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The Bulgarian Pension System: Caught Between Adequacy and Sustainability

Jean-Jacques Hallaert

SIP/2024/021

IMF Selected Issues Papers are prepared by IMF staff as background documentation for periodic consultations with member countries. It is based on the information available at the time it was completed on May 10, 2024. This paper is also published separately as IMF Country Report No 24/164.

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The Bulgarian Pension System: Caught Between Adequacy and Sustainability
Prepared by Jean-Jacques Hallaert

Authorized for distribution by Jean-François Dauphin
June 2024

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ABSTRACT: During the COVID-19 pandemic, the Bulgarian authorities increased pensions substantially to support pensioners' living standards and aggregate demand. These increases have become permanent and improved the adequacy of pensions. However, not matched by revenue measures, they have widened the deficit of the pension system. Reforms that increase the incentives to contribute to the pension system and thus revenue would improve the financial sustainability of the pension system and reduce fiscal risks.

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SELECTED ISSUES PAPERS

The Bulgarian Pension System: Caught Between Adequacy and Sustainability

Bulgaria

Prepared by Jean-Jacques Hallaert



BULGARIA

SELECTED ISSUES

May 10, 2024

Approved By
European Department

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THE BULGARIAN PENSION SYSTEM: CAUGHT BETWEEN ADEQUACY AND SUSTAINABILITY¹

During the COVID-19 pandemic, the Bulgarian authorities increased pensions substantially to support pensioners' living standards and aggregate demand. These increases have become permanent and improved the adequacy of pensions. However, not matched by revenue measures, they have widened the deficit of the pension system. Reforms that increase the incentives to contribute to the pension system and thus revenue would improve the financial sustainability of the pension system and reduce fiscal risks.

1. The COVID-19 measures related to pensions structurally increase spending. During the pandemic, increasing pensions was one of the tools deployed by the Bulgarian authorities to support demand. Some of the measures were announced to be temporary but were made permanent in 2022. As offsetting revenue measures were limited, the deficit of the pension system increased. This presents a fiscal burden given the legal requirement for the state to transfer funds to cover the pension system deficits.

2. As adequacy remains an issue, reforms should aim at increasing contributions. The recent measures increased the adequacy of pensions, but pensions remain low compared to wages, and pensioners poverty remains widespread. Thus, there is little scope for reducing the generosity of pensions. This paper argues that, instead, reforms should focus on increasing incentives to contribute which, in turn, will increase revenue.

3. This paper is organized as follows. The first section provides an overview of the pension system and describes measures taken in the last decade to increase its financial sustainability. The second section highlights how the measures taken during and after the COVID-19 pandemic structurally affect the financial sustainability of the pension system. The third section shows that the recent measures compound the long-term pressure related to an aging population. The fourth section details policies that could contain the projected increase in pension spending.

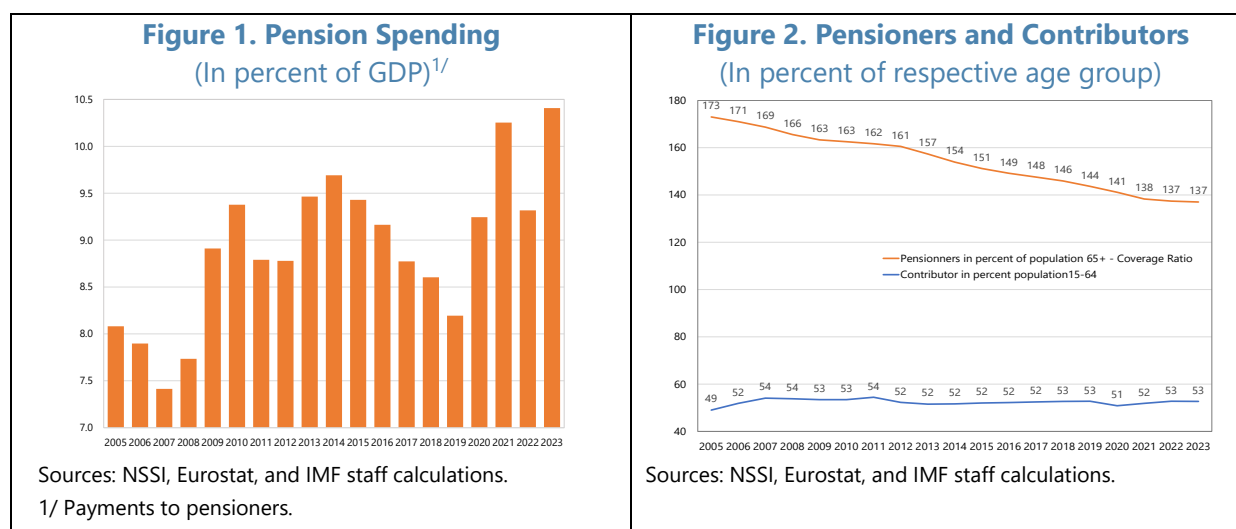
A. An Overview of the Pension System and of Past Policies to Ensure Financial Sustainability

4. The Bulgarian pension system is organized around three pillars. The first pillar is a mandatory, defined benefit, pay-as-you-go system administrated by the National Social Security Institute (NSSI). It provides old age and survivor pensions as well as disability pensions due to sickness, accident, and occupational disease. It is financed by a contribution rate (employer and employees) of 14.8 percent of the gross insurable income for individuals born after 1959 and

¹ Prepared by Jean-Jacques Hallaert (EUR). The author thanks Jean-François Dauphin and Helge Berger for useful comments, Igljika Vassileva for her comments and unvaluable help with data and information gathering, and staff and officials from the National Social Security Institute, the Ministry of Finance, and participants at a seminar at the Ministry of Finance for useful discussions.

19.8 percent for individuals born in 1959 or before.² The second pillar is a defined contribution system managed by licensed private pension providers. It is mandatory for individuals born after 1959 and funded by a contribution rate of 5 percent. The third pillar is a voluntary defined contribution system managed by licensed private pension providers (Republic of Bulgaria, 2020).

5. In the 2010s, measures were taken to ensure the financial sustainability of the pension system. Early in the 2010s, a pension freeze was implemented. This reduced the pension-to-GDP ratio, temporarily and partially offsetting the increase during the Global Financial Crisis (GFC).³ It was followed in 2015 by a reform (implemented starting in 2016). The 2015 reform had a more lasting impact reducing pension spending by 1½ percent of GDP between 2014 and 2019 (Figure 1).



