

ACCRUED-TO-DATE PENSION ENTITLEMENTS IN SOCIAL INSURANCE: FACT SHEET

Poland

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1. Table 29 column A: Defined contribution schemes (funded, non-general government)

1. General description of the scheme and the calculation model	
<i>a. Coverage of the scheme</i>	
<p>1) Open Pension Funds (OFE) Part of the general pension system in Poland consisting of three pillars: the social security scheme ZUS (the first pillar), the social insurance scheme OFE (the second pillar) and the social insurance scheme PPE (the third pillar). OFE was mandatory till 2014 for all born after 1968, since 2014 it has been and is on a voluntary basis. Participants in OFE are divided into two groups: 1) active participants (that is those who have decided to have accounts in ZUS and OFE), for whom part of the employees contribution paid to the general social security scheme ZUS is transferred to their OFE account and 2) non-active participants (that is those who have resigned from participation in OFE), for whom their contributions are no longer divided between ZUS and OFE. In terms of active members the scheme covers around 15 % of the economically active persons.¹ Contributions are invested in financial instruments. Both active and non-active members have their assets accumulated in OFE accounts and when they have less than 10 years to retirement these assets are gradually (year by year) transferred to ZUS until there are no assets left in OFE accounts. At the same time part of the contribution of those active members is no longer transferred from ZUS to OFE. ZUS and not OFE pays out the whole pension benefit. OFE are managed by private fund management companies classified in S12 sector.</p>	
<p>2) Occupational Pension Schemes (PPE) Part of the general pension system (social insurance scheme). PPE schemes are voluntary form of saving for retirement, organized by an employer in cooperation with employees. At the end of 2015 there were 1 054 PPE in Poland which covered around 2,3 % of the economically active persons. The program can be carried out by the employer alone (company scheme) or with other employers who decided to jointly sponsor it (inter-company scheme). Payments to the scheme come from contributions: basic and supplementary. The basic contribution is paid by employers and is mandatory for those employers who have decided to set up such a scheme. The supplementary contribution is paid by employees on a voluntary basis if they want to increase their contribution and future benefit.</p>	
<i>b. Institutional set-up</i>	
<i>Data sources/ suppliers</i>	<p>1) OFE</p> <ul style="list-style-type: none"> Polish Financial Supervision Authority (KNF) with regard to the opening and closing stock of assets accumulated in individual accounts Social Insurance Institution ZUS with regard to the amount of contributions transferred to individual accounts in OFE Polish Financial Supervision Authority with regard to data on investment income and scheme charges The Ministry of Finance RB 40 report and the financial statement of the Social Security Fund FUS with regard to data on the transfer of assets between OFE and ZUS (safety slider) <p>2) PPE</p> <ul style="list-style-type: none"> Polish Financial Supervision Authority (KNF)
<i>Which institution is running/managing the calculations?</i>	Central Statistical Office of Poland
2. Any other comments	

¹ However, only part of OFE members (i.e. 2.5 million, which accounts for 15% of all OFE members) have the status of "active member". From 1 January to 31 June 2014 members of OFE could choose whether they want the part of their contributions to be transferred to OFE or to be credited to the subaccount in ZUS (the general social security scheme). The division of Second Pillar contribution depends on declaration about transferring a part of contribution to OFE. If the insured person does not declare to transfer a part of contribution to OFE, the entire contribution is credited to the subaccount in ZUS. The insured person can change his/her decision every four years from April to June beginning from 2016.

