institutional environments index (IMF 2012)³. The aggregate impact of policies and institutional change on growth reflects impact on both the size of the labor force and TFP. Even with conservative assumptions for the TFP growth rate, the aggregate marginal impact of labor policies and institutional changes is estimated in the range of 0.34–0.55 pp a year, which explains about a quarter of the GDP growth projected for 2015–40. It should be noted that in the baseline and lower-bound scenarios the impact of labor market policies on growth is smaller than the rise in TFP assumed for the scenarios with labor market policies. This has important implications in terms of which policies the government could adopt to push up Russia’s long-term growth potential. In sum, while differing in the assumptions and the magnitude of the impact, both modeling exercises demonstrate that policy changes can do much to limit the adverse impact of population aging on growth.

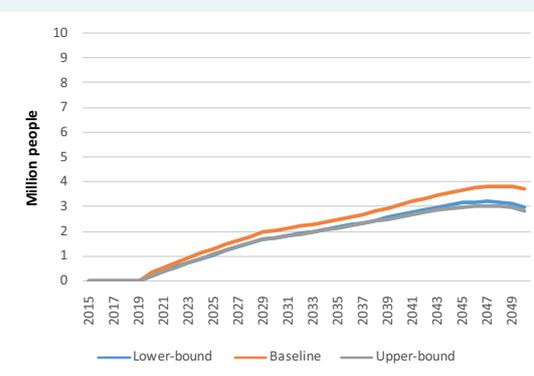
Better labor market policies would have more impact on LFP for the young and the elderly than for working-age individuals. The LFP of both women and men aged 24–55 is already relatively high in Russia, and for women it exceeds the OECD average. Thus, improved labor policies are not likely to raise the economic activity of these groups. It is estimated that better labor policies would increase the LFP of men aged 24–45 by less than 2 pps over the forecast period and by even less for women in this age group. However, economic activity among the elderly and youth of both genders is quite low in Russia. Thus, improved labor policies (without changing the retirement age) would raise the LFP of both females and males aged 20–24 by an estimated 5 pps, and by even more among those aged 55–65. The estimated impact of these improvements on the size of Russia’s workforce would exceed that of raising the retirement age in the baseline and upper-bound scenarios and have a comparable impact in the low scenario (Figure 6).

Figure 6. Labor Force Projections, 2015-50

A. Increase due to Labor Policies



B. Increase due to Higher Retirement Age



Source: Authors’ calculations based on Rosstat data.

³ These scenarios assume there is no increase in the retirement age.

The marginal impact of proactive labor policies on long-term growth is likely to be uneven across the scenarios and could be greater in the early projection decades. The marginal impact of labor policies on growth in the baseline (0.17 pp) and lower-bound (0.11 pp) scenarios over the projection period (Figure 7). Yet, in the upper-bound scenario, the effect of labor policies is almost double the one in the baseline: 0.31 pp. The effect peaks in the first decade of the forecast period and diminishes with time in all three scenarios; convergence to maximum possible LFP rates is expected to be complete by the mid-2030s. For example, in the baseline scenario active labor policies could add 0.21 pps annually to the growth rate in 2015–30, but only 0.11 pps in the last decade of projections. Moreover, in both the baseline and lower-bound scenarios, the policies assumed would not be enough to eliminate the negative contribution of labor to growth – the negative effect of demographics is likely to outweigh the positive effect of labor policies.

Despite the large variation between scenarios in the marginal effect of labor policies on growth, the relative contribution to growth – measured as the ratio of marginal effect in each year to overall growth – is likely to be similar. This suggests that the relative effectiveness of labor policies is likely to be the same regardless of demographic trends. The relative contribution to growth is also estimated to be much larger in the early years of the projection period than in the outer years (Figure 8). This reflects much weaker growth potential in the early years due to the negative contribution of the capital stock to growth. That labor policies would be much more effective in earlier periods is good news for Russia’s policy-makers, given that the output gap for the Russian economy is likely to stay negative for the next decade.

Figure 7. Marginal Contribution of Policies to Growth, 2015-40

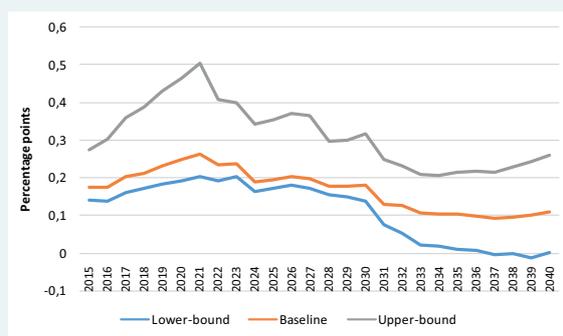
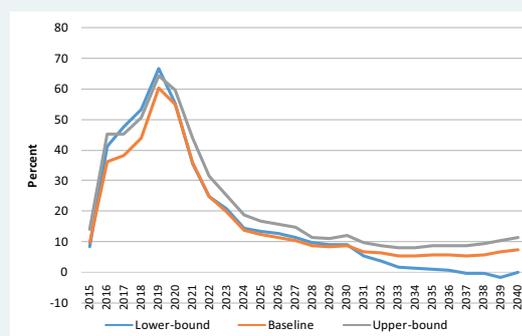


Figure 8. Relative Contribution of Policies to Growth, 2015-40



Source: Authors’ calculations based on Rosstat data.

2. The Impact of Aging on Household Savings

Lower savings by an aging population can reduce growth. One way aging affects growth is that the elderly tend to save less than those of working age. The lifecycle hypothesis (Modigliani and Brumberg 1954) assumes that people smooth their consumption over time by building up assets throughout their working lives and drawing down wealth in old age. A possible implication is that aggregate savings will decline as the elderly share of the population rises, thus reducing the funds available for investment, and therefore growth. Estimating the historical relationship between savings and population aging can provide a useful insight on how aging affects growth.

Estimating the impact of aging on savings requires data that accurately reflect savings. The raw data from the Russian Longitudinal Monitoring Survey (RLMS) show that savings rates actually rise with age, and older households have the highest saving rates; in other words, the life cycle hypothesis does not hold. However, this finding is based on an inappropriate accounting for pension receipts and expenditures. That is, households tend to report pension payments received under any scheme as part of income, even though a substantial fraction actually represents the drawing-down of assets (Deaton 2005a; UN 2009). Meanwhile, young people do not report the contributions employers make to pension plans as part of their income. As a result, household survey data understate both the income (and therefore saving) of the young and the dissaving of the old. Correcting this distortion requires adding employer pension plan contributions to household income, and subtracting the portion of pension receipts that represent the drawdown of assets from household income. However, this is easier said than done (Box 3).

Box 3. Correcting Household Survey Data to Accurately Reflect the Role of Pensions

Two major issues arise in adjusting household savings for pension contributions and receipts: (1) Household survey data generally do not report the fraction of gross pre-retirement income that is used to finance accrued pension entitlements. Imputing these contributions is extremely difficult due to the complexity of the pension system, which applies different rules to certain groups of pensioners and people of different birth cohorts, in part as a result of numerous pension reforms. (2) Classifying the contributions mandated by federal, state, and local government pension and insurance schemes as saving and the pension benefits received from those funds after reaching retirement age as dissaving, is problematic because these flows are required by government rather than reflecting household decisions (Gale and Sabelhaus 1999).

The following two scenarios follow the methodology suggested by Lustig and Higgins (2013): (1) a benchmark case in which pension receipts from any scheme are treated as social transfers, so that no adjustment is made to the survey data; and (2) an alternative in which survey data are adjusted so that pension fund contributions and receipts enter into the savings aggregate – in other words, all pension receipts are considered a drawdown of post-retirement wealth and hence dissaving. The realistic outcome is assumed to fall between the two extremes.

For the second, pension-adjusted case, pension contributions are imputed by estimating the contribution rate that, if applied to all forms of labor income, would balance the pension fund, i.e., the one that equilibrates pension contributions and receipts. Though

given the complexity of the Russian pension system, this method is very rough, it provides a useful starting point. The estimated contribution rate of 24.18 percent closely matches the official insurance premium rate of the Pension Fund of Russia applied to wages below a set ceiling, which was fixed at 22.0 percent in 2012.^a

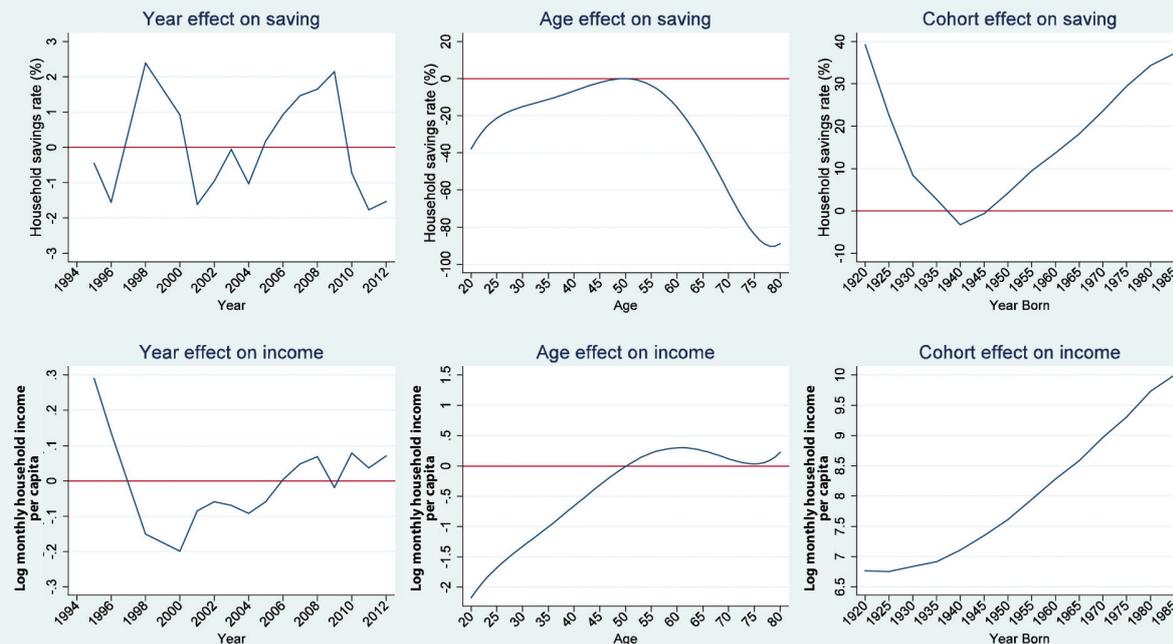
For each household, the net difference between imputed pension fund contributions and observed pension receipts is added to the savings calculation. Due to the imputation method, total pension contributions and receipts balance at the aggregate level, so that total household saving (aggregating across all age groups) is identical in both scenarios. However, in the adjusted case, pension fund contributions enter into the calculation of gross disposable income, which changes the calculation of savings rates for each age group.

^a <http://www.pfrf.ru/rates_premiums/>.

Properly estimated, Russian savings trends are consistent with the lifecycle hypothesis.

Savings based on the data adjusted for pensions are estimated as a function of age, income, cohort effects (differences between age groups that reflect the experiences and preferences of each group, rather than aging), and the business cycle. Savings rates are found to rise with the age of the household head during working-age years, peaking at about age 50 (Figure 9, top panel). By ages 75–80, about 90 percent of all resources available to the household represent a drawdown of accumulated wealth. Individuals born between 1920 and 1940 tend to have lower

Figure 9. Pension-Adjusted Savings Rates and per Capita Income



Note: Savings based on the data adjusted for pensions are estimated synthetic data regression controlling for birth cohort with year and birth control dummies and polynomial in age.

Source: Authors' calculations based on RLMS-HSE household survey data and UNPD population projections for the Russian Federation as of 2012.

