

## 2.6. Denmark

### 2.6.1. Demographic profile and demographic forecast

Denmark's population will increase slightly from around 5.8 million in 2019 to 6.2 million in 2070, according to the European Commission's projections (Table 11). This is partly explained by a slowdown in immigration rates. In terms of composition, as in other Member States, the old-age dependency ratio (population 65+/population 20-64) is projected to increase from 34.1% in 2019 to 53.8% in 2070. Similarly, the ratio of the population aged over 80 to the population aged 65+ (ageing of the aged indicator) will increase from 23.4% to 39.3% in the long term, reflecting the change in life expectancy and thus the demographic trend towards an older population. Life expectancy for both men and women will have risen dramatically by 2070, to around 86 years at birth for men and 90 years at birth for women. The same applies to life expectancy at the age of 65 for both men and women, with an increase of about 5 years. In addition, the survival rate for both men and women will reach very high levels in 2070, with almost 95% of both men and women surviving to the age of 65. Regarding the survival rate for individuals aged 80 and above, about 80% of men and almost 88% of women are expected to survive that age (EU, 2020g)

Table 11: Denmark: demographic forecast

	2019	2030	2040	2050	2060	2070	2019 - 2070
Population (1,000 persons)	5,809	5,970	6,058	6,100	6,124	6,156	5,809 → 6,156
Population growth rate	0.3	0.2	0.1	0.1	0.0	0.1	0.3 → 0.1
Old-age dependency ratio (pop 65+ / pop 20-64)	34.1	41.4	47.4	47.9	51.2	53.8	34.1 → 53.8
Old-age dependency ratio (pop 75+ / pop 20-74)	12.5	17.5	20.7	23.7	23.8	26.1	12.5 → 26.1
Ageing of the aged (pop 80+ / pop 65+)	23.4	31.5	32.9	38.9	39.5	39.3	23.4 → 39.3
Men - Life expectancy at birth	79.5	81.0	82.4	83.7	84.9	86.1	79.5 → 86.1
Women - Life expectancy at birth	83.3	84.8	86.2	87.5	88.7	89.8	83.3 → 89.8
Men - Life expectancy at 65	18.5	19.5	20.5	21.5	22.4	23.3	18.5 → 23.3
Men - Life expectancy at 60	22.4	23.6	24.7	25.8	26.8	27.7	22.4 → 27.7
Women - Life expectancy at 65	21.1	22.2	23.3	24.4	25.3	26.3	21.1 → 26.3
Women - Life expectancy at 60	25.3	26.7	27.8	28.9	29.9	30.9	25.3 → 30.9
Men - Survivor rate at 65+	87.0	89.1	90.7	92.1	93.2	94.2	87 → 94.2
Women - Survivor rate at 65+	91.8	93.2	94.2	95.1	95.8	96.5	91.8 → 96.5
Men - Survivor rate at 80+	58.8	64.4	68.9	73.0	76.6	79.7	58.8 → 79.7
Women - Survivor rate at 80+	71.0	75.7	79.4	82.6	85.3	87.6	71 → 87.6
Net migration (thousand)	-1.6	12.4	12.5	11.3	11.0	11.0	-1.6 → 11
Net migration over population change	-0.1	0.9	2.1	3.6	5.1	2.6	-0.1 → 2.6

Source: European Commission • Created with Datawrapper

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Though net migration is subjected to be positive throughout the entire period of interest, it will slightly fall over time to 11 thousand in 2070.

Referring to the projected exit ages, it can be observed that increasing exit ages for both men and women will reflect the increases in life expectancy. That is why the percentage of adult life

spent in retirement will virtually stay the same over the period with 28% and 22% for men and women respectively. Nonetheless, early exit opportunities seem to become more likely, as the ratio of early exits to late exits for both men and women is increasing. For men, the increase is quite drastic from 0.8 to 6.5 compared to women, which start at a ratio of 2.9 and end up at the same level as men (Table 12).

Table 12: Denmark: exit ages and expected duration of retirement

	2020	2030	2040	2050	2060	2070	2020 - 2070
Average labour market exit age (CSM) - Men	65.0	66.1	67.2	68.0	69.0	69.5	65.0 → 69.5
Duration of retirement - Men	18.4	18.7	18.9	19.0	19.0	19.8	18.4 → 19.8
Percentage of adult life spent in retirement - Men	28.1	28.0	27.8	27.5	27.1	27.8	28.1 → 27.8
Early/late exit - Men	0.8	2.0	2.7	4.3	4.8	6.5	0.8 → 6.5
Average labour market exit age (CSM) - Women	64.1	65.5	66.7	67.6	68.5	69.2	64.1 → 69.2
Duration of retirement - Women	21.9	21.4	21.6	21.7	22.6	22.6	21.9 → 22.6
Percentage of adult life spent in retirement - Women	32.2	31.0	30.7	30.4	30.9	30.6	32.2 → 30.6
Early/late exit - Women	2.9	2.4	3.7	4.9	6.1	6.5	2.9 → 6.5

*The labour market exit age as calculated based on Labour Force Survey data for the base year and estimated by the Cohort Simulation Model thereafter; 'Duration of retirement' is calculated as the difference between the life expectancy at the average labour market exit age and that exit age itself; The 'percentage of adult life spent in retirement' is calculated as the ratio between the duration of retirement and the life expectancy minus 18 years; Early/late exit is the ratio between those who retire and are below the statutory retirement age and those who retire at the statutory retirement age or above.*

Source: European Commission • Created with Datawrapper

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## The role of migration

For Denmark, migration will be relevant for the sustainability of the pension system, though its influence might be limited (Figure 26). For the forecast period of 2022 to 2060, the population share aged 20-64 will remain virtually the same in the scenario with migration. In contrast without migration, a difference of 391.000 individuals is estimated in 2060, which equates to 13.5% of the working-age population in 2060. Regarding the population aged 65+, the discrepancy for the two scenarios is negligible as they differ by about 60.000 individuals. With and without migration, this latter population share increases till 2060.

