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The pension system in the Republic of Serbia: structure, challenges and reform perspectives

Abstract

Social insurance in the Republic of Serbia consists of three main components: pension and disability insurance; health insurance; and unemployment insurance. Pension and disability insurance includes both mandatory and voluntary schemes. Mandatory pension and disability insurance is based on the pay-as-you-go financing model, where pensions are funded through contributions made by the current generation of workers. This mandatory insurance provides coverage for various risks including old age, disability, death and bodily injury. Individuals covered by this system include employees, self-employed individuals and agricultural workers. Nevertheless, the average pension remains well below 50% of the average gross wage in Serbia, raising concerns about pensioners' standard of living. The authors propose the introduction of an extraordinary pension adjustment mechanism, triggered in cases where the average pension falls below 50% of the national gross average wage, as a means of improving the adequacy of pensions and preserving the dignity and financial security of the retired population.

Keywords: *Social security, social insurance, pension system, indexation, living standard, pension adequacy, replacement rate, dependency ratio, PAYG financing, Serbia*

Introduction to the problem

The main existing entitlements within the system of mandatory pension and disability insurance are as follows:

1. Old-age pension – for reaching statutory retirement age
2. Disability pension – in cases of work-related or general disability
3. Survivor's pension – where the insuree dies
4. Compensation for bodily injury – in cases of injury at work or occupational disease
5. Caregiver's benefit – where the beneficiary requires assistance from another person.

The current system dependency ratio is 1.7 which is considered highly unfavourable since it indicates a demographic and financial imbalance.

In 2005, voluntary pension insurance through private, fully funded pension funds was introduced as a supplementary pillar to the public system.

Since 2000, the method of pension indexation has undergone several changes. Initially, pensions were indexed to wages. In 2003, the 'Swiss formula' was introduced, combining wage and price growth although, over time, the wage component was gradually reduced. In 2023, a modified Swiss formula was adopted, taking into account not only inflation and wage trends but also the share of pension expenditure in the country's gross domestic product (GDP).

Despite these changes, the pension adjustment mechanism has not delivered adequate pensions – the definition of which is explored at the start of the first section below.

Foundations of the pensions system model: a theoretical framework for Serbia

> Social security is not only a basic need: it is a basic human right. (ILO 2009: v)
>
> According to the ILO, social protection (or social security) is understood as a collection of policies and measures that reduce income insecurities and prevent vulnerabilities across the lifecycle. (ITUC, CSI, IGB 2018: 12)

A pension system is said to be adequate when it manages to accomplish two major goals:

a. delivering an absolute level of retirement income (meeting the absolute living standard of pensioners – poverty prevention)
b. consumption smoothing – a central purpose of retirement pensions, enabling a person to 'transfer consumption from her productive middle years to her retirement years, allowing her to choose her preferred time path of consumption over her working and retired life' (Barr and Diamond 2006: 16); that is, to provide a relative level of retirement income (Holzmann and Hinz) (matching a relative living standard).

During the twentieth century, a large number of different pension systems were developed around the world. Depending on the objective, the most general classification distinguishes between Bismarck-type and Beveridge-type pension systems; additionally, however, the Nordic model represents a combination of these two types. The main characteristic of state-run, public Bismarck-type pension systems, which are based on insurance principles, is the establishment of a direct link between contributions paid during the working life and the amount of the pension received. The Bismarck model, typical of continental Europe, aims to maintain pensioners' relative living standard; that is, to secure income in retirement that is in line with earnings during the working life. In contrast, Beveridge-type systems are designed to ensure an absolute minimum living standard, focusing primarily on preventing poverty among pensioners.

Pension systems can be classified according to three main criteria:

a. type of ownership:
- public (state) systems
- private systems

b. method of financing:
- pay-as-you-go (PAYG) systems, financed from current revenues
- fully funded pension systems

c. method of pension determination:
- defined benefit systems
- defined contribution systems

One of the key challenges facing modern pension systems, especially PAYG schemes, is demographic ageing. As life expectancy increases and birth rates decline, the ratio between contributors and beneficiaries becomes less favourable, threatening the financial sustainability of pension systems.