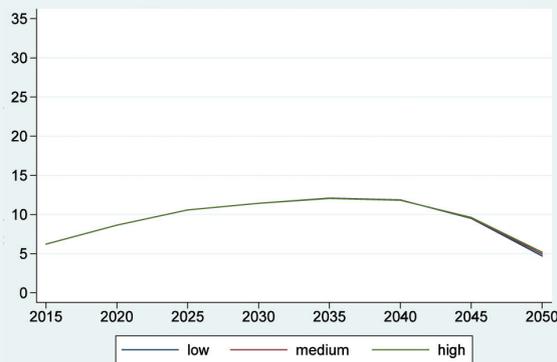
savings, while savings rates seem to be higher for each successive cohort born after World War II. In short, after controlling for other influences on savings particularly cohort effects, savings rates tend to rise during middle-age working years and decline after retirement.

Projections of the impact of population aging on savings rates depend on assumptions about demographic change. Forecasting savings rates over 35 years requires assumptions about future demographic changes that are extremely uncertain. It is therefore useful to present scenarios for changes in savings rates that reflect different assumptions for population growth and cohort effects (that is, behavior of cohorts born in the future that is unrelated to aging)⁴. The former are based on adopting the Rosstat low, medium, and high population scenarios. These assumptions have only limited impact on the savings rates forecast, which differ by only a few percentage points from the low to high scenario (Figure 10).

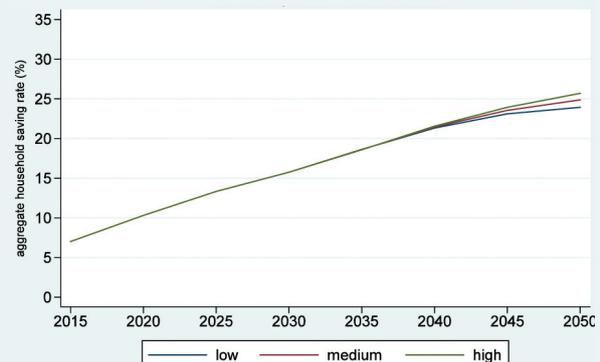
By contrast, the assumptions made for the savings preferences of future cohorts have a very significant impact on the projected savings rate. On the one hand, it might be assumed that all future new-born generations have the same cohort effect on savings as that estimated for the youngest cohort observed in the data. In that case, savings are projected to decline as the Russian population ages, so that the savings rate forecast is hump-shaped (Figure 10A). The aggregate household savings rate is expected to increase up to about 2030. As the share of older age groups rises thereafter, the projected savings rates flatten until 2040 and then decline. Given the high rates of dissaving in old age, the projected decrease in the aggregate savings rate is most pronounced in the low population growth scenario, in which the elderly constitute the largest population share. An alternative assumption is that the cohort effect on savings in future generations follows the increasing trend shown in the historical data. In that case, the aggregate household savings rate increases throughout the forecast horizon (Figure 10B).

Figure 10. Pension-Adjusted Savings Rates under Different Population Growth and Cohort Effect Assumptions, 2015-50

A. Future cohort effect is constant



B. Future cohort effect is increasing



Notes: In panel A, cohort effect for future cohorts is set based on the cohort effect for the youngest cohort observed in the data. In panel B, cohort effect for future cohorts is extrapolated based on the increasing historical trend.

Source: Authors' calculations based on RLMS-HSE household survey data and UNPD population projections for the Russian Federation as of 2012.

⁴ Since large differences in the savings behavior of household heads with different levels of education were not seen, and since general equilibrium effects complicate forecasts for the future accumulation of human capital, the scenario analysis is based on the coefficients estimated for the total population. The analysis also abstracts from business cycle fluctuations, i.e., the time effects are set to zero, so that any projected trend in savings rates is given by the combination of age and cohort effects.

It is important to take these forecasts with many grains of salt. The methodology relies on the validity of the life cycle hypothesis, even though Deaton and Paxson (2000) conclude that not all time trends in savings ratios can be fully explained within the lifecycle framework. Also, the forecasts are based on microeconomic data that are not strictly comparable to macroeconomic measurements of savings from national income accounts, both because of inconsistencies between the consumption data from these two sources (see Ravallion 2003; Deaton 2005b; Bourguignon 2015) and because the data are limited to households, while aggregate savings also reflect decisions by firms and the government. The analysis of household saving behavior can at best explain only about one-third of the change in total aggregate saving in Russia. Finally, and most soberly for Russia's prospects, future institutional changes can have major impacts on saving behavior. Population aging is likely to increase pressures to reduce the generosity of the pension system. This would result in households further reducing their savings in old age, which could significantly reduce the supply of savings in the Russian economy.

3. The Fiscal Implications of Aging

Demographic aging affects the size and composition of fiscal expenditures and revenues.

Aging can directly increase demand for publicly provided goods and services like health care and long-term care. It can also increase claims on transfers like pension benefits. Aging also directly affects revenues: the source of an individual's income, and therefore the size of the tax base, typically changes during the life cycle. For example, an increase in the share of retirees (with tax rates unchanged) in the population may change the amount of taxes on wages compared to unearned income. Aging can also affect the fiscal accounts indirectly, by changing the aggregate level of income, which in turn affects expenditures and revenues. For example, if aging is associated with a rise in per capita income, then demand for health care services will also increase, as those are normal goods. While not greatly affected by aging, an analysis of the prospects for fiscal sustainability in Russia also needs to reflect the evolution of natural resource revenues, which accounted for almost one-third of the country's revenues in 2014.

Revenues from nonresource sectors are expected to increase relative to output.

Nonresource revenues are likely to rise faster than nonresource GDP. Income elasticity is greater than 1 for nontax revenues and indirect taxes due to greater tax collection efforts and reductions in informality, and for income taxes because in a progressive tax system higher incomes generate an increase in marginal tax rates. In the baseline scenario, nonresource fiscal revenues increase from about 28 percent of nonresource GDP in 2014 to 32 percent by 2050. In comparison, fiscal revenues reach 30 percent of nonresource GDP in the pessimistic and 36 percent in the optimistic boundary scenarios (Box 4 defines the three scenarios).

Box 4. Scenario Analysis

Even if many components are uncertain, a scenario approach is useful in projecting Russian GDP. This analysis gives three alternative demographic indicators (total population, age composition of the population, and labor force), three scenarios for labor productivity, three oil and gas price forecasts, and two labor policy scenarios, for a total of 54 alternative GDP forecasts. As it is not feasible to discuss all the scenarios individually, and to avoid an arbitrary mapping between different variables, the analysis here aggregates all scenarios to focus on a baseline, an optimistic boundary, and a pessimistic boundary, defined as follows:

- **Baseline:** medium variants of forecasts for demographic variables, labor force, labor productivity, and oil and gas prices, but no government policies that boost labor force participation (LFP).
- **Optimistic boundary:** high variants of forecasts for demographic variables, labor force, labor productivity, and oil and gas prices, and government policies that boost LFP.
- **Pessimistic boundary:** low variants of forecasts for demographic variables, labor force, labor productivity, and oil and gas prices, and no government policies that boost LFP.⁹

Simulations show a gradual slowdown in GDP in the long run. In the baseline scenario, non-oil GDP growth rises to 2.3 percent by 2018 and then gradually declines to 1.6 percent a year over the long term, mainly reflecting a more pronounced fall in the labor force in the outer years.^b The optimistic boundary envisages long-term growth of about 2.7 percent and the pessimistic boundary 0.4 percent a year. Policies that encourage greater LFP prove to be effective in boosting GDP: by 2050, the rise in the labor force increases GDP by about 6 percentage points compared to the baseline scenario. This gain exceeds the positive effects of higher oil prices.

Monte Carlo simulations with stochastic shocks in the growth of labor productivity and oil prices are used to determine the likelihood of alternative scenarios (the demographic trend is kept at the baseline values). Allowing 500 draws from identically and independently distributed shocks over time, the simulations form confidence intervals around the baseline scenario. For example, in 2050, GDP per capita is expected to be between \$22,000 and \$29,000 90 percent of the time.

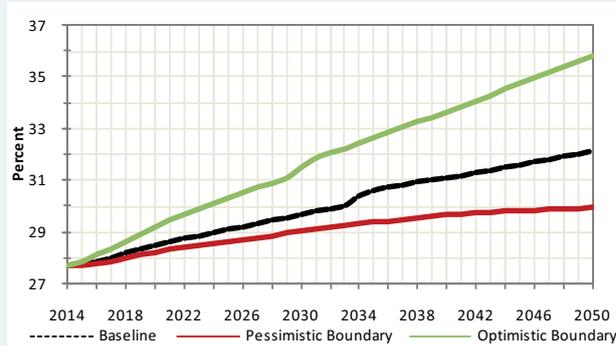
^a Note that a low demographic scenario could be associated with greater per capita income because the old-age dependency ratio is greater in the high demographic scenario. However, this selection is still relevant for considering the fiscal implications of aging.

^b A recent study by the Gaidar Institute (Goryunov et al. 2013) performs a similar projection, and the GDP growth rate has a similar downward trend.

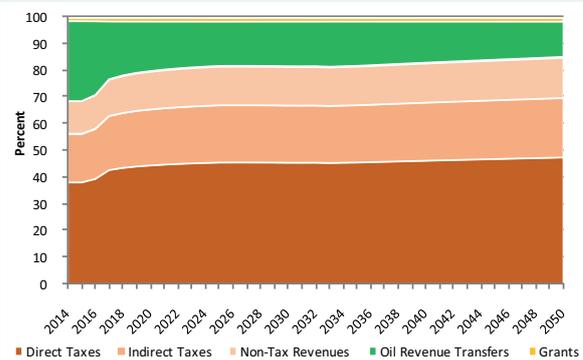
The share of natural resource revenues in total fiscal revenues is projected to fall. Based on World Bank and IMF forecasts, this analysis assumes that between 2014 and 2050 oil production gradually decreases from 520 million to 436 million tons, while natural gas production increases from 670 billion to 810 billion cubic meters. The price of oil is projected to stabilize over the long term at \$105 a barrel in the baseline scenario.⁵ As a result, although rising, natural resource revenues fail to keep pace with the growth in nonresource revenues, and the share of natural resources in fiscal revenues drops from about 30 percent in 2014 to 14 percent by 2030 (Figure 11).

Figure 11. Baseline Trajectories and Projection Boundaries: Revenues, 2014-50

A. Non-Resource Revenues as Share of GDP



B. Decomposition of Tax Revenues



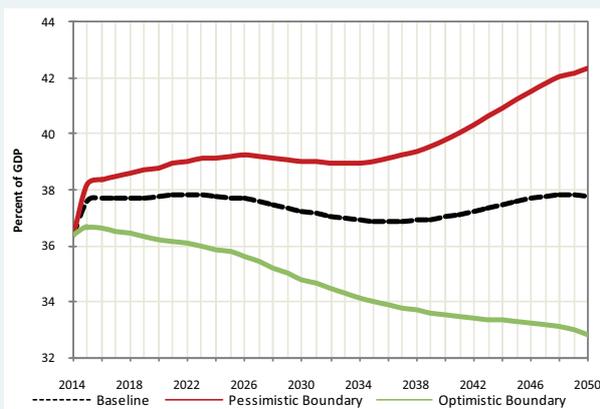
Source: Authors' calculations based on Rosstat and IMF data.

⁵ The optimistic scenario, which exhibits medium-term behavior close to U.S. Energy Information Administration projections, suggests a gradual increase and stabilization at about \$122 a barrel. The pessimistic scenario, which is similar to IMF projections for the medium term, envisions a decline to \$69 a barrel.