Accrued to date pension entitlements were estimated according to ABO approach (the present value of accumulated assets). Column A excludes individual retirement saving accounts and individual pension plans, which are currently covered in core financial accounts and balance sheets. Changes in entitlements due to revaluations (row 8) in column A are the difference between stock of entitlements at the end of the year, stock of entitlements at the beginning of the year and all current transactions in the course of the year. For OFE and PPE we have assumed ABO approach which means that stock of entitlements is equal to stock of accumulated assets at the end of the given period. In private pension schemes like OFE assets are invested in financial instruments and their valuation at the end of the period directly depends on their investment portfolio and on the investment return rate. In the case of OFE their investment portfolio changed in 2015 in such a way that the majority of their assets were invested in shares instead of state treasury debt securities as it had been previously. Share instruments are characterized by much bigger price fluctuation than treasury bonds which results in the higher fluctuation of the value of OFE assets. In 2015 the conditions on the Polish stock market were not favorable and as a result of it OFE incurred losses. Hence the value of their assets at the end of the year was significantly smaller than at the beginning of the year. Another issue is that transactions connected with contributions flow are shown in table 29 as a cash transfer from ZUS to OFE. When they are registered in OFE account they are changed into special units and the price of a single unit depends on the investment return rate. So the value of contributions as OFE assets can differ from the value of actual cash transfer.

The same concerns PPE. The main form of their activities are life insurance schemes but it has been changing recently to schemes with investment funds. In 2015 their assets dynamics decreased although the difference in value was not significant in comparison to OFE.

These changes in the value of assets are shown in row 8 of table 29 (changes in entitlements due to revaluation) in line with the Technical Compilation Guide for Pension Data in National Accounts which defines revaluations, among other things as changes in assumed price developments.

2. Table 29 column B: Defined benefit schemes (funded, non-general government)

This type of scheme does not exist in Poland.

3. Table 29 column D: Defined contribution schemes (funded, general government)

This type of scheme does not exist in Poland.

4. Table 29 column E: Defined benefit schemes (funded, for general government employees, classified in financial corporations)

This type of scheme does not exist in Poland.

5. Table 29 column F: Defined benefit schemes (funded, for general government employees, classified in general government)

This type of scheme does not exist in Poland.

6. Table 29 column G: Defined benefit schemes (unfunded, for general government employees, classified in general government)

1. General description of the scheme and the calculation model	
<i>a. Coverage of the scheme</i>	
<p>1) Provision scheme for judges and prosecutors Covers all judges and prosecutors in the Polish justice system, that is around 0,1 % of the economically active persons. No contributions are paid, benefits are covered from the State Budget. The only criterion for retirement is either age or disability/sickness regardless of age. The scheme replaces the social security scheme for this type of public servants.</p> <p>2) Provision scheme for uniformed services Covers uniformed services such as military, police, security service, intelligence, counterintelligence, border guards, prison guards, firemen, that is around 1,4% of the economically active persons. No contributions are paid, benefits are covered from the State Budget. Benefits differ for those hired before and after December 31, 2012. Retirement is based on a combination of age and service. In fact all of Poland's schemes require a combination of age and years of service. For the military plan, and for judges and prosecutors, the model makes an assumption about the percent of contributors who retire each year by age and sex. Under the military plan, those hired prior to 2013 are eligible to retire at age 35 with 15 years of service. However, statistics show that the majority of military and police actually retire much later than age 35 – either because they have not yet met the years of service requirements or because they choose to continue working despite eligibility to retire. The actual average retirement age is about 47 for males and 50 for females. Consequently, the model assumes that only 0.3% of 35 year old contributors have 15 or more years of service and choose to retire at age 35. Those hired on or after 2013, are not eligible to retire until age 55 with 25 years of service and the model follows a similar approach.</p> <p>The scheme replaces the social security scheme for this type of public servants.</p>	
<i>b. Institutional set-up</i>	
<i>Data sources/ suppliers</i>	<p>1) Provision scheme for judges and prosecutors</p> <ul style="list-style-type: none"> • Courts of law and prosecutors' offices with regard to detailed data • AWG with regard to the main macroeconomic and population assumptions <p>2) Provision scheme for uniformed services</p> <ul style="list-style-type: none"> • Ministry of National Defence, Ministry of the Interior and Administration, Pension Office of the Ministry of the Interior and Administration with regard to detailed data • AWG with regard to the main macroeconomic and population assumptions
<i>Which institution is running/managing the calculations?</i>	CSO is managing the calculations with strict cooperation with the World Bank; with regard to the first transmission of data, modelling has been done by the experts of the World Bank
<i>c. Major formulas: Benefit formula; Indexation of benefits</i>	
<i>Benefit formula</i>	<p>1) Provision scheme for judges and prosecutors 75 % of the last salary</p> <p>2) Provision scheme for uniformed services</p> <ul style="list-style-type: none"> • Officers/soldiers employed in uniformed service before January 1, 2013: 40% of the last salary for 15 years of service plus 2.6% of the last salary for each subsequent year of service above 15 years.

