REGERINGEN

Denmark's Convergence Programme 2017

Ministry for Economic Affairs and the Interior

APRIL 2017

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Indhold

Chapter 1

1. Challenges and Goals for Economic Policy

The Danish economy is in an upswing. GDP has grown since 2009, and both production and employment are expected to increase further, bringing, the Danish economy close to a situation of normal capacity utilization, and giving rise to a risk of actual capacity constraints in the coming years. Growth is expected to be stable in the coming years, but relatively moderate. This should be seen in the light of weak productivity growth.

Previous reforms contribute to increasing labour supply. Without these reforms, employment would already have reached the structural level, and there would be a risk that the upswing had halted before it really started. However, new reforms, which increase labour supply, could extend the upswing, increase prosperity and strengthen the growth potential.

With the reforms of recent years, public finances have been significantly strengthened in the long term. This has made the economy more robust, but with unchanged policy, there will be a longer period towards the middle of the century where the public deficit will be excessive. In the absence of new reforms, the fiscal room for manoeuvre will also be limited in the near term.

In the coming years, it is important that economic policy as a whole is aligned with the progress in the Danish economy and addresses future challenges. The convergence programme is based on the 2020 plan's goal of structural budget balance in 2020. In the spring of 2017, the government will present a 2025 plan for the Danish economy.

1.1 The economy towards 2020 and 2025

The upswing in the Danish economy is continuing. With the exception of a few quarters, GDP has been growing since the beginning of 2009, and indicators indicate that progress is continuing in 2017. Thus, the economy is in its eighth consecutive year of positive growth and is approaching a situation with normal capacity utilization.

Overall growth potential is hampered by the productivity development, which has been weak for a number of years in an international comparison. This contributes to relatively moderate growth prospects. The rate of growth is projected at1½ per cent in 2017 and 1¾ per cent in 2018. In the medium-term period until 2025, the rate of growth is on average projected to be around 2 per cent in 2019-2020 and almost 1½ per cent in 2021-2025, *cf. figure 1.1 and chapter 2*.

Figure 1.1
GDP has grown since 2009

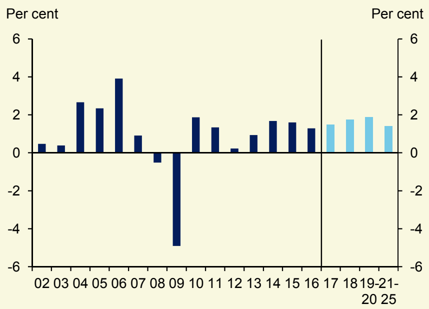
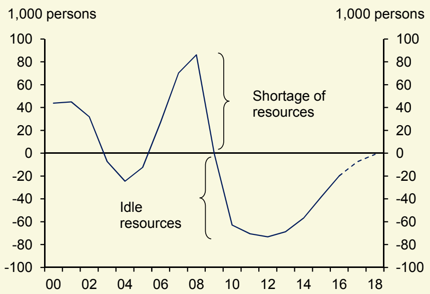


Figure 1.2
The employment gap is closing



Note: In figure 1.1, the light blue columns indicate the expected rate of growth in GDP. After 2018, the projection is based on technical principles. The employment gap in figure 1.2 shows the difference between actual employment and structural employment.
Source: Statistics Denmark and own calculationes.

The progress in production is accompanied by an upswing in the labour market. In total, more than 134,000 persons have gained employment since the beginning of 2013 where developments in the labour market reached a turning-point. In 2016 alone, employment increased by almost 50,000 persons. Unemployment has fallen to the lowest level in 40 years in 2016, except for the years 2007 and 2008 where the overheating of the Danish economy in the previous years had reduced unemployment to a very low level.

In line with continued progress in the Danish economy, employment is expected to increase further. Increasing employment in a situation with already low unemployment can lead to increasing capacity constraints. With the expected increase in employment, the employment gap will almost be closed by 2018, *cf. figure 1.2*. Thus, employment will for all practical purposes have returned to its the structural level. Thus, an increase in structural employment –

for example, in through increased labour supply – is required to create room for further, sustainable increases in actual employment.

Recent years' reforms, including the retirement reform, will increase structural employment – and thus the production capacity of the Danish economy – in the coming years. Without the reforms, employment would already be above the structural level and consequently there would be a substantial risk of widespread bottlenecks and rising wage pressures.

An increasing number of firms are reporting of a shortage of labour. At present, the pressure on the labor market is not so high that there is evidence of accelerating wage growth. The wage growth rate has been relatively stable over the past couple of years, but an acceleration in wages typically appear with a certain delay when the labour market tightens. However, this spring's collective agreements in the private part of the labour market do not indicate any major increase in wage growth rates.

If the Danish economy is overheated, it can cause a subsequent period of weak or negative growth. Conversely, new measures that increase labour supply could counteract capacity constraints and support continued employment growth, thus extending the upswing.

In the medium term, it is assumed that the upswing and labour market progress will continue without being hampered by unsustainable capacity pressures. Employment is expected to increase by almost 100,000 persons by 2020 and reach a level of approximately 3,000,000 persons, *cf. figure 1.3*. This largely reflects an increase in structural employment, as adopted reforms take effect. In 2021-2025, employment is expected to rise further, but more slowly, so that employment is projected to rise to about 3,050,000 persons in 2025.

Figure 1.3
Reforms support an increase in employment

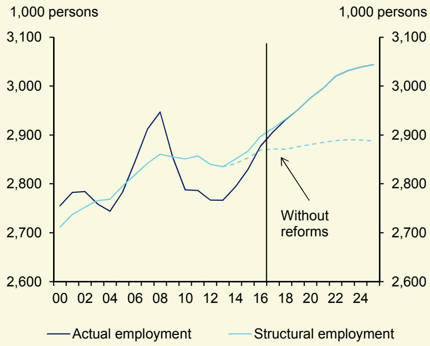
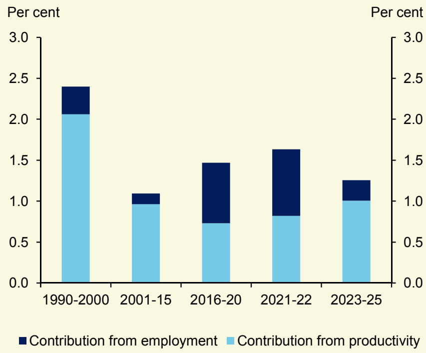


Figure 1.4
The growth potential is hampered by a weak productivity development



Note: In Figure 1.3 employment is including persons on leave.
Source: Statistics Denmark and own calculations.

The increase in employment will support private consumption. At the same time, the consumption ratio is expected to rise but without returning to the historically high levels from the period before 2008, where a high consumption ratio and massive housing investments led to increased indebtedness among Danish households. At the same time, increasing capacity utilization is expected to increase the need of firms to invest in new production capacity.

In the coming years, the increase in structural employment will contribute to the growth potential of the Danish economy, but the effect of already adopted reforms will gradually decrease. The overall growth potential is also limited by a weak productivity development, *cf. figure 1.4*.

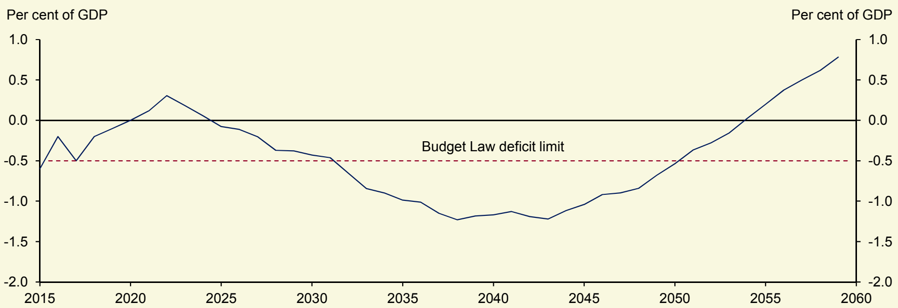
Towards 2025, the rate of GDP growth is projected at 1½ per cent per year on average. In the period towards 2022, where reforms are increasing structural employment, the rate of growth is projected to be slightly higher, whereas the rate of growth is projected to fall to 1¼ per cent per year on average in the period 2023-2025 where the growth potential will fall without new reforms that increase structural employment or productivity.

In the coming year, it is important that economic policy as a whole is aligned with the business cycle situation of the Danish economy.

The projections in the convergence programme are based on technical principles that rest on goals and targets in the 2020 plan, including structural budget balance in 2020.

After 2025, public deficits are expected to be excessive in a number of years due to demographic headwinds (the so-called hammock challenge) if economic policy remains unchanged, *cf. figure 1.5*.

Figure 1.5
Excessive public deficits from around 2030 if economic policy remains unchanged



Source: Statistics Denmark and own calculations.

The deterioration of public finances towards around 2045, where the hammock challenge is deepest, should be seen in connection with two factors. Firstly, demographic developments imply that for a number of years the generations who retire from the labour market will be larger than generations entering the labour market.

Secondly, generations retiring in the next decades have the prospect of a longer retirement period than both previous and subsequent generations. This is due to the fact that the agreed indexation of retirement age in connection with the 2006 welfare agreement and the 2011 retirement agreement has been lagging behind the expected lifespan because lifetime has risen faster than expected when the agreements were concluded.

1.2 Goals for economic policy

Denmark has a tradition of a stability-oriented economic policy with a long planning horizon. The formal framework for fiscal policy is specified in the Budget Law and also follows EU rules.

An important instrument in the planning of fiscal policy is the medium-term plans that contain economic policy goals and projections for economic development. Among other things, the medium-term plans have played an important role in ensuring sound public finances and strengthening the foundation for growth and employment by identifying challenges for the Danish economy at an early stage.

The reforms of recent years – in particular the 2006 welfare agreement and the agreement on later retirement from 2011 – have led to an increase in labour supply and stronger public finances. The medium-term plans and the reforms implemented have thus contributed to ensuring progress in the economy, confidence in public finances and credibility of the Danish economy.

The government will present an updated 2025 plan soon. The plan will take into account the goals and targets identified in the government platform and will form the framework for the ongoing planning of fiscal policy in the coming years, *cf. box 1.1*.

Among other things, the government has a goal of reducing the tax and expenditure pressure. This should be seen in the context of a Danish tax burden that is the highest among OECD-countries. This is a consequence of the fact that public expenditures in particular related to service and transfer incomes are higher than in many other countries. The high tax burden means, among other things, that a smaller share of families’ incomes remains for e.g. private consumption.

Within the framework of a decreasing expenditure burden, the government has a goal of a base real public consumption growth rate of 0.3 per cent per year. A higher rate of growth rate could be made possible by reforms, e.g. of student grants, as well as by increased investments in the safety of Danes.

Without new initiatives, the expenditure and tax burden will be largely unchanged from 2020 to 2025, *cf. figures 1.6 and 1.7*.

Figure 1.6
Expenditure burden without new initiatives

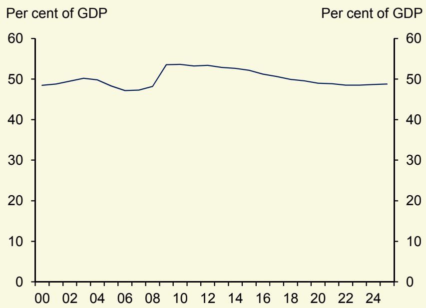
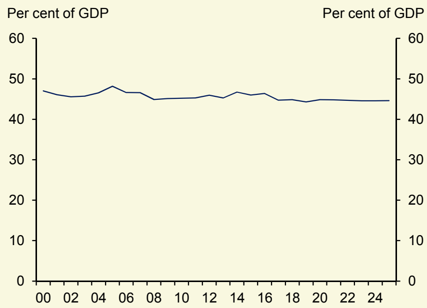


Figure 1.7
Tax burden without new initiatives



Note: Figure 1.6 shows primary expenditures as a share of GDP, i.e. excluding interest expenses. In 2012, the expenditure burden is adjusted for the one-off payment of early retirement benefit of DKK 28½ billion. In figure 1.7, the tax burden is adjusted for non-recurring income.
Source: Statistics Denmark and own calculations.

Furthermore, the government has an ambition to renew the public sector and has launched a coherence reform. It is important that the public sector provides better and more service for the large funds that are already being spent – and it is important that spending is based on the needs of citizens and firms. The government's work is based on the premise that the citizens should experience a more coherent public sector and that there should be courage to seek new ways in solving public tasks.

Focus in the medium-term economic plans has increasingly been expanded to include growth and prosperity. The government's goal is to increase wealth by structurally by DKK 80 billion and employment with 55,000-60,000 persons through new initiatives.[1]

[1] An increase in employment of 55,000-60,000 persons corresponds to an increase in GDP of approx. DKK 45 bn.

Box 1.1
Extract from the government platform ”For et friere, rigere og mere trygt Danmark” (“For a freer, richer and more safe Denmark”)

The government will pursue a sound and responsible economic policy, maintain the fixed-exchange-rate policy and plan fiscal policy in the context of the Budget Law, the Stability and Growth Pact and the Fiscal Compact.

The government wants total public spending to count for a smaller share of the total economy. Furthermore, a larger share of total public spending should go to public consumption expenditures and to public investment that increases the basis for growth.

For instance, we want to reorganize the student grant system (SU) and transfer money to expenditures that strengthen qualifications of Danes and thus also the basis for economic growth. Just like, the fiscal bill for 2016 implies that we spend less on development aid and in return spend more on health and the elderly. Such reprioritisation technically increases public consumption, but not total public spending.

In this way, we can both strengthen welfare and reduce the structural tax burden (tax pressure).

The tax freeze will remain the framework for tax policies.

In the spring of 2017, based on the fiscal bill for 2017 and a revised economic outlook, the Government will present an updated plan for the fiscal framework until 2025 specifying:

- A goal of increasing employment by 55,000-60,000 persons and raiseing wealth by DKK 80 billion.
- A goal of structurally reducing the expenditure pressure.
- A goal of a base real public consumption growth rate of 0.3 per cent per year within the framework of a reduced expenditure pressure. In addition to this comes expendities made possible by reforms, e.g. of student grants, as well as by increased investments in the safety of Danes.
- A goal of new public investments in infrastructure that increase the basis for growth.
- A goal of structurally reducing the tax burden.
- A goal of structural budget balance.

A basic real growth in public consumption of 0.3 per cent per year requires a tight management of expendityes, an efficient operation of public institutions and a sharp focus on core tasks. The government will work systematically with initiatives that increase the fiscal room for new high-priority initiatives, and all major operating areas will be subject to the annual reprioritisation contribution of 2 per cent.

Increased employment is fundamental in terms of creating a larger income base and thus ensuring development in prosperity and living conditions. Against this background, the government will propose new initiatives that can help achieve the goals. The possibility of implementing new initiatives that can increase labour supply should be seen in conjunction with the fact that the number of working hours in Denmark is not high in an international comparison, *cf. figure 1.8*.

The Danish labour force participation rate is high but for all age groups the participation rate is not entirely in line with the highest among OECD countries. This points to some potential for increasing labour supply and employment.

Figure 1.8
Working hours per employed across countries, 2015

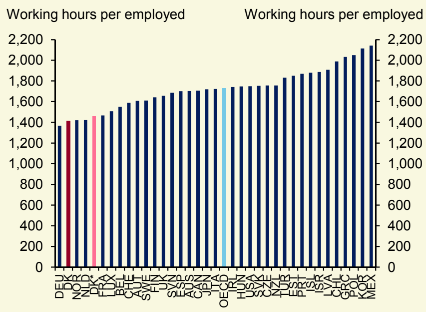
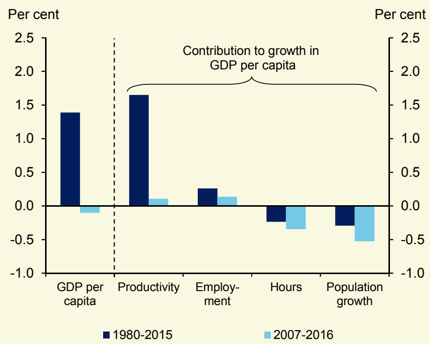


Figure 1.9
Prosperity is driven by productivity growth



Note: Figure 1.8 is based on OECD data. The data for working hours varies across countries, so differences must be interpreted with caution. Using data from the Productivity Commission about working hours per employed in 2002 and data for the growth in average working time in the national accounts from 2002 to 2015, the ranking of Denmark is improved slightly (from 1,412 hours per employed to 1,455 hours, marked with DK * in the figure). In figure 1.9, a negative contribution from population growth reflects an increase in the population.

Source: OECD, Statistics Denmark and own calculations.

In the long run, prosperity depends the productivity development. Thus, increasing prosperity, measured by GDP per capita, has historically been conditional on increased productivity, *cf. figure 1.9*.

The productivity level in Denmark remains high in an international comparison. This should be seen in the light of a well-educated workforce, good infrastructure and a well-developed capital system etc. However, weak productivity growth has for a long period of time been a major challenge for the Danish economy, and part of the reform efforts will in the coming years be aimed at measures that can strengthen productivity growth.

Weak productivity growth is a problem for long-term increases in prosperity. Weak productivity growth also has other derived consequences. For example, firms may have a smaller incentive to invest, as the return on investments will grow more slowly.

Measures aimed at increasing productivity will be crucial for Denmark to maintain its position as one of the wealthiest countries in the world. In the last 10 years, GDP per capita has largely been unchanged, partly because of weak productivity growth. Against this background, the government has a goal that measures that increase productivity should increase growth by DKK 35 billion.

2. Macroeconomic Scenario towards 2025

The Danish economy is experiencing an upturn. GDP has grown every year since 2009, and there is a prospect for further progress. Private consumption is underpinned by positive labour market developments. Meanwhile, demand from abroad is expected to nurture higher growth in exports and investments. Consequently, growth is considered to be broad-based.

GDP and employment are expected to increase. The opportunities for further growth are made possible by recent reforms – not least the *Early Retirement reform* – which contribute to expand the labour supply in the coming years. Nevertheless, the Danish economy is approaching a situation with potential capacity constraints on the labour market, although there are no signs at present of widespread bottlenecks or accelerating wage increases.

In the medium-term outlook towards 2025, it is assumed that the upturn and the progress on the labour market continue and, hence, is not hampered by unsustainable developments caused by capacity pressures. Employment is expected to increase in line with structural employment, which reflects the impact of already implemented reforms that expand the workforce in the years ahead. On this background, employment will increase by 167,000 persons towards 2025 to a level of 3,044,000 persons.

