

DIGITALES ARCHIV

ZBW – Leibniz-Informationszentrum Wirtschaft
ZBW – Leibniz Information Centre for Economics

Janoušková, Jana; Kirschnerová, Pavlína

Article

Tax policy of the Czech Republic and securing funds for retirement

Provided in Cooperation with:

Slovak Academy of Sciences, Bratislava

Reference: Janoušková, Jana/Kirschnerová, Pavlína (2018). Tax policy of the Czech Republic and securing funds for retirement. In: Ekonomický časopis 66 (9), S. 888 - 908.

This Version is available at:

<http://hdl.handle.net/11159/3956>

Kontakt/Contact

ZBW – Leibniz-Informationszentrum Wirtschaft/Leibniz Information Centre for Economics
Düsternbrooker Weg 120
24105 Kiel (Germany)
E-Mail: [rights\[at\]zbw.eu](mailto:rights[at]zbw.eu)
<https://www.zbw.eu/econis-archiv/>

Standard-Nutzungsbedingungen:

Dieses Dokument darf zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden. Sie dürfen dieses Dokument nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, aufführen, vertreiben oder anderweitig nutzen. Sofern für das Dokument eine Open-Content-Lizenz verwendet wurde, so gelten abweichend von diesen Nutzungsbedingungen die in der Lizenz gewährten Nutzungsrechte.

<https://zbw.eu/econis-archiv/termsfuse>

Terms of use:

This document may be saved and copied for your personal and scholarly purposes. You are not to copy it for public or commercial purposes, to exhibit the document in public, to perform, distribute or otherwise use the document in public. If the document is made available under a Creative Commons Licence you may exercise further usage rights as specified in the licence.

Tax Policy of the Czech Republic and Securing Funds for Retirement¹

Jana JANOUŠKOVÁ – Pavlína KIRSCHNEROVÁ*

Abstract

Pension policy and issues relating to the life of the elderly in an ageing Europe is one of the major areas that cannot be ignored. The severity of the pension issues is enhanced by the long-term demographic development and the associated question of financing the pension system. The paper is aimed at tax allowances, which are intended to support the old-age security in the form of voluntary and individual savings. In addition to their description, the ways of how these options are used by tax entities are clarified, too. The aim of the research is to assess the use of legislative tax tools leading to the increase in the effectiveness of the given measures. Methodically the research is based on the evaluation of secondary statistical data of the Czech Statistical Office and Financial Administration of the Czech Republic. The data are statistically backed up by primary research, which was carried out in 2016.

Keywords: tax policy, retirement policy, tax reliefs, individuals

JEL Classification: H20, D14, E62

Introduction

Retirement policy and securing a dignified life for the elderly in an ageing Europe is a significant challenge. The severity of the retirement issues is enhanced by the long-term adverse demographic development and the associated question of the financing of the retirement system (Tophoven and Tisch, 2016). The threat of instability of the retirement system is current also for the Czech Republic. Earlier retirement systems were based on the social solidarity of society.

* Jana JANOUŠKOVÁ – Pavlína KIRSCHNEROVÁ, Silesian University in Opava, School of Business Administration in Karvina, Univerzitní nám. 1934/3, 733 40 Karviná, Czech Republic; e-mail: janouskova@opf.slu.cz; kirschnerova@opf.slu.cz

¹ This paper was supported by the Student Grant Competition of the Silesian University in Opava 2016, with the number SGS 20/16, named *Tax relief individuals as part of the promotion of public policies in the Czech Republic*.

Currently, these systems are inadequate and significantly burden state budgets. Attention is focused on other kinds of retirement security, e.g. voluntary and individual supplementary retirement schemes (Kantarci, Smeets and van Soest, 2013; Garcia, 2017). Many countries use tax incentives to support this saving for retirement within the construction of personal income tax. The aim is to influence the behavior of taxpayers in a desirable direction in the context of the objectives of the Government policy (MF ČR, 2016). Mostly they are applied in the form of deductible items from the tax base, i.e. tax allowances in Czech tax law or a direct reduction of tax liability i.e. tax credits. They can motivate both taxpayers (citizens) and the employers in the form of employee benefits (Dulebohn et al., 2009).

The tax incentives mean lower tax revenues of the state, it may constitute a hidden subsidy in the tax system and also carries higher administrative costs (Pechman, 2001). It is necessary to pay attention to tax reliefs and to perform their analysis, which is apparent from the request of the European Commission (EUR-Lex, 2011). However, Fookes (2009) perceives tax reliefs as a higher target rather than the fulfillment of the state budget. James and Nobes (1999) discuss the substitutability of tax reliefs for the direct expenditure. Altshuler and Dietz (2011) regard tax reliefs as only those which reduce the tax base. Jareš (2010) identified tax reliefs in the Czech Republic and draws attention to the equivalent expenditure programs of the state, in particular the supplementary retirement insurance, when in addition to tax reliefs, there is also a direct expenditure support directed to the account of the supplementary retirement insurance of the taxpayer. The Ministry of Finance of the Czech Republic published a Report on tax reliefs for the first time in 2014 (MF ČR, 2014).

Fiscal support for savings in old age in the context of tax incentives and their forms is an often-discussed topic. Criteria for identifying tax relief was first set out by Surrey (1973), and a number of authors follow up on his research. According to Burman (2013), tax reliefs differ in distributional effects. Support for savings on pensions in the form of tax relief generally increases the disposable income of taxpayers with higher incomes more than taxpayers with lower income, so their net effect is regressive. If the aid was provided as a direct social expenditure, it would be better for lower income groups. Faricy and Ellis (2014) point to the interdependence between public support for social programs and tax relief programs. The current provisions of the Act are intended to support retirement security. The magnitude of estimated tax deductions for pension savings suggests that these provisions can achieve this social goal. Focusing only on estimating the magnitude of tax deduction amounts, however, ignores the overall benefit of pension savings system (Xanthopoulos and Schmitt, 2016). Tax relief

estimates used by i.e. Polackova Bixi, Valenduc and Swift (2004) are not comparable to estimates of government revenues that do not take into account changes in taxpayer behavior that would occur. Tax reliefs also do not measure or address the issues of fairness Walker (2006).

The World Bank (1994) deals with the financing of retirement systems. Based on the research of demographic tendencies it came with a three-pillar system in 1994 (retirement funding to diversify risks):

- *the first pillar* – mandatory, the state retirement insurance scheme with continuous funding,
- *the second pillar* – the fund system, based on the obligations of the retirement insurance parties to contribute to selected retirement funds; it requires a commercial private fund management network,
- *the third pillar* represents an individual activity and citizens' initiative in the form of commercial insurance, investment or capital life insurance, various forms of savings, etc.