	<p>Officers/soldiers employed in uniformed service after December 31,2012: 60% of the calculation base for 25 years of service, i.e. of the average salary out of 10 calendar years selected by the employee, plus 3% of the calculation base for each subsequent year of service above the required period.</p> <ul style="list-style-type: none"> The disability pension is dependent on the degree of incapacity for work and it equals: <ul style="list-style-type: none"> a. for group I – 80% of the last salary b. for group II – 70% of the last salary c. for group III – 40% of the last salary
<i>Indexation of benefits</i>	<p>1) Provision scheme for judges and prosecutors Proportionally to the wage growth of judges and prosecutors in the same position</p> <p>2) Provision scheme for uniformed services Pension benefits are indexed to consumer price index increased by 20 % of real wage growth</p>
d. Type and structure of the calculation model	
Pension entitlements have been modelled by applying the World Bank's PROST model, the same as in the case of social security schemes.	
2. Assumptions and methodologies applied	
<i>a. Discount rate</i>	
at the required by Eurostat level of 5 % nominal	
<i>b. Wage growth</i>	
AWG assumptions reflecting productivity growth per capita	
<i>c. Valuation method: ABO/PBO</i>	
PBO	
3. Data used to run the model	
<i>a. Mortality tables</i>	
Data from AWG	
<i>b. Entitlement statistics; other relevant statistics</i>	
<p>1) Provision scheme for judges and prosecutors</p> <ul style="list-style-type: none"> Detailed data on the whole population of judges and prosecutors such as the number of active judges/prosecutors by age and sex, the number of retired judges/prosecutors by age and sex, the amount of salaries and benefits. Demographic, labour and macroeconomic assumptions from AWG: life expectancy, participation rate, unemployment rate, population tables, mortality tables, all by age and sex; macroeconomic assumptions. <p>2) Provision scheme for uniformed services</p> <ul style="list-style-type: none"> Detailed data on the whole population of officers/soldiers such as the number of active officers/soldiers by age and sex, the number of retired officers/soldiers by age and sex, the amount of salaries and benefits. Demographic, labour and macroeconomic assumptions from AWG: life expectancy, participation rate, unemployment rate, population tables, mortality tables, all by age and sex; macroeconomic assumptions. 	
4. Reforms incorporated in the model	
<p>1) Provision scheme for judges and prosecutors Judges and prosecutors will no longer be eligible for early retirement after December 31, 2017.</p> <p>2) Provision scheme for uniformed services Based on the reform of 2012, the uniformed officers were divided into two groups, for which there are different rules for retirement eligibility and calculating old-age pensions.</p>	
5. Specific assumptions	
<i>a. How are careers modelled?</i>	
Estimations take into account wage growth. Salaries generally increase for an individual due to two	

factors – general increases in the level of earnings due to inflation and productivity growth, and increases in wages due to merit, promotions and seniority. The PROST model takes both factors into account in modelling career progressions. Careers are modelled through a combination of an earnings profile and annual increases in the earnings profile based on inflation and productivity growth assumptions. The earnings profile is developed from existing data on contributors' in the base year and shows average earnings by age and sex. The earnings profile shows how salaries increase (or decrease) with age due to merit, promotions and seniority. The entire earnings profile is increased from one year to the next based on assumptions regarding inflation and productivity growth. Therefore, as an individual progresses through his or her career, the salary from the prior year increases for both reasons.

b. How are survivor pensions calculated?

