

# 1. Summary

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## 1.1 The current economic outlook

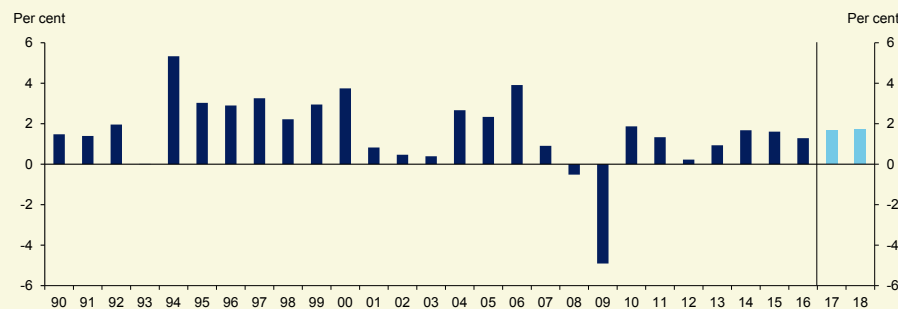
The Danish economy is experiencing stable growth and increasing employment. The foundation for further progress is solid, based on increased domestic demand – that is private consumption and investments – and stronger export growth.

GDP is expected to increase by 1.7 per cent in both 2017 and 2018, *cf. figure 1.1*. Over the same period, employment is expected to grow by 1 per cent annually following an increase in employment of approximately 1¾ per cent last year. The expected GDP growth rates are roughly unchanged from the last couple of years, but the rate of job creation is expected to slow down.

The economy is gradually approaching a situation with neutral capacity utilisation, and the overall outlook is positive, in particular due to a number of reforms, which will increase labour supply. New reforms will support the upswing further. It is positive that labour demand is increasing and that more people find a job, including those with a more marginal attachment to the labour market. Also, a higher activity rate, working time, etc. will increase wealth. If, on the other hand, labour supply fails to follow demand, there is risk of increased labour-market pressure in the coming years.

Growth in 2017 and 2018 is expected to be moderate in a historical perspective, due to weak productivity growth. Productivity growth has declined in the last few years, both in Denmark and abroad. Last year, productivity in the private sector even decreased. New reforms, which increase labour supply or productivity, will thus be able to prolong and strengthen the upswing.

**Figure 1.1**  
**GDP growth**



Source: Statistics Denmark and own calculations.

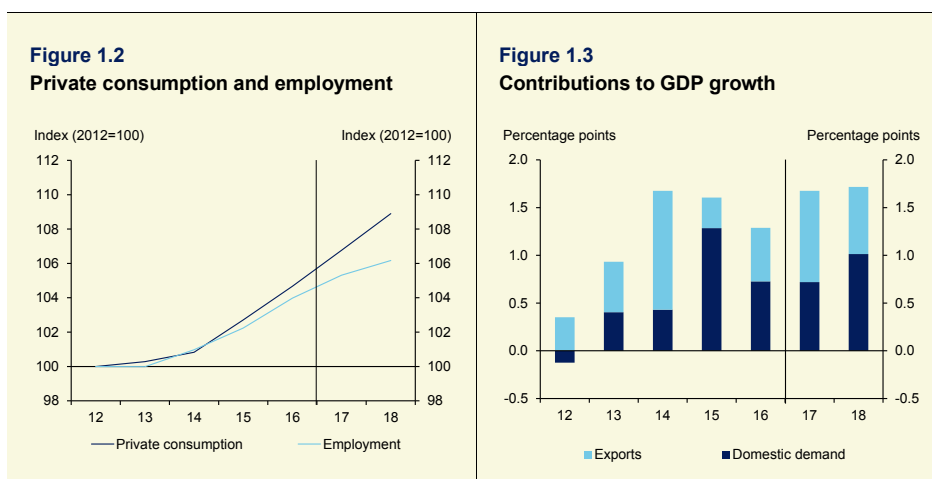
### Broad-based growth

The foundation for further progress is solid. This should, among other things, be seen in connection with recent reforms and an unwinding of a number of imbalances in the Danish economy.

Households have consolidated their finances every year since 2008. New financial regulations and tighter lending requirements have been introduced, making the financial sector and household economies more robust. Finally, there has been improvement in wage competitiveness, especially due to slower wage growth in Denmark compared to trading partners.

Private domestic demand and exports are the largest contributors to growth in 2017 and 2018, whereas subdued public demand restrains growth in aggregate demand during the forecast period.

Private consumption has grown in tandem with increased employment over the last few years, and employment is expected to increase further, thus supporting incomes and consumption in the coming years, *cf. figure 1.2*. Thus private consumption continues as one of the key drivers of growth with increases estimated at around 2 per cent this year and the next, slightly higher than GDP growth.



Note: In figure 1.3, the contribution to GDP growth has been adjusted for import content in domestic demand and exports respectively.

Source: Statistics Denmark and own calculations.

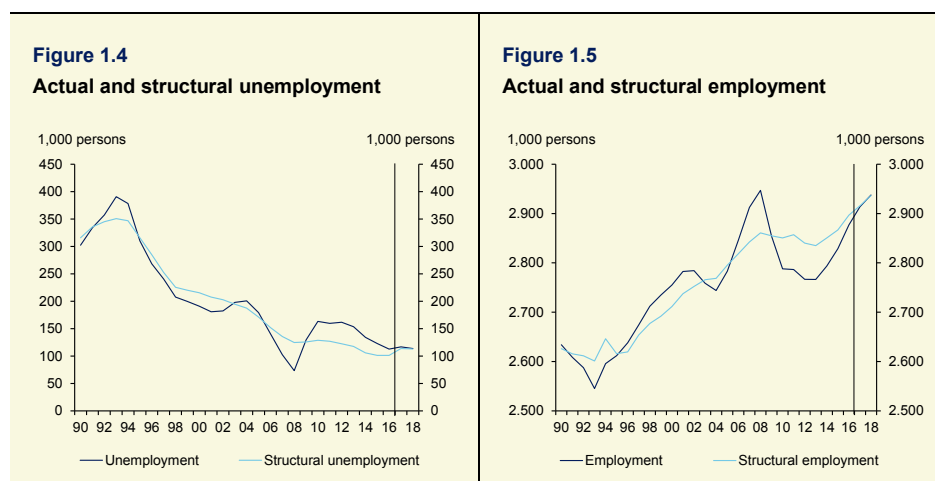
Investments are also expected to grow. Capacity utilisation has gone up in recent years, increasing the need for new business fixed investments after a period of stand-still. Housing investments have also increased considerably, among other things driven by rising house prices, and the progress is expected to continue in 2017 and 2018.

The global economic development has gained more momentum during 2016, also benefiting Danish exports. The upswing in the international economy is expected to continue in coming years, leading to higher growth in exports and a more broad-based upswing in the Danish economy, *cf. figure 1.3*.

### Reforms strengthen and prolong the upswing

After a long period with negative capacity utilization, the business cycle stance in the Danish economy is currently roughly neutral. That is, the economy is characterised by a level of production that is compatible with stable price and wage developments, and with neither too many nor too few resources, including labour, which can go into production.

Unemployment has fallen to a very low level in a historical perspective, close to its structural level of around 100,000 persons, *cf. figure 1.4*.



