Part 1 Overview of the pension system

Elements in the Norwegian public old age pension system

The Norwegian old age pension system consists of the following elements:

- A universal public old age pensions system
- Mandatory government occupational pension schemes
- Mandatory (as from 2006) private sector occupational pension schemes
- Private individual pension schemes.

The present public old age pension system ('the reformed system') came into effect in 2011.

Public (social security) old age pensions include a minimum income guarantee and an earning-related benefit. It is financed on a pay-as-you-go basis. With retirement at age 67, before-tax replacement rate for pensioners with average income amounts to 51 pct. in the reformed old age pension system. After tax replacement rate, including supplementary pensions, amounts to 72 pct.

The reformed system consists of a model for accumulating pension entitlements introduced gradually for cohorts born after 1953 and fully for cohorts born after 1962. Accumulated entitlements ('pension wealth') is given by (1).

$$(1) \quad W_A = \alpha \cdot \sum_{i=0}^{A-1} I_i \cdot (1+r)^{A-i}$$

W_A pension wealth by age of retirement (A)
α rate of earning of pension entitlements (18,1 per cent of pensionable income up to a ceiling of 7,1 times the basic amount (corresponds to approximately 115 per cent of average wage for a full time employee)
I_i pensionable income by age i (pension entitlements can be earned from age of 13 till age of 75)
r discount rate (set equal to nominal wage growth) for adjustment of pension entitlements

Linking benefits to entitlements, the present public old age pension system introduces life expectancy adjustment of pensions, flexible retirement from the age of 62 (provided the pension level exceed the level of the guarantee pension at the age of 67) and rules for indexation of pensions. At the time of retirement, the annual pension benefit ($B_{K,A}$) is calculated by dividing the accumulated pension entitlements by an annuity divisor ($\Phi_{K,A}$) mainly reflecting remaining life expectancy, see (2).

$$(2) \quad B_{K,A} = \frac{W_A}{\Phi_{K,A}} = \frac{W_A}{\sum_{x=A}^{\infty} p_{K,A,x} \cdot \frac{(1+w)^{x-A} \cdot (1-u)^{x-A}}{(1+r)^{x-A}}} = \frac{W_A}{\sum_{x=A}^{\infty} p_{K,A,x} \cdot (1-u)^{x-A}}$$

$p_{k,A,x}$ average of the probabilities of person from cohort K surviving to respectively x and x+1 years from age of retirement A
r discount rate (set equal to nominal wage growth) for calculating present values of pension benefits
w nominal wage growth applied for regulation of pension benefits
u fixed adjustment factor (0,75 per cent per year) subtracted from nominal wage growth in regulating pension benefits

Thus, the accumulated entitlements is converted into an annuity over the average expected remaining lifetime. An increase in life expectancy reduces the annual benefits. The old age pension arrangement

implies that the present value of public old age pension expenditures is invariant to individual timing of taking out pension and shifts the expenditure risk associated with increases in longevity from tax payers to each cohort of pensioners.

Life expectancy for a cohort is calculated on the basis of period mortality in the decade preceding the cohort reaching 60 years of age. This rule is also applied in the projections.

Taking into account the annuity divisor and the fixed annual adjustment factor subtracted form nominal wage growth, annual pension benefits at age x – A may be expressed by

$$(3)\quad B_{K,A,x} = \frac{W_A}{\Phi_{K,A}} = \frac{W_A}{\sum_{x=A}^{\infty} p_{K,A,x} \cdot (1-u)^{x-A}} \cdot \left[(1+w)\cdot(1-u)\right]^{x-A}$$

The reformed system also introduces increased flexibility by allowing continued employment for old age pensioners, without reductions in the pensions.

The present system allows flexible retirement from the age of 62. The information on statutory age under the new system in table 1 reflects limitations to the flexibility. Guarantee pension alone can be drawn only from the age of 67 and disability pensioners will not become old age pensioners before the age of 67. 67 years also functions as a reference age for calculation of annuity divisors, compared to the previous system retiring earlier than 67 years implies a reduction in annual pension payments.

Other old age pensions

The ***government occupational pension schemes*** supplement public old age pension system by guaranteeing government sector employees gross pension benefits of at least 2/3 of final gross wages from the age of 67, given at least 30 years of service.

The central government occupational pension scheme is financed by employee contributions (2 per cent of wages) and transfers from the state budget. Local government occupational pension schemes are funded systems, with premiums from employees at 2 per cent of wages and additional funding provided by employers. The pension funds may be administered by insurance companies or locally.

Mandatory private sector occupational pension were introduced in 2006, but non-mandatory defined benefit schemes (and since 2001 also defined contribution schemes) have existed for a long time. The introduction was a part of the pension reform process. As the system matures, the private sector occupational pension schemes ensure supplementary pensions also to private sector employees. The legislation on mandatory private sector occupational schemes covers the entire private sector. Under the legislation, it is possible to choose between three occupational schemes; defined benefits (DB) scheme, a defined contribution scheme (DC) and a mixed system (DC when employed, DB after retirement).

Neither government nor private sector occupational pensions are included in the projections. The expenditures currently amounts to approximately 1 per cent of Mainland GDP .

TABLE1	Qualifying condition for retiring								
			2016	2020	2030	2040	2050	2060	2070
Qualifying condition for retiring with a full pension	Minimum requirements	Contributory period - men	:	:	:	:	:	:	:
		Retirement age - men	:	:	:	:	:	:	:
		Contributory period - women	:	:	:	:	:	:	:
		Retirement age - women	:	:	:	:	:	:	:
	Statutory[1] retirement age - men		67	67	67	67	67	67	67
	Statutory[1] retirement age - women		67	67	67	67	67	67	67
Qualifying condition for retirement WITHOUT a full pension	Early retirement age[2] - men		62	62	62	62	62	62	62
	Early retirement age[2] - women		62	62	62	62	62	62	62
	Penalty in case of earliest retirement age		:	:	:	:	:	:	:
	Bonus in case of late retirement		:	:	:	:	:	:	:
	Minimum contributory period - men		:	:	:	:	:	:	:
	Minimum contributory period - women		:	:	:	:	:	:	:
	Minimum residence period - men		:	:	:	:	:	:	:
	Minimum residence period - women		:	:	:	:	:	:	:

[1] Statutory retirement age in old system, reference age in the new system

[2] Pension reform with flexible age of retirement from 62 years coming into effect in 2011

Source: MoF

TABLE 2a	Number of new pensioners by age group - administrative data (MEN)				
Age group	All	Old age	Disability	Survivor	Other (including minimum)
15 - 49	5 593	0	5 593	0	0
50 - 54	1 786	0	1 786	0	0
55 - 59	2 370	0	2 370	0	0
60 - 64	18 140	15 523	2 617	0	0
65 - 69	21 799	21 184	615	0	0
70 - 74	0	0	0	0	0