85 % of the last salary for one eligible person, 90 % for two and 95 % for three and more eligible persons

c. How is the retirement age modelled over time?

1) Provision scheme for judges and prosecutors

In line with the Polish law gradually prolonging retirement age, starting with 60 years for women and 65 years for men and ending with 67 years for both men and women. Early retirement not permitted after December 31, 2027.

2) Provision scheme for uniformed services

Assumed ages at retirement for pre-2013 scheme based on actual retirement experience by age and sex under the uniformed services plan. Assumed retirement ages for post-2012 scheme reflects change in the law prohibiting retirement prior to age 55.

d. Other specific features of the model

Old age and disabled have been specified as flow of contributors from the previous year based on actual experience under the plans which means that the number of new old age and disability pensioners is calculated and then the total number of pensioners is estimated by starting with the prior year stock, adding the number of new pensioners and subtracting those who are assumed to die. The number of new beneficiaries is calculated by making assumptions regarding the percentage of prior year contributors who retire or become disabled each year by age and sex.

Summary and comparison reflects finances of mono pillar system. Mono pillar system means the one that is defined benefit only or defined contribution only. This is the case for all of Poland's plans with the exception of the general social security scheme (ZUS), which is multi pillar (Notional defined contribution plus fully funded system).

6. Any other comments

The value shown in other changes in volume (row 9) is connected with the change to the estimation approach in the model in comparison to the first transmission of the stock of entitlements at the end of 2014 which has been then repeated as the stock of entitlements at the beginning of 2015. It concerns two issues: the abolition of early retirement for judges and prosecutors due on 31st December 2017 which was not taken into account in the first estimation method and change of estimation approach in the case of uniformed services by incorporating in a better way in comparison to the previous method, the 2013 reform of military scheme. In both cases the value in row 9 shows the adjustment to the starting liability, that is to the stock of entitlements at the beginning of the year and has been calculated as the difference between liabilities at the end of 2014 estimated in line with the new method and those reported in the first transmission (estimated in line with the previous method). Since it cannot be easily separated it is all shown in row 9 as changes to the estimation approach.

7. Table 29 column H: Social security pension schemes (unfunded)

1. General description of the scheme and the calculation model	
<i>a. Coverage of the scheme</i>	
<p>1) The General Social Security Scheme (ZUS) covers the majority of working population in Poland (all employees, self-employed and employers working outside agriculture, with the exclusion of participants in security provision scheme – schemes for uniformed service and judges plus prosecutors), that is around 85 % of the economically active persons. The scheme is mandatory and insures against old age, disability and loss of a family breadwinner. The scheme is an unfunded notional defined contribution scheme on Pay as You Go basis with compulsory contributions as the main source of income. Contributions are paid both by employers and employees. The basis for contributions is income as understood in the act of law on personal income tax (in the case of employees it is their salary as defined by this act of law). The basis doesn't include remuneration for sickness and benefits. The total for old age pension is 19,52 % of the basis and it is paid in half by an employer and an employee (that is 9,76 % by each one of them). For disability pension the rate is 8 % of the basis, of which 6% is paid by the employer and 1,5 % by the employee. So in total the employer pays 16,26% of the basis and the employee 11,26% of the basis.</p> <p>2) Social Security Scheme for Farmers (KRUS) covers all farmers, their spouses and other members of their families working together with them in agriculture, which is around 8 % of the economically active persons. The scheme is mandatory and insures against old age, disability and loss of a family breadwinner. The scheme is an unfunded defined benefit scheme on Pay as You Go basis with compulsory contributions and subsidies from State Budget as the main source of income. The basic contribution is equal to 10 % of the basic pension benefit, that is the lowest employee pension benefit. The amount of the basic pension benefit is officially announced by the CSO President. Farmers who own farms with arable land bigger than 50 hectare pay additional contribution, from 12 to 48 % of the basic pension depending on the size of their farm. In case a farmer runs business activities outside agriculture his contribution is twice as much.</p>	
<i>b. Institutional set-up</i>	
<i>Data sources/suppliers</i>	Social Insurance Institution ZUS, Social Insurance Institution for Farmers KRUS, AWG
<i>Which institution is running/managing the calculations?</i>	CSO is managing the calculations with strict cooperation with the World Bank; with regard to the first transmission of data, modelling has been done by the experts of the World Bank.
<i>c. Major formulas: Benefit formula; Indexation of benefits</i>	
<i>Benefit formula</i>	<p>1) For the general social security scheme (ZUS) there are two types of benefit formula:</p> <p>a) Before the systemic reform in 1999 the scheme was a pay as you go defined benefit scheme with the following formula: benefit equals to 24 % of the average salary decreased by obligatory social contributions + 1,3 % of the contribution base for each contributory year + 0,7% of the contribution base for each non-contributory year where the contribution base is a salary on which social contributions are paid by a given person. The formula also takes into account the additional criteria for the old age scheme which are the minimum years of service – 15 for women and 20 for men. For modelling the incremental replacement rate has been assumed as 1,3 % and basic replacement rate for men 26 % (20 years x 1,3) whereas for women 19,5% (15 years x 1,3). This formula has been used for calculating benefits for persons born until the end of 1948 and for calculating disability and survivors benefits for everyone.</p> <p>b) Notional defined contribution formula (after the reform): benefit has been calculated as the total of contributions + initial capital +</p>