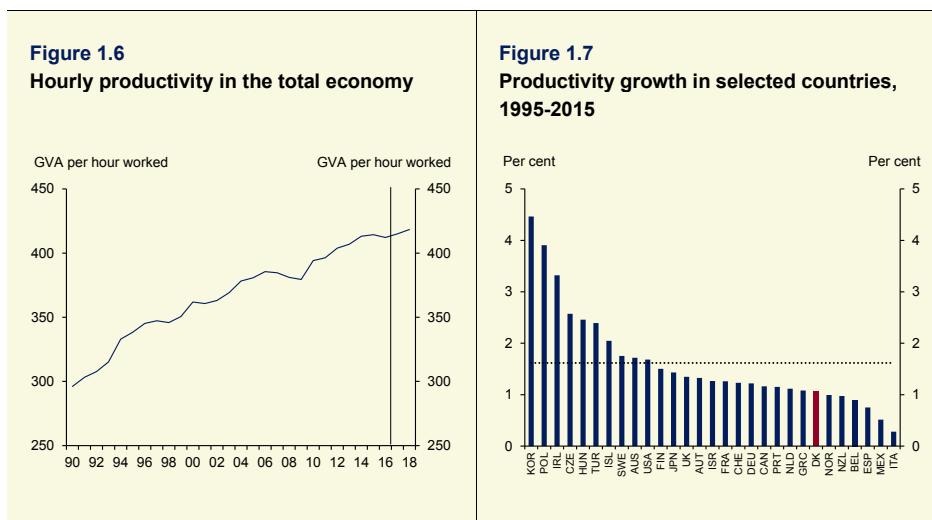
Note: Since the fall of 2016, the development in unemployment in figure 1.4 has been affected by a marked increase in the number of persons on integration benefit, which are included in gross unemployment. This has pushed gross unemployment up, as well as structural unemployment. Employment in figure 1.5 is measured including persons on leave.

Source: Statistics Denmark and own calculations.

Simultaneously, employment has grown close to its structural level. There is room for further increases in employment in the coming years without giving rise to imbalances. This is especially due to the effects of the 2011 Early Retirement Reform, which will increase labour supply and structural employment, *cf. figure 1.5*. At present, however, employment is increasing at a faster pace than structural employment. In 2016 alone, more than 50,000 jobs were created. With new initiatives that increase labour supply in coming years, employment can increase further without causing labour-market pressures.

The forecast assumes that the high pace of employment growth will come down in the coming years. If the fast job creation continues, and in the absence of further reforms that increase economic capacity, there is a risk of widespread labour-market pressures – regardless of recent reforms. Initially this would dampen growth prospects, for example because companies would have to turn down orders, but down the line it could also lead to a situation with actual overheating, which would require a recovery period characterised by sluggish growth. Reforms, which increase labour supply, may counteract capacity pressure and prolong the upswing in the Danish economy.

Productive capacity also depends on productivity since higher productivity implies that the same production may be obtained using fewer resources. Productivity growth has been weak for a sustained period of time. Productivity (measured as gross value added per working hour) even fell in 2016, *cf. figure 1.6*. This reflects that the last year's increase in production was driven increased employment, and the decline is assessed to be temporary. In a longer time perspective, increased productivity is the primary force behind growth and wealth. Therefore, a stronger productivity development would increase both the growth potential and the development in wealth in the long run.



Note: Figure 1.7 shows growth in GDP per working hour in selected countries. The productivity growth computed should be interpreted with caution since the available data for computing working hours varies across countries. The dotted line represents the OECD average.

Source: Statistics Denmark, OECD and own calculations.

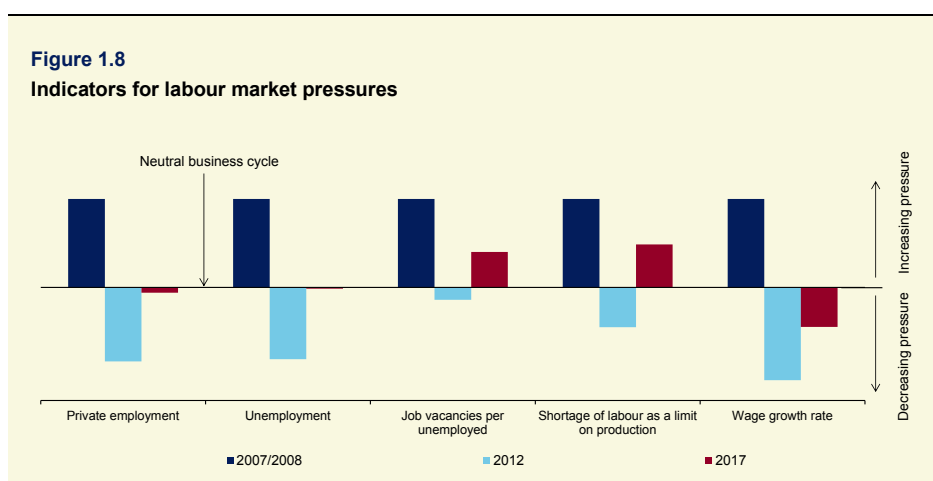
In a historical perspective, productivity growth in Denmark has been weak relative to a number of other countries, *cf. figure 1.7*. Productivity is expected to increase in 2017 and 2018, but at a relatively slow pace in line with historical developments.

New reforms, which enhance productivity or increase the labour supply, will support further progress in the Danish economy. At the same time, new reforms would contribute to a permanent increase in wealth.

## Status for capacity pressures

There are signs of capacity constraints beginning to emerge. Increasing employment in a situation with already low unemployment increases the risk of unsustainable labour market pressures. The extent of capacity pressures may be difficult to observe directly, especially because certain indicators, e.g. increasing wage growth, typically appear with a time lag.

An increasing number of firms are reporting labour shortages as a constraint on production, and the number of job vacancies per unemployed has increased, *cf. figure 1.8*. In contrast, wage growth continues to be fairly moderate. This spring's collective agreements in the private part of the labour market indicate that wage growth will not accelerate in the coming years.

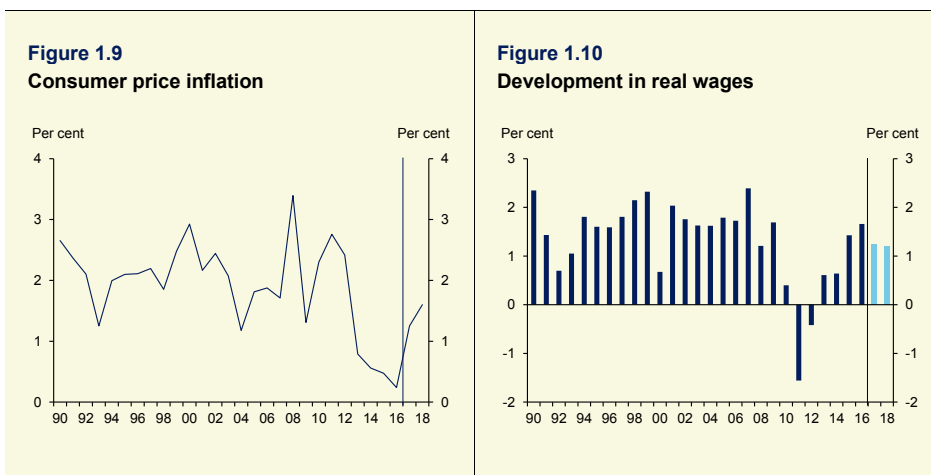


Note: For private employment and unemployment, closed employment and unemployment gaps respectively correspond to a neutral business cycle stance. For job vacancies per unemployed as well as lack of labour as a production constraint (in manufacturing and construction), an index has been calculated relative to the 2005-average, which is considered to be neutral as regards the business cycle. Unemployment excludes recipients of integration benefits. Wage growth is assessed relative to a historical average over the period 2000-2016. Shortage of labour as a production constraint takes 2007 as its basis year while the other indicators take 2008 as their basis year. The indicators are scaled so that 2007/2008 assumes the same level across all indicators. This allows for comparison of the relative change in indicators over time, but not their levels.

