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POPULATION AGEING IN PORTUGAL AND PENSION MEASUREMENTS

Abstract. The Portuguese population ageing is one of the highest in the European Union. The welfare state and its development are affected by the historical development, political instability of the 20th century, and the high level of Christianity. The public pension schemes reflect it in contributory and non-contributory schemes. This study aims to describe the Portuguese public pension scheme with sustainability measurement. The aim is fulfilment based on the literature review. The measurements are focused on early retirement pensions, the indexation mechanism, and retirement age. The most important is the retirement age mechanism which leads to financial sustainability when the unemployment rate of pre-retirements is not high. The indexation mechanism includes two parameters when the economic situation is reflected as income distribution. It has a positive effect on intergenerational solidarity. However, meritocracy is weakened. Thus, this is a choice between these parameters.
Key words: population ageing, pension, contribution, Portugal, indexation mechanism
JEL classification: D60, H55, H75

Introduction

The sustainability of the public pension system is an actual question. Financial and social perspectives are connected on this issue because there is a choice between financial sustainability and adequacy. The pension reforms find an optimal solution between these two perspectives.

When we exclude these two perspectives, intergenerational and intragenerational affairs and solidarity on both levels play key roles.

This study aims to describe the Portuguese public pension scheme with sustainability measurement.

The study is processed based on the literature review. The analysis is used to describe the development of the welfare state, the pension system, and its measurement.

This paper has five sections. Introduction is followed by Development of Welfare State, where is briefly describes this issue. Section 3 is focused on the analysis of population ageing and the public pension schemes with the measurements. Section 4 brings together the conclusions and discusses the given issue. Last, Conclusion closes this study with a summary.

1 Development of Welfare State

The establishment of the modern welfare state in Portugal can be found in the second half 19th century. However, the church protected people against poverty before the state intervention (da Silva Lopes, 2006). It is affected by a relatively high rate of Christianity, about 85 % (Pokorný, 2020). On the other hand, the relationship between the state (or king) and the church was not always good (Klíma, 1996).

The first half 19th century was affected by the development of the manufacturing industry, which brought the positive sides to the economy and negative sides. The negatives are connected with traditional problems such as the loss of lower-class purchasing power and the concerns of peasants and fishermen. The new problem is connected with social risk resulting from economic development and societal changes. As a reaction to social risk, mutual aid associations were created based on affiliation to region and/or profession. These associations differ from those in the Salazar era called New State, Estado Novo (Franco, 2005).

In 1919, the mandatory insurance system was set up. This system reacted to social risks (old age, illness, injury, and death). The payment of insurance was divided into employment and employees. The system was mandatory for persons between 15 and 75 years and used funded financing. Persons without a minimal annual income have entitlement to benefits. However, the system failed for management incompetence, political instability, and lack of finance (da Silva Lopes, 2006).

On the political level, Portugal was affected by the disintegration colonial empire, which had a negative impact on its financial situation. It led to the army putsch in 1926, and Salazar was a minister of finance, following prime minister (1932-1968). This non-democratic corporate state arrangement was ended in 1974 when the Carnation Revolution was provided (Klíma, 2005; Martins & Portugal Duarte, 2014; de Oliveira Marques, 2019).

In 1977, the Unity System of Social Security was founded. The basic pension is created and called a social pension. In 2000, three fundamental pillars of the social security system were created. In the beginning, the contributory scheme is associated based on the contributions. This system is focused on the social risks associated with lower income based on illness, injury, and old age. The non-contributory scheme has three subsystems: a solidarity and social assistance subsystem and a subsystem for family protection. In both systems, civil servants have different schemes that are gradually decreasing.

The additional system is focused on non-expected social risks (Goulart & Camacho, 2014; Pokorný, 2020).

2 Population Ageing and Public Pension Schemes

The Portuguese pension system was established in 1919. Benefits were universalistic and testing on income. However, the financial condition of the social security system led to the change. It is necessary to mention that this approach left a legacy for future development. In the 1930s, a viable pension system was created. The National Pension Fund was established 30 years later. In the 1970s, the system generated surpluses, and the next decade was affected by the new pension scheme focused on solidarity and universalism.