Savings for old age ensure economic security of retirees, when their own income decreases and cost increases, such as health care (Dulebohn et al., 2009). In the Czech Republic, the support for the retirement insurance is required and therefore there is a constant search for ways to make the support system more attractive, both in terms of products on the part of the companies concerned, and from the perspective of the participants and the interested parties. It is also an effort made by the state to open and offer products to the widest possible range of interested parties (MF ČR, 2016).

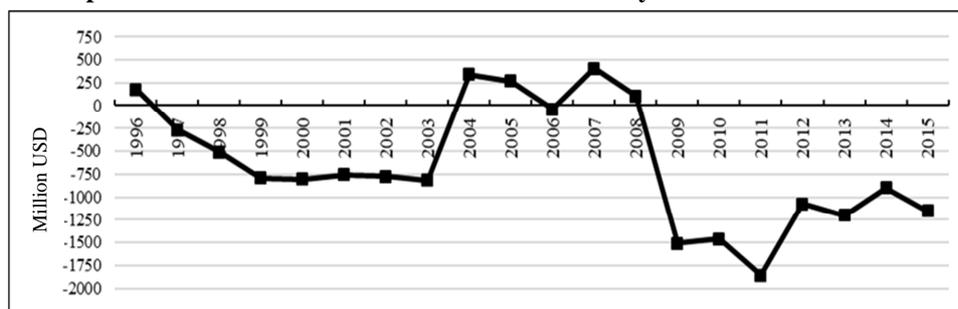
Tax Relief and the Support of Individual Saving for Retirement in the Czech Republic

The retirement system of the Czech Republic is currently based on a two-pillar principle of financing. *The first pillar* is the mandatory basic pension institution and is funded on a running basis (pay-as-you-go). It is made up of the retirement insurance, which involves the mandatory levies of employees, employers and self-employed persons. But this pillar goes into deficit (Fig. 1) and this fact is associated with the aging of the population. *The second pillar* was introduced in 2013, and ended in 2015. It was based on the fund savings; however, it did not fulfill its function. The main problem was a lack of interest on the part of citizens (MPSV ČR, 2016). Employers' retirement schemes, which are quite common in EU member states, are not represented in the Czech Republic. *The third pillar* is a voluntary system of individual savings for old age in the retirement funds (Molek, 2014). It also includes products of commercial

insurance companies – in particular life insurance. Tax support is used to make the third pillar more attractive. The tax system of the Czech Republic provides retirement insurance support to citizens in the form of deductible items from the tax base, i.e. tax allowances in the Czech tax law and the state contributions for the individual retirement insurance. The state contribution is exempt from taxation. Its amount is based on the sum of money that a taxpayer pays to the retirement fund.

Figure 1

Development of the Balance of the Pension Insurance System



Source: MF ČR (2016); own calculation.

The state also encourages employers who contribute to their employees' retirement insurance and on the part of the employer, the contributions to employees are an expenditure, which reduces the income tax base. In this case, it is mandatory to participate in the fund until the specified period of time passes if employees want to enjoy tax reliefs and the state contributions.

The system of tax incentives to promote savings for old age has been stable for many years. In connection with the cancellation of the second pillar of the retirement insurance, the state has increased tax deductions since 2017 on the side of the citizens, as well as on the part of employers, who contribute to the retirement funds for their employees.

The employer can deduct from taxes contributions to funds intended for individual saving for retirement of his/her employee up to USD 2,046.6 per year, and for the employee it is an exempt income. The limit is so newly increased by USD 818.6. Citizens themselves can reach the higher tax deductions. By 2016, they could deduct from the tax base a maximum of USD 491.2 per year. Income tax savings are so up to USD 73.7. From 2017 onwards, savings may be double due to the increase of the maximum limit. From the tax base for 2017 it will be possible to deduct the contribution to the retirement insurance max. in the amount of USD 982.4. However, only the annual contributions over USD 491.2 reduce the tax base.

Objective and Methodology

The aim of the paper is to evaluate the effect of a non-standard tax relief in the form of non-taxable part of the tax base (tax allowance) for individuals, which is primarily established in support of saving for retirement (3rd pillar of the retirement system) in the Czech Republic. In addition to the description of tax allowances, the article clarifies whether tax allowances can be considered as one of the important elements of the retirement policy support by the state and also what factors influence it if from the side of taxpayers.

Methodically the research relies on the evaluation of secondary statistical data of the Czech Statistical Office and the Financial Administration of the Czech Republic available for the period 2005 – 2015, moreover the primary research was carried out in the framework of the project SGS No. 20/16 in the autumn of 2016 in the form of an interview survey on the topic „The impact of tax reliefs on the tax payers in the Czech Republic”.

In the Czech Republic employees do not have to submit a tax return and they can claim tax deductions directly with their employers. For this reason, the tax administration does not have the specific data and tax statistics have limited explanatory power. However, it can be assumed that the behavior of taxpayers who submit the tax return and the taxpayers, who do not submit the tax return, is the same.

Data of the Financial Administration in the observed period include an average of 1.94 mil. taxpayers a year who submit a tax return. A more detailed analysis of the available data has revealed the composition of this file of taxpayers. On average, there are 1.28 mil. entrepreneurs conducting business on the basis of trade license with the obligation to submit the tax return, which accounts for 66.1% of the total file. Non-entrepreneurs, who also submitted the tax return, are represented by the remaining 33.9% (FS ČR, 2017).

The economically active population was determined as a basic sample in the context of the primary research, due to the elimination of the respondents with incomes not allowing a deduction for the tax allowances. Using random sample survey 1,372 respondents were addressed and 1,050 (76.5%) of the relevant answers were obtained. The resulting composition of respondents was made up of mostly employees (87%), for which it can be presumed that they do not submit separate tax returns and with 13% of individuals doing business. The composition of the analyzed file is different in this case, as opposed to the file used for the data analysis of the FS ČR (2017), as the basic unit is primarily an employee here.

To demonstrate the relationships between the qualitative characteristics obtained from the interview survey, the Pearson chi-square test was selected for nominal variables. Based on contingency tables of absolute and hypothetical frequencies, the test criterion is calculated, which is expressed by:

$$\chi_P^2 = \sum_{i=1}^r \sum_{j=1}^s \frac{(n_{ij} - \varphi_{ij})^2}{\varphi_{ij}} \quad (1)$$

where

n_{ij} – absolute frequencies,

φ_{ij} – hypothetical frequencies.

The critical scope is given by the relationship:

$$\chi_P^2 > \chi_{1-\alpha}^2(df) \quad (2)$$

The critical value of the distribution χ_P^2 with degrees of freedom $df = (s - 1) \cdot (r - 1)$ is selected at significance level $\alpha = 0.05$.