In recent decades, several countries have introduced notional defined contribution (NDC) systems which combine PAYG financing with defined contribution logic. These systems maintain individual accounts in which contributions are recorded notionally and pensions in payment calculated based on life expectancy and account balances.

Based on Chile's experience with pension reform, the World Bank formulated its three-pillar model for pension systems in the early 1990s. The model consists of:

1. first pillar: a traditional, public, unfunded system based on PAYG financing, offering a pre-defined pension, modest in scope
2. second pillar: a mandatory, private, fully funded system, usually based on defined contributions and individual savings accounts, and intended to provide the core income in retirement
3. third pillar: a voluntary, private, fully funded system, based either on occupational schemes or individual savings accounts.

The third pillar typically includes occupational pension schemes offered by employers and personal pension plans, allowing individuals to accumulate additional savings for retirement. These schemes are often incentivised through tax benefits.

In 1994, the World Bank published a new overview of its views on pension systems, providing an evaluation of its own and other countries' experiences with pension reforms (World Bank 1994). In more recent years, some countries that had adopted World Bank-inspired privatised models (such as Chile and other Latin American states) have begun reconsidering or reversing these reforms due to inadequate coverage, high administrative costs and low pension adequacy.

Whereas the World Bank promotes multi-pillar systems focusing on financial sustainability, the International Labour Organization (ILO) emphasises universal coverage and social adequacy, advocating solidarity-based PAYG systems as the foundation of pension provision.

In this paper, the authors analyse the pension system in Serbia, primarily from the perspective of:

1. rights under pension and disability insurance
2. pension indexation
3. pension adequacy.

Social security system in Serbia

The social security system in Serbia consists of:

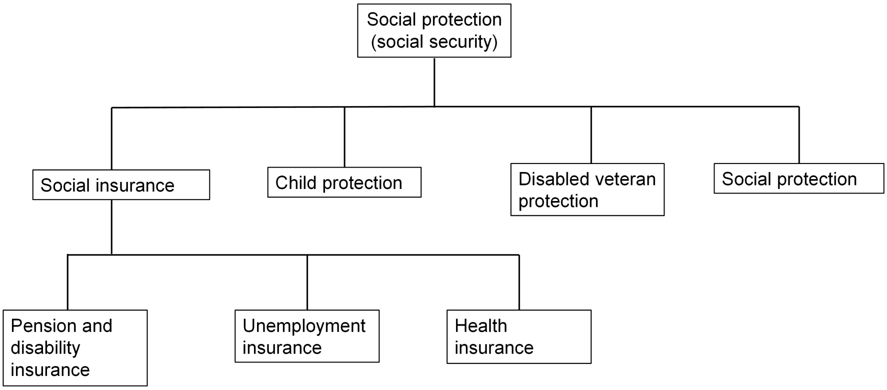
1. the social insurance system
2. the system of social care for children and families
3. the system of protection for war veterans and disabled people
4. the social welfare system.

In turn, social insurance includes:

a. pension and disability insurance
b. health insurance
c. unemployment insurance.

The foundations of modern social insurance in Serbia were laid with the adoption of the Workers' Insurance Act in 1922. This law was regarded as one of the most advanced social insurance laws of its time, a fact recognised even abroad: such an assessment was given, among others, by the International Labour Office 1925: 147), where the law was classified as 'among the most remarkable social insurance laws of recent years'.

Figure 1: Social protection system in Serbia



Source: authors' drafting.

In contemporary times, the Serbian social security system continues to face demographic, economic and institutional challenges. These include population ageing, a declining ratio of contributors to beneficiaries and increased informal employment. All of these are putting pressure on both the financial sustainability of the system as well as the adequacy of the benefits it provides. These factors underscore the need for systemic reforms and improved policy coordination across all four pillars of social protection.