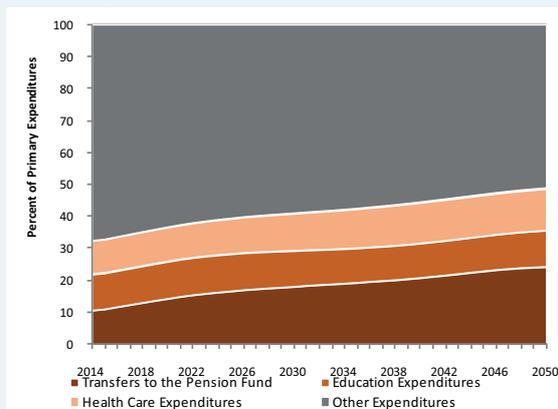
Expenditures that are sensitive to demographic changes are forecast to rise. By 2050, the government's noninterest expenditures are expected to increase from 36.7 percent of GDP in 2014 to 37.8 percent in the baseline and 42.3 percent in the pessimistic boundary, although they decrease to 32.8 percent in the optimistic boundary (Figure 12). In the baseline, efficiency gains are assumed to reduce spending that is not related to the age composition of the population. Thus, the increase in primary spending is mainly driven by demography-related expenditures,⁶ which rise from about 32 percent of the total in 2014 to 49 percent by 2050 (Figure 12). The share of education spending remains stable as rising incomes increase demand, but the number of youths changes little over the forecast period. The share of health care spending increases by about 3 pps due to increased demand from both rising incomes and aging. However, the largest demography-related increase in public spending consists of transfers to the pension fund, the share of which in noninterest expenditures rises by about 14 pps through 2050, or from about 4 percent of total revenues to 8 percent or more in the three scenarios.⁷ The differing paths of pension fund deficits over time reflect the interaction between GDP levels and old-age dependency ratios. The optimistic boundary has the highest GDP and the highest old-age dependency ratio of the three scenarios. In the 2030s, these two factors result in a higher pension fund deficit than under the pessimistic boundary. By 2050, however, the impact of increasing GDP dominates, and the optimistic boundary has the lowest pension fund deficit as a share of GDP.

Figure 12. Baseline Trajectories and Projection Boundaries: Primary Expenditures, 2014-50

A. Primary Expenditures



B. Primary Expenditure Decomposition (Baseline)



Sources: Authors' calculations based on Rosstat and IMF data.

All told, the rise in noninterest expenditures exceeds the increase in revenues, leading to protracted primary (noninterest) deficits in coming decades. In the baseline simulations, the long-term primary deficit is expected to widen to 3 percent of GDP (Figure 13A). In the optimistic boundary, the deficit goes up to 1.1 percent of GDP in the medium term but then gradually narrows to a surplus in the second half of the projection period. In contrast, in the pessimistic boundary the primary deficit rapidly deteriorates to 6 percent of GDP and ultimately reaches 9 percent by 2050.

Persistent fiscal deficits would push up public debt dramatically. The overall balance (which includes interest payments) is projected to remain at about 4 percent of GDP throughout the baseline forecast. The interest rate on Russia's debt is well below the rate of GDP growth.⁸

⁶ Demography-related expenditures are expenditures for education, health, and transfers to Pension Fund.

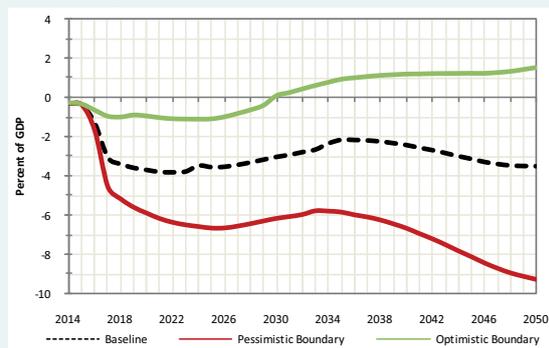
⁷ Russia has recently reformed its pension system. However, at the time this report was prepared, specific details of the reform were not available. Thus, projections may vary if repeated with the new system parameters.

⁸ Since the simulations assume 1 percent real interest rate on domestic debt and 1.2 percent on external debt, well below the 2.5 percent annual growth of GDP in the baseline, the debt burden assumptions are rather conservative.

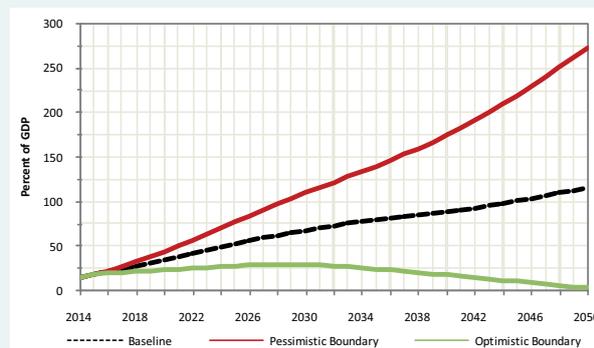
Nevertheless, persistent deficits drive an increase in the public debt-to-GDP ratio in the baseline from less than 20 percent in 2014, when Russia was one of the least-indebted countries in the world, to 116 percent by 2050 (Figure 13B). Public debt falls to just 0.3 percent of GDP in the optimistic boundary but shoots up to 272 percent in the pessimistic boundary.

Figure 13. Fiscal Sustainability Indicators , 2014-50

A. Primary Balance



B. Debt Stock



Sources: Authors' calculations based on Rosstat and IMF data.

Changes in the forecast of the price of oil have the largest impact on debt-to-GDP ratios.

Switching from the baseline to the optimistic boundary assumption would reduce the ratio by 16.8 pps because of labor productivity, 24.9 pps because of labor market policies, and 43.3 pps because of the oil price (Table 4). Changing oil prices has the largest impact on debt-to-GDP ratios because oil price movements have a more direct effect on fiscal revenues than other changes. Higher productivity and adoption of successful labor market policies also increase revenues, because nonresource GDP is higher, but also heighten demand for public spending. By contrast, oil prices have little impact on spending, so the net improvement in fiscal balances is greater than for the other two variables.

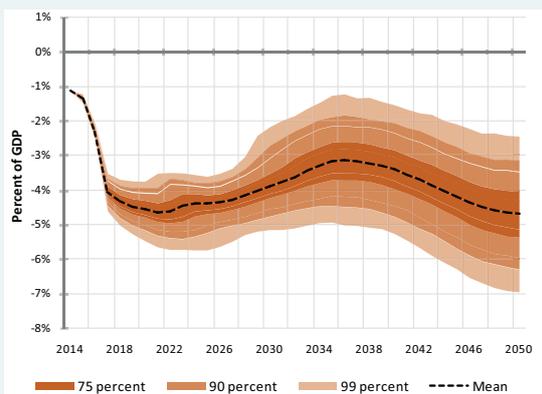
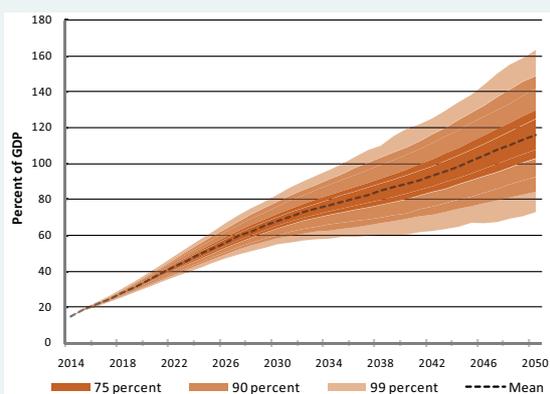
Table 4. Marginal Impact of Alternative Scenarios on the Baseline Debt-to-GDP Ratio^a

	Labor Productivity Effect		Oil Price Effect		Labor Market Policy Effect
	High	Low	High	Low	Moderate Policy
2020	-0.9	1.1	-8.5	7.0	-1.4
2030	-3.9	4.3	-21.8	29.3	-7.4
2040	-9.1	9.7	-33.8	50.8	-14.7
2050	-16.8	18.9	-43.3	70.4	-24.9

^a Percentage points deviation from the baseline scenario debt-to- GDP ratio.

Source: Authors' calculations based on Rosstat and IMF data.

Monte Carlo simulations show that the debt-to-GDP ratio is likely to deteriorate significantly. Based on 500 draws from identically and independently distributed shocks over time, the simulations calculate confidence intervals around the baseline scenario. By 2050, the overall deficit lies between 6.1 percent and 3.1 percent of GDP 90 percent of the time (Figure 14). The public debt-to-GDP ratio is expected to be about 83 to 146 percent, with the same probability.

Figure 14. Overall Fiscal Balance and Debt Stock, Trajectories and Confidence Intervals, 2014-50**A. Overall Balance****B. Debt Stock**

Sources: Authors' calculations based on Rosstat and IMF data.

The current fiscal rule will not generate the savings required to cope with aging. In 2012, the Russian government introduced a new fiscal rule to reduce the volatility of spending and, in principle, save a portion of resource revenues for future use. Public spending from natural resource revenues is capped by a hypothetical earnings level based on a backward-looking benchmark price. Thus, when the oil price is higher than the historical average, a portion of the natural resource revenues is saved. When the oil price is lower than the historical average, a portion can be spent. This rule works well in dampening price-induced volatility in public spending, especially if prices have not been falling for more than three consecutive years. However, the current rule will not generate enough savings to meet the future needs of an aging society. Simulations with alternative price trajectories show that increases in oil and gas revenues could boost savings in the sovereign wealth funds. On the baseline assumptions, the Reserve Fund's assets reach the ceiling (7 percent of GDP) by the middle of the forecast period, and the National Wealth Fund's assets rise slightly as a share of GDP over the projection horizon. However, even if there are no withdrawals for other purposes from the National Wealth Fund, its portfolio will fall far short of what would be required to finance the widening deficit in the pension fund budget. The entire savings in this fund would be exhausted in financing the deficit for a single year. Changes in the fiscal rule to guarantee a certain level of savings annually (as Chile does) could ensure adequate savings in future and help finance the short-term costs of reforms to build a more sustainable fiscal position.

Achieving long-term fiscal sustainability against unfavorable demographic trends will require targeted reforms – which can be costly. Because the fiscal problems led by aging are structural. Their permanent solutions need to be structural as well. Among such solutions are labor market policies that induce greater LFP, adjustments in retirement age and contribution rates, and steering of the pension system from unfunded to funded components. Simulations show that policies to raise LFP can cut about a quarter off the new debt. However, such reforms themselves can add to the fiscal burden. The important point is that a relatively small extra burden in the short and medium term may be desirable if it helps to avoid a much larger burden in the long term.

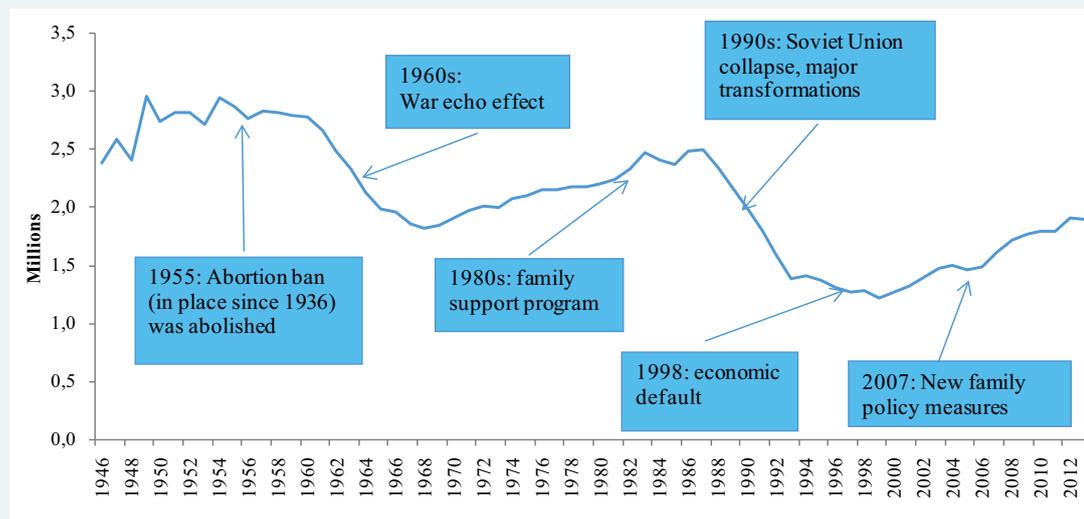
Prompt action can avoid the projected deterioration in the fiscal outlook generated by aging demographics and structural transformation. The Russian government has the fiscal space to build up buffers for future imbalances. Over the last 15 years, except in 2014, rising oil

prices, tax reforms, and fiscal discipline, especially in the early 2000s, facilitated a substantial reduction in Russia's public debt. For the last 10 years its debt-to-GDP ratio has remained low, and adjusted net savings, an indicator of long-term economic sustainability, have risen. In 2012, Russia's adjusted net savings were equal to 13.7 percent of gross national income (GNI), close to the average level in countries with similar levels of income. Russia has room to adjust the current fiscal rule so as to accumulate the resources required to stabilize the economy in the short and medium term, finance policy reforms, and cope with long-term fiscal pressures.