TABLE 2b	Number of new pensioners by age group - administrative data (WOMEN)				
Age group	All	Old age	Disability	Survivor	Other (including minimum)
15 - 49	7 744	0	7 744	0	0
50 - 54	2 504	0	2 504	0	0
55 - 59	2 968	0	2 968	0	0
60 - 64	9 810	6 551	3 259	0	0
65 - 69	28 182	27 238	944	0	0
70 - 74	0	0	0	0	0

TABLE 2c	Number of new pensioners by age group - administrative data (TOTAL)				
Age group	All	Old age	Disability	Survivor	Other (including minimum)
15 - 49	13 337	0	13 337	0	0
50 - 54	4 290	0	4 290	0	0
55 - 59	5 338	0	5 338	0	0
60 - 64	27 950	22 074	5 876	0	0
65 - 69	49 981	48 422	1 559	0	0
70 - 74	0	0	0	0	0

Disability pensions

The purpose of disability benefits is to ensure sufficient income for subsistence for people whose earning ability is permanently impaired by at least 50 per cent due to illness, injury or defect. Disability pensions are granted if there are no prospects of an improvement in earning ability. Disability pension is for the most part calculated in the same way as the old-age pension. Disability pension is in principle a permanent benefit, but it can be reassessed with changes in income and health of the recipient. Recipients of disability pension who reach the age of 67 will automatically have their pension converted to an old-age pension.

The number of persons receiving disability pensions (318 000) measures up to 9,8 per cent of population in the age group 20 – 66 in 2016. This contributes to a relatively high level of disability pensions expenditures in 2016 (3,2 per cent measured as a share of Mainland GDP) compared to the EU-average.

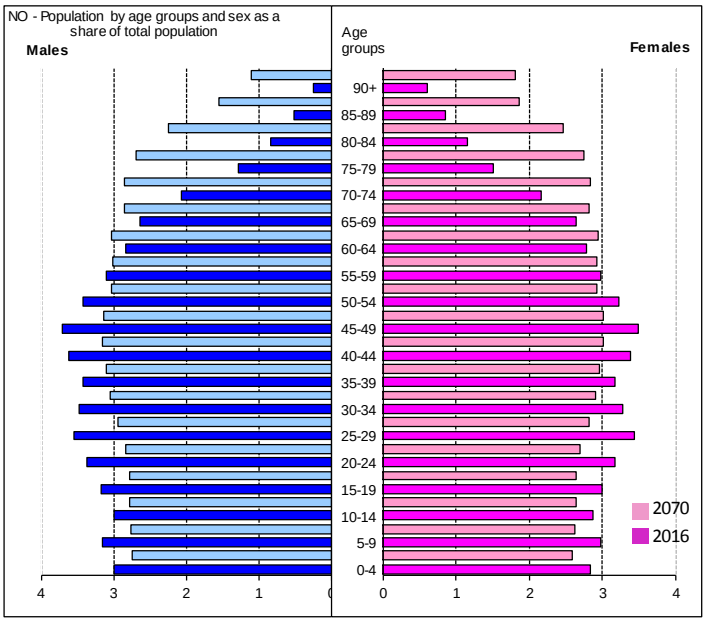
Part 2 Demographic and labour forces projections

Table 3 gives an overview of EUROSTAT 2017 projections for main demographic variables . Total population is projected to increase from 5,2 million persons in 2016 to 6,8 million persons in 2060 and 7,0 million persons in 2060. Lower immigration explains most of the decrease in compared to EUROSTAT 2013 demographic projections, where total population in 2060 was projected to be 8,2 million persons. Lower immigration also imply a more pronounced increase (18,9 percentage points from 2016 to 2060 and 22,2 percentage point from 2016 to 2070) in the old-age dependency ratio compared to the EUROSTAT 2013 demographic projections (15,1 percentage points from 2013 to 2060).

Table 3	Main demographic variables evolution							
	2016	2020	2030	2040	2050	2060	2070	Peak year*
Population (thousand)	5 237	5 428	5 901	6 285	6 582	6 819	7 015	2070
Population grow th rate	0,9	0,9	0,8	0,5	0,4	0,3	0,3	2018
Old-age dependency ratio (pop65/pop15-64)	25,2	27,0	32,1	37,3	39,6	44,1	47,2	2070
Ageing of the aged (pop80+/pop65+)	25,5	24,5	30,0	32,6	37,0	37,4	39,7	2070
Men - Life expectancy at birth	80,2	80,8	82,1	83,3	84,4	85,5	86,6	2070
Men - Life expectancy at 65	18,8	19,2	20,1	21,0	21,9	22,7	23,5	2069
Women - Life expectancy at birth	84,3	84,8	86,1	87,2	88,3	89,4	90,4	2070
Women - Life expectancy at 65	21,7	22,1	23,1	24,1	25,0	25,8	26,6	2070
Men - Survivor rate at 65+	89,3	90,0	91,3	92,4	93,4	94,2	94,9	2070
Men - Survivor rate at 80+	62,3	64,2	68,4	72,2	75,6	78,7	81,4	2070
Women - Survivor rate at 65+	93,1	93,5	94,4	95,1	95,8	96,4	96,9	2070
Women - Survivor rate at 80+	74,6	76,1	79,5	82,4	84,9	87,1	89,0	2070
Net migration	27,4	27,3	26,0	23,7	20,2	18,1	16,1	2017
Net migration over population change	0,6	0,6	0,6	0,7	0,8	0,8	0,9	2070

Graph 1 further illustrates how Norway shares challenges related to an ageing population with EU member states.

Graph 1 Age pyramid comparison: 2013 vs 2060



Pension reform effects on employment have not been taken into account in the projections, implying relative stable participation rates for age groups 55 – 64 and 65 – 74 in table 4. However, starting levels for the participation rates for the age groups 55 – 64 (72,1 per cent in 2013 to 73,9 per cent in 2016) and 65 – 74 (18,3 per cent in 2013 and 18,8 per cent in 2016) have increased compared to projections in Ageing Report 2015 (AR15).

Table4 4	Participation rate, employment rate and share of workers for the age groups 55-64 and 65-74							
	2016	2020	2030	2040	2050	2060	2070	Peak year*
Labour force participation rate 55-64	73,9	72,5	72,1	71,7	73,1	72,6	72,8	2016
Employment rate for workers aged 55-64	72,5	71,6	71,1	70,7	72,1	71,6	71,8	2017
Share of workers aged 55-64 on the labour force 55-64	98,1	98,7	98,6	98,6	98,6	98,6	98,7	2019
Labour force participation rate 65-74	18,8	19,8	19,7	19,0	19,3	19,4	18,9	2033
Employment rate for workers aged 65-74	18,6	19,7	19,7	19,0	19,2	19,3	18,9	2033
Share of workers aged 65-74 on the labour force 65-74	99,3	99,6	99,6	99,6	99,6	99,6	99,6	2067
Median age of the labour force	40,0	40,0	40,0	41,0	41,0	41,0	41,0	2037

Regarding the decrease in contribution period relative to average of effective working career in tables 5a and 5b, the following mechanisms seem to be at work in the pension projections:

- The contributory period (associated with new pensioners) for immigrants (also including those who has repatriated after spending a part of their working life and Norway) will on average be shorter compared to contributory periods for persons devoting 100 per cent of their working career in Norway. This decrease is less pronounced compared to AR15-projections, where immigration was higher. Immigrants on average spend fewer years in Norway compared to natives and accordingly obtain fever years of accumulation of pension entitlements even though they () share age and gender specific participation rates with natives (by assumption in the csm-projections).