The increase in employment contributes significantly to the growth potential of the Danish economy. However, the potential is hampered by a relatively weak productivity growth. On average, GDP is expected to grow by approximately 1½ per cent per year in the period 2017-2025.

The projection is based on the *Economic Survey,* December 2016, but has been adjusted in order to incorporate new information, such as new national accounts figures, as well as updated estimates for oil prices and interest rates.

2.1 Economic outlook for 2017 and 2018

The Danish economy is in an upturn. GDP has increased every year since 2009, and employment continues to rise. GDP growth is expected to improve from 1.3 per cent in 2016 to 1.5 per cent and 1.7 per cent in 2017 and 2018 respectively, *cf. figure 2.1*.

Figure 2.1

Clear progress in both GDP and employment

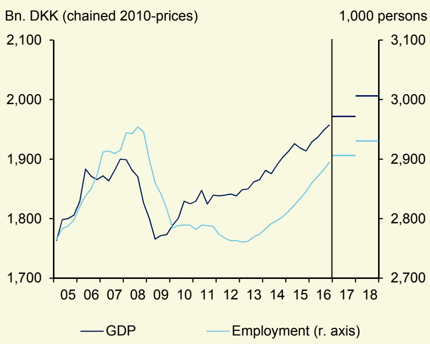
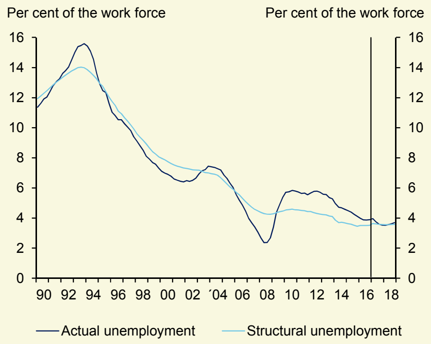


Figure 2.2

Unemployment is low and approaching the structural level



Note: In figure 2.1, the horisontal lines indicate the expected annual averages in GDP and employment. Employment is shown incl. persons on leave.

Source: Statistics Denmark and own calculations.

As the upturn continues, employment is projected to increase by another 50,000 persons in 2017 and 2018, following a significant increase of almost 50,000 persons in 2016.

In this context, the Danish economy is approaching a situation of possible capacity constraints. The improvement in the labour market has led to low unemployment, which is currently very close to the structural level, *cf. figure 2.2*.

Currently, there are signs of capacity constraints building. More than one in five firms in the construction sector reports that shortages of labour limit production, and the number of vacancies is increasing. In 2013, there were about 20,000 vacancies on average on a given day. In 2016, the number had risen to 30,000. However, at present there are no signs of an acceleration in wages, which typically arises with some delay when the labour market tightens.

Capacity constraints might slow down growth later in the upturn. On the other hand, new initiatives that expand labour supply and strengthen growth potential can prolong the upturn and employment growth.

In the coming year, it is important that economic policy as a whole is aligned with the progress in the Danish economy. In order to support a sustainable upturn without risking imbalances, the years ahead call for policies that do not intensify capacity pressures. This is also due to the fact that monetary policy remains very supportive, and that interest rates are expected to stay at a very low level.

The Convergence Programme is based on the economic outlook in *Economic Survey, December 2016*, but has been adjusted to reflect recent information, including new national accounts data. GDP-growth in 2016 was slightly higher than expected in December, and employment also rose more than projected. Against this background, the annual levels for 2016 are higher, but the outlook in growth terms is maintained. In addition, updated estimates for the oil price and interest rates have been included as well as new policy initiatives that affect public finances among other things.

A new forecast for the Danish economy is published in *Economic Survey,* May 2017.

Growth is broad-based

There is a broad foundation for growth in the years ahead. Private consumption has been increasing strongly since 2014, and this trend is expected to continue, supported by rising real incomes due to among other things high job growth and a subdued price increases. In 2016, the increase in real core income (earnings and transfers) was the highest since 2007, *cf. figure 2.3*. For 2017 and 2018, inflation is expected to increase, which all else equal dampens the rise in real core incomes, though they are nevertheless expected to increase at a relatively high rate seen in a historical perspective.

Figure 2.3
Growth in private consumption and incomes

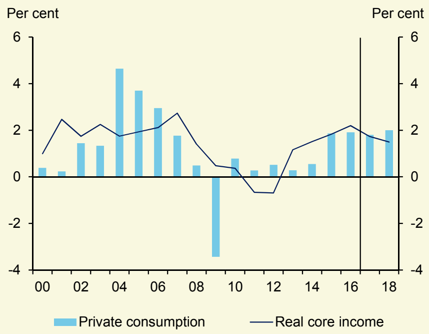
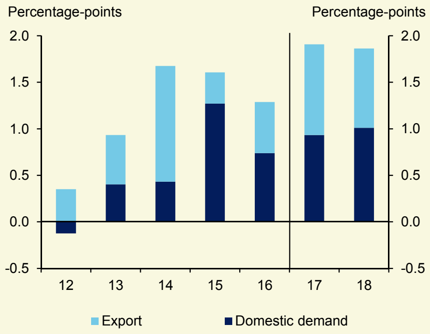


Figure 2.4
Domestic demand is increasingly driving growth



Note: In figure 2.3, real core income is the sum of labour income and income transfers. Figure 2.4 shows contributions to growth in GDP adjusted for the import content in domestic demand and exports respectively.
Source: Statistics Denmark and own calculations.

The potential for stable growth in private consumption is also linked to the fact that consumption remains low relative to incomes. Household consumption has been subdued in recent years. The reasons behind this include an uncertain economic outlook and, in some cases, a need for consolidation following a debt-financed boom in consumption in the mid-2000's. Thus, there is a potential for an even greater increase in consumption, if households choose to spend a greater share of their income on consumption in the coming years.

Increasing incomes, low interest rates and a growing population combined push housing prices up and spur housing investment. Housing prices are now on the rise in every part of the country. In some regions, such as the Greater Copenhagen area, prices have risen rapidly to a high level, and construction has picked up. However, it will take some time before the increased housing supply can curb price growth.

Growth in exports has been quite weak in recent years, reflecting subdued growth in world trade. In the coming years, however, world trade is expected to recover and several of Denmark's export markets have witnessed strong gains in employment, among others the United States and Germany. On this basis, a larger contribution from exports to GDP-growth is expected in 2017 and 2018, *cf. figure 2.4*.

Increased demand is expected to induce firms to expand production in the coming years and thus require more labour and capital. Employment is already increasing rapidly and further gains are expected, so that by 2018 around 100,000 more jobs will have been created compared to 2015. The employment growth is expected to take place in the private sector, while employment in the public sector will be approximately unchanged. At the same time, growth in investments is expected to increase.

Given increasing production and employment, the output gap is gradually narrowing and is expected to close in 2018. The strong employment trend has already led to most industries experiencing that labour shortages are increasing. Along with still fewer available resources on the labour market, the risk of bottlenecks rises as well as the risk that firms may have to decline orders due to labour shortages.

2.2 Assumptions for the international economy and financial conditions

The assumptions concerning developments in the international economy in 2017 and 2018 are unchanged relative to *Economic Survey*, December 2016. The outlook points to moderate GDP-growth of around 2 per cent on Danish export markets in the coming years, *cf. figure 2.5*.

Economic indicators for the international economy have generally been positive in Q4 2016 and Q1 2017, which may offer potential for slightly higher growth in 2017 and 2018 than what is currently assumed. In particular, higher growth is possible if the progress leads to a boost in investment. Conversely, significant downside risks remain, such as Brexit and increased protectionism. In addition, there is a risk of increasing interest rates in light of mounting labour market pressures in the United States and Germany.

The external assumptions beyond 2018 are based on IMF's most recent medium-term projections. For the period after 2018, an annual GDP-growth of just over 2 per cent for Denmark's export markets is also assumed.

Figure 2.5
Growth estimates for the international economy

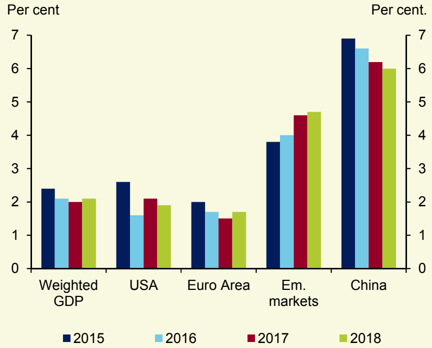
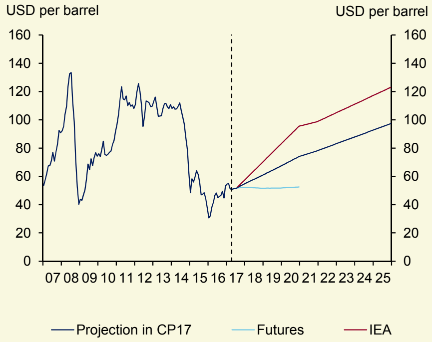


Figure 2.6
Medium-term projection of the oil price



Note: In figure 2.5, "Weighted GDP" indicates GDP-growth weighted in accordance with the countries' GDP, and "Em. markets" denotes emerging markets and developing countries.
Source: IEA, European Commission winter forecast, IMF, *Economic Survey*, December 2016 and own calculations.

The projected oil price is determined according to the method, which has been in use since Denmark's Convergence Programme 2015. For the first 4-5 months, futures prices are used. Beyond the first 4-5 months and until 2020, the oil price follows a path that assigns equal weights to futures and a path, in which the oil price gradually adjusts to the 2020-estimate from the International Energy Agency (IEA) as published in the central "New Policies Scenario", *cf. figure 2.6*. From 2020 onwards, the oil price is assumed to increase corresponding to the growth rate in IEA's long-term projection.

By the end of March 2017, the oil price was around 52 USD per barrel, and it is expected to increase to almost 71 USD per barrel in 2020. Compared to the projection in *Economic Survey*, December 2016, this is a little over 2 USD per barrel higher in 2017, but slightly lower in 2018.

Exchange rate assumptions are formed according to the usual method on the basis of a technical projection, where the currencies for the remainder of the forecast period are assumed to be flat at an average of the spot prices of the previous ten trading days. This implies a small upward adjustment of the estimated dollar exchange rate in 2017 and 2018 compared to *Economic Survey*, December 2016, *cf. table 2.1*. Furthermore, a gradual adjustment over the period 2018-2025 to a dollar exchange rate of 6.25 DKK per USD has been assumed, corresponding to the average exchange rate since 1990.

Table 2.1
External assumptions

	2016	2017	2018	2019	2020	2025
Real GDP growth, main trading partners[1]	2.1	2.0	2.1	2.2	2.2	-
Oil price (Brent), USD per barrel, 2010 prices	43.6	52.7	57.9	64.2	70.9	97.3
Dollar exchange rate, DKK per USD	6.73	6.93	6.89	6.80	6.72	6.25
Interest rate 10-year Danish treasury bonds, per cent	0.37	0.75	1.11	1.60	2.20	4.41

1) Includes OECD countries and the emerging market economies Brazil, China, India and Russia. The projections for the exchange rate, oil price and interest rate are based on observations up until 28 March.

Sources: Statistics Denmark, European Commission, Economic Survey, December 2016, Bloomberg, Thomson Reuters Eikon and own calculations.

The projected short-term interest rates in the Euro Area and Denmark in 2017 have been revised down slightly relative to *Economic Survey*, December 2016. This is motivated by ECB's announcement in December that it intends to extend the asset purchase programme until end of December 2017 or longer, if necessary.

Monetary policy has been very expansionary in recent years, but is expected to normalise gradually towards 2025, *cf. figure 2.7*. The 10-year government bond yield is expected to remain below 1 per cent in the coming years, then gradually rise, *cf. figure 2.8 and table 2.1*. In the long term, the sovereign bond yield is assumed to increase gradually to 4.5 per cent, as monetary policy and the interest rate conditions normalise.

Figure 2.7
Short-term monetary policy interest rates

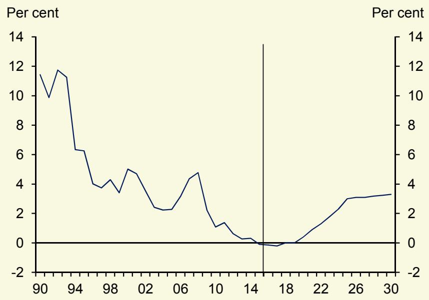
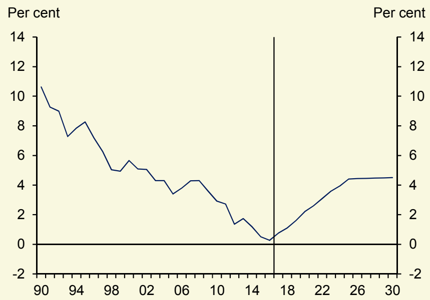


Figure 2.8
10-year government bond yield



Source: Thomson Reuters Eikon, Bloomberg and own calculations.

2.3 Growth and employment towards 2025

In the medium-term projection towards 2025, it is assumed that the output gap will close by 2018. Thus, from 2019 and onwards, the economy is expected to return to a normal business cycle stance, where the actual levels of production, employment and unemployment correspond to their estimated structural levels, and that growth in production and employment is equivalent to the structural growth rate, *cf. figure 2.9 and 2.10*.

Figure 2.9
Actual and structural GDP

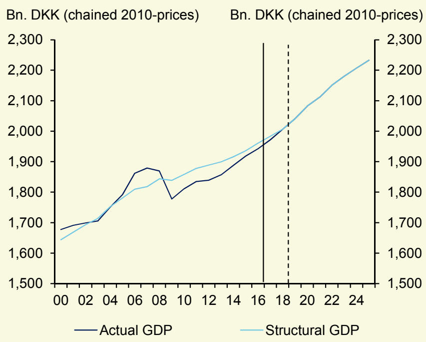
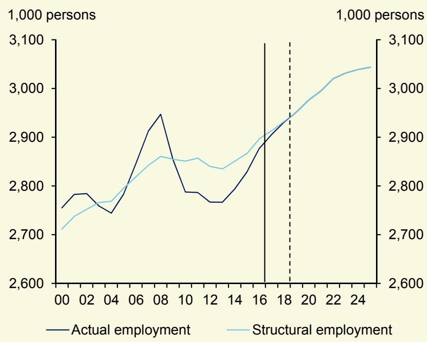


Figure 2.10
Actual and structural employment



Note: The difference between actual and structural GDP corresponds to the so-called output gap. The structural employment is the estimated level of employment given normal business cycle conditions.
Source: Statistics Denmark and own calculations.

Total employment is expected to increase by approximately 160,000 persons from 2016 to 2025, equivalent to about 150,000 full-time employees.[1] Of this, about 130,000 full-time persons reflect an increase in structural employment. The rest is attributable to the gradual business cycle recovery since 2016.

Solid progress in employment towards 2025 will – along with increasing real wages – support private consumption. On the other hand, a gradual normalisation of interest rates is expected to diminish the rise in disposable income for households and thus pull in the opposite direction. Increasing interest payments will reduce households' average annual income growth by approximately ½ percentage points per year between 2018 and 2025. The share of income spent on consumption is expected to rise, though not to the historical levels observed prior to 2008, where a high propensity to consume led to an increase in the indebtedness of Danish households as well as extensive housing investments, *cf. figure 2.11*.

[1] In calculating full-time employees, it is assumed that annual working hours amount to 1,642.8 hours.

Figure 2.11
Household consumption as share of disposable income

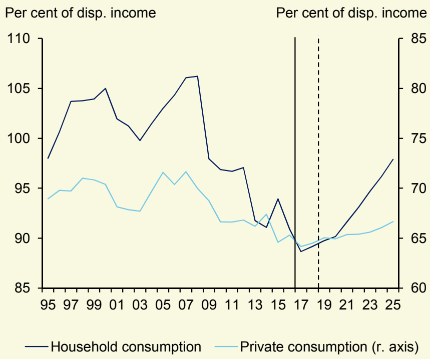
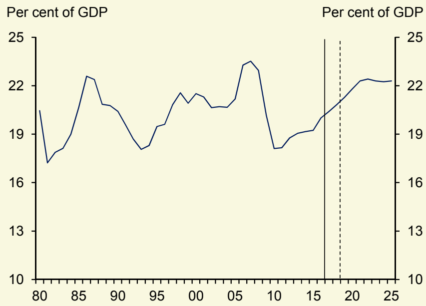


Figure 2.12
Fixed business investments as share of GDP



Source: Statistics Denmark and own calculations.

In the projection, it is assumed that the low interest rates and the strong increase in employment will boost housing investment. Meanwhile, the capacity utilisation of firms' existing machinery and buildings is expected to rise, which in turn increases the need for new investments. Overall, this implies that fixed investment as a share of GDP will increase towards 2022, and then remain constant, *cf. figure 2.12*.

Potential production towards 2020 and 2025

Growth in the potential production measures how much production can increase given normal capacity utilisation. Following modest growth rates in the years after the economic crisis, growth in potential production is expected to gradually rise in the coming years, *cf. table 2.2*. This reflects an increased structural workforce as well as faster progress in productivity. The increased growth in productivity is partly due to the fact that business investment is estimated to increase and thus increase the available capital base.

Productivity for the economy as a whole is expected to increase by 1 per cent annually. It assumes a growth rate of private sector productivity (excluding extraction of raw materials) of 1¼ per cent and a technical assumption of unchanged productivity in the public sector. Although this is an improvement compared to previous years, productivity growth towards 2025 remains quite low. The calculation of productivity growth in the medium-term projection is based on a number of assumptions about the growth of total factor productivity and the long-term relationship between capital and production, *cf. box 2.1*.

The closing of the output gap by 2018 implies that growth in real GVA between 2016 and 2018 exceeds potential growth in GVA.