4. Aging and Policies to Support Families

The coming decline in births underlines the importance of policies to support families who want more children. The increase in births in the early 2000s was mainly due to the favorable age structure, which in turn resulted from high fertility rates in the mid-1980s. Figure 15 provides a snapshot of fertility patterns over time in Russia. After 2014–15 the number of births is likely to begin declining, for four reasons: (1) The number of women of peak reproductive age (20–29) has begun to decline and by 2025 is expected to fall to almost half its 2010 level (Figure 16), and the number of marriages for women aged 18–34 has already begun to decline. (2) Russia is nearing the end of the fertility transformation, where the frequency distribution of births occurs at later ages (already, the age group with the most births has shifted from 20–24 to 25–29), while recovery of births postponed in the transition years has been relatively low. (3) The boost to fertility rates that followed introduction of pro-natalist policies in 2007 is expected to fade. Indeed, of people who had children after the pro-natalist measures took effect, only 6 percent felt the measures helped them to have a child they could not otherwise afford (57 percent felt the measures had no effect, while of those who thought they did, almost 75 percent thought they affected only the timing of births).⁹ (4) The 1980s cohort, whose peak fertility coincided with the introduction of the pro-natalist measures, were more likely than later cohorts to come from families with two or more children and thus more likely to be responsive to incentives to have more children.

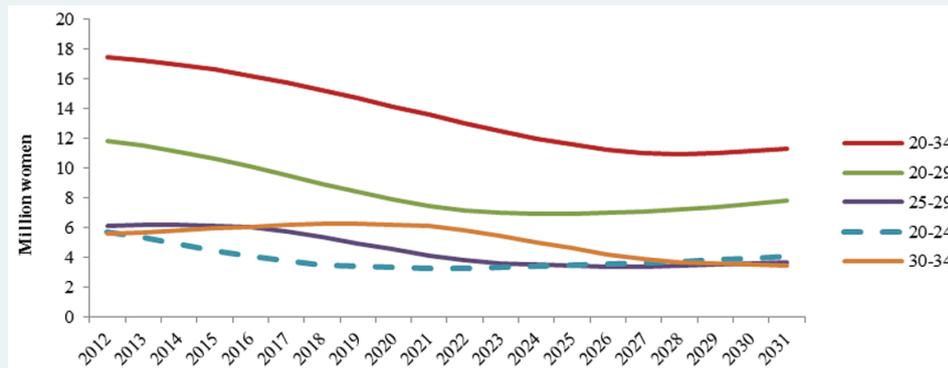
Figure 15. Births in Russia, 1946–2013



Source: Rosstat.

⁹ While the degree of the perceived effect of the policy measures increases with more children, the effect on timing always dominates that of stimulation of additional births.

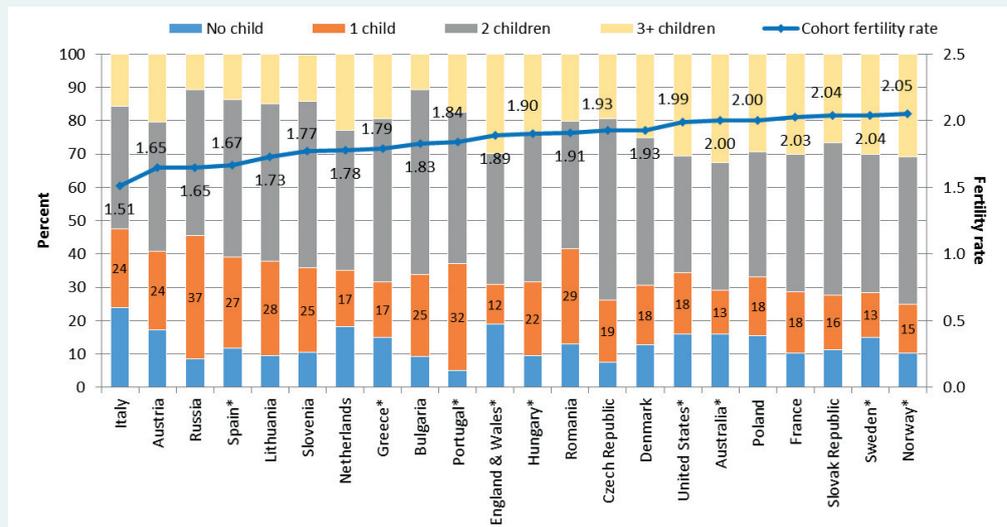
Figure 16. Russian Women of Peak Reproductive Ages, by Age Group, 2012-31



Source: Demographic forecast through 2030:
http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/population/demography/#.

Childlessness and delayed childbearing are still relatively rare in Russia. Whereas the share of childless women is high in countries like Italy, England, and Netherlands, the share of childless women is relatively low in Russia (Figure 17): according to the 2010 Census, only about 6 percent of women whose years of fertility were behind them had no biological children. Moreover, in Russia and other post-communist countries, postponement of childbearing started later than in Western Europe, and thus the average age at first birth is lower than in many European countries. According to United Nations Economic Commission for Europe, the average age at first birth in Russia was 24.6 years in 2009, compared to more than 28 in most Western European countries. Hence, in Russia childlessness and delayed childbearing do not seem to be fundamental causes of low fertility.

Figure 17. Parity Distribution and Achieved Fertility Rates, Selected European Countries, 1965 or Latest Available Cohort



Note: Cohort fertility rate refers to the number of children actually born per woman in a cohort of women by the end of their childbearing years.

* Cohort data other than 1965: Australia (1962–1966); England and Wales, Sweden (1960); Greece, Portugal, and Spain (1963); Hungary (1964); Norway (1953); and United States (1953).

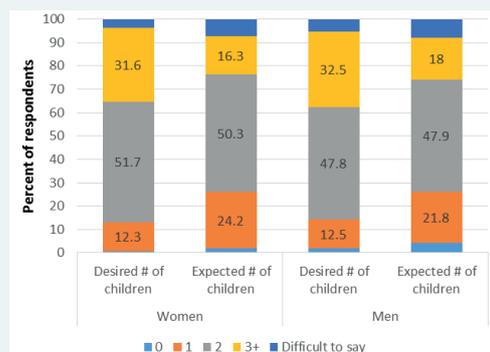
Source: Frejka 2008 and Greulich et al. 2014.

The main driver of low fertility in Russia is the prevalence of one-child families. In 2010, more than two-thirds of Russian families had only one child. Comparing achieved fertility of the 1965 cohort across countries in Figure 17, Russia has the highest share of one-child families (37 percent of all families) and the second-lowest share (above only Italy's) of multi-child families (55 percent). As the propensity to have a second and subsequent child seems to distinguish low-fertility from high-fertility countries (Greulich et al. 2014), low prevalence of multi-child families seems to be a driver of Russia's low fertility rate.

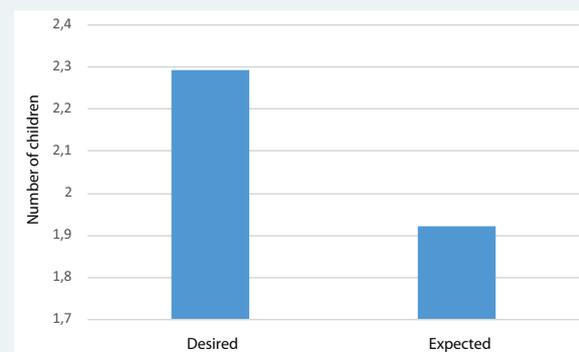
Nevertheless, most Russians want two children. According to a 2012 survey,¹⁰ only about 12 percent of women and men want to have a single child (Figure 18A). Slightly more than half of the women (51.7 percent) and 47.8 percent of men would like two children, provided they have adequate resources (housing, finance, and time). However, when asked about the expected number of children, 24.2 percent of women and 21.8 percent of men think that they will have only one. The difference between average children desired (2.29) and average expected (1.92) defines the gap between actual and potential fertility in Russia (Figure 18B). These preferences also indicate that striving to push fertility beyond two children will be difficult.

Figure 18. Fertility Desires and Expectations of Russian Men and Women, 2012

A. Distribution of Desired and Expected Number of Children, 2012



B. Average Desired and Expected Number of Children, 2012



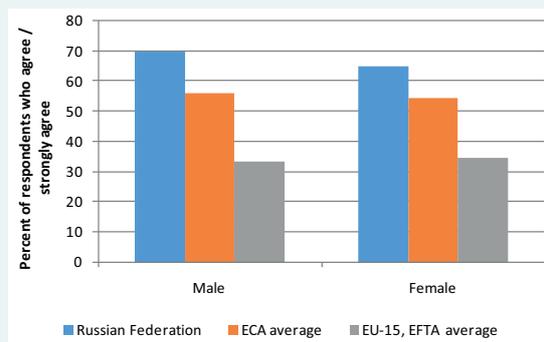
Source: Rosstat 2013.

Russian women face a trade-off between motherhood and work, with strong normative pressures to put family first. Desire for a professional career or a need to contribute to household income can raise the opportunity cost of having children, especially when work and family are difficult to reconcile. A woman with one child has sufficient information on the sacrifices involved in motherhood and the ability to combine work and family, can have a significant effect on her desire to have a second child. In Russia, care obligations impair women's ability to combine family and career. According to the 2008 European Social Survey, about 66 percent of women and almost 70 percent of men agreed or strongly agreed with the statement: "Women should be prepared to cut down on paid work for sake of family" (Figure 19), while in EU-15/EFTA (the European Free Trade Area) about 33 percent, and in ECA countries less than 60 percent of respondents agreed with that statement. Given shortages of accessible childcare, many employed Russian women – between a quarter and a third, depending on the age group – work less than they would prefer due to family care obligations – a much higher share than in EU-15/EFTA countries and higher than the ECA average for women above 35 years.

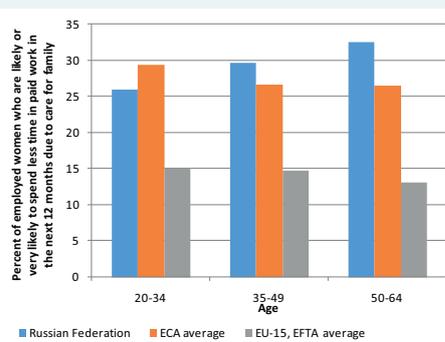
¹⁰ Rosstat conducted a reproductive assessment survey in September–October 2012. For results, see Rosstat 2013.

