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## Original research article

# Draft of the regional pension scheme functioning simulated in the Czech Republic



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## ABSTRACT

The article discusses the issue of retirement security of citizens in advanced age. It deals with the possibility of covering all inhabitants in the region. The analyzed solution is independent of the central state pension scheme, usually implemented in the first pension pillar.

Due to the difficult changing of the pension scheme as a whole, the possibilities of the regional pension scheme are described and analyzed by the real conditions in the Czech Republic.

Based on the analyses, possible roles of the region and opportunities in it have been defined while ensuring seniors. The result is the defining of the conditions for the public pension fund to function, where the second pillar pension scheme seems optimal.

A specific solution also contains an actuarial model of the functioning of the regional pension fund. Under certain conditions, it is possible that the fund development and the pension that a pensioner earned fulfilling the set conditions is considered. Due to the limitations of a regular, predictable income, we can consider the simulated allowances as the lowest income possible.

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## Introduction

One of the pressing problems of the present time is the issue of insuring senior citizens. It is generally known that the existing pension models meet difficulties in securing long-term

financial stability. The main causes of this phenomenon are the extension of middle-age life expectancy of the population and also a significant decline in the number of births [1]. The mismatch between the number of pensioners on the one hand, and the number of children, pupils and students, on the other, is presented in a gradual decline of the productive population.

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At the same time, the growing number of pensioners causes strong financial pressures on the directors of the pension schemes [2]. This causes a broad debate on the reform of existing systems and finding new solutions to contribute to the stability of pension schemes in the future.

The active role of the region in creating resources and paying out allowances in the pension scheme is not comprehensively presented in the literature. Regional public funds are discussed, for example, “The Local Government Pension Scheme” [3], launched in the UK. The method of determining the pension plan is a defined allowance system that is not dependent on the investment performance of the funds. These funds bring together a limited part of the population – the public sector workers. Public regional Canadian pension funds LAAP [4] or pension funds in California – the “California Public Employees Retirement System” (CalPERS) and the “California State Teachers Retirement System” (CalSTRS) [5] are similar. The accumulation of these funds is ensured in the capital markets by the valorization of the deposits into the system.

These funds are run on a non-profit basis and they usually include allowances. The British LGPS funds [3] maintain their stability using actuarial mathematics, where possible shortfalls are covered by increasing the contribution of employers. The US regional pension schemes are significantly underfunded. It is reported [6] that the total size of such public unfunded liabilities is estimated from \$ 730 billion up to \$ 4.4 trillion. The anticipated amount is rather closer to the higher limit. The reasons are, in addition to the aging of the population, primarily the drop in income in the capital markets, political risk, over-valorization of allowances, the worsening demographic impact [7] and the like. The reason for the drop in US pension funds is (in the case of setting pension plans) not acting by the principles of actuarial mathematics [5]. The Canadian public pension funds, LAPP [4], are in a much better situation than similar funds in the US. The reasons for this are mainly a better diversification of the investment portfolio, where, after the year 2000, the importance of alternative investments has been increasing.

In continental Europe, regional pension schemes are absent. The regions most frequently act as distributors of the central pension scheme. A greater role of the region can be seen in the Danish model, but even here, the pension scheme is predominantly centrally funded.

## Materials and methods

The goal of the analysis is to define the conditions under which a full regional pension scheme could work in real conditions of the Czech legal system. The data sources are primarily the annual Czech Social Security Administration reports, reports on the activities of the CSSA [8,9], statistical CSSA yearbooks, data from the Czech Statistical Office [10] and the Czech Association of Pension Funds databases [11]. Based on secondary analysis of the data and the experience of the public sector workers in the UK, USA and Canada, we defined the conditions for the suggested regional fund to work. This theoretical construct was then verified using an actuarial model for the fund to work.

## Results

### *The definition of the regional pension scheme*

In this study, the regional pension scheme is a system whose jurisdiction is defined by the borders of the region. The citizens living and working in the region make contributions to this system and the entire administration, calculation of pensions and their payment is done in this region. Pension payouts outside the region are not desirable, but must be possible. To be able to say it is a regional system, there must be a single economic space with a uniform legal system where there would be parallel computing centers ensuring local pension payouts.

### *Selected most important characteristics of the system*

1. Defining the scope of the regional pension scheme and its character, structure and control mechanisms.
  - a. Operating under the second pillar of the pension scheme, the public fund operates within the region borders.
  - b. Regional pension fund is a legal entity, fund returns are exempt from income tax.
  - c. The territorial scope of the district courts establishes focal points of the pension fund. The fund headquarters are based in its founder's region. The founder is the regional government.
2. Basic conditions for participation in the pension scheme.
  - a. A person who meets one of the following conditions may enter the fund:
    - i. The person must have a permanent residence in the region.
    - ii. The person works in the region.
  - b. Participation is voluntary; the minimum period for the entitlement to draw an allowance is 10 years.
  - c. The allowance may be paid after the entitlement to a retirement pension from the first pension pillar.
  - d. Termination of participation during the period of 10 years – severance is paid. If the participation is terminated after 10 years, the participation continues, there is the entitlement to pension, severance cannot be paid out.
3. The basic definition of the fund, sub-structure.
  - a. A regional pension fund creates sub-funds: the public fund, the regional fund, the operational fund, the reserve fund.
  - b. The public fund is based on the merit throughout the capital valorization of the deposits in financial markets.
  - c. The regional fund collects funds with no particular participant in the fund. The fund resources are distributed on the principle of solidarity. During the accumulation, the fund is financed mainly by equity method during standard operation as a PAYG system.
  - d. The operating fund collects resources of 1.5% of all primary income (not the capitalization income). The finances are used to ensure the operation of the fund.
  - e. The reserve fund capitalizes the available funds from the regional fund (during standard mode).
4. Defining sources of funding, selection, interaction with other pillars.

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