Source: Statistics Denmark and own calculations.

The return to a neutral business cycle stance is also reflected in the inflation rate, which is increasing again, *cf. figure 1.9*. In 2018 inflation is expected to be roughly 1½ per cent and thus only a little below the expected inflation level over the medium term.

Increasing inflation will have a slightly dampening effect on real wage growth – and the increase in private consumption – *cf. figure 1.10*. Inflation is also returning to more normal levels in the euro area, indicating that the period of extraordinarily low interest rates will gradually come to an end. However, interest rate increases are first expected to materialise after the end of this forecast period.



Source: Danish Employers Association's Structural Statistic, Statistics Denmark and own calculations.

Price and wage increases will gradually dampen growth in the Danish economy as normally happens over the course of a business cycle. The risk of a hard landing following an upswing is increased if the economy is overheated and considerable imbalances arise, as was the case last decade, *cf. box 1.1*.

**Box 1.1****What characterises an overheating?**

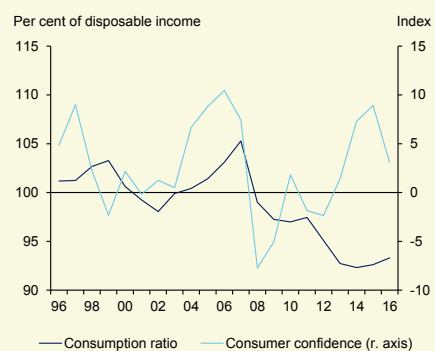
Overheating describes a business cycle situation in which demand rises to a level that puts pressure on central economic balances, primarily prices and wages. Pressures may have a mutually reinforcing effect and thus worsen the imbalances.

The development in central economic variables such as production, employment and unemployment fluctuate around their normal/structural levels over the course of a business cycle. If resource utilisation greatly exceeds structural levels, it will give rise to pressure on prices and wages, which will eventually dampen growth through a soft or hard landing. If the economy is also characterized by large imbalances, the risk of a hard landing increases.

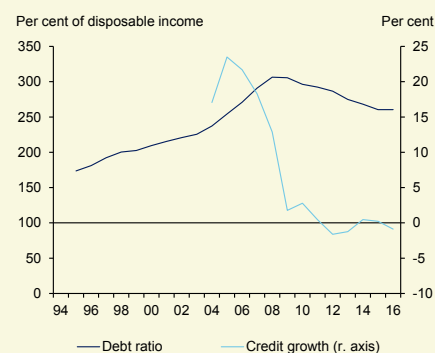
Such conditions can be mutually reinforcing, as was the case the last time the Danish economy experienced an overheating in the years 2006-2007. Optimistic expectations drove up the consumption ratio, households took on debt to finance consumption and housing investments, bottlenecks arose in the labour market, wage competitiveness declined, and house prices increased partly due to self-fulfilling expectations. The overheating happened quickly since 2004-2005 were business cycle neutral. Below, the current developments in consumption, lending, house prices and wage growth are compared to the development during the overheating in the previous decade.

During the overheating years in the previous decade, consumer confidence and the consumption ratio increased considerably, cf. *figure a*. At present, the consumption ratio is low, while consumer confidence generally has been on the rise to just below the previous peak in 2006. Although households are generally optimistic as regards their own and the national economic situation, the optimism has not fed into a high consumption ratio.

**Figure a**  
**Consumer confidence and the consumption ratio**



**Figure b**  
**Household debt and growth in credit from banks to households**





**Box 1.1 (continued)****What characterises an overheating?**

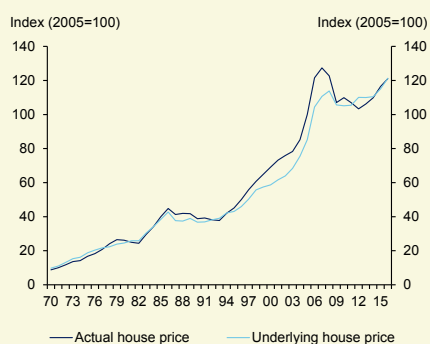
Normally, the demand for loans also rises during an upswing, among other things in tandem with house price increases and the wish to convert housing equity into consumption and investments. That is not the case at present. Credit growth remains subdued. Bank lending to households has been roughly unchanged since 2010, and Danish households have consolidated in recent years and brought down their debt, *cf. figure b*. Increased debt is not a problem in itself as long as it is based on realistic expectations regarding future consumption, income and wealth. If lending to households increases further, it will support a stronger development in private consumption.

During the overheating, a housing price bubble arose. By the end of 2005, housing prices were estimated to be consistent with underlying economic factors. But in the two following years, housing prices increased by almost 30 per cent to a level, which was markedly above, what can be explained by developments in income, interest rates etc., *cf. figure c*. This should among other things be seen in connection with an element of self-fulfilling expectations about future house prices.

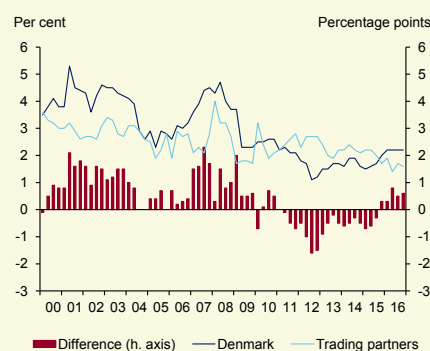
Recently, house prices and mortgage lending have increased somewhat again, especially in the larger cities, where house prices have also increased the most. This development fundamentally reflects that the Danish economy is improving and that incomes are rising steadily. In addition, house prices are being supported by low interest rates and an increasing population, particularly in the large cities. For the country as a whole there are no signs suggesting that the price increases are getting ahead of fundamentals.

Wage growth has increased since the end of 2015, and currently exceeds wage developments abroad, *cf. figure d*. This tends to worsen wage competitiveness following a considerable improvement since 2008. During 2006-2008, wage competitiveness declined due to an acceleration in wage growth. The experience from previous overheating periods is that the acceleration in wage growth typically appears with a certain time lag following a tightening of the labour market, and that recovering the resulting loss in wage competitiveness may take a long period of time.

**Figure c**  
**Actual and underlying house price**



**Figure d**  
**Wage development in manufacturing, Denmark and trading partners**



Note: The underlying house price in figure c is estimated using the house price relation in the ADAM model.

Source: Statistics Denmark, Danish Employers Association and own calculations.

## Both upside and downside risks

The foundation for growth in the Danish economy is assessed to be solid, and the upswing is expected to continue. The outlook is, however, still tainted by both upside and downside risks, which are connected to both domestic developments and developments in the global economy.

The increase in demand for labour resources in coming years may turn out to be stronger than the increase in labour supply. This can lead to increased wage pressure, which may halt the upswing. The reforms that have already been implemented do by no means provide a guarantee against increased labour market pressures.

There is still considerable uncertainty attached to the international economic outlook, among other things due to Brexit as well as economic policy in the US, which may include protectionist measures. Recent key figures for the international economy have generally been positive, however, and in many countries labour market progress and stable growth are expected to continue. Stronger growth on Danish export markets will affect the Danish economy positively and may lead to higher growth than expected in the forecast.

Monetary policy in the euro area is expected to remain extraordinarily expansionary for some time. The Danish business cycle is slightly ahead of the euro area, and the interest rate level could be too low for the Danish economy. The low interest rates support housing and business investments, but could also lead to relative large house price increases, partly due to speculative elements. House prices in and around the large cities could continue to climb at a fast pace for some time – particularly since the development in the housing market is also expected to be supported by increasing employment and higher real incomes.