Figure 19. Care Obligation Norms in Russia

A. Agreement with “Women should be prepared to cut down on paid work for the sake of family”



B. Reported likelihood of spending less time in paid work for care-related reasons



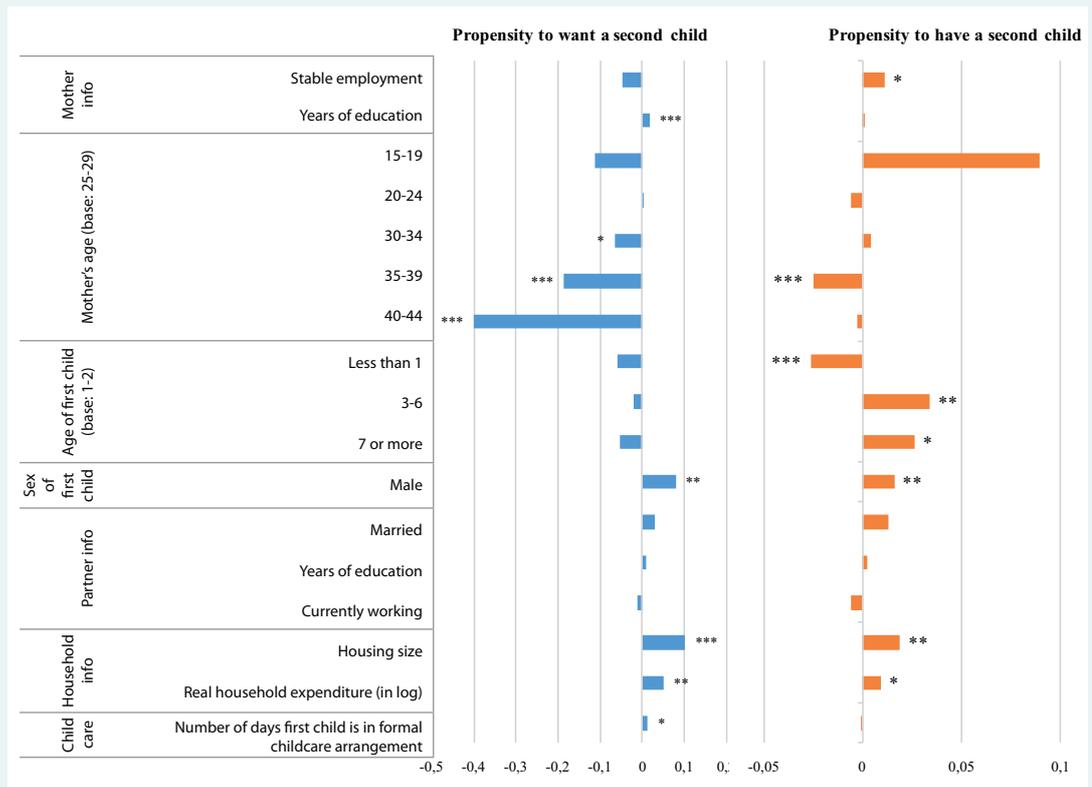
Source: European Social Survey 2008 data.

For Russian women stable employment and access to formal childcare are positively associated with aspirations and realizations of second-order births. Controlling for other correlates of fertility, being in stable employment is associated with a significantly higher probability of having a second child (Figure 20). A larger housing area, higher household expenditures, and having a first child who is male and aged 3 or older are all correlated with a higher likelihood of having a second child; having a newborn first child and being 35–39 years old is associated with a lower probability of a second child. In terms of fertility aspirations, better-educated mothers, those with more resources, and those whose first children attend formal daycare more often are more likely to want a second child.

Since 2006 Russia has introduced a series of pro-natalist policies. From the start, the emphasis was squarely on increasing second births. Major policy changes passed in 2006 and implemented in 2007 included larger childcare benefits (paid up to 18 months after birth), subsidies for preschool education, increasing the face value of “maternity certificates” for prenatal and infant care, introducing a substantial financial transfer (maternity–or family–capital) for a second child, extending monthly child benefits to nonworking women and paying more for the second and subsequent child, and paying higher kindergarten subsidies for children after the first. In 2008, ad hoc indexation of family support measures was replaced by a regular inflation indexation mechanism for social benefits and payments. Child-related tax deductions also became differentiated according to the birth order of the child. The federal programs were complemented by varying levels of regional family support policies, with their generosity dependent on available funds rather than the severity of the demographic crisis. However, in 2013, 50 regions with unfavorable demographic situations and total fertility rates below the Russian average received up to 90 percent cofinancing from the federal budget, with the cofinancing to be reduced to 50 percent by 2018.

Several other federal policies have attempted to improve the tradeoff between work and family, with varying degrees of success. Childcare benefits were extended to fathers in 1996, and fathers are entitled to maternal (family) capital in case of the mother’s absence. While the employment rights of pregnant women and mothers with young children are protected by Russian law, these laws are rarely enforced, with courts often dismissing claims of unfair and discriminatory treatment (World Bank 2014). Firms are given incentives to hire workers from large families. Mothers returning to work are given free training (about 23,000 women took

Figure 20. Fertility Aspirations and Realizations and Sociodemographic Characteristics



Note: The length of the bar represents the estimated marginal effect in the probit regression. The stars signify statistical significance of the relationship: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Source: Authors' calculations based on RLMS-HSE household survey data.

advantage of this in 2012-13), and there has been some improvement in access to preschool facilities, although the extensive system of extracurricular activities for children that existed in the Soviet Union was largely destroyed in the 1990s.

Russia's pro-natalist policy package is too focused on financial transfers. Russia's policies emphasize financial assistance for families with young children (aged up to 18 months) and securing mothers' jobs through a generous maternity leave mandate. As a result, many mothers of 18-month-olds have to remain on unpaid maternity leave after joining a long queue for a space in a public kindergarten. By focusing on cash transfers and encouraging mothers to stay at home to care for children, Russia risks following Germany, which struggles with a very low fertility rate despite its high investment in lump-sum grants and tax incentives for married couples with children (Greulich et al. 2014). By contrast, Nordic countries focus on supporting working parents of small children through expansion of childcare facilities and reliance on short but generously paid parental leave, including for fathers to encourage them to share childcare duties (Thévenon 2011). These countries have seen a resurgence of fertility since the mid-1980s (Ronsen 2004).

A more comprehensive approach is necessary to raise fertility. While the age structure of the population is the most important determinant of fertility, policies can help create an enabling environment in which families can achieve their fertility intentions without sacrificing their living

standards or raising their vulnerability to shocks. Financial transfers could support the living standards of low-income families with children. Promoting greater gender equity within families and in workplaces could improve the balance between work and motherhood for women (Billari 2008). Such policies might include provision of parental leave to fathers to encourage their greater involvement in childcare, and reduction of the gender pay gap by enhancing women's work-related skills, removing legal and normative obstacles for women to enter occupations traditionally reserved for men, introducing quotas to help women break through the glass ceiling, and sponsoring public awareness campaigns to reduce gender stereotypes (World Bank 2014). Moreover, given the observed positive association between GDP growth and growth in births in recent decades, policies to keep the economy stable can provide Russians with favorable conditions for starting and expanding families.

Supporting stable employment of both mothers and fathers is important for raising fertility.

Policies improving labor market conditions for young parents (or potential parents) can reduce the uncertainty and instability that discourages having children. Indeed, high unemployment rates seem to contribute to postponement, and eventually, to reduction, of second-order births (Adserà 2011). Providing sufficient opportunities for updating skills and retraining can improve both the employability and earnings of parents, relaxing the immediate financial constraint on having additional children and reducing the family's vulnerability to future shocks. Child-related income tax deductions can encourage mothers to return to the workforce and support disposable family income. Tax exemptions have had a positive effect in the United States (Georgellis and Wall 1992), Canada (Zhang et al. 1994), and Taiwan (Huang 2002). To make such deductions more effective in stimulating fertility and female LFP, their coverage can be expanded by switching from the current ceilings on each individual salary to a higher household-level threshold, so that more households would be eligible. Moreover, information campaigns could raise awareness of the availability of child-related income tax deductions, and tax preparation assistance can be provided to families with two or more children. Finally, reducing the length of maternity leave should be considered: excessively long maternity leave can reduce the probability of returning to the labor market due to a depreciation in skills.

Making quality childcare more available can help women to combine motherhood and work.

There is robust evidence that improved childcare coverage can have a positive effect on the probability of first and higher-order births (for example, Baizán 2009 for Spain; Del Boca et al. 2003 for Denmark, Italy, Netherlands, and Spain; Bauernschuster et al. 2013 for Germany). Long waiting lists for public kindergartens in Russia and lack of options for private childcare create difficult obstacles for mothers who would prefer to return to work but whose children are young. Better regional government utilization of demographic projections would allow for appropriate planning of kindergarten facilities, including construction of new spaces or expansion of existing facilities. Innovative approaches to building design and use, as well as regulatory reform, can support the creation of more efficient multi-use facilities that can also enable the preschool system to adapt to future demographic fluctuations. Increased support of alternative forms of early childhood development centers, such as home-based groups under the care of a trained parent and affiliated with an early childhood development (ECD) center and part-day education-only groups in existing ECD centers and primary schools, could relieve the current excess demand for quality childcare.

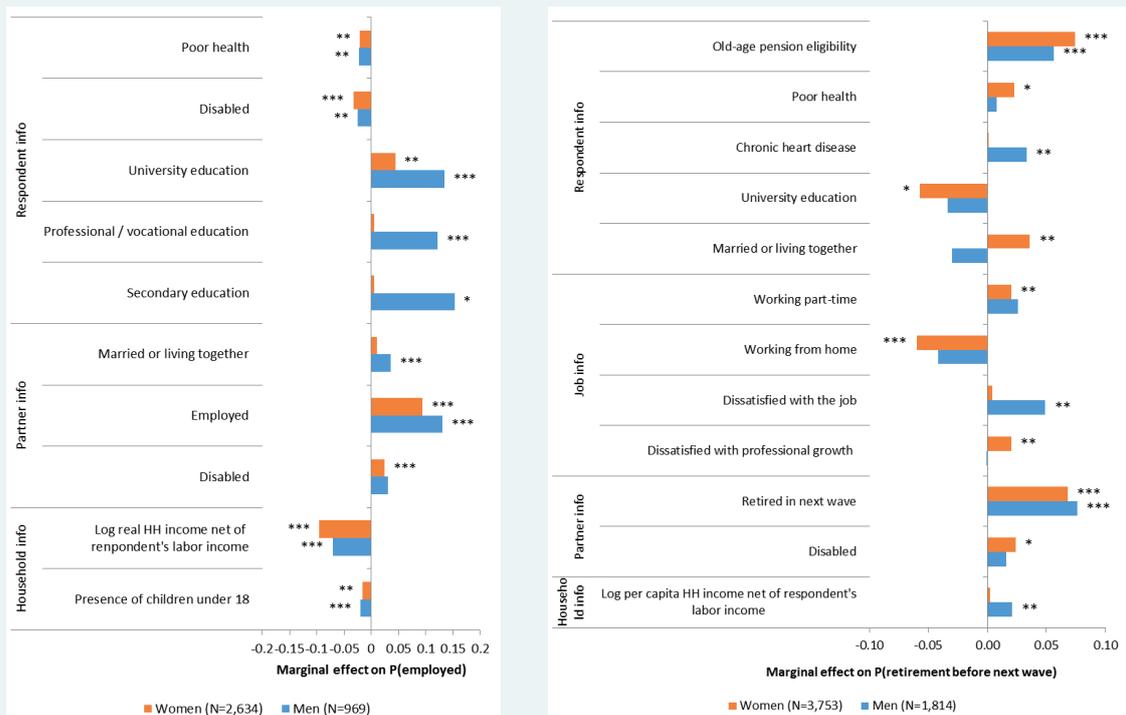
5. Supporting Active Aging

Greater utilization of older workers is essential to achievement of prosperous aging. As Russia faces the prospects of an aging and shrinking labor force, promotion of active aging, in which workers remain in productive employment for longer periods, can help Russia take full advantage of increased life expectancy. Both necessity and opportunity affect the decision to remain in the workforce past retirement age. In the late 1990s, low pensions and pension arrears were major reasons for pensioners to keep working and to work longer hours (Kolev and Pascal, 2002; Gerber and Radl 2014). This discussion is based on more recent household survey data analysis from the RLMS, supplemented by reports from focus groups with employers and older employees/pensioners (Schwarz et al. 2014).