Mandatory and voluntary pension insurance

The pension and disability insurance system in the Republic of Serbia consists of:

1. mandatory pension and disability insurance (first pillar)
2. voluntary pension and disability insurance (third pillar).

The mandatory pension and disability insurance system in the Republic of Serbia is based on PAYG financing and covers three basic types of risks:

a. old age
b. disability
c. death of the insuree.

Employees, self-employed workers and agricultural workers are all insured under the mandatory system.

Compared to many EU member states, Serbia's pension system maintains a predominantly PAYG structure, while several countries in central and eastern Europe have shifted towards mixed or fully funded models in response to demographic pressures. Indeed, several countries in the region implemented pension reforms from the 1990s to the early 2000s, transitioning toward multi-pillar systems based on World Bank recommendations. These countries combined public PAYG schemes with mandatory and/or voluntary private pension funds, thereby partially or fully shifting to funded models. Notable examples include: Poland, which introduced mandatory private pension savings (OFE) in 1999, though later reduced their role and partially reabsorbed funds into the state system; Hungary, which implemented mandatory private pension funds in 1998 but had nearly fully nationalised them by 2010; Slovakia, which introduced a second pillar in 2005 but later relaxed its mandatory nature; Romania, which established a mandatory funded pillar for younger insurees in 2008; and the Baltic States – Latvia, Lithuania and Estonia – which all adopted mandatory funded pillars alongside existing PAYG schemes in the early 2000s.

Since 2005, the Serbian pension system has also included a voluntary, private, fully funded pillar, organised through licensed pension funds. This third pillar is designed to supplement public pensions and strengthen income security in retirement.

The Law on pension and disability insurance regulates the mandatory system, while the Law on voluntary pension funds and pension plans governs the voluntary pillar. The Pension and Disability Insurance Fund of the Republic of Serbia is the main implementing body for the public system, while the Securities Commission oversees the operations of private pension funds.

Despite its intended role, the third pillar has seen limited uptake among the working population, with participation rates and contribution levels remaining relatively low compared to EU countries. Factors contributing to this include low financial literacy, modest household savings and a lack of fiscal incentives.

Furthermore, Serbia's pension system is having to operate in an increasingly unfavourable demographic context. The current system dependency ratio is around 1.71, indicating that there are fewer than two contributors supporting each pensioner – well below levels that are sustainable. This trend poses significant risks to the long-term stability of the system and underscores the need for comprehensive pension reform, including strategies to improve coverage, compliance and pensions adequacy.

Rights from mandatory pension and disability insurance in Serbia

Under the Law on pension and disability insurance, mandatory rights in the Republic of Serbia include:

1. in case of old age:
   - the right to an old age pension
   - the right to an early old age pension
2. in case of disability:
   - the right to a disability pension
3. in case of death of the insuree:
   - the right to a survivor pension
4. in case of bodily damage caused by a workplace injury or occupational disease:
   - the right to receive cash compensation for the extent of the damage caused
5. in case of the need for caregiver assistance:
   - the right to caregiver's benefit.

An insured person (male or female) acquires the right to an old-age pension:

- upon reaching 65 years of age and completing a minimum of 15 years of insurance service
- upon completing 45 years of insurance service, regardless of age.

As of 1 January 2024, the right to early retirement is granted upon completion of at least 40 years of insurance service and where the individual is at least 60 years of age. The early retirement pension is calculated in the same manner as the standard pension but is reduced by 0.34% for each month the pension is taken before the age of 65 (men) (or, alternatively, 4.08% per year), with the maximum reduction capped at 20.4%.

The right to a disability pension is granted upon the occurrence of a complete loss of working capacity.