The intensity rate of dependency for nominal variables is determined by Cramér's V contingency coefficient, which is given by:

$$V = \sqrt{\frac{\chi_P^2}{n \cdot h}} \quad (3)$$

where n is the number of observations, and h is smaller of the pair of numbers $r - 1$, $s - 1$, where r is the number of rows in a contingency table, and s is the number of columns in the contingency table. Cramér's V coefficient increases the value $\langle 0; 1 \rangle$, and the closer to one, the stronger the dependency is.

For ordinal variables the statistical dependency is tracked using the correlation coefficient. Given that, it is possible to distinguish dependent and independent variables, Somers'd asymmetric rate is used, which is given by:

$$d_Y = \frac{C - D}{C + D + T_Y} \quad (4)$$

where C is the number of concordant pairs, D is the number of discordant pairs and T_Y is the number of pairs that contain the same value for the variable Y , yet with a different value X . What applies to Somers'd coefficient is that $d_Y \in \langle -1; 1 \rangle$. If the resulting value is close to 0, it indicates independence. The more value 1 it acquires (positive correlation) or -1 (negative correlation), the stronger the dependency between variables exists (Řezanková, 2011). In the case of clustering techniques hierarchical agglomerative clustering is used. Each object is first considered to be a separate cluster and then there are objects or clusters gradually associated on the basis of the calculated distance between them. In the final stage of clustering all objects form a single cluster. The distance between the clusters is determined by the Median clustering method. The

distance between the g -th cluster and by unifying the clusters h and h' for a given algorithm, it can be written:

$$D_{g<h,h'} = \frac{1}{2}D_{gh} + \frac{1}{2}D_{gh'} - \frac{1}{4}D_{hh'} \quad (5)$$

The clustering procedure is illustrated using the dendrogram, which shows a gradual clustering of individual clusters and clusters that were created in the previous steps (Řezanková, Húsek and Snášel, 2007). All analyses are performed using the IBM SPSS Statistics software system. The Czech currency is recalculated by daily average exchange rates of CZK/USD, which was 24.43 (ČSÚ, 2017a) for 2016.

Results and Discussion

The rate of use of tax allowances for the retirement insurance (Table 1) is based on the FS ČR (2017) data. It is given by the average amount of the deduction of tax allowances per one tax return and the percentage use of tax allowances claimed for all submitted tax returns.

Table 1

Tax Allowances Claimed for Retirement Insurance (2005 – 2015)

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Supplementary retirement insurance	<i>Average deduction for the taxpayer (USD)</i>										
	370.7	369.7	372.8	380.7	375.4	375.0	373.6	346.4	379.5	375.8	347.2
	<i>Use of the deduction for supplementary retirement insurance (%)</i>										
	10.5	11.5	12.6	13.9	13.5	13.1	12.6	14.2	10.3	9.4	9.6

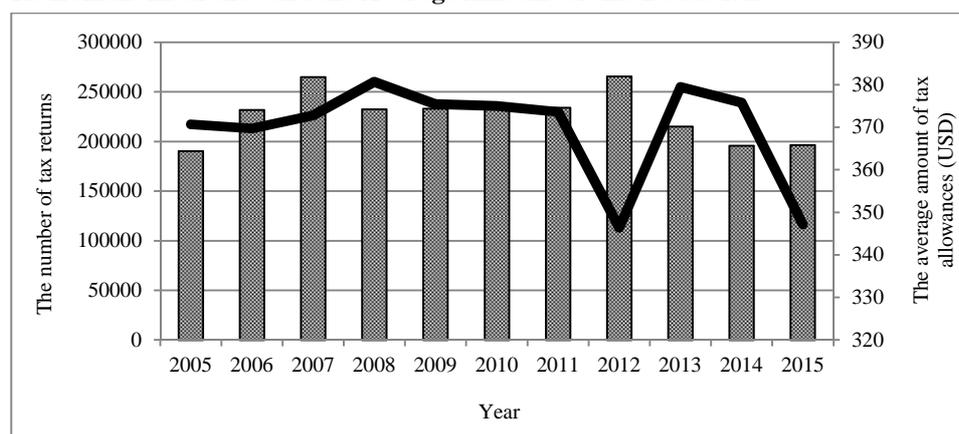
Source: FS ČR (2017) Analyzes and statistics; own calculation.

From 2005 to 2008 the percentage use of tax allowances for the retirement insurance is increasing every year. In addition, the average amount of the deduction per one tax return is growing. In 2008, however, there is a significant reduction in the total amount of tax returns with the tax allowances claimed (Fig. 2), and the bar graph processing shows the total sum of tax returns during the reference period, in which tax allowances are claimed for the retirement insurance and an embedded line graph shows the average amount of the deduction for the retirement insurance per a single tax return. A high percentage of the utilization of tax allowances in 2008 is due to the reduction in the total number of the submitted tax returns. 24.8% of tax returns were submitted less than in 2007 due to the global economic crisis and at the same time the tax reform, which took place

in 2008 in the Czech Republic. Among other things, a progressive tax rate was abolished and a uniform tax rate of 15% was introduced. Concurrently there is a radical increase in tax credits, which relates to the taxpayer and dependents. As a result, the effect of the non-taxable parts of the tax base was reduced. The minimum tax base was also abolished (Janoušková and Kirschnerová, 2017). These changes led to a reduction in the overall tax burden on individuals, especially in case of higher income population. For these reasons, taxpayers did not need to claim deductions for the retirement insurance and thus optimize the amount of tax liability using the non-taxable parts of taxes and up to 2011 the percentage use of tax allowances decreases.

Figure 2

The Number of Tax Returns Claiming the Deduction for the Supplementary Retirement Insurance and the Average Amount of this Deduction



Source: FS ČR (2017) Analyzes and statistics; own calculation.

In 2012, the first phase of the retirement reform (the so-called small retirement reform) was initiated in the Czech Republic. Particularly for the younger population it brought an increase in the retirement age, as well as the future reduction of the amounts of the disbursed amounts to old-age retirement benefits for people with average incomes (ČSSZ, 2017). In the response to these changes, there was an increase in new retirement insurance contracts, and thus a higher number of tax returns claiming the deduction for the retirement insurance. There is an increase in claiming the tax allowances by 1.6 percentage points compared to 2011. Although the retirement reform had effect on the increased interest in retirement insurance, deposits of taxpayers were low (Fig. 2). This was reflected in the significant reduction in the average amount of the deduction per one tax return in 2012. In 2013, the second phase of the retirement reform follows (the so-called big retirement reform), in which changes to the supplementary

retirement insurance occurred (the establishment of the 2nd pillar of the retirement system), along with changes of the tax law. The number of tax returns claiming the tax allowance for the retirement insurance significantly decline. Tax allowances for the retirement insurance of up to the amount exceeding USD 491.16 (originally USD 245.58) can be claimed from this year onward. For a good part of taxpayers, this change represents the impossibility of claiming the deduction for the retirement insurance in a tax return, as it represents own deposits of more than USD 40.93 per month.