Nevertheless, this difference in working-age population due to immigration has an effect, though only marginally, on the old-age dependency ratio (Figure 27). The scenario with migration shows a ratio of 51, while for the scenario without migration, it is 55.

To keep the old-age dependency ratio of 35.3 in 2022 constant, net migration or the return of expatriates of 1.6 million individuals would be required. The forecasted working age population in 2060 without migration is projected to be 2.9 million. To keep the old-age dependency ratio constant, a working age population of 4.55 million would be required, the difference of 1.6 million represents the necessity for net migration or returning expatriates. This implies an annual average migration of approximately 43.000 individuals per year.

Figure 26: Denmark: demographic forecast with and without migration (2022-2060)

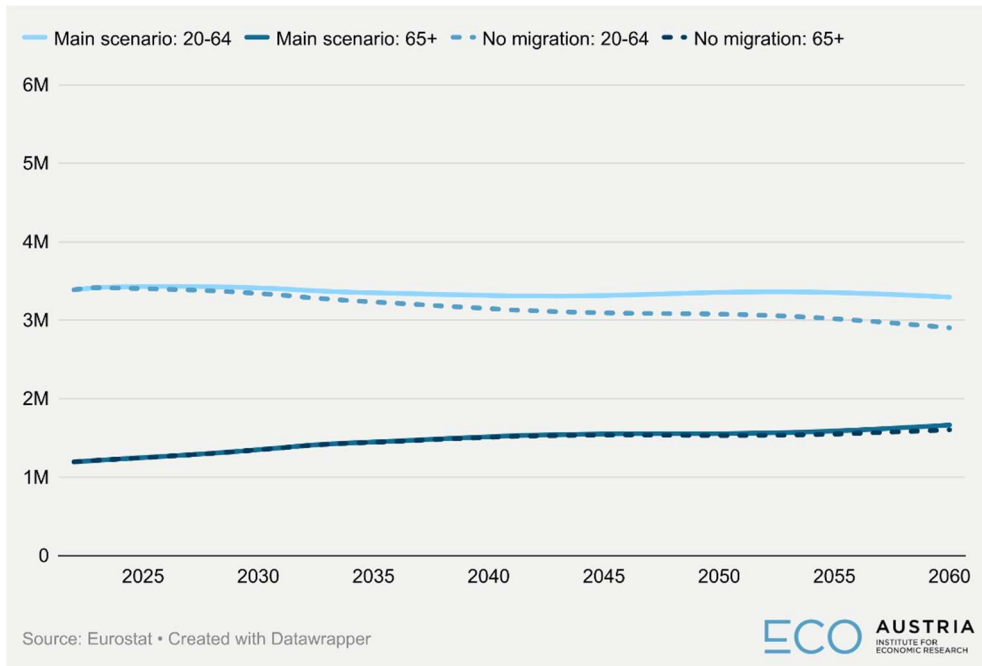
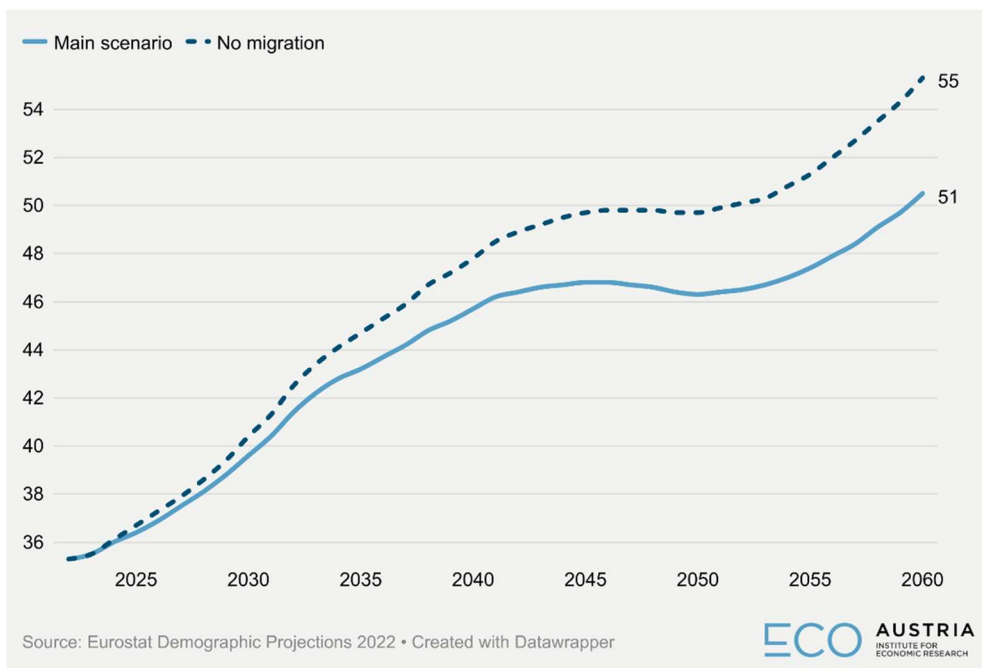


Figure 27: Denmark: old-age dependency ratio (65+/20-64) in the main scenario and without migration



### 2.6.2. General architecture

In Denmark, the pension system is based on three tiers, the first tier features several governmental components (EU, 2020g; Schneider, Petrova & Becker, 2021):

- The base of the **first tier** is comprised of the “old-age pension” (Folkepension) and the voluntary early retirement pension (Tildlig Pension), which combined represents the

universal tax-financed, defined benefit PAYG-system. Even though early retirement is voluntary, the voluntary early retirement pension (VERP) often gets accounted to the first tier, as it is state-controlled, nonetheless, it is an individual pension scheme.