Table 2.2
Contributions to growth in potential production

	1991-2007	2008-2009	2010-2015	2016-2018	2019-2020	2021-2025
Average annual growth, per cent						
1. Potential production (GVA)	**1.9**	**1.4**	**1.2**	**1.2**	**1.9**	**1.4**
Of which contributions from:						
- Hourly productivity (structur-al)	1.6	1.5	1.2	0.5	1.1	0.9
- Structural unemployment	0.4	0.2	0.1	-0.1	0.0	0.0
- Structural labour force	0.0	0.1	0.1	0.8	0.9	0.5
- Working hours (structural)	0.0	-0.3	-0.2	-0.1	0.0	0.0
2. Cyclical contribution	0.2	-3.3	0.4	0.3	0.0	0.0
3. Real GVA (1+2)	**2.1**	**-2.2**	**1.3**	**1.4**	**1.8**	**1.5**
4. Net taxes	0.1	-0.5	0.0	0.1	0.1	-0.1
5. Real GDP (3+4)	**2.2**	**-2.7**	**1.3**	**1.5**	**1.9**	**1.4**

Note: Potential growth in the subperiods is uncertain, including with regards to the contributions from each individual component. Due to rounding, the sum of individual components does not necessarily correspond to the totals.

Source: Statistics Denmark and own calculations.

Box 2.1
Estimating trend growth in hourly productivity in the medium-term projection

The determination of growth in hourly productivity in the medium-term projection is based on the estimated growth in structural total factor productivity (TFP) from the calculations of the output gap by the Ministry of Finance, *cf. dokumentationsnotat om strukturelle niveauer og konjunkturgab at www.fm.dk*.

In calculating the output gap, TFP-growth in the private sector excl. mining and quarrying is estimated at around ½ per cent annually for the period 2010-2015, *cf. table a*. For the first few years in the medium-term projection, the past five years' historical TFP-growth is assumed to continue, while the structural growth in TFP is expected to gradually increase to ¾ per cent annually towards 2030, equivalent to the average growth for the period 1995-2015. Beyond 2030, TFP is expected to grow by ¾ per cent per year.

Based on the assumptions regarding TFP-growth in combination with the projection for employment and working hours, a long-term level for the capital stock is calculated. The basic assumption is that the ratio of capital to production (K/Y) in the long-term will return to the historical average for the period 1983-2015. It is assumed that this historical K/Y-ratio will be restored by 2030. Given these assumptions, the increase in the capital stock will contribute to growth in hourly productivity by ¾ percentage points per year towards 2030. Beyond 2030, where the K/Y-ratio is restored, the capital stock is expected to add ½ percentage points to hourly productivity growth.

Overall, this implies that the hourly productivity in the private sector excl. mining and quarrying will grow by around 1¼ per cent annually in the medium-term projection.

Table a
Contributions to structural growth in hourly productivity in the private sector excl. mining and quarrying
mining

	1995-2015	2000-2009	2010-2015	2016-2017	2018-2020	2021-2030	2031-2050
Per cent							
Structural TFP	0.8	0.7	0.5	0.5	0.5	0.6	0.8
Capital stock	0.4	0.5	-0.1	0.1	0.8	0.8	0.5
- Of which restoration of K/Y-ratio	-	-	-	-	0.3	0.3	-
Hourly productivity	**1.2**	**1.3**	**0.4**	**0.6**	**1.2**	**1.3**	**1.3**

Source: Own calculations.

2.4 Housing prices and macroeconomic imbalances

Housing prices have been on the rise since 2013, and the price increases have spread to almost all regions. Meanwhile, trading in real estate has intensified. In parts of the housing market, especially in the capital region, where prices have risen significantly, construction is also clearly on the rise.

Developments in the housing market fundamentally reflect that the Danish economy is in an upturn and that incomes are rising. In addition, low interest rates have an effect as well. Fundamentals indicate that the price of single-family houses will continue to increase in the coming years. Interest rates are expected to increase a little, but remain very low by historical standards. At the same time, incomes are expected to increase. Furthermore, demographics point to greater demand for housing.

In Copenhagen and Aarhus, the development in housing prices gives rise to vigilance. Among other risks, low interest rates may cause an unsustainable increase in credit. Total credit is still relatively subdued, but loan growth in Copenhagen is relatively high. On 28 March 2017, the Systemic Risk Council adopted a recommendation to the government concerning a limit on risky loan types given high indebtedness. The Council specifically recommends that no more than 15 per cent of mortgage institutions' new housing loans in Greater Copenhagen and Aarhus may consist of variable rate and/or deferred amortisation in cases where the borrower's total debt exceeds 400 per cent of pre-tax income, or that the government implements an initiative to similar effect on the housing market and lending.

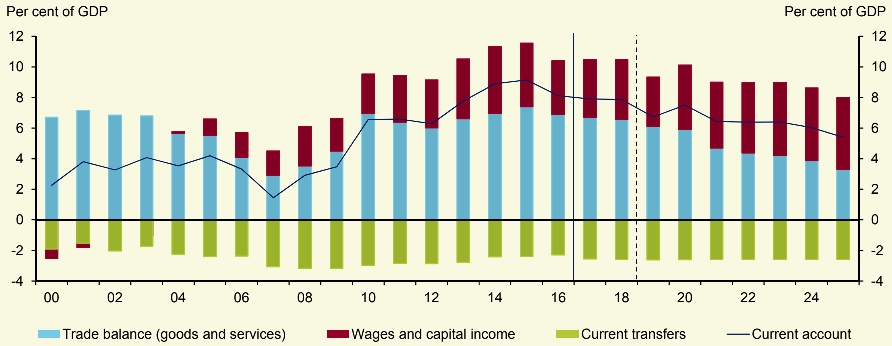
The government agrees that the development on the housing market in and around the largest cities combined with high loan-to-value ratios with variable rate and/or deferred amortisation call for vigilance. The government will assess the need for further initiatives aimed at the housing market and households with a high sensitivity to interest rate changes in light of new rules regarding housing taxation.

A political agreement has been reached on a new system of property valuation, which implies a fairer assessment of the land value among other things.

Macroeconomic balances

The surplus on the current account has fallen from a record level in 2015 of 9.2 per cent of GDP to 167.2 bn. DKK, corresponding to 8.1 per cent of GDP. This surplus arises from a relatively large surplus on both the goods and services balance (the trade balance) as well as on net income from abroad, while net current transfers are negative, *cf. figure 2.13*.

Figure 2.13
Current account, 2000-2025



Source: Statistics Denmark and own calculations.

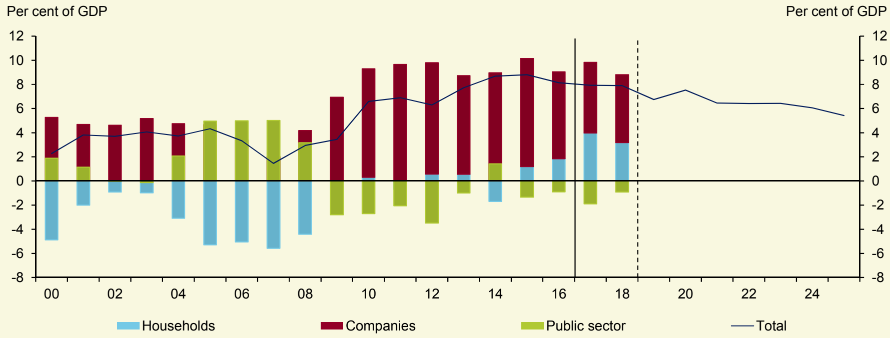
The surplus on the goods and services balance reflects among other things that the slowdown in private consumption and corporate investment in the wake of the economic and financial crisis has contributed to increase the private sector's financial savings (net asset acquisition) to a level significantly above its historical average, *cf. figure 2.14*.

Firms in particular have increased financial savings. This indicates that the surplus on foreign trade to some extent reflects continued weakness in investment, which in turn dampens imports. However, large savings are also structural, partly as a result of rising wealth in business funds.

The surplus on the goods and services balance should also be viewed in light of the ongoing improvement in the terms of trade for Danish goods. In isolation, this increases the surplus, since the value of exports has grown faster than the value of imports. The primary reason for the improving terms of trade is that the price of Danish exported goods has increased significantly more than in comparable countries.

Finally, net wage and wealth income from abroad has contributed significantly to the growing surplus on the current account. This is partly due to the fact that a large and increasing net foreign asset position has been accumulated as a result of sustained surplus on the current account, and partly due to the composition of the private and public sectors' assets and liabilities. A large proportion of assets are thus placed in direct investments, which have yielded a high return historically, while a large proportion of the liabilities consists of bonds with very low interest rates in recent years.

Figure 2.14
Net lending, 2000-2025



Note: Net lending is defined as savings net investments and thus signifies a given sector's financial savings. Total net lending corresponds to the current account balance (except for the normally small net capital transfers abroad).
Source: Statistics Denmark and own calculations.

In line with increasing investments and consumption as well as declining energy production in the North Sea, it is assumed that from 2016 onwards private savings as a share of GDP will be reduced gradually, *cf. table 2.5*. The reduction in the private sector's savings surplus is partly offset by diminishing public deficits towards 2020.

Table 2.5
Savings, investments, current account and net assets against other countries

	1990-2014	2015	2016	2017	2018	2019-2020	2021-2025
Per cent of GDP							
Investment ratio, private sector	17.9	16.1	16.4	17.0	17.4	18.0	19.2
Savings ratio, private sector	21.6	25.9	25.2	26.5	26.1	25.6	25.1
Private financial savings	3.7	9.7	8.8	9.5	8.7	7.6	6.0
General government budget balance	-0.3	-1.3	-0.9	-1.9	-0.9	-0.6	0.1
Current account	3.6	9.2	8.1	7.9	7.9	7.1	6.1
Net assets, end of period	-7.8	37.6	43.1	49.7	55.9	63.7	78.4

Source: Statistics Denmark and own calculations.

The overall effect of the changes in the public and private sectors' savings surplus is dominated by the reduction in the private sector, so the surplus on the current account is expected to decline towards 2025. The decline primarily reflects that the surplus on the goods and services balance is reduced from 6.9 per cent of GDP in 2016 to 3.3 per cent of GDP in 2025.

Appendix 2.1 Key figures for the Danish economy 2016-2025

Table 2.a
Key figures for the Danish economy 2016-2025

	2016	2017	2018	2019-2020	2021-2025
Output gap and real growth rates (per cent)					
GDP	1.3	1.5	1.7	1.9	1.4
GVA	1.0	1.5	1.8	1.8	1.5
Output gap (per cent of GDP)	-0.9	-0.6	0.0	0.0	0.0
Demand, real growth, per cent					
Private consumption	1.9	1.8	2.0	2.0	2.1
Public consumption	-0.1	0.8	1.0	0.7	1.2
Gross fixed capital formation	5.2	2.7	3.8	4.6	2.2
Export	1.7	2.4	2.7	3.7	2.8
Import	2.4	2.9	3.4	4.5	3.9
Prices and wages, per cent					
Hourly wages	2.2	2.5	2.7	3.0	3.0
Consumer prices	0.5	1.2	1.5	1.4	1.9
Current account etc., per cent of GDP					
Current account	8.1	7.9	7.9	7.1	6.1
Private financial savings	9.0	9.8	8.8	7.7	6.0

Table 2.a (continued)
Key figures for the Danish economy 2016-2025

	2016	2017	2018	2019-2020	2021-2025
Labour market and productivity					
Growth in the labour force (per cent)	1.3	0.8	0.8	0.9	0.4
Growth in employment (per cent)	1.7	1.0	0.9	0.8	0.5
Registered (net) unemployment (1,000 persons)[1]	113	108	106	106	107
Structural gross unemployment (1,000 persons)	101	105	105	106	107
Hourly productivity, entire economy	-0.5	0.4	0.9	1.0	1.0
Hourly productivity, private non-agricultural sector	-0.6	1.0	1.6	1.3	1.2
Growth in GVA per employed	-0.5	0.4	0.9	1.1	1.0

Note: The forecast in 2017-2018 is based on the technically adjusted economic forecast. The forecast from 2019 onwards derives from a technical projection.

1): Since autumn 2016 there has been a significant increase in the number of persons receiving integration benefit, who are included in the gross unemployment figure. As a result, gross unemployment has risen. The increase has not been taken into account in the projection of gross unemployment assumed in the Convergence Programme. The projection corresponds to *Economic Survey*, December 2016.

Source: Statistics Denmark and own calculations.

3. Budget Balance and Public Debt towards 2020

The projections in the Convergence Program are technically based on objectives and targets in the 2020-plan. The projections are therefore based on a target of structural balance by 2020. The government will later this spring present a 2025-plan for Danish economy where the goals of the fiscal policy are set.

The actual budget deficits are estimated to comply with the 3 per cent limit given by EU's Stability and Growth Pact, and the actual deficits are expected to decrease towards 2020 as the structural balance improves and the economic situation normalizes. The public EMU debt is estimated at about 34 per cent of GDP in 2020 i.e. keeping a broad safety margin to the debt limit of 60 per cent of GDP in the Stability and Growth Pact.

Within the target of structural balance, there is a fiscal space of approx. DKK 11½ bn. from 2017 to 2020 without new initiatives. The fiscal space is limited in a historical perspective and should in the absence of other measures cover current policy priorities.

Within the framework of a decreasing public expenditure burden, the government has a target of a baseline growth rate and public consumption expenditures of 0.3 per cent annually. In addition hereto come resources from reforms of e.g. the student grant system and investments in the safety of the Danish people, *cf. the government program For a more free, wealthy and safe Denmark.*

In line with normal practice, fiscal space is technically placed as public consumption expenditure growth until there is a political decision on concrete priorities. The public consumption expenditure growth rate averages on this basis 0.8 per cent annually in 2018-2020. This is not a government priority but only a technical assumption.

3.1 The budget balance

Based on preliminary figures from Statistics Denmark the general government budget deficit amounted to DKK 18½ bn. in 2016 corresponding to approx. 0.9 per cent of GDP. Based on the current assessment of the economic situation and the assumptions regarding fiscal policy, the general government budget deficit is estimated to amount to 1.9 per cent of GDP in 2017 and 0.9 per cent of GDP in 2018, *cf. table 3.1.*

Towards 2020 the actual budget balance is expected to improve further as the economy recovers. Thus, the actual budget balance complies with the 3 per cent of GDP limit given by the Stability and Growth Pact.

Table 3.1
Overview of the public balance

	2016	2017	2018	2019	2020	2025[1)]
Public balance, per cent of GDP	-0.9	-1.9	-0.9	-1.2	0.0	-0.1

1) From 2020 and onwards, projected levels are based on technical principles, *cf. chapter 5*.
Source: Statistics Denmark and own calculations.

Despite expected growth in both GDP and employment the budget deficit is expected to increase around 1 per cent between 2016 and 2017. That is primarily due to the volatile revenues from the pension yield tax which are expected to decrease by approx. DKK 1.4 per cent of GDP from 2016 to 2017, while the improving cyclical development is dragging in the opposite direction.

From 2017 to 2018 the budget improves as the cyclical position among others improves. However from 2018 to 2019 the technical deficit increases 0.3 per cent of GDP. That is among others due to lower revenues from the pension yield tax that are expected to occur as the interest rate levels are normalized. Revenues from the activities in the North Sea are on the other hand expected to decrease.

Budget balances by sector

In Denmark it is basically only the central government, which need not balance the budget. The central government budget deficit is expected to be 1.3 per cent of GDP in 2016, while a budget surplus at 0.4 per cent of GDP is expected in the local governments, *cf. table 3.2.* Towards 2020 the deficit will be reduced in line with the assumed consolidation and normalization of the economic situation, so that the central government budget is balanced in 2020.

The budget balance of the municipalities and regions are technically considered to be balanced throughout the projection period. On a cash basis, local government sector (i.e. municipalities and regions) finances should be in balance, but based on national account principles there may in some years be small surpluses or deficits. The budgets of the social security funds are also assumed to be balanced throughout the projection period.

Table 3.2
Budget balance by subsectors

Per cent of GDP	2016	2017	2018	2019	2020	2025[1)]
Central government	-1.3	-1.9	-0.9	-1.2	0.0	-0.1
Local government (municipalities and regions)	0.4[2)]	0.0	0.0	0.0	0.0	0.0
Social funds	0.0	0.0	0.0	0.0	0.0	0.0

1) From 2020 and onwards, projected levels are based on technical principles, *cf. chapter 5*.
2) The reported surplus in municipalities and regions is among others due to the financial report of 2016 of the municipalities, and reflects in particular a lower reported expenditure level for service expenditures and transfer incomes than presumed in the agreements between the government and the municipalitiets and the budgets for 2016. In addition hereto comes the agreed liquidity subsidy in relation to the agreement on the municapalities' economy of 2016.
Source: Statistics Denmark and own calculations.

Revised budget balance estimates compared to December forecast

Compared to the latest *Economic Survey* from December 2016 (available at www.uk.fm.dk) the estimate for the actual budget balance has improved by DKK 7½ bn. in 2017, while the estimate for 2018 is more or less unchanged*, cf. table 3.3*.

Effects of the financial reports of 2016, new projected oil prices and interest rates, political agreements and a downwards adjustment of the refugee projections has among other things been included since the December survey. A new projection of the Danish economy is with *Economic survey, May 2017*.

The larger estimated deficit on the public balance in 2017 should be seen in the light of reduced expected revenue from the pension yield tax with DKK 5½ bn. The downward adjustment is related to the higher expected rise through the year than assumed earlier.

Compared to the December outlook the estimated corporate tax revenues have been revised upwards in both 2017 and 2018, while the expected vehicle registration tax revenues have been reduced in both years. The upward revision should be seen in the light of accounting figures showing higher revenues in 2016, which carries over into 2017 and 2018.

Overall, other factors have contributed to a worsening of the actual budget balance of approx. DKK 3 bn. in 2017 and approx. DKK 1½ bn. in 2018. This is mainly due to a downward adjustment of DKK 2½ bn. due to technical prerequisites on depreciations of back taxes. Therefore, there is technically assumed larger depreciations of back taxes towards 2020, among other things in light of the registered net flow of back taxes. The contribution from other circumstances includes the net effect of changed income taxes projections, public transfer income expenditures, as well as public consumption expenditures and investments etc.

Table 3.3
Actual budget balance in 2016-17 and revision since December Economic Survey

DKK bn.	2017	2018
Economic Survey, December 2016	**-32.6**	**-20.5**
+ New estimate for pension yield tax	-5.6	-1.5
+ New estimate for corporate tax	+0.6	+1.3
+ New estimate for value-added tax (VAT)	+1.3	+2.9
+ New estimate for vehicle registration tax	-0.7	-0.7
+ Other factors	-3.1	-1.5
Denmark's Convergence Programme 2017	**-40.1**	**-20.0**
Per cent of GDP		
Economic Survey, December 2016	-1.6	-0.9
Denmark's Convergence Programme 2016	-1.9	-0.9

Source: Own calculations.