### Box 1.2

#### Changes since the last forecast and assumptions underlying the projection

The forecast is based on information from the national accounts up to and including the 4th quarter of 2016 and a number of economic indicators, which reach into 2017. The cut-off date for the forecast is 10 May 2017. On 15 May 2017, after the cut-off date, Statistics Denmark released the preliminary national accounts indicator for the 1st quarter of 2017, which shows a GDP growth rate of 0.3 per cent. This corresponds to the assumptions underlying the projection.

The growth estimate for GDP is 1.7 per cent for both 2017 and 2018. The forecast for 2017 has been revised upwards by 0.2 percentage points relative to the forecast in December, while the forecast for 2018 is unchanged. The upward revision in 2017 should primarily be seen in connection with stronger-than-expected progress in the second half of 2016, preliminary indicators for growth in 2017, and an assumption of slightly better growth outlook internationally, which all point in direction of increased progress throughout the projection period.

The projected employment increase has also been revised upwards in 2017, from an increase of 29,000 persons in December to 37,000 persons in this forecast. This implies a more rapid narrowing of the employment gap compared to the December forecast.

## 1.2 Fiscal policy and public finances

Given the outlook for continued economic growth and a strong labour market the Danish economy is approaching a situation with normal capacity utilisation, *cf. table 1.1*. Both the output gap and the employment gap are expected to close during 2018.

**Table 1.1**  
Main component of the projection relating to fiscal policy

	2015	2016	2017	2018
Structural balance, per cent of structural GDP	-0.5	-0.1	-0.5	-0.3
Actual fiscal balance, per cent of GDP	-1.3	-0.9	-1.5	-0.7
EMU debt, per cent of GDP	39.6	37.8	36.8	35.6
Growth in public consumption, per cent	0.6	-0.1	0.7	1.0 <sup>1)</sup>
Multiannual fiscal effect, per cent of GDP <sup>2)</sup>	-0.1	-0.2	-0.1	-0.1
Output gap, per cent <sup>3)</sup>	-1.0	-1.0	-0.4	0.0
Employment gap, 1,000 persons <sup>3)</sup>	-40	-22	-5	-1

- 1) The projection on public consumption growth in 2018 is purely based on technical assumptions and does not reflect the priorities of the government, *cf. box 1.3*.
  - 2) The fiscal effect measures how changes in fiscal policy impacts growth in demand and GDP.
  - 3) Estimates of how far production and employment are from their structural levels.
- Source: Statistics Denmark and own calculations.

With the 2017 budget agreement and the annual budget agreements between the central government and municipalities and regions, fiscal policy was set to aim for a structural budget deficit of 0.4 per cent of GDP in 2017. However, since then new information has become available, in particular regarding contributions to pension schemes and pension benefits as well as larger-than-expected write-offs on tax arrears. As a result, the structural budget deficit for 2017 is now projected to be 0.5 per cent of GDP.

For 2018 the structural deficit is projected to 0.3 per cent of GDP. In this estimate, a technical assumption has been made for expenditures subject to the central government sub-ceiling for operating expenditures to be DKK 1 bn below the ceiling, as assumed in the government's 2025-plan. The improvement in the structural balance from 2017 to 2018 is due to a gradual fiscal consolidation, where among other things public investment expenditures are gradually reduced from a high level. Furthermore, the retirement reform from 2011 in particular, is also contributing to an improvement in the structural balance.

Fiscal policy for 2018 will be determined with the 2018 budget agreement and the budget agreements with municipalities and regions for 2018, *cf. box 1.3*. In this respect, it should be noted that the projections regarding public consumption expenditures are technical assumptions and does not reflect the priorities of the government.

**Box 1.3****Technical assumption about fiscal policy in 2018**

The government will lay out its budget proposal for 2018 in August, detailing the priorities for the fiscal policy in 2018. For this *Survey* the assumptions regarding fiscal policy are purely technical. These technical assumptions are in line with EU-guidelines, reflecting current tax policies and current rules regarding public transfers etc. Among other things – and in line with standard practice – this results in a technical allocation of the fiscal space for 2018 to public consumption expenditures. The projected real growth in public consumption expenditures of 1.0 per cent does therefore not reflect the priorities of the government.

The government platform *For a Freer, Wealthier and Safer Denmark* sets out a target for annual basic real growth in public consumption expenditures of 0.3 per cent. On top of this, expenditures made possible by reforms, e.g. reforms to the Student Grant system, and increased investment in the security of Danish citizens, can be added. Consequently it is the intention of the government to allow for a basic real growth of 0.3 per cent in public consumption expenditures, and to use the remaining 0.7 percentage points of the 1 per cent projected real growth of public expenditures in 2018 for other initiatives, including lower taxes, *cf. also the 2025-plan*.

The specific priorities will be laid out during 2017 in connection with the budget agreements with municipalities and regions and the the agreement on the fiscal budget for 2018.

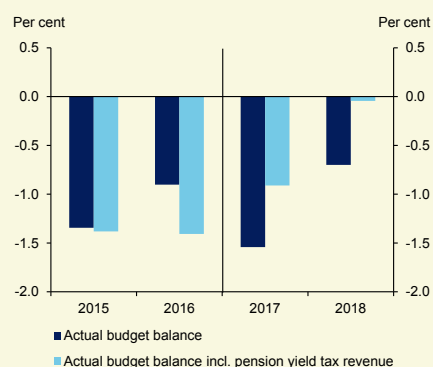
**Fiscal deficit decreasing in 2018**

According to the preliminary national accounts data from Statistics Denmark the deficit on the actual public budget balance amounted to 0.9 per cent of GDP in 2016. For 2017 and the 2018 the public deficit is projected to amount to 1½ per cent of GDP and 0.7 per cent of GDP, respectively.

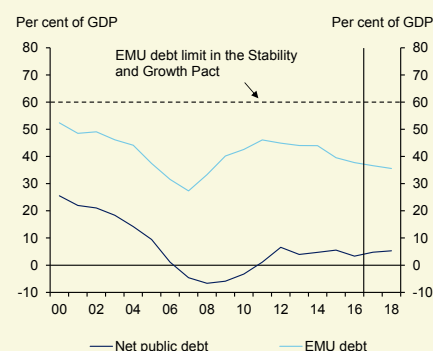
The increase in the deficit from 2016 to 2017 reflects the volatile revenue from the pension yield tax which is projected to be reduced by 1 per cent of GDP. During the forecast horizon, the projected increase in interest rates contributes to lower revenues from the pension yield tax. For 2017 and 2018 the revenues from the pension yield tax is only assumed to amount to approx. DKK 10 bn. (approx. ½ per cent of GDP). However, adjusting for the fluctuations in the revenues from the pension yield tax reveals an improvement in the public budget balance, *inter alia* reflecting the expected improvement in economic conditions, *cf. figure 1.11*.

Given the projections for the public budget balance, public net debt is projected to remain at a low level, corresponding to approx. 8 per cent of GDP by 2018, *cf. figure 1.12*. Public EMU-debt is projected to remain below 40 per cent of GDP for the forecast horizon thereby maintaining a wide safety margin to the 60 per cent of GDP debt limit in the EU Stability and Growth Pact.

**Figure 1.11**  
Stronger business cycle improves the actual budget balance



**Figure 1.12**  
Public net debt and EMU debt are both low



Note: In figure 1.11, an adjustment has been made for how much the volatile revenues from the pension yield tax are expected to deviate from their structural level, which is an input in the calculation of the structural balance.

Source: Statistics Denmark and own calculations.

## Fiscal policy is contributing to balanced growth

In view of the current economic situation, with the Danish economy currently in the midst of a business cycle upturn, it is appropriate to gradually reduce fiscal accommodation in order to maintain balanced growth in the Danish economy. This should result in a gradual reduction in the structural budget deficit over the coming years. The structural budget deficit is projected to be 0.5 per cent of GDP and 0.3 per cent of GDP in 2018, *cf. figure 1.13*.

