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Pension and disability pension entitlements of households accrued in social insurance till 31st December 2015

276 % of GDP

that is 4 959 144 million PLN constitutes Pension and disability pension entitlements of households accrued till the end of 2015

Statistics Poland is presenting for the first time estimations of pension and disability pension entitlements of households accrued in social insurance. The methodology has been laid out in the Regulation No 549/2013 of the European Parliament and of the Council of 21st May 2013 on the European system of national and regional accounts in the European Union (ESA 2010) and in the Technical Compilation Guide for Pensions in National Accounts¹.

Introduction

The obligation to estimate pension entitlements by the member states of EU has been introduced by ESA 2010. Data should be sent to the European Commission (Eurostat) every three years, two years after the reporting period, starting from 2015. The first compulsory transmission of data was accomplished in December 2017.

At the end of 2017 the President of Statistics Poland transmitted for the first time to the European Commission (Eurostat) the table concerning pension and disability pension entitlements accrued to date in social insurance (further referred to as supplementary table or table 29). Work on the table started in September 2015 and was accomplished in cooperation with the World Bank and, among others, ZUS and KRUS. Pension entitlements at the end of 2015 were estimated in line with ADL methodology (accrued to date liabilities)² laid out in ESA 2010 and in line with guidelines concerning calculation assumptions worked out in Technical Compilation Guide for Pensions in National Accounts by Eurostat and the European Central Bank. Information on methodology is provided under point 3 of this note "Methodology of estimation of accrued to date pension entitlements".

Eurostat has not yet decided about the deadline of disseminating information on table 29 for each of the Member States separately as well as for the whole European Union. Some Member States has already disseminated this information at their national level.

The main purpose of reporting on pensions in national accounts is to ensure comprehensive and comparable data on pension and disability pension entitlements of households across the European Union which would comprise all schemes in social insurance³, that is schemes related to employment and also, for the first time social security schemes.

It ought to be stressed here that statistics on pension and disability pension liabilities estimated in line with ADL methodology cannot and should not be used for assessment of public finances stability. They only show the present value of benefits which will be paid at the time of retirement of current contributors and of remaining benefits of the current pensioners. Such an approach shows the liabilities in the limited time perspective. It does not take into account the entitlements accrued after an accounting period, both by the current contributors

¹ The manual is accessible on the Eurostat website: <http://ec.europa.eu/eurostat/web/products-manuals-and-guidelines/-/KS-RA-11-027>

² Technical Compilation Guide for Pensions in National Accounts has introduced three basic concepts of pension and disability pension liabilities: liabilities accrued to the base year (accrued to date liabilities – ADL); current workers' and pensioners' liabilities- CWL and open system liabilities – OSL. The manual provides detailed guidelines aimed at ensuring comparability of calculations between the member states. It has been decided that data should be estimated in line with ADL methodology and PBO approach, that is projected benefit obligations approach.

³ Types of social insurance in line with the European system of national and regional accounts in the European Union (ESA 2010)

and persons who in future will enter the labour market for the first time. However, statistics on pension and disability pension entitlements and liabilities can be a valuable source of information about the cost of a pension scheme liquidation, when benefits to which the members of the scheme are entitled at the time of liquidation should be paid out. Data on expenditures connected with the ageing of population and on their impact on public finances stability can be found in The Ageing report elaborated and disseminated by the European Commission and Ageing Working Group, which operates under Economic Policy Committee⁴, and the member of which is the Ministry of Finance.

1) The results

The total value of accrued to date pension entitlements in Poland amounts to 4 580 080,8 million PLN at the beginning of 2015 (255 % of GDP) and to 4 959 144 million PLN at the end of 2015 (276 % of GDP). The vast majority of pension entitlements are the entitlements accrued in the social security scheme (ZUS). They amount to 4 056 811,7 million PLN at the end of 2015 which constitutes 225 % of GDP, that is almost 82 % of all entitlements. Whereas the smallest amount of pension entitlements has been accrued in employment-related schemes (PPE). These entitlements amount to only 10 623 million PLN, which constitutes 0,6% of GDP, that is 0,2% of all entitlements.

