

**The Office
of the Czech
Fiscal Council**

International Comparison of Public Expenditure on the Pension System

December 2019

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Information Study

Section of Macroeconomic and Fiscal Analyses

December 2019

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Introduction

In the ongoing discussion about changes in the pension system, the claim that the Czech Republic expends a below-average volume of public funds compared to other EU Member States can be encountered. From that, it is usually inferred that the problem of the sustainability of the Czech pension system is not significant from the international point of view.¹ This claim is based, for example, on Eurostat data, according to which the average share of pension expenditures in GDP in the EU amounted to 9.2% in 2017, whereas in the Czech Republic only to 6.8%. A simple international comparison of pension expenditures is, however, greatly distorted, as countries differ in several parameters that have an impact on the volume of public pension expenditures. These include, primarily, whether pensions are subject to taxation, the demographic structure of the population, the compensation ratio, and the pension structure of GDP. The share of pension expenditures in GDP is then based on a number of factors that cannot be fully influenced by political decisions. This information study analyses the impact of the factors on the volume of public expenditure on pensions² and clarifies the reasons for relatively lower expenditure on pension in the Czech Republic as compared to other EU countries. The analysis shows that, taking into account relevant factors that have an impact on the level of pensions, the Czech Republic is at the EU average.

a) Taxation of pensions

There are very few European countries that do not collect any taxes or social security contributions from the pensions paid out. Table 1 summarises which countries tax pension benefits and in which countries statutory insurance is paid on pension benefits. The table shows that, whereas in many countries, social security contributions is not deducted from pensions, pension taxation is common practice in most European countries. The countries that do not tax pension benefits or collect social security contributions on them include, aside from the Czech Republic, also Bulgaria, Hungary, Lithuania, and Slovakia. Countries that tax pensions have, with a similar level of net pensions, higher public expenditure on the one hand, but also, on the other, greater public revenues, as a result. Pension expenditures must, therefore, be adjusted for taxation for the purpose of an international comparison.

Table 1 Taxes and social security contributions paid on pension

Country	Taxation	Social security contributions	Country	Taxation	Social security contributions
Belgium	YES	YES	Germany	YES	YES
Bulgaria	NO	NO	Netherlands	YES	YES
Czech Republic	NO	NO	Norway	YES	YES
Denmark	YES	NO	Poland	YES	YES
Estonia	YES	NO	Portugal	YES	NO
Finland	YES	YES	Austria	YES	YES
Croatia	YES	YES	Romania	YES	NO
Ireland	YES	NO	Greece	YES	YES
Cyprus	YES	NO	Slovakia	NO	NO
Lichtenstein	YES	NO	Slovenia	YES	NO
Lithuania	NO	NO	Spain	YES	NO
Latvia	YES	NO	Sweden	YES	NO
Luxemburg	YES	YES	Switzerland	YES	NO
Hungary	NO	NO	United Kingdom	YES	NO
Malta	YES	NO			

¹ See, e.g., MLSA press release: “the Commission for Fair Pensions examined the issue of revenues and expenses” of 11 October 2019: “Compared to other EU countries, the Czech Republic expends the eighth lowest share on its GDP on pensions. Countries such as Austria, France, Portugal, and Italy expend 6 p. p. of their GDP more on pensions. These countries are able to cope with their higher expenses and find sufficient resources for covering them while maintaining public finance stability.”

² In this study, we examine solely public expenditure on pensions paid directly by the public sector. We do not examine the amount of public expense and lost revenue related to the support of fund-based pension financing, such as direct government support for pension savings or the possibility of additional tax deductions for contributions to the fund system. The reason is the great variability of approaches of individual countries, insufficiently detailed data sources, and hence, the practical impossibility of comparing this type of public expenditure related to the pension system. For similar reasons, the study is only concerned with an international comparison of old-age pensions, not addressing disability, orphan, or widower pensions.