- In addition, almost all individuals in Denmark are subject to the supplementary pension “ATP” (Arbejdsmarkedets Tillægspension), which is a funded defined contributions system for wage earners. The contributions made to the members’ funds are invested by ATP itself. This pension scheme is the first and basic component of **the second tier** of the Danish pension system. For recipients of social benefits, the state provides the obligatory pension system (Obligatorisk Pensionsordning) which replaces payments in the supplementary pension ATP for these individuals.
- In addition to the basic ATP scheme, the **second tier** consists of privately organized contribution-based labour market pensions. Within those occupational schemes, there is a mix between PAYG and funded systems. The second tier also features tax-financed, income-related civil servant pensions.
- The **third tier** is based on voluntary individual private pension plans. These pension plans are typically lump-sum or instalment pension schemes, but they also include life annuities.

### Qualifying conditions

As of 2023, the retirement age in Denmark is 67 for the old-age and the supplementary pension system. Eligibility for the old-age pension system is tied to the duration of residency in Denmark, while the early retirement pension is based on long-term contributions on the labour market. There are differences in residency requirements for Danish nationals and non-EU foreigners. The minimum requirement to receive the old-age pensions for Danish nationals is three years of residency within working-age, while for non-EU foreigners, this residency requirement is ten years, of which five must be immediately before retirement. To receive the full pension, individuals reaching the retirement age before 01.08.2025 had to be residents for 40 years during their working age. For individuals reaching the retirement age later than that, the full entitlement is bound to nine out of ten years of residence in Denmark (MISSOC<sup>22</sup>).

For the supplementary pension system, all employees aged 16+, working 9+ weekly hours, are compulsorily insured. In addition, individuals participating in employment promotion or education training measures, as well as recipients of certain social benefits, are also compulsorily included. Self-employed individuals are allowed to voluntarily contribute, given that they have been a member for the preceding three years. For employees, there are no minimum duration requirements.

### Current and future retirement age

As mentioned, the retirement age is 67 in 2023. The retirement age is adjusted on a 5-year-basis and is meant to be increased to 69 in 2035 by steps. With the “Welfare Agreement”

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<sup>22</sup> MISSOC refers to the “Mutual Information System on Social Protection). It contains information on various social protection systems of the 27 Member states of the European Union and the EEA. Data can be found at the [Weblink](#).

(Velfærdsforliget) of 2006 and the retirement reform of 2011, an indexation mechanism for the retirement age has been introduced, so that the retirement age is now based on life expectancy of 60-year-olds, effectively linking the retirement age to life-expectancy. In addition, the possibility for voluntary early retirement (VERP) has been reduced to three instead of five years before the statutory retirement age. Considering age projections for Denmark, the retirement age is subjected to increase by nine and a half years to 75 years in 2070. Analogously, the postponing of retirement in Denmark is also possible up to ten years, where the pension benefits are then increased based on a percentage calculated with the duration of deferring as well as the average life expectancy at the end of deferment.

### **First-tier pensions**

The public pension scheme can be divided into the basic amount and the pension supplement. The basic amount as of 2019 is DKK 75,800 or EUR 10,000 annually, which roughly equals 18% of average earnings. If the pensioner has earned income over the threshold of DKK 336,900 or EUR 45,200 annually, 30% of the income above the threshold is deducted from the basic pension. If the individual exceeded the annually earned income threshold of DKK 583,000 or EUR 78,300, the basic pension amount is completely phased out.

Regarding the pension supplement, the amount differs for single pensioners and married/cohabitating pensioners. The amount of DKK 85,500 or EUR 11,500 annually (in 2019) gets split in half. Similar to the basic amount, the pension supplement gets reduced with certain income thresholds. The supplement is reduced by a 16-31% rate above the threshold, which includes earned and capital income, as well as benefits from occupational and private pension schemes. Lastly, the rate of deduction and thresholds depend on marital status and if the spouse is also a pensioner.

To reduce old-age poverty, the Danish Government targets eligible pensioners with the supplementary pension benefit. The amount in 2019 was DKK 17,600 or EUR 2,360. To receive the full benefit, individuals must not hold more than DKK 89,900 or EUR 12,000 in liquid wealth, as well as the supplementary pension is reduced, if income apart from the old-age pension exceeds DKK 35,800 or EUR 4,800 for singles and DKK 71,000 or EUR 9,500 for couples respectively (EU, 2020g).