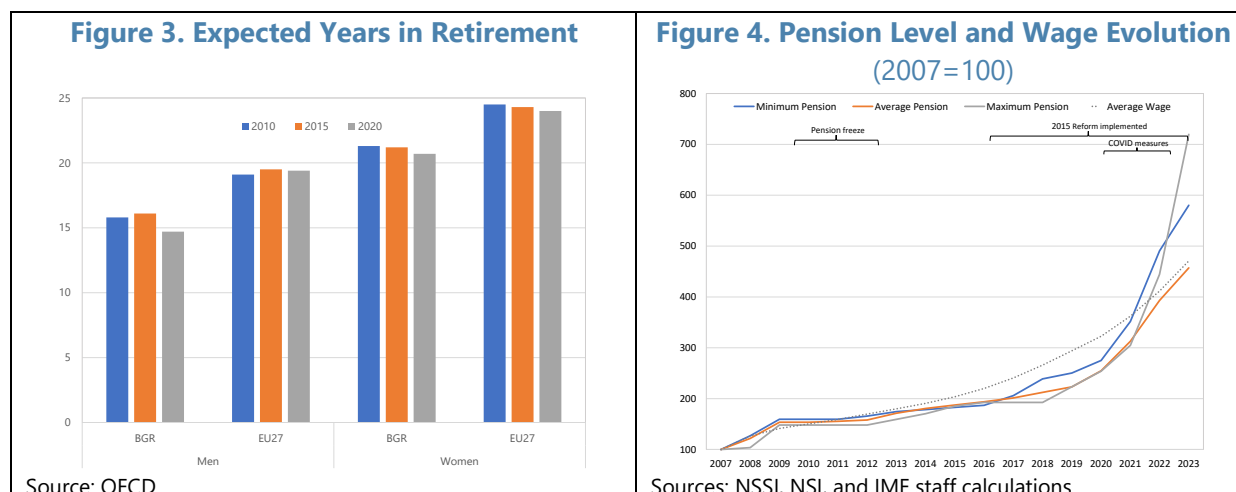
6. The 2015 reform increased the financial sustainability by curtailing access to pensions. The reform gradually increases the retirement age (from 63 and 8 months for men and 60 and 8 months for women to 65 in 2029 for men and in 2037 for women) and the required minimum contribution period (by two months every year until it reaches 40 years for men and 37 years for women by 2027).⁴ Following its implementation, the coverage ratio continued to decline (Figure 2), and the 2021 Ageing Report (EC, 2021) projects that it would continue to do so in the coming decades and be below EU average by 2040.⁵ The expected years in retirement also declined. This decline was more rapid than for the EU as a whole (Figure 3).

² Self-employed contribute themselves to the at the same rate of 14.8/19.8 percent. The rate is applied to the declared covered earnings for the previous calendar year (Republic of Bulgaria, 2020; Eurostat (2022)).

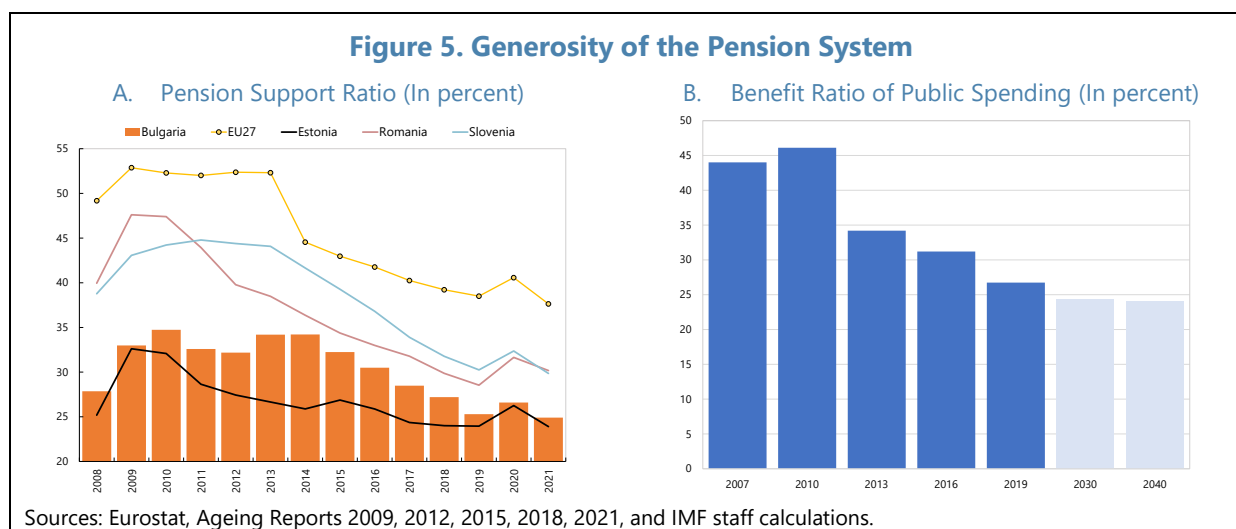
³ See Republic of Bulgaria (2020), Hallaert (2020), and Eurostat (2022) for a description of the indexation mechanism.

⁴ For details, see Republic of Bulgaria (2020) and Eurostat (2022).

⁵ The coverage ratio is the number of pensioners as a share of population 65 and older.