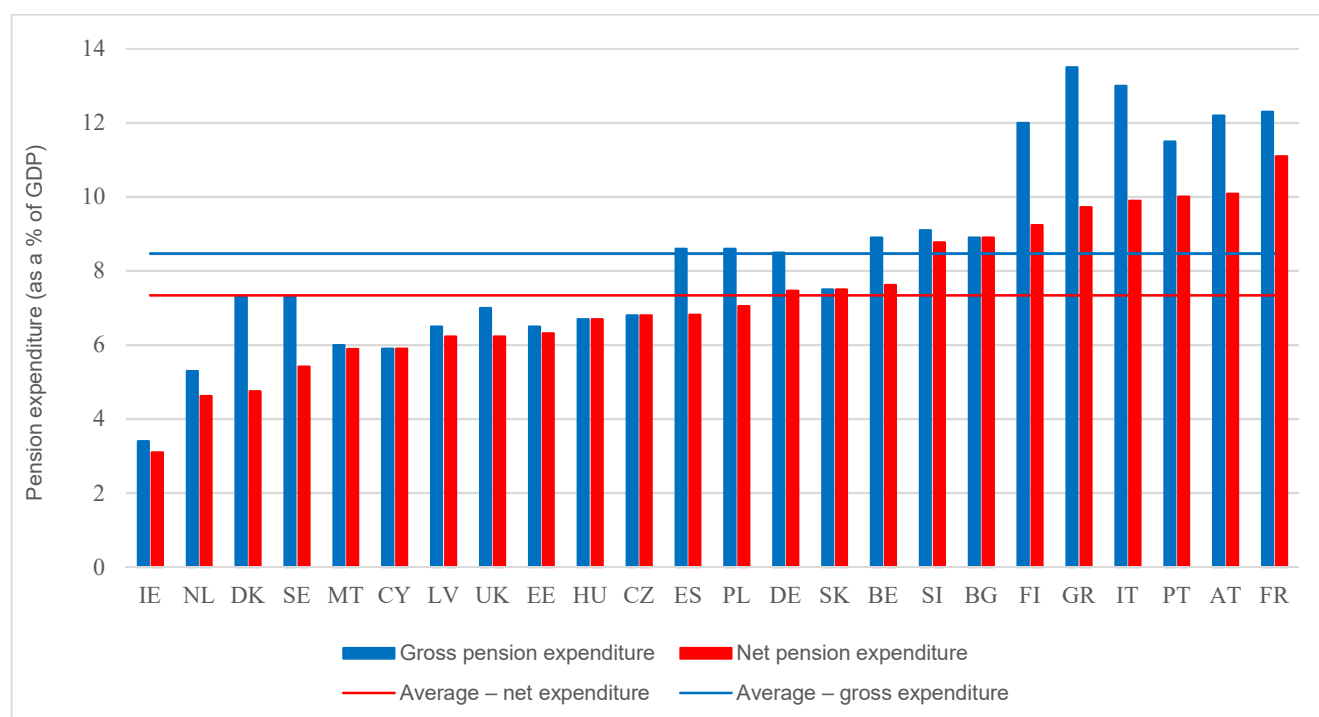
Source: OCFC on the basis of MISSOC

Adjusting pension expenditures for the impact of taxation is, nevertheless, no simple matter. The configuration of personal income tax does not usually make it possible to separate tax revenues from the taxation of pensions from the taxation of other revenues (e.g., revenues from work, business, or lease of real estate). That is why it is necessary to estimate the effective level of pension taxation on the basis of knowledge of the tax and insurance systems of each country. The OECD also proceeds in this way using the micro-stimulation model (2019)³ in its efforts to calculate net expenditures on pension.

In this study, we adjusted expenses for the impact of taxation by modelling the level of taxation of the average pension in each country. That pension amount was calculated from data on total pension expenditures and the number of beneficiaries. The tax and pension obligations per average pension were calculated by applying applicable legislation. The effective tax rate calculated on the basis of an average pension was then applied to the total pension expenditures, calculating “net” expenses.⁴

Graph 1, which features data about both gross and net pension expenditures, shows the size of distortion introduced by taxation. For example, in Germany, gross pension expenditures in 2017 amounted to 8.5% of GDP, whereas in the Czech Republic only 6.8% of GDP. When the German data is adjusted for taxation, however, it drops to 7.5% of GDP. Another example is Sweden, where gross pension expenditure in 2017 amounted to 7.3% of GDP, but after the impact of taxation was factored in, the figure dropped to 5.4% of GDP, i.e., below the level of the Czech Republic. Similar differences can be found between gross and net pension expenditures in all countries that tax pension benefits. A comparison of gross pension expenditures of EU States is therefore misleading, due to taxation. When comparing net pension expenditures, the Czech Republic’s data is far closer to the EU average (the difference is 0.5 p.p. of GDP, as compared to 1.7 p.p. of a difference in gross pension expenditures).

