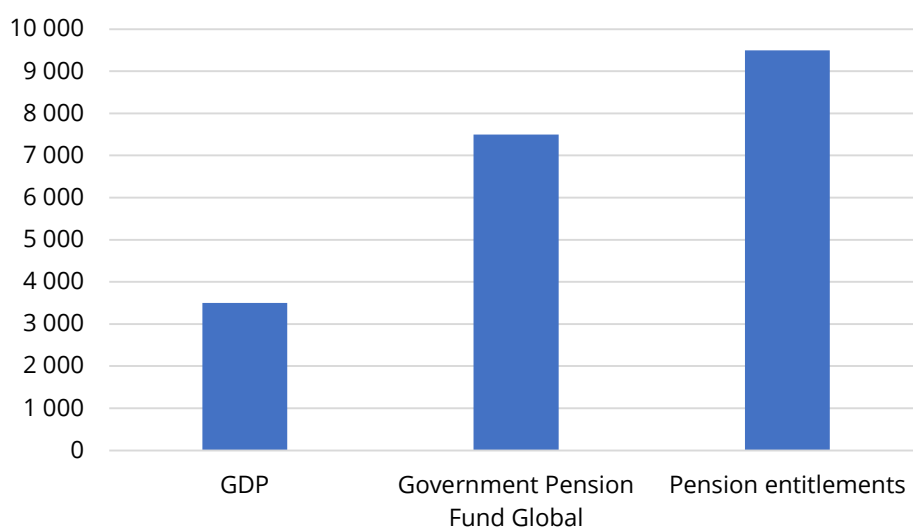


Accumulated pension entitlements in Norway

The estimated present value of Norwegian households' total accrued-to-date pension entitlements in social insurance amounted to more than NOK 9 300 billion at the end of 2015. The estimate comprises pension entitlements in both government social security ("folketrygden") and in both private and government occupational pension schemes. Entitlements in the government social security schemes represent 80 per cent of the total, while the rest are earned entitlements in government and private occupational pension schemes. Individual life-insurance and pension contracts are not part of the estimated figure, as these contracts are not defined as pension schemes according to the international guidelines to the national accounts.

In comparison, the The Government Pension Fund Global was valued at NOK 7 500 billion at the same point in time, while Norway's GDP in 2015 is estimated at NOK 3 100 billion, about one third of the estimated total pension entitlements at the end of that year.

Figure 1. GDP, Government Pension Fund Global and pension entitlements. NOK billion. 2015



Source: Statistics Norway and Norges Bank.

Statistics initiated by EU

The estimated figures on pension entitlements in social insurance in Norway are the results of a recent study performed by Statistics Norway, but initiated and partly financed by Eurostat, the statistical office of EU. The EU project is aiming at uncovering the pension entitlements in all European countries to improve international comparability between countries and regions within and outside the EU/EEA. A growing concern about the financing of future expenditures on

pension benefits and the sustainability of government budgets partly constitutes the motivation behind the project¹.

Figures for Norway have been estimated for the year 2015 and the plan is to publish data annually to be presented partly as part of the core accounts of the national accounts, and partly in a separate supplementing table outside the core accounts (Table 29).

Accrued-to-date pension entitlements shall according to the international guidelines on national accounts be recorded as an item on the financial balance sheet of the household sector. This includes also pension entitlements in government non-funded pension schemes, labelled pay-as-you-go schemes, which are to be presented in the supplementing table outside the national accounts core tables as mentioned above. In Norway, the non-funded government pension schemes consist of the government social security scheme ("folketrygden") and the Central government occupational scheme ("Statens pensjonskasse").

Accumulated pension entitlements in government non-funded social security pension schemes are not regarded as debt in the national accounts. Rather are they classified as contingent assets on the balance sheet of the households, reflecting that the conditions linked to such entitlements of a person is not under that person's direct influence. But, the entitlements come into force and trigger off a pension benefit in the future when the given conditions are fulfilled. However, the rules concerning pension entitlements of government social security schemes can be changed through political decisions, and they are therefore regarded to be less binding compared to normal debt obligations in the national accounts. Contingent assets are not quantified and recorded as debt in the national accounts.