Indexation of pensions in Serbia: from the Swiss formula to fiscal rules

The pension indexation mechanism in Serbia has been revised several times since 2000. Initially, pensions were adjusted in line with wage growth. In 2003, the 'Swiss formula' was introduced – a combination of 50% wage growth and 50% cost-of-living index (CPI). In turn, this model was later phased out and, from 2010, pensions were indexed solely to consumer price inflation (Fiscal Council of the Republic of Serbia 2020). Between 2014 and 2019, however, no formal indexation formula was applied; and, from 2020 to 2022, the Swiss formula was reintroduced. Finally, since 2023, pension adjustments have also taken into account the ratio of total pension expenditures to GDP as a fiscal sustainability factor (Pension and Disability Insurance Fund of the Republic of Serbia 2024a).

Replacement rate and pension adequacy

The replacement rate is an indicator that measures the maintenance of a retiree's relative standard of living. There is no universally precise definition of the replacement rate, and various indicators are referred to by this term in the literature. It is most commonly defined as:

a. the ratio of the first pension to the last salary
b. the ratio of the first pension to the average salary in the year before retirement (OECD 2019).

The hypothetical replacement rate is calculated as the ratio between the pension for a standard case (personal coefficient of 1 and 40 years of pensionable service, i.e. 40 personal points) and the salary prior to retirement; specifically, the net average wage in the Republic from the previous year. In Serbia, the hypothetical replacement rate is projected to be 60.7% in 2025 (Pension and Disability Insurance Fund 2024b).

According to Palmer (2006), a total pension amounting to 60-75% of gross income:

> … enables retirees to maintain a standard of living reasonably comparable to that enjoyed during the later stages of their working life.

However, for various reasons, the replacement rate does not necessarily equal 100% of pre-retirement income (Munnell and Soto 2005).

In European Union countries, the aggregate replacement rate is commonly used as a benchmark. This rate represents the ratio between the median individual gross pension for the 65-74 age group and the median individual gross wage for the 50-59 age group, excluding other social benefits (European Commission 2023).

In the EU-27, the aggregate replacement rate was approximately 58% in both 2022 and 2023 whereas in Serbia the rate was lower, at 46% in 2022 and 48% in 2023 (Statistical Office of the Republic of Serbia, 2024).

Table 1 – Aggregate replacement rate (2022-23, selected countries)

	2022	2023
EU-27 countries	58	58
Eurozone – 20 countries	59	60
Greece	74	78
Italy	74	75
Slovakia	62	62
Austria	57	56
Czech Republic	49	52

Malta	53	-
Hungary	53	51
Germany	48	49
Romania	52	48
Serbia	46	48
Bulgaria	38	46
Slovenia	44	44
Cyprus	44	42
Montenegro	38	-
Croatia	36	35

Source: Eurostat (nd).

Overview of contribution rates for mandatory social insurance in Serbia

The total rates at which contributions for mandatory social insurance are calculated and paid are as follows:

1. mandatory pension and disability insurance – 24%
2. mandatory health insurance – 10.3%
3. unemployment insurance – 0.75%.

When these contributions are paid by both the employee and the employer, to some extent these rates are shared, with the division as follows:

1. mandatory pension and disability insurance – 14% by the employee and 10% by the employer
2. mandatory health insurance – 5.15% by both parties
3. unemployment insurance contribution is paid only by the employee, so at a rate of 0.75%.

This shared contribution structure ensures that both employees and employers participate in financing the social security system, with slightly different obligations depending on the type of insurance. In recent years, Serbia has followed a policy of gradually reducing the share of mandatory social insurance contributions paid by employers, particularly in the area of pension and disability insurance. For example, the employer's contribution rate for pension and disability insurance has been reduced from 11% to 10%, with the total rate of 24% remaining unchanged – meaning that a greater portion is now paid by the employee (14%). This reduction reflects the government's broader fiscal and economic strategy to support private sector growth while trying to maintain the financial sustainability of the social insurance system through a broader tax base and improved compliance.

Structure and distribution of pension beneficiaries in Serbia

The number of pension beneficiaries in Serbia can be categorised according to:

a. the type of person insured (employees, self-employed and agricultural workers)
b. the type of pension received (old age, disability and survivor's pension).