Graph 1 Comparison of gross and net pension expenditures (2017)



Source: OCFC on the basis of EUROSTAT data – COFOG (2019), MISSOC, EUROMOD – Country Reports (2015–2018)

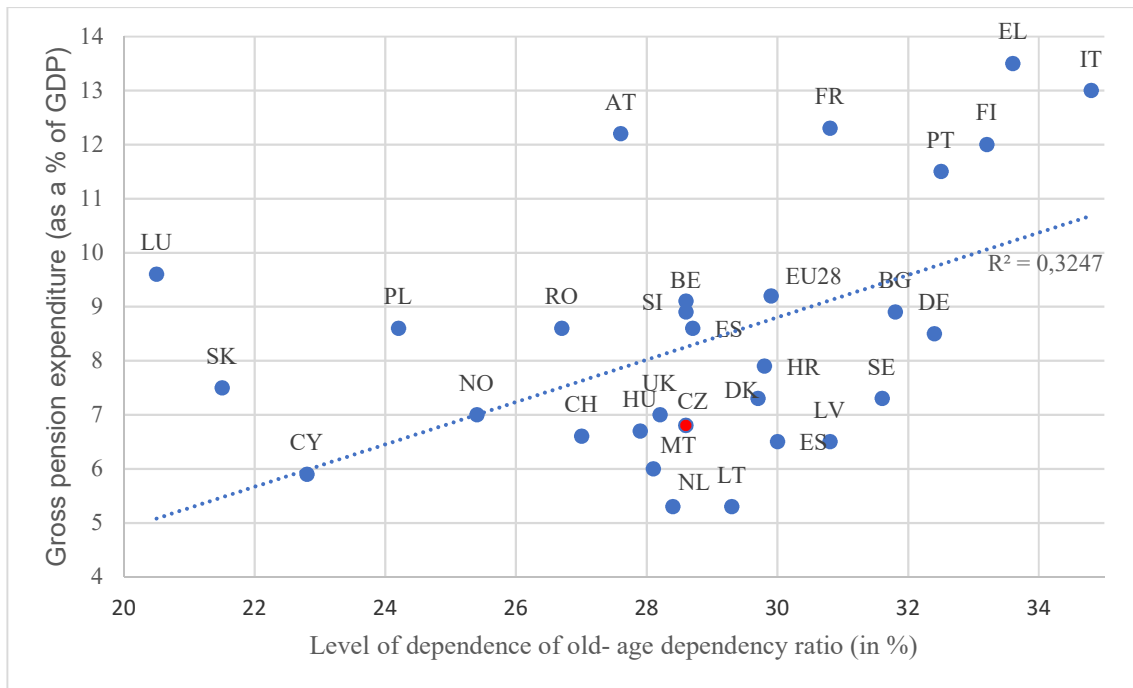
³ OECD (2019): OECD Pensions at a Glance, https://www.oecd-ilibrary.org/finance-and-investment/oecd-pensions-at-a-glance_19991363

⁴ There are, naturally, many limitations to the method of adjusting gross pensions of the impact of taxation, given that data about the distribution of pensions is not available for all the countries in the analysis. Our calculation therefore implicitly assumes a normal distribution of pensions according to their amount and the fact that the level of tax progression in relation to pension amount is constant. We are aware of the limitations of these assumptions and of the fact that this is a relatively rough estimate.

b) Demographic structure

The share of pension expenditure in GDP depends to a large degree on the demographic structure of individual countries. In countries that have advanced to a later stage of population ageing than the Czech Republic, there is a higher share of retirees in the overall population. Higher pension expenditures in proportion to GDP can therefore be expected in such countries. Graph 2 indicates that pension expenditures do indeed to a significant degree depend on the level of dependence of older persons. In this study, it is defined as the proportion of the number of persons aged 65+ to the number of persons aged 15-64 years. The Czech Republic's lower pension expenditures compared to those of a number of older EU Member States (e.g., Germany, Italy, etc.) are in part caused by the fact that the Czech population is, on average, younger. It can be expected that, in the years to come, as the Czech population ages relative to other countries⁵, pension expenditures will be up, as well.