3.2 Structural budget balance

The structural budget balance is a calculated measure of the underlying position of public finances at the given fiscal policy and is the main instrument in the planning of the fiscal policy. The structural budget balance is in contrary to the actual budget balance, corrected for business cycles and a number of temporary conditions and is therefore a more robust measure of the real financial position.

The structural deficit is estimated to 0.5 per cent of GDP in 2017. In the coming years, the fiscal policy is planned such that the structural deficits are gradually reduced. A structural deficit of 0.2 per cent of GDP is estimated for 2018. There is, in line with *Economic survey, December 2016,* presumed a technical downward adjustment of approx. DKK 2 bn. of the public consumption expenditures to support an increasing distance to the deficit limit of the budget law. The presumption shall be seen in light of the progress in the Danish economy.

Towards 2020 fiscal policy is planned in order to reach the target of structural balance. The gradual reduction of structural deficits includes an assumed normalisation of the current high level of public investment.

From actual to structural budget balance

The structural budget balance is calculated by correcting the actual balance for cyclical effects and the impact of other temporary factors, including the often very large fluctuations in the pension yield tax and North Sea revenues. Thus, the structural budget balance in a given year is an estimate for the size of the general government surplus of deficit under normal conditions, i.e. in a situation where economic activity is neither particularly high nor low and where the public finances are not affected by temporary factors.

Table 3.4
Structural budget balance

	2016	2017	2018	2019	2020	2025[5)]
Per cent of GDP						
1. Actual balance	**-0.9**	**-1.9**	**-0.9**	**-1.2**	**0.0**	**-0.1**
Contribution from the actual budget balance:						
2. Cyclical adjustment	-0.6	-0.3	0.0	0.0	0.0	-
3. Corporate taxes[1)]	0.2	0.2	0.1	0.0	0.0	-
4. Vehicle registration duty	0.1	0.1	0.1	0.1	0.0	-
5. Pension yield tax	0.5	-0.9	-0.8	-0.9	-0.1	-
6. North Sea revenues[2)]	-0.7	-0.4	-0.1	-0.2	0.0	-
7. Net interest payments[1)]	-0.1	0.1	0.1	0.0	0.0	-
8. Special budget items	0.1	-0.1	0.0	0.0	0.0	-
9. Other factors [3)]	-0.2	-0.1	-0.1	0.0	0.1	-
10. Structural balance (1-2-3-4-5-6-7-8-9)[4)]	**-0.2**	**-0.5**	**-0.2**	**-0.1**	**0.0**	**-0.1**
Memo item: Weighted cyclical gap	*-0.8*	*-0.4*	*0.0*	-	-	-

1) Excl. revenue relating to North Sea activities.
2) The structural level for years up to 2020 is based on the structural revenue as of *Updated 2020-projection, September 2020* for 2016-2019, and *2020-projection, august 2016*, for 2020, adjusted for the effect on fiscal sustainability due to revised future North Sea revenues. The permanent effect of updated revenue estimates for 2016-2019 correspond to -0.09 per cent of GDP and -0.02 per cent of GDP in 2020. The revenue is further adjusted for the direct consequences on the North Sea revenues towards 2020 of the agreement on recovery of the Tyra oil field.
3) Incl. correction for the PSO-duty, and differences between the commitment level and pay-outs regarding foreign aid. In addition, adjusted for the following factors: Due to the tax rebate regarding the restructuring of existing capital pensions it is estimated that ordinary capital pension tax revenues of DKK 5 bn. in 2013 and more than DKK 2 bn. in 2014, respectively, have been carried-forward from the period 2015-19. In addition, a correction is made for the revised phasing-in of Denmark's EU-rebate between 2015 and 2016 corresponding to the correction of the expenditure ceilings. Other factors also include a conversion of the structural balance as a share (in per cent) of actual GDP to a share of structural GDP. Also, a correction is made for 2016 due to new information on public revenues, which is not reflected in Statistics Denmark's reported actual budget balance. Further, in 2018-2020 a correction is made for the fighter jet investment, which is planned in the period 2021-2026, but affect the structural budget balance through a 7-years moving average.
4) The structural budget balance is recorded as a per cent of structural GDP.
5) From 2020 and onwards, projected levels are based on technical principles, *cf. chapter 5*.

Source: Statistics Denmark and own calculations.

As an example, the calculated structural budget deficit of 0.5 per cent of GDP in 2017 is based on the estimated actual deficit of 1.9 per cent of GDP, *cf. table 3.4* (row 1). As the current economic situation (as measured by a weighted output and employment gap) is estimated as being weaker than under normal circumstances, the actual balance is adjusted for the negative cyclical impact on public finances. The cyclical weakening of the budget balance is estimated at approx. 0.7 per cent of GDP (row 2). In addition, the actual balance is corrected for a number of fluctuations in specific budget items (rows 3-8), where the revenue from the North Sea, pension yield tax, corporate taxes and vehicle registration duty etc. in total is estimated to be approx. 1 per cent of GDP below the structural level in 2017. This correction is mainly driven by low expected revenues from the North Sea and the pension yield tax.

Finally a correction is made for other factors (row 9), namely reflecting temporary factors, i.e. non-recurring events, which affect the actual balance in a given year without having significant importance for the fiscal room for manoeuvre.

With the Convergence Programme an adjustment is made to the method by which the calculation of a number of special budget items effect the structural budget balance, *cf. box 3.1.*

Box 3.1
Adjustment of the method to calculate the structural budget balance

With the Convergence Programme, an adjustment is made to how a number of special budget items, which have been treated through a 7-year moving average, is treated in the calculation.

Firstly, there has been made a review of which special budget items that are through a moving average. In this, there is a special consideration for that expenditures and revunues, which are controlled or affected by policy decisions, also have to influence the structural budget balance 1:1 in each year. This does not includes items, which are also influenced by year-to-year variation, and thereby not subject to direct control from year to year.

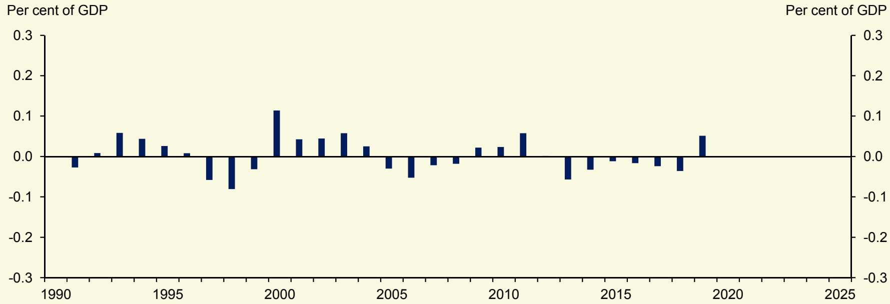
On basis of the review, the revenues from voluntary contributions to social arrangements (early retirement and unemployment insurance fund), revenues from other personal income taxes and expenditures for tax free early retirement premium reassigned such that they in the future go directly in the structural budget balance. Among other things, this should be seen en connection with the fact that the items are subject to influence of policy decisions and that they does not show large variations.

Secondly, the period in which there is calculated moving averages for special budget items and public net interest rate expenditures is expanded. This contributes to that the structural revenue in the future is calculated on the moving average towards the last year influenced by expenditure ceilings (currently 2020), where it previously was towards the last year in the short term forecast. This improves consistency in the treatment of the items through the years.

Box 3.1 (continued)
Adjustment of the method of calculation of the structural budget balance

The effects of the adjustments of the structural budget balance are moderate, *cf. figure a.*

Figure a
Isolated effects of method adjustment on the structural budget balance



Source: Own calculations.

The Budget Law structural deficit limit of 0.5 per cent of GDP is set in order to ensure that the actual budget balance in a normal recession will comply with the deficit limit of the Stability and Growth Pact of 3 per cent of GDP with high probability. If the actual deficit exceeds the EU limit, Denmark will receive a new EDP-recommendation from EU in order to reduce the budget deficit within a given deadline and with a fixed consolidation requirement. This applies unless the EU considers the excessive deficit to be a temporary and limited effect.

The Budget Law structural deficit limit corresponds to Denmark's nationally set medium term objective (MTO) for public finances. The nationally set target is more ambitious than the European Commission's minimum requirement, which for Denmark implies a MTO for the structural balance of at least -1.0 per cent of GDP (upwards revised from the original target at -½ per cent of GDP to -¾ per cent of GDP and now -1 per cent). Thus, the limit of the Budget Law provides greater assurance that no fiscal policy adjustments are needed because of considerations regarding the actual balance, which is very volatile, *cf. box 3.2.*

Box 3.2
Illustration of connection between the limits for actual and structural budget deficit

EU's minimum requirements for the individual countries' medium-term objective (MTO) for the structural balance depends on the country's debt and sustainability challenges and considerations supporting a safety margin against th actual budget deficit limit. The latter – the so-called *minimum benchmark criteria* (MTO_{MB}) – is the binding requirement for Denmark. MTO_{MB} is the required structural balance, which with 95 per cent probability ensures that the actual budget deficit does not exceed the 3 per cent of GDP limit in a normal recession. In 2016 the EU Commission has recalculated the minimum requirement to -1 per cent of GDP.

The Ministry of Finance has in the *Finansredegørelse 2014* (FR14) (only available in Danish at www.fm.dk) estimated that the MTO_{MB} should be -½ per cent of GDP based on the Ministry of Finance estimates for budget sensitivities etc. This corresponds well with the experience in recent years, which generally indicates that a structural deficit limit of ½ per cent of GDP is appropriate in order to prevent non-compliance with the 3 per cent of GDP limit for actual budget deficit. When the actual balance for the period 2013-15 is corrected for the significant one-off revenues etc., the 2013-deficit is close to the 3 per cent of GDP limit, and in 2014 at the limit. This applies, even though the cyclical gaps are less negative than the in FR14 estimated level of a normal recession around -2½ and -2¾ per cent.

Besides cyclical effects the actual budget balance is strongly affected by fluctuations in a number of special budget items. This includes the volatile revenues from the pension yield tax, which is affected by developments on the financial markets. The pension yield tax revenue tend to be counter-cyclical and was in 2014 estimated to be significantly higher than the structural level (corresponding to extraordinary revenue of approx. DKK 32 bn. or 1.6 per cent of GDP in 2014).

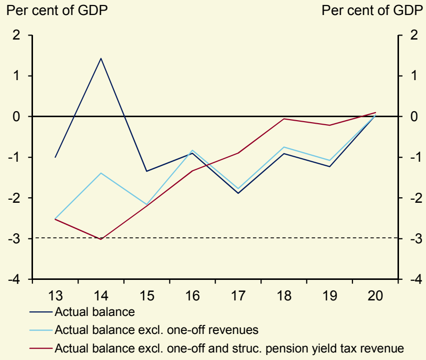
After a period of falling interest rates and exceptionally high actual revenues from the pension yield tax in 2014, the actual pension yield tax revenue is expected to be below the structural level in the coming years, corresponding to 0.8 and 0.9 per cent of GDP in 2017-2019. It also implies that the actual budget balance in these years, ceteris paribus, is expected to be closer to the 3 per cent of limit than the cyclical situation otherwise indicates, *cf. figure b*.

Box 3.2 (continued)
Illustration of connection between the limits for actual and structural budget deficit

Table a
Actual and structural public balance, 2013-15

	2013	2014	2015
Per cent of GDP			
Actual balance	-1.0	1.4	-1.3
Actual balance excl. one-off revenues	-2.5	-1.4	-2.1
Actual balance excl. one-off revenues and structural pension yield tax revenues	-2.5	-3.0	-2.1
Structural balance	-0.5	-1.0	-0.6
Memo: cyclical gap, per cent.[1]	-2.4	-1.8	-1.2

Figure b
Low pension yield tax revenues reduces the distance to -3 per cent of GDP in 2017-19



Note: The one-off factors that the actual public balance is corrected for are described in appendix 3.1.
1) The cyclical gap weighs the employment gap by 60 per cent and the output gap by 40 per cent.
Source: Own calculations.

As part of the medium-term macroeconomic plans, Denmark has historically often set more ambitious targets for the structural balance than the minimum requirements in order to tackle future fiscal policy challenges*, cf. figure 3.1* and *table 3.5.* As regards the 2010-plan and 2015-plan, respectively, the budget balance target towards 2010 was structural surpluses within the interval ¾-1¾ per cent of GDP on average. This reflected, among other things, the need for public savings before the baby boomers began retiring and was replaced by smaller generations in the labour market. In the 2015 and 2020 plans the aim was at least balance at the end of the planning period.

Figure 3.1
Structural budget balance

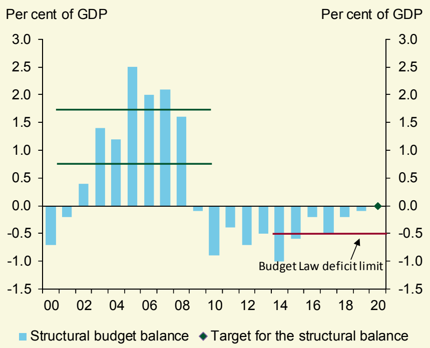


Table 3.5
Nationally set MTO in the medium-term plan for the the Danish economy

	National MTO
2010-plan[1)]	Structural surplus of ¾-1¾ per cent of the GDP on average going towards 2010.
2015-plan[2)]	Structural surplus of ¾-1¾ per cent of the GDP in the period 2007-10, and at least structural balance in 2011-15.
2020-plan	Structural deficit of maximum 0.5 per cent of the GDP. 2020-target of, at least, structural balance.

1) Adjusted for Statistics Denmark's revised categorization of the ATP (Labour Market Supplementary Pension; in Danish: Arbejdsmarkedets Tillægspension) and reorganization and the elimination of the so-called SP scheme (the Special Pension scheme; in Danish: Særlig Pensionsopsparing) in order to make figures comparable with the current method of calculating the structural budget balance.
2) In 2009, in light of the financial crisis the target was replaced by a target of at least structural balance in 2015, *cf. Denmark's Convergence Programme 2009*.
Source: En holdbar fremtid – Danmark 2010 (from 2001), Mod nye mål – Danmark 2015 (from 2007) and own calculations.

3.3 Public consumption, investment and fiscal space

Currently real growth in public consumption is estimated at 0.8 per cent in 2017. Thus, public consumption real growth has been revised upwards by 0.1 percentage points in 2017 compared to *Economic Survey*, December 2016. This is due to lower than expected public consumption in 2016 according to preliminary national accounts figures.

Based on technical assumptions regarding fiscal policy in 2018, public consumption expenditures in real terms are assumed to grow by 1 per cent from 2017 to 2018. For the period 2018-2020 public consumption real growth is 0.8 per cent annually on average. This is a technical measure.

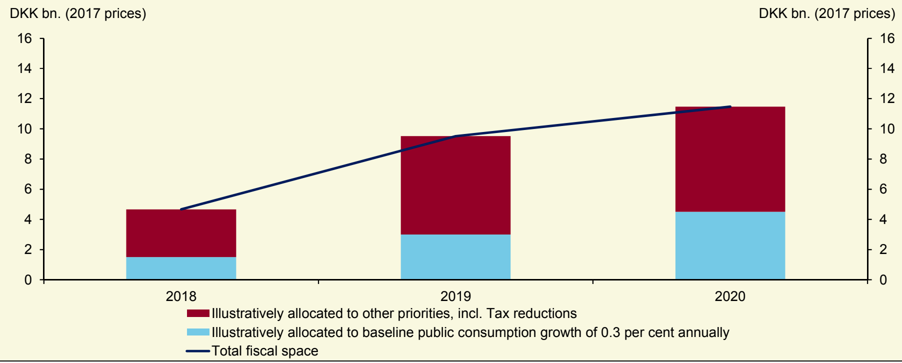
The measure does not reflect the government's target of a baseline growth in public consumption expenditures of 0.3 per cent annually. In addition hereto come resources from reforms of e.g. the student grant system and investments in the safety of the Danish people, cf. the government program For a more free, wealthy and safe Denmark.

The government will present a 2025-plan, which among other things will present the government's set of targets and ambitions for the Danish economy, including the public consumption expenditure growth.

In the present projections, there is included an existing fiscal space of DKK 11½ bn. (2017 prices) in the bettering of the structural budget balance towards to goal of at least balance by 2020.[1]

The fiscal space is limited in a historical context and must cover all new initiatives in the coming years. With offset in a real public consumption growth of 0.3 per cent annually, the public consumption expenditures can increase by approx. DKK 4.5 bn., and there will further be room for around DKK 7 bn. to other priorities towards 2020, incl. tax cuts, *cf. figure 3.2.*

Figure 3.2
Fiscal space towards 2020 with new initiatives



Source: Own calculations.

The Convergence Programme is an update of the 2020 projections and there is yet to be decided on the targets and priorities of the fiscal policy towards 2025. With structural balance in 2025, there will be a fiscal space of approx. DKK 40 bn. from 2017 to 2025 and the hammock challenge of the public financed will be reduced compared to the technical projections in the Convergence Programme, *cf. box 3.3.*

[1] The fiscal space is calculated as the technically possible growth in public consumption expenditures excl. deductions compared to a scenario without real growth. It is common practice that the fiscal space is technically placed as public consumption expenditure growth until political decisions on concrete priorities are made. The fiscal space in 2018 and onwards is thus, in line with common practice, placed as real public consumption expenditure growth. This is not government priorities, but solely a technical presumption.

Box 3.3
The fiscal space towards 2025 with balance on the structural budget in 2020 and 2025.

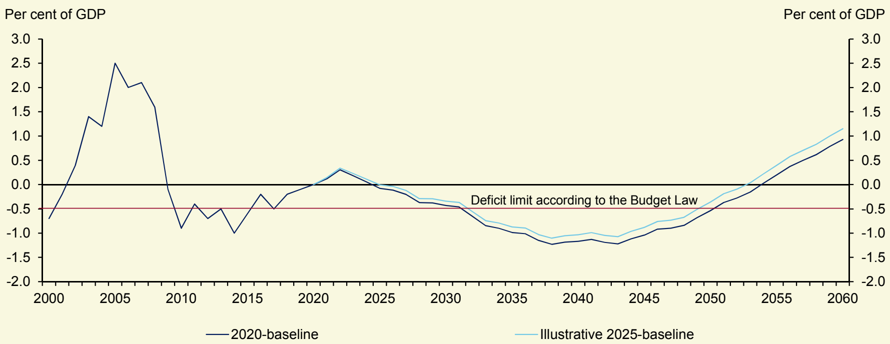
With structural balance in 2020 and 2025 the fiscal space amounts to DKK 11½ bn. in 2020 and DKK 39¾ bn. in 2025 compared to 2017-level. That corresponds to an average annual increase in the fiscal space of DKK 4 bn. towards 2020 and nearly DKK 6 bn. annually from 2021-2025.