Funded and not-funded pensions schemes

The supplementing table separates between funded and non-funded pension schemes. The funded schemes comprise the occupational pensions schemes of both government and private sectors. In funded schemes financial reserves are accumulated through the premium contributions and the returns on the invested capital, to meet the future pension benefit payments. Funded pension schemes can be interpreted as conditional savings of the households due to its linkage to job appointments, and the pension plans of the schemes determine the premium payments. The total estimated accumulated value of the entitlements of funded pension schemes in Norway was at the end of 2015 NOK 1 100 billion, or about 12 per cent of the total social insurance in pension schemes.

In non-funded pension schemes, no financial reserves are accumulated. The expenditures on the current pension benefit payments are in each period financed by the current income of the period. The accumulated value of the entitlements of the non-funded pension schemes of the Government occupational pension scheme and the government social security scheme amounts to about 88 per cent or NOK 8 200 billion at the end of 2015, of which about NOK 7 500 can be allocated to the government social security scheme. This incidentally, was the same amount as

¹ Here a reference can be given to the EU group «Working Group on Ageing Populations and Sustainability» (AWG), which will, according to recent plans, publish its report on these issues in the near future. Link to: https://europa.eu/epc/working-group-ageing-populations-and-sustainability_en.

the values accumulated in the Norwegian Government Pension Fund Global at that point of time.

In the core accounts of the national accounts the two main categories of pension schemes are treated differently. Figures representing the funded pension schemes are recorded on all relevant accounts of the system, i.e. both current and accumulation accounts and balance sheets, and are thus published on a current basis as part of the core accounts tables. As for non-funded schemes, the premium contributions and pension benefits are recorded on the current accounts, while the accumulated pension entitlements are left out on the balance sheets tables. These are now estimated and presented in the supplementing table as part of the total accrued to date pension entitlements of the households in Norway.

Table 1. Pension schemes in Norway and accrued to date pension entitlements by the end of 2015². NOK billion

Schemes	Coverage	Main characteristics	Administrator's institutional sector
Government universal pension schemes	Compulsory universal membership	Non-funded schemes, old age pensions, disability and survivors' pensions	S131 Central government, Folketrygden
Occupational pension schemes in government sectors	Collective pension schemes	Non-funded central government occupational schemes Funded local government occupational schemes	S131 Central government, Statens pensjonskasse S128 Life-insurance corporations & S129 Pension corporations
Occupational pension schemes in non-government sectors	Collective pension schemes	Funded private occupational schemes	S128 Life-insurance corporations & S129 Pension corporations
Private individual life and pension insurance	Individual contracts	Combined insurance with saving; individual capital insurance; individual pension and annuity insurance	S128 Life-insurance corporations