The table below shows accrued to date pension and disability pension entitlements at the end of 2015, separately for all schemes operating in Poland:

Table 1. The amount of accrued to date pension and disability pension entitlements in Poland at 31st of December 2015

Type of social insurance in line with ESA 2010 methodology	Type of pension scheme in line with ESA 2010 methodology	PENSION SCHEME	Accrued to date pension and disability pension entitlements Million PLN	Accrued to date pension and disability pension entitlements as percentage of GDP
		TOTAL	4 959 144,0	275,7
Social security	Social security schemes (column H in table 29)	General social security scheme (ZUS)	4 056 811,7	225,5
		Social security scheme for farmers (KRUS)	325 121,7	18,1
	Defined benefit schemes for employees of the general government sector classified in the general government sector (column G in table 29)	Pension and disability pension provision scheme for military, police and other uniformed service	391 778,4	21,8
		Pension and disability pension provision scheme for judges and prosecutors	34 313,2	1,9
Employment-related social insurance, other than social security	Defined contribution schemes (column A in table 29)	Open Pension Funds (OFE)	140 496,0	7,8
		Employment-related pension schemes (PPE)	10 623,0	0,6

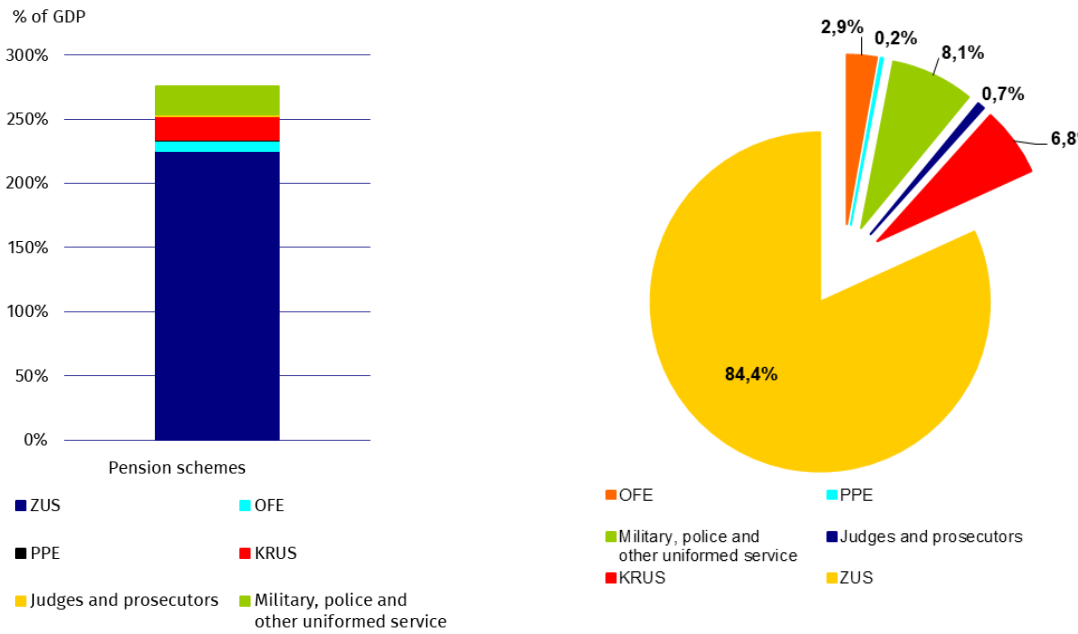
Graphs 1 to 4 show the amount of accrued to date pension entitlements in Poland in relation to GDP for all pension schemes separately at the end of 2015 as well as their share in the total of entitlements and also the amount of entitlements in relation to GDP by the type of pension scheme and the share of pension entitlements in the total for schemes classified in the general government sector and outside the sector.