Although the percentage use as well as the total number of tax returns submitted claiming tax allowances for the retirement insurance decline due to the retirement reform, in contrast, in 2013, there is a significant increase in the average deductions per one tax return. It may be noted that part of the taxpayers is aware of the need to be secured by their own savings for old age. In the following years, according to data from tax returns, the interest in the retirement insurance declines in connection with the Government's announcement of a change to the retirement reform to abolish the second pillar. In addition, the increased parameters for the possibility of claiming tax allowances for the retirement insurance play an important role.

The median of gross wages according to the Czech Statistical Office in 2016 (ČSÚ, 2017b) was in the amount of USD 1,025.8. That's USD 791.4 in net wages. For 50% of the population it is costly to increase their own deposits for the retirement insurance and tax allowances for the retirement insurance lose the motivational aspect for them.

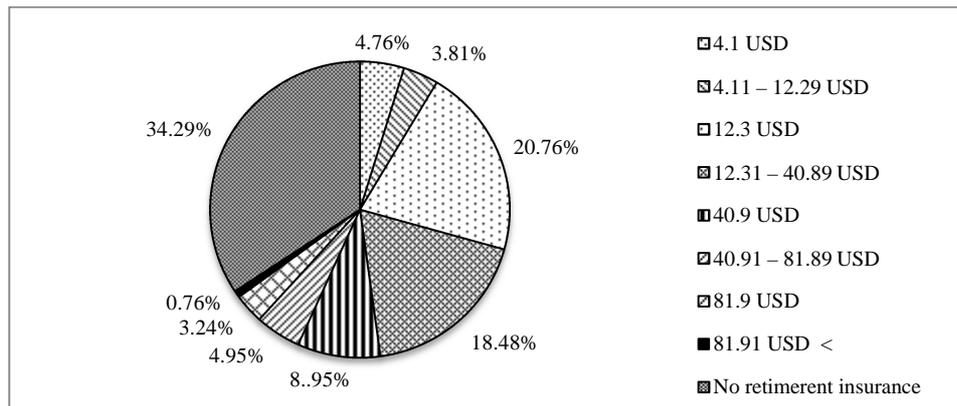
Yet, the goal of the state is to make the population partly responsible for their personal standard of living in old age. In terms of increasing support for motivation, it increases the maximum amount of the tax deduction for the retirement insurance in the amount of USD 982.32 with effect from 2017. The question of whether this legislation can be of benefit and reach out to taxpayers is partially matched by the distribution of monthly contributions to the supplementary retirement insurance, as determined by the primary research conducted.

The results of the interview survey revealed the ownership of supplementary retirement insurance contracts for 65.7% of the respondents. Figure 3 shows how much these respondents contribute to their retirement insurance per month. Most of the respondents (20.76%) merely contribute a sum of USD 12.3, which is also the minimum amount to obtain state contributions. Respondents, who save in the range of USD 12.31 – USD 40.89, obtain higher state contributions and represent 18.48%. It is necessary to save at least USD 40.9 per month for achieving the highest state contributions in the amount of USD 9.4 per month, which accounts for 8.95% of the respondents. The cumulative relative frequency of

respondents, who save at least the amount required for obtaining the state contributions, yet without the possibility of a tax advantage, is 48.19% of the total number of respondents.

Figure 3

The Amount of the Monthly Contributions to the Retirement Insurance



Source: Own calculation.

4.95% of the respondents use higher monthly contributions in the range of USD 40.91 – USD 81.89, which allow claiming the deduction of the tax base. Savings of USD 81.9 enabling the maximum tax advantage by 2016, was reported by 3.24% of the respondents. Only 0.76% of the respondents then save higher amounts. For these respondents, starting with 2017, the change in tax legislation creates a new possibility of increasing tax deductions.

The cumulative relative frequency of respondents claiming the tax deduction of the tax base is 8.95%. The result of the interview survey corresponds to the facts obtained from tax returns, where the number of tax returns with the use of the deduction of the retirement insurance amounted to 9.6% of the total number of submitted tax returns in 2015.

From the results it can be concluded that this tax allowance does not have a strong incentive effect. An increase in the maximum amount of the deduction will be advantage for only 0.76% of taxpayers who have a premium income and have more financial room for increasing their monthly deposits for their retirement insurance. For other taxpayers, the amounts of monthly savings are rather influenced by obtaining the state contribution.

The approach to taking over responsibility for one's standard of living in old age and orientation to create one's own savings can be affected by many factors. As the primary in the following analyses are regarded: the age of the taxpayer, the amount of the gross income and education.

By cluster analysis similarities of a size of contributions to pension savings was sought. It was sought according to the age, education, and income of respondents (Table 2).

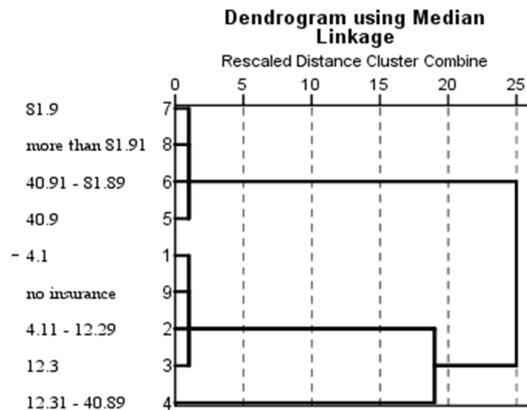
Table 2
The Procedure for Linking the Variable Categories – the Amount of Pension Savings Contributions

Agglomeration schedule						
Stage	Cluster combined		Coefficients	Stage cluster first appears		Next stage
	Cluster 1	Cluster 2		Cluster 1	Cluster 2	
1	7	8	3.534	0	0	2
2	6	7	3.669	0	1	3
3	5	6	3.085	0	2	8
4	1	9	4.426	0	0	5
5	1	2	4.522	4	0	6
6	1	3	4.163	5	0	7
7	1	4	3.469	6	0	8
8	1	5	3.447	7	3	0

Source: Own calculation.

Three groups were created (Fig. 4), two of which are four-element and one-element clusters. In the first cluster are contributions to pension savings of USD 81.9; more than USD 81.9; USD 40.91 – USD 81.89 and USD 40.9. The second cluster represents the similarity of respondents with the contributions of USD 4.1; USD 4.11 – USD 12.29; USD 12.3; USD 12.31 – USD 40.89 and includes also the respondents with no retirement insurance. The third one-element cluster involves respondents with contributions of USD 12.31 – USD 40.89 only.