	<p>indexing on individual accounts of the insured in ZUS divided by average life expectancy. Initial capital is understood and calculated as the present value of the hypothetical old age pension which the insured would have received if she/he had retired at the time of the systemic reform.</p> <p>2) For the farmers' social security scheme, the defined benefit formula is composed of two parts: contributory and supplementary. The contributory part is calculated as 1% of the basic pension for each contributory year where the basic pension is equal to the lowest regular pension for an employee outside agriculture (i.e., the minimum pension in the general employees' program administered by ZUS). The supplementary part constitutes 95 % of the basic pension if the number of contributory years is less than 20. Otherwise it is decreased by 0,5 % of the basic pension for each year over 20 but cannot be less than 85 % of the basic pension. A minimum of 25 years of service is required for retirement. For the purpose of modelling the replacement rate, the benefit formula for someone with 25 years of service has been calculated as 25% (1 % for each of 25 years of minimum service period) + 95% - 2,5% which equals to 117,5 %. 2,5 % stems from decreasing the basic pension by 0,5 % for each year between 20 and 25. Each additional year of service up to 40 years of service increases the percentage by 0.5% (1% for each additional contributory year, less a loss of 0.5% of the supplementary part for each additional year). The formula applies to the old age benefits, disability benefits and survivors benefits.</p>
<i>Indexation of benefits</i>	For the general social security and for the farmers' social security pension benefits are indexed to consumer price index increased by 20 % of real wage growth.
d. Type and structure of the calculation model	
<p>Pension entitlements have been modelled by applying the World Bank's PROST model operating under Microsoft Windows system. Data and assumptions are inserted into Excel worksheets and outputs are also presented in excel worksheets. The model utilizes country specific data and combines population projections with economic assumptions to forecast future numbers of contributors and beneficiaries which in turn generate flows of revenues and expenditures. The fiscal balances are projected. The model can use either the stock or the flow approach. In the stock approach, parameters such as retirement are expressed as total retirees as a percentage of population. Projections can be based on either population or employment. All the modules of PROST allow for sensitivity analysis of the results to key demographic and economic parameters, such as fertility, longevity, wage growth and discount rate. In addition to providing detailed information on pension systems, PROST also produces summary tables that include the most important statistics concerning population projection, demographic structure and finances.</p>	
2. Assumptions and methodologies applied	
<i>a. Discount rate</i>	
at the required by Eurostat level of 5 % nominal	
<i>b. Wage growth</i>	
<ul style="list-style-type: none"> For notional defined contribution scheme (the general scheme after the reform) wage growth assumptions of the AWG reflecting productivity growth per capita are used to project the contributions credited to notional accounts. For defined benefit schemes (the general scheme before the reform and farmers' scheme) the wage growth assumptions of the AWG reflecting productivity growth per capita have been used for the estimation of pension entitlements. 	
<i>c. Valuation method: ABO/PBO</i>	
PBO for both schemes	
3. Data used to run the model	
<i>a. Mortality tables</i>	
Data from AWG	