Source: Statistics Norway

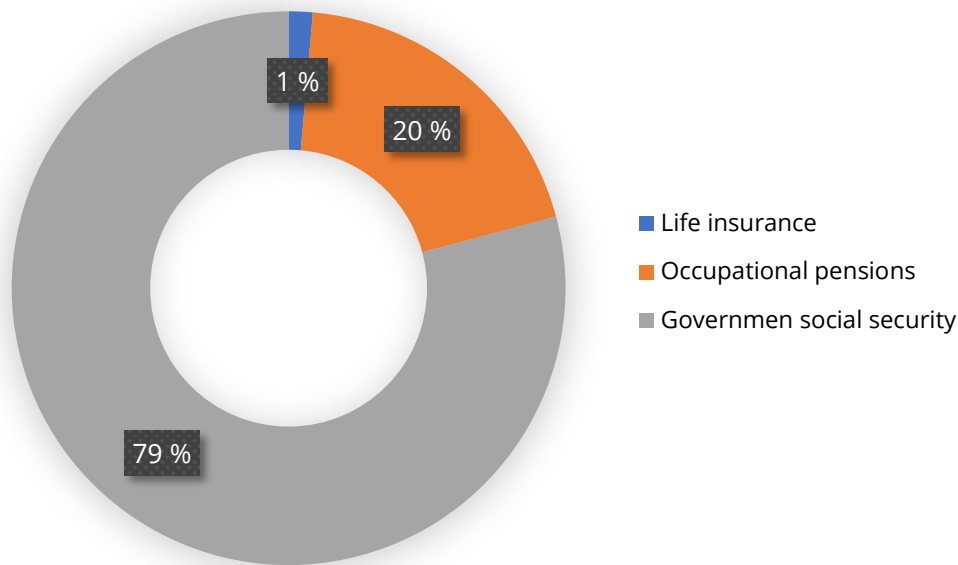
The governments social security scheme ("Folketrygden") – the dominating pilar

The pensions system in Norway is designed on basically three pillars. First the compulsory arrangements of the government social security schemes, concerning all persons living in the country. Second, pensions schemes related to work appointments in both private and government sectors, usually labelled occupational pension schemes. Thirdly, the private individual life insurance and pension contracts. Figure 2 illustrates relative importance of each of the three pillars in Norway as measured by the accumulated pension entitlements by the end of 2015. Here, the relative importance of the Norwegian government social security schemes is clearly visible.

² Tabellen omfatter ikke pensjonssparing uten forsikringselementer som forvaltes av andre sektorer enn pensjonskasser og livsforsikringsselskaper

As mentioned earlier, private individual life insurance and pension contracts are not categorized as pensions, but rather as life insurance. Only the government social security schemes and the collective occupational pension schemes are categorized as pensions. The various schemes are briefly described in table 1.

Figure 2. The three pillars of the Norwegian pension system. Accrued-to-date pension entitlements. Per cent of total entitlements. Ultimo 2015



Source: Statistics Norway

The main picture as of 2015

Table 2 presents the accrued-to-date value of households' pension entitlements in the various types of schemes in the beginning and by the end of 2015. The total value of entitlements in occupational schemes amounted to NOK 1 836 billion by the end of the year, about 20 per cent of the total value of entitlements. The government covered the remaining 80 per cent.

The increase in pension entitlements due to social contributions in terms of actual and imputed contributions to all types of schemes, amounted to NOK 492 billion in 2015. The value of contributions to occupational schemes was all together NOK 164 billion, or 33 per cent of total contributions, somewhat higher than to be expected from their share of the total stock value of entitlements. This can be explained by a relative higher rate of social contributions in the occupational schemes compared to the government social security scheme.

Pension benefits payments amounted to NOK 335 billion in 2015, of which NOK 269 from the government social security scheme. Here, payments of old age pensions dominated, constituting a share of about 80 per cent, corresponding to this scheme's share of the total stock value of entitlements by the end of the year.

The total net transactions, i.e. the increase in pension entitlements due to social contributions less payed pension benefits, were NOK 157 billion, while other changes in entitlements due to

other circumstances were NOK 204 billion. Other changes covered by the core national accounts are due to holding gains and losses on assets held by defined contributions schemes, expected increase in life expectancy, and finally, the reform of the disability pension scheme for employees of the government sector. In the government social security scheme other changes amounted to NOK 193 billion in 2015, mainly explained by wage indexing of the Basic pension unit (BPU).