### **Second-tier pensions**

Additionally, the “Labour Market Supplementary Pension Scheme” (ATP) also comes close to absolute universality, as it covers almost all wage earners and recipients of social benefits. Self-employed persons are not automatically included in the ATP scheme but can participate and contribute voluntarily. It is a fully funded, defined contribution, collective insurance-based scheme, which as mentioned before, is compulsory for employees<sup>23</sup>. Contributions are split between employee and employer, with the amount for a full-time worker being equal to DKK 189 or EUR

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<sup>23</sup> Due to its hybrid character, it is hard to distinctly assign the ATP scheme to one of the three tiers. Danish authorities tend to associate the ATP scheme to the first tier, due to its quasi-universal, publicly organized and mandatory character. However, in this study, the ATP scheme is attributed to the second tier because it does not universally cover all residents. Furthermore, it represents an occupational job-related scheme and it is not financed on a PAYG basis.

25 for the employer and DKK 95 or EUR 13 for the employee per month. Thus, the contributions are not defined by income, but by hours worked, i.e., the amount varies with hours worked.

In technical terms, the pension scheme of the ATP represents a guaranteed deferred annuity without any intergenerational transfer component, as each generation finances their own pension right on a what-you-pay-is-what-you-get basis. Hence, the benefits paid depend on the length of the individual's contribution level and employment rate over time. 80% of paid ATP contributions are used to buy new individual pension rights. ATP pension benefits are based on a discount rate that is adjusted to the long-term hedgeable interest rate that is available in the market at the time of acquisition. That is why the discount rate of the ATP differs each year, as well as why pension provisions are sensitive to changes in the market interest rates. The remaining 20% of contributions are used as investment buffers and for the financing of longevity increasing measures (EU, 2020g).

More specifically, ATP's total funds are divided into two portfolios, one being the hedge fund and the other one being the investment fund. As mentioned before, roughly 80% of contributions are used to fulfil guaranteed pension benefits, which is done through the hedging portfolio. Thus, the hedging portfolio is intended to just provide the nominal guaranteed pension payments. The investment strategy of the portfolio is focused on long-term stable investment and therefore includes long-term bonds and interest swaps. Furthermore, the hedging portfolio of ATP follows a "full hedging" approach to almost eliminate the interest rate risk. In turn, this allows the investment portfolio, on the other hand, the highest possible capability to assume other types of market risks, that may allow for higher risk premiums. The investment portfolio, which makes up roughly 20% of the ATP funds, is meant to generate higher returns in order to build reserves used to balance out cost related to, e.g., ageing and increased life expectancy. This approach is intended to maintain the real value of the pension besides the nominal guaranteed pension provision, given by the hedging portfolio (ATP, 2021)

The ATP scheme has imposed a risk management strategy which balances out total risk through the "bonus potential". The latter is defined as the difference between the ATP's assets and its guarantees, therefore constituting ATP's reserves. The risk budget<sup>24</sup> has been set to equal only half of the bonus potential, in order to guarantee for the nominal pension benefits at all times. This also allows for a dynamic risk adjustment, meaning, that the investment portfolio risk level can be increased, if the bonus potential grows. It should be added that the risk for both portfolios is measured with a rather short-term 3-month horizon<sup>25</sup>. The investment portfolio additionally follows a factor approach in order to diversify risk (ATP, 2021).

Even though the two ATP portfolios are separated, it does not imply that the funds of each portfolio are tied to one or the other. By using financial instruments, such as derivatives, the investment portfolio can invest funds from the hedging portfolio, which therefore gives access to more capital/liquidity. This allows for higher investments by the investment portfolio than the bonus potential, which may yield higher returns compared to the case, where only the bonus potential is

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<sup>24</sup> Risk budget here refers to the allocated risks to the investments within the portfolio.

<sup>25</sup> Risk consumption is measured using the Expected Shortfall methodology, focusing on the one percent greatest losses in various market scenarios, thus accounting for extreme events with the most significant losses.

used. All investments, including alternative illiquid investments, are assessed with the same four factors regarding risk, these being the equity and interest rate and inflation factors and a residual category of other risks. As mentioned, ATP also invests in less traditional, alternative asset classes, which include private equity, infrastructure, real estate and certain types of credit (ATP, 2021).

In 2019, the total savings in the ATP scheme were equal to 38% of GDP, while benefits from the same year were equal to 0.8% of GDP.

### 2.6.3. PAYG and fiscal challenges

#### Public Expenditure

In 2019, spending on the old-age pension was equal to 6.3% of GDP, while at the same time, benefits paid out by the ATP were equal to 0.8% of GDP. In total, public expenditure on pensions was 8% of GDP in 2017, which amounts to roughly 16% of government spending, which is slightly lower than the OECD average. Nevertheless, it is projected that public pension expenditures in total will decrease from 9.3% of GDP to 7.9% of GDP in 2070 again, which can be explained by the stepwise increase of the statutory old-age pension age, as this will hold the ratio of old-age pensioners to employment almost constant. It is also assumed that after 2020, productivity per worker will grow stronger than wages, which lowers expenditures as a share of GDP (EU, 2020g).

When it comes to old-age poverty, indicators from 2018 reveal low poverty rates in Denmark compared to other OECD countries. It is especially worth mentioning that the poverty rate of the total population with 6.1% is higher than the one for the population aged 65+ with 3.0%. Poverty in this particular context was defined as the percentage of the population with less than 50% of the median equivalized household disposable income. Nonetheless, there are heterogeneities observable when it comes to the old-age poverty rate. For once, the rate for individuals aged 75+ is higher with 4.5% than for the cohort of individuals aged between 66 and 75 with 2.0%. When it comes to men and women, women are more prone to experience old-age poverty with a share of 3.7% compared to men with 2.2% (OECD, 2021).