- For persons taking out old age pensions while continuing to work, the contributory period applies for the working career up to the time of taking out pensions.

TABLE 5a	Labour market effective exit age and expected duration of life spent at retirement - MEN							
	2017	2020	2030	2040	2050	2060	2070	Peak year
Average effective exit age (CSM) (II)	65,9	65,9	65,9	65,9	65,9	65,9	65,9	2029
Contributory period	38,2	38,5	36,0	33,6	31,4	32,7	33,3	2020
Duration of retirement	18,1	18,4	19,3	20,2	21,0	21,8	22,6	2069
Duration of retirement/contributory period	0,5	0,5	0,5	0,6	0,7	0,7	0,7	:
Percentage of adult life spent at retirement	27,4	27,7	28,7	29,7	30,5	31,3	32,0	2069
Early/late exit	1,4	1,1	1,2	1,0	1,1	1,0	1,0	2017

TABLE 5b	Labour market effective exit ahe and expected duration of life spent at retirement - WOMEN							
	2017	2020	2030	2040	2050	2060	2070	Peak year
Average effective exit age (CSM) (II)	65,1	65,1	65,1	65,1	65,1	65,1	65,1	2021
Contributory period	35,0	36,5	36,7	36,1	34,0	34,3	34,2	2035
Duration of retirement	21,8	22,1	23,1	24,1	25,0	25,8	26,6	2070
Duration of retirement/contributory period	0,6	0,6	0,6	0,7	0,7	0,8	0,8	:
Percentage of adult life spent at retirement	31,6	31,9	32,9	33,8	34,7	35,4	36,1	2070
Early/late exit	2,2	1,8	1,7	1,5	1,8	1,5	1,6	2017

Part 3 Pension projection results

Coverage

The projections illustrate how AWG assumptions on demographic and macroeconomic developments give rise to developments in public pension expenditures between 2016 and 2070. The projections are carried out by means of the dynamic micro simulation model MOSART developed and maintained in Statistics Norway. The model combines a detailed description of the Norwegian old age and disability pension schemes with assumptions on macroeconomic developments for projection purposes. The model takes into account the phasing in of the reformed public old age pension system from 2011, distinguishing between pensioners earning pension entitlements under the previous and the reformed old age pension scheme.

The AWG-projections covers public old age, disability and survivors pensions. The results are reported as shares of Mainland GDP (also referred to as GDP in the remainder), which equals total GDP minus value added in petroleum extraction and ocean transport. Table 6 compares EUROSTAT and Ageing Working Group (AWG) figures on pension expenditure.

TABLE 6	Eurostat (ESSPROS) vs. Ageing Working Group definition of pension expenditure (% GDP)							
	2007	2008	2009	2010	2011	2012	2013	2014
1 Eurostat total pension expenditure % of GDP	7,5	7,5	8,6	8,3	8,3	8,5	8,8	9,3
2 Eurostat public pension expenditure % of GDP	7,5	7,5	8,6	8,3	8,3	8,5	8,8	9,3
3 Public pension expenditure (AWG) % of ml GDP	8,6	8,7	9,2	8,9	9,3	9,5	9,7	9,9
4 Difference (2) - (3)	-1,1	-1,2	-0,6	-0,6	-1,0	-1,0	-0,9	-0,6
5 Expenditure categories not considered in the AWG definition, please specify:	:	:	:	:	:	:	:	:
5.1 GDP denominator in 2, mainland GDP in 3	*-2,2*	*-2,5*	*-2,0*	*-2,0*	*-2,5*	*-2,5*	*-2,4*	*-2,2*
5.2 Occupational pensions, govmt. employees	*0,9*	*0,9*	*1,0*	*1,0*	*1,0*	*1,0*	*1,0*	*1,0*
5.3 Unexplained	*0,2*	*0,4*	*0,4*	*0,4*	*0,5*	*0,5*	*0,5*	*0,5*

Differences are between EUROSTAT and AWG are due to:

- EUROSTAT reporting pension expenditures as shares of total GDP (contributing to EUROSTAT gdp-share figures being 2 – 2 ½ percentage points below AWG-figures).

- EUROSTAT-data including occupational pensions to public employees (contributing to EUROSTAT-figures 0,9 – 1,0 percentage points (measured as a share of Mainland GDP) above AWG-figures.

Overview of projection results

In the projections, public pensions increase from 10,7 per cent measured as a share of Mainland GDP in 2016 to 12,8 per cent 2060, see Table 7.

TABLE 7	Projected gross and net pension spending and contributions (% of GDP)							
Expenditure	2016	2020	2030	2040	2050	2060	2070	Peak year*
Gross public pension expenditure	10,7	11,0	11,7	11,9	12,0	12,5	12,8	2070
Private occupational pensions	:	:	:	:	:	:	:	:
Private individual pensions	:	:	:	:	:	:	:	:
Mandatory private	:	:	:	:	:	:	:	:
Non-mandatory private	:	:	:	:	:	:	:	:
Gross total pension expenditure	:	:	:	:	:	:	:	:
Net public pension expenditure	:	:	:	:	:	:	:	:
Net total pension expenditure	:	:	:	:	:	:	:	:
Contributions	2016	2020	2030	2040	2050	2060	2070	Peak year*
Public pension contributions	10,7	11,0	11,7	11,9	12,0	12,5	12,8	2070
Total pension contributions	:	:	:	:	:	:	:	:

Table 8 shows that the increase is mainly due to developments in old-age pensions, while disability pensions decrease as a share of mainland GDP towards 2040. The decline in the share of minimum pensions old age pensions as a share of total (public) old age pensions is due to phasing-out of basic pensions in thereformed public old age pension system. In the previous system, old age pensions consisted of a basic amount (equal for all) and additional income related pensions calculated from a positive threshold income level. The new system also has a minimum guarantee pension, but income related pensions are calculated from total income (not only from income above a threshold level). Thus, total pensions will on average consist of a substantially larger fraction of income related pensions (with income related pensions covering both the basic pension and income related pensions in the previous system). With the phasing out of the old pension system the proportion of the population receiving pensions calculated as a sum of basic (non-income related) pensions and income related pensions from the previous old age pensions system will decline over time. However, also under the new system there will be a fraction of the pensioners who are only entitled to minimum/guarantee (not income related) pensions. The level of this guarantee pension is comparable to the basic pension under the previous system.