Table 2. Pension entitlements. NOK billion. 2015

	Core accounts			Non-core accounts		Total
	Funded schemes			Non-funded schemes		
	Occupational defined contributions private sector	Occupational defined benefits private sector	Occupational defined benefits local government	Occupational defined benefits local government	Social security defined benefits central government	
Pension entitlements 01.01.2015	118	478	480	651	7 228	8 955
Increase in pension entitlements due to social + contributions	25	36	55	48	328	492
- Pension payments	1	18	22	25	269	335
+ Other changes	-0.2	8	-13	16	193	204
Pension entitlements = 31.12.2015	142	504	499	691	7 480	9 316

Kilde: Statistics Norway

Defined benefits schemes versus defined contribution schemes

In the government social security ("folketrygden") the pension payments in 2015, covering old age pensions, disability and survivors' pensions, amounted to NOK 269 billion, old age pension payments being the dominating part. This is a non-funded, defined benefit scheme, implying an implicit intra- generational contract as today's employees are financing today's pensioners. When today's employees reach their retirement age, their pensions will be financed by tomorrow's employees.

Entitlements to pension benefits in occupational pension schemes are earned through employment, and today all employees, in both government and private sectors, are members of occupational pension schemes. Entitlements are earned according to one of two principle models, defined benefits or defined contributions. On rare occasions the models are combined in hybrid versions.

The occupational scheme of the central government is administrated by the Norwegian Public Service Pension Fund ("Statens pensjonskasse"), owned by the Ministry of labor. Like the government social security scheme, it is a non-funded, defined benefit scheme. Nearly all employees of the local government sector are members of defined benefit, funded schemes, while most occupational pension schemes in private sectors were funded, defined contributions schemes by the end of 2015.

In defined contribution schemes premium contributions are an agreed per cent of the gross wages. Compulsory occupational pension schemes were introduced in Norway for all employees in private sectors in 2006 and are all defined contribution schemes. Until then a larger share of the working force was not covered by occupational pension schemes. Defined contribution schemes imply that the risk of the scheme to provide an adequate income in retirement is borne by the employees.

On the estimation of entitlements in government social security (NIS)

The estimation of the accrued-to-date value of the general old age pensions of the government social security at the end of a given year, has as its starting point the accumulated pension-qualifying occupational income, as registered by Norwegian Labour and Welfare Administration (NAV).

In Norway, a pension reform was introduced in 2011. Due to a transition rule introduced by the pension reform, accumulation of entitlements from both the old and the new system have to be taken into accounts. Pension entitlements for cohorts born up to 1953 are entirely based on the old system, while entitlements for cohorts born in 1963 or later are entirely based on the new system. For cohorts between 1953 and 1963 the weight of the new system increases gradually by 10 percentage points for each cohort. Some pension entitlements accumulated with the old system will still exist until the last person from the 1962-cohort or earlier is dead around 2070. According to the rules for the new system, accumulated pension entitlements for a person employed up to the actual year are calculated by 18.1 per cent of each year's labour incomes up to a ceiling equal to 7.1 times the Basic Pension Unit (BPU) in NIS.

To estimate the total value of the accrued-to-date entitlements, a dynamic microsimulation model, MOSART³, is used. This is a model with a cross-section of the Norwegian population and a comprehensive set of characteristics. The model starts with either the entire population or a representative sample of the population in a base year and simulates the further life course for each single individual in this initial population. Transition probabilities depending on individual characteristics are estimated from observed transitions in a recent period. Events included in the simulation are migration, deaths, births, household formation, educational activities, retirement, labour force participation, income and wealth. Public pension benefits are calculated from the simulated labour market earnings and other characteristics included in the simulation according to an accurate description of the public pension system (NIS). The pensions covered by the

³ MOSART = «Modell for mikrosimulering av Skolegang, Arbeidstilbud og Trygd.» See: <http://www.ssb.no/forskning/beregningsmodeller/mikrosimuleringsmodellen-mosart>, or: **Fredriksen, D. (1998):** *Projections of Population, Education, Labour Supply and Public Pension Benefits. Social and Economic Studies 101*, Oslo: Statistics Norway.

model include old age pensions, disability pensions, survival pensions and early retirement benefits.