Graph 2 Gross pension expenditure and old-age dependency ratio (2017)



Source: CFC on the basis of EUROSTAT data, EUROSTAT – COFOG (2019)

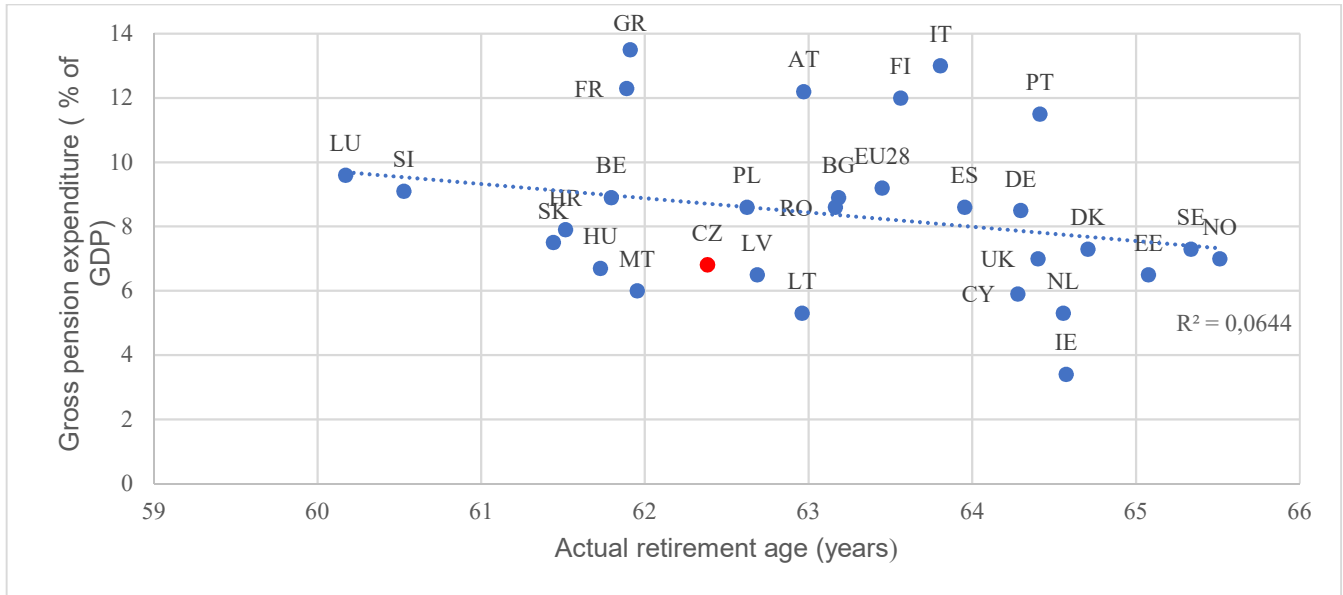
c) Retirement age

The amount of pension expenditure should also be influenced by the age at which people retire. The lower the retirement age the higher the number of persons receiving pension benefits at a given demographic structure. At the same time, those people receive pensions for a longer period. Hence, pension expenditures should be higher with a lower retirement age. This relationship is shown in Graph 3, which presents the link between actual retirement age⁶ and pension expenditures. Even though there is an adverse link between retirement age and gross, unadjusted pension expenditures, it is very weak compared to other influences. The reason may be that there is a link across countries between higher retirement age and population structure. This means that usually, a higher pension age is used in countries with a longer life expectancy, and hence, with a higher old-age dependency ratio. In an international comparison, the impact of demographic population structure may outweigh the impact of retirement age.

⁵ See CFC (2019): Report on long-term sustainability of public finance, June 2019, or CZSO (2018): Population projection of the Czech Republic 2018–2100.

⁶ Actual – effective retirement age is the age at which persons actually retire, not merely the statutorily set retirement age, because, in fact, people may take early retirement or, on the other hand, postpone their retirement.