TABLE 8	Projected gross public pension spending by scheme (% of GDP)							
Pension scheme	2016	2020	2030	2040	2050	2060	2070	Peak year *
Total public pensions	10,7	11,0	11,7	11,9	12,0	12,5	12,8	2070
of which								
Old age and early pensions:	7,4	7,7	8,6	9,2	9,3	9,8	10,2	2070
Flat component	:	:	:	:	:	:	:	:
Earnings related	4,8	5,1	6,6	8,0	8,4	9,0	9,3	2070
Minimum pensions (non-contributory) i.e. minimum income guarantee for people above 65	2,6	2,6	2,1	1,3	0,8	0,8	0,9	2017
Disability pensions	3,22	3,24	3,04	2,62	2,66	2,62	2,63	2018
Survivor pensions	0,05	0,05	0,04	0,04	0,03	0,03	0,02	2016
Other pensions	:	:	:	:	:	:	:	:
of which								
country-specific scheme 1	:	:	:	:	:	:	:	:
country-specific scheme 2	:	:	:	:	:	:	:	:
country-specific scheme 3	:	:	:	:	:	:	:	:

Driving forces behind the projection results

Helping to identify driving demographic and macroeconomic forces - based on the common AWG methodology - behind the pension projections, the following arithmetic decomposition has been used to link growth of the pension expenditures to developments in the dependency ratio, coverage and benefit ratios as well as the employment rate and labour intensity.

$$[1]\quad \frac{PensionExp}{GDP} = \frac{Population\ 65+}{Population\ 20-64} \times \frac{Number\ of\ Pensioners\ (Pensions)}{Population\ 65+} \times \frac{Average\ income\ from\ Pensions\ (Average\ Pension)}{\frac{GDP}{Hours\ worked\ 20-74}} \times \frac{Population\ 20-64}{Hours\ worked\ 20-74}$$

The coverage ratio is further split with the scope of investigating the take-up ratios for old-age pensions and early pensions:

$$[2]\quad \frac{Number\ of\ Pensioners}{Population\ 65+} = \frac{Number\ of\ Pensioners\ 65+}{Population\ 65+} + \left[\frac{Number\ of\ Pensioners\ \leq 65}{Population\ 50-64} \times \frac{Population\ 50-64}{Population\ 65+}\right]$$

The labour market indicator is further decomposed according to the following:

$$[3]\quad \frac{Population\ 20-64}{Hours\ worked\ 20-74} = \frac{Population\ 20-64}{Working\ People\ 20-64} \times \frac{Working\ People\ 20-64}{Hours\ worked\ 20-64} \times \frac{Hours\ worked\ 20-64}{Hours\ worked\ 20-74}$$

Applying this decomposition in Table 9, the increase in pensions-to-GDP ratio can mainly be linked to population ageing and the associated increase in the dependency ratio. The effect is marginally more pronounced compared with national projections. For instance, national demographic projections provided by Statistics Norway from June 2016 imply an increase in the number persons in the age group 65+ as a share of population 15 - 64 years of age from 25,2 per cent in 2016 to 43,7 per cent in 2060, whereas EUROSTAT 2017 demographic projections gives an increase to 43,1 per cent in 2060. The dependency ratio effect towards 2060 is approximately 1 percentage point higher compared to AWG15-projections.

TABLE 9 Factors behind the change in public pension expenditures between 2016 and 2070 using pensioners data (in percentage points of GDP) - pensioners

	2016-20	2020-30	2030-40	2040-50	2050-60	2060-70	2016-70	Average annual change
Public pensions to GDP	0,3	0,7	0,2	0,1	0,5	0,3	2,1	0,039
Dependency ratio effect	0,7	2,0	1,9	0,7	1,3	0,9	7,6	13,8%
Coverage ratio effect	-0,2	-0,4	-0,5	0,2	0,0	-0,1	-0,9	-1,8%
*Coverage ratio old-age**	*0,1*	*0,3*	*0,2*	*0,3*	*0,3*	*0,1*	*1,2*	*2,3%*
*Coverage ratio early-age**	*-0,5*	*-1,1*	*-1,6*	*-0,3*	*0,1*	*0,1*	*-3,2*	*-6,1%*
*Cohort effect**	*-0,4*	*-1,7*	*-1,7*	*0,0*	*-1,4*	*-1,0*	*-6,2*	*-11,9%*
Benefit ratio effect	0,0	-0,7	-1,0	-0,9	-0,8	-0,5	-3,9	-7,3%
Labour Market/Labour intensity effect	-0,2	0,0	-0,1	0,0	-0,1	0,0	-0,3	-0,7%
Employment ratio effect	*-0,2*	*0,0*	*-0,1*	*0,0*	*0,0*	*0,0*	*-0,2*	*-0,4%*
Labour intensity effect	*0,0*	*0,0*	*0,0*	*0,0*	*0,0*	*0,0*	*0,0*	*0,0%*
Career shift effect	*0,0*	*0,0*	*0,0*	*0,0*	*-0,1*	*0,0*	*-0,1*	*-0,2%*
Residual	0,0	-0,1	-0,1	0,0	0,0	0,0	-0,3	-0,1%

The reduced coverage ratio, contributing to a decrease in the public pension to GDP ratio by 0,9 percentage points towards 2070, can be traced back to a reduction in the ratio of disability pensioners to persons 65 years and above (see graph 2.. This reflects lower growth in number of persons in the 20 – 65 age group compared to number of persons 65+ age group. The reduction in the number of disability pensioners is more pronounced compared to the projections in AR15. In the projections, the number of disability pensioners follows from demographics through age- and education background specific transition rates. In addition, calibration of projections to employment assumption (resulting from the cohort simulation model) is carried out by means of adjustment of the transition rates – in particular for the 50 – 61 year age group. This procedure is in principle unchanged between projection rounds, but

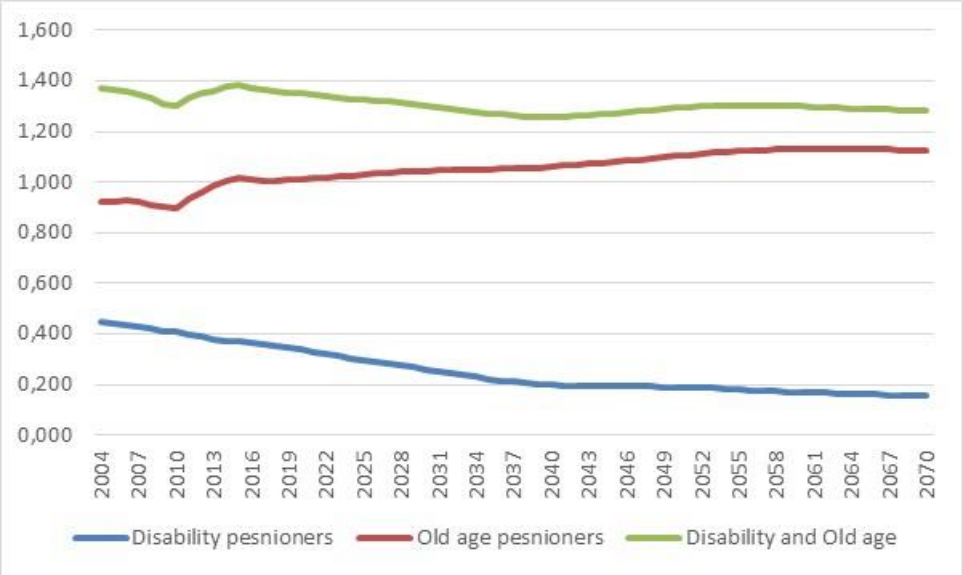
relative substantial changes in population projections – to a large extent related to immigration – makes it challenging to ensure consistency between projection rounds.