Figure 4
Dendrogram Linking Categories of the Variable to the Amount of Contributions to Pension Savings

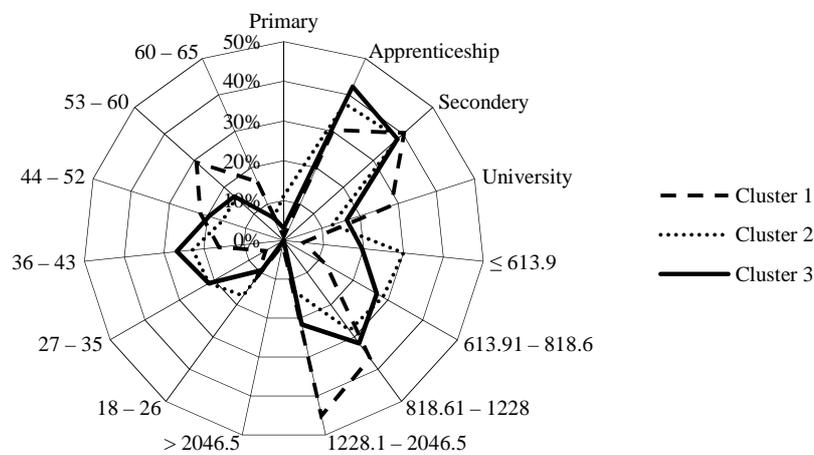


Source: Own calculation.

Individual clusters contain the following characteristics of the respondents (Fig. 5). The first cluster is predominantly high school educated citizens with the income of USD 1,228.1 – USD 2,046.5 at the age of 53 – 60. The second cluster is characterized by apprenticeship and secondary education respondents with low incomes, predominantly in the 27 – 35 age group, and the third cluster is characterized by respondents with apprenticeship education, with incomes of USD 818.61 – USD 1,228, aged 36 – 43.

Figure 5

The Properties of Individual Clusters

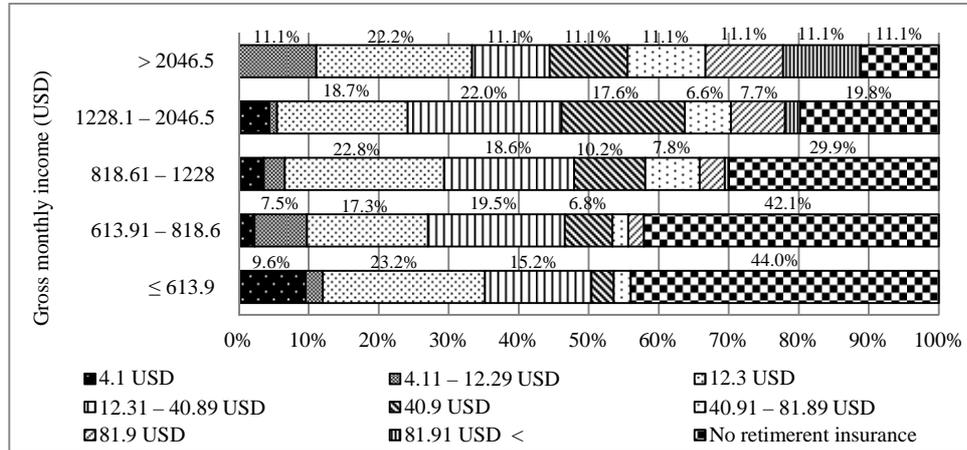


Source: Own calculation.

From the tax point of view, the first cluster corresponds to the higher amounts of pension savings contributions for which a tax allowance may be applied and at the same time allows to obtain maximum support in the form of state contributions. Contributions to pension savings that are assigned to the second and third clusters cannot benefit from a tax allowance. However, the amounts of contributions in the third cluster can at least obtain a contribution from the state. From the resulting analysis it is possible to derive the assumption of dependence based on the amount of contributions for the retirement insurance in the stated variables.

The distribution of the monthly contributions to the retirement insurance of the respondents depending on their gross income is graphically illustrated in Figure 6. Respondents with a monthly gross income of up to USD 613.9 report deposits for the retirement insurance up to a maximum amount of USD 81.89, with 50.4% of the respondents saving up to the amount of USD 40.89 (they do not benefit from tax advantages) and most they save the monthly amount of USD 12.3 (23.2%). These respondents mentioned the most that they had not opened their retirement insurance (44%).

Figure 6
The Level of Contributions to the Retirement Insurance, According to the Level of Income of Respondents



Source: Own calculation.

For respondents with a gross income of over USD 2,046.5 only 11.1% of respondents said that they had no retirement insurance. The amount of their monthly contributions is USD 40.9 and more for 44.4% of them. This income group also has the biggest possibility of claiming tax deductions for the supplementary retirement insurance (33.3%). Due to ordinal variables, the Somers’ d dependency rate was used to measure the predicted dependence.

Table 3
Rates of Unilateral Dependence between the Level of Income and the Level of Savings

Directional measures						
Ordinal			Value	Asymp. std. error	Approx. t	Approx. sig.
Ordinal by ordinal	Somers’ d	Symmetric	-.033	.026	-1.293	.196
		Income dependent	-.032	.025	-1.293	.196
		O5_Amount of_savings_on_RI dependent	-.034	.026	-1.293	.196

Note: Spearman correlation (value = -0.041; sig. = 0.189).

Source: Own calculation.

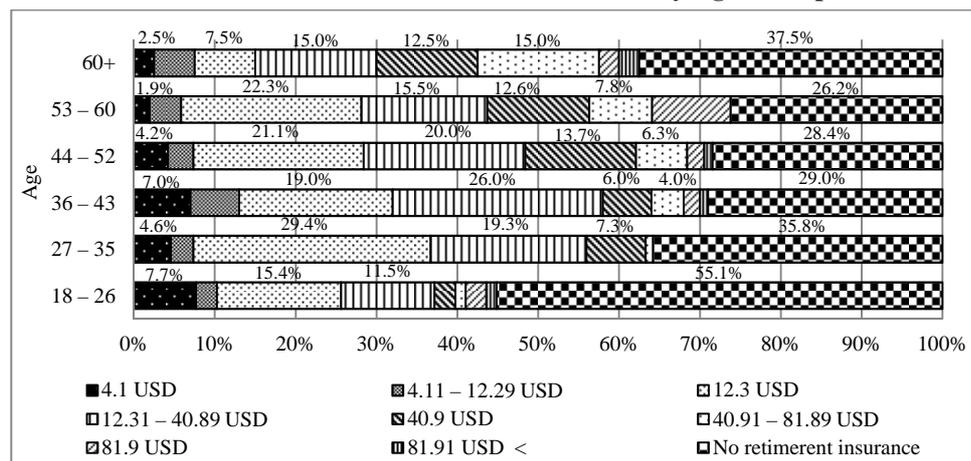
Table 3 shows the value of Somers’ d correlation coefficient of the dependent variable. The value is -0.03 and is statistically insignificant (sig. = 0.196). Based on these results we cannot accept the assumption about the statistical dependencies of the level of savings on the amount of the gross wages of the respondents.