Due to the gradual consolidation of public finances, fiscal policy is exerting a dampening effect on the growth in total domestic demand compared with the relatively accommodative starting point in 2014, *cf. table 1.2 and chapter on public finances*. The change in fiscal policy since 2014 is estimated to lower the level of GDP by 0.5 per cent in 2018.

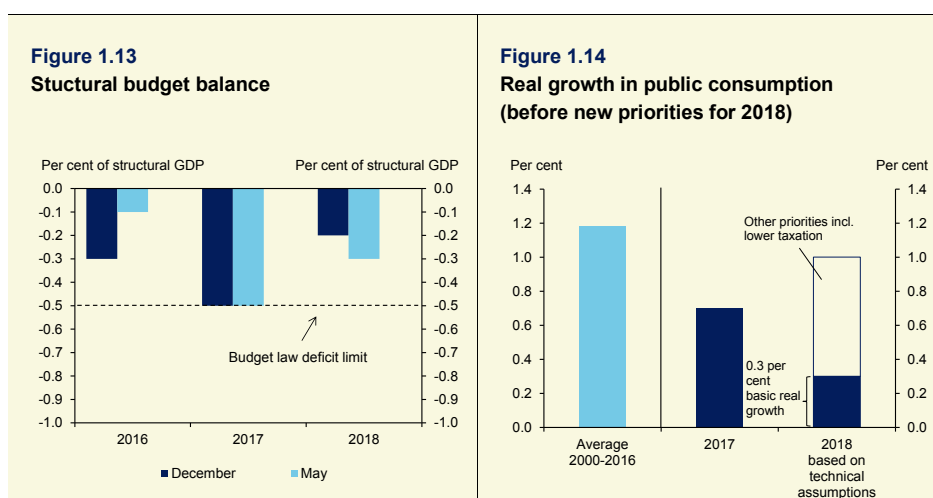
**Table 1.2**  
The impact of fiscal policy on GDP towards 2018

	2015	2016	2017	2018
<b>Per cent of GDP</b>				
GDP contribution (incl. multiannual effects)	-0.1	-0.3	-0.4	-0.5

Note: In table 1.2 the impact of fiscal policy on the level of GDP is calculated using the multiannual fiscal effect. The multiannual fiscal effect measures the impact on economic activity of changes in fiscal policy since the starting year in 2014 in both the current year as well as the preceding years.

Source: Statistics Denmark and own calculations.

The projected structural budget balance for 2017 is unchanged compared with *Economic Survey, December 2016*. For 2018 the estimated structural deficit has been revised up by 0.05 per cent of GDP compared with the December projection, given the assumption of expenditures under the central government sub-ceiling for operating expenditures to be DKK 1 bn. below the ceiling as opposed to the December assumption of expenditures DKK 2 bn. below the sub-ceiling, *cf. the chapter on public finances*. This change should be seen in connection with the government's 2025-plan, which points to a long-term improvement in public finances as well as the ambition of the government to implement reforms which increases labour supply, thereby contributing to reducing capacity pressures. Such reforms can help extend the economic upturn in Denmark.



Note: Figure 1.14 shows real growth in public consumption measured with the input-method.  
Source: Statistics Denmark and own calculations.

Public consumption is projected to grow by 0.7 per cent in 2017, in line with the December projection. For 2018 the projection is based on a technical assumption of public consumption growth of 1.0 per cent, *cf. figure 1.14*. It is a purely technical projection in which the fiscal space in line with standard practice is assumed to be allocated to public consumption expenditures, *cf. also box 1.3*. Allocating the fiscal space from public consumption to lowering taxes on labour, thereby improving labour supply, could have a dampening effect capacity pressures and hence lower the risk of overheating.

It is the objective of the government to have basic real growth of 0.3 per cent in public consumption. The government wishes to use the remaining fiscal space for other priorities, among other things lower taxes. The specific details for the priorities for 2018 will be laid out later in 2017, in connection with the budget proposal for 2018 and the budget agreements with municipalities and regions for 2018. Furthermore, the calculation of real growth in public consumption for 2017 and 2018 is subject to revision if new information becomes available towards the budget proposal for 2018.

## 1.3 Hours worked in Denmark

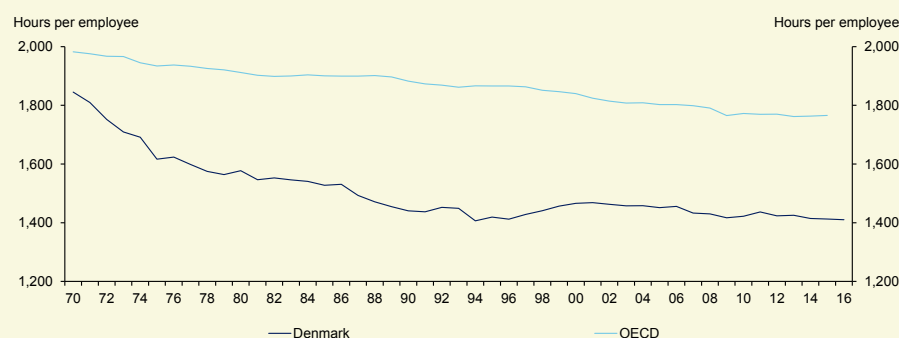
Total labour supply depends on the number of persons in the labour force (the participation rate) and how many hours each person is willing to work.

Compared to other countries, Denmark has a high participation rate and thus a relatively large labour force. On the other hand, the amount of hours worked per person is relatively low, implying that total labour supply measured in hours lies in the middle range in an international comparison. This chapter focuses on how working hours have evolved over time and the underlying forces that have driven that development.

Working hours decreased during the 1970's and 1980's, but has since then been almost unchanged. While each employee on average worked approximately 1,845 hours per year in 1970, they worked approximately 1,410 hours per year in 2016. This corresponds to a drop of almost 25 per cent since 1970. In comparison, the average working hours per employee in OECD countries has dropped by approximately 10 per cent, *cf. figure 1.15*.

**Figure 1.15**

### Average annual hours worked per employee in Denmark and the OECD



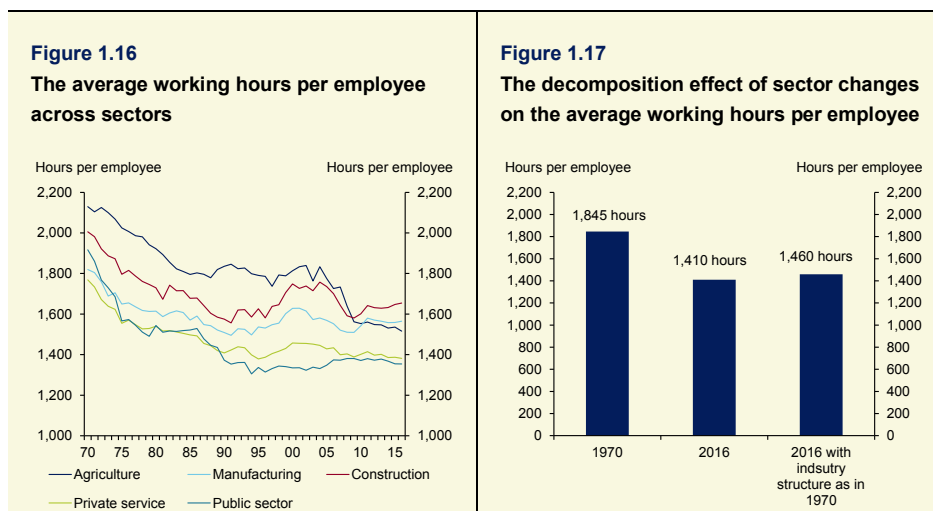
Note: The series for Denmark is based on the national accounts statistics. International comparisons of the level of hours worked should be interpreted with caution. Relative changes are, on the contrary, comparable.