Although lower share of disability pensioners in the present projections is a result of the technical calibration procedure adopted, a lower share of immigrants of the total population also within the MOSART model – that is without calibration to CSM-paths for labour participation - would have implied a lower share of disability pensioners.

The reduction in the coverage ratio is dampened by including pensioners living abroad[1] in the projections as well as taking into account an increased number of persons working while receiving old age pensions.

[1] Repatriated immigrants or expatriated persons born and employed in Norway, neither of which are counted in the population figures.

Graph 2 old age and disability pensioners. Share of population 65+



The reformed pension system, allowing for continued work while receiving old age pensions, have contributed to a relatively substantial increase in the number of old age pensioners from 2010 to 2015 not being reflected in corresponding declines in participation rates for older persons. The increase in number of persons 62 years and above receiving old age pensions while working at the same time contributes to a reducing average replacement rates compared to the replacement rates by retirement at 67 years of age. With pension wealth (pension entitlements) being divided by expected remaining living years in order to determine yearly pension payments, this development has given rise to a decline in yearly pension payments at the individual level (compared to the case of postponing the take-up of pension benefits).

The decline in the benefit ratio and the replacement rate reported in Table 10 reflects the introduction of life expectancy adjustment of pensions and the subtraction of a fixed factor (0,75 per cent per year) from nominal wage growth in regulating pension benefits, both coming into effect from 2011. The decreased share of disability pensioners and the corresponding earlier take up of old age pensions contributes to a relative pronounced increase of old age pensioners in the age group 60 – 64 years compared to AR15 projections. This contributes to the decrease in the benefit ratio compared to the previous projections.

..With regard to the subtraction of a fixed factor (0,75 per cent per year) from nominal wage growth in regulating pension benefits, this feature of the pension system contributes to a reduction of pension expenditures compared to the old pension system without under-regulation. However, the subtraction has only minor consequences for changes in old age pensions as a share of GDP once the new system has settled. This reflects that the under-regulated pensions for, say, a 70 year old in 2040 is not accumulated into under-regulation of the pension payments for a 70 year old in 2060.

The increase in pension expenditures in the first part of the projection period (towards 2030 – 40) is primarily related to cohort effects associated with increased labour participation for women during the 1970s and 1980s.

The continued modest increase in pension expenditure as a share of GDP towards 2060 reflects a combination of the following factors:

- Method for life age adjustment (also applied in the projections) – based on observed mortality (averaged over 10 years) at the time of cohorts reaching 60 years instead of assumptions based projections of mortality – may involve lag effects compared to actual development measured ex post.

- Disability pensioners partially exempted from life age adjustments. This is incorporated for the entire projected period by assumption, but reflects provisional arrangements in place for disability pensioners become old age pensioners before 2018.

Cohort effects associated with increased labour participation for women during the 1970s and 1980s contribute to dampen the reduction in the benefit ratio in the first decades of the projection period.

TABLE 10	Replacement rate at retirement (RR), benefit ratio (BR) and coverage by pension scheme (in %)						
	2016	2020	2030	2040	2050	2060	2070
Public scheme (BR)	50,6	50,0	46,7	42,7	39,6	37,2	35,8
Public scheme (RR)	44,7	42,7	38,9	37,4	37,0	35,7	34,7
Coverage	:	:	:	:	:	:	:
Public scheme old-age earnings related (BR)	41,6	40,6	40,0	42,1	42,8	41,8	40,6
Public scheme old-age earnings related (RR)	:	:	:	:	:	:	:
Coverage	:	:	:	:	:	:	:
Private occupational scheme (BR)	:	:	:	:	:	:	:
Private occupational scheme (RR)	:	:	:	:	:	:	:
Coverage	:	:	:	:	:	:	:
Private individual scheme (BR)	:	:	:	:	:	:	:
Private individual scheme (RR)	:	:	:	:	:	:	:
Coverage	:	:	:	:	:	:	:
Total (BR)	:	:	:	:	:	:	:
Total (RR)	:	:	:	:	:	:	:

The developments in the benefit ratio and the replacement rate reported in Table 10 are related to developments in the timing of take up of old age pensions referred to above. Immigration contributes to decreasing benefit ratio and decreasing average replacement ratio through lower average pension entitlements for persons only spending part of their working career in Norway. Migration also contributes to average contribution period differing from length of normal working career, see table 5 above.

In line with the comments on developments in the coverage ratio above, the relative developments in Pension System Dependancy Ratio (SDR - pensioners divided by employees) and Old Age Dependancy Ratio in table 11 may somewhat obscured due to due to pensioners living abroad and pensioners using the option of continued work both amplifying the growth in number of pensioners in the projections. The effects on pension expenditures are in both cases dampened by the same developments contributing ta reduction in average pension benefits.

TABLE 11	System dependency ratio and old-age dependency ratio						
	2016	2020	2030	2040	2050	2060	2070
Number of pensioners (thousand) (I)	1214,8	1314,3	1578,1	1811,8	2033,5	2283,3	2451,9
Employment (thousand) (II)	2647,3	2777,3	2937,5	3044,0	3148,4	3184,3	3203,9
Pension System Dependency Ratio (SDR) (I)/(II)	45,9	47,3	53,7	59,5	64,6	71,7	76,5
Number of people aged 65+ (thousand) (III)	864,9	952,4	1190,1	1425,5	1569,5	1757,7	1896,7
Working age population 15 - 64 (thousand) (IV)	3438,6	3523,9	3712,4	3825,5	3961,7	3984,7	4017,9
Old-age Dependency Ratio (ODR) (III)/(IV)	25,2	27,0	32,1	37,3	39,6	44,1	47,2
System efficiency (SDR/ODR)	1,8	1,8	1,7	1,6	1,6	1,6	1,6

In tables 12 and 13 the number of pensioners by age groups (total and female) is divided by total and inactive population respectively. The inclusion of pensioners living abroad in the projections contributes to ratios above 100 for the older age groups.