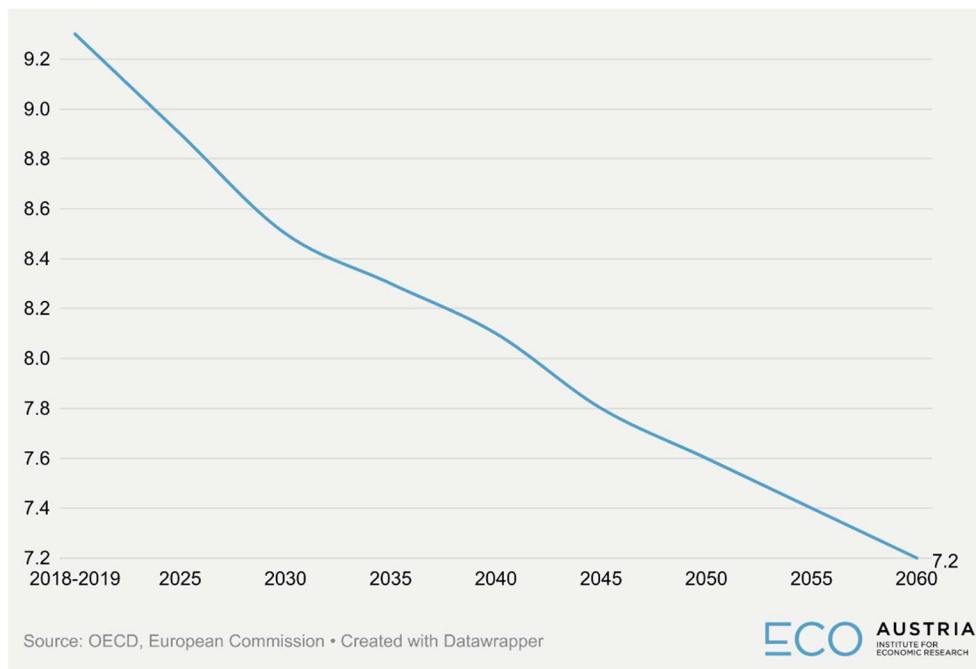
Yet, when it comes to the replacement rate, no discrepancy between men and women can be observed, with the net replacement rate in 2020 being 84% for both. Regarding net pension wealth, i.e., present value of the flow of pension benefits taking into account taxation, indexation, life expectancy and retirement age, Denmark is equal to the OECD average with net pension wealth being a 11.4 multiple of annual gross earnings. However, in terms of pension assets, Denmark is one of the frontrunners in the European Union, with pension fund assets equaling approximately 50% of GDP in 2021 and the absolute value of private pension assets being the second highest with \$ 889 billion in 2021 (OECD, 2023c)

#### Forecast of public expenditure

As mentioned above, the public expenditure on pensions as a share of GDP is projected to slightly but constantly decrease over the projection timeframe (Figure 28). There are several reasons that explain this trend. Besides the indexation of retirement age, in the 2012 tax reform, it was also

agreed to index pension benefits to wages. The rate adjustment percentage is based on the wage development of the fiscal year two years prior. Hence, benefit adjustment is lagged in regard to the wage development. Notwithstanding, it was also agreed on that the old-age pension should be exempted, therefore this factor only applies to, e.g., the voluntary early retirement pension and the disability pension. This indexation of benefits leads to lower indexation in the first couple of years than wages.

Figure 28: Denmark: Forecast of public expenditure on pensions (in % of GDP)



Furthermore, there will be compositional changes in coverage. It is reported that by the end of the forecast period, the share of people receiving old-age pension will have increased compared to the share of people receiving higher-benefit pensions like the voluntary early retirement pension and the civil servant pension.

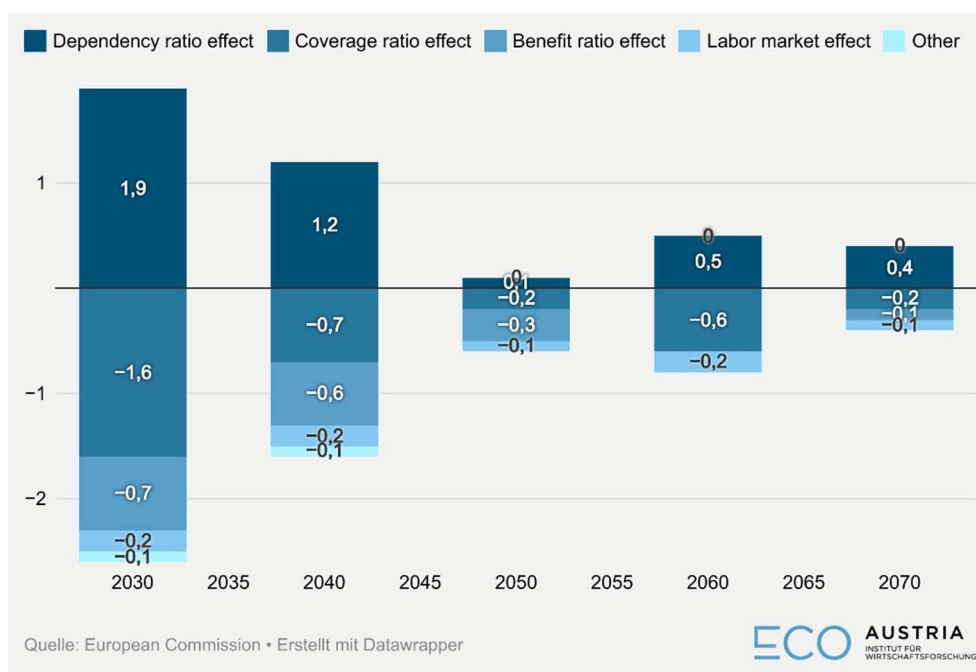
The aforementioned dependency-ratio effects also play a crucial role as a driving force for the public pension expenditure projection. The number of pensioners until 2070 is forecasted to be 1.3 million, yet employment also increases during the whole period. Up until 2060, this leads to a decline in the dependency ratio, from 2060 onwards, the employment is ought to increase less strongly, hence the reoccurring growth in the dependency ratio (Figure 29). This also links to the coverage ratio effect, as through the indexation of the retirement age, the coverage during the projection period slightly decreases, contributing to the effects on expenditure. It must be mentioned that 90% of employees in Denmark contribute to occupational as well as private schemes. As these are focused on cohorts instead of individuals and their respective contributions, wealth and benefits, calculating coverage ratios for the circumstances of these regimes is suboptimal (EU, 2020g).