The distribution analysis of contributions to the retirement insurance by age of respondents (Fig. 7) showed the highest percentage of respondents with no

retirement insurance (55.1%) for the category of 18 – 26 years of age, which is due to the age of the respondents understandable. Until the age of 60 years, then the percentage of respondents with no retirement insurance decreases and at the same time with an increasing age, monthly amounts of deposits go up. In the age category of 53 – 60 years the highest percentage involves respondents saving a sum of USD 81.9, however that is the final amount of the contributions, as respondents do not disclose higher amounts. Respondents in the category over 60 years contribute most with the amount over USD 81.9 to the retirement insurance (2.5%). Owing to the tax allowances, respondents over the age of 60 years (20%) and further respondents in the age category of 53 – 60 years can claim most deductions from the tax base according to the amount of their contributions to the retirement insurance. Tax benefits are at least used by respondents aged 27 – 35 years.

Figure 7

The Level of Contributions to the Retirement Insurance by Age of Respondents



Source: Own calculation.

The main purpose of the retirement insurance should be the creation of financial reserves for the period when we are not active, and our standard of living lowers. As it is evident from the above graphic processing, this savings product is not attractive for the youngest generation. The reason may be its low liquidity and low appreciation of the long-term saved funds in the retirement funds.

Also in this situation, the Somers'd measure was used to measure expected dependencies due to ordinal variables which were tested. Based on the results stated in Table 4 is the correlation coefficient Somers'd of the dependent variable -0.007 . Statistical significance of the coefficient is 0.779 . Based on these results, it is not possible to accept the assumption of the statistical dependence of the amount of savings on the respondents' age.

Table 4
Rates of Unilateral Dependence between the Age of Respondents and the Level of Savings

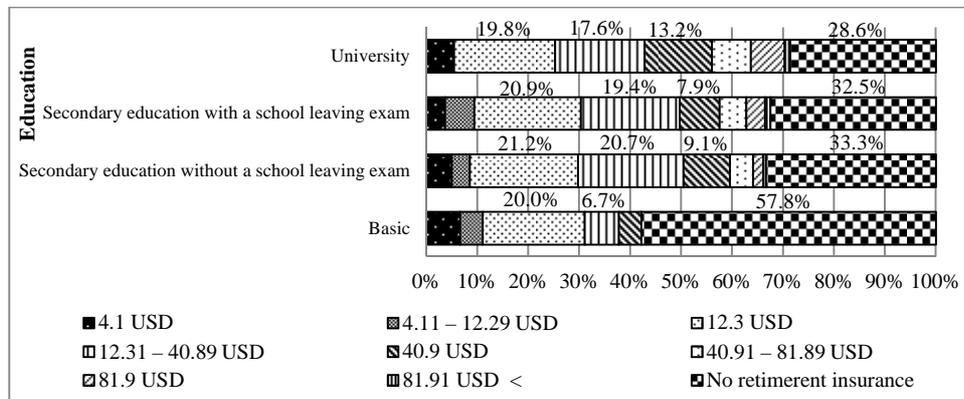
Directional measures						
Ordinal			Value	Asymp. std. error	Approx. t	Approx. sig.
Ordinal by ordinal	Somers'd	Symmetric	-.007	.025	-.281	.779
		Income dependent	-.007	.026	-.281	.779
		O5_Amount of_savings_on_RI dependent	-.007	.025	-.281	.779

Note: Spearman correlation (value = -0.016; sig. = 0.593).

Source: Own calculation.

The last indicator monitored is the education of respondents (Fig. 8). From the interview survey, the smallest interest in the retirement insurance followed for respondents with a basic education. In this category 42.2% of respondents save, of which half contribute monthly in the amount of USD 12.3. In this category the most represented contribution is the monthly contribution in the minimum amount of USD 4.1. These respondents don't use monthly contributions, which allow claiming the deduction of the tax base.

Figure 8
The Level of Contributions to the Retirement Insurance, According to the Education of Respondents



Source: Own calculation.

The distribution of the amount of the monthly contributions for vocational and secondary education respondents is similar; with approximately 50% of respondents in both categories contribute less than USD 40.9 to the retirement insurance per month.

The higher education category has the smallest representation of respondents with no retirement insurance (28.6%), and most they contribute to the retirement

insurance in amounts allowing deductions from the tax base. Even in this case, the assumption of a statistical dependence of the amount of savings on the respondent's education cannot be accepted. The value of Somers'd correlation coefficient of the dependent variable (Tab. 5) is 0.02 and the statistical significance of the coefficient is 0.436.

Table 5

Rates of Unilateral Dependence between the Education of Respondents and the Level of Savings

Directional measures						
Ordinal by ordinal			Value	Asymp. std. error	Approx. t	Approx. sig.
	Somers'd	Symmetric	-.020	.026	-.778	.436
		Income dependent	-.019	.024	-.778	.436
		O5_Amount_of_savings_on_RI dependent	-.022	.028	-.778	.436

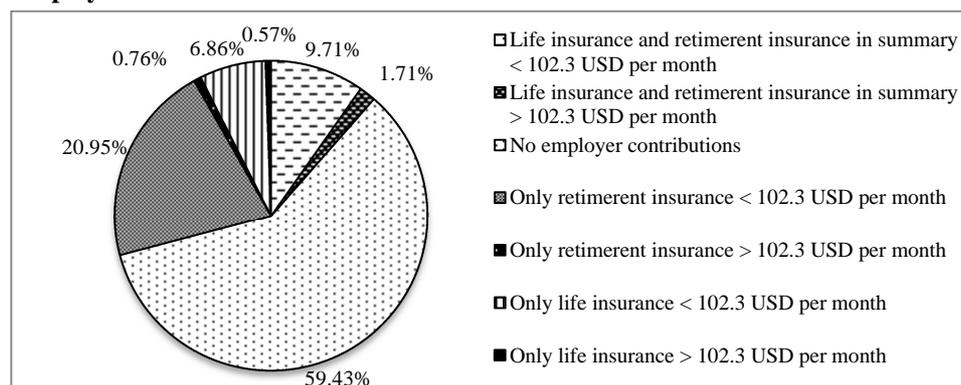
Note: Spearman correlation (value = -0.026; sig. = 0.407).

Source: Own calculation.

The tax legislation in terms of support of savings for old age, in addition to the deduction of one's own contributions to the retirement insurance as the non-taxable parts of the tax, also favors the contributions to the retirement insurance provided to employees by their employer. Under favorable tax regime employers can contribute their employees to the financial products designed for saving for retirement, up to an annual limit of USD 1,228 per year.

Figure 9

Employers' Contributions



Source: Own calculation.