Graph 3 Gross pension expenditures and effective retirement age (2017)

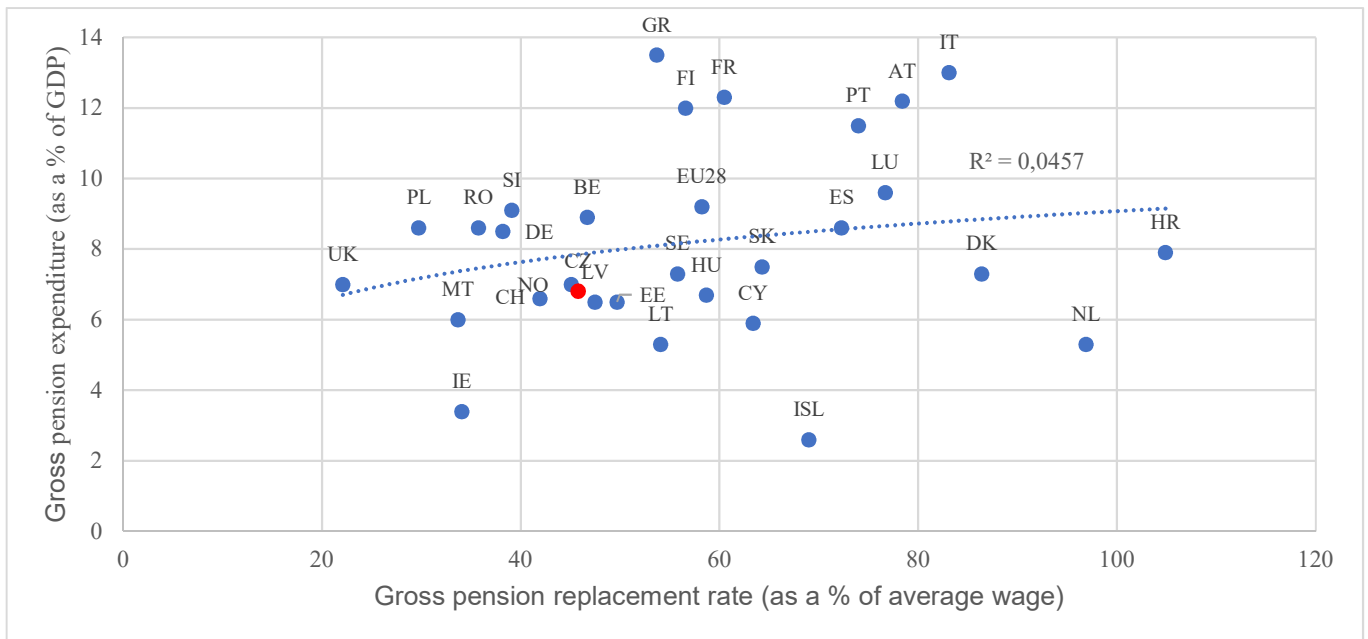


Source: OCFC on the basis of EUROSTAT data – COFOG (2019), The 2018 Ageing Report

d) Replacement rate

With a given number of people in retirement age, the amount of public pension expenditure may also be influenced by the relative generosity of the pensions assessed, which can be expressed as a gross replacement rate.⁷ Nevertheless, Graph 4, which depicts the relationship between the two indicators, does not indicate any significant relation.

Graph 4 Gross pension expenditures and gross pension replacement rate (2017)