Table a
Fiscal space without new initiatives with balanced structural budgets in 2020 and 2025

DKK Bn., 2017-prices	2018	2019	2020	2021	2022	2023	2024	2025
Fiscal space without new initiatives[1)]	4¾	9½	11½	17¼	23	28½	34¼	39¾

In Denmark's Convergence Programme the projections for the public revenues and expenditures after 2020 are based on technical calculation principals, that are used to assess whether the fiscal policy is durable or not. The technical deficit in 2025 is 0.1 pct. of GDP. Based on technical principles, the structural deficit makes up 0.1 pct. of GDP in 2025. A target of structural balance in 2025 will strengthen public finances and contribute to a reduction of the hammock-challenge compared to the baseline scenario in the Convergence Programme, *cf. figure a*. However, there will still be a downward pressure on public finances a few decades after 2025, which reduces possibilities for fiscal manoeuvres for the coming generations.

Figure a
A target of structural balance in 2025 will contribute to a reduction of the hammock-challenge



1) The fiscal space is calculated as the technically possible level of growth in the public consumption (excl. depreciations) compared to the expenditure level in 2017 with structural balance in 2020 and 2025.

Source: Own calculations.

Public investments

In the medium-term projection towards 2020 the level of public investment is assumed to be reduced from 3.5 per cent of GDP in 2017 to 3.3 per cent of GDP in 2020, *cf. figure 3.3*. Towards 2025 it is technically assumed that the public investments will be reduced to 3.2 per cent of GDP, which still is a high share compared to the years before the financial crisis, *cf. figure 3.4*.

The planned public investments in buildings and plants towards 2020 are expected to exceed the assumed levels in the projection. Thus in coming years, there is a need to adjust the public investments to the financed level.

Figure 3.3
Public investment incl. research and development

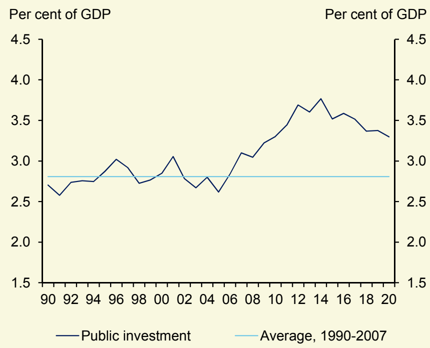
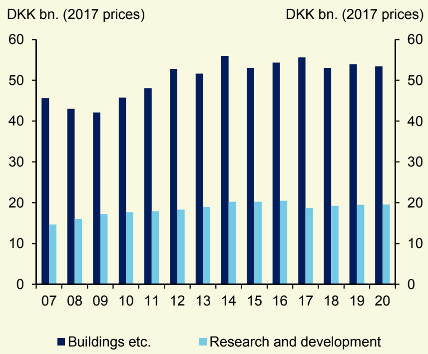


Figure 3.4
Public investment by sector



Note: From 2020 and onwards, projected levels are based on technical principles.
Source: Statistics Denmark and own calculations.

3.4 Public expenditures and revenues

Public expenditures

Total public expenditures are estimated to fall from 52½ per cent of GDP in 2016 to 50 per-cent in 2020, *cf. table 3.6*. The decline partly reflects the cyclical normalization, which increases GDP and reduces unemployment benefit expenditures etc. The decrease also highly reflects the adopted reforms, including the retirement reform (from 2011), which among other things reduce the voluntary early retirement pension expenditures and increase the labour supply and GDP. Furthermore, expenditure developments reflect among other things the assumed normalization of public investment.

Table 3.6
Public expenditure

	2016	2017	2018	2019	2020	2025[3]
Per cent of GDP						
Public expenditure (expenditure ratio)[1]	52.6	51.7	50.9	50.6	50.0	50.0
Primary expenditures	51.2	50.6	49.9	49.6	49.0	48.8
- Public consumption	25.5	25.4	25.2	25.2	25.0	25.2
- Public investment[2]	3.6	3.5	3.4	3.4	3.3	3.2
Of which building and installations etc.	1.0	0.9	0.9	0.9	0.9	0.9
Of which research and development	2.6	2.6	2.5	2.5	2.4	2.3
- Income transfers	17.3	17.1	16.7	16.5	16.3	16.1
- Subsidies	1.9	1.9	1.8	1.7	1.6	1.5
- Other primary expenditures	3.0	2.8	2.8	2.7	2.7	2.7
Interest expenditures	1.3	1.1	0.9	1.1	1.0	1.3

1) Total public expenditures (and revenues) differ from Statistics Denmark. Here the expenditure ratio is calculated on the basis of total expenditure figures that include all sub-elements of public consumption, including e.g. imputed expenditures in terms of depreciation and revenues from sales of goods and services. The budget balance is unaffected by these technical differences.
2) Public investment is calculated excl. net purchases of buildings etc. Since Statistics Denmark's ESA2010-revision of the national accounts in autumn of 2014, public investment also includes research and development spending.
3) From 2020 and onwards, projected levels are based on technical principles.
Source: Statistics Denmark and own calculations.

Public consumption expenditures accounted for 25.5 per cent of GDP in 2016 and are assumed to decrease gradually to approx. 25 per cent of GDP in 2020. The reduction should be seen in light of the subdued development in nominal public consumption expenditures and the expected increase in nominal GDP.

The preliminarily estimate of *public investment* as a share of GDP is 3.6 per cent in 2016. Following the extraordinarily high level in previous years, an adjustment of the public investment level is planned for 2017 and with a continued normalization thereafter towards 2020.

Public spending on *income transfers* amounted to approx. 17¾ per cent of GDP in 2015 and is estimated to be reduced to a level of approx. 16½ per cent of GDP in 2020, *cf. figure 3.7*. The reduction partly reflects the expected cyclical normalization. In addition, the reduction reflects the effect of the retirement reform increasing the ages for voluntary early retirement and old age pensions and other reforms, including the tax agreement from June 2012 which included a lower regulation of public income transfers.

Figure 3.5
Total spending on income transfers

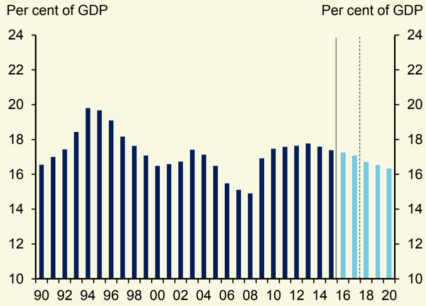
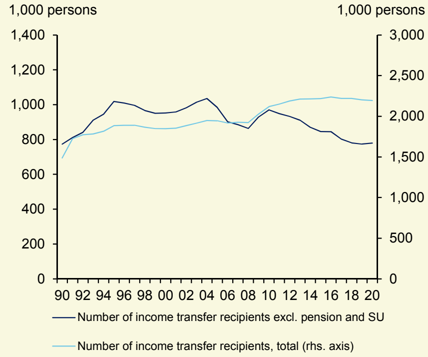


Figure 3.6
Income transfer recipients incl. and excl. old age retirees and students (SU)



Note: From 2020 and onwards, projected levels are based on technical principles.
Source: Statistics Denmark and own calculations.

The *subsidies* are expected to be reduced slightly from 2 per cent of GDP in 2016 to approx. 1¾ per cent of GDP in 2020. The reduction of subsidy spending partly reflects the phasing-out of the old flexi-job scheme.[2] *Public interest payments* are expected to decrease from 1½ per cent of GDP in 2015 to 1¼ per cent of GDP in 2020. The decline in public interest payments should be seen in connection with the ongoing refinancing of existing debt at low interest rates.

Composition of public expenditure by function

The composition of public expenditure by function (the functional distribution) shows that social protection spending is by far the largest expenditure item, *cf. table 3.7*. Social protection spending amounts to approx. 24 per cent of GDP in the period 2012-16 and covers, among other things, the majority of income transfers (old age pension, disability pension, unemployment benefits, cash benefits etc.) as well as operating expenditures for day care etc. Health care and educational spending accounts for approx. 9 per cent and 7 per cent of GDP, respectively.

[2] The main revision of the national accounts implies that expensed for the new flexi-job scheme are accounted as public income transfers, while expenses for the old flexi-job scheme are still categorized as public subsidies.

Table 3.7
Public expenditure by function, 2012-2016

	2012	2013	2014	2015	2016
Per cent of GDP					
General public services	9.2 1)	7.5	7.3	7.4	6.7
Military defence	1.4	1.3	1.1	1.1	1.1
Public order and safety	1.0	1.0	1.0	1.0	1.0
Economic affairs	3.6	3.5	3.6	3.7	3.4
Environment protection	0.4	0.5	0.5	0.4	0.4
Housing and community amenities	0.3	0.3	0.2	0.2	0.3
Health care	8.7	8.5	8.6	8.6	8.6
Recreation, culture and religion	1.8	1.8	1.8	1.8	1.8
Education	7.0	6.9	7.1	7.0	6.9
Social protection	24.6	24.5	24.0	23.6	23.4
Public expenditures in total 2)	**58.0**	**55.8**	**55.3**	**54.8**	**53.6**

Note: 2011-2015 reflects national account figures, while 2016 figures are based on preliminary national account figures.
1) Spending on general public services includes the repayment of voluntary early retirement contributions in 2012.
2) Calculation of the total public expenditures in Statistics Denmark differ from the calculations in table 3.6 due to differences in the methodology (in table 3.6 the imputed expenditures are recognized in terms of depreciation and revenues from sales of goods and services on the expenditure side, which is not the case in Statistics Denmark table 3.7).
Source: Statistics Denmark, own forecast and calculations.

The medium-term projections for the Danish economy do not include a distribution of expenditures by function (COFOG). The projection includes estimated developments in real economy sub-components, e.g. public consumption, public investment and spending on income transfers.

Public revenues

Public revenue amounted to almost 51.7 per cent of GDP in 2016 and is estimated to fall to approx. 50.0 per cent of GDP in 2020, *cf. table 3.8*

The revenues from *personal income taxes* amounted to approx. DKK 432 bn., corresponding to 21.0 per cent of GDP in 2016. In 2017 and 2018 total revenue from personal individual taxes is estimated at approx. 20.8 per cent of GDP. Towards 2020 the revenues are expected to decrease to approx. 20.4 per cent of GDP.

The revenue from the *pension yield tax* amounted to approx. DKK 33½ bn. in 2016, corresponding to 1.6 per cent of GDP. The relatively high pension yield tax revenues in recent years are partly caused by the fact that interest rates have fallen to historically low levels.

Then pensions companies have a relatively high share of their assets placed in obligations, which value ceteris paribus rise, when the interest rates fall. As the interest rates gradually approach their natural level over the coming years, a period with relatively low revenues from the pension yield tax will come. Thus, popularly speaking interest rate fluctuations “move” revenue between years. This may have a relatively large impact on the calculated tax burden and the actual budget balance in individual years, while the consequences for the real economy are insignificant. Based on the expected interest rate developments, the return on bonds and derivative assets of pension companies is estimated to be relatively low in both 2017 and 2018. Thus, the revenue from the pension yield tax is expected to fall to 0.2 per cent of GDP in 2017 and 0.3 per cent in 2018. In 2020, revenues from the pension yield tax are assumed to be at the structural level.

VAT revenues amounted to almost DKK 196 bn. in 2016, corresponding to 9.5 per cent of GDP and are estimated to increase to 9.8 per cent of GDP towards 2020.

Other indirect taxes primarily include excise duties, among others, in the form of the energy and environmental taxes, taxes on tobacco and spirits, gambling taxes and PSO revenues.[3] In addition, indirect tax revenues include the vehicle registration tax, municipal property taxes (i.e. land tax etc.), motor vehicle weight duty from companies, duty on wage and salary costs and stamp duties. In total, other indirect tax revenues amounted to almost DKK 142½ bn. in 2016, corresponding to 6.9 per cent of GDP, and are expected to decrease to approx. 6.5 per cent of GDP in 2020.

North Sea revenues amounted to approx. DKK 2 bn. in 2016, corresponding to 0.1 per cent of GDP. Subject to considerable uncertainty, North Sea revenues are estimated to decrease to approx. 0.2 per cent of GDP in 2017 and 2018. The revenues related to North Sea activities are to a large degree affected by developments in the production of oil and gas and in oil prices (in DKK). The revenues are estimated to 0.2 per cent of GDP in 2020.

Public interest income amounted to DKK 17 bn. in 2016, corresponding to 0.8 per cent of GDP. Public interest income is estimated to remain at roughly the same level until 2020.

[3] PSO is short for Public Service Obligation. PSO-revenues depend, among other things, on electricity price developments and the expansion of renewable energy (VE), since the PSO-rate is adjusted quarterly in order to correspond to the PSO-subsidies. This implies that the estimated PSO-revenues are subject to considerable uncertainty and can vary from year to year.

Table 3.8
Public revenue

	2016	2017	2018	2019	2020	2025[8)]
Per cent of GDP						
Personal income taxes etc.[1)]	21.0	20.8	20.8	20.6	20.4	20.1
Labour market contributions	4.4	4.4	4.5	4.5	4.5	4.5
Pension yield tax	1.6	0.2	0.3	0.2	1.1	1.1
Corporate taxes	2.6	2.5	2.5	2.3	2.3	2.4
- Corporate taxes on hydrocarbon manufacturing	0.0	0.1	0.1	0.1	0.1	0.2
- Other corporate taxes	2.5	2.4	2.4	2.2	2.3	2.2
VAT	9.5	9.6	9.8	9.8	9.8	10.0
Other indirect taxes	6.9	6.7	6.7	6.6	6.5	6.3
Other taxes[2)]	0.3	0.3	0.3	0.3	0.3	0.3
Taxes and duties (tax burden)	**46.3**	**44.7**	**44.8**	**44.2**	**44.9**	**44.6**
Interest income[3)]	0.8	0.8	0.7	0.8	0.8	1.0
Other revenues[4)]	47	4.5	4.6	4.5	4.4	4.5
Duties etc. to EU[5)]	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2
Public revenues[6)]	**51.7**	**49.8**	**49.9**	**49.4**	**50.0**	**49.9**
Memo item: North Sea revenues [7)]	0.1	0.2	0.2	0.1	0.2	0.4

1) Personal taxes etc. include income tax, property value tax, motor vehicle weight duty from households, gift and heritage tax and other personal taxes.
2) Other taxes include a media license (primarily for Danish Radio) and mandatory pension contributions for civil servants in publicly-owned companies, etc.
3) Incl. dividends and profits from Danmarks Nationalbank.
4) Other revenues include, among others, profits from public enterprises, operating and capital transfers from other domestic sectors and the EU, as well as imputed (calculated) revenues from both the gross operating surplus and the contributions to civil servant pensions. Furthermore, it also includes central government revenues from state participation in the oil and gas production in the North Sea and the hydrocarbon tax (in national accounts being categorized as rent).
5) According to national account principles these revenues are categorized as taxes and are therefore included in the tax burden, but since the revenues are going to the EU, they are not included in the revenue burden.
6) The calculation of total public revenues differs from Statistics Denmark, that among other attributes the sale of public goods and services to the revenue side and not, as here, the expenditure side, as part of the total consumption expenditure. Total revenues are calculated incl. imputed gross operating surplus being matched by the imputed depreciation costs included in the calculation of public consumption.
7) Total North Sea revenues consist of hydrocarbon tax, corporation tax on hydrocarbon manufacturing and dividends from the Danish North Sea Fund. The North Sea revenues are included in corporate taxes, interest income and other revenues.
8) From 2020 and onwards, projected levels are based on technical principles.

Source: Statistics Denmark and own calculations.

3.5 Public debt

Overall, public gross debt (EMU definition) as a share of GDP has been declining since the European debt crisis in the summer of 2011, and the EMU debt amounted to approx. 38 per cent of GDP by the end of 2016, *cf. table 3.9*. Despite a budget deficit, EMU debt decreased by 1.8 per cent of GDP in 2016. This primarily reflects that the central government's account at Danmarks Nationalbank was reduced from DKK 157 bn. to DKK 111 bn. in 2016. That followed the strategy of gradually reducing the deposits on the central government's account from the relatively high level during the financial crises to DKK 75-100 bn.

The balance of this account is not included in the calculation of the EMU debt, and thus the part of the budget deficit, which is covered by drawing on (i.e. reducing) the central government's account at Danmarks Nationalbank, does not affect the EMU debt, *cf. also box 3.4*.

In 2017 and 2018, EMU debt is expected to decline further as a result of a further estimated reduction of the deposit on the government's national account and the revenues from the North Sea. Towards 2020 the gross debt ratio is expected to decline to approx. 35 per cent of GDP. Thus, the EMU debt is keeping a broad safety margin against the 60 per cent of GDP limit of the Stability and Growth Pact.

Table 3.9
Overview of the public debt, end of year

	2016	2017	2018	2019	2020	2025
Per cent of GDP						
Gross debt (EMU definition)	37.8	37.0	36.3	35.8	33.9	33.9
Net public debt	3.3	5.1	5.9	6.9	6.6	4.7
Memo item: Actual budget balance	-0.9	-1.9	-0.9	-1.2	0.0	-0.1

Note: From 2020 and onwards, projected levels are based on technical principles.
Source: Statistics Denmark, Danmarks Nationalbank and own calculations.

Net public debt is the central debt concept when assessing long-term fiscal sustainability. As a result of the estimated public budget deficits, net public debt is expected to increase from 5 per cent of GDP in 2017 to 6½ per cent of GDP at the end of 2020. The projection of net public debt is uncertain, since the trajectory for net public debt not only reflects budget deficits but also depends on value adjustments of government assets and liabilities. However, the level of net debt is expected to remain low in 2020.

Box 3.4
Key public debt concepts

The various public debt concepts differ in terms of calculation methods and the definition of the public sector:

EMU debt – which covers the state, municipalities, counties/regions as well as social security funds – is being applied in connection with the EU's Stability and Growth Pact. Overall, the debt criterion implies that the EMU-debt-to-GDP ratio should not exceed 60 percent. The EMU debt primarily includes outstanding bonds. This implies that the part of a given budget deficit, which is covered by drawing on (i.e. reducing) the central government's account at Danmarks Nationalbank rather than by issuing bonds, does not affect EMU debt.