In the last decade of the 20th century, some changes in the pension system were provided, such as a minimal pension, early retirement age, and retirement age.

Currently, the pension system is affected by population aging. This effect can be expressed by the old-age dependency ratio variable, which is a ratio between the population group 65 and over and 15-64 years. In the European Union, this variable is from 21.3 to 37.5 %. The highest shares of old-age people have Italy (37.5 %), Finland (37.4 %), and Portugal (37.2 %). On the other hand, the lowest shares have Luxembourg (21.3 %), Ireland (23.1 %), and Cyprus (24.5 %). The average of the European Union is 33 %. These data are from 2022 (Eurostat, 2023a).

Figure 1 shows this variable between 2022 and 2011. Thus, the increasing dependency is displayed. The lowest increase is about 5 % in Luxembourg, and the highest is 53 % in Poland. The average value for the European Union is 24 %. The map shows the highest increase in Poland, Czechia, and Slovakia. On the other hand, relatively better ratios have Luxembourg, Germany, Austria, or Sweden. However, it is affected by intranational conditions.

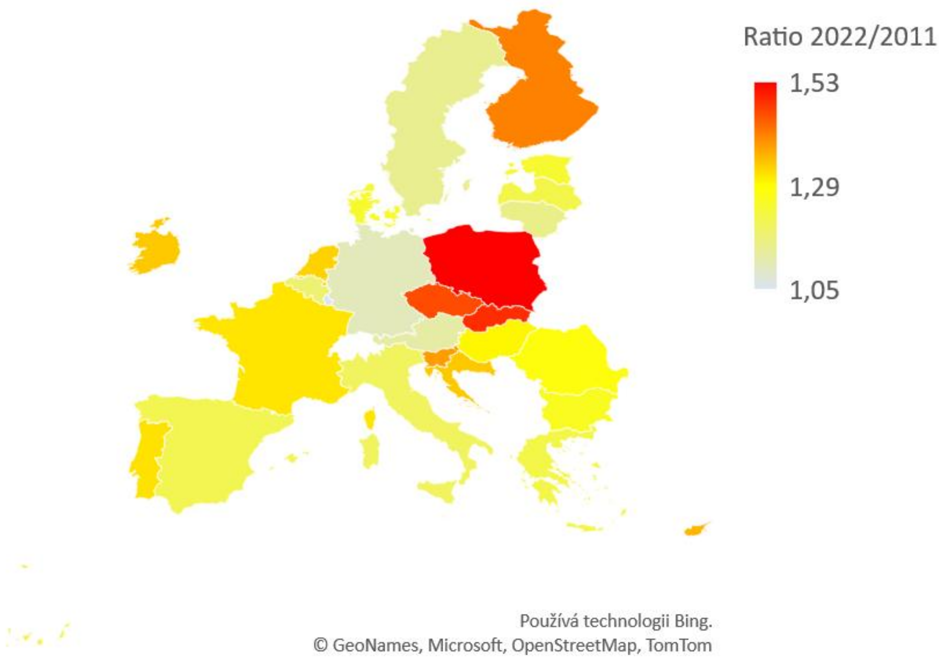

Figure 1: **Old-age dependency ratio 2022 and 2011**
Source: Eurostat, 2023a

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The change in the ratio is above average in Portugal (32 %), which means that the value was 28.2 % in 2011, the fifth highest value, increasing to 37.2 % (the third highest value). It has a crucial burden on the Portuguese pension system.

The next prediction is not optimistic for Portugal. In 2030, the old-age ratio is predicted to be 44.1 %. It will be the highest share. Following decades, the first three positions will be alternated by Italy, Greece, and Portugal (Eurostat, 2023b).