In total this limit is common for an annual payment for the retirement insurance and life insurance contracts, and is exempt from income tax for individuals, as well as social and health insurance payments for both the employee and the

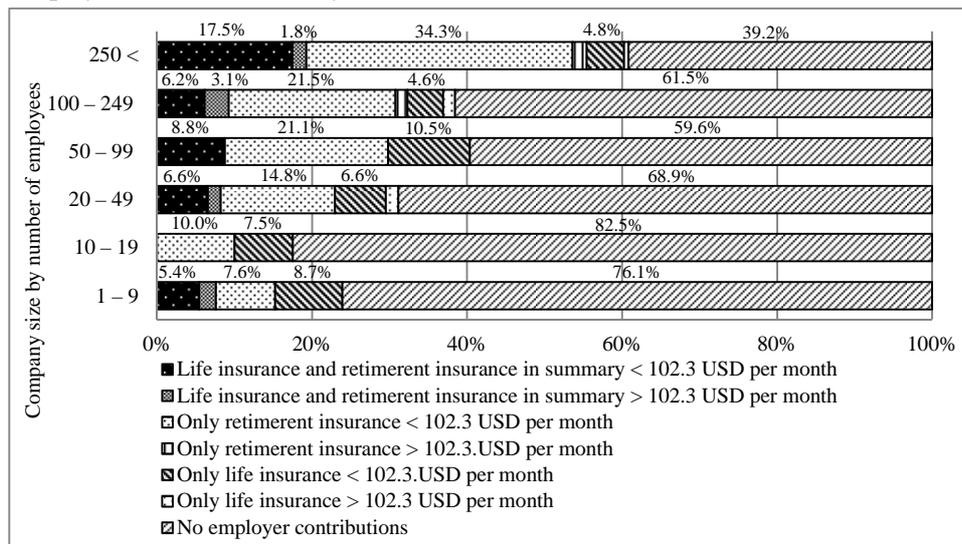
employer. 59.4% of respondents replied in the negative to the question, whether and to what extent the respondents were provided contributions to the retirement insurance or life insurance by their employer (Fig. 9). If an employer provides these contributions, then he/she contributes primarily up to the monthly amount of USD 102.3, which is the monthly limit for the use of the tax benefits.

Of these contributions, 20.9% of employers contribute just to the retirement insurance, overall, only 9.7% contribute to the retirement insurance and life insurance and 6.9% of employers contribute to life insurance. Contributions above the tax-benefit limit are provided only by a very small percentage of employers (3%).

Big companies provide contributions to the retirement or life insurance to the highest degree. As evidenced by Figure 10, 60.2% of the companies with more than 250 employees provide contributions for life and retirement insurance. Contributors for the retirement insurance are 34.3%. 17.5% of these large companies contribute to both financial products, i.e. the retirement and life insurance, and only 5% of them to life insurance. These monthly contributions are up to a maximum amount, allowing tax benefits. 4.1% of companies with more than 250 employees contribute over the limit.

Businesses with 10 to 19 employees contribute the least, according to the responses of the respondents either only to the retirement insurance (10%), or only to life insurance (7.5%), always up to the amount using tax allowances.

Figure 10
Employers' Contributions by Business Size



Source: Own calculation.

In terms of the optimal creation of financial savings taxpayers working for larger firms have an advantage. Big companies are more willing to provide employee benefits in the form of contributions to savings. The dependency between the provision of contributions to savings, and the size of the company were statistically proven by the test. Cramer's V contingency coefficient, given in Table 6, is 0.31. A dependency is moderately strong.

Table 6

Chi-square Test

Symmetric measures				Chi-square tests			
		Value	Approx. sig.		Value	df	Asymp. sig. (2-sided)
Nominal by nominal	Phi	.310	.000	Pearson Chi-square	100.807	6	.000
	Cramer's V	.310	.000	Likelihood ratio	103.203	6	.000
				Linear-by-linear association	65.699	1	.000
N of valid cases		1 050		N of valid cases	1 050		

Source: Own calculation.

Conclusion

The mandatory basic retirement insurance (1st pillar) is based on the principle of continuous funding, social solidarity and the obligatory participation for all economically active persons in the Czech Republic. Demographic forecast confirms the trend of Czech population ageing. On one hand, it's positive news, which confirms the economic and social advancement of the state, along with the high-quality health system, creating conditions for a good quality of life. On the other hand, there is a need for a solution to the financing of the retirement system. Efforts to implement the 2nd pillar definitively ended in failure at the turn of 2015 and 2016. Due to the cancellation of the 2nd pillar, an effort to increase the attractiveness of the 3rd pillar of retirement and life insurance products has stepped up since 2017. There is an increase in tax allowances and state contributions related to savings for old age.

In the Czech Republic the progressive rates of personal income tax were abandoned and a flat tax rate of 15% was introduced. This also reduced the effect of deductible items, used predominantly by middle class. Tax reliefs in the context of savings for old age in its present form are not particularly interesting for the younger generation and people with low or moderate incomes. For the younger generation, the attractiveness decreases for its low liquidity and low appreciation of the long-term saved funds in the retirement funds. Furthermore, for citizens with low or middle incomes tax reliefs in the form of a deduction

from the tax base are of no importance, as this group of the population does not pay any tax due to high tax credits for the taxpayer, spouse or children.

In the Czech Republic there is no long-term strategy in terms of the solution to the retirement system. Non-conceptual approaches (e.g. introducing the 2nd pillar) only bring considerable and unnecessary administrative costs on the part of the state (Parlament ČR, 2015). It is in the interest of the state to create favorable conditions for the formation of long-term financially sustainable and socially adequate retirement benefits and motivate participants in the retirement scheme entering into the system by providing the prerequisites for the appreciation of their savings.

As a result of research, citizens' approaches to individual savings are different and do not depend directly on age, income, or education. It also revealed low tax literacy in the area of tax reliefs, including their impact on the net income of the taxpayer. A more interesting motivation element is the provision of the state contributions for one's own deposits. Most of them do not have the sufficient capital that would allow them to increase their contributions to the retirement insurance, in order to financially secure their old age and benefit from tax reliefs. If the state wishes to achieve the longevity and sustainability of the motivation of citizens to save for retirement along with the development and strengthening of the motivation in the required direction, it will have to choose other means, e.g. a larger form of public education, awareness and a more sophisticated policy of tax reliefs. The existing tax reliefs are a positive aspect in the tax law, however, as it emerged from the research, the possibility of deductions for old age as the non-taxable part of the tax is inadequate, and do not have a strong incentive effect and do not significantly affect taxpayers either.