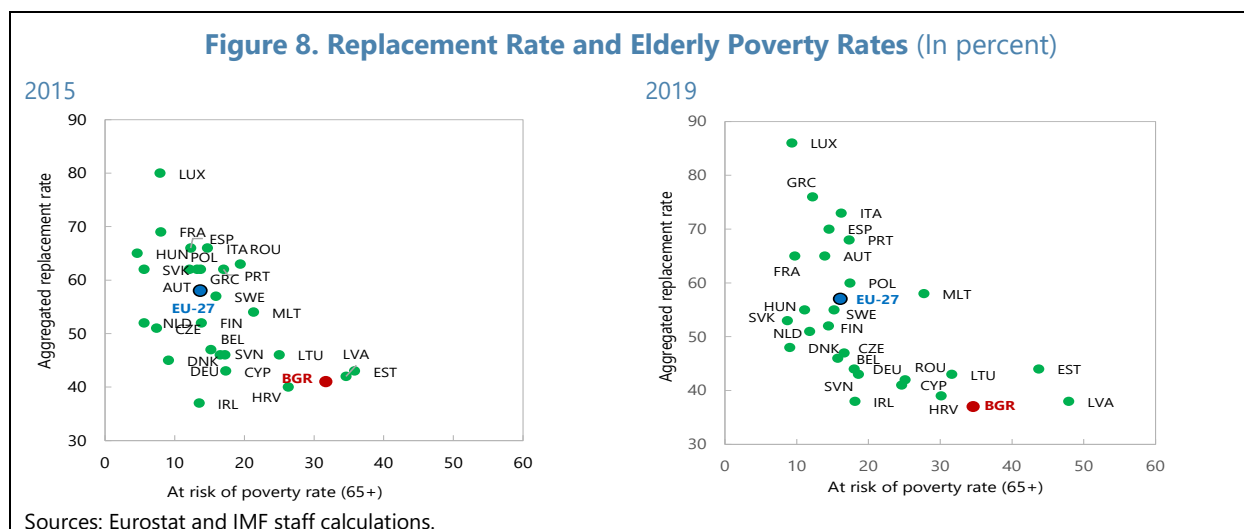
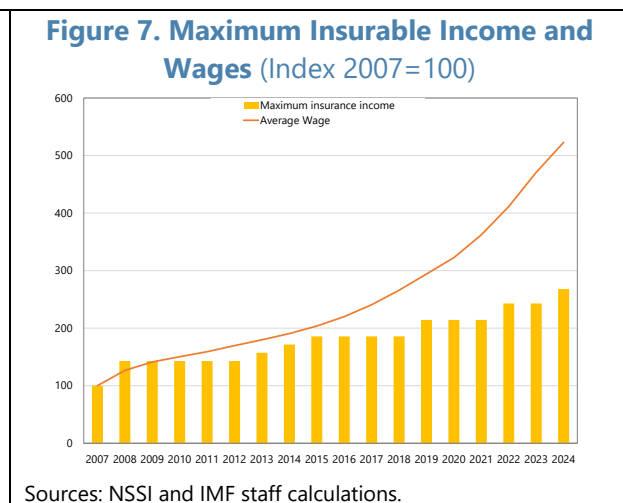
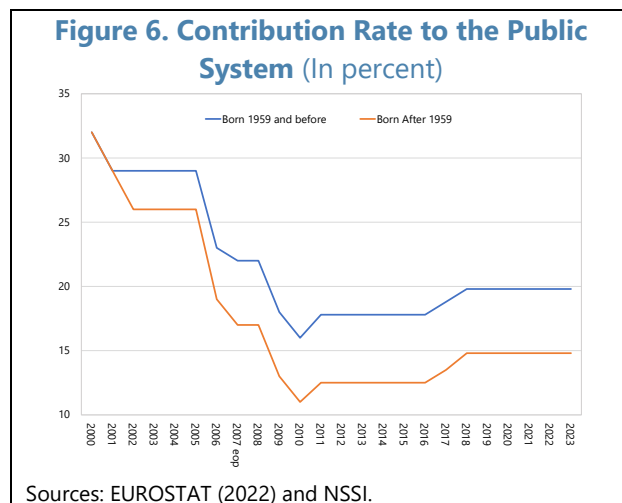


7. The generosity of pensions was also reduced. The generosity of the pension system can be measured by the support ratio defined as pension benefit per person over 65 divided by GDP per person of working age (Lindert, 2021). This ratio declined markedly after the reform, in line with declines observed in European peers. Although the reform increased marginally the gross replacement rate, the benefit ratio continued to decline markedly as increases in pensions lagged wage growth (Figures 4 and 5).⁶



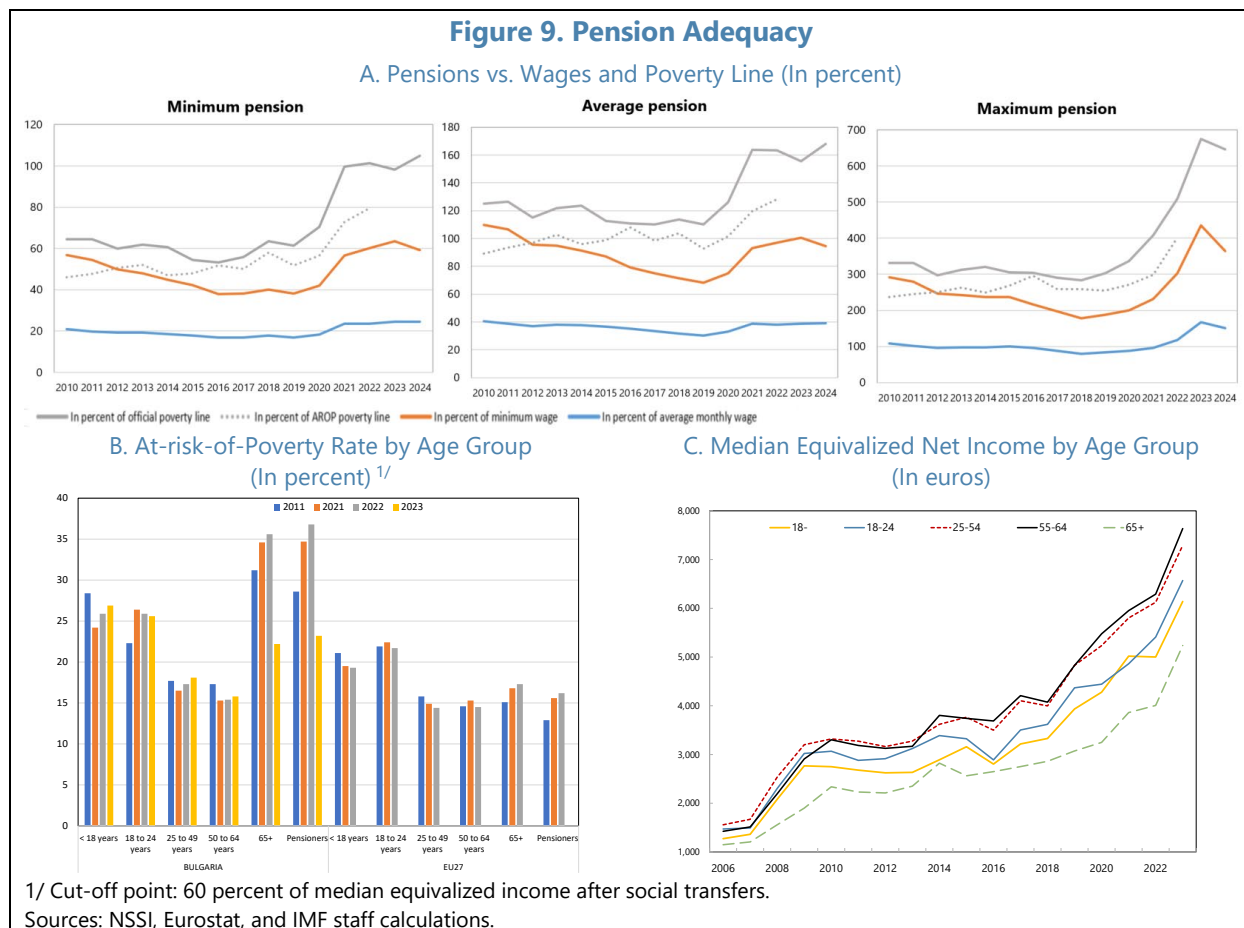
8. In contrast, revenue measures were limited. The 2015 reform increased the contribution rate partially offsetting the decline in previous years (Figure 6). However, the cap on social contributions (the maximum insurable income) remained unchanged in nominal terms from 2015 to 2019, while wage growth was robust (Figure 7). This negatively affected revenue and resulted in a lower average effective contribution rate for high wage earners.