As of 31 December 2024, the total number of pension beneficiaries in Serbia was 1,657,549 (Pension and Disability Insurance Fund 2024b). According to the category of persons insured (see Table 2), the largest share were employees (85.11%), followed by agricultural workers (7.84%) and then the self-employed (7.05%).

Table 2 – Number of pension beneficiaries by insured category, December 2024

Insured category	Number of Beneficiaries	Structure (%)
1. Employees	1,410,793	85.11
2. Self-employed	116,783	7.05
3. Agricultural workers	129,973	7.84
Total	1,657,549	100

Source: Pension and Disability Insurance Fund (2024b).

Of the total number of pension beneficiaries on 31 December 2024, classified by type of pension (see Table 3), the majority were old age pension beneficiaries (66.74%), followed by those on survivor pensions (19.51%), while the smallest group were disability pension beneficiaries (13.75%).

Table 3 – Number of pension beneficiaries by type of pension, December 2024

Type of pension	Number of beneficiaries	Structure (%)
1. Old age	1,106,268	66.74
2. Disability	227,944	13.75
3. Family	323,337	19.51
Total	1,657,549	100

Source: Pension and Disability Insurance Fund (2024b).

The low number of disability pension recipients is primarily due to the strict and rigorous eligibility criteria required to qualify. In Serbia, a disability pension can only be granted to individuals who are recognised as 100% disabled according to the law. The qualification criteria include undergoing thorough medical assessments and strict evaluation of the degree of work incapacity, which limits the number of individuals approved as recipients.

Ratio of pension beneficiaries to insured persons in 2024

In 2024, the total number of pension beneficiaries set against the number of insured persons (2,832,893) means that there were 1.71 insured contributors for every pension beneficiary.

The most favourable ratio between pension beneficiaries and insured contributors in 2024 was found among self-employed individuals, where there were 3.12 contributors per pension beneficiary. In contrast, the least favourable ratio was observed among agricultural workers, with only 0.67 contributors per pension beneficiary.

Table 4 – Number, structure and ratio of pension beneficiaries to contributors, 31 December 2024

Insured category	Pension beneficiaries	Contributors	No. of insured persons per beneficiary
1. Employees	1,410,793	2,382,087	1.69
2. Self-employed	116,783	363,892	3.12
3. Agricultural workers	129,973	86,914	0.67
Total	1,657,549	2,832,893	1.71

Source: Pension and Disability Insurance Fund (2024).

In pension systems based on pay-as-you-go financing, the optimal ratio is generally three contributors per beneficiary. Any decrease in this ratio below this number creates certain challenges in terms of the sustainability of the pension system. During the 1950s and 1960s in Serbia, the ratio was much more favourable, with some five to six contributors per beneficiary in some years. There are various reasons for why this ratio has significantly worsened today.

Average pension amount and as compared to average earnings

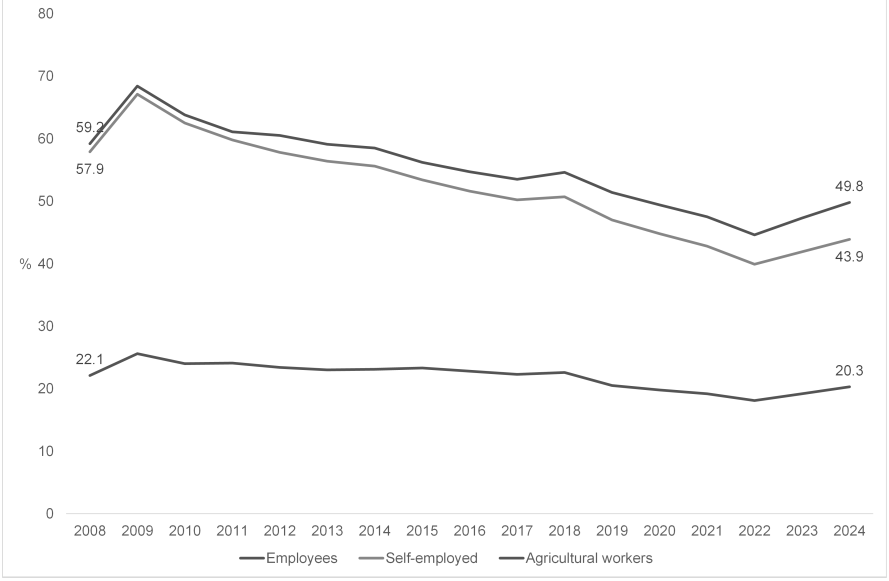
In 2024, the average pension in Serbia across all categories amounted to 46,138 dinars (below 400 euros). By category, the average pension was:

48,855 dinars for employees
43,038 dinars for self-employed persons
19,966 dinars for agricultural workers.

The average pension has been below 50% of average gross earnings (i.e. earnings before taxes and contributions) in recent years. In 2024, the average pension as a percentage of average gross earnings across all categories was 47%. By category, it was:

- 49.8% for employees
- 43.9% for the self-employed
- 20.3% for agricultural workers.

Figure 2 – Average pension as % of gross earnings by category of beneficiary, 2008-24



Source: authors' own construction, based on Pension and Disability Insurance Fund (2024).

Conclusion

The pension and disability insurance system in Serbia requires appropriate reforms concerning: pension and disability rights (particularly early retirement and disability pensions); pension indexation; and the management of the Republic Pension and Disability Insurance Fund. The following sets out a series of key recommendations in this regard.

1. Adjustment of early retirement penalties

The reduction applied to early retirement pensions (currently 0.34% monthly, or 4.08% annually, capped at 20.4%) should cease once the pensioner reaches the age of 65.

2. Extraordinary pension indexation mechanism

Legislation should introduce an extraordinary pension adjustment mechanism, triggered when the average pension of employees falls below 50% of the average monthly gross wage paid in the Republic of Serbia.

3. Reform of the Fund's governance structure

The composition of the managing board of the Pension and Disability Insurance Fund of the Republic of Serbia must reflect the structure of its revenues.

Currently, the board has seven members appointed and dismissed by the government: four members proposed by the ministers responsible for pension/disability insurance and finance, and three members representing, respectively, insured persons, employers and pension beneficiaries. Following the adoption of the current law, the Fund's supervisory board was abolished, leaving the managing board and director as its only governing bodies.

According to the Fund's 2025 Financial Plan, contributions from employees represent 40.07% of the Fund's total revenues. Meanwhile, the representative of insured contributors appointed by the representative trade unions holds just one of the seven seats on the Managing Board, accounting for 14.28% of revenues.

4. Restoration of the supervisory board

The Fund should reinstate a supervisory board as a controlling body to improve governance and oversight.

5. Strengthening long-term sustainability

Demographic trends in Serbia – such as population ageing, low fertility rates and migration – are posing serious risks to the long-term sustainability of the pay-as-you-go pension system. Without further reforms, the financial burden on a shrinking working age population will continue to grow. Comprehensive pension reform strategies should be aligned with demographic projections and include incentives for longer working lives.

6. Improving pension adequacy

The current replacement rates, especially the aggregate replacement rate falling below 50%, indicate that pensions are often insufficient to prevent poverty in old age. Measures should be taken to improve pension adequacy over time, especially for the most vulnerable groups, including women, agricultural pensioners and those with incomplete work histories.

7. Expanding contribution coverage

A significant portion of the labour market operates in the informal sector or under non-standard employment arrangements. Expanding social insurance coverage to include these workers is essential to ensure a broader and fairer level of risk-sharing in the system. This also contributes to increasing the number of contributors and improving the system's financial base.

8. Enhancing transparency and public trust

Public confidence in the pension system can be strengthened by improving transparency in fund management, publishing regular performance and audit reports and enabling greater stakeholder participation in governance structures. A well-informed public is more likely to support and comply with pension reforms.

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