TABLE 12a	Pensioners (public scheme) to inactive population ratio by age group (%)						
	2016	2020	2030	2040	2050	2060	2070
Age group -54	9,1	8,5	6,7	6,4	6,0	6,0	5,9
Age group 55-59	110,8	108,4	90,0	78,3	81,9	80,6	80,5
Age group 60-64	137,5	131,0	124,6	108,6	111,3	110,4	112,2
Age group 65-69	124,8	130,4	133,1	129,5	134,0	132,6	132,6
Age group 70-74	119,4	114,8	118,4	120,5	126,2	128,9	124,0
Age group 75+	103,1	106,6	108,6	110,7	112,3	116,6	118,0

TABLE 12b	Pensioners (public schemes) to total population ratio by age group (%)						
	2016	2020	2030	2040	2050	2060	2070
Age group -54	3,7	3,4	2,7	2,5	2,4	2,4	2,4
Age group 55-59	20,8	21,2	18,2	16,4	15,7	15,4	15,4
Age group 60-64	46,7	47,2	44,5	39,3	39,1	39,1	39,5
Age group 65-69	89,7	89,2	93,0	91,2	94,3	92,8	92,8
Age group 70-74	110,9	106,5	109,0	111,0	116,3	118,6	114,2
Age group 75+	103,1	106,6	108,6	110,7	112,3	116,6	118,0

TABLE 13a	Female pensioners (public scheme) to inactive population ratio by age group (%)						
	2016	2020	2030	2040	2050	2060	2070
Age group -54	10,5	10,0	7,8	7,6	7,3	7,3	7,2
Age group 55-59	112,4	117,3	98,1	84,3	88,2	88,7	88,7
Age group 60-64	117,8	111,1	109,8	93,7	96,5	96,1	97,5
Age group 65-69	108,3	115,0	118,1	113,8	117,4	118,0	118,7
Age group 70-74	113,7	108,8	110,7	112,5	116,2	121,4	118,0
Age group 75+	101,2	104,6	106,5	107,5	108,3	111,8	114,5

TABLE 13b	Female pensioners (public scheme) to total population ratio by age group (%)						
	2016	2020	2030	2040	2050	2060	2070
Age group -54	4,4	4,1	3,2	3,1	3,0	3,0	2,9
Age group 55-59	25,7	26,3	22,2	19,1	18,0	18,1	18,2
Age group 60-64	44,1	44,4	42,7	36,6	35,8	36,0	36,3
Age group 65-69	85,7	85,2	88,5	85,8	88,0	88,0	88,4
Age group 70-74	109,1	104,4	105,3	106,9	110,6	115,3	112,1
Age group 75+	101,2	104,6	106,5	107,5	108,3	111,8	114,5

Table 14 reports developments in expenditure on new public pensions (total, men and women respectively) and how they are linked the average contributory period, average pension earnings, average accrual rates and the number of new pensioners.

The decomposition Table 14 attempts a reporting consistent with the phasing in of the reformed old-age pensions system. Thus the figures capture, in line with the pension projections, a weighed effect of accumulation of pension entitlements for persons earning pensions under the old and new system. The accrual rate (adjusted for length of pension period) for 2013 (see item IV in the table) thus mainly reflects accumulation of pension earnings under the old system, which is below a hypothetical accrual rate which would apply for a pensioner (born in 1943) in 2013 with accumulation of pension earnings under the new system. Phasing-in effects thus contributes to a temporary increase in the accrual rate. The temporary increase is stronger for women compared to men. In the projections men to a larger degree than women opt for early take-out of pensions (often in combination with continued work), dampening the increase in accrual rate adjusted for the length of pension period. Regarding the development in the accrual rate towards 2070, it will gradually decrease under the new system due to adjustments embodied in the new old age pension system for increases in expected lifetime towards 2070. A pensioner deciding to retire at a

given age in 2016 will enjoy higher yearly pensions (relative to pensionable income) compared to a pensioner retiring at the same age in 2070. The effect of immigration towards declining average contributory periods towards 2070is also less pronounced for women than for men.

TABLE 14a	Projected and disaggregated new public pension expenditure (old-age and early earnings-related pensions)						
New pension	2016	2020	2030	2040	2050	2060	2070
I Projected new pension expenditure (millions EUR)	811,0	1146,8	2156,2	2939,0	4227,4	6306,7	8580,5
II. Average contributory period	35,9	37,5	36,3	34,8	32,6	33,5	33,8
III. Monthly average pensionable earnings	4,0	4,8	6,7	9,3	13,5	19,1	27,0
IV. Average accrual rates (%)	0,0088	0,0086	0,0103	0,0098	0,0092	0,0089	0,0086
Notional-accounts contribution rate (c)	0,133	0,132	0,176	0,174	0,172	0,173	0,173
Annuity factor (A)	15,1	15,4	17,2	17,8	18,7	19,4	20,1
V. Sustainability/Adjustment factor	:	:	:	:	:	:	:
VI. Number of new pensioners ('000)	53,2	62,5	72,5	77,1	86,9	92,1	91,1
VII Average number of months paid the first year	12,0	12,0	12,0	12,0	12,0	12,0	12,0
Monthly average pensionable earnings / Monthly economy-wide average wage	1,1	1,1	1,1	1,1	1,2	1,2	1,2

TABLE 14b	Disaggregated new public pension expenditure (old-age and early earnings-related pensions) - MEN						
New pension	2016	2020	2030	2040	2050	2060	2070
I Projected new pension expenditure (millions EUR)	470,7	662,6	1137,9	1525,4	2212,5	3235,1	4465,5
II. Average contributory period	37,7	38,5	36,0	33,6	31,4	32,7	33,3
III. Monthly average pensionable earnings	5,0	5,8	7,7	10,6	15,0	21,2	30,2
IV. Average accrual rates (%)	0,0079	0,0077	0,0090	0,0088	0,0084	0,0082	0,0079
Notional-accounts contribution rate (c)	0,125	0,124	0,159	0,160	0,161	0,163	0,162
Annuity factor (A)	15,8	16,1	17,7	18,2	19,0	19,8	20,6
V. Sustainability/Adjustment factor	:	:	:	:	:	:	:
VI. Number of new pensioners ('000)	26,6	31,8	38,0	40,7	46,4	47,3	46,9
VII Average number of months paid the first year	12,0	12,0	12,0	12,0	12,0	12,0	12,0
Monthly average pensionable earnings / Monthly economy-wide average wage	1,3	1,4	1,3	1,3	1,3	1,3	1,3

TABLE 14c	Disaggregated new public pension expenditure (old-age and early earnings-related pensions) - WOMEN						
New pension	2016	2020	2030	2040	2050	2060	2070
I Projected new pension expenditure (millions EUR)	340,2	484,2	1018,3	1413,6	2014,8	3071,6	4115,1
II. Average contributory period	34,2	36,5	36,7	36,1	34,0	34,3	34,2
III. Monthly average pensionable earnings	3,0	3,6	5,5	8,0	12,0	17,0	23,7
IV. Average accrual rates (%)	0,0106	0,0101	0,0122	0,0112	0,0102	0,0098	0,0096
Notional-accounts contribution rate (c)	0,152	0,149	0,203	0,194	0,186	0,186	0,189
Annuity factor (A)	14,4	14,7	16,6	17,3	18,3	19,0	19,7
V. Sustainability/Adjustment factor	:	:	:	:	:	:	:
VI. Number of new pensioners ('000)	26,6	30,6	34,5	36,4	40,5	44,7	44,2
VII Average number of months paid the first year	12,0	12,0	12,0	12,0	12,0	12,0	12,0
Monthly average pensionable earnings / Monthly economy-wide average wage	0,8	0,9	0,9	1,0	1,0	1,0	1,0

Table 15 gives an overview over the pay as you go financing of the financing of public pension expenditures.