Source: Statistics Denmark, OECD and own calculations.

Working hours are measured differently across countries, and differences across countries should be interpreted with caution. In the OECD database, which is used here, hours worked are obtained from the countries' national accounts statistics. In Denmark, the measurement of working hours in the national accounts statistics relies on registry-based data. In many other countries, the measure is based on the Labour Force Survey, which is surrounded by considerably higher uncertainty.<sup>1</sup>

There are many possible explanations as to why average working hours decreased during the 1970's and 1980's. One possible explanation is shifts in the industry composition. For example, working hours have generally been high in agriculture, and agriculture also employed a larger fraction of the labour force 40 years ago.

Across all industries, working hours have decreased since the 1970's. Throughout, the number of hours worked has consistently been the lowest in the public sector and in the private services sector, cf. figure 1.16. Furthermore, average working hours has been unchanged in the years following the economic crisis. In industries such as manufacturing and the building and construction sector, which are more sensitive to fluctuations in the business cycle, average working hours have increased during the upswing.



Note: In figure 1.17, the "2016 with industry structure as in 1970" series has been calculated by multiplying the average working hours in each industry in 2016 with the share (measured in terms of number of workers rather than hours actually worked) that the sector held in the economy in 1970.

Source: Statistics Denmark and own calculations.

<sup>1</sup> In case an alternative method – suggested by the Danish Productivity Commission – is used to measure working hours, the conclusion holds, cf. among others *Økonomisk Analyse: Arbejdsudbud i et internationalt perspektiv*, Ministry of Finance of Denmark, May 2017. With respect to the alternative method, data from Eurostat's Labour Force Survey (LFS) is used to compute average weekly working time per employee across EU countries and in USA in a base year, 2002. The average working time is hereafter projected with the growth in total working hours per employee retrieved from the respective countries' national accounts statistics. This method was proposed by the Danish Productivity Commission in the fall of 2012.



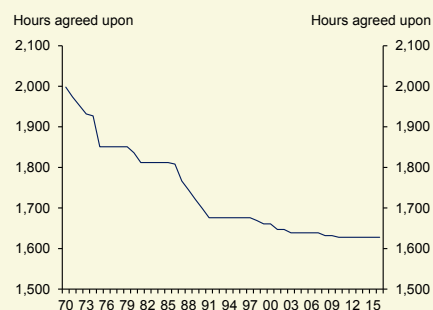
If the industry structure today had been the same as in 1970, hours worked in 2016 would, on aggregate, have been 50 hours higher per employee per year, *cf. figure 1.17*. Thus, compositional effects only explain a relatively small part of the drop in working time.

On the other hand, the developments in actual and agreed working hours have followed each other closely. For workers who are employed under collective agreements, the agreed working time is determined by the social partners through the collective bargaining system. For other groups on the labour market, such as the self-employed, working hours is an individual decision.

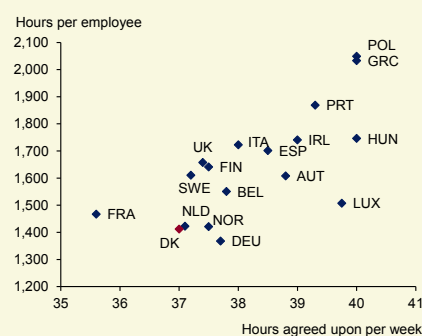
The agreed working time decreased considerably during the 1970's and 1980's and has since then been almost unchanged, *cf. figure 1.18*. In international comparisons, the relationship between agreed and actual hours worked per employee can also be observed, *cf. figure 1.19*.

However, the relationship between the collective agreement on working hours and actual working hours is not without ambiguity. In fact, actual hours worked also depend on other factors such as the number of days off, the extent of overtime and part-time work as well as self-employment. In 2014, Danish employees on average had a total of 39 national holidays and vacation days, in the EU as a whole there was 34 national holidays and vacation days.<sup>2</sup>

**Figure 1.18**  
Working hours agreed upon in Denmark since 1970



**Figure 1.19**  
Working hours agreed upon 2014 and hours worked per employee in 2015



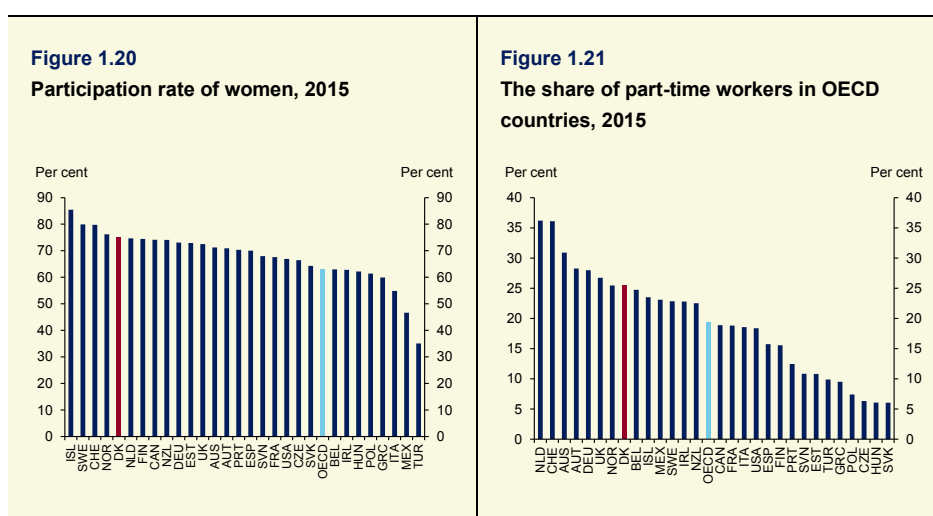
Note: In figure 1.18, the annual agreed working hours is calculated as the least possible working time in a normal year – i.e. a year in which all holidays, for which it is possible, fall on weekdays. The drop in the 1980's is due to the fact that the weekly working time has gradually been brought down from 40 hours in 1981 to 37 hours in 1991. The decline since 2000 is, among other things, attributable to the fact that from 2008 onwards 24 December has been a paid holiday and that Constitution Day in 2010 changed status from a half paid holiday to a fully paid holiday.

Source: Eurofond, Statistics Denmark and own calculations.

<sup>2</sup> Cf. Eurofound's survey *Developments in collectively agreed working time 2014*.

One of the driving forces behind fewer agreed working hours is probably that more and more women have entered the labour force since the beginning of the 1970's. When both adults in most families are on the labour market, it is natural that the average working time decreases. There are two main reasons for that. Firstly, household chores are no longer taken care of by someone at home, which increases the need for a lower agreed working time (to free time for household duties). Secondly, families experience a great improvement in income when both adults work. The increase in income provides the opportunity for higher private consumption, but it could also leave families with a desire for more leisure.

In an international comparison, Danish women have one of the highest participation rates among the OECD countries, *cf. figure 1.20*.



Note: In figure 1.20 and figure 1.21 "DK" is based on data from Arbejdskraftundersøgelsen (AKU), which corresponds to Eurostat's Labour Force Survey. The surveys are being conducted quarterly on the basis of interviews for a random sample of persons in the age group from 15 to 74. In figure 1.21, "OECD" is calculated as an unweighted average.