EMU debt (and to some extent also the central government debt) is a so-called gross debt concept that primarily includes public financial liabilities. By contrast, **net public debt** includes both financial assets and liabilities. The net debt of central government, municipalities and regions is used when calculating long-term fiscal sustainability.

Appendix 3.1 One-off factors in 2013-2020

In later years the actual budget balance has been affected by significant one-off factors:

- The agreement on a tax reform (2012) introduced a possibility to restructure savings on existing capital pensions with a tax rebate in 2013. By Growth Plan DK (2013) the tax rebate period was prolonged also to cover 2014. Overall the one-off revenues amounted to approx. DKK 29 bn. in 2013 and approx. DKK 59 bn. in 2014.
- Due to the restructuring of existing capital pensions an advancement of ordinary revenues from the capital pension tax amounting to approx. DKK 5 bn. in 2013 and approx. 2 bn. in 2014 is estimated. This reflects that persons over 60 years to a large extent chose to pay-out their capital pension while the tax is lower. The carry-forward of ordinary revenues is assumed to take place uniformly from the period 2015-19.
- Due to the Pension Package (October 2015) the possibility to convert capital pensions to so-called age-pensions with a tax rebate was expanded to include 2015. At the same time, persons over 60 years were given the opportunity to pay-out or restructure saved funds in Lønmodtagernes Dyrtidsfond (LD) also with a tax rebate. In total, the Pension Package is estimated to imply one-off revenues amounting to DKK 27 bn. in 2015, of which DKK 16 bn. can be attributed to the restructuring of capital pensions, while the remaining DKK 11 bn. concerns one-off revenues from restructuring of LD-funds.
- In 2013 and 2014 the pension yield tax revenues are temporarily increased by DKK 2 bn. due to a reallocation in the pension sector from schemes with a guaranteed yield each year to schemes in which each year's yield reflect market return. However, the temporary extra revenues are off-set by correspondingly lower revenues in the period 2017-2019.
- In the opposite direction of one-off revenues pulls extraordinary amortization and depreciation of tax and duty arrears amounting to approx. DKK 6 bn. per annum in 2013-2015. The amortization reflects a change in the way tax and duty arrears are handled in the national accounts. In the future, tax and duty arrears of citizens and companies are based on how many taxes it is actually realistic to collect.

The one-off factors listed are neutral vis-à-vis the structural budget balance.

Appendix table 3.1
One-offs factors affecting the actual public balance, 2013-2020[1)]

DKK bn.	2013	2014	2015	2016	2017	2018	2019	2020
One-off revenue from the restructuring of the capital pension scheme	29¼	58¾	14½	-	-	-	-	-
Advancement of ordinary revenue from the capital pension tax[2)]	5¼	2¼	-1½	-1½	-1½	-1½	-1½	-
One-off revenue from pay-out and restructuring of LD-funds	-	-	10	-	-	-	-	-
Reallocation of pension sector schemes[3)]	2	2	-	-	-1	-2	-2	-
Extraordinary depreciation and amortization of tax and duty arrears	-7½	-7½	-7½	-	-	-	-	-
Total, DKK bn.	**29**	**55½**	**15½**	**-1½**	**-2½**	**-3½**	**-3½**	**-**
Total, per cent of GDP	1.5	2.8	0.8	-0.1	-0.1	-0.2	-0.2	-

1) In addition to the one-off factors of DKK 7½ bn. per annum in 2013-15, there are tax arrear depreciations amounting to DKK 5¼ billion. kr. in 2016 (distributed uniformly by DKK 1¾ bn. per annum in 2014-2016) and an assumed depreciation amounting to DKK 2 billion in 2017 (distributed uniformly by DKK ¾ bn. per annum in 2015-2017), which affect the structural balance.
2) Assumed to be carried-forward uniformly from the period 2015-2019.
3) Related to a reallocation in the pension sector from schemes with a guaranteed yield each year to schemes in which each year's yield reflect market return, there may be timing differences regarding the pension yield tax revenues.

Source: Statistics Denmark, Danmarks Nationalbank and own calculations.

4. Sensitivity analyses and comparison to CP 2016

The foundation for growth in the Danish economy is deemed to be solid and the upturn is expected to continue. The perspectives for future growth, however, are still attached with uncertainty which may pull in either direction.

The Danish economy is approaching a situation with normal capacity utilization. That implies a risk that an insufficient supply of labour can dampen the growth over the coming years. In the Convergence Programme it is assumed that reforms already agreed upon will lift the labour supply and the structural employment over the coming years. But the development in the demand for labour may prove to be stronger than what the increase in the supply of labour can sustainably support. That may lead to increased wage pressure, which may halt the upturn.

The Danish economy is closely tied to developments abroad. The international growth prospects are attached with a significant amount of uncertainty, but the economic key figures have generally been positive over recent quarters. Stronger growth in Danish trade partners will influence the Danish economy and may carry a potential for higher growth than what is assumed in the Convergence Programme.

The assumptions in the Convergence Programme concerning the international economy and the financial conditions are close to the external assumptions of the European Commission. Using the European Commission’s external assumptions will only give rise to marginal changes in the Danish growth and public finances. The Danish public finances will in all scenarios live up to the demands outlined in the Code of Conduct for Stability and Convergence Programmes.

4.1 Sensitivity analyses

Below, a range of scenarios are presented, which illustrate the sensitivity of the Danish economy to changes in underlying assumptions in light of the demands set forth in the Code of Conduct for the Stability and Convergences Programmes of the EU-countries. The sensitivity is illustrated by a comparison of the projection in the Convergence Programme for 2017 and 2018 to scenarios in which the external assumptions regarding the international economy and the financial conditions from the European Commission are assumed instead, and by comparing to a more positive as well as a more negative scenario.

Finally, the projection of selected key figures until 2020 in the current Convergence Programme (CP17) are compared to the projections of last year's Convergence Programme (CP16).

Scenario with the external assumptions of the European Commission

The preconditions in CP17 regarding the international economy and the financial conditions are very closely aligned to the external assumptions of the European Commission in their winter forecast from February with regards to interest rates, oil prices, and export market growth, *cf. table 4.1*.

There have only been minor changes in oil prices and interest rates since the winter forecast from the European Commission, and hence there are only slight differences in the assumptions regarding these. In CP17 a marginally lower export market growth in 2017 and 2018 is assumed compared to the external assumptions of the European Commission.

An alternative scenario based on the external assumptions of the European Commission will only imply very marginal changes in central estimates for growth, employment, unemployment, budget balance, and public debt.

Table 4.1
External assumptions

	2016	2017		2018	
		CP17	EU	CP17	EU
Growth in export markets, per cent[1)]	4.2	3.4	3.6	3.9	4.0
Crude oil price, USD per barrel	43.6	52.7	56.4	57.9	56.9
Short-term interest rate, percentage points[2)]	-0.1	-0.2	-0.3	-0.0	-0.2
Long-term interest rate, percentage points[2)]	0.4	0.7	0.7	1.1	1.1

Note.: The external assumptions are based on the European Commission winter forecast from February 2017.
1) Growth in export markets concern industrial goods and is shown as real growth in per cent.
2) Numbers refer to European interest rates. The level of the corresponding Danish rates have been modified in order to ensure that the spread to the euro area remains unchanged relative to the assumptions in CP17.
Source: Own calculatoins and the European Commisssion.

Alternative scenarios

The Danish economy is in an upturn and gradually approaching a situation with normal capacity utilization. An increasing number of firms are reporting of an insufficient supply of labour, especially in the construction sector. If the lack of labour becomes widespread, it may halt the upturn and in worst case lead to an overheating of the economy.

An actual overheating will not occur unless significant imbalances build up over a longer period of time, but will require an equally long period of adjustment afterward. Previous experiences indicate that imbalances may occur as a consequence of steep wage increases, which decrease the competitiveness of firms relative to foreign competitors and lead to a worse export development, or it may stem from an unsustainable increase in debt among households and firms, which will require a period of consolidation and more dampened demand. A less dramatic scenario is one in which firms will have to refuse orders due to a lack of labour supply.

The outlook for increased employment has to be considered relative to the structural level of employment. If the actual employment becomes higher than structural employment, the pressure on the labour market will increase, for example in the form of an insufficient labour supply or increased wage pressure. The structural level of employment is not directly observable, but has to be estimated. Hence, there is a degree of uncertainty as to when an increasing pressure will occur. In an alternative scenario, the sensitivity may be illustrated by assuming that the pressure occurs earlier:

- Negative scenario: As a consequence of a lack of labour supply, the increase in employment is limited to around 40,000 in the years 2017 and 2018 altogether. The growth rate of business investments is assumed to be cut in half as a consequence of lower activity. Finally, a slightly higher wage growth rate is assumed in this scenario due to increased pressure on the labour market.

  In this alternative scenario, the lack of labour supply will imply a reduction in GDP growth of around ¼ percentage points in both 2017 and 2018. Unemployment falls at a slightly lower pace. Also the budget balance is worsened by 0.2 percentage points in 2018 to -0.1 percent of GDP, *cf. table 4.3.* In spite of the aggravation, Denmark will still live up to the demands in the Code of Conduct for Stability and Convergence Programmes.

There is still great uncertainty attached to the growth momentum abroad, and there are significant risks, for example connected to Brexit and increased protectionism. On the other hand, key figures for the global economic development have generally been positive, and in many countries the prospects for future increase in employment and stable growth are bright. That opens up for the possibility of higher foreign growth than what is assumed in CP17.

The assumptions in CP17 regarding the export market growth are maintained compared to the latest forecast in *Economic Survey,* December 2016, but the possibility of a more positive scenario is supported by the fact that international organisations recently have adjusted their growth estimates upward. This is illustrated in the following scenario:

- Positive scenario: A more positive development abroad lifts the Danish export market growth by 1 percentage points compared to CP17. At the same time, Danish businesses increase investments by 2 percentage points in both 2017 and 2018 in order to be able to accommodate an expected increase in demand.

In the positive scenario, a higher growth abroad and higher investments will increase growth in the Danish economy by ¼ percentage points in both 2017 and 2018, *cf. table 4.3.* Employment is raised in this scenario by almost 10,000 persons in 2018. The budget balance in this projection is improved by 0.2 percentage points to -0.7 per cent of GDP in 2018.

Table 4.3
Alternative projections

	2017	2018
Convergence Programme 2017		
Real GDP-growth, per cent	1.5	1.7
Employment, 1,000 persons	2,906	2,931
Unemployment, per cent of the labour force	3.7	3.6
Budget balance, per cent of GDP	-1.9	-0.9
Public gross debt (EMU definition), per cent of GDP	37.0	36.3
Positive scenario		
Real GDP-growth, per cent	1.7	2.1
Employment, 1,000 persons	2,909	2,940
Unemployment, per cent of the labour force	3.6	3.3
Budget balance, per cent of GDP	-1.8	-0.7
Public gross debt (EMU definition), per cent of GDP	36.8	35.7
Negative scenario		
Real GDP-growth, percent	1.2	1.4
Employment, 1,000 persons	2,901	2,925
Unemployment, per cent of the labour force	3.9	3.8
Budget balance, per cent of GDP	-2.0	-1.1
Public gross debt (EMU definition), per cent of GDP	37.3	36.7

Note: The table shows the registered gross unemployment.
Source: Statistics Denmark and own calculations.

4.2 Comparison to CP16

CP16 and CP17 paint very similar pictures regarding future growth. The growth in GDP is expected to increase in 2017 and 2018, and the Danish economy is expected to reach a situation with normal capacity utilization. However, new information shows higher growth in both GDP and employment than what was assumed in CP16. That has brought Danish economy closer to a neutral business cycle state. It implies that the output gap in CP17 is estimated to be closed in 2018, one year earlier than estimated in CP16.

Since CP16, Statistics Denmark has on 15th November 2016 released an extraordinary revision of the annual national accounts. Among other things, the revision means that the activities of Danish businesses in other countries are more accurately taken into account. The revision also implies an improved method for measuring the public consumption based on the output-method. For the labour market, the new information implies a higher level of employed persons, but fewer hours worked.

The revisions imply both a higher GDP-level and a higher GDP-growth, especially in recent years. The new numbers reveal a story that the recovery of the Danish economy has happened from an earlier point in time and faster than was previously thought. The structural level of GDP and employment using the usual methods have increased, while the composition of growth along with the growth profile are almost unchanged, though the employment has increased a little faster. Thus, the new numbers only to a limited extent change the overall view of the economic state of the Danish economy.

The public deficit was smaller in 2016 than estimated in CP16. This can party be attributed to a larger income from the pension yield tax of around DKK 9 bn. as a consequence of a lower than expected increase in the interest rates during 2016. Meanwhile, the real public consumption was unchanged from 2015 to 2016. Public deficits, likewise, are estimated to be smaller in both 2017 and 2018. The smaller deficits should be seen in view of lower expenses to transfers and higher tax income (partially in light of the employment estimate).

The public debt (EMU definition) is estimated in CP17 to be stable below 40 per cent of GDP, that is, with a fair margin to the 60 per cent of GDP limit in the Code of Conduct. This is in line with what was assumed in CP16.

Table 4.5
Changes compared to Convergence Programme 2016

	2016	2017	2018	2019	2020
Real GDP-growth, per cent					
CP16	1.1	1.7	2.2	2.2	1.9
CP17	1.3	1.5	1.7	1.7	2.0
Change	0.2	-0.2	-0.5	-0.5	0.1
Output gap, per cent of GVA					
CP16	-1.2	-0.7	-0.3	0.0	0.0
CP17	-0.9	-0.6	0.0	0.0	0.0
Change	0.2	0.1	0.3	0.0	0.0
Budget balance, per cent of GDP					
CP16	-2.3	-1.9	-1,8	-1,3	0,0
CP17	-0.9	-1.9	-0,9	-1,2	0,0
Change	1.4	0.1	0,9	0,1	0,0
Public gross debt (EMU definition), per cent of GDP					
CP16	38.9	38.0	37.9	37.1	35.1
CP17	37.8	37.0	36.3	35.8	33.9
Change	-1.1	-0.9	-1.7	-1.3	-1.2

Source: Own calculations.

5. Long-Term Projection and Fiscal Sustainability

After 2020, the projection is based on technical principles in order to assess if economic policy can be maintained beyond the planning horizon (i.e. 2020) without leading to a persistent and unsustainable increase in the public debt ratio. In the current projection, the fiscal room for manoeuvre has been adjusted in order to comply with the objective of structural balance by 2020. The fiscal sustainability indicator is estimated at 0.9 per cent of GDP.

Although the fiscal sustainability indicator is positive, the projection entails a period from approx. 2030 to 2055 where structural deficits are larger than the Budget Law limit of ½ per cent of GDP. In the longer term, the budget balance improves, and the deficits turn into surpluses.

One of the factors weakening the government balance for an extended period after 2020 is that people retiring currently and towards the middle of this century can expect a longer average retirement period than both previous and later generations. This reflects a significant increase in life expectancy for the older population. In 2015, a 60-year old is expected to live until 83 years of age. When the Welfare Agreement was settled in 2006, it was assumed that such a life expectancy for a 60-year old would not occur until 2040. Thus, it will take many years before the retirement age catches up with the increase in life expectancy that has already occurred and is expected in the projection. The increase in life expectancy contributes to the development in the government balance known as the "hammock challenge."

The medium-term planning period in this convergence program extends to 2020. Thus, the technical budget deficits for the following prolonged period do not represent planned policy; rather, it highlights the necessity of adjusting either expenditure or revenue relative to the technical projection assumptions. Economic policy as determined by future medium-term plans will address these demographic challenges within the boundaries of the Danish Budget Law as well as the supranational EU budget rules.

5.1 Development beyond 2020

The starting point for the long-term projection is a medium-term trajectory characterized by structural budget balance by 2020. After 2020, the projection is based on technical principles including assumptions concerning demographic developments and the gradual depletion of the Danish oil and gas resources in the North Sea, *cf. box 5.1*. Furthermore, the gradual increase in the retirement age is taken into account in accordance with the life expectancy indexation rules given by the Welfare Agreement from 2006 and the Retirement Reform Agreement from 2011.

Box 5.1
Principles for the projection after 2020

The projection principles after 2020 generally reflect an projection of the structures of the economy as they appear in 2020, with the addition of agreed reforms and initiatives that have an effect also after 2020:

- Nominal public consumption expenditures are projected based on an assumption that expenditures per user grow in line with wages, while the number of users of public services evolves in line with the calculated impact of changing demographics. Public sector wages grow in line with private wages, and public net purchases of goods and services from the private sector make up a constant share of public consumption expenditures.
- Social benefits (income transfers) are assumed to increase in line with private sector wages so that replacement rates overall remain constant (e.g., in case of unemployment or retirement).
- From the outset, labour participation rates, and the propensities at which various social benefits are received, are assumed to be constant across age, gender and origin. However, the ratios are adjusted for the expected effects of changes in education composition as well as adopted reforms in particular in relation to retirement
- Gross public investment is projected in order to ensure that the growth in the public capital stock (gross and efficiency corrected) is equal to the increase in a weighted development in gross value added (GVA) in the public and private sector. The weights are 70 per cent for public GVA and 30 per cent for private GVA. The private sector share reflects public investment directed towards infrastructure.
- Public subsidies and net foreign transfers are assumed to a constant ratio to GDP.
- Besides the effects of adopted tax policy, the tax burden is projected to be unchanged after 2020, so tax rates in per cent remain constant, while excise duties etc. set in nominal terms are technically assumed to increase in line with price developments. Property taxes are assumed to follow the value of the total housing stock, corresponding to a roughly unchanged share of GDP from 2020.
- The revenues from the North Sea activities are based on The Danish Energy Authority's long term projection of oil and gas production.
- A gradual improvement in energy efficiency is assumed for both consumption and production, which reflects the ongoing improvements in energy efficiency as well as the energy agreement from 2012.
- A gradual normalization of interest rates is assumed. Thus the 10-year interest rate on government bonds is assumed to increase to 3.3 per cent in 2020 and further to 4.5 per cent in 2025, and remain unchanged thereafter.