⁶ The gross replacement rate is the average first pension as a share of the economy-wide average wage at retirement. The benefit ratio is the average pension as a share of average compensation.



9. Buttressing the financial sustainability of the pension system was achieved at the cost of reduced pensions adequacy. After the 2015 reform, the already low replacement rate declined (Figure 8). The share of pensioners receiving the minimum pension, which had declined in the first half of the 2010s, increased from 27 percent in 2016 to 35 percent in 2019.⁷ In the meantime, the minimum pension dropped from 57 percent of the minimum wage in 2010 to 38 percent in 2019 and remained well below the poverty line. In this context, many pensioners continue to work to supplement their pension. This reduces the impact of low pensions on old-age poverty but did not prevent the disposable income of the elderly from being significantly lower than the income of other age groups. Thus, unlike in the EU as a whole, the elderly (65 and older) was until 2022 the age group suffering the most from poverty and the poverty rate of elderly and pensioners increased markedly in the last decade (Figure 9).

⁷ The share reached 46 percent in 2022 and 2023.

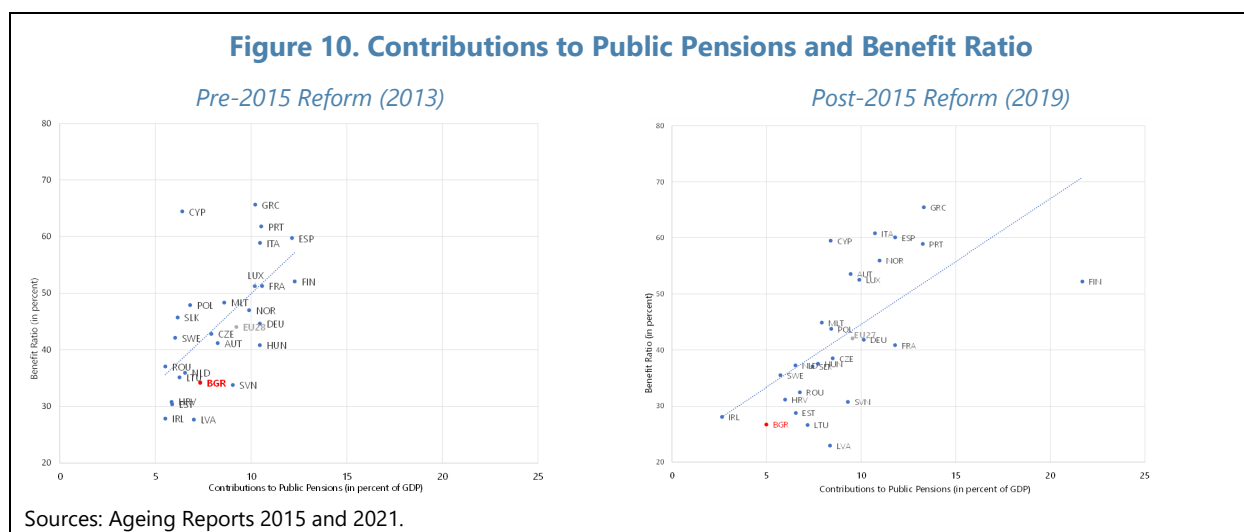


10. As a low contribution - low benefit system, the Bulgarian pension system results in relatively limited spending. The 2015 reform reinforced this logic, and Bulgaria's spending on pensions was, on the eve of the pandemic, more than 5 percent of GDP lower than EU average (Figure 10).

B. The COVID-19 Pandemic Measures: A Game Changer that Increased Imbalances

11. Pensions were a significant part of the fiscal package deployed during the pandemic. More than half of the fiscal support provided to households in 2020–21 targeted pensioners. This accounted for over 1 percent of GDP in 2021 (Table 1). The support mainly took the form of pensions increases and ad-hoc supplementary payments (bonuses) (Table 2). Support measures were planned to be phased out in 2022, but a revised budget for that year increased pensions more than initially budgeted, incorporated permanently in pensions the bonuses that were initially introduced as a temporary response to the pandemic, and modified pension calculations. This significantly increased the generosity of the system (IMF, 2022; NSSI, 2022a and b) and the

adequacy of pensions. In 2023, when the full impact of the measure is visible, old-age poverty dropped markedly but pension spending rebounded strongly (Figures 1 and 9).^{8,9}



12. The marked increase in pension spending was not matched by commensurate revenue increases. The contribution rate and the maximum insurable income were left unchanged during the pandemic (Figures 6 and 7). As wage growth remained robust, the share of contributors benefiting from the cap on social contributions increased from 6.4 percent in 2019 to 14.2 percent in 2023 and the contributions at maximum social insurable income represent over 21 percent of total contributions (up from 13.6 percent in 2019). Moreover, the increase in the maximum pension has become disconnected from the maximum insurable income: over 2009–19, the maximum pension was set at 35 percent of the maximum insurable income, but the ratio increased to 40 percent in 2020, 48 percent in 2021, 62 percent in 2022, and 100 percent in 2023 and the increase in 2024 will bring this ratio to only 91 percent. Due to such a rapid increase, the share of pensioners receiving the maximum pension fell from 2 percent in 2020 to 0.1 percent in 2023 (Table 3). In other terms, contributions are increasingly capped affecting the system revenue, while the cap on pensions has *de facto* disappeared and thus does not contain spending anymore.