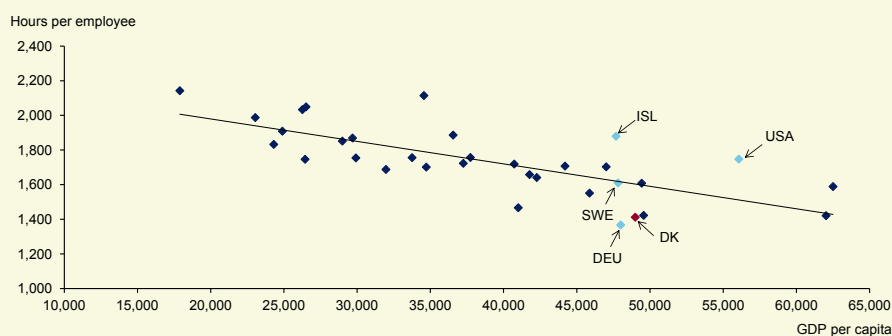
Source: Statistics Denmark, OECD and own calculations.

Women's entrance into the labour market could also have affected the actual working time more directly since they have a higher tendency to work part-time than men. In 2015, Denmark was among the countries with the highest fraction of part-time employment (approximately 25 per cent), *cf. figure 1.21*.

The desire to work fewer hours could also be a result of the general increase in prosperity. Across countries there is a negative relationship between the level of wealth and hours worked, *cf. figure 1.22*.

The relationship between wealth and working hours is however not clear-cut. For example, Iceland has approximately the same level of wealth as Denmark, but Icelanders work notably longer hours. On the other hand, the United States has longer hours as well as a higher level of wealth.<sup>3</sup>

**Figure 1.22**  
Relationship between wealth level and working time in 2015



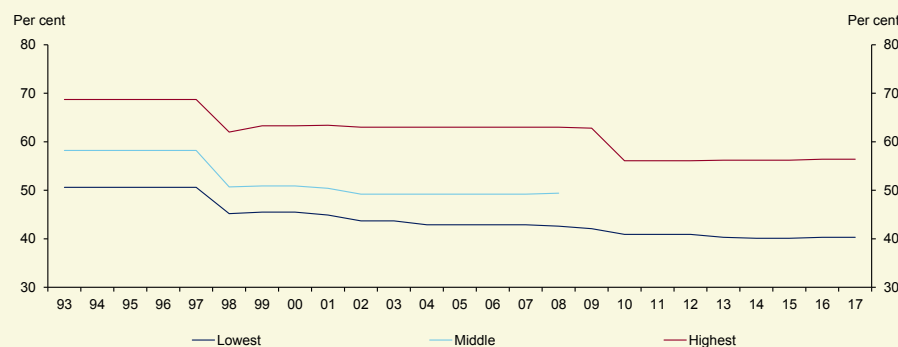
Note: GDP per capita is measured in USD, current prices, current PPPs. Luxembourg and Ireland have been left out of the dataset since their GDP levels are affected by multinational corporations having headquartered in those countries.

Source: OECD and own calculations.

Furthermore, wealth (measured as GDP per capita) in Denmark has risen by approximately 1.2 per cent each year since 1990 without a simultaneous decrease in working hours. This could be the result of initiatives, which have counteracted the tendency to exchange working hours for leisure. For example, the marginal tax rate has been brought down markedly since the beginning of the 1990's, thereby insuring stronger incentives to put in an extra effort, *cf. figure 1.23.*

<sup>3</sup> This conclusion is robust if working time per employed is measured by the alternative method suggested by the Danish Productivity Commission.

**Figure 1.23**  
**Marginal tax rates**



Note: The marginal tax rates are made up of income taxes and labour market contributions. The (a) "lowest" range, (b) "middle" range and (c) "highest" range percentages depicted in the figure are for persons who pay respectively (a) municipality tax, health care contributions tax and in the bottom tax bracket, (b) municipality tax, health care contributions tax as well as the bottom and middle tax brackets and (c) municipality tax, health care contributions tax as well as the bottom, middle and top tax brackets. The middle tax bracket was abolished in 2010. The marginal tax percentages have been calculated taking the average municipality tax percentages, including church tax, as input.

Source: Ministry of Taxation of Denmark and own calculations.

### Focus on working hours since 2008

Below, the development in working hours in Denmark since 2008 is examined by use of detailed registry data for wage earners. The detailed data makes it possible to assess the development in hours worked across age, education and income.

Working hours – measured as the average weekly working hours per wage earner in the registry for wage earner employment – have overall been unchanged at approximately 28 hour per week since 2008. This corresponds to the development in the national accounts statistics for hours actually worked per employed, *cf. the explanation provided earlier*. For wage earners as a whole, there are no signs that fluctuations in the business cycle have had a great effect on the average hours worked. Among other things, this is due to the fact that working hours are defined in the collective agreements and these have remained unchanged since 1990.

The information on working time in the registry for wage earner employment stems from the Ministry of Taxation's *eIndkomst*-registry and reflects salaried working hours. Thereby, data do not account for overtime without payment, *cf. box 1.4*.

### Box 1.4 Registry data for wage earner employment

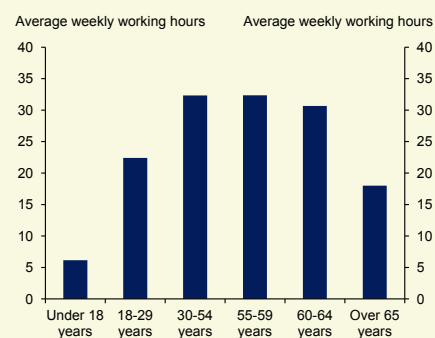
The registry for wage earner employment is quarterly data, starting from 1st Quarter of 2008. The database encompasses wage earner employment in Danish companies, where the wage is reported to the Ministry of Taxation's *elndkomst*-registry by the employer. For persons on contracts without overtime payment, e.g. salary earners, the weekly working time (37 hours) is reported regardless of actual hours worked (unless the employee is working part-time).

The relatively low weekly average of around 28 hours is partly due to the fact that overtime for salary earners is not factored in the statistics and partly due to the fact that part-time workers pull down the average. In the dataset, persons with an average weekly working time in the interval 35-40 hours per week make up 43 per cent, while only 5 per cent have a registered working time greater than that. The fact that the statistic does not capture the actual hours worked also implies that it is not possible to detect changes in working hours carried out by persons on contracts without separate overtime payment.

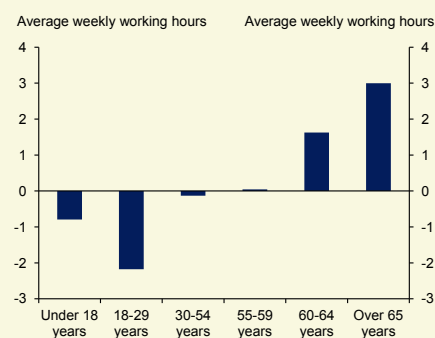
Source: Statistics Denmark.

The almost unchanged average hours worked per week since 2008 masks differences across age, education and income. Among different age groups, it is particularly wage earners in the age group 30-64 years that work the longest hours (about 32 hours per week), while wage earners in the age group 18-29 years as well as wage earners at age 65 and above on average work around 20 hours per week, *cf. figure 1.24*.

**Figure 1.24**  
Average weekly working hours age groups in 2016



**Figure 1.25**  
Change in average weekly working hours across age groups since 2008



Note: Figure 1.24 depicts the weekly number of hours worked in 3rd Quarter of 2016 over age group as of 30 September 2016. No correction has been made for vacation or sick days (paid by the employer). This applies to fewer than 30 days of sick leave. In figure 1.25, no correction has been made for changes in the underlying population composition (e.g. gender, age and ethnicity). Data is based on the registry for wage earner employment, *cf. also box 1.4*.