Health is an important determinant of the decision to retire. For women, poor health is significantly related to that decision. For men, self-reported poor health is not, but chronic heart disease is (Figure 21). Similarly, an analysis of the World Health Organization (WHO) Study on Global AGEing and Adult Health (SAGE) data found that employed older Russians have better performance on objective functional tests, such as walking est, and lower incidence of health

Figure 21. Correlates of Work/Retirement Decisions of Older Russians

A. Characteristics of working pensioners, 2010 B. Retiring from employment, 2009–12



Note: Marginal effects reported; significance levels: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Other coefficients included in the regressions are suppressed due to space constraints (for full results, see Levin (2015)).

Source: Authors' calculations based on RLMS-HSE household survey data.

conditions, such as hypertension, coronary disease, stroke, and arthritis, than do their peers who do not work (Maximova 2014). Finally, qualitative evidence from focus groups suggests that health reasons are the leading cause of separation from employment for older workers, both at their own initiative and at the initiative of employers.

Higher human capital enables Russians to lengthen their working life. In 2012, Russian pensioners with university education were more likely to still be employed (with an increased probability of employment of 4 pps for women and 13 pps for men). For men, secondary and professional/vocational education are also associated with a higher probability of working past retirement age. For older women, those with university education are 6 pps less likely to retire in the next period than less-educated but otherwise similar women. Focus group evidence also points to obsolete skills as a significant predictor of employer-initiated separation for older workers and to a substantial skills mismatch in the labor market for Russian pensioners.

Russian couples greatly prefer to retire together. Having a working spouse was associated with a statistically (and economically) significant 13 pp increase in the probability of being employed for a pension-age husband and a smaller but still highly significant 9 pps increase for a pension-age wife. Moreover, a partner's decision to retire is correlated with a 7–8 pps higher probability of retirement for the respondent.

Many older Russians keep working because they need the money. For people of pensionable age, household income per capita (net of any labor income earned by the respondent) was 10 pps lower for working women and 7 pps lower for working men than for nonworking peers. Income was also positively associated with exits from employment into retirement, although these estimates are statistically somewhat less precise. In the focus groups, many older workers reported necessity as the driving force for continued employment.

Flexible work arrangements and opportunities for professional growth matter for retirement decisions. For older Russian women, the ability to work from home seems to be correlated with delayed onset of retirement, perhaps due to the possibility of combining work and fulfillment of care obligations. Indeed, in focus groups, flexible employment options (part-time, seasonal, backup jobs) were cited as important factors that could persuade older workers to stay in their current jobs after reaching retirement age. Older men who are dissatisfied with their job (either 'mostly' or 'absolutely') are 5 pps more likely to be retired in a year's time. For older women, what matters is satisfaction with opportunities for professional growth – dissatisfied women are 2 pps more likely to retire. This echoes the frustration reported by older Russians in focus groups about the availability of only "nonprestigious," unskilled routine jobs for pensioners, which do not require them to use their skills or mental abilities. Indeed, 20.5 percent of those aged 60–72 were working in the informal sector, according to Rosstat (2013) estimates; informal jobs may offer the needed income support and flexibility but are likely to under-utilize pensioner skills.

Social norms concerning the right to jobs may be pushing older Russians out of the labor market. In many countries, including Russia, there is a widespread perception that older workers are keeping younger ones from finding jobs. In the Generations and Gender Programme survey conducted in 2004–08 in Russia, Russians were more likely to agree with the statement "When jobs are scarce, younger people should have more right to a job than older people" than respondents from most other countries.

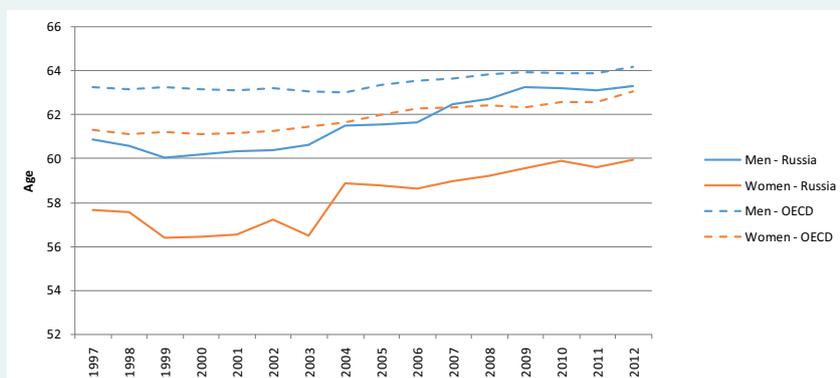
Finally, negative employer attitudes toward older workers may present significant barriers to their working longer. Although focus group results suggest that some Russian employers perceive older workers to be more reliable and to have more positive work attitudes than

younger workers, the results also point to outdated perceptions of older workers’ diminishing physical and mental abilities and potential social tensions between younger and older workers. Moreover, focus group evidence indicates that individuals over 40–45 are not even considered by employers for competitive vacancies. This suggests a perception that older workers are less productive than younger colleagues when in reality what older workers lose in some skills, such as mental speed and physical strength, they gain in other capacities, such as verbal skills, social skills, and reliance on experience (Bussolo et al. 2015).

Although Russia’s pension system does not explicitly discourage work, the official retirement age provides a very low anchor. Eligibility for receiving an old-age pension begins at 60 for men and 55 for women, and for receiving a social pension at 65 for men and 60 for women. Such relatively low eligibility ages are sometimes justified by low life expectancies (as of 2011) of 64 for males and 76 for females. However, the more relevant life expectancy indicator for pension-related issues is measured not at birth but at the age of retirement. Based on the actuarial forecast of the Pension Fund of the Russian Federation, in 2010 average life expectancy was 14.3 years for 60-year-old men and 23.9 years for 55-year-old women. This implies that the expected duration of pension receipt in Russia is below the OECD average for men (17 years), but significantly above the OECD average for women (20.3 years; OECD 2011). Moreover, a substantial share of older workers (e.g., those working in hazardous or difficult conditions, and teachers and health care workers with sufficient years of service) are eligible to receive pension benefits before the already-low eligibility ages. About 35 percent of individuals start drawing pensions before the standard pensionable age, and 30 percent of women and 20 percent of men are already claiming pensions by the time they are 50 (OECD 2011).

However, many Russians continue working beyond the statutory retirement age. Given that pension benefits have historically been low (although benefits have increased substantially since 2008), and that there is no income test for the receipt of pension benefits, many Russians continue to work past the eligibility age. Indeed, the effective age at labor force exit is 63.3 for men and 60 for women, though that is still below the OECD average by 0.9 years for men and 3 years for women (Figure 22). The male average effective retirement age has been converging to the OECD benchmark since 1997, but the female average lags far behind. Moreover, the near-universal claiming of pension benefits at the official retirement age has strained the fiscal sustainability of the system.

Figure 22. Average Effective Retirement Age, Russia and OECD, by Gender, 1997–2012



Source: OECD 2014.

The recent pension reform improved the incentives to extend working life and defer pension receipt. While the reform, which went into effect in 2015, did not change the pension eligibility age, it extended the mandatory contribution period to 15 years (gradually increasing

from the current 5 years over 2015–25), added the criterion of accumulating at least 30 individual pension points (based on contributions), and provided for quite substantial increases in pension benefits if the individual continues to work past retirement age. However, the details of the transition from a notional defined contribution to a point-based pension system are not yet clear, making it difficult for individuals to plan their retirement decisions. In this uncertain environment, many people may still find it attractive to claim pension benefits as early as possible. The numerous changes in the pension rules over the last 20 years have added to the predisposition for myopic behavior.

Part-time work and flexible work arrangements are few, which may deter the LFP of older adults. According to the Labor Code, part-time workers preserve all the rights of full-time workers. However, according to Rosstat estimates, only about 5 percent of workers in 2012 worked less than 30 hours a week. While 21 percent of women and 12 percent of men aged 60–72 worked part-time, according to Eurostat online database, this is far below the EU average of 52 percent for men and 67 percent for women aged 65 years or more. Earlier studies suggest that part-time employment is only taken up by people who cannot obtain full-time positions (Tchetvernina et al. 2001 as cited in Cazes and Nesporova 2003). Whether this is still the case, and whether there is a difference in the value workers of different ages attribute to part-time employment, is an important subject for future research.

The government is making a concerted effort to bring the disabled into the labor market.

Disability pension is paid in full irrespective of employment, and contributions to the Pension Fund during employment of the disabled individual are taken into account when calculating the size of the disability pension. Although there are some restrictions on the amount of hours that can be worked each week, the Labor Code requires full payment for reduced hours of work, which may discourage hiring. On the other hand, the disabled have priority access to retraining and special job creation programs; firms with more than 100 employees have quotas for hiring the disabled; and firms that employ the disabled are eligible for subsidies on profit and payroll taxes and accidental insurance premiums (although claiming these subsidies apparently is complicated and time-consuming). The share of disability pensioners in employment increased from 22.5 percent in 2006 to 31.6 percent in 2011 (Table 5).

Table 5: Share of Pensioners who are Working, 2006-11

	2006	2007	2008	2009	2010	2011
All pensions	24.5	26.5	28.4	30.0	31.2	32.4
Labor pension	28.2	30.5	32.7	34.3	34.9	36.4
Disability pension	22.5	23.0	23.5	24.3	30.7	31.6
Survivor pension	0.8	0.6	0.6	0.7	0.7	0.7

Note: Rosstat changed its methodology for counting pensioners in 2010. The figures for 2006–2009 are said to be recalculated according to the new methodology.

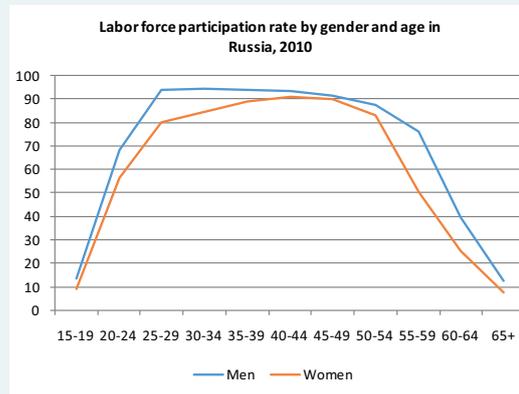
Source: Rosstat 2012 (Socialnoe polozhenie i uroven zhizni naseleniya Rossii 2012”).

There is significant scope for Russia to increase the LFP of women and the elderly. Female LFP is significantly below that of males during the peak childbearing years (mid-20s through the 30s) and after women’s statutory retirement age of 55 years (Figure 23A). Policies to improve the tradeoff between family and work could increase the LFP of younger women while adjusting the ages for pension eligibility could do the same for older women. Some appreciation of the potential for raising LFP rates can be gained by comparing Russian experience with that of other countries. The extreme example is Iceland, which has the highest LFP rate in Europe; in 2010,

74.5 percent of its adult population (aged 15+) were in the labor force, compared to 63 percent in Russia. A large part of this difference is due to the higher LFP of 50+-year-olds (Figure 23B). While 40 percent of men and about 25 percent of women in Russia are active past 60, in Iceland these figures are 85 percent for men and 73 percent for women. Thus, at least in principle, there appears to be substantial scope to lengthen Russian working lives. However, attaining such high LFP rates would only be possible if many other constraints, such as those affecting health, skills, and mobility, are removed.