Nonetheless, considering occupational/private schemes is essential in this context, as benefits paid out of these schemes grow until 2070. For private schemes, this share increases from 4.8%



of GDP in 2019 to 6.0% of GDP in 2070. This increase is crucial in explaining, how public pension expenditure declines over time without any losses in benefit-ratio. The compound benefit ratio increases from 60% in 2016 to 64% in 2070, even though the ratio for the basic public pension decreases from 42% to 34% and the old-age pension ratio stays constant. It is due to the maturation induced increase of the occupational pension benefit ratio, which rises from 23% to 38%. This offset within the total benefit ratio can be seen in its contribution to the decrease in the public pension expenditure (Figure 29).

Figure 29: Denmark: Components of change in the public expenditure



### Forecast of replacement rates

When it comes to the benefit ratio (both overall and earnings related) and the earnings-related replacement rate, two different pathways can be observed. While the overall benefit ratio declines 7.0 percentage points and the earnings-related benefit ratio by 9.0 percentage points over the projection period, the earnings-related replacement rate remains virtually the same with very little fluctuation (Table 13). The benefit ratio describes the ratio of the average expenditure/average income from pensions per pensioner to the average wage in the economy. The decline in benefit ratios, which here only relate to the public schemes, can be explained by the previously mentioned reasons for the decline in public pension expenditure. If the expenditure on pensioners declines and the average wage remains the same or increases, the benefit ratio decreases. In contrast, the replacement rate relates pension benefits to the pre-retirement income. The replacement rate displayed in Table 13 represents the total replacement rate, meaning that it includes benefits received from second tier schemes, which leads to these higher, less fluctuating rates. Considering the previous claims on pension reforms and that the Government of Denmark is trying to shift from heavy public first tier scheme more to occupational and private schemes, one

can explain how the replacement rate remains virtually constant. Declines in public pension benefits will be substituted by benefits from the other tiers (EU, 2020g).

Table 13: Denmark: Benefit ratios and replacement rate until 2070

	2019	2030	2040	2050	2060	2070	change in pp
Public scheme (BR)	43%	41%	38%	37%	36%	36%	-7.0
Public scheme: old-age earnings related (BR)	41%	38%	35%	33%	33%	32%	-9.0
Private occupational scheme (BR)	27%	29%	33%	35%	37%	38%	11.0
Private individual schemes (BR)							
Total benefit ratio (BR)	65%	64%	65%	65%	65%	66%	1.0
Total replacement rate (RR)	57%	56%	57%	57%	57%	58%	1.0

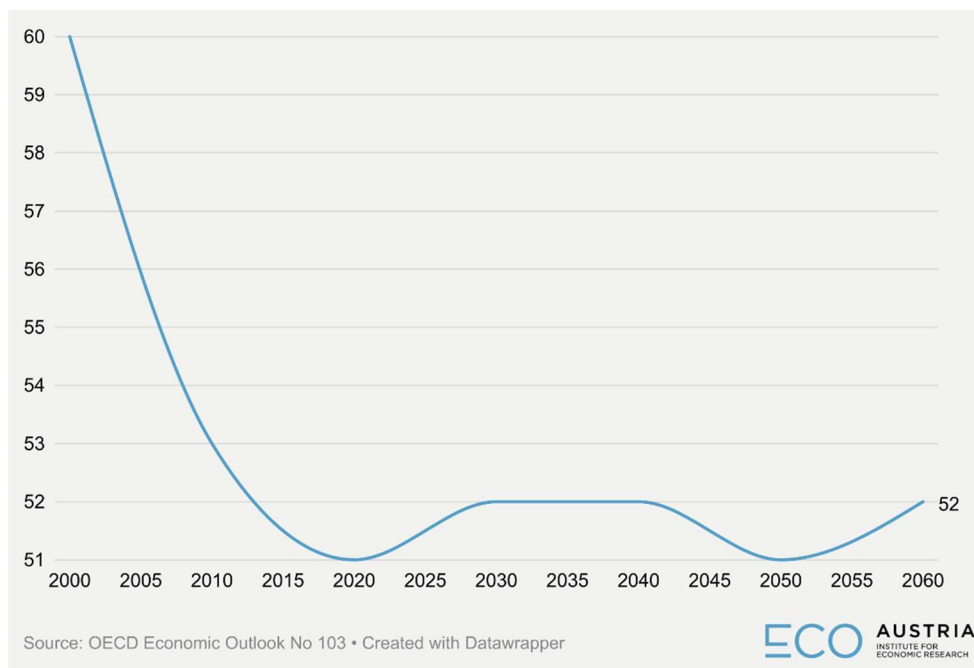
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### Forecast of debt levels

The steady decrease in public expenditure on pensions will aid Denmark to keep its debt level constant over the projection period. While gross long-term liabilities made up about 60% of GDP in 2000, in 2020, this level was already reduced to 51%. For the forecast period, Denmark is projected to be able to hold this debt-to-GDP level at around 52% till 2060 (Figure 30).