Table 1. COVID-Related Fiscal Measures^{1/}
(In percent)

	2020		2021	
	Distribution		Share of GDP	
Household support	30	49	0.9	2.3
o/w pensions	14	28	0.5	1.3
Corporate support	7	9	0.2	0.4
Job retention scheme	26	14	0.8	0.7
Health	18	26	0.6	1.3
Capital increase of BDB 2/	18	-	0.6	-
Co-financing of EU program	0	2	0.0	0.1
Total	100	100	3.2	4.8

Sources: Bulgarian Ministry of Finance and IMF staff calculations.
1/ Financed by the national budget.
2/ The Bulgarian Development Bank (BDB) is a state-owned bank. The capital increase was to finance the issuance of guarantees to commercial banks for the extension of corporate and for providing interest-free loans to employees on unpaid leave.

⁸ In addition, in 2023, the widow's allowances increased from 26.5 percent to 30 percent of the deceased spouse's pension. The NSSI estimates that it increases pension payment by 0.7 percent in 2023.

⁹ For more details on the changes in the pension system during the pandemic, see NSI (2022).

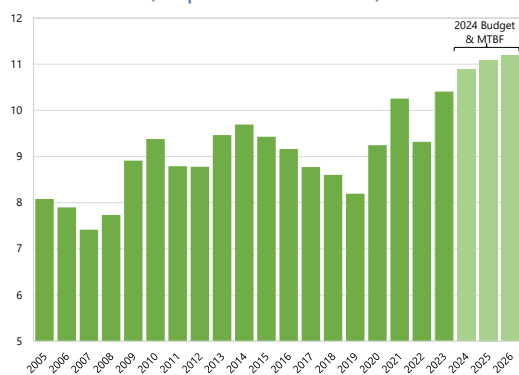
Table 2. Pension and Increases (In percent, end of period)

		2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Minimum pension 1/	without bonus 2/	0	0	6.6	3.4	3.0	1.9	2.5	23.9	3.8	5.7	13.9	48.0
	with bonus 2/											36.7	63.3
Average pension	without bonus 2/	1.3	2.2	0.7	18.3	3.3	4.0	2.4	5.9	3.8	7.3	14.6	25.2
	with bonus 2/											26.5	36.0
Maximum pension	without bonus 2/	0	0	0	10.0	9.1	8.3	0	0	0	31.9	0	25.0
	with bonus 2/											4.2	29.6

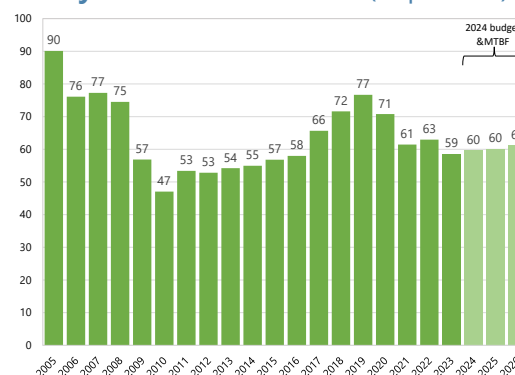
Source: IMF (2022).

1/ For 2021: the minimum old-age pension was set at BGN 300 up to December 24 (20 percent increase compared to end 2020) and BGN 370 from 25 to 31 December (48 percent increase compared to end 2020).

2/ Lump sum pension supplement for all pensioners amounting to BGN 50 from August 2020 to September 2021 and to BGN 120 from October to December 2021.

Figure 11. Payments to Pensioners
(In percent of GDP)

Sources: NSSI and IMF staff calculations.

Figure 12. Social Contributions in Share of Payments to Pensioners
(In percent)

Sources: NSSI and IMF staff calculations.

13. The COVID-19 measures have affected the financial sustainability of the pension system. Pension spending reached a historical high in 2023, and the medium-term budget framework (MTBF) expects it to continue rising in the coming years (Figure 11).¹⁰ While the pension freeze and the 2015 reform had gradually increased the share of pension payments financed by social contributions, the share fell back to its 2015 level in 2023 and the MTBF expects only a limited recovery in the coming years (Figure 12).

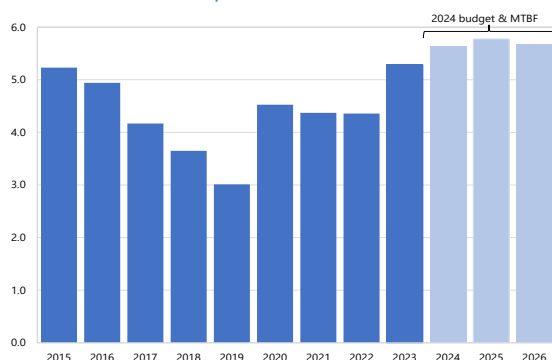
¹⁰ The 2024 financial data do not include the impact of the Easter supplement voted by Parliament in April 2024. The supplement of BGN 100 granted to pensioners whose pension is below the official poverty line of BGN 526 per month has an estimated cost of 0.03 percent of GDP.

Table 3. Maximum Insurable Income and Maximum Pension (In percent)

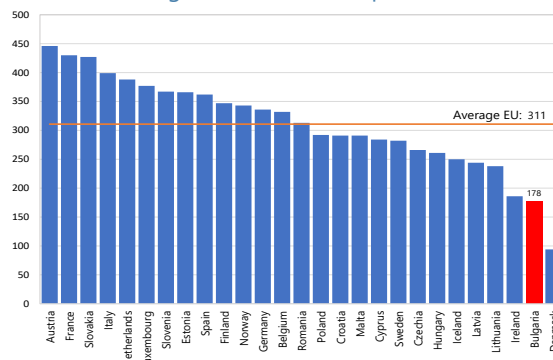
	2019	2020	2021	2022	2023	2024 Proj.
Maximum pension as a share of						
Payments to pensioners	5.7	4.6	2.6	2.5	0.3	0.4
Numbers of pensioners	1.3	2.0	1.3	0.0	0.1	0.1
Contributions at maximum insurable income as a share of						
Total contributions	13.6	15.2	17.8	18.2	21.1	21.2
Number of contributors	6.4	8.4	10.9	11.1	14.2	14.2

Sources: NSSI and IMF staff calculations.