TABLE 15	Financing of the system		
	Public employees	Private employees	Self-employed
	Public employees	Private employees	Self-employed
Contribution base	Wage income	Wage income	Taxable income
Contribution rate/contribution			
Employer	PAYG system without earmarked tax going to pensions.	PAYG system without earmarked tax going to pensions.	PAYG system without earmarked tax going to pensions
Employee	PAYG system without earmarked tax going to pensions	PAYG system without earmarked tax going to pensions	PAYG system without earmarked tax going to pensions
State	PAYG system without earmarked tax going to pensions	PAYG system without earmarked tax going to pensions	PAYG system without earmarked tax going to pensions
Other revenues	:	:	:
Maximum contribution	:	:	:
Minimum contribution	:	:	:

Table 16 records projected developments of public pension expenditures together with employer and employee contributions.

TABLE 16	Revenue from contribution (Millions), number of contributors in the public scheme (in 1000), total employment (in 1000) and related ra						
	2016	2020	2030	2040	2050	2060	2070
Public contribution	31230,2	37903,6	59608,1	87333,5	128470,6	192269,2	282296,2
Employer contribution	*18532,1*	*22112,5*	*32774,7*	*47381,0*	*69338,2*	*99587,4*	*142259,0*
Employee contribution	*14827,7*	*16159,4*	*23951,1*	*34625,1*	*50671,0*	*72776,5*	*103960,1*
State contribution	*-2129,5*	*-368,2*	*2882,3*	*5327,4*	*8461,4*	*19905,4*	*36077,0*
Other revenues	*0,0*	*0,0*	*0,0*	*0,0*	*0,0*	*0,0*	*0,0*
Number of contributors (I)	:	:	:	:	:	:	:
Employment (II)	2647,3	2777,3	2937,5	3044,0	3148,4	3184,3	3203,9
Ratio of (I)/(II)	:	:	:	:	:	:	:

Employer and employees public pension contributions are not directly linked to financing of public pension expenditures, but – similar to other taxes - used to finance government expenditures in general. Related to this, the state pension fund (SPF) is not directly linked to financing pension expenditures. Rather SPF is a general vehicle to decouple yearly expenditures from income streams from the petroleum sector. With a budget rule stating that non-oil budget deficits over time shall evolve in line with expected real return (3 %) from SPF, SPF gives a lasting contribution to financing government (pension and other) expenditures.

Sensitivity analysis

Table 17 illustrates the sensitivity of pension schemes to different economic assumptions. Important factors may be summarised as follows:

- Higher life expectancy contributes to an increase in the number of old age pensioners. The effect of pension expenditures is counteracted by the conversion of the implicit pension wealth of

accumulated entitlements into an annuity over an increased average expected remaining lifetime. The net effect amounts to an increase in the GDP-ratio of pension expenditures by 0,2 percentage points compared to the baseline towards 2060. This effect reflects lags in life expectancy adjustments referred to above.

- In the higher labour productivity scenario, wage indexation contributes to higher pension expenditures. However, corresponding increases in private sector income and tax bases leaves the pension to mainland GDP ratio unchanged compared to the baseline projections. The same considerations apply for scenario with lower productivity growth as well as the Risk scenario (which is related to total factor productivity developments)
- The policy scenario linking retirement age to increases in life expectancy as well as alternatives with higher/lower employment rate and higher employment among older persons reflect effect due to increases in employment and GDP (thus abstracting from effects through changes in number of pensioners and average pensions).
- Lower (higher) migration reduces (increases) pension expenditures, but the associated decrease in mainland GDP produces a net increase in pensions to GDP ratio compared to baseline. This may be considered a temporary effect, assuming no further shocks to migration are envisaged subsequent to 2070.
- Lower fertility has a substantial effect on pension expenditures towards 2070, reflecting reductions in Mainland GDP and tax bases relative to number of pensioners.

TABLE17 Public and total pension expenditure under different scenarios (p.p. deviation from the baseline)

	2016	2020	2030	2040	2050	2060	2070
Public Pension Expenditure							
Baseline	10,7	11,0	11,7	11,9	12,0	12,5	12,8
Higher life expectancy (2 extra years)	0,0	0,0	0,1	0,2	0,2	0,2	0,2
Higher lab. productivity (+0.25 pp.)	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Lower lab. productivity (-0.25 pp.)	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Higher emp. rate (+2 pp.)	0,0	-0,1	-0,3	-0,3	-0,3	-0,3	-0,3
Lower emp. rate (-2 pp.)	0,0	0,1	0,3	0,4	0,4	0,4	0,4
Higher emp. of older workers (+10 pp.)	0,0	-0,1	-0,6	-0,6	-0,7	-0,7	-0,7
Higher migration (+20%)	0,0	-0,1	-0,4	-0,6	-0,7	-0,6	-0,6
Lower migration (-20%)	0,0	0,1	0,5	0,7	0,8	0,8	0,7
Lower fertility	0,0	0,0	0,0	0,3	0,7	1,2	1,8
Risk scenario	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Policy scenario: linking retirement age to increases in life expectancy	0,0	0,0	-0,3	-0,5	-0,6	-0,9	-1,1

Table 18 compares the present pension projections with previous projections in 2009 and 2012. In line with substantial (more favourable) developments in old age dependency ratio as well a more favourable developments in employment rates among older workers, the present projections implies a substantial downward revisions of changes in the pensions to GDP ratio towards 2060.

TABLE 18 Overall change in public pension expenditure to GDP under the2006, 2009, 2012 and 2015 projection exercises

	Public pensions to GDP	Dependency ratio	Coverage ratio	Employment effect	Benefit ratio	Labour intensity	Residual (incl. Interaction effect)
2006 *	:	:	:	:	:	:	:
2009 **	4,7	8,2	-1,2	0,3	-2,4	:	-0,2
2012 ***	4,9	8,0	-1,1	0,0	-1,6	0,0	-0,3
2015****	2,5	5,6	-0,5	-0,1	-2,2	0,0	-0,3
2018*****	2,1	7,6	0,0	-0,2	-3,9	0,0	-0,4

* 2004-2050; ** 2007-2060; *** 2010-2060; **** 2013-2060; *****2016-2070

Table 19 shows how the decrease in the public pension to GDP ratio towards 2060 compared to AR15 can be traced back to a decrease in the benefit ratio associated with the decreased share of disability pensioners and corresponding earlier take up of old age pensions.