The base population now includes the entire Norwegian population. Data is collected from various administrative registers in the Directorate of Taxes, the Norwegian Labour and Welfare Administration and Statistics Norway. The underlying assumptions are generally kept up to date by using adjustment factors from the last year with historical data at an aggregate level. This is the case for aggregate observations regarding migration, periodic life expectancy at birth by gender, number of births, number of pupils and students by gender and age groups, number of early retirees, retirement age, number of persons in the labour force and man-years by gender, total labour market earnings by gender, the basic pension unit, and rules for calculating pension entitlements and benefits. At present the model is calibrated to annual data up to 2015.

In general, the underlying demographic assumptions of the model are based on public population projections from Statistics Norway. For calculating pension entitlements to Table 29, demographic assumptions from Eurostat for analyses in the AWG are used. Normally it is assumed that the new pension system in Norway will stimulate to postpone retirement when life-expectancy increases. The AWG projections of labour force assume constant participation rates by age and gender. MOSART is operated at Statistics Norway only due to technical obstacles, restrictions from the Data Authorities regarding the merged administrative registers and because understanding the full meaning of changing a parameter requires detailed knowledge of the model. In addition to analyses requested by research projects, the main users are the Ministry of Finance and the Ministry of Labour and Social Affairs.

The results of the estimations are highly sensitive for the choice net discount rate in calculating the present values of the accrued-to-date entitlements. The figures presented in this document is based on a net discount rate of 2 per cent. This implies an uncertainty to the results of far larger impact than the assumptions on life expectancies and time of retirement.

On the estimation of entitlements in occupational pension schemes

Based on accumulation of entitlements, persons employed in both Central and Local Government sector are entitled to occupational pensions according to a defined benefit scheme from the age of 67. Normally full-time work for 30 years secures a benefit level at 66 per cent of the average wage level from the years before retirement. Benefits are curtailed proportionally if the period of accumulation is shorter than 30 years. Occupational pensions are also curtailed against an estimated level of benefits for old-age pensions from the National Insurance System. However, lack of coordination between occupational pensions and benefits from the reformed system for old-age pensions, even creates some uncertainty regarding the level of pensions for those who are born in 1954 and later.

Taking into accounts the rather intricate regulations of both the old and the reformed system, and the extrapolation of the time of retirement and time of death, the accrued-to-date pension entitlements of Norwegian Public Service Pension Fund for the central government sector are also estimated employing the MOSART model.

The figures of the funded occupational pension schemes in local government and the private sector are in the core national accounts based on actuarial principles as reported in the accounts of the relevant financial corporations, i.e. pension funds and life-insurance corporations. The

pension entitlements as presented as pension reserves on their balance sheets is recorded in the national accounts as claims of households and debts of financial corporations.

The changes in entitlements in defined contribution schemes are recorded in accordance with standard national accounting rules. The change due to transactions, i.e. net social contributions and pension benefits, is calculated as gross premiums less service charges and less benefits paid, with addition of net property income. Other changes comprise holding gains and losses on assets held by the corporations.

The accrued-to-date values of pension entitlements in defined benefit schemes reflect the present value of expected future pension payments less the present value of future premiums. The net transactions in a period is equal to the increase in pension entitlements due to contributions less pension payments. The pension entitlements of defined benefit schemes are estimated based on assumptions on discount rates, future wage development and life expectancies. Changes in these assumptions in the estimations are to be recorded as other changes in assets in the national accounts. For example, will changes in the assumptions on life expectancies be recorded on the account for other changes in volume, while changes in the assumptions on discount rates and wage developments are to be recorded on the account for revaluations.

Annual publication

Figures for the various pension schemes will in the future be published in a supplementary table to the national accounts (table 29), showing accrued-to-date pension entitlements of both funded and non-funded schemes, including the government security ("folketrygden"), thus map the households' total accrued-to-date pension entitlements by the end of each year. The table will also explain the changes in the value of the entitlements that have taken place during the year. The table will also be reported to Eurostat for publication together with the corresponding figures for other European countries.