14. The rising deficit of the pension system constitutes a fiscal burden. In Bulgaria, the pension system deficit is by law financed by transfers from the state. Therefore, the pension system is not indebted, but its deficits could lead to higher general government debt absent other offsetting measures. The system has been structurally in deficit, but the 2015 reform helped gradually improve its fiscal balance. With the pandemic measures, the transfers from the state to cover the deficit rebounded to their pre-2015 reform. They increased by 2.3 percentage points of GDP between 2019 and 2023 and are expected to further increase in the coming years (Figure 13). Such an increase in transfers weighs on the general government's fiscal balance and may crowd out other more productive spendings and/or increase (the currently low) public debt.

Figure 13. Fiscal Transfers to Cover the Deficits
(In percent of GDP)

Source: NSSI.

Figure 14. Pension Entitlements in Social Insurance
(2018, closing balance sheet, in percent of GDP)

Source: Eurostat.

C. Long-Term Demographic Pressures

15. Low contingent liabilities mitigate fiscal risks in the medium-term. In part due to low level of benefits, the present value of pensions to be paid in the future based on accrued rights are among the lowest in Europe (Figure 14).¹¹ Moreover, they only marginally increased from

¹¹ See Eurostat (2016 and 2021) for details on the concepts and measurement for Bulgaria.

168 percent of GDP in 2015 to 186 percent of GDP in 2016 before declining to 178 percent in 2018. The accrued pension rights are overwhelmingly related to the pay-as-you-go system as the share of the private pension schemes in accounted for less than 7 percent of accumulated entitlements in 2018.

Box 1. Various Population Projections

EUROPOP 2019. Population projections (size and structure) done in 2019 for the period 2019–2100 for all EU Members, Iceland, Liechtenstein, Norway, and Switzerland. These projections underpin the 2021 Ageing Report, which covers the period 2019–70 (EC, 2021). Data, metadata, and methodology are available on the [Eurostat website](#).

EUROPOP 2023. Population projections (size and structure) done in 2023 for the period 2022–2100 for all EU Members, Iceland, Norway, and Switzerland. These projections will underpin the forthcoming 2024 Ageing Report. Data and methodology are available on the [Eurostat website](#).

NSI. In 2023, the National Statistical Institute recalculated population estimates based on the 2001 and 2011 census results, as well as on data on natural and migration increase during the respective period. In November 2023, it updated population projections until 2090. Revised projections are available on the [National statistical institute website](#).

16. However, the pension system will be under pressure in the coming decades due to aging. Since 2005, the Bulgarian population has been shrinking due to a sharp decline in population below 65. However, the population at retirement age (65 and older) increased. Available demographic projections concur that the population will continue to shrink and continue to age, although the pace of aging is uncertain as highlighted by differences between EuroPOP projections and the NSI projections (Box 1 and Table 4).¹²

Table 4. Population Growth by Age Group
(Annual average in percent)

	2005-2022	2022-70 (projection)		
		EuroPOP 2019	EuroPOP 2023	NSI
Total	-0.7	-0.6	-0.5	-0.6
<65	-1.0	-0.9	-0.8	-0.7
65+	0.6	0.3	0.2	-0.3

Sources: Eurostat, NSI, and IMF staff calculations.

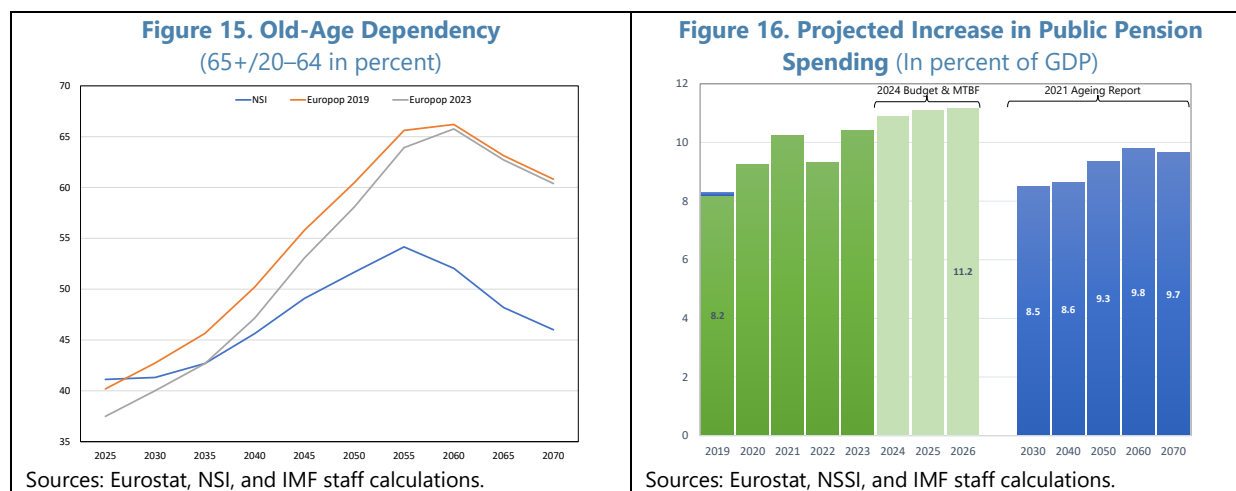
17. Old-age dependency is projected to increase markedly. Although different in magnitude, EuroPOP and national projections foresee an increase in old-age dependency in the coming three decades before declining (Figure 15). Such an increase will have a strong impact on pension costs. Indeed, the 2021 Ageing Report shows that old-age dependency will be the main driver in the projected increase in the public-pension-to-GDP ratio in the long run (EC, 2021).

18. The 2021 Ageing Report's projected increase in pension spending appears underestimated considering recent developments. The Ageing Report projections were finalized before the recent pension measures were taken.¹³ Although the actual spending for 2019 (the base

¹² The main difference is due to the fact that, unlike EUROPOP, the NSI projections incorporate the results of the latest census.