TABLE 19	Decomposition of the difference between 2015 and the new public pension projection (% of GDP)						
	2016	2020	2030	2040	2050	2060	2070
Ageing report 2015	10,4	10,7	11,3	11,4	11,6	12,4	:
Change in assumptions	0,3	0,3	0,4	0,5	0,4	0,1	:
Improvement in the coverage or in the modelling	:	:	:	:	:	:	:
Change in the interpretation of constant policy	:	:	:	:	:	:	:
Policy related changes	:	:	:	:	:	:	:
New projection	10,7	11,0	11,7	11,9	12,0	12,5	12,8

Part 4 Description of the pension projection model and its base data

Tax and pension systems are typically detailed and complex involving a large degree of individual heterogeneity. Accordingly, there are substantial aggregation problems when calculating the total effect on government budgets of changes in tax or pension systems. To overcome these problems, micro simulation models represent a socioeconomic system by a sample of decision units (e.g. persons), and then model the behaviour of these primary units. Contrary to what is possible in aggregate models, inhabited by one or a few representative agents, the detailed and complicated tax and benefit rules may be exactly reproduced.

The dynamic micro simulation model MOSART is designed to analyse effects on individual pension entitlements, benefits, and government pension expenditures of changes in the Norwegian public pension system. The model simulates the life courses of the Norwegian population, using a set of transition probabilities to determine the occurrence of socio-demographic events, emphasizing what is relevant for individuals' accumulation of public pension entitlements. It captures the following events: migration, deaths, births, marriages, divorces, educational activities, retirement, and labour force participation. The model covers social security old age pensions and disability pensions.

Transitions between states over the life course depend on individual characteristics, and the transition probabilities have been estimated based on historical data. For retirement decisions, adjustments have been implemented in order to capture incentives for postponement of retirement in the reformed old age pension system. The model includes an accurate description of the pension system and captures relevant details of the population dynamics, as well as the heterogeneity of individual age-earnings profiles and individual public pension entitlements.

The macro assumptions from AWG is calibrated and translated to the model population in the micro simulation model, maintaining the heterogeneity of the model population while respecting aggregate assumptions from AWG concerning demographic developments (including net immigration), participation rates etc. by age and gender.

Statistics Norway maintains the MOSART-model and runs the projections for the government. The model is well established as the central tool for evaluating development in pension expenditures in Norway, and is updated on a regularly basis in order to capture changes in demographic projections as well as changes in social security old age and disability pensions systems. Accordingly the reform of the old age pension system is implemented in the current version of the model.

Methodological annex

Economy- wide average wage at retirement

In the projections labour productivity is driving the evolution of economy-wide average wage, while seniority effects are also taken into account for projections of economy-wide average wage at retirement.

Pensioners vs Pensions

Only number of pensioners specified in pension projection model.

Pension taxation

The projections assumes unchanged tax revenues as a share of pension expenditures.

Disability pension

The evolution of the disability pension expenditure and the number of pensions/pensioners entitled to a disability pension is driven by demographic developments by means of age- and gender specific transition probabilities. Disability pensioners become old age pensioners at the age of 67.

TABLE A1 Disabilty rates by age groups (%). Number of pensioners/population.

	2016	2020	2030	2040	2050	2060	2070
20 - 54	5,4	4,9	3,8	3,7	3,5	3,5	3,5
55 - 59	19,8	20,3	17,4	15,7	15,2	15,0	15,0
60 - 64	28,8	29,3	27,8	23,9	23,8	22,9	23,1
65 - 69	12,8	14,0	14,3	11,5	11,7	11,0	11,2
70 - 74	0,0	0,0	0,0	0,0	0,0	0,0	0,0
75+	0,0	0,0	0,0	0,0	0,0	0,0	0,0
75+	0,0	0,0	0,0	0,0	0,0	0,0	0,0

Source: Projections for AR18

Survivor pensions

The model simulates the life courses of the Norwegian population, using a set of transition probabilities to determine the occurrence of socio-demographic events, emphasizing what is relevant for individuals' accumulation of public pension entitlements. It captures the following events: migration, deaths, births, marriages, divorces, educational activities, retirement, and labour force participation.

Non-earnings related minimum pension

In the previous system pensions consisted of a basic amount (equal for all) and additional income related pensions calculated from a positive threshold income level. The new system also has a minimum guarantee pension, but income related pensions are calculated from total income (not only from income above a threshold level). However, also under the new system there will be a fraction of the pensioners who are just entitled to minimum/guarantee (not income related pensions) pensions. The level of this guarantee pension is comparable to the basic pension under the previous system.

Contribution

Implicit contribution rate is by assumption constant over the projection horizon.

Alternative pension spending decomposition

Table A2 is equivalent to Table 9 contained in the body of the country fiche. Table 9 is calculated by dividing into sub-intervals so to have smaller residual effect (interaction effect).

TABLE A2	Factors behind the change in public pension expenditures between 2016 and 2070 using pensioners data (in percentage points of G						
	2016-20	2020-30	2030-40	2040-50	2050-60	2060-70	2016-70
Public pensions to GDP	0,3	0,7	0,2	0,1	0,5	0,3	2,1
Dependency ratio effect	0,7	2,1	2,2	1,0	1,9	1,3	9,3
Coverage ratio effect	-0,2	-0,4	-0,4	0,2	0,0	0,0	-0,9
*Coverage ratio old-age**	*0,1*	*0,3*	*0,1*	*0,3*	*0,3*	*0,1*	*1,2*
*Coverage ratio early-age**	*-0,5*	*-1,0*	*-1,2*	*-0,2*	*0,1*	*0,1*	*-2,7*
*Cohort effect**	*-0,4*	*-1,5*	*-1,2*	*0,0*	*-0,9*	*-0,5*	*-4,5*
Benefit ratio effect	0,0	-0,7	-0,9	-0,7	-0,5	-0,3	-3,0
Labour Market/Labour intensity effect	-0,2	0,0	-0,1	0,0	-0,1	0,0	-0,3
Employment ratio effect	*-0,2*	*0,0*	*-0,1*	*0,0*	*0,0*	*0,0*	*-0,2*
Labour intensity effect	*0,0*	*0,0*	*0,0*	*0,0*	*0,0*	*0,0*	*0,0*
Career shift effect	*0,0*	*0,0*	*0,0*	*0,0*	*-0,1*	*0,0*	*-0,1*
Residual	0,0	-0,3	-0,7	-0,5	-0,9	-0,7	-3,0