Figure 23. Scope for Expanding Labor Force Participation in Russia

A. Closing the Gender Gap



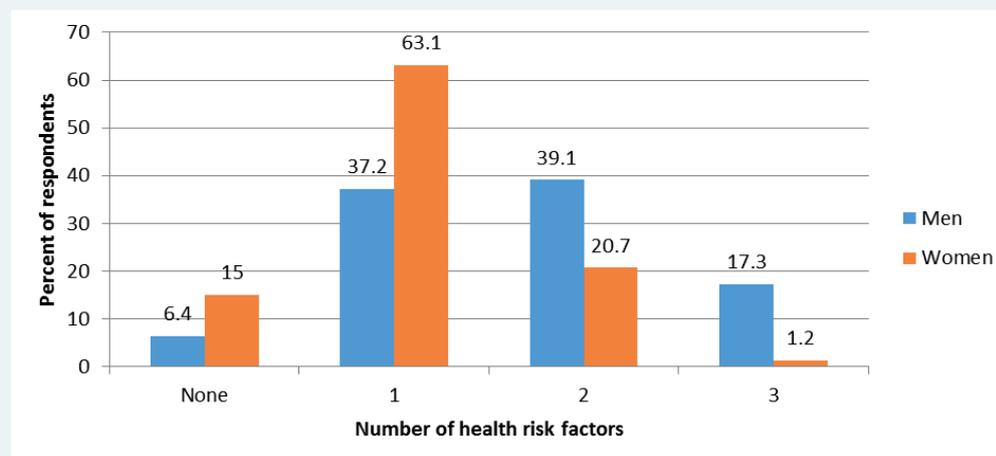
B. Activating Older Individuals



Source: ILO data.

Promotion of healthier lifestyles, coupled with a focus on preventive medicine and early diagnosis, can help Russian workers work longer and live more satisfying lives. Nearly 94 percent of men and 85 percent of women aged 50–79 smoke, get insufficient exercise, or do not eat sufficient fruits and vegetables (Figure 24), and nearly 8 percent of adults 50 and older drink excessively. Maximova (2014) also identifies several conditions, such as angina, asthma,

Figure 24. Health Risks of Russians aged 50–79



Notes: Health risk factors include smoking, not getting enough exercise, and not eating enough fruits and vegetables.

Source: Maximova (2014) based on WHO SAGE data for Russia (2007–2010).

and depression, for which self-reports of older Russians in the SAGE survey are significantly lower than symptom-based prevalence estimates – underlining the importance of raising awareness of these diseases and their symptoms.

Encouraging firms to institute age management policies for older workers can prolong their working lives and improve productivity. Older workers can be as productive as younger workers with workplace adjustments that compensate for reduced physical capacity, and mixed-age teams can improve the productivity of both older and younger workers (Bussolo et al. 2015). In Russia, extending working lives can generate substantial benefits, given that half of adults aged 50 and above have higher education and another 30 percent have professional or vocational education. It is also likely to be feasible, according to the 2012 RLMS data: most older workers are employed in the services sector, where the physical demands are often less onerous than in other sectors. Current initiatives to encourage workplace adjustments for disabled individuals could be supplemented with information on, and promotion of, less costly adaptations to an aging workforce, especially in sectors that have seen their shares of older employees rising.

Equalizing the pensionable ages for men and women can extend working lives and improve the horizontal equity of Russia's pension system. Lower life expectancy of men combined with a later pensionable age results in a 10-year gender gap in life expectancy at retirement (OECD 2011b). Since the current insurance pension formula does not adjust pension benefits by the expected duration of payments,¹¹ the pension payouts for men are likely to be lower than those for women. Moreover, raising the female statutory pensionable age to equal that of men could extend working lives for both genders, given the preference of Russian couples for retiring together.

Discouraging early retirement of able-bodied Russians by raising the pensionable age, adjusting pension benefits, and shifting the fiscal burden from the state to employers can promote longer working lives and better working conditions. The long lists of occupations that are eligible for early retirement can be revised by studying current working conditions and the average age and health at retirement in each occupation (many individuals continue to work in the same job under onerous conditions while receiving early retirement benefits). Moreover, internalization of the costs of early pension payouts could be strengthened; the 2013 pension reform already shifted some of the costs onto employers in eligible occupations by introducing additional payroll tax rates of 2 to 8 percent. One option is to tie the magnitude of the tax to the past uptake of early retirement pensions in a way that holds employers more accountable for providing safer working conditions.

Increasing transparency in the social insurance system is crucial to ensure the effectiveness of built-in system incentives. As with any complex reform, issues of credibility and the quality of implementation can be as important as design features in determining the impact of changes. Uncertainty about the value of a pension point in determining the magnitude of the pension benefit can dampen motivation to follow the direction of incentives and can result in a preference for smaller but certain payoffs rather than larger but uncertain ones. It is important that the government determine a clear, and even more importantly predictable, strategy for valuing pension points. A broad-based information and communication campaign to elucidate the objectives and design features of the new pension system could be followed by collaboration with social workers, regional branches of the Pension Fund, and organizations helping pensioners and individuals of pre-pension age to make work and retirement decisions.

¹¹ Reform of the funded pension component does introduce a correction for life expectancy, effective 2016 (Federal Law 424 "On funded pensions").

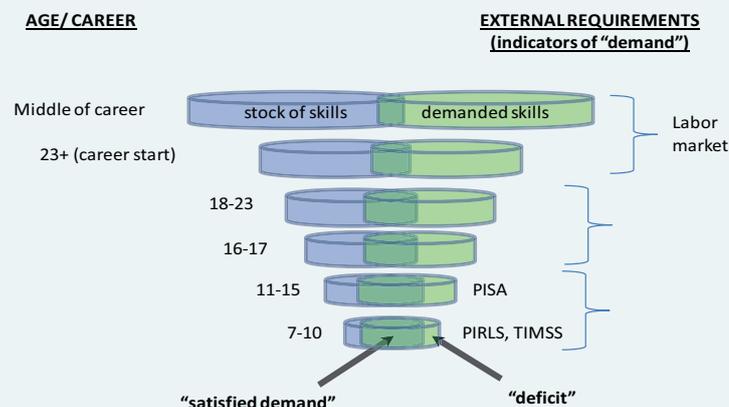
6. The Role of Adult Education

Knowledge is critical for sustaining competitiveness and economic growth in today's globalized economy. The key to prosperity for Russia is a well-educated, technically skilled workforce, employed by firms that have the managerial capacity to adopt up-to-date technology and sell sophisticated goods and services in local and global markets. To ensure continued competitiveness, the education system must enable workers to upgrade their skills throughout their working lives. The share of output produced by performance of routine tasks has declined in most OECD countries (Autor et al. 2003), and a similar trend is already observed in emerging European economies (Arias et al. 2014). Inculcating the skills demanded by a knowledge-based economy requires emphasis on inquiry-based learning and the adaptation of teaching to the learning capacity of individual students.

Promotion of social inclusion through adult education can improve the well-being of Russia's citizens and mitigate the impact of aging on growth. Population aging and the growing ranks of low-skilled migrant workers are increasing the importance of adult education and continuous learning. The model of "one-shot" education, where most who finish one level of education without meeting the requirements for the next level are expected to join the workforce, is being replaced by a new emphasis on lifelong learning, in which secondary, higher, and vocational education are increasingly expected to respond to the exigencies of competitiveness.

The skills gap in Russia's workforce is increasing as students progress through the education system and widens further as they enter the labor market (Figure 25). The development of basic cognitive skills (literacy and numeracy) in students is adequate in primary education, and in 2006 Russia was ranked as the top global performer in reading achievement according to the Progress in International Reading Literacy Study (PIRLS) survey. However, the quality of secondary education is still not sufficient given the demands of innovation-based economy. While the PISA standardized tests show that the reading, math, and science levels in Russia are higher than in other countries of similar per capita income, they are significantly below the OECD average.

Figure 25. Skills Demanded and Actual Skills Available, by Age Cohort



Note: The benchmarks for skills demanded are set by the expected learning outcomes reflected in international education quality assessments and reported by employers in the firm survey conducted for this study.

Source: World Bank 2013.

In contrast to other countries, there is no strong age gradient to basic cognitive skills in Russia. While the oldest have lower levels of literacy, numeracy and problem-solving skills than younger working-age groups (Figure 26), the negative relationship between skills and age is not strongly monotonic, as is common in other countries (see, e.g., the example of Poland in Figure 27). Rather than age-related effects, this likely reflects the impact of the drastic changes in Russian education and the labor market on particular cohorts. In particular, the relatively high performance of Russians in their 40s could reflect secondary or post-secondary education in the 1980s, when there was an emphasis on generic problem-solving abilities – practical and theoretical – across all fields. On the other hand, the skill set of the group aged 30–34, who had been in secondary education during perestroika and the formation of a new Russian state, may have been negatively influenced by the country’s transformation. Whatever the cause, programs targeted to relatively low-performing cohorts may be warranted.

Figure 26. Levels of Competence by Age Group, Russia

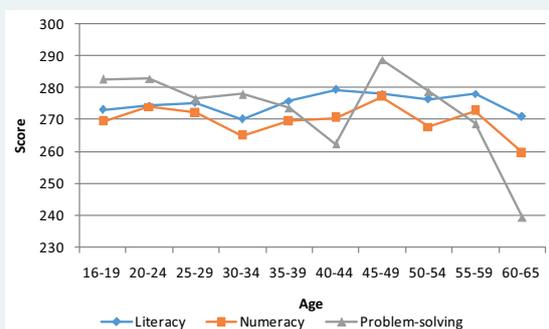
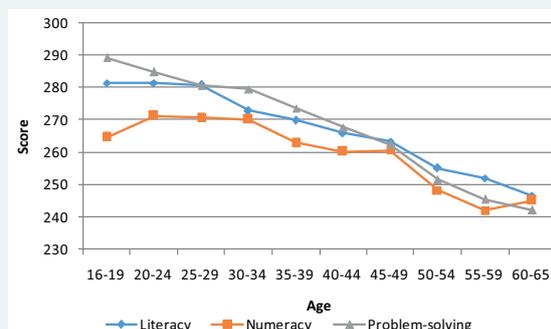


Figure 27. Levels of Competence by Age Group, Poland



Note: Data from Russia are preliminary and may be subject to change; and the sample does not include residents of the Moscow municipal region.

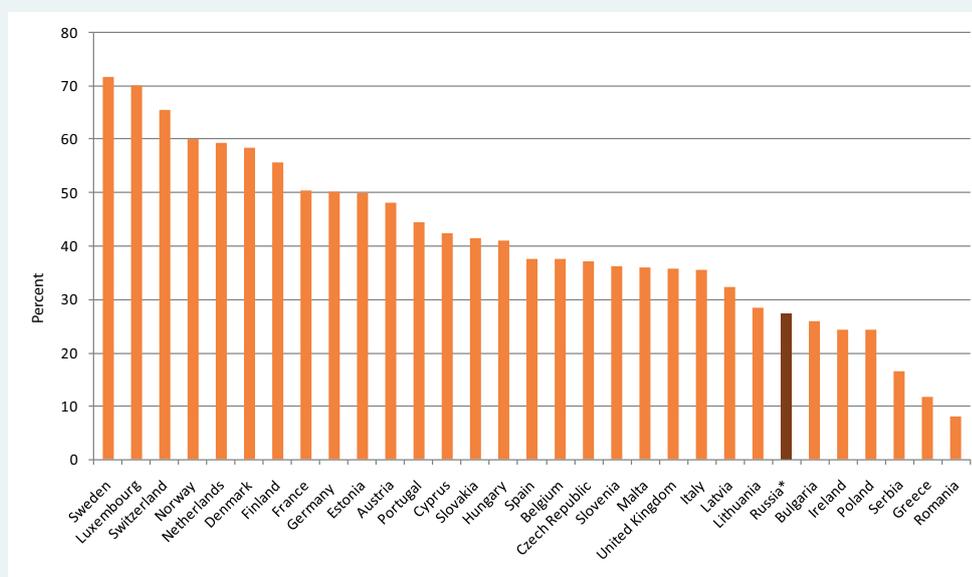
Source: OECD PIAAC.