¹³ The projections were made using the pension legislation in place at end-2020 (EC, 2021).

year) was slightly overestimated in the Ageing Report, actual spending already exceeds the projected peak (Figure 16). As the revised Europop projections that will underpin the 2024 Ageing Report do not suggest substantial demographic changes (Table 4 and Figure 15), the projections of the 2021 Ageing Report now appear to significantly underestimate pension spending in the coming decades. Nonetheless they provide a sense of the long-term dynamic of spending pressure (Figure 16).



D. How to Mitigate the Projected Increase in Pension Burden?

19. Although pensions are low, they are generous compared to contributions. The sustainability and actuarial fairness of a pay-as-you-go system without debt implies that the proportionality measure (PM), defined as:

$$PM = \text{Present Value of Benefits} / \text{Present Value of Contributions}$$

is equal to 1 (Fouejieu and others, 2021). The PM in Bulgaria is significantly above this level (Figure 17). It is higher for younger cohorts than for older cohorts and higher than for the EU or Newer Member States peers (NMS).^{14,15} In simple terms, a person born in 2000 can expect a pension that is low but is about twice larger than his/her contribution (Figure 17).^{16,17} Closing the gap between present value of pensions and present value of contributions and increasing the share of pension payments financed by contributions (Figure 12) could be achieved either by a reduction of pension generosity or by revenue increasing measures.

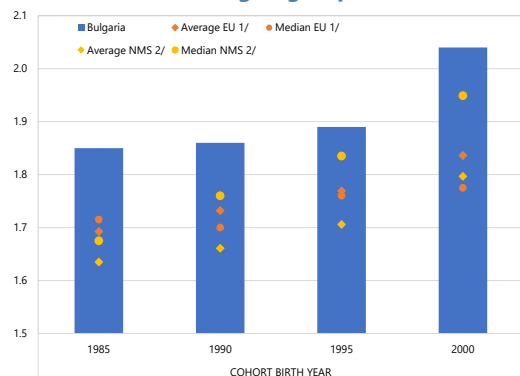
¹⁴ The PM for younger cohorts better reflects the steady state.

¹⁵ Newer Member States are Bulgaria, Croatia, Czech Republic, Estonia, Latvia, Lithuania, Hungary, Poland, Romania, Slovakia, and Slovenia.

¹⁶ The calculation is based on the 2021 Ageing Report and thus does not take changes taken since end-2020 (EC, 2021), which are likely to have increase the gap between pension and contributions.

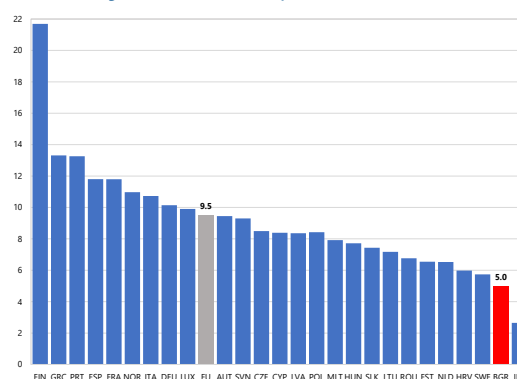
¹⁷ A calculation is based on the 2018 Ageing Report would imply a larger gap between contribution and pensions. The reduction reflects in part the impact of the 2015 reform.

Figure 17. Proportionality Measure Based on the 2021 Ageing Report



Sources: Fouejieu and others (2021) and IMF staff calculations.
1/ Excluding Belgium and Croatia.
2/ Excluding Croatia.

Figure 18. Contributions to the Public Pension System (2019, in percent of GDP)



Source: 2021 Ageing Report.

20. Continuing with past practice of reducing the generosity of pensions to restore financial sustainability is not advisable. Further reducing pensions adequacy is undesirable socially and unlikely to be politically sustainable considering demographic pressures and widespread old-age poverty. Moreover, as the experience with pandemic shows, the desire to support demand in time of crisis may lead to an increase in pensions that would be difficult to reverse and could quickly jeopardize the financial sustainability of the pension system. Finally, further reducing pension adequacy would increase incentives for contribution avoidance. This would erode the fiscal impact of reduced pension generosity and, more generally, reduce fiscal revenue from social contributions and personal income taxes (PIT).

21. Instead, policies should focus on increasing incentives to contribute to the pension system. The current old-age benefit formula is:

$$B = AII \times IC \times IP \times AR$$

Where:

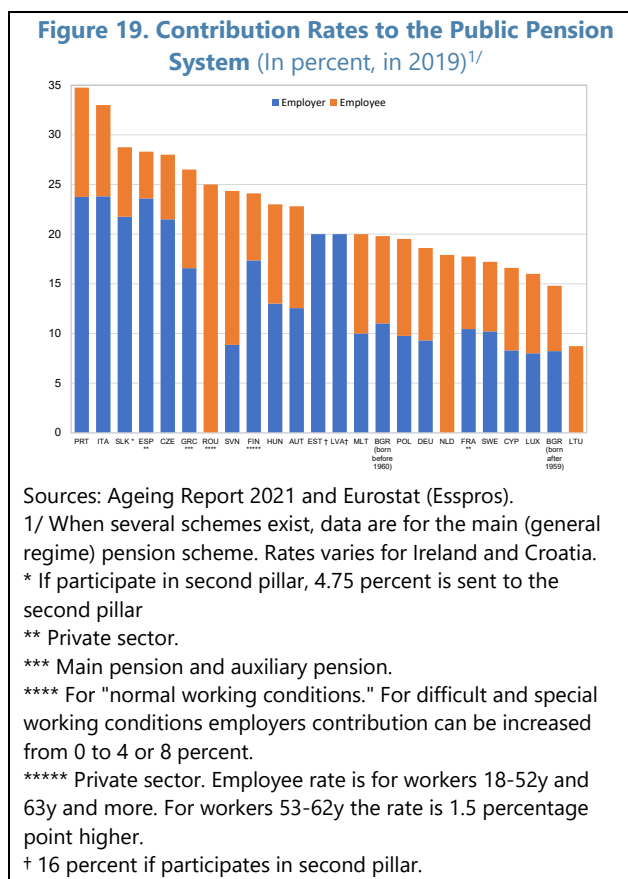
- B is the pension benefit,
- AII is the national monthly average insurable income for 12 months preceding retirement,
- IC is the ratio between the average insurable income of the person and the average insurable income for the country in the periods of insurance,¹⁸
- IP is the insurance period (contributory and non-contributory periods), and

¹⁸ Average of the monthly ratios calculated after 1999.