Table 1: **Portuguese economic situation**

Characteristic	**2000-07**	**2008-10**	**2011-15**	**2016-19**
Real GDP growth rate	1.5	-0.4	-0.8	2.8
Inflation rate	3.0	1.1	1.4	0.9
Unemployment rate	6.3	9.4	14.4	8.5
Gross public debt (% GDP)	65.2	87.9	127.8	123.9
Households saving rate	11.0	9.3	8.3	6.9

Source: de Pinho &Pinho (2022)

This situation is urgent when the Portuguese economic situation is connected with this issue. Table 1 shows the economic development from

2000 to 2019. Real economic growth is relatively positive from 2016 to 2019. However, economic changes decreased between 2008 and 2015, and gross domestic debt almost doubled. The household saving rate decreases during particular periods.

Due to this, the sustainability of the Portuguese pension system is very crucial.

2.1 Public Pension Schemes

The Portuguese pension system includes three pillars. However, this study is focused on the first pillar, which is very important and has a crucial impact on public finance.

The first pillar comprises contributory and non-contributory schemes and a funded part. The pension scheme for civil servants is not described here because the scheme has been closed since 2006. Firstly, the elementary part of pension benefits is the contributory scheme, where contributions are 34.75 %of gross salary (11 % by employees and 23.75 % by employers), respectively 20.21 % for old-age risk. Self-employed paid 29.6 % and 58 % of social insurance is allocated to old-age risk. Benefits are calculated based on reference earnings (salaries during a working career), pension accrual rate (affected by the length of a working career and income distribution), and sustainability factor (Moreira et al., 2019).

The last variable is the sustainability factor introduced in 2007, and its value is affected by life expectancy:

$$SF_t = LE_{2000}^{age\ 65} / LE_{t-1}^{age\ 65} \tag{1}$$

In Equation (1), the sustainability factor SF_t depends on life expectancy at 65 age compared to values of 2000 $LE_{2000}^{age\ 65}$ and one year ago $LE_{t-1}^{age\ 65}$.

This variable was applied to new retirements from 2007 to 2013. The sustainability factor has been applied to early retirements since 2014. The value of the variable was 0,848 in 2020. It means decreasing about 15,2 % (Pokorný, 2020).

The pension is indexed based on two parameters. The first parameter is the value of pension when the highest pension benefit is slower indexed than the medium or lower pension benefit. The second parameter is the real GDP growth rate. Based on its value, the indexation mechanism uses the inflation rate or combination with the real GDP growth rate.

The retirement age is the next parameter of the pension system. The Portuguese retirement age is not precisely determined, because the statutory age is not classic used. Due to the pension system's sustainability, the retirement age was gradually increasing in the last decade of the 20th century. The same retirement age (65 years) has been valid since 2000 (Martins, Novo & Portugal, 2009). It was not valid for civil servants. Later, the retirement age mechanism has been set up since 2015. This mechanism defines the number of months *m*, which increases the retirement age above 65 years (Pokorný, 2020):

$$m = 2/3 \sum_{i=2015}^{t} 12 \left(LE_{i-2}^{age\ 65} / LE_{i-3}^{age\ 65}\right) \qquad (2)$$

Life expectancy at 65 years is used here, like in Equation (1).

However, there is a condition about the working career with a minimum of 15 years when the contributions are paid.

The early retirement pension is affected by the retirement age (60 years) and the working period with contributions (40 years). Both parameters can be mitigated based on long-term unemployment. The sustainability factor is used on early retirement benefits, and these persons are not entitled to benefit from the non-contributory scheme (OECD, 2019).

The non-contributory scheme is focused on solidarity without contributions. Thus, the social pension is not affected by the contribution period. The social pension aims to help people without a minimal contribution period but with legal retirement age or retirements with lower pension benefits.

The state guarantees minimal pension benefits based on the time of contribution period. On the minimal level of guarantees of minimal benefits, 15 years of contributory period is needed, and the highest minimal pension benefit is guaranteed with 21 and 31 years. This pension benefit is also paid from the non-contributory scheme.

The last schema in the first pillar is a publicly funded pension scheme, a voluntary Public Capitalisation Scheme. From 2 % to 4 % of employees' contributions and surplus have to pay to this reserve fund, where accumulated finance is funded. The aim is to increase the pension system's financial sustainability in the long term (Medeiros Garcia, 2017).