Figure 30: Denmark: Projection of long-term gross financial liabilities (in % of GDP)



This projection of the debt level can be partially explained both by a rather neutral (not favorable nor unfavorable) initial fiscal position as well as by neutral long-term projections. For this reason,

the European commission assigned Denmark a very low S2 indicator value between 0 to 2, meaning that its financial sustainability gap is low. This indicator signifies the long-term fiscal adjustment needed to be made in order to stabilize debt-to-GDP. On the other hand, the S1 indicator represents a more medium-term view, as it indicates the necessity for fiscal measures to reach the Maastricht debt requirement of 60% by 2032. As Denmark's S1 indicator value ranks below zero, the fiscal risk can be considered as low. Positive contributors to this value of approximately -3.5 percentage points of GDP are the negative debt requirements, the initial fiscal/budgetary position and to a lesser degree the pension system (European Commission, 2017).

#### 2.6.4. Funded Pensions (Second and third tier)

##### **Voluntary/Mandatory, Occupational/Personal, Book reserves**

As mentioned before, second and third tier pensions schemes play a substantial role in providing adequate replacement rates to pensioners. In this analysis, the ATP scheme was assigned to the second pillar, although it is close to absolute universality. However, beside the ATP scheme, there are yet other fully funded, defined contribution, occupational schemes, which are agreed on by the social partners in collective agreements.

More than 90% of employees pay into occupational schemes other than ATP. Coverage of these schemes has increased drastically since their introduction to the private labor market in the 1990s. Before 1995, the coverage was even lower than 70%. This increase in coverage has made occupational schemes a more relevant component in the Danish overall pension system. While contributions amounted to 1.3% of GDP in 1980 (2.3% including private contributions), they grew to 5.3% in 2018 (6.0% including private scheme contributions). The total savings of these occupational schemes are substantial, they equaled to 120% of GDP in 2019. Furthermore, the occupational schemes are negotiated on the industry/branch level and the increasing inclusion of blue-collar-workers since the mid-1980s can be seen as one of the main reasons for the growing importance of 2<sup>nd</sup> tier occupational pensions. Similar to the ATP scheme, private occupational pension funds in Denmark are focused on investing in diverse asset classes, including the same alternative investments, that were mentioned above. This in turn leads to risk diversification and potentially higher returns. The contribution rate, which is set in wage agreements, is typically around 10 – 17%, at least 60% of contributions fall within these rates. Regarding the specific types of benefits within this tier, there is great variation. Most typically, life-long annuities are provided, topped up with a rate pension that is paid out over 10 – 25 years. But it is also common to receive a capital pension paid out as a lump-sum benefit. Benefits of these second-tier schemes equaled 5.3% of GDP in 2019.

When it comes to the third tier (private voluntary pensions), the typical schemes are reversed compared to the occupational schemes. For the individual, private pension savings plans, capital and rate pensions are the most common, while life-long pensions are possible but not as common. As these schemes are privately initiated with banks, insurance companies and pension funds and due to the independence of employment conditions of these individual schemes, the flexibility in

terms of contribution size and benefit composition is considerably higher, as the individuals are free to choose. The total savings from this tier made up 29% of GDP in 2019.

### **Investment regulations**

Pension funds regulation is done by the Danish Financial Supervisory Authority (Finanstilsynet), while the specific regulatory frameworks for pension funds are set in place by the European Union, Solvency II and IORP II apply, which both implement the Prudent Person principle (PPP). These two regulatory frameworks are the only limitations regarding asset classes for large and small pension funds, as well as life insurance pension providers. Only for pension savings in banks, there are limitations on real estate and loans. Limits for pension funds in banks and small pension fund companies additionally apply, if investment is allocated to a single issuer. Regarding small pension fund companies, this is also important for equity and bonds issued by the private sector, while for pension savings in banks, this additionally includes private investment funds. For foreign asset classes, only the Prudent Person Principle applies. Furthermore, for company pension funds, there is limitation on which ancillary activities can be performed, other financial activities must be done through subsidiaries. Company pension funds are also required to implement a minimum of 80% currency matching, while for Euro, a match up to 50% of other currencies is allowed (OECD, 2021b)

### **Assets allocated**

Alternative investments play an important role in Denmark regarding the asset allocation of pension funds. In 2021, 42.5% of assets allocated fell within this category. It includes several forms of investments, e.g. loans, real estate, unallocated insurance contracts, private investment funds and other forms of alternative investments. The share of alternative investments in Denmark is one of the highest among OECD countries. For most other countries, this category only plays a minor role. Between 2010 and 2020, the share of alternative investments as pension assets has grown from 13.6% to 15.6% within the OECD. It is argued that the occurrence of this trend is driven by the necessity of pension providers to generate higher yields in order to meet obligations to pensioners (OECD, 2023). Looking at the proportion of alternative investments within Denmark's pension asset structure, it must be highlighted, that Denmark is already ahead of this development compared to the rest of the OECD, i.e., Danish pension providers are more strongly focused on alternative investments. In general, this should not be seen as problematic, as the shift towards alternative investments does not necessarily lead to increased risk profile in pension portfolios. When it comes to investment in pension assets abroad, Denmark is situated in the middle field of OECD countries, with that indicator roughly equating to 40% of GDP of total investment.