Graph 1. The amount of accrued to date pension and disability pension entitlements in

Graph 2. Share of accrued to date pension entitlements of each separate scheme in the total of entitlements at the end of 2015

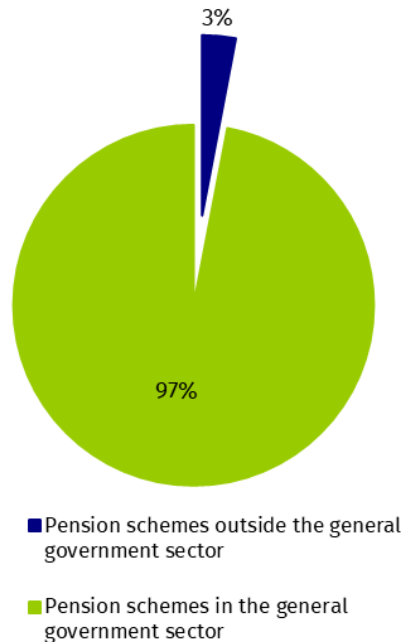
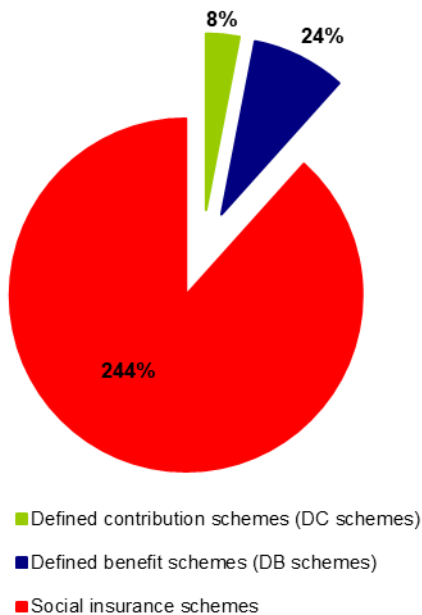
⁴ The reports are published on the European Union website : http://ec.europa.eu/economy_finance/publications/european_economy/ageing_report/index_en.htm

Poland in relation to GDP at the end of 2015 for each pension scheme separately



Graph 3. The amount of accrued to date pension and disability pension entitlements in Poland in relation to GDP at the end of 2015 by type of pension scheme

Graph 4. Share of accrued to date pension and disability pension entitlements in Poland in the total of entitlements at the end of 2015 by schemes classified in the general government sector and outside the sector