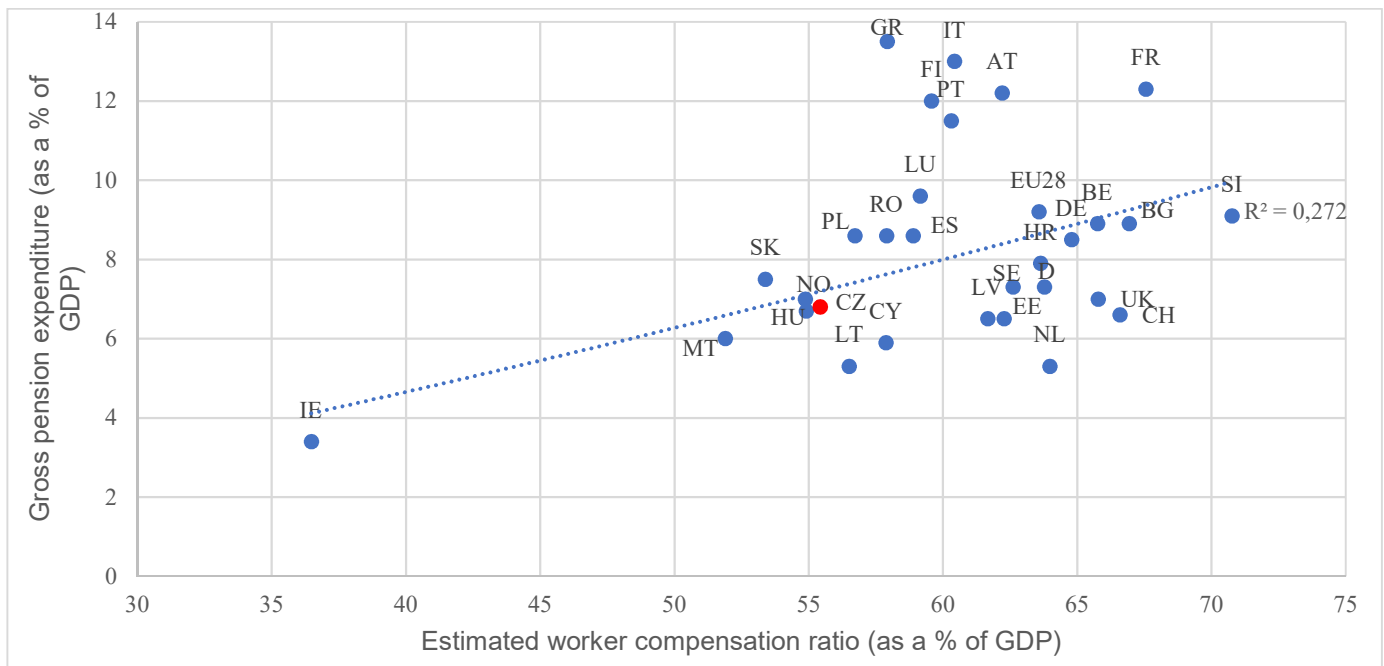
Source: CFC on the basis of EUROSTAT data – COFOG (2019), OECD (2019)

⁷ Gross pension replacement rate is defined as the ratio of gross pension to gross income before retirement (average wage was chosen).

e) Compensation of workers

Pension system expenditures may also be influenced by the GDP pension structure, in particular the proportion of compensation of workers.⁸ Employee wages and mixed income of entrepreneurs form the basic foundation from which premiums are collected and from which the amount of benefits paid is derived. Therefore, if the proportion of compensation of workers to GDP ratio is higher, the proportion of pension expenditures should also be higher.⁹ That relationship is shown in Graph 5 which shows, however, that the link is not too strong. The relationship is influenced by one outlying observation (Ireland) which reports a significantly lower compensation of workers to GDP ratio.

Graph 5 Gross pension expenditures (2017) and an estimated compensation of workers (2018)



Source: OCFC on the basis of EUROSTAT data – COFOG (2019), OECD (2019)

Comparable pension expenditures in EU countries

The data above indicates that a simple comparison of gross pension expenditure is misleading and that it is not possible to conclude that the pension system in the Czech Republic is underfinanced compared to other countries, on the basis of that comparison. Comparable data could only be obtained by simulating the amount of pension expenditure in individual EU countries, assuming that pensions are not taxed in any of the countries, that the countries have identical demographic structures, the same pension replacement rate, and the same compensation of workers to GDP ratio. Using cross-section regression, we quantified the impact of all the factors referred to above and calculated values for individual EU countries.