Fiscal sustainability implies that planned policies can be maintained in the long-term, technical projection after 2020 without implying a persistent and unsustainable increase in public debt as share of GDP. This applies at an unchanged tax burden and technical assumptions concerning public spending such that expenditures per person (at a given age) grow in line with wage developments.[1]

In the technical long-term projection, the structural deficits comply with the Budget Law limit of ½ per cent of GDP towards 2028. For the subsequent period, given unchanged economic policy, the structural deficits are projected to gradually to increase to approx. 1 per cent of GDP in 2040 and then decrease again. This is the so-called hammock challenge, *cf. figure 5.1*.

The current fiscal planning period extends in the projection for this program to 2020 only. Thus, the projected deficits in the longer-term neither reflect planned policy nor expected deficits which do not comply with Budget Law limit. In future medium-term plans economic policy will be determined in order to ensure compliance with the Budget Law within the whole planning horizon.

Figure 5.1
Structural budget balance

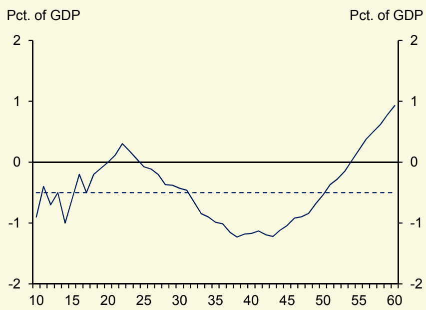
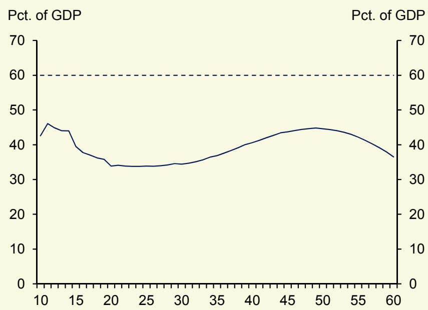


Figure 5.2
Public gross debt (EMU definition)



Source: Statistics Denmark and own calculations.

In addition to fiscal sustainability requirement, the Budget Law limit for the annual structural budget deficit reflects the need to ensure ongoing *credibility* of the pursued fiscal policy in the projection. Fiscal credibility is also supported by continued moderate public debt and compliance with EU's budgetary rules. In other words, fiscal sustainability is an important – but not necessarily a sufficient – condition for credible fiscal policy.

Fiscal policy is – under the given circumstances – currently sustainable. This is however not necessarily a sufficient condition for a credible fiscal policy. This should not least be seen in light of the fact that the uncertainty surrounding budget balance projections generally in-

[1] Public consumption is corrected for partial healthy ageing.

crease as the time horizon is extended. Thus, the projected improvement of the budget balance beyond 2050 is based on – among others –future generations providing a higher net contribution to the public finances and because current generations can expect a longer period in retirement than hose young today.

Towards 2020, public gross debt (EMU definition) is projected to reach a level of approx. 40 per cent of GDP. After 2030, the technical projection involves a gradual increase in the EMU debt (as share of GDP). Throughout the projection period a margin against the Stability and Growth Pact's public debt limit of 60 per cent of GDP is maintained, *cf. figure 5.2.*

The hammock challenge reflects a marked increase in life expectancy

The hammock challenge reflects, among other things, a decreasing share of the population in employment, *cf. figure 5.3*. The share of the population in employment has impact on both the tax revenue raised and the public expenditure and transfers, among other to public retirement schemes.

The projected decline in employments share of the total population is primarily due to two factors. First, the generations entering retirement between 2025 and 2040 are larger than the generations that enter the labour market. Second, the generations entering retirement in the coming decades will have longer expected periods of retirement compared to both past and future generations, *cf. figure 5.4*.

The difference in the expected number years in retirement across generations is due to the number years that will pass before the retirement age has caught up the increase in expected life time that has already occurred. This reflects that average expected life time has risen faster than expected when the welfare agreement was decided in 2006. Secondly, the indexation of the retirement age from 2030 is limited such that the retirement age can only be increased with one year every fifth year. The indexation of the retirement age is crucial for the restoration of the employment share – and the public finances – in the long run.

Figure 5.3
Full-time employment as share of the total population

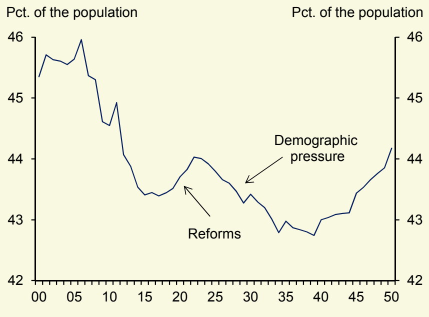
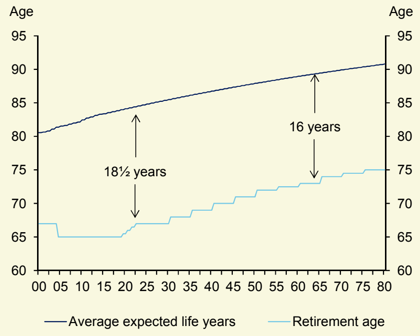


Figure 5.4
Development in expected average life time and retiremnet age



Source: Statistics Denmark and own calculations.

The hammock challenge also reflects that revenue stemming from the North Sea activities is declining. The resources in the North Sea are expected to be exhausted around 2060. Conversely, over time the increasing tax revenue from pay-outs of pension schemes will lift the government balance.

5.2 Changes in structural budget balance in 2020 and fiscal sustainability

The key medium-term objective for fiscal policy in the projection for this convergence program is at least structural budget balance in 2020 and fiscal sustainability.

In *Convergence Programme 2016* the structural balance was estimated at 0.0 per cent of GDP and the sustainability indicator (HBI) at 0.5 per cent of GDP. In DK2025 – a Stronger Denmark the structural balance was unchanged at 0.0 per cent while the HBI was improved by 0.2 per cent age points. The improvement reflects, among other, an updated projection of the population and new information regarding the number of refugees seeking asylum in Denmark.

The objective of structural balance in 2020 is complied with in the updated CP17-projection and the sustainability indicator is estimated at 0.9 per cent of GDP, *cf. table 5.1*. The sustainability indicator is increased by 0.2 percentage points of GDP compared to the projection of *DK2025 – a Stronger Denmark*.

Table 5.1
Changes to the structural public balance and fiscal sustainability indicator (HBI) from CP16 to CP17

Pct. of GDP	Structural balance in 2020	HBI
Convergence Programme 2016	**0.0**	**0.5**
Total incl. population projection, oil and gas production, adjustment of fiscal space etc., august 2016	0.0	+0.2
DK2025 – A Stronger Denmark, August 2016	**0.0**	**0.7**
New population projection and updated refugee influx	+0.05	0.0
Updated information regarding the demographic pressure on public consumption	0.0	-0.05
Lower public net debt in 2016	+0.05	+0.05
Updated North Sea revenue	-0.10	-0.05
Incorporation of price regulation of family and home allowance after the planning horizon	0.0	+0.20
Other factors in total	0.0	+0.05
Convergence Programme 2017	**0.0**	**0.9**

Source: Denmark's Convergence Programme 2016, DK2025 – A stronger Denmark and own calculations.

Furthermore, the structural balance in 2020 is affected by a number of other updates and computational assumptions:

- The updated convergence programme is based on a new population projection from DREAM that incorporates an update of the expected influx of refugees.[2] The improvement of the structural balance in 2020 reflects a lower expected influx of refugees and that the number of expected number of western based immigrants is higher. The new population is approximately neutral for the structural balance in the long run. The expected life time is slightly lower compared to the previous projection which implies a lower retirement age, thus lowering employment in some years after 2060.

- New statistics for public finances for 2016 shows that the public net debt is lowered by approximately 70 bn. DKK compared to the expectation in *Economic Review*, December 2016. This is primarily due to revaluations of the public assets in 2016 and a better that expected public balance in 2016. This implies lower debt expenditures and strengthens the public finances, especially in the long run where interest rates are assumed normalized.

- An update of the demographic pressure on public consumption weakens the sustainability indicator by 0.05 percentage points. This reflects the incorporation of an updated 2014-basis of the age distributed unit costs.

[2] The expected influx of refugees is lowered from 10,000 per year to 5,000 per year in the period 2017-2021.

- The North Sea revenue is lower than expected in *DK2025 – A Stronger Denmark, August 2016*. This is primarily due to a lower expected production compared to the projection in August. The update incorporates the effect on oil and gas production of the new North Sea agreement regarding the rebuilding of the Tyra production facilities.[3]

- In relation to an overall assessment of the technical principles regarding calculation of the sustainability related to the development of an "Generation Neutral Sustainability Indicator" (see *Økonomisk Analyse Principper bag holdbarhedsberegningen og generationsmæssig neutralitet* available in Danish at www.fm.dk), the projection principle regarding regulation of thresholds of family allowance and home allowance after the planning horizon has been changed. Earlier it followed a generationally neutral principle of ware regulation of the thresholds it now follows the actual agreed rules of price regulation including the period after the planning horizon. This should be seen in the light of the new supplementary indicator that is based on generationally neutral principles for all revenues and expenditures while the traditional sustainability indicator is based on actual political agreements (in terms of economics, not juridical, cf. the analysis). The correction of the technical principle yields a positive adjustment of the sustainability indicator of 0.2 percentage points of GDP.

- Other changes since DK2025 are neutral for the public balance in 2020 but improve the sustainability of the public finances with 0.05 per cent age points of GDP. This is among others due to a main revision of the national accounts of November 2016 which has lifted the GDP level which leads to larger gross operating surpluses that are taxed (this corresponds to a lower wage share of the value added in the private sector).

[3] The agreement is fully financed and does not weaken the public finances.

Chapter 6

6. Public Finances and Institutional Framework

Economic policy is planned within the framework given by the Danish Budget Law, the government's medium term plan and the Stability and Growth Pact. The framework specifies concrete objectives for public finances in the form of long-term sustainability and at least structural budget balance in 2020. The goals are supported by multi-annual expenditure ceilings, which are set for a continuous four year forward looking period for central government, municipalities and regions respectively. The expenditure ceilings are based on medium-term projection, which implements a precautionary principle, whereby only the impact of reforms and initiatives agreed upon by a majority in the Danish Parliament are incorporated.

The expenditure ceilings are subject to continuous evaluation and monitoring to ensure compliance. Economic sanctions support compliance with the adopted expenditure ceilings, and compliance with approved budgets has improved in recent years.

6.1 Institutional framework

With the Budget Law from 2012 a structural budget deficit limit has been adopted. Thus, the structural budget balance as the key measure in planning and monitoring fiscal policy has been fixed by law. The balance requirement of the Fiscal Compact is operationalized by the Budget Law, since the annual structural deficits must not exceed ½ per cent of GDP, which also corresponds to Denmark's nationally set MTO.

Furthermore, the Budget Law also introduced binding and multiannual expenditure ceilings for central government, municipalities and regions, respectively, starting from 2014. Based on the preliminary experiences, the expenditure ceilings for central government, municipalities and regions have contributed to improve expenditure control.

Key elements of the Danish Budget Law are described in *box 6.1*. Furthermore, the preliminary experiences with expenditure ceilings are described in section 6.2.

Box 6.1
Key elements of the Danish Budget Law

- Within the framework of a sustainable fiscal policy, a budget balance requirement is introduced. The annual structural budget balance must not exceed a deficit of ½ per cent of GDP at the time of the budget proposal for a given fiscal year unless extraordinary circumstances are present. Moreover, an automatic correction mechanism is activated in case of a significant estimated deviation from the budget balance requirement.
- Expenditure ceilings support compliance with the overall fiscal policy targets. The ceilings set legally binding limits for expenditures in central government, municipalities and regions, respectively. The expenditure ceilings are to be adopted by the Danish Parliament (Folketinget) and cover a continuous forward looking period of 4 years. Improved budget management and economic sanctions support compliance with the expenditure ceilings.
- The Danish Economic Council continually (annually) assesses long-term fiscal sustainability and the medium-term development in the budget balance, and further that the expenditure ceilings are complied with and aligned with the medium-term fiscal objectives.

The key focal points for Danish economic policy – the fixed exchange rate policy and stability oriented fiscal policy – are as follows:

Since 1982 Denmark has pursued a *fixed exchange rate policy*, initially against the German /Deutsche Mark (DEM), and since 1999 against the euro (EUR). Due to the fixed exchange rate policy the Danish monetary policy is solely aimed at maintaining a stable level of the krone vis-à-vis the euro. A responsible and stability-oriented economic policy contributes to a credible fixed exchange rate policy, which supports continued low interest rates.

Fiscal policy is planned in order to ensure that annual structural budget deficits does not exceed ½ per cent of GDP, and that gradual progress is made towards the target of at least structural balance in 2020. Fiscal policy is planned in order to achieve a long-term sustainable development in public finances (i.e. the so-called sustainability indicator HBI must always be positive). As stated in the Budget Law, fiscal policy is subject to a precautionary principle, which implies that planned development of public spending can rely only on reforms and initiatives, which is backed by a majority in the Danish Parliament.

The expenditure policy supports compliance with the fiscal policy objectives through expenditure ceilings for central government, municipalities and regions that cover approx. ¾ of total public expenditures. The expenditure ceilings underpin that public expenditure evolves in compliance with medium-term fiscal objectives and priorities.

Tax policy is based on a tax and burden stop and a number of political agreements. As part of the agreement on social assistance/cash benefit (November 2015) and the agreement on introducing an integration allowance (July 2015), it was agreed that the proceeds are reserved to finance tax cuts in JobReform phase II during 2017. Furthermore, the agreement on the budget bill for 2017 includes a nominal freeze on the municipal property tax in 2017 as well as a reduction of the vehicle registration tax. Recently, an agreement has been reached on taxation of extraction of oil and gas (March 2017), which supports ongoing development and investments in the North Sea.

6.2 The Budget Law and improved expenditure control

The introduction of binding and multiannual expenditure ceilings for central government, municipalities and regions contribute to strengthening expenditure control. Expenditure ceilings were introduced in 2014 and have currently been determined by law for the years up to and including 2020.

The expenditure ceilings are determined in line with fiscal policy objectives in the government's medium term plan. Thus, financed growth in public consumption expenditure in the medium-term projection is closely related to the expenditure policy defined by the specific expenditure ceilings.

At the moment, central government accounts and accounts for municipalities and regions are available for the period until 2016.

Table 6.1
Expenditures and expenditure ceilings, 2014-2016 – ceilings stated in brackets

DKK bn. (current prices)	2014	2015	2016
Central government sub-ceiling for operating expenditure	178.8 (185.3)	179.3 (188.4)	176.0 (181.5)
Central government sub-ceiling for income transfers	247.8 (252.3)	250.9 (257.7)	253.1 (257.7)
Municipal expenditure ceiling	227.8 (230.2)	231.5 (233.2)	234.5 (237.5)
Regional sub-ceiling for health expenses	102.3 (102.6)	104.6 (104.7)	107.4 (107.7)
Regional sub-ceiling for development	2.9 (2.9)	3.0 (3.0)	3.0 (3.0)

Note: The expenditures in 2014-2016 are based on account figures.

Based on central government accounts for 2014-2016, the final expenditure control for central government shows that the two separate central government expenditure ceilings were complied with over the period 2014-2016. Likewise, municipal accounts show that municipal expenditure ceiling was complied with over the period 2014-2016.

Based on the regional accounts for 2016, the sub-ceiling for health expenses was complied with, while the regional sub-ceiling for regional development was exceeded slightly by DKK 10 mill. According to the sanction mechanism the exceedance implies a corresponding reduction of the block grant in the following year. In 2014 and 2015, the regional expenditure ceilings were complied with.

See also Convergence Programmes of Denmark 2014-2016.

Annex tables according to the EU's "Code of Conduct"

Table 1a
Macroeconomic prospects

	2016	2016	2017	2018	2019	2020	2025
	Bn. DKK	Rate of change, per cent					
Real GDP	1,942.6[1]	1.3	1.5	1.7	1.7	2.0	1.2
Nominal GDP	2,060.9	1.7	3.1	3.7	2.9	3.7	3.2
Components of real GDP							
Private consumption	909.6[1]	1.9	1.8	2.0	2.0	2.1	2.2
Government consumption	504.5[1]	-0.1	0.8	1.0	1.0	0.4	1.2
Gross fixed capital formation	391.4[1]	5.2	2.7	3.8	4.3	5.0	1.7
Changes in inventories[2]		-0.4	0.0	-0.0	-0.2	-0.0	-0.0
Export of goods and services	1,082.3[1]	1.7	2.4	2.7	3.6	3.8	2.0
Import of goods and services	949.2[1]	2.4	2.9	3.4	4.6	4.4	3.2
Contributions to real GDP growth		Percentage points					
Final domestic demand		1.9	1.6	2.0	2.1	2.1	1.7
Changes in inventories[2]		-0.4	0.0	-0.0	-0.2	-0.0	-0.0
External balance of goods and services		-0.2	-0.1	-0.2	-0.2	-0.1	-0.6

1) Based on chained 2010-prices. Growth rates are also based on chained indices.
2) Contribution of change in stock to GDP growth.
Source: Statistics Denmark and own calculations.

Table 1b
Price developments

	2016	2016	2017	2018	2019	2020	2025
	Level	Rate of change, per cent					
GDP-deflator	106.1	0.4	1.6	1.9	1.2	1.6	2.0
Private consumption deflator	107.6	0.5	1.2	1.5	1.2	1.5	1.9
Consumer price index	107.5	0.3	1.2	1.5	1.4	1.7	2.0
HICP	106.5	0.0	1.0	1.4	1.1	1.5	1.9
Net price index	107.4	0.5	1.3	1.7	1.7	2.0	2.1
Public consumption deflator	104.2	1.0	1.7	2.0	1.9	2.2	2.4
Investment deflator	105.4	0.5	2.3	1.9	0.8	1.2	1.8
Export price deflator	101.1	-3.9	1.5	1.9	1.4	1.6	2.0
Import price deflator	100.4	-4.1	1.4	1.6	1.7	1.6	1.9

Note: For all price indices 2010=100.
Source: Statistics Denmark and own calculations.