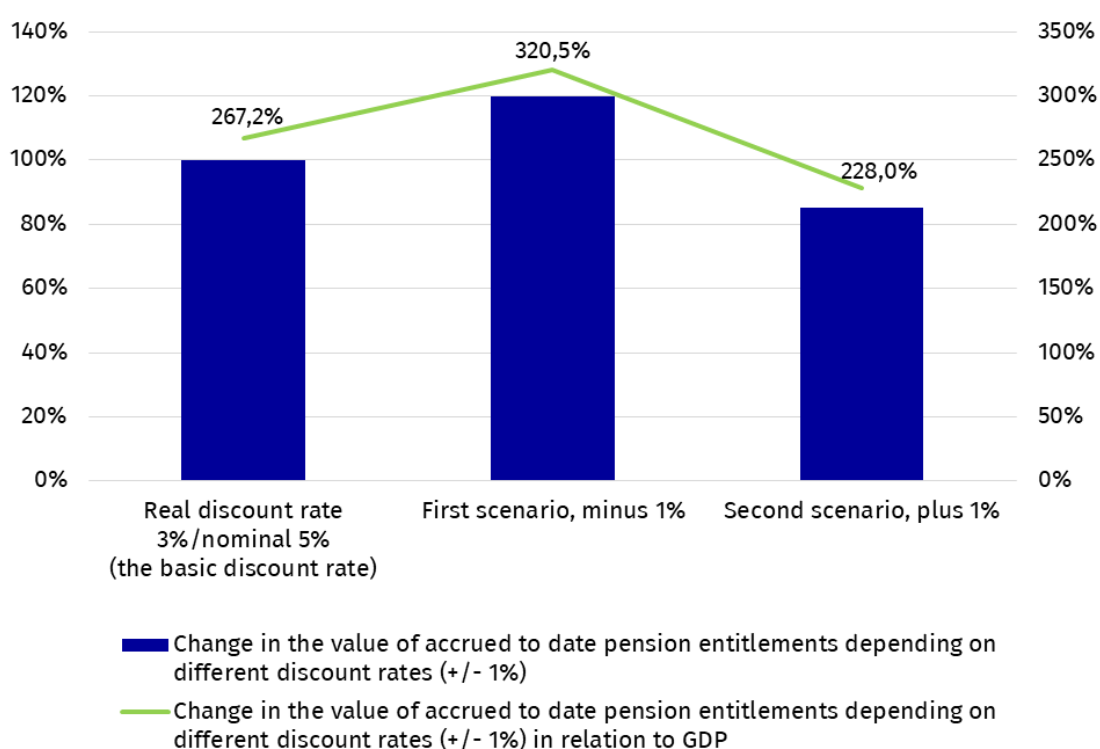


2) Sensitivity analysis

According to the Eurostat's guidelines pension entitlements accrued under social security and under defined benefit schemes were subjected to sensitivity analysis by slightly changing nominal discount rate. Decreasing the discount rate by only 1 % caused the increase in pension entitlements by 958 318 million PLN, that is by around 53% of GDP. In turn, increasing the discount rate by only 1 % caused the decrease in pension entitlements by 705 164 million PLN, that is by 39% of GDP. Defined contribution schemes (OFE and PPE) were not subjected to sensitivity analysis as the entitlements were estimated in line with ABO approach, that is accumulated benefit obligations approach which means that their value is equal to the current value of accumulated assets.

The graph below shows the increase/decrease of accrued to date pension entitlements (without OFE and PPE) depending on the different discount rates (+/-1% in relation to the basic discount rate).

Graph 5. The increase/decrease of accrued to date pension entitlements depending on the different discount rates (+/-1% in relation to the basic discount rate)



3) Methodology of estimation of accrued to date pension and disability pension entitlements

The methodology of estimation of pension entitlements in accordance with ADL approach was based on the methodological guidelines provided in ESA 2010 and in the Technical Compilation Guide for Pensions in National Accounts worked out by Eurostat and European Central Bank experts.

Pension and disability pension entitlements estimated in line with ADL method are equal to the current value of pension benefits which will be paid out in future (at the time of retirement) on the base of entitlements of the current contributors plus the remaining pension benefits of the current pensioners. Calculations were made by using projected benefit obligations approach (PBO) which means that future wage increases were fully taken into account.

In the case of funded schemes (OFE and PPE) the method of estimation differs. For these schemes accumulated benefit obligations approach (ABO) was accepted which means that the value of entitlements is equal to the value of accumulated assets at the end of the given year and future wage increases are not taken into account.

This seems to be reasonable, particularly in the case of employment-related schemes, like PPE as there are too many unknowns, like for example the possibility of shutting down or freezing the scheme by an employer, the possibility of changing the scheme (in the case of changing a job) and so forth. Such unknowns make it very difficult for compilers to work out reliable methodological assumptions for modelling. Therefore, for this type of schemes Eurostat guide recommends the use of ABO approach.

For the purpose of estimating accrued to date pension and disability pension entitlements for 2015 in Poland PROST model was used (Pension Reform Options Simulation Toolkit). The model has been designed by the World Bank Experts and then adjusted to the Polish conditions as well as methodological guidelines of the European Commission (Eurostat). PROST model is a deterministic, based on cohorts model which tracks generations in time. PROST models pension contributions, entitlements, financial flows, liabilities and takes into account all main aspects of pension policy.

Table 29 regarding accrued to date pension and disability pension entitlements shows stock of entitlements at the beginning and the end of an accounting year and all transactions during the year for each scheme separately, both from a debtor (a manager of a particular scheme) and a creditor (a household) perspective. Therefore, table 29 provides information not only about the value of entitlements at the end of the given period but also about all flows in the same period which have had impact on this value. Data are presented separately for schemes managed by the general government sector and by other institutional sectors in the following way:

- by type of scheme: defined contribution schemes (DC) and defined benefit schemes (DB)
- by schemes, liabilities of which are registered in national accounts (all funded schemes and private unfunded employment-related schemes), and by Pay as You Go (PAYG) schemes managed by the general government sector (social security schemes and unfunded schemes for employees of the general government sector), liabilities of which are not registered in national accounts.