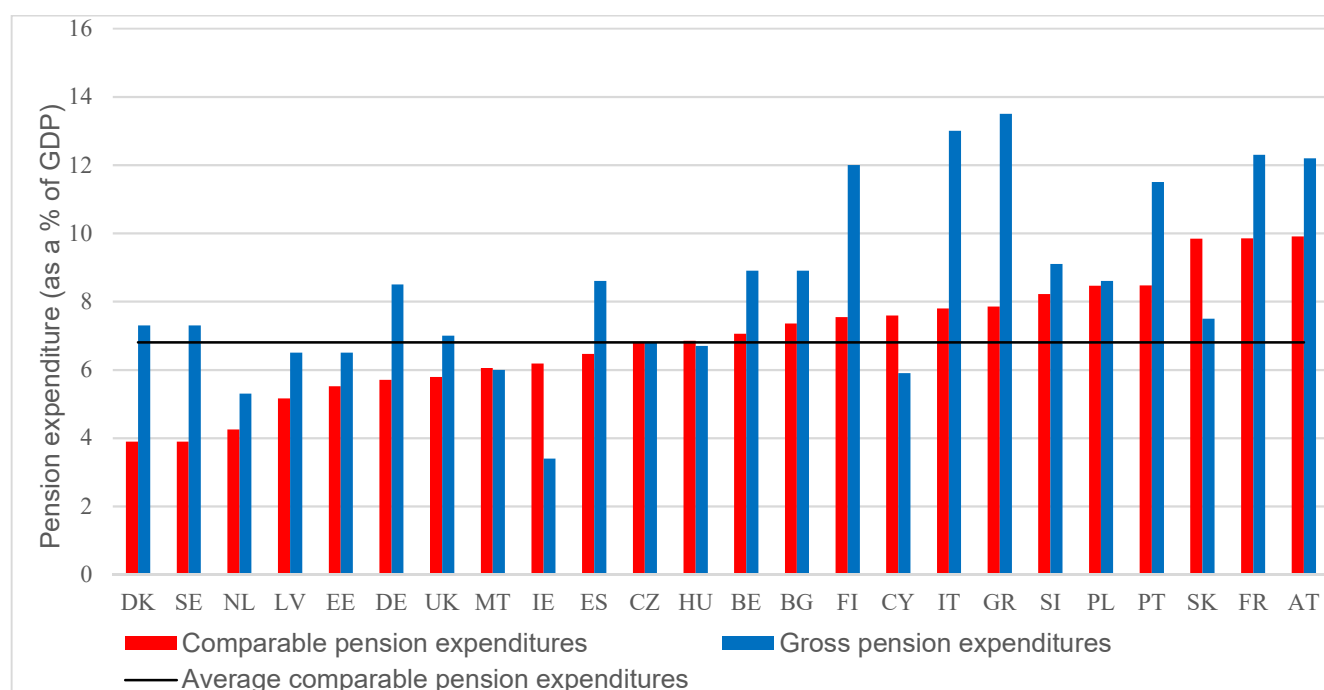
The results are presented in Graph 6, which compares total gross pension expenditures and pension expenditures adjusted for the factors mentioned above. For many of the countries that reported higher gross pension expenditures than the Czech Republic, comparable pension expenditures dropped following the adjustment, primarily of the influence of taxation and demographic structure. An increase occurred only in the case of Malta, Ireland,

⁸ Compensation of workers is derived from national accounts. We base our figures on a division of GDP into worker compensation (“employee wages” M_z), gross operating surplus (“profits of corporations”, Z_F) and a mixed pension (“a combination of an entrepreneur’s profit with the hypothetical wage he would pay himself”, Z_P+M_P). Mixed pensions of entrepreneurs are divided such that the following formula would apply $(M_z+M_P)/(Z_F+Z_P)=M_z/Z_F$.

⁹ A gradual increase of the share of worker compensation in GDP in the Czech Republic is expected in the long-term projection of the OCFC. See OCFC (2019): Report on long-term sustainability of public finance, June 2019.

Hungary, Cyprus, and Slovakia. It is evident from Graph 6 that, after adjusting for the impact of population ageing, taxation, and share of compensation of workers in GDP, the amount of pension expenditures in the Czech Republic is average compared to other EU countries and does not deviate in any way. In countries such as France, Portugal, Austria, and Italy, which are sometimes given as examples of countries with significantly higher pension expenditures than those in the Czech Republic, these higher expenditures can, to a large extent, be explained by the taxation of pensions, an older population, and a higher share of compensation of workers to GDP ratio. When adjusted for these influences, the difference between the ratio of pension expenditures in GDP between those countries and the Czech Republic drops from an average of 5.2 p.p. to 2.6 p.p., i.e., by half. After adjusting, some countries that reported higher gross pension expenditures than the Czech Republic report a lower share of expenditures on pension than the Czech Republic – see, for example Sweden, Denmark, Germany, and the United Kingdom.