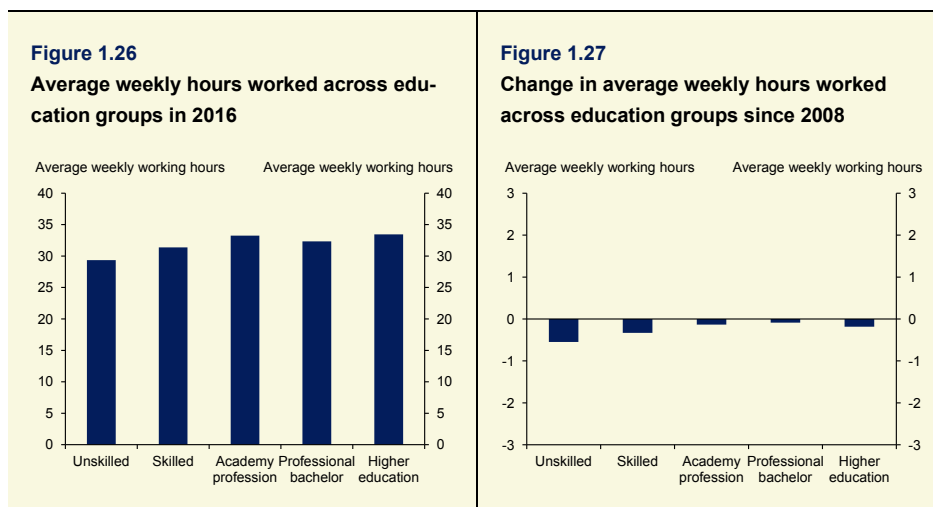
Source: Statistics Denmark and own calculations.

Since 2008 average weekly working hours for wage earners younger than the age of 30 has fallen, *cf. figure 1.25*. Among other things, this development is due to an increased education tendency, which implies that more young people work part-time. In the following, persons below the age of 30 are excluded from the dataset so the increased education tendency does not blur the result.

Wage earners over the age of 60 on average work an extra 2½ hours per week since 2008. This can, among other things, be attributed to improvements in health, *cf. Økonomisk Analyse: Stigende beskæftigelse og arbejdstid for seniorer – både blandt lavt- og højtuddannede, Ministry of Finance of Denmark, May 2017*.

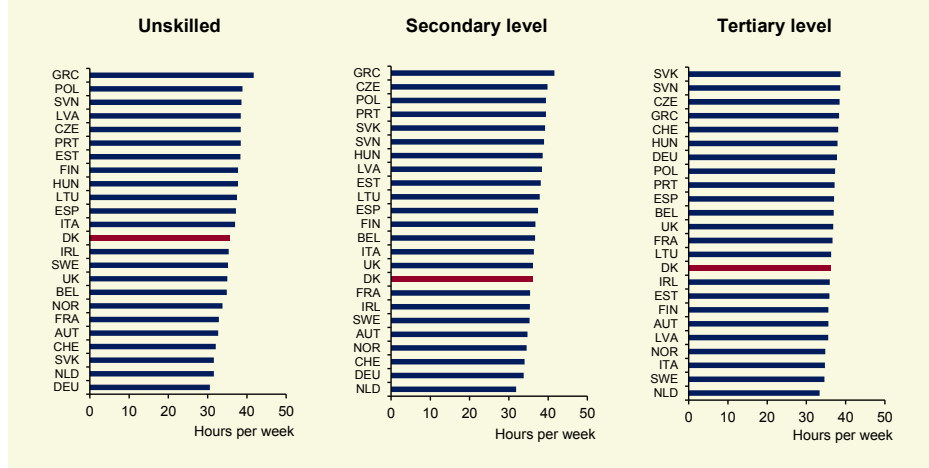
Average working hours is about 3 hours higher per week for wage earners with a tertiary education compared to unskilled and skilled workers, *cf. figure 1.26*. Since 2008, all education groups have brought down their average weekly working hours a bit. The greatest decrease is observed in the unskilled and skilled part of the labour force, *cf. figure 1.27*.

Since 2008, the share of persons with tertiary education has increased. Wage earners with tertiary education work more hours than unskilled or skilled workers. In isolation, the larger share of persons with a tertiary education pulls the weekly average up. This helps explain why average working hours has been unchanged on aggregate while – when looking at sub-components – each education group has experienced a slight decrease since 2008.



Note: Figure 1.26 shows persons above 30 years of age in 3rd quarter of 2016. Similarly, figure 1.27 shows persons of 30 years and above. The figure depicts the change from 3rd quarter of 2008 to 3rd quarter of 2016. Data is based on the registry for wage earner employment, *cf. also box 1.4*.  
Source: Statistics Denmark and own calculations.

**Figure 1.28**  
Average weekly working hours across education groups in 2015, 30-59 years



Note: Actual weekly working hours for persons in primary and secondary occupations in the age group 30-59 in the reference week. The weekly working time across primary and secondary occupations as well as the full-time and part-time employed workers is weighted based on size of population. “Secondary level” refers to workers with a technical/vocational or high school diploma only.

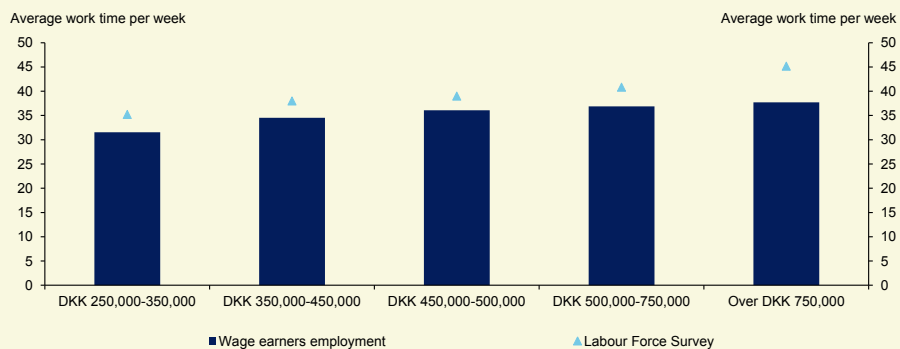
Source: Special request from Eurostat’s Labour Force Survey (interview based survey in all countries).

In spite of the fact that unskilled workers in Denmark work fewer hours per week than other education groups, their working time corresponds to the average among EU countries, *cf. figure 1.28*. On the contrary, wage earners with a technical/vocational or high school diploma only (the secondary level educational category) and those with tertiary education work fewer hours per week than the average among other EU countries.

Wage earners with an income above DKK 500,000 on average work more than 37 hours per week, which is about 5 hours more than wage earners with an income between DKK 250,000 and DKK 350,000, *cf. figure 1.29*.

As mentioned earlier, the data does not capture overtime for salaried workers. If considering instead the self-reported weekly working hours from the Labour Force Survey an even stronger relationship is observed between hours worked and income. Persons with an income exceeding DKK 750,000 work nearly 10 hours more each week than persons with an income between DKK 250,000 and DKK 350,000.

**Figure 1.29**  
Average work time per week across income groups in 2015



Note: Annual income in 2015 stem from tax filing reports to the Ministry of Taxation from 2015. Annual income has been adjusted to the 2017 price and wage level. The average weekly hours worked from the Labour Force Survey is measured as the actual hours worked in the reference week in 3rd quarter of 2015 for persons who earn wages. For data from the registry of wage earners average working hours are based on data from 3rd quarter of 2015. Both datasets only encompass persons of 30 years and above.

Source: Statistics Denmark and own calculations.



## 1.4 Annex table

**Table 1.3****Key figures compared to the *Economic Survey, December 2