In the case of Poland supplementary table 29 shows data on social security schemes (the general social security scheme managed by the Social Insurance Institution ZUS and the social security scheme for farmers managed by the Social Insurance Institution for Farmers); on pension and disability pension provision schemes for some professions (judges, prosecutors, military, police and other uniformed service) and on private, funded schemes (Open Pension Funds – OFE and employment-related schemes – PPE). The table does not comprise individual schemes like Individual Pension Accounts (IKE) and Individual Accounts for Pension Security (IKZE). These are based on individual decisions and savings of the insured and operate on the base of individual insurance policies, taken out mostly, although not only as life insurance. They are not collective, employment-related schemes and as such do not meet criteria of social insurance definition provided in ESA 2010. Supplementary table 29 regarding accrued to date pension and disability pension entitlements at the end of 2015 has been attached to this note.

It should be stressed here that data presented by Statistics Poland regard both pension and disability pension entitlements⁵. This approach is in line with the definition of a pension benefit laid out in the European system of national and regional accounts, ESA 2010. According to the ESA methodology, benefits from social insurance are split up into those connected with old age pensions and disability pensions and other forms of benefits.

Other forms of benefits (like health care benefits, unemployment benefits, benefits connected with long-term care, social care) are not treated in ESA as pension and disability pension benefits and are not shown in table 29.

In accordance with ESA 2010, pension and disability pension liabilities of funded and private, unfunded employment-related schemes are already registered in the core national accounts (in Poland these are Open Pension Funds OFE and employment-related schemes PPE). Their liabilities are treated as financial assets of households. Whereas liabilities of PAYG schemes are treated as contingent liabilities and as such are not registered in the core accounts. This additional data were estimated and presented in the supplementary table 29 for the first time.

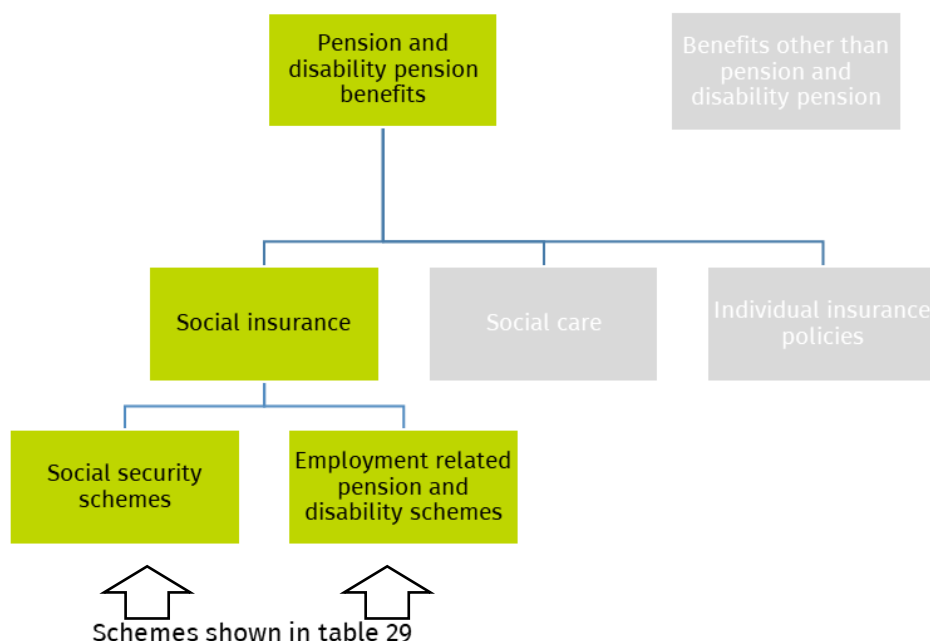
Estimations of accrued to date pension and disability pension entitlements in Poland does not include the so called bridge pensions.

Pension and disability pension entitlements of miners and teachers were estimated within the general social security scheme ZUS

Pension benefit is mostly connected with old age pensions and disability pensions but survivors' benefits (for widows and orphans) as well as early retirement benefits were also included in estimations.