3 Results and Discussion

Based on describing the Portuguese welfare state, the approach was liberal in the first phase (after 1919) due to the principle of basic income, which is connected with Thomas More, Ioannes Lodovicus Vives, Thomas Paine, etc. (Hrubec, Brabec & Minářová, 2021). The following development was affected by Salazar, and its approach focused on family, corporations, and the church. It leads to the conservative approach.

After the Carnation Revolution, universalism in social policy is preferred. Thus, the combination of individual elements is blending into the social security system of Portugal. The important role of the family in Portugal is similar to the principle of the conservative welfare state regime by Esping-Andersen (1990), which is supported by the importance of the church. On the other hand, the Portuguese constitution has a link to universality, which is the non-contributory scheme.

This description leads to the quasi-conservative and quasi-liberal regime. Thus, Portugal has a different approach than typical conservative or liberal states. It is consistent with Esping-Andersen (1999).

Portugal is significantly affected by population aging. This position is one of the worst in the European Union, and positive change cannot be expected. Thus, Portugal must be prepared for this development. The

Portuguese public debt is about 120 % of GDP. It is limited to the use of external sources. At the same time, it is possible to recall the fiscal crisis that Portugal, like other southern European countries, experienced.

The pension system has three pillars. However, the first public pillar is the main component due to the pension benefits. Based on this, the first pillar is the subject of this study. The contributory scheme uses meritocracy as the main element. On the other hand, solidarity partly suppresses this element because retirements with higher benefits have a lower parameter pension accrual rate. It impacts financial sustainability (relatively lower expenditure for high-income groups) and adequacy (higher redistribution rate and lower differences between income groups).

The non-contributory scheme supports solidarity in society, and a different scheme is used than the contributory scheme. It clearly divides the aims of schemes. The minimal pension benefit based on the contributory period is an interesting mechanism that can motivate lower income because these people have the sureness of the minimal standard in retirement.

Due to public finance, the implementation of the sustainability factor, the indexation mechanism, and the mechanism of the retirement age are relatively positive.

The sustainability factor is limited by early retirement pension benefits at this time. The financial impact of the measurement is very narrow. Moreover, the implementation for every retirement can have negative consequences on intergenerational affairs and solidary. Thus, the author believes this approach is suitable because we must look at more than just the financial aspect.

The indexation mechanism covers every group based on the economic situation. Thus, the indexation is linked to the economic situation and the impact on other groups. It strengthens intergenerational solidarity. At the same time, diversification based on pension income helps the financial aspect. On the other hand, it means decreasing the importance of merit in gradual development.

The most critical measurement is the mechanism of the retirement age. Its importance is given that the retirement age affects pension expenditure the most (Pokorný & Hejduková, 2019). Evaluating the financial impact is not easy because we must consider possible unemployment. Generally, the higher retirement age impacts fewer retirements and shorter time spent in pension. This part has a positive effect, as the possibility of contributing to the contributory scheme. A negative effect is visible when the unemployment of pre-retirement groups is higher. Then, unemployment benefits are used. Thus, public expenditure is increased.

4 Conclusion

This study shows the Portuguese welfare state development, where a combination of conservative and liberal elements are used. Then, this type of welfare state is not included in conservative or liberal regimes.

The pension system is divided into three pillars. The first pillar is the subject of this study, which is focused on public pension schemes.

The contributory scheme provided benefits based on meritocracy, which is limited. Solidarity is also represented in this scheme, but partly. The non-contributory scheme is fully solidarity. Thus, the aim of both schemes is different.

The sustainability of the public pension system is affected by the sustainability factor, the indexation mechanism, and the retirement age. The importance is gradually increasing the retirement age, which can have a negative aspect connected with higher pre-retirement unemployment. The indexation mechanism reacts to the economic situation and income. Thus, lower expenditures are associated with this approach. Last, the sustainability factor has the least influence. The impact is focused on early retirement benefits. This factor can affect persons waiting for the proper retirement age.

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