References

- ALTSHULER, R. – DIETZ, R. (2011): Reconsidering Tax Expenditure Estimation. *National Tax Journal*, 64, No. 2, pp. 459 – 490.
- BURMAN, L. E. (2013): Pathways to Tax Reform Revisited. *Public Finance Review*, 4, No. 6, pp. 755 – 790.
- ČSÚ (2017a): Main Macroeconomic Indicators. Praha: Český statistický úřad. Available at: <https://www.czso.cz/csu/czso/hmu_cr>.
- ČSÚ (2017b): Employed by status in employment. Praha: Český statistický úřad. Available at: <https://vdb.czso.cz/vdbvo2/faces/cs/index.jsf?page=vystup-objekt&pvo=ZAM02A&skupId=446&filtr=G~F_M~F_Z~F_R~T_P~_S~_null_null_&katalog=30853&z=T&f=TABULKA&c=v3~8__RP2005&&str=v274>.
- ČSSZ (2017): Pension Reform. Praha: Česká správa sociálního zabezpečení. Available at: <<http://www.e-podani.eu/cz/duchodove-pojisteni/duchodovareforma/M%C3%A1la+d%C5%AFchodov%C3%A1+reforma+v+ot%C3%A1zk%C3%A1ch+a+odpov%C4%9Bd%C3%ADch.htm>>.

- DULEBOHN, J. H. – MOLLOY, J. C. – PICHLER, S. M. – MURRAY, B. (2009): Employee Benefits: Literature Review and Emerging Issues. *Human Resource Management Review*, 19, No. 2, pp. 86 – 103.
- EUR-Lex (2011): Council Directive 2011/85/EU of 8 November 2011 on Requirements for Budgetary Frameworks of the Member States. Available at: <<http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32011L0085>>.
- FARICY, C. – ELLIS, C. (2014): Public Attitudes Toward Social Spending in the United States: The Differences Between Direct Spending and Tax Expenditures. *Political Behaviour*, 36, No. 1, pp. 53 – 76.
- FS ČR (2017): Analysis and Statistics. Praha: Finanční správa ČR. Available at: <<http://www.financnisprava.cz/cs/dane-a-pojistne/analyzy-a-statistiky/udaje-z-danovych-priznani>>.
- FOOKES, C. (2009): Spending through the Tax System: Tax Expenditures. [Policy Perspectives Paper 09/01.] Wellington, NZ: The Treasury New Zealand. New Zealand Treasury. Available at: <<http://www.treasury.govt.nz/publications/research-policy/ppp/2009/09-01>>.
- GARCIA, M. T. M. (2017): Overview of the Portuguese Three Pillar Pension System. *International Advances in Economic Research*, 23, No. 2, pp. 175 – 189.
- JAMES, S. – NOBES, Ch. (1999): *Economics of the Taxation: Principles, Policy and Practice*. Harlow: Financial Times Prentice Hall. ISBN 0-273-64630-3.
- JANOUSHKOVÁ, J. – KIRSCHNEROVÁ, P. (2017): Scope of the Use of the Individuals Tax Reliefs in the Czech Republic. *Acta Academica Karviniensia*, 1/2017, pp. 55 – 64.
- JAREŠ, M. (2010): *Daňové úlevy v České republice 2010*. Praha: Ministerstvo financí ČR. Available at: <<http://www.mfcr.cz/cs/o-ministerstvu/odborne-studie-a-vyzkumy/2010/danove-ulevy-v-ceske-republice-9442>>.
- KANTARCI, T. – SMEETS, I. A. J. – van SOEST, A. (2013): Implications of Full and Partial Retirement for Replacement Rates in a Defined Benefit System. *The Geneva Papers on Risk and Insurance – Issues and Practice*, 38, No. 4, pp. 824 – 856.
- MF ČR (2014): *Zpráva o daňových úlevách v České republice za roky 2011 – 2015*. Praha: Ministerstvo financí ČR. Available at: <<http://www.mfcr.cz/cs/verejny-sektor/hospodareni/rozpocet-vera-ramce-statisticke-informace/danove-ulevy>>.
- MF ČR (2016): *Základní aspekty reformy penzijního systému ČR*. Praha: Ministerstvo financí ČR. Available at: <<http://www.mfcr.cz/cs/soukromy-sektor/soukrome-penzijni-systemy/duchodova-reforma/zakladni-informace>>.
- MPSV ČR (2016): *Druhý pilíř penzijní reformy skončil. Co se bude dít dál?* Praha: Ministerstvo práce a sociálních věcí. Available at: <http://www.mpsv.cz/files/clanky/23594/TZ_MPSV_-_Druhy_pilir_penzijni_reformy_skoncil.pdf>.
- MOLEK, J. (2014): Development of the State-contributory Supplementary Pension Insurance in the Czech Republic. *Journal of Nursing and Social Sciences related to Health and Illness*, 16, No. 3, pp. 177 – 186.
- PARLAMENT ČR (2015): *Vládní návrh o ukončení důchodového spoření*. Praha: Parlament ČR. Available at: <<http://www.psp.cz/sqw/text/tiskt.sqw?O=7&CT=493&CT1=0>>.
- PECHMAN, J. (2001): *Federal Tax Policy*. Washington, DC: Brookings Institution Press. ISBN 0-8157-6962-8.
- POLACKOVA BRIXI, H. – VALENDUC, Ch. M. A. – SWIFT, Z. L. (2004): *Tax Expenditures – Shedding Light on Government Spending through the Tax System: Lessons from Developed and Transition Economies*. Washington, DC: World Bank.
- ŘEZANKOVÁ, H. (2011): *Analýza dat z dotazníkových šetření*. Příbram: PBtisk. ISBN 978-80-7431-062-1.
- ŘEZANKOVÁ, H. – HÚSEK, D. – SNÁŠEL, V. (2007): *Shluková analýza dat*. Příbram: PBtisk. ISBN 978-80-86946-26-9.
- SURREY, S. (1973): *Pathways to Tax Reform: The Concept of Tax Expenditures*. Cambridge: Harvard University Press. ISBN 978-0-674-43650-3.

- TOPHOVEN, S. – TISCH, A. (2016): Employment Trajectories of German Baby Boomers and their Effect on Statutory Pension Entitlements. *Advances in Life Course Research*, 30, pp. 90 – 110.
- WALKER, D. (2006): *Government Performance and Accountability: Tax Expenditures Represent a Substantial Federal Commitment and Need to Be Reexamined*. Washington, DC: DIANE Publishing. ISBN 1-4223-0359-4.
- World Bank (1994): *Averting the Old Age Crisis: Policies to Protect the Old and Promote Growth* Washington, DC: World Bank. Available at:
<<http://documents.worldbank.org/curated/en/973571468174557899/Averting-the-old-age-crisis-policies-to-protect-the-old-and-promote-growth>>.
- XANTHOPOULOS, J. – SCHMITT, M. (2016): *Retirement Savings and Tax Expenditure Estimates*. Arlington, VA: American Retirement Association. Available at:
<https://www.asppa.org/Portals/2/Comm_2016/16.09%20ARA%20Report%20%20Retirement%20Savings%20and%20Tax%20Expenditure%20Estimates%20FINAL.pdf>.