⁵ Disability pensions are included in the supplementary table only if they constitute the integral part of a pension system

Graph 6. Schemes included and not included in the supplementary table 29 regarding accrued to date pension and disability pension entitlements in social insurance



4) Assumptions for modelling

Assumptions for estimation of pension and disability pension entitlements are specified in the Technical Compilation Guide for Pension Data in National Accounts worked out and published jointly by Eurostat and European Central Bank in 2011. These assumptions are the same for all member states so as to ensure comparability of estimations. It has been decided that data should be estimated in line with ADL (accrued to date liabilities) method and PBO (projected benefit obligations) approach for all social security schemes and pension provision schemes. In the case of private, funded schemes (OFE, PPE) ABO (accumulated benefit obligations) approach is more recommended, which means that the stock of entitlements is equal to the value of assets accumulated at the end of the given period.

Other, the most important assumptions are as follows:

Table 2. Assumptions accepted for estimation of pension and disability pension liabilities at 31st December 2015

Nominal discount rate	5 %	Eurostat
GDP	1 799 392 million PLN	Eurostat
Inflation	2 %	Eurostat
Benefit indexation:	<ul style="list-style-type: none"> Pension indexation was established in line with the Polish law as 80% to inflation and 20% to nominal wage growth (the general social security scheme ZUS, the social security scheme for farmers KRUS, pension and disability pension provision scheme for military, police and other uniformed service) Indexation proportional to the wage growth of judges and prosecutors in the same position as the retiree (pension provision scheme for judges and prosecutors) 	In line with law regulations in force in 2015
Retirement age	Retirement age modelled in line with the Polish law gradually increasing retirement age from 60 years for women and 65 years for men to 67 years , both for men and women	In line with law regulations in force in 2015
Real wage growth	Reflecting productivity growth per capita	AWG (Aging Working Group)
Demographic assumptions (population, births, deaths, migration)	Europop prognosis	Eurostat

5) Data sources

The following data were collected for the purpose of pension entitlements estimations:

- anonymized individual data and aggregated data from managers of relevant pension schemes (administrative data)
- aggregated data from the National Bank of Poland, the Polish Financial Supervision Authority (administrative data) as well as statistical data.

Table 3. Data sources for estimation of pension entitlements in 2015

PENSION SCHEME	Data sources	Type of data
The general social security scheme (ZUS)	The Social Insurance Institution ZUS	A sample obtained from the ZUS computer system; aggregated data on contributors, old age pensioners and disability pensioners
Social security scheme for farmers	The Social Insurance Institution for Farmers KRUS	Full population obtained from KRUS computer system; aggregated data on contributors, old age pensioners and disability pensioners
Pension provision scheme for military, police and other uniformed service	The Ministry of National Defence The Ministry of the Interior and Administration The Military Pension Bureau The Pension and Disability Pension Institution of the Ministry of the Interior and Administration The Pension Bureau for Prison Guards	Full population, data collected on the form designed specifically for this purpose
Pension provision scheme for judges and prosecutors	Courts of law, prosecutor's offices	Full population, data collected on the form designed specifically for this purpose
Open Pension Funds (OFE)	The National Bank of Poland, the Polish Financial Supervision Authority	Full population, aggregated data
Employment-related schemes	The National Bank of Poland, the Polish Financial Supervision Authority	Full population, aggregated data

Additionally, demographic and macroeconomic data elaborated by Eurostat and AWG were used for the purpose of modelling.

Statistics Poland would like to acknowledge in particular the World Bank for their support and good cooperation and also the Social Insurance Institution ZUS, the Social Insurance Institution for Farmers KRUS, courts of law and prosecutors' offices, the Ministry of National Defense, the Ministry of the Interior and Administration, the National Bank of Poland, the Polish Financial Supervision Authority, the Military Pension Bureau, the Pension and Disability Pension Institution of the Ministry of the Interior and Administration and the Pension Bureau for Prison Guards for providing data and information necessary to complete the task described in this note.

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Related studies

- [The European system of national and regional accounts \(ESA 2010\)](#)
- [Technical Compilation Guide for Pensions in National Accounts](#)
- [Fact sheet – accrued to date pension and disability pension entitlements in social insurance \(Polish and English version\)](#)
- [Table 29 – accrued to date pension and disability pension entitlements in social insurance \(Polish and English version\)](#)

Subject available in databases

Important concepts available in the dictionary