### **Investment performance**

Investment performance of funded and private pension plans in Denmark has declined in the last years, but has remained comparatively high in international comparison. While the nominal investment rate of return in 2019 was 10.9% (real: 10.1) it decreased slightly to 9.2% (real: 8.7) in 2020 and then dropped to a low of 6.3% (in real terms 3.1%) in 2021, due to rising inflation. Nonetheless, there are no negative returns in this period, despite financial shocks, which can be

observed in several OECD countries. In addition, the real geometric average annual investment rate of return is quite stable considering the last 10 to 20 years. Denmark had one of the strongest average annual investment rates in the last 10 years with 4.6%, with the 20-year average being virtually the same.

### **Tax treatment**

The first tier of pensions being the public pensions, e.g., old-age and voluntary early retirement, are taxed with the progressive personal income tax, which ranges from 8 to 40% in Denmark, however, public pensions are not subject to the 8% payroll tax.

Opposed to the taxation of the first pillar, the second and third pillar are mostly taxed with the ETT rule, i.e., contributions are exempted, while returns and benefits are taxed. Conversely, even though contributions to occupational and private schemes are also taxed with the 8% payroll tax, they can be used as income tax deductions at the time of contribution. Looking at the pension types, life-long and rate pensions are subject to the personal income tax, but not the payroll tax at the moment of the benefit pay-out. In contrast, capital pensions are taxed at 40% regardless, so there is a flat tax on these schemes. It is expected that tax revenues are going to increase due to increased pension payments, as well as the underestimation of the fiscal sustainability, which stems from the time discrepancy between tax write-off contributions and then later taxed benefits. Interestingly, since the 2012 tax reform, capital pensions are the only pension scheme which do not follow the ETT taxation anymore. Instead, benefits are exempted from taxation, while contributions are now taxed (TTE).

### 2.6.5. Highlights and main features of the system

<b>1. Strengths and weaknesses (according to the Overall Pension Index – OPI)</b>
<ul style="list-style-type: none"> <li>- The Danish pension system ranks top with regard to financial “Sustainability” (with an OPI score of 0.85 and ranked 3<sup>rd</sup> among 11 countries compared), with regard to “Adequacy” (OPI score 0.80, ranked 2<sup>nd</sup>) and to “Market capitalization” (OPI score 0.98, ranked 1<sup>st</sup>)</li> <li>- The Danish Pension is defined by a multitude and diversity of components, including fully-funded pensions, which altogether lead to a low fiscal risk and high total replacement rates for Danish pensioners. As a result, the volume of funded pension assets in Denmark is high.</li> </ul>
<b>2. Tax treatment</b>
<ul style="list-style-type: none"> <li>- 1<sup>st</sup> tier: TTE; 2<sup>nd</sup> and 3<sup>rd</sup> tier: ETT.</li> </ul>
<b>3. Contribution rate to funded plans and split between employer and employee</b>
<ul style="list-style-type: none"> <li>- ATP: €25 are covered by the employer and €13 by the employee per month (for full-time employee)</li> <li>- Occupational: 10-17%, 2/3 by employer and 1/3 by employee</li> </ul>
<b>4. Asset Allocation</b>
<ul style="list-style-type: none"> <li>- Equities (25.8%), Bills &amp; Bonds (26.0%), Cash &amp; Deposits (1.5%), CIS26 (2,5%), Other (44,2%)</li> </ul>
<b>5. Obligatory character</b>
<ul style="list-style-type: none"> <li>- ATP is quasi-mandatory, covering all wage-earners and almost all individuals receiving social benefits, self-employed individuals can contribute voluntarily</li> <li>- 90% of employees are covered by occupational, regulated in collective agreements</li> </ul>
<b>6. Pay-out options of funded plans</b>
<ul style="list-style-type: none"> <li>- Life-long, rate and capital pensions are all available</li> <li>- For the 2nd tier, life-long annuities in combination with a rate pension are the most common, yet capital lump-sum pension are also not uncommon</li> <li>- Capital and rate pensions are the most common for the 3rd tier, life-long annuities are nonetheless also possible</li> <li>- Generally possible to designate a beneficiary in the event of early passing</li> </ul>
<b>7. Contribution to funded plans as percentage of GDP</b>
<ul style="list-style-type: none"> <li>- Total contributions to funded systems were equal to 9% of GDP in 2021 (or latest year available)</li> </ul>
<b>8. Investment performance</b>
<ul style="list-style-type: none"> <li>- 10-year average investment rate of return 2011-2021: 5.0%.</li> <li>- At the same time the OECD average was 3.7%.</li> </ul>

<sup>26</sup> Collective investment schemes (when look-through is not available)

**Additional information and results**

- The public expenditure on pensions is subjected to decrease in the projection period, even though the total replacement rate remains constant, which is partly due to shifts towards occupational and private schemes.
- The pension system is indexed in two ways. On one hand, the retirement age is regularly adjusted based on the life expectancy at retirement. Secondly, pension benefits are indexed to wages with a 2-year gap, which means they follow the wage development in a lagged manner.
- Denmark is at low risk of not meeting EU debt requirements, owing to the decrease in public pension expenditure as well as fiscal sustainability and more favourable initial fiscal position.
- Due to high coverage of the funded tiers, there is less pressure on public finances, while replacement rates are comparatively high and old-age poverty is comparatively low.