Russian adults do poorly on on-the-job learning and use of information and communications technology (ICT). Learning at work, whether through training, peer-to-peer, observation, or encouragement of management to engage in improving production and processes, is closely correlated with productivity gains and innovation. Russian prime-aged and older adults perform poorly compared to those in OECD countries in learning at work and in the use of ICT at home and in the workplace, according to the PIAAC tests. Lower usage of ICT can lead to lower productivity and less opportunity for self-learning through distance technologies.

Population aging underlines the importance of adult education in supporting employability and heightened productivity for every able-bodied individual. To enable longer working lives as life expectancy improves, it will be necessary to adapt the education system at all levels. The benefits of improving the quality of formal education will only be clear in the medium term as students in the reformed system work their way up the age pyramid. On the other hand, a broad-based and effective system of adult education, including skills upgrading and retraining, can provide second-chance opportunities to enhanced productivity and attain a longer working life for current workers, thus reaping more immediate payoffs. Moreover, how effectively labor market or social protection reforms affect the LFP of older Russians depends critically on whether these adults are employable – something that can be achieved through targeted programs of adult education.

Relatively few Russians participate in adult education, although the composition of those who do is shifting. The limited data available show that 27.3 percent of Russian adults are engaged in some form of adult education (Indicators of Education 2013) – up from 22.4 percent in 2006 but still well below several Eastern European countries (Figure 28). Similarly, the share of adults involved in continuous professional education (CPE) is low compared to OECD countries. Although the share of the working-age population in formal education fell from 4.5 percent in 2006 to 2.7 percent in 2012, the share of those in CPE rose from 8.0 percent in 2006 to 13.5 percent in 2012. Meanwhile, the share of people who opt for self-education increased from 17.4 percent in 2006 to 24.4 percent in 2012, due to the development of online education, which is especially important given Russia's vast territory.

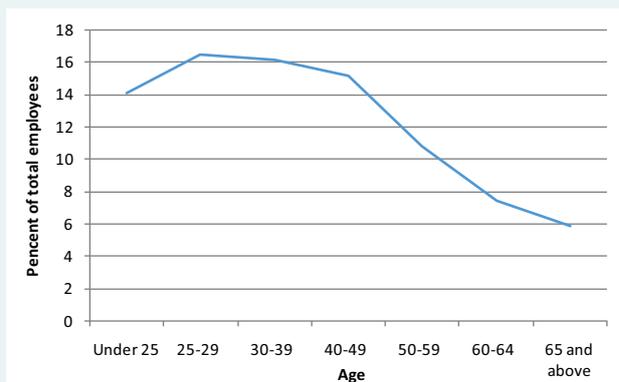
Figure 28. Adults in Formal and Nonformal Education and Training, Russia and Selected Comparators



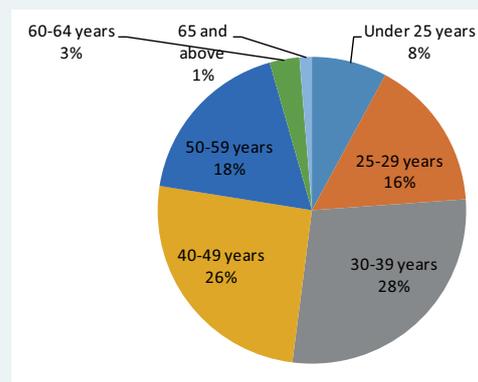
Notes: 2013 data for Russia; 2011 data for other countries.

Source: Russia: Indicators of Education 2013; other countries: Eurostat 2011 Adult Education Survey.

Access to CPE varies considerably. Participation in CPE varied from 11 to 16 percent of adult workers by region (Rosstat 2013). The rate of participation declines steeply as workers reach pre-retirement years, while the highest participation rate is found among workers aged 25–39 years (Figure 29). Thus, while younger and older workers may need more training to become or remain productive, they currently benefit the least from CPE (Figure 30). Low-skilled workers are least likely to obtain professional education (Higher School of Economics 2012), which may impede the growth of the knowledge-based economy and perpetuate earnings inequality and low social mobility. While most CPE participants are employed in either manufacturing (24 percent), education (19 percent), or health and social services (13 percent), the mining sector has the highest share of its employees participating in CPE (26 percent), followed by transport and communication, utilities and manufacturing. Employees in retail trade, agriculture, fishing, and hotels/restaurants had the lowest participation rates (less than 5 percent in each sector). About 90 percent of all CPE participants received training in their own specialization (professional development), and only 10 percent participated in retraining. Finally, most of the training programs were relatively short (9–37 days).

Figure 29. CPE Participation Rate by Age, 2013

Source: Rosstat 2013.

Figure 30: Age Structure of CPE Participants, 2013

The adult education market is robust and expanding. The number and types of providers, as well as the variety of products, have gone up significantly. Some 2,000 institutions have CPE programs, perhaps 3,000 if short-term (less than 9 days) and in-house programs are included (Ministry of Education and Science of the Russian Federation 2009). An expansion in coverage and enrollment was accompanied by a doubling of public spending from 2000 to 2005.

Several successful regional models of adult education have emerged, and more attention is being paid to education targeted to socially vulnerable groups. The provision of CPE varies widely by region, depending on socioeconomic and labor market conditions, the human resource base, and demand. Among successful models are Tatarstan's focus on high-quality, specialist training to support petrochemical and refinery companies, which integrates the efforts of a variety of public and private stakeholders, and Kaluga's use of partnerships with international investors. There has been active development of education targeted to socially vulnerable categories of people, including the elderly, the unemployed, migrants, and individuals demobilized from the Armed Forces. Recently, across Russia there has been a flurry of new educational programs for the elderly, including innovative forms of learning, which suggests there is active demand from older people to participate in the educational process. There is also robust development of training for the unemployed, with more than 3,000 professional educational institutions engaged on contract for such active labor market programs. Moreover, given the high numbers of migrants from Commonwealth of Independent States (CIS) residing in Russia, there have been several initiatives to enhance their integration, such as the initiative to create a common educational space for CIS members.

The adult education system suffers from several deficiencies that deter expansion of coverage and greater effectiveness. Currently, adult education in Russia lacks a regulatory framework, a financing strategy, a system for training providers, and the ability to evaluate individual programs or the aggregate impact on social and economic objectives. Information on training opportunities is limited, especially for small employers and their employees. And the system is still based on traditional pedagogical principles that do not reflect recent research on how mature brains learn differently from developing brains (Johnson and Taylor 2006 and Maestas and Zissimopoulos 2010 cited in Schwarz et al. 2014).

Russia lacks a comprehensive policy framework for adult education. Such a framework should be flexible, provide for adequate financing, and include the clear occupational standards, accreditation and quality assurance systems, and certification and equivalence systems required to encourage quality provision. A federal law "On Adult Education" should be considered to establish the legal framework for the adult education system. The law could provide for funding from the state budget and cooperative financing arrangements with the private sector, a legal framework for the involvement of educational institutions in adult education, and be congruent with the legislative acts of other countries. Regulations could expand on these provisions, including setting up the organizational structure for adult education; ensuring emphasis on demand-driven approaches with monitoring of educational services markets; providing for research (including data collection), marketing and outreach; and promotion of distance learning.

Work is required to frame appropriate methodology for adult education. Effective adult education is based on adult learning theory, andragogy, the concept of free or open adult learning, reflecting a continuing learning throughout a person's life. Andragogical models of learning use learning and teaching materials created specifically for adults, taking into account new insights from neuroscience about aging brains and their social and psychological characteristics. For example, at least two studies have shown that there are greater gains for older adults when performing procedural (hands-on) activities compared to conceptual training (Mead and Fisk 1998 and Mead et al. 1997 cited in Charness and Czaja 2006).

The legal framework should set standards for training providers. To ensure quality in adult education, legal provisions can be drafted that describe the responsibilities of specialists engaged in adult education, such as teachers, consultants, tutors, administrators and managers, employees of information and orientation services, social workers, and employees of rehabilitation correctional institutions. Teacher training for adult educators and trainers could entail systematic retraining and professional development training, as well as postgraduate education for andragogy specialists of different directions and levels.

Awareness campaigns and financial incentives could raise demand for adult education. Regular public and social events could promote the ideas of adult education, continuing learning, and continuous personal improvement throughout life. A greater role for government (federal, state, and local), private companies, and public organizations and individuals conducting social and public activities can help build up adult education in Russia, through e.g., social partnerships. Individual demand can also be stimulated through financial incentives, such as tax credits or paid education leave from employment, in combination with study loans/grants or vouchers (UNESCO Institute for Lifelong Learning 2009). Eligibility for these incentives could be universal or targeted to specific groups that are under-represented in adult education, as is done in Sweden. Demand-oriented incentives, such as the training vouchers given out in Austria and Germany, motivate individuals to be active consumers and create competition among providers (UNESCO Institute for Lifelong Learning 2009).

Government should encourage greater private sector participation in adult education. Experience in many countries suggests that public-private partnerships can make adult education more effective. Employer associations can identify professional qualification standards that meet the needs of their specific labor market. The state can engage employers in monitoring the quality of educational services and in the formation and approval of qualification requirements (professional competencies), so that training is more adapted to firm needs. The government has adopted a plan for developing 800 professional standards. For small and medium enterprises, government can facilitate investment in training by creating an infrastructure for industry-wide training programs, as is done in Italy and Australia, and by offering co-financing arrangements (UNESCO Institute for Lifelong Learning 2009). Another option is to follow the example of France or Hungary and impose a training levy, which can be used for a national training fund or to finance training for contributing firms (UNESCO Institute for Lifelong Learning 2009).

7. Conclusion

There is no time to lose. Policy reforms to increase productivity and labor force participation, raise government savings, ease the tradeoff women face between work and family, improve health care services and lifestyle choices, and establish a modern and more comprehensive adult education system could help avoid the potentially negative implications of population aging for growth and welfare. But policy changes are urgent if they are to have an appreciable impact within the next several decades. For example, the transition from an unfunded to a funded pension system becomes more costly, and more politically difficult, as the elderly dependency ratio rises. Moreover, many lifestyle decisions take considerable time to have an impact. For example, it takes 18 years for increases in fertility to raise the size of the labor force. And decisions by today's young workers to cut smoking and alcohol consumption may be necessary to ensure healthier lives by elderly workers in 30 to 40 years. As emphasized in the introduction, population aging may not greatly change the nature of policies that will improve welfare, but it does lend urgency to the reform agenda.

There is nothing to fear but inaction. Population aging is neither an uncontrollable disaster nor a problem that will solve itself. Aging can be consistent with longer, more prosperous, and more satisfying lives, but that is not inevitable. Changes in individual and firm behavior in response to market forces are necessary to address the challenges of aging. However, only the government can modify the structure of incentives and institutions to encourage longer working lives, higher fertility, and improved productivity. It is hoped that the Russian government will undertake the difficult reforms that are necessary to achieve these goals.

There is still much to learn. This publication has benefited enormously from advances in research and the development of data sources, particularly efforts to improve the coverage of surveys. Nevertheless, information is lacking or insufficient on issues that are critical for understanding the impact of aging, for example, evaluations of family support services, detailed demographic data (including the distribution of newborns by birth order, number of children in divorced families, and data on parents who marry and separate), and information on the extent and effectiveness of adult education programs. Moreover, as stated in the beginning, some areas of the multi-faceted and cross-cutting aging agenda, such as, inter alia, healthcare reform and migration policy, were not covered in this volume, and deserve to be studied in the future with the same demographic lens as was adopted here.

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