Table 1c
Labour market development

	2016	2016	2017	2018	2019	2020	2025
	Level	Rate of change, per cent					
Employment, 1,000 persons	2,876.9	1.7	1.0	0.9	0.7	0.8	0.2
Employment, hours worked (mill. hours)	4,057.4	1.6	1.0	0.9	0.7	0.9	0.1
		Per cent					
Unemployment rate (per cent)		6.2	5.9	5.7	5.7	5.7	5.6
	Level	Rate of change, per cent					
Labour productivity. persons (1,000 DKK)[2)]	675.2	-0.4	0.5	0.9	1.0	1.2	1.0
Labour productivity, hours worked (DKK)[3)]	478.8	-0.3	0.5	0.8	1.0	1.1	1.0
Compensation of employees (DKK bn.)[4)]	1,084.3	3.4	3.3	3.6	3.7	4.0	3.1
Compensation per employee[5)]	416.3	1.7	2.3	2.6	2.8	3.1	2.9

1) The number corresponds to the EU-harmonized unemployment in per cent of the labour force. The data is based on Statistics Denmark's Labour Force Survey (AKU). The structural gross unemployment is nearly 3½ per cent in 2016 based on the national unemployment definition.
2) Calculated as real GDP per person employed, where GDP is based on chained 2005-prices.
3) Calculated as real GDP per hour worked, where GDP is based on chained 2005-prices.
4) Based on current price, i.e. growth rates are in nominal terms.
5) Calculated as compensation per employed wage earner.
Source: Statistics Denmark and own calculations.

Table 1d
Sectoral balances

	2016	2017	2018	2019	2020	2025
	Per cent of GDP					
Net lending/borrowing vis-a-vis the rest of the world	8.1	7.9	7.9	6.7	7.5	5.4
Of which:						
- Balance of goods and services	6.9	6.7	6.6	6.1	5.9	3.3
- Balance of primary incomes and transfers	1.3	1.2	1.3	0.6	1.6	2.1
- Capital account	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0
Net lending of the private sector	9.0	9.8	8.8	8.0	7.5	5.5
Net lending of general government	-0.9	-1.9	-0.9	-1.2	0.0	-0.1
Statistical discrepancy	0.0	0.0	0.0	0.0	0.0	0.0

Source: Statistics Denmark and own calculations

Table 2a
General government budgetary prospects (EDP-basis)

	2016	2016	2017	2018	2019	2020	2025
	Bn. DKK	Per cent of GDP					
Net lending (EDO B.9) by sub-sector							
General government (EDP-form)	-18.6	-0.9	-1.9	-0.9	-1.2	0.0	-0.1
Central government	-26.4	-1.3	-1.9	-0.9	-1.2	0.0	-0.1
Local government	7.7	0.4	0.0	0.0	0.0	0.0	0.0
Social security funds	0.1	0.0	0.0	0.0	0.0	0.0	0.0
General government (S13)							
Total revenue	1,064.5	51.7	49.8	49.9	49.4	50.0	49.9
Total expenditure	1,083.1	52.6	51.7	50.9	50.6	50.0	50.0
Net lending	-18.6	-0.9	-1.9	-0.9	-1.2	0.0	-0.1
Interest expenditures	27.8	1.3	1.1	0.9	1.1	1.0	1.3
Primary balance[1)]	9.2	0.4	-0.8	0.0	-0.2	1.0	1.2
One-off effects[2)]	-1.9	-0.1	-1.1	-0.6	-1.2	0.0	0.0
Selected components of revenue							
Total taxes[3)]	950.8	46.1	44.5	44.6	44.1	44.7	44.4
Taxes on production and imports	335.7	16.3	16.2	16.3	16.2	16.1	16.1
Current taxes on income and wealth etc.	609.7	29.6	28.0	28.1	27.6	28.4	28.2
Capital taxes	4.2	0.2	0.2	0.2	0.2	0.2	0.2
Social contributions[4)]	1.2	0.1	0.1	0.1	0.1	0.1	0.0
Property income[5)]	18.9	0.9	1.0	0.9	0.9	0.9	1.2
Other (residual)[6)]	94.7	4.6	4.3	4.4	4.4	4.4	4.3
Total revenue	1,064.5	51.7	49.8	49.9	49.4	50.0	49.9
p.m.: Tax burden[7)]	953.9	46.3	44.7	44.8	44.2	44.9	44.6

Table 2a (continued)

General government budgetary prospects (EDP-basis)

	2016	2016	2017	2018	2019	2020	2025
	Bn. DKK.	Per cent of GDP					
Selected components of expenditure							
Compensation of employees and intermediate	514.2	24.9	24.7	24.6	24.6	24.3	24.6
- compensation of employees	327.8	15.9	15.7	15.6	15.6	15.4	15.6
- intermediate consumption	186.4	9.0	9.0	9.0	9.0	8.9	9.0
Total social transfers	386.2	18.7	18.5	18.2	18.0	17.8	17.6
- social transfers in kind[6)]	30.7	1.5	1.5	1.5	1.5	1.5	1.5
- other than in kind	355.5	17.3	17.1	16.7	16.5	16.3	16.1
Interest expenditures	27.8	1.3	1.1	0.9	1.1	1.0	1.3
Subsidies	38.9	1.9	1.9	1.8	1.7	1.6	1.5
Gross fixed capital formation	74.2	3.6	3.4	3.2	3.2	3.2	3.1
Capital transfers	6.7	0.3	0.3	0.3	0.2	0.2	0.3
Other (residual) [6)]	56.8	2.8	2.6	2.7	2.7	2.6	2.5
Total expenditure	1,083.1	52.6	51.7	50.9	50.6	50.0	50.0
p.m.: Public consumption	525.6	25.5	25.4	25.2	25.2	25.0	25.2

1) Defined as the EDP-definition the net lending plus EDP-definition of the interest expenditures.
2) Based on the calculation of the structural budget balance and includes temporary variations in revenues from pension yield taxation, North Sea activities, net interest, corporate taxes, other special items and actual one-off effects.
3) Defined as the sum of taxes on production and imports, current taxes on income, wealth, etc. and capital taxes. Does not include compulsory social contributions, which are traditionally included in the tax burden.
4) Does not include voluntary and imputed social contributions, since these are not included in the tax burden.
5) Incl. interest income and dividends and land rent etc.
6) Statistic Denmark does not publish figures for all the subgroups (P.11+P.12+P.131+D.39+D.7+D.9 (other than D.91) D.6311. D.63121. D.63131. D.29+D.4 (other than D.41) +D.5+D.7+D.9+P.52+P.53+K.2+D.8), and no estimates are available for these individual components in the projections.
7) Defined as the sum of taxes on production and imports (incl. those collected by the EU), current taxes on income, wealth etc. and capital taxes and compulsory social contributions.

Source: Statistics Denmark and own calculations.

Table 2b
No-policy change projections

	2016	2016	2017	2018	2019	2020	2025
	Bn. DKK.	Per cent of GDP					
Total revenue at unchanged policies	1,064.5	51.7	49.7	49.8	49.2	49.7	49.6
Total expenditure at unchanged policies	1,083.1	52.6	52.0	51.4	51.4	51.0	50.6

Source: Statistics Denmark and own calculations.

Table 2c
Amounts to be excluded from the expenditure benchmark

	2016	2016	2017	2018	2019	2020	2025
	Bn. DKK.	Per cent of GDP					
Expenditure on EU programmes fully matched by EU funds revenue	0.0	0.0	0.0	0.0	0.0	0.0	0.0
- of which investments fully counterbalanced by revenue from EU funds	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cyclical unemployment benefit expenditure	17.9	0.9	0.8	0.8	0.7	0.7	0.7
Effect of discretionary revenue measures	2.2	-0.1	-0.1	0.0	0.0	-0.1	0.0
Revenue increases mandated by law	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Note: The cyclical unemployment benefit expenditure consists of the cost of unemployment benefits and social assistance for unemployed (both excluded the cost of people in activation programmes).
Source: Statistics Denmark and own calculations.

Tabel 3
General government expenditure by function

	COFOG	2015	2016
		Per cent of GDP	
General public service	1	7.4	6.7
Defence	2	1.1	1.1
Public order and safety	3	1.0	1.0
Economic affairs	4	3.7	3.4
Environmental protection	5	0.4	0.4
Housing and community amenities	6	0.2	0.3
Health	7	8.6	8.6
Recreation. culture and religion	8	1.8	1.8
Education	9	7.0	6.9
Social protection	10	23.6	23.4
Total expenditures[1)]	TE	54.8	53.6

Note: Short-term and longer-term projections do not include general government expenditures by function. The focus of both short-term and longer-term projections is public expenditures by type of transaction. 2015 is based on accounting figures while 2016 is based on budget figures.

1) The estimate for the total expenditure-to-GDP ratio in Statistics Denmark's calculation deviates from the estimate in table 2a due to definitional differences in the approach of calculation (table 2a includes depreciations in public consumption, which is not the case in Statistics Denmark's approach).

Source: Statistics Denmark and own calculations.

Table 4
General government debt developments

	2016	2017	2018	2019	2020	2025
	Per cent of GDP					
Gross debt	37.8	37.0	36.3	35.8	33.9	33.9
Change in gross debt ratio[1)]	-1.8	-0.7	-0.8	-0.5	-1.9	0.1
Change in gross debt[2)]	-1.1	0.4	0.5	0.6	-0.7	1.1
Contributions to change in gross debt						
Primary balance[3)]	0.4	-0.8	0.0	-0.2	1.0	1.2
Interest expenditure[4)]	1.3	1.1	0.9	1.1	1.0	1.3
Stock-flow adjustment[5)]	-2.9	0.2	-0.4	-0.3	-2.7	-1.3
p.m. implicit interest rate on debt[6)]	3.5	2.9	2.6	3.0	2.9	3.9
Other relevant variables						
Central government account in Danmarks Nationalbank	5.4	5.0	4.5	4.4	4.2	3.6
Public net debt[7)]	3.3	5.1	5.9	6.9	6.6	4.7
Net debt in central and local governments[7)]	3.4	5.2	5.9	7.0	6.7	4.7

1) Change in gross debt ratio is defined as $D_t/GDP_t - D_{t-1}/GDP_{t-1}$, where D is public debt measured in nominal terms (DKK).
2) Change in gross debt is defined as $D_t/GDP_t - D_{t-1}/GDP_t$, where D is public debt measured in nominal terms (DKK).
3) As defined in table 2a.
4) As defined in table 2a.
5) At present information is not available to split stock-flow adjustment into subgroups.
6) Proxied by interest expenditures divided by the debt level of the previous year.
7) In the estimate of the public net debt and the net debt in central and local governments, the central governments deposit in Danmarks Nationalbank together with the central governments additional assets are subtracted.

Source: Statistics Denmark and own calculations.

Table 5
Cyclical developments

	2016	2017	2018	2019	2020	2025
			Per cent			
Real GDP growth	1.3	1.5	1.7	1.7	2.0	1.2
			Per cent of GDP			
General government balance	-0.9	-1.9	-0.9	-1.2	0.0	-0.1
Interest expenditure[1)]	1.3	1.1	0.9	1.1	1.0	1.3
One-off effects[2)]	-0.1	-1.1	-0.6	-1.2	0.0	0.0
- of which revenue	0.5	-1.3	-0.9	-1.2	-0.1	0.0
- of which expenditure	-0.6	0.2	0.3	0.1	0.1	0.0
			Per cent			
Potential GDP growth[3)]	1.0	1.2	1.2	1.7	1.9	1.2
			Percentage points			
Of which, contribution from:						
- Labour	0.8	0.6	0.7	0.7	0.9	0.2
- of which labour force	1.0	0.8	0.8	0.8	1.0	0.2
- Capital	0.4	0.4	0.5	0.6	0.7	0.7
- Total factor productivity	-0.1	0.2	0.1	0.6	0.3	0.2
			Per cent of GDP			
Output gap	-0.9	-0.6	0.0	0.0	0.0	0.0
Cyclical component[4)]	-0.6	-0.3	0.0	0.0	0.0	0.0
Structural budget balance[5)]	-0.2	-0.5	-0.2	-0.1	0.0	-0,1
Primary structural budget balance[5)]	0.2	-0.1	0.1	0.2	0.2	0.2

1) As defined in table 2.
2) Based on the calculation of the structural budget balance and includes temporary variations in revenues from pension yield taxation, North Sea activities, net interest, corporate taxes, other special items and actual one-off effects.
3) Including a contribution from indirect taxes (in real terms).
4) The calculation of the cyclical component is based on the output gap.
5) The structural budget balance is not calculated on EDP-basis. The calculations of structural budget balance are based on public finances according to national account principles. The primary structural budget balance is based on an actual primary balance defined via net interest expenditures and not gross interest expenditures.

Source: Statistics Denmark and own calculations.

Table 6
Divergence from previous update

	2016	2017	2018	2019	2020	2025
	Rate of change, per cent					
Real GDP growth						
- Previous update	1.1	1.7	2.2	2.2	1.9	1.2
- Current update	1.3	1.5	1.7	1.7	2,0	1.2
- Difference	0.2	-0.2	-0.5	-0.5	0.1	0.0
	Per cent of GDP					
Output gab (per cent of GVA)						
- Previous update	-1.2	-0.7	-0.3	0.0	0.0	0.0
- Current update	-0.9	-0.6	0.0	0.0	0.0	0.0
- Difference	0.2	0.1	0.3	0.0	0.0	0.0
Actual budget balance						
- Previous update	-2.3	-1.9	-1.8	-1,3	0.0	-0.2
- Current update	-0.9	-1.9	-0.9	-1.2	0.0	-0.1
- Difference	1.4	0.0	0.9	0.1	0.0	0.1
Gross debt level						
- Previous update	38.9	38.0	37.9	37.1	35.1	34.3
- Current update	37.8	37.0	36.3	35.8	33.9	33.9
- Difference	-1.1	-0.9	-1.7	-1.3	-1.2	-0.5

Source: Own calculations.

Table 7
Long-term sustainability of public finances

	2005	2010	2020	2025	2030	2040	2050	2060
				Per cent of GDP				
Total expenditure	50.4	55.5	50.0	50.0	50.7	51.9	51.1	49.1
Of which:								
- Age-related expenditure	26.9	30.1	28.3	28.3	28.6	29.1	28.2	26.9
- Social security pension	9.2	10.0	9.4	9.3	9.2	8.9	8.0	7.1
- Old-age and early pensions	7.1	7.8	7.7	7.5	7.4	6.9	5.9	4.9
- Other pensions	2.1	2.2	1.8	1.7	1.8	1.9	2.1	2.2
- Occupational pensions	-	-	-	-	-	-	-	-
- Health care[1)]	5.4	6.3	6.6	6.8	6.9	7.2	7.1	6.8
- Long-term care[1)]	1.9	2.2	2.3	2.6	2.9	3.5	3.8	3.9
- Education expenditure	5.1	5.5	5.6	5.4	5.4	5.6	5.6	5.3
- Other age-related expenditures	5.2	6.1	4.4	4.2	4.2	3.9	3.7	3.7
- Interest rate expenditure	2.1	1.9	1.0	1.3	1.6	2.0	2.2	1.8
Total Revenue	55.4	52.8	50.0	49.9	50.4	50.9	50.6	50.1
Of which:								
- Property income[2)]	2.1	2.4	0.9	1.2	1.4	1.5	1.3	1.3
- Revenue from pension payouts net	-1.0	-0.8	-0.3	-0.3	-0.1	0.3	0.4	0.3
Pension reserve fund assets	125.5	139.3	172.1	176.4	185.7	200.8	205.4	208.9
Of which:								
- Public pension fund assets	0.0	0.0	0.1	0.0	-0.1	-0.3	-0.5	-0.8

Table 7 (continued)
Long-term sustainability of public finances

	2005	2010	2020	2025	2030	2040	2050	2060
	Per cent							
Assumptions								
Labour productivity growth	0.2	4.3	1.0	1.1	1.1	0.8	1.0	1.0
Real GDP growth[3)]	2.3	1.9	2.0	1.2	1.6	1.5	1.8	1.5
Participation rate males (aged 20-64)	83.8	81.2	81.7	82.0	82.2	82.5	82.5	82.6
Participation rate females (aged 20-64)	75.0	73.1	75.3	75.4	75.5	75.8	75.9	75.9
Total participation rate (aged 20-64)	79.4	77.2	78.5	78.7	78.9	79.2	79.2	79.3
Unemployment rate[4)] (national definition)	6.7	6.2	3.8	3.7	3.7	3.7	3.8	3.8
Structural unemployment[4)] (national definition)	6.2	4.6	3.8	3.7	3.7	3.7	3.8	3.8
Population aged 65+, 1,000 persons	817.0	917.4	1,169.4	1,270.8	1,385.2	1,546.2	1,551.4	1,604.3

1) The cost of nursing homes is included in long-term care.
2) Includes public revenues from interest income and dividends.
3) In some years after 2025 GDP growth is effected by the regulation of early- and old age person ages in line with longevity.
4) Registered gross unemployment (including people in activation programmes), percentage of the labour force.

Source: Statistics Denmark and own calculations.

Table 7a
Contingent liabilities

	2016	2017
	Per cent of GDP	
Public guarantees	15.3	-
- of which: linked to the financial sector	0.0	-

Note: Does not include deposit guarantees. Public guarantees consist of "statsforskrivninger", guarantees concerning loans and other guarantees. Guarantees linked to the financial sector consist of the Financial Stability Company.
Source: Government accounts for the fiscal year 2016.

Table 8
Basic assumptions

	2016	2017	2018	2019	2020	2025
Short term interest rate (annual average)	-0.1	-0.2	0.0	0.0	0.4	3.0
Long term interest rate (annual average)	0.4	0.7	1.1	1.6	2.2	4.4
Exchange rate EUR/USD (annual average)	111	107	108	109	111	119
Nominal effective exchange rate (1980=100)	101	101	101	101	101	101
World excluding EU, GDP growth[1)]	3.2	3.7	3.8	4.0	4.0	-
EU, GDP growth[1)]	1.9	1.6	1.8	1.8	1.8	-
Growth of relevant foreign markets[2)]	3.0	3.4	3.9	3.9	3.7	-
World import volumes, excluding EU	4.1	4.9	5.3	5.1	4.9	-
Oil price (Brent, USD/barrel)	43.5	52.7	57.9	64.2	70.9	97.3

1) GDP growth weighted by trade. From 2019 and 2020 based on IMF-data.
2) Includes OECD countries and emerging economies. i.e. Brazil, Russia, India, China, South Africa, Turkey, Indonesia and Mexico.
Source: Statistics Denmark, *Economic Survey*, December 2016, The Winter 2017 European Economic Forecast, IMF's WEO April 2017 and own calculations.

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