- AR is the accrual rate.^{19,20}

Because benefits are based on the length of the contribution period and insurable income rather than on contributions actually paid, the formula provides individuals little incentives to contribute to the pension system.²¹ The disincentive to contribute is reinforced by the fact that a retiree will receive the minimum pension even if the calculated pension is lower than the minimum pension. Therefore, the current system encourages the widespread underreporting of wages and informal work.²² This partly explains why the contributions-to-GDP ratio is low by EU standards (Figure 18), and why only about half of the working age population contributes to the (mandatory) pension system (Figure 2), while the employment rate of working age population slightly exceeds 70 percent.

22. Increasing the perception that contributions are a valuable saving would improve the sustainability and the fairness of the pension system. Revising the benefit formula to incorporate contributions actually paid would increase incentives to contribute and result in increased revenue for the pension system as well as for the national budget (increased revenue from PIT due to better reporting of wages). As the financial situation of the pension system would be strengthened, the need for fiscal transfers would be reduced creating fiscal space for more productive spending. Moreover, as the incentives to contribute are reinforced, it will be possible to increase the contribution rate (which is among the lowest in the EU - Figure 19) and to eliminate the cap on social contributions (maximum insurable income) in combination with the elimination of maximum pension. This would lead to further increase the pension system revenue as over 21 percent of



¹⁹ The accrual rate is the weight of one year of service.

²⁰ For details on the calculation of other types of pensions and on the acquisition of pension rights, see Eurostat (20212) and Republic of Bulgaria (2020).

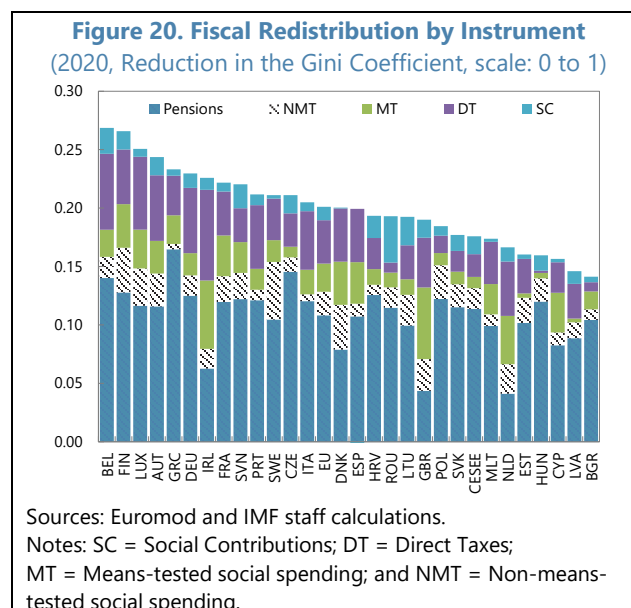
²¹ Through transfers, the state covers all non-contributory pension benefits and some non-contributory periods considered as insurance period. (Republic of Bulgaria, 2020).

²² The underreporting of wages and the cap on social contributions (maximum insurable income) in turn affect the level of pensions (through the "All" and "IC" components of the formula). This contributes to the large share of

(continued)

contributions are now capped (benefiting 14 percent of contributors) , while the maximum pensions account for less than 0.5 percent of pension payments (and 0.1 percent of pensioners - Table 3).

The elimination of the maximum pension would also further increase incentives to contribute while the elimination of the maximum insurable income. Finally, these measures would also further increase both the pension system revenue and the currently limited role of social contributions in reducing the high- and rising-income inequality (Hallaert, 2020; Figure 20). In the meantime (as the reform of the pension formula may take time), the maximum social insurance income should be linked to wage growth. This would revert the recent and sharp increase in the share of contributors benefiting from the cap on contribution and increase revenue.²³



E. Conclusion

23. Pension spending increased markedly in recent years. Increasing pensions was one of the key tools deployed by the Bulgarian authorities to support households during the COVID-19 pandemic. Those increases became permanent and, together with additional measures, allowed to improve the adequacy of pensions.

24. However, not matched by sufficient revenue measures, the additional spending presents fiscal risks. The fiscal transfers required to cover the pension system deficit have jumped to over 5½ percent of GDP and are expected to remain at this level in the coming years. As a result, pension deficits risk crowding out more productive spending needed to boost productivity and income convergence with other European countries. Moreover, the pension system deficit is likely to increase in the medium term due to pressures from the aging of the population.

25. In the last decade, financial sustainability of the pension system was buttressed by a reduction in the generosity of pensions. The pension freeze in the early 2010s followed by the 2015 reform cut pension benefits to reduce pension system deficits. Revenue measures were largely marginal. As a result, the Bulgarian pension system is increasingly a system of low contribution and low benefit.

pensioners receiving minimum pension (46 percent of pensioners in 2023). As minimum pensions are low, this further undermines the perception that contributions to the pension system constitute a valuable saving and thus undermines willingness to contribute.

²³ From a general government fiscal perspective, the revenue of an increase in the maximum insurable income would be partly eroded by an increase in spending programs linked to its level, which may improve social protection coverage (Hallaert, 2020) and further increase fiscal redistribution.

26. Such an approach does not appear feasible anymore. The adequacy of pension is low. Pensions are often below minimum wage and the poverty line forcing many elderly to continue working. Old-age and pensioners' poverty remain high compared to both the EU level and other age groups.

27. Instead restoring the pension system fiscal sustainability would require a change in the pension formula to increase revenue and incentivize contributing. At the individual level, the pension benefit formula provides little incentives to contribute, encouraging informal work and underreporting of wages. Revenue from social contribution payments and personal income tax revenue are negatively affected. Moreover, a cap on social contributions that lag wage increases erodes the tax base and results in a regressive social contribution system and lower fiscal redistribution in a country facing high- and rising-income inequality. Increasing the link between pension benefits and paid contributions therefore appears warranted. It would increase the incentive to contribute helping to bring pensions closer to a sustainable and actuarial fair level without reducing them.

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