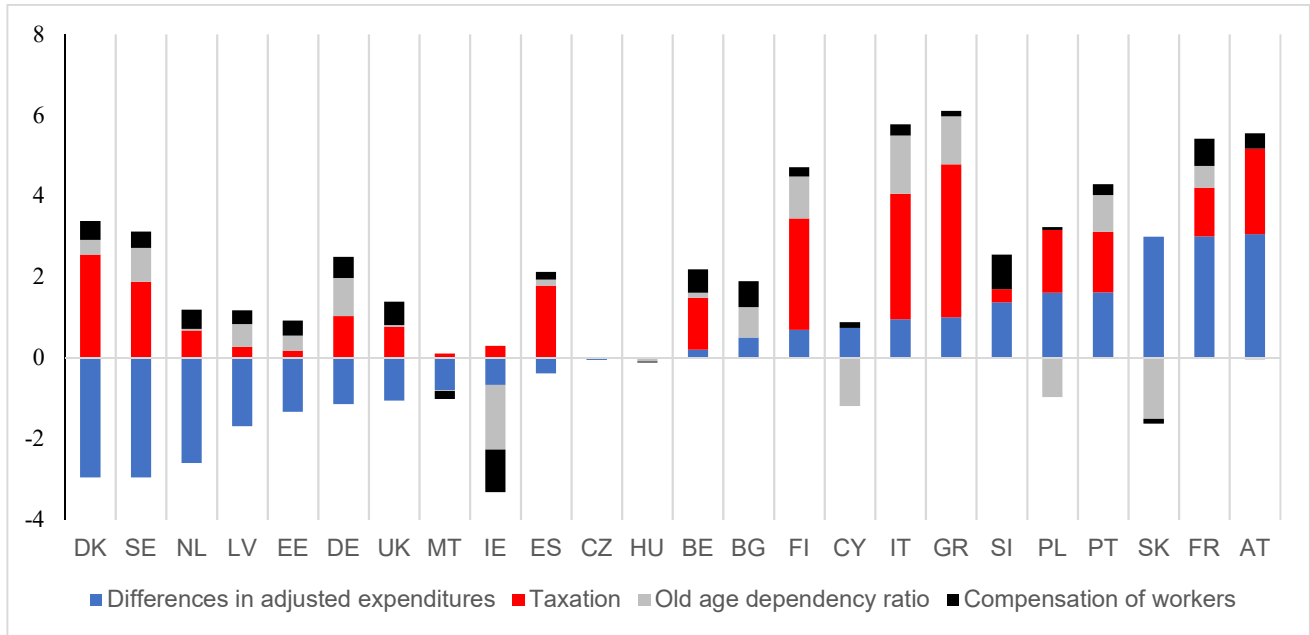
Graph 6 Comparison of gross pension expenditures and adjusted pension expenditures



Source: OCFC on the basis of the above data

Graph 7 presents the differences between gross expenditures of EU states as compared to the Czech Republic. They are divided on the basis of the causes of those differences. The effects of a different taxation of pensions, the old-age dependency ratio, and compensation of workers in individual countries, as compared to the Czech Republic, are quantified. The blue column represents the difference between pension expenditures after adjusting for the phenomena mentioned above between individual countries and the Czech Republic (i.e., the difference between the red column from Graph 6 for the given country and the Czech Republic). The other columns show whether the effect on the given country of the given factor as compared to the Czech Republic is towards higher gross pension expenditures (a positive value), or the contrary. Positive values indicate the need to adjust gross pension expenditures downwards for the purpose of the international comparison. The impact of taxation in all countries is either positive or none, as pensions are not taxed in the Czech Republic. The impact of the level of dependence of older persons is also positive for most countries, as the Czech Republic has a relatively younger population within the EU. The exceptions are Ireland, Cyprus, Poland, and Slovakia. The adjustment for compensation of workers has a similar effect – the Czech Republic again reports a lower share, in the EU, so most columns are positive. The exceptions are, above all, Ireland, but also Malta, Hungary, and Slovakia.

Graph 7 Differences in pension expenditures between the Czech Republic and other countries broken down according on their cause



Source: OCFC on the basis of the above data

Overall, higher gross expenditures on pensions as compared to those in the Czech Republic are, in the vast majority of countries, explicable by their taxation, older population, and a higher compensation of workers to GDP ratio. Given the expected ageing of the population and, with increased economic convergence in the Czech Republic, the share of gross expenditures on pensions in GDP will gradually increase towards values customary in those countries. In our opinion, relatively lower gross pension expenditures in the Czech Republic therefore cannot serve as a relevant argument for stating that there is significant room in the Czech Republic for increasing public expenditure on pensions, for example, in the form of greater increases in the compensation ratio or reduction of retirement age.