<i>b. Entitlement statistics; other relevant statistics</i>
<p>1) The General Social Security Scheme (ZUS)</p> <ul style="list-style-type: none"> • 3 % sample of data on contributors and beneficiaries from Social Insurance Institution (ZUS) • Statistical data on old age, disabled and family pensioners, by age and gender from ZUS • Retirement and disability rates, e.g. percentage of retirees and disability retirees in total cohort by age and gender from ZUS • Number of people insured by age and gender from ZUS • Demographic, employment etc. data (life expectancy, participation rates, unemployment rates, population tables, mortality rates) by age and gender from AWG • Macroeconomic assumptions from AWG <p>2) Social Security Scheme for Farmers (KRUS)</p> <ul style="list-style-type: none"> • Full database files on all contributors and beneficiaries from KRUS • Additional statistical data (for validation purposes) on beneficiaries and contributors by age and gender from KRUS • Expenditures on old age and disability benefits from KRUS • Demographic, employment etc. data (life expectancy, participation rates, unemployment rates, population tables, mortality rates) by age and gender from AWG • Macroeconomic assumptions from AWG
4. Reforms incorporated in the model
<p>1) The General Social Security Scheme (ZUS) Systemic reform for the general scheme resulting in the transition from defined benefit formula to notional defined contribution formula.</p> <p>2) Social Security Scheme for Farmers (KRUS) For farmers' scheme there has been no systemic reform so far.</p>
5. Specific assumptions
<i>a. How are careers modelled?</i>
Estimations take into account wage growth. Salaries generally increase for an individual due to two factors – general increases in the level of earnings due to inflation and productivity growth, and increases in wages due to merit, promotions and seniority. The PROST model takes both factors into account in modelling career progressions. Careers are modelled through a combination of an earnings profile and annual increases in the earnings profile based on inflation and productivity growth assumptions. The earnings profile is developed from existing data on contributors' in the base year and shows average earnings by age and sex. The earnings profile shows how salaries increase (or decrease) with age due to merit, promotions and seniority. The entire earnings profile is increased from one year to the next based on assumptions regarding inflation and productivity growth. Therefore, as an individual progresses through his or her career, the salary from the prior year increases for both reasons.
<i>b. How are survivor pensions calculated?</i>
By applying the old scheme defined benefit formula (the general scheme before the reform)
<i>c. How is the retirement age modelled over time?</i>
Retirement age has been modelled in line with the Polish law gradually increasing retirement ages, starting with 60 years for women and 65 years for men and ending with 67 years for both men and women. ²
<i>d. Other specific features of the model</i>
Old age and disabled have been specified as flow of contributors from the previous year for both schemes Summary and comparison reflects finances of multi pillar system for the general scheme and finances of mono pillar system for the farmers' scheme. See the explanations provided for column G.
6. Any other comments

² At 1st October 2017, new act of Law will be in effect reintroducing the previous retirement age, e.g. 60 years for women and 65 years for men.

8. Table 29 column K: Entitlements of non-resident households

Counterpart data for resident and non-resident households are not shown separately because pension relationships with the rest of the world are estimated to be not significant.

9. Links to (national) publications providing further information on the pension schemes

- The General Social Security Scheme managed by ZUS:
<http://lang.zus.pl/en/publications/publications>
- Social Security Scheme for Farmers managed by KRUS:
<https://www.krus.gov.pl/en/reports-and-publications/>