



# IMF Working Paper

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## Reforming the Public Pension System in the Russian Federation

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## **IMF Working Paper**

European Department and Fiscal Affairs Department

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#### **Abstract**

Pension reform is a key policy challenge in Russia. This paper examines how pension spending could increase in Russia in the absence of reforms, quantifies the impact of some recent proposals, and suggests some alternatives that would ensure public pension benefits—relative to wages—not fall from current levels while containing spending.

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## I. INTRODUCTION

As in many other countries, public pension reform in Russia is a key policy challenge. To combat the effects of the global financial crisis on the economy in 2009–10, Russia undertook a large fiscal stimulus of about 9 percent of GDP, mainly comprised of permanent measures including an increase in pension benefits. Though some of the stimulus has now been withdrawn, the end-2011 nonoil deficit—which is a relevant measure of the fiscal stance in oil-producing countries, given the volatility of oil prices and nonrenewable nature of oil reserves—is still more than double the level considered consistent with equitable use of the oil wealth across generations (Gust and Zakharova, 2012) and should be reduced in coming years. This will be needed to avoid procyclical policies that fuel inflation and real appreciation—which undermine competitiveness and contribute to boom-bust cycles—as well as to reduce fiscal vulnerabilities (IMF, 2011a). Given that discretionary spending at the federal level is now only about one-third of total expenditures, durable fiscal consolidation will need to be underpinned by fundamental structural reforms, including in pensions and healthcare. At the same time, an aging population means reforms will be needed to contain future pension spending.

To ensure adequate public pensions while putting the pension system on a sustainable footing, several Russian experts and groups have put forward proposals to achieve these goals, including Strategy 2020 (2011), Dmitriev (2011), and Gurvich (2010), while the Ministry of Labor, in cooperation with the Pension Fund of Russia, federal government authorities and the expert community, is expected to present pension reform proposals to the government in October 2012 under the Strategy for Pension System Long-Term Development till 2050.<sup>1</sup> This paper presents projections of pension spending as a share of GDP in the absence of reforms, the impact of some of the proposals to increase the pension age and reduce early retirement, and puts forward some alternative proposals.

The remainder of this paper is structured as follows. Section II presents an overview of the current Russian pension system, while Section III examines the common challenges many countries are facing with respect to pension reform and presents some international experiences on how other countries have handled these challenges. Section IV discusses the considerations that should guide pension reform, assesses some of the recent reform proposals put forward in Russia, and discusses further reforms that could address remaining pension spending pressures consistent with fiscal consolidation needs, the implications for equity, the functioning of labor markets, and economic growth.

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<sup>1</sup> Note that as of May 2012, the Ministry of Health and Social Development, which previously was in charge of developing this strategy and had produced a 2010 paper entitled “Results of Pension Reform and the Long Term Outlook for Development of the Pension System of the Russian Federation Accounting for the Influence of the Global Financial Crisis” was split into two separate ministries: the Ministry of Labor and the Ministry of Health.

## II. RUSSIA'S CURRENT PENSION SYSTEM

Russia's current pension system was introduced in 2002.<sup>2</sup> Prior to 2010, the system had three components: a basic pension, an insurance benefit based on a notional defined contribution account, and a funded defined contribution scheme (available only to individuals born after 1967). After 2010, the basic pillar has been folded into the pay-as-you-go portion of pensions. In addition to old-age labor pensions, disability and survivor labor pensions are also part of the system. This paper focuses mainly on old-age labor pensions. Table 1 provides a description of the key parameters of each pillar:

**Table 1. Key Parameters of the Russian Pension System**

Pension parameter	Basic (part of PAYG)	Notional Defined Contribution (part of PAYG)	Funded
Retirement age	60 for men/55 for women with	minimum of 5 years contribution, but many provisions for even earlier retirement	
Benefit rate	3170 rubles/month, but higher for those aged 80 or above, disabled persons, those caring for disabled persons or those who spent at least 15 years working in Arctic areas	Notional account system, based on actual contributions made, with an assumed 19 years of benefit receipt at the normal retirement age beginning in 2013, phased in from the assumed 12 years in 2002	Based on individual contributions and interest earned on those contributions
Interest rate on contributions	-	Growth rate of contribution revenue per pensioner	Interest rate provided by fund chosen by individual
Indexation post-retirement	Indexed to average wages, but can be limited by availability of revenue	Indexed to average wages, but can be limited by availability of revenue	Paid as scheduled withdrawal
Contribution rates	6 percent	16 percent for those born before 1967, up to 512,000 rubles; 10 percent for those born from 1967 and later up to 512,000 rubles (this 10 percent contribution goes to fund the basic portion)	6 percent for those born in 1967 and later up to 512,000 rubles

Sources: World Bank, Ministry of Health and Social Development, and Pension Fund of Russia.

<sup>2</sup> Prior to 2002, pensions were based on the length of work and the wages in the last two years of that work record (or in any five years of work), according to the following formula: Pension = LC\*(pensionable wage for individual/average wage in Russia for the last two years of the individuals work's record)\*average wage in Russia in the previous quarter, where LC = 0.55-0.75, depending on length of work record. The ratio of pensionable wage for individual/average wage in Russia could not exceed 1.2. In addition, pension rights accumulated before January 1, 2002 were converted into a part of the notional accounts. This pre-2002 notional capital is subject not only to indexation but to valorization from the Federal budget. For a further description of how the pre-2002 system worked, see Mansoor, Thompson, Von Gerodoff and Zoltova (2002).

- The basic pension is a flat amount provided to all those reaching retirement age (age 60 for men, and age 55 for women) with a minimum contribution record of 5 years. Most current elderly fall within this group, so coverage among the elderly is virtually complete. While the basic pension is supposed to be uniform, higher levels are granted to pensioners in a variety of categories, including to all those who reach the age of 80 and above, those who are invalid with limited working capacity, those who are caring for a dependent family member, and those who live or have worked in Arctic regions. Indexation rules are complex. As of 2010, the basic pension is indexed the same way as the insurance portion, i.e., annually to average wages, but limited to the annual growth of the Pension Fund of Russia's (PFR) income, expressed per pensioner. There is also the possibility of preventive (advance) indexing during the year if inflation exceeds 6 percent (see Ministry of Health and Social Development of the Russian Federation (2010) for further details). Increases outside of this formula were legislated in 2009 and 2010.<sup>3</sup> As of 2010, the basic pension was about 12 percent of the average wage.
- The labor insurance component is a notional defined contribution pension. This is a pay-as-you-go scheme that includes old-age, disability, and survivors benefits. Contributions to individual accounts are not invested in financial assets. Instead, these contributions are recorded in a notional individual account by the PFR. These accounts earn a “notional” return set by law—currently the return is the average wage growth, but limited to the growth rate of pension contributions per pensioner. Between annual indexations on April 1, pensions can be indexed to inflation (if it exceeds 6 percent) to avoid a sharp drop in purchasing power during the year. When the individual retires, the amount in the account is divided by 216 (18 years of benefits) to get the monthly pension and this conversion factor is scheduled to increase to 228 (19 years) by 2013. Typically, notional account balances are divided by the life expectancy in months at the age of claiming, which provides some automatic fiscal adjustment as life expectancies rise in the long run. However, this automatic feature has been disabled in the Russian context by the use of fixed conversion factors.
- The third component is a funded defined contribution system, where individuals contribute to pension fund accounts which are invested by public or private asset managers. Under the default option, individuals keep the account in the RPF to be managed by a state financial institution—about 85 percent of contributors and assets are currently in the default option (Rudolph and Holtzer, 2010).<sup>4</sup> However,

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<sup>3</sup> In line with legislation at the time, basic pensions were increased at the end of 2009 to bring them closer to the subsistence level for pensioners.

<sup>4</sup> Until late 2009, the default investment option was restricted to government securities. This was recently expanded to allow investment in a wider range of domestic securities (including corporate bonds, mortgage

individuals can opt-out of the default by choosing a private asset manager or by transferring the account to a private pension fund.<sup>5</sup> Upon retirement, the individuals receive both the contributions and the investment returns earned on those contributions in the form of a lifetime annuity.

- The pension system also pays state pensions (including early pensions to civil servants and military personnel, disability social pensions, and social pensions for people older than the retirement age who are not entitled to other pensions) and offers monthly allowances to certain categories of citizens, including veterans, the disabled, and persons affected by radiation exposure.<sup>6</sup> In addition, the PFR funds a benefit top-up which increases pensions to the “subsistence minimum level” (about 20 percent of the average wage, varying by region). If the regional subsistence level is higher than the federal level, the difference is covered from the regional budget. These top-ups, both from the PFR and the regions, are not a major source of spending—together they amounted to only 0.3 percent of GDP in 2010.
- The system is funded by payroll contributions and transfers from the Federal budget. The contribution rate is 22 percent of wages up to an annual cap set at about 165 percent of the average wage (512,000 rubles). Of this contribution, 6 percent of wages is diverted to the funded defined contribution component for younger individuals. In addition, earnings above the annual cap pay a 10 percent tax rate to finance basic pensions.

One important characteristic of the Russian pension system is its relatively early statutory retirement age.<sup>7</sup> Men can claim a full old-age labor pension at age 60 and women at age 55—this contrasts with an average retirement age of 64 for men and 63 for women in the advanced economies and 61 for men and 58 for women in the emerging world (IMF, 2011). Furthermore, many individuals retire even earlier: the average effective retirement age in Russia is estimated to be in the range of 52–54 for women and 54–58 for men

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bonds, and Russian Bank deposits) and bonds of global banks listed in Russia. This conservative investment policy largely explains the poor returns on these accounts—the real annual return of the default fund over 2004–2009 was -3.9 percent. However, average returns on the other options have also been disappointing (Rudolph and Holtzer, 2010).

<sup>5</sup> Note that the relative underdevelopment of the third pillar is possibly a missed opportunity for domestic financial markets, especially given ambitions for Moscow to become an international financial center.

<sup>6</sup> Old-age social pensions are payable five years after the regular retirement age for labor pensions, i.e., at the age of 65 for men and 60 for women.

<sup>7</sup> See Fornero and Ferrares (2007) for a discussion of why increases in the retirement age might not have been part of previous reform efforts.

(Dmitriev (2012), Gurvich, and Sonina (2012)). This largely explains why nearly 30 percent of pensioners retire before the statutory retirement age (Table 2).<sup>8</sup>

This large number of early retirees is also explained by a complicated system under which early pensions are provided to insured persons based on working conditions, work environment factors and regional living conditions.<sup>9</sup> For example, early pensions are available to citizens who have a work record in Arctic regions; mothers with five or more children or disabled children; unemployed males at the age of 58–59 and unemployed females of 53–54; men with at least 10 years in hazardous employment and females with at least 7½ years (hazardous employment include a long list of occupations, including miners, geologists, and seamen). Furthermore, there is no minimum retirement age for teachers with 25 years of work with children, health workers with 30 years in urban and 25 years in rural medical institutions, professional ballet dancers, and some other artists.

**Table 2. Pension Spending and Characteristics of the Russian Pension System, 2000–10**

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
<b>Pension Spending (percent of GDP)</b>											
Base pension			1.9	1.8	1.6	1.4	1.6	1.4	1.8	2.2	2.7
Insurance pension			4.0	3.9	3.5	3.6	3.0	2.9	3.0	4.1	5.2
Allowances			0.2	0.2	0.3	0.8	0.9	0.9	0.8	1.1	1.0
Total, pensions and allowances	4.5	5.5	6.1	5.9	5.5	5.9	5.5	5.2	5.5	7.4	8.9
<b>Replacement rate (in percent of average wage)</b>											
Base pension			10.3	9.5	8.9	7.7	9.0	7.6	9.0	9.6	12.2
Insurance pension			21.3	20.3	19.5	19.9	16.7	15.3	15.3	18.2	23.5
Allowances			1.3	1.1	1.8	4.5	4.9	4.6	4.3	5.0	4.5
Total, pensions and allowances	32.3		32.9	30.8	30.2	32.2	30.5	27.5	28.6	32.9	40.2
<b>Demographics</b>											
Pensioners (million)	38.4	38.6	38.4	38.2	38.2	38.3	38.3	38.5	38.6	39.1	39.7
Percent of pensioners under the retirement age	28	30	30	30	31	31	31	30	29	29	28
Ratio of population 65+ to population 15-64	18	18	18	19	19	19	19	19	18	18	18

Source: ROSSTAT, UN, and IMF staff calculations.

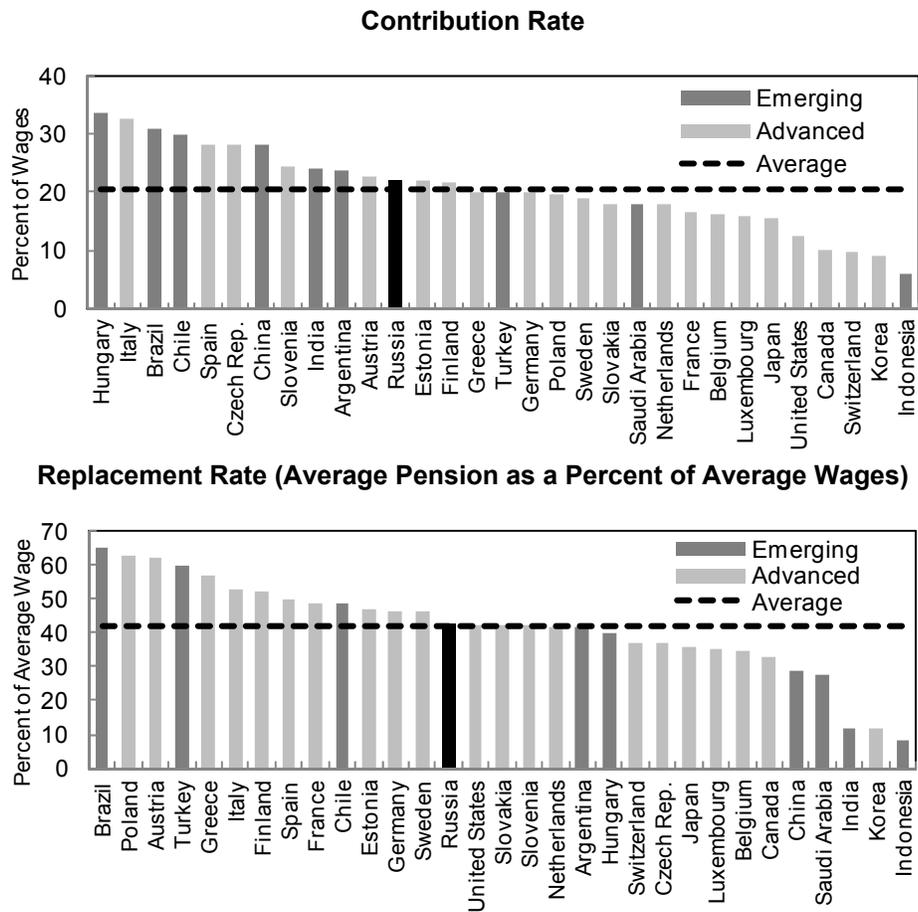
Overall, total spending on pensions and allowances add up to about 9 percent of GDP (Table 2). About 30 percent of this spending is devoted to the basic pension, 60 percent to the insurance component and 10 percent to allowances. Importantly, allowances were expanded in 2005—from under 0.3 percent to about 1 percent of GDP, as part of the monetization of benefits (i.e., they replaced a portion of non-monetary subsidies). The trend in pension spending also shows a large increase (about 3½ percentage points of GDP) over the past two years. This increase in spending reflects measures that substantially increased the generosity of the system: pensions and allowances increased relative to the average wage from 27½ percent in 2007 to 40 percent in 2010. However, taking into account the recent increases

<sup>8</sup> These estimates are consistent with Dmitriev (2011).

<sup>9</sup> Workers can also retire early on a disability labor pension.

in spending and reductions in contribution rates, Russia is near international averages along these two dimensions (Figure 1).<sup>10</sup>

**Figure 1. Contribution Rates and Replacement Rates, 2010**



Source: OECD (2011) and IMF (2011b).

Note: contribution rates refer to the nominal contribution rates that apply to the pensionable base.

<sup>10</sup> In 2012, the payroll tax rate was reduced from 26 percent of wages to 22 percent. The revenue loss of this reduction is estimated to be 0.5 percent of GDP.

### III. CHALLENGES FROM AGING POPULATIONS

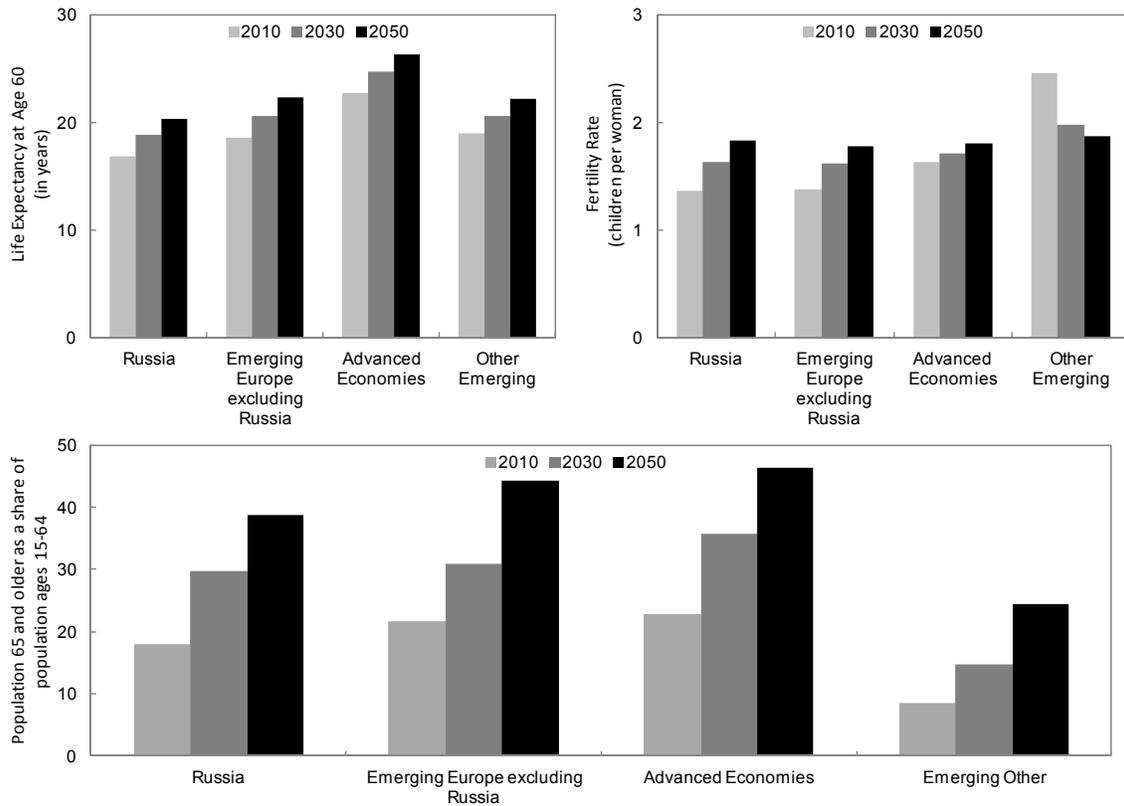
#### A. Common Challenges

The key challenges facing Russia are how to ensure adequate incomes in retirement and reasonable funding burdens while maintaining long-term sustainability of the pension system and sufficient flexibility in the system to adapt to the evolving economic and demographic environment.

As in other advanced and emerging economies, Russia is facing a demographic challenge:

- Life expectancy at age 60 years in Russia is lower than in several other countries—the gap to the best performing country in emerging Europe (Poland) is 3.3 years for females and 2.2 years for males (Figure 2). However, life expectancy is projected to rise by nearly 4 years over 2010–2050, as rapid as in other countries. Furthermore, there is the possibility of more rapid convergence in light of the high economic growth expected over the next few decades (under the baseline projections from the UN, the life expectancy gap between Russia and the averages from Eastern Europe or advanced economies remain roughly unchanged over time).
- Fertility rates are projected to remain low over the coming decades. Fertility rates (children per woman) in Russia over 2005–2010 stood at around 1.4, similar to that in the majority of other eastern European countries. Although fertility rates across Eastern Europe are projected to increase to nearly 1.8 children per woman by mid century, they will remain significantly below the natural replacement rate of 2.1.
- These projected increases in longevity combined with relatively low fertility rates explain the aging of the Russian population in the coming decades—the old-age dependency ratio (the ratio of the population 65 and older to the working age population) is projected to nearly double from around 18 percent to 36 percent between 2010 and 2050. This implies that the population will age at about the same pace of the advanced economies for which old age dependency ratios increase from about 23 percent in 2010 to 46 percent.

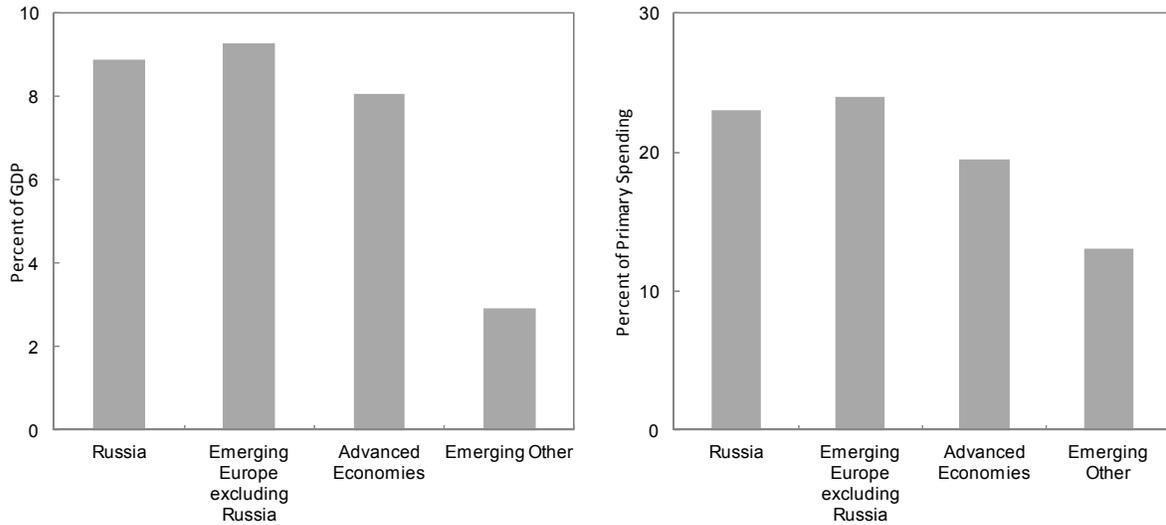
Figure 2. Demographic Trends, 2010–30



Source: UN and IMF staff calculations.

At nearly 9 percent of GDP, Russia looks similar to emerging Europe and advanced economies in terms of the current level of pension spending (Figure 3). These regions spend substantially more than emerging economies outside Europe. In the latter group, this reflects relatively low pension coverage—only about one quarter of the elderly receive public pensions in emerging Asia and 60 percent in Latin America compared to nearly universal coverage in Emerging Europe and the advanced economies—and younger populations.

Russia, however, devotes a relatively large share of its budget to finance public pensions. Pensions are about 23 percent of general government primary spending in Russia, just at about the emerging Europe average, compared to 20 percent in the advanced economies and only 13 percent in emerging economies outside of Europe. This might make Russian public finances more vulnerable to demographic pressures than in other countries.

**Figure 3. Public Pension Spending, 2010**

Source: IMF (2011b).

### B. The Impact of Aging on Pension Spending

To project pension spending over 2010–50, this paper uses an identity that decomposes public pension expenditure as a share of GDP ( $PE/GDP$ ) into four main drivers: aging (measured by the old age dependency ratio); eligibility rates (the number of pensioners as a proportion of the population 65 and older); replacement rates (the ratio of average pension to average wages); and labor force participation rates (See Appendix 1 for more details):

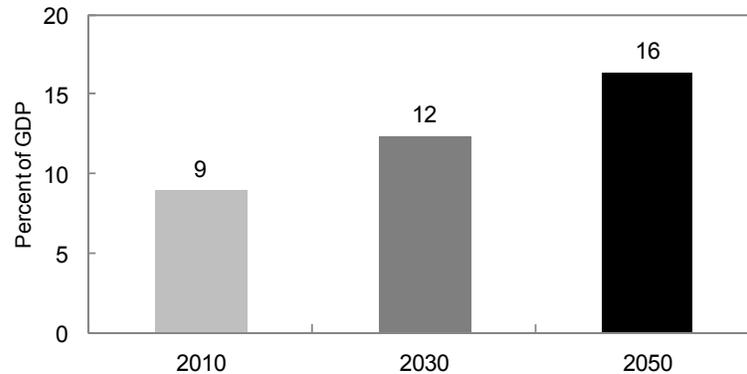
$$\frac{PE}{GDP} = \underbrace{\frac{\text{population 65+}}{\text{population 15-64}}}_{\text{Old-age dependency ratio}} * \underbrace{\frac{\text{pensioners}}{\text{population 65+}}}_{\text{Eligibility ratio}} * \underbrace{\frac{\text{average pension}}{\text{average wage}}}_{\text{Replacement rate}} * \underbrace{\frac{\text{population 15-64}}{\text{workers}}}_{\text{Inverse of employment ratio}} * \underbrace{\frac{\text{Compensation}}{GDP}}_{\text{Compensation share in GDP, assumed constant over time}}$$

Using this identity, it is possible to calculate the change in pension spending as a share of GDP between two years ( $t_1$  and  $t_2$ ). For any year  $t$ , let  $O(t)$  be the old-age dependency ratio,  $E(t)$  be the pensioners' ratio,  $G(t)$  be replacement rate, and  $L(t)$  be the inverse of the employment ratio. Assuming a constant total compensation share in GDP over time, then  $\frac{PE}{GDP}(t_2) = \frac{PE}{GDP}(t_1) * \frac{O(t_2)*E(t_2)*G(t_2)*L(t_2)}{O(t_1)*E(t_1)*G(t_1)*L(t_1)}$ . For example, according to this identity, everything else equal, a doubling in any of the factors will double the share of pension spending in GDP.

For Russia, the baseline scenario assumes that the replacement rate will remain at its current level for the foreseeable future. In fact, the recent increases in the replacement rate of public

pension system to about 40 percent of wages is consistent with earlier announcements to bring pensions to this level and maintain them there in the future.<sup>11</sup> Under this assumption, pension spending is projected to increase from 9 percent of GDP in 2010 to 12 percent in 2030 and 16 percent in 2050 (Figure 4). The cumulative cost of this projected increase is large: the present discounted value of increases in pension spending over 2010–50 is about [105] percent of 2010 GDP.

**Figure 4. Projected Public Pension Spending in Russia, 2010–50**



Source: IMF Staff calculations.

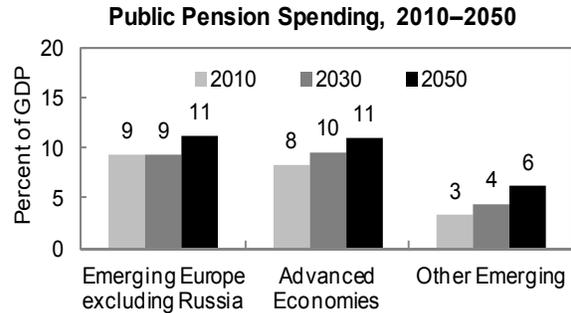
Note: The baseline assumes a constant replacement rate of about 40 percent of wages.

The magnitude of this projected increase contrasts with the expected trends in the rest of emerging Europe, where average public pension spending is projected to remain stable at about 9 percent of GDP until 2030 and increase to only 11 percent of GDP by 2050. Projected increases are also more moderate in advanced economies, where spending is projected to increase from 8 percent of GDP in 2010 to 11 percent in 2050. These lower increases in spending in other countries largely reflect the impact of enacted reforms (Box 1).

<sup>11</sup>In November of 2007, then-president Putin expressed the need to raise replacement rates to 40 percent (Hauner, 2008). More recently, Prime Minister Putin has noted that pensions “will certainly continue to grow” (Putin, 2012) and reaffirmed that in the future, pensions should reach a replacement rate of 40 percent (see <http://en.rian.ru/russia/20120229/171613261.html>).

### Box 1. What Have Other Countries Done?<sup>1</sup>

Many advanced and emerging economies have reformed their pension systems over the past two decades. These reforms are projected to substantially reduce the impact of aging on public pension spending. Past reforms to public pension schemes have generally focused on reducing replacement rates, tightening eligibility and increasing incentives for older individuals to remain in the labor market:



- Reform measures that reduce replacement rates include lowering accrual rates (Greece, Korea), extending the reference period for the base to calculate pensions (Finland, France, Greece, Portugal, Spain), introducing built-in sustainability factors (Germany) or automatic changes in the pension formula such as through notional returns (Austria, Italy, Sweden);
- Eligibility has been tightened mainly through increases of the statutory age of retirement. Over coming decades, retirement ages will increase gradually to 65 years in Italy (including for women), Japan, and Turkey; to 67 years in Germany, Spain, and the United States; and to 68 years in Ireland and the United Kingdom. A few countries have linked future retirement ages to changes in longevity (Denmark, Italy, and Spain). France recently raised retirement ages by two years;
- Enhancing the incentives for older workers to remain in the labor force has been achieved by tightening eligibility to early pensions (Greece abolished retirement before age 65 for those with fewer than 40 years of contributions or younger than age 60 in 2011) and making later retirement financially more attractive by moving to actuarially fair pension pay outs;
- Moreover, most advanced economies or regions have introduced anti-age discrimination legislation (Australia, the European Union, New Zealand, and the United States), which could make it easier for older workers to remain in the labor force.

In emerging Europe, early reforms involved many policies similar to those seen in advanced economies, including equalizing male and female retirement ages (Estonia in 1998), reducing benefits (Poland in 1999), raising retirement ages (Hungary in 1992 and Lithuania in 1995), and reducing early-retirement benefits (Estonia in 1998). In addition, several countries introduced mandatory funded private pensions (including Estonia, Hungary, Poland, and Romania). The reforms varied across countries in terms of coverage (the cohorts for which the mandatory private schemes became mandatory) and speed of transition (the share of contributions channeled from the state scheme to the private funds). Recently, partly to deal with the fiscal consequences of the crisis, several countries redirected part of contributions back to the public system (Latvia, Lithuania, and Poland). In Hungary mandatory private pensions no longer play a role since the nationalization of pension fund assets. Moreover, further parametric reforms have been recently introduced, including further increases in retirement ages (Hungary), changes to indexation (Romania) and elimination of privileges (Romania).

<sup>1/</sup> Source: IMF 2011b.

#### IV. CHOICES AND PROPOSALS

The cost of providing public pensions depends mainly on the number of pensioners and the size of the average benefit. To contain or offset projected pension spending, there are three main dimensions along which pension reform to a pay-as-you-go system can be undertaken:

- Reducing the generosity of the system (i.e., the replacement rate);
- Curtailing eligibility (i.e., reducing the number of people receiving a pension); and
- Increasing revenues (i.e., by raising the contribution rates).

However, it is important that pension reforms do not undermine the ability of the public pension system to alleviate poverty among the elderly. Pension reforms should contribute to required fiscal consolidation efforts, address equity issues, and support economic growth (IMF, 2011b).

##### A. Reducing the Replacement Rates

Absent reforms, maintaining the current level of replacement rates would require substantial increases in public pension spending—from 9 percent of GDP in 2010 to 12 percent in 2030 and 16 percent in 2050 (the baseline scenario described above). One option to contain the growth of spending is to reduce benefits relative to average wages. In Russia, this would take place if the current law—which implies decreasing returns in the notional defined contribution component of pensions—was allowed to run its course and not overridden with ad-hoc adjustments. This decline would take place because the notional return on contributions in this component is capped at the growth rate of contributions per pensioner. As the ratio of retirees per worker increases, the growth rate of contributions per pensioner, and thus the return on contributions, is likely to decline. This could generate savings by lowering replacement rates. But the magnitude of the benefit cuts needed to stabilize spending would be substantial: to keep pension spending at its current level, replacement rates would have to decline from about 40 percent today to 28 percent in 2030 to 20 percent in 2050. However, although lower replacement rates remain a theoretical possibility to contain spending, and indeed could happen if the current pension system were left unchanged, recent experience in Russia—including ad-hoc adjustments—suggests that cuts of this magnitude are unlikely to take place and would be socially undesirable.

##### B. Reducing Pension Eligibility

One way to reduce the number of individuals eligible for pensions is to increase statutory retirement ages. This helps pension finances by increasing the years of contributions and

reducing the number of years pensions are paid.<sup>12</sup> In addition to its fiscal impact, there are other advantages to raising retirement ages: it would have a positive impact on economic growth by promoting higher employment levels; it would boost the growth of real consumption, even in the short; and it could help avoid even larger cuts in replacement rates (IMF, 2011b).

In Russia, the objections often raised to increasing retirement ages are the relatively frail health and low life expectancy of the elderly, particularly males.<sup>13</sup> The argument is usually that it will be impossible for many to extend their working lives. However, The Ministry of Health and Social Development of the Russian Federation (2010) notes that more than 70 percent of the recipients of early old-age pensions who have not reached the universal retirement age continue to work—the majority of them at the same jobs. This suggests that the majority of the individuals who retire early do not seem to have a health impediment that prevents them from working.<sup>14</sup> Thus, delaying effective retirement could be a feasible option for many Russians. In addition, the expected improvements in life expectancy at retirement—about 1 year per decade—imply that at least part of these gains in longevity could be spent in the workforce.

One option would be to equalize the retirement age across genders, i.e., to set the statutory retirement age at 60 for both men and women. This is because the statutory retirement age for women is relatively low internationally, but especially given the longer life expectancy of women relative to men. Today, most advanced economies have equal ages of retirement for both genders and many emerging economies are in the process of equalizing them. This could be done gradually over the next 10 years, for instance. Such a reform would reduce pension spending by nearly 2 percentage points of GDP in 2030 and 2050 (Figure 5).

A more ambitious reform could aim to increase gradually retirement ages of both men and women to age 63 by 2030. This proposal alone would be enough to keep pension spending in 2030 as a share of GDP essentially unchanged from its 2010 level while maintaining a

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<sup>12</sup> For the notional defined contribution component, for which the savings from delaying retirement could be offset by higher benefits, increasing statutory retirement ages would also entail an adjustment of the conversion factor from notional accounts to pensions. The simulations herein assume that increase in the statutory retirement age do not increase the replacement rate of the system. Under current law, an increase in the statutory retirement age would offset part of the decline in the replacement rate (which would happen because returns on the notional defined component depends on the number of contributors).

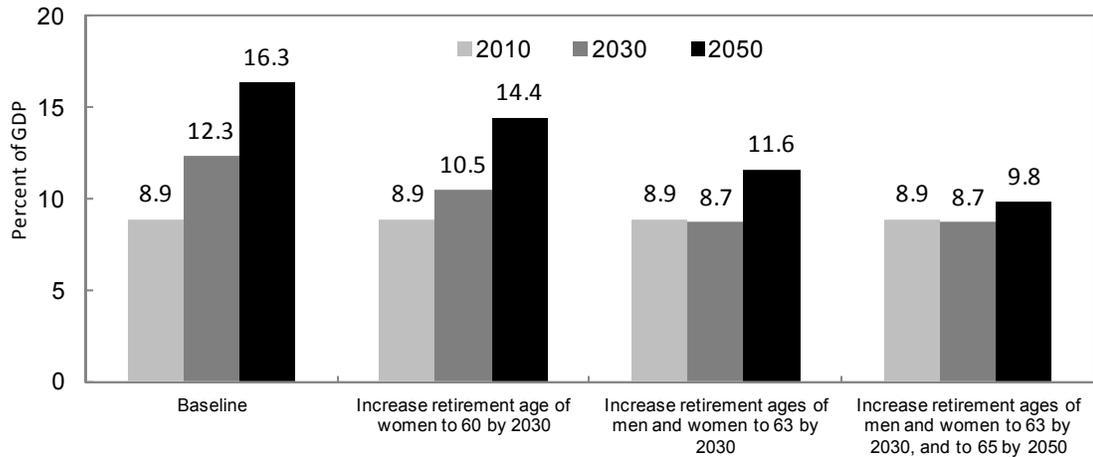
<sup>13</sup> Another objection often raised to increasing retirement ages is that it would increase unemployment. However, there is little evidence that increased labor force participation of the elderly would increase the aggregate unemployment rate in the long run. See, for instance, IMF (2011b).

<sup>14</sup> Kolev and Pascal (2002) examine the factors that lead pensioners in Russia to continue working and conclude that making the receipt of full pension benefits conditional on leaving the labor force could save public resources and allow higher pension benefits for those unable to work.

replacement rate of about 40 percent.<sup>15</sup> However, without further increases in statutory retirement ages, pension spending will start to increase after 2030—from 9 percent in 2030 to 11½ percent in 2050. If instead, the pension age for both sexes were further increased to 65 years by 2050—about 1 year per decade in line with the projected increases in longevity—pension spending in 2050 would be only marginally above its 2010 level. This shows that retirement age increases in line with life expectancy would be required to keep spending in check. Of course, if life expectancy developed differently than currently projected, the required changes to the retirement age would be different. Also, it is important to note that some people might not be able to keep working much longer beyond the current retirement ages, so these proposals should be accompanied by adequate disability pensions and social assistance programs to protect those who cannot extend their work lives. For those who are able to extend their working lives, it would be important to tighten eligibility criteria for disability and survivors pensions as the retirement age is increased.

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<sup>15</sup> Recently, Strategy 2020 (2011) has proposed to increase the retirement age to 63 for both sexes by 2030, among other proposals to provide an “adequate pension size.” Dmitriev (2011 and 2012) has proposed to increase the pension age to 63 for both sexes by 2025. He estimates that this reform plus a restructuring of early retirement schemes could cover two-thirds of the funding gap for the Pension Fund of Russia. Gurvich (2010) investigated the option of increasing the retirement age to 62 for men and 60 for women, which would yield a replacement rate of 35 percent in 2030 and 31 percent by 2040 and estimates in Gurvich (2011) suggest that increasing the pension age to 62 for men and 60 for women would yield savings of 1.4-2.3 percent of GDP. Sinyavskaya (2005) emphasizes the importance of raising the retirement age for women to equalize it at age 60 with men, as well as reforming early pensions and the right to work while collecting a pension. Gora, Rohozynsky, and Sinyavskaya (2010) analyze various pension reform options for Russia, including an increase in the pension age but do not include quantitative estimates of the impact. They note, however, that an increase in the retirement age would lead to longer participation in the labor market and reduced pressure to increase contribution rates. Nazarov (2011) notes an increase in the pension age is needed but may be politically difficult in the near term. He suggests that tightening pension indexation rules and introducing incentives for voluntary delayed retirement could be first steps on a path to future reform which should include parametric reforms of the PAYG system.

**Figure 5. Impact of Increasing Retirement Ages, 2010–50**

Source: IMF staff estimates.

Note: The simulations assume that for every year increase in the retirement age, all individuals would claim pension one year later—including those who claim early retirement and disability pensions.

As noted in Section II, a significant share of retirees takes advantage of early retirement. In the baseline scenario, it is assumed in this paper that no one can retire before age 50 and everyone retires at the statutory retirement age of 55 for women and 60 for men. Those who have not yet reached retirement age are counted as retired if they were employed at ages 45–49 but are no longer employed at 50–54 for women or 50–59 for men.

Tightening early retirement eligibility could also help to contain pension spending, though not to the same extent as increases in the retirement age. For example, if it is assumed that no individual can claim a pension before the age of 55 for women and 60 for men, this would decrease pension spending by about half a percent of GDP in both 2030 and 2050.<sup>16</sup>

### C. Increasing Revenues

Projected public pension spending increases could also be offset by increasing system revenues. This can be done, for example, by increasing the payroll tax rate from its current level of 22 percent of wages to about 30 percent of wage in 2030 and to more than 40 percent in 2050. These levels of contribution are beyond the currently observed payroll rates in other countries—nearly all advanced and emerging economies have pension contribution rates below 30 percent of wages. These large contribution hikes can have adverse labor market

<sup>16</sup>Considering that the average retirement age for women is 52 and 54 for men, there would be women and men who are presently retiring before age 50 that are not captured in this simulation. As such, one should consider this scenario to be a lower bound for the benefits of tightening eligibility for early retirement. Note also that we estimate the current level of pension spending for people who have not yet reached the statutory pension age to be 0.7 percent of GDP.

effects and can further promote informality. In addition, such increases would go against recent efforts of the Russian authorities to reduce the cost of labor—contribution rates were reduced from 26 percent of wages to 22 percent in 2011.<sup>17</sup> Other options to increase revenues include using alternative revenue sources such as consumption taxes, particularly to finance the redistributive components of the system such as allowances.<sup>18</sup> Similarly, Russia can aim to improve the efficiency of payroll contributions collection.

## V. CONCLUDING COMMENTS

The appropriate reform mix depends on country circumstances and preferences, although increasing retirement ages can have many advantages (Karam, Muir, Pereira, and Tuladhar (2010)). First, it would promote higher employment levels which would raise the both the rate and level of economic growth. In contrast, raising payroll taxes, which are distortionary, could decrease labor supply and potential economic growth. By increasing lifetime working periods and earnings, raising the retirement age can also boost the growth of real consumption, even in the short run. Second, raising retirement ages would help to avoid a socially undesirable decrease in the replacement rate. Third, increases in retirement ages could also be easier for the public to understand in light of increasing life expectancies.

Given that retirement ages are low in Russia, the most immediate policy reform option is to raise them. This paper finds that gradually increasing statutory retirement ages for men and women to 63 by 2030 and to 65 by 2050, will largely contain public pension spending while maintaining a replacement rate of about 40 percent.<sup>19</sup> If life expectancy trends beyond 2030 turn out to be different from those currently projected, then these increases could be revised accordingly. At the same time, increases in the retirement age should be accompanied by measures that protect the incomes of those that cannot continue to work. Older workers should be protected fully by disability pensions where appropriate and social assistance programs to ensure that increases in retirement ages do not raise poverty rates.

Increases in the statutory retirement age should also be accompanied by steps to limit early retirement. One way to limit early retirement is to phase out the complex categorical system

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<sup>17</sup> In Russia, recent reforms have shifted payroll tax collection to the Pension Fund. Although establishing a unified collection agency can have many advantages, the integration of collection can be very difficult, particularly in countries where tax administration and the social security agency are at very different stages of modernization (Barrand and others (2004)). Prior to integrating collection tasks, efforts should focus on harmonizing policy and legislation for compliance and increasing interagency coordination and data sharing. Furthermore, it is important to proceed with a broad-ranging modernization program across all the government sector

<sup>18</sup> Note that allowances are currently financed from the Federal budget, not from pension contributions.

<sup>19</sup> Such a gradual approach would be in line with the suggestion from PM Putin that any increase in the retirement age would not need to happen now but could happen in “five, ten, or fifteen years” (see <http://en.rian.ru/russia/20110530/164317727.html>).

that allows certain occupations and professions to claim benefits early. Another way to limit early retirement is to control strictly alternative pathways to retirement such as disability pensions, for instance by conditioning disability pensions on strict medical evaluations. In any case, benefits claimed prior to the retirement age should be reduced to reflect the longer period over which they will be received.

By undertaking reforms to put Russia's pension system on a sustainable footing, pension reform could help support the needed fiscal adjustment over the medium to long term in order to ensure an enduring return to a sustainable fiscal position.

## APPENDIX. METHODOLOGY AND DATA

### Public Pension Expenditure Identity

Aging is typically measured by the old-age dependency ratio (the ratio of the population 65 years and older to the population aged 15–64). Eligibility refers to the number of pensioners as a proportion of the population 65 and older; this factor depends on the qualifying conditions for a pension, particularly the statutory retirement age and the possibility of early retirement. Replacement rates—the ratio of average pension to average earnings—capture the generosity of pension benefits. Finally, changes in labor force participation rates affect both the numerator—increases in labor force participation today can affect future eligibility and replacement rates—and the denominator—higher labor force participation implies higher GDP.

$$PE = pensioners * average\ pension$$

$$\frac{PE}{GDP} = pensioners * \frac{average\ pension}{\frac{GDP}{workers}} * \frac{1}{workers} * \frac{population\ 65+}{population\ 15-64} * \frac{population\ 15-64}{population\ 65+}$$

$$\frac{PE}{GDP} = \frac{population\ 65+}{population\ 15-64} * \frac{pensioners}{population\ 65+} * \frac{average\ pension}{\frac{GDP}{workers}} * \frac{population\ 15-64}{workers}$$

$$\frac{PE}{GDP} = \underbrace{\frac{population\ 65+}{population\ 15-64}}_{\text{Old-age dependency ratio}} * \underbrace{\frac{pensioners}{population\ 65+}}_{\text{Eligibility ratio}} * \underbrace{\frac{average\ pension}{average\ wage}}_{\text{Replacement rate}} * \underbrace{\frac{population\ 15-64}{workers}}_{\text{Inverse of employment ratio}} * \underbrace{\frac{Compensation}{GDP}}_{\text{Compensation share in GDP, assumed constant over time}}$$

Using this simple identity, it is possible to calculate the change in pension spending as a share of GDP between two years ( $t_1$  and  $t_2$ ). For any year  $t$ , let  $O(t)$  be the old-age dependency ratio,  $E(t)$  be the pensioners' ratio,  $G(t)$  be the replacement rate, and  $L(t)$  be the inverse of the employment ratio. Assuming a constant total compensation share in GDP over time,  $\frac{PE}{GDP}(t_2) = \frac{PE}{GDP}(t_1) * \frac{O(t_2)*E(t_2)*G(t_2)*L(t_2)}{O(t_1)*E(t_1)*G(t_1)*L(t_1)}$ .

### Data Sources and Calculations

$$Pension\ Spending\ 1990-2010\ \left(\frac{PE}{GDP} = \frac{population\ 65+}{population\ 15-64} * \frac{pensioners}{population\ 65+} * \frac{average\ pension}{average\ wage} * \frac{population\ 15-64}{workers} * \frac{Compensation}{GDP}\right)$$

For Russia, the most recent spending (2010) as a share of GDP comes from Rosstat. Since these data might provide only a few data points, the years up to 2010 are imputed based on demographics ( $\frac{PE}{GDP}(t_2) = \frac{PE}{GDP}(t_1) * \frac{O(t_2)}{O(t_1)}$ ). When not available, data for 1990 and later years are imputed based on data from ILO's The Cost of Social Security. For in-between years

without observations, spending figures are completed using a linear interpolation between the two observed points.

### ***Projected Pension Spending 2010–50***

The latest available number from Rosstat as explained above is the starting point for the projections. Projected spending reflects the impact of changing demographics and the following assumptions are made: (i) constant coverage ratio of pensioners to population aged above 65 years and constant replacement rate; and (ii) changes are driven by employment ratio and old-age dependency ratio  $\left(\frac{PE}{GDP}(t_2) = \frac{PE}{GDP}(t_1) * \frac{O(t_2)}{O(t_1)} * \frac{O(t_2)*L(t_2)}{O(t_1)*L(t_1)}\right)$ .

$$\text{Population 1970–2050} \left( \frac{PE}{GDP} = \frac{\text{population 65+}}{\text{population 15–64}} * \frac{\text{pensioners}}{\text{population 65+}} * \frac{\text{average pension}}{\text{average wage}} * \frac{\text{population 15–64}}{\text{workers}} * \frac{\text{Compensation}}{GDP} \right)$$

Population estimates come from the United Nations' *World Population Prospects: The 2008 Revision*.

$$\text{Number of Workers} \left( \frac{PE}{GDP} = \frac{\text{population 65+}}{\text{population 15–64}} * \frac{\text{pensioners}}{\text{population 65+}} * \frac{\text{average pension}}{\text{average wage}} * \frac{\text{population 15–64}}{\text{workers}} * \frac{\text{Compensation}}{GDP} \right)$$

The number of workers is defined as the population aged 15 and older that economically active. For every country in the sample this is done for each 5-year age group (15–19, 20–24, ..., 75–79, and 80+) separately for men and women for 1970–2050.

The share of the population that is economically active combines the fourth (data for 1950–2010) and sixth (data from 1990–2020) editions from the ILO's Economically Active Population database. A consistent series for 1970–2020 is obtained by combining these two series—using the latest edition as the base and interpolating employment activity from 1990 to 1970 using the observed changes in the earlier data. Data for 2025–2050 are projected using a fixed-effect regression on 5-year cohort (c) for every 5 year period (t) over 1950–2020 ( $EA_{c,t} = \alpha EA_{c-1,t} + \beta EA_{c,t-1} + \beta EA_{c,t-1} + \gamma EA_{c,t-2} + \gamma YEAR$ ). In other words, the projection assume that economic activity rate in year t for cohort c depends on the economic activity of the group 5 years younger than cohort c in 2020, and in the observed economic activity rate of cohort c in 2015, 2010, and 2005. This regression is done for all countries in the ILO database. The result is a consistent series of economic activity for men and women by five year age groups 1970–2050.

$$\text{Number of Pensioners} \left( \frac{PE}{GDP} = \frac{\text{population 65+}}{\text{population 15–64}} * \frac{\text{pensioners}}{\text{population 65+}} * \frac{\text{average pension}}{\text{average wage}} * \frac{\text{population 15–64}}{\text{workers}} * \frac{\text{Compensation}}{GDP} \right)$$

All individuals above the retirement age are considered “retired.” In addition, to account for early retirement, the share of the population aged 50–60 that was economically active at ages 45–49 but is no longer active is added to the pool of “retired”—this calculation follows two different cohorts, 50–54, and 55–59, separately for men and women. Finally, the total number of “retired” is multiplied by pension coverage (percent of those above the statutory age of retirement receiving a public pension) from ILO (2010) to obtain the number of

pensioners. This adjustment is made to account for public pension coverage to reflect that not all retirees receive public pensions.

$$\text{Compensation to GDP} \left( \frac{PE}{GDP} = \frac{\text{population 65+}}{\text{population 15-64}} * \frac{\text{pensioners}}{\text{population 65+}} * \frac{\text{average pension}}{\text{average wage}} * \frac{\text{population 15-64}}{\text{workers}} * \frac{\text{Compensation}}{GDP} \right)$$

Total employee compensation from GDP comes from the United Nations System of National Accounts 1993 available at:

[http://data.un.org/Data.aspx?q=compensation+of+employees&d=SNA&f=group\\_code%3a401%3bitem\\_code%3a9](http://data.un.org/Data.aspx?q=compensation+of+employees&d=SNA&f=group_code%3a401%3bitem_code%3a9). The latest observed share of compensation in GDP is used assuming it remains constant throughout 1970–2050.

$$\text{Replacement Rates} \left( \frac{PE}{GDP} = \frac{\text{population 65+}}{\text{population 15-64}} * \frac{\text{pensioners}}{\text{population 65+}} * \frac{\text{average pension}}{\text{average wage}} * \frac{\text{population 15-64}}{\text{workers}} * \frac{\text{Compensation}}{GDP} \right)$$

With all of the other components computed as described above, replacement rates can be

$$\text{estimated as } \frac{\text{average pension}}{\text{average wage}} = \left( \frac{\text{population 65+}}{\text{population 15-64}} * \frac{\text{pensioners}}{\text{population 65+}} * \frac{\text{average pension}}{\text{average wage}} * \frac{\text{population 15-64}}{\text{workers}} * \frac{\text{Compensation}}{GDP} \right) / \frac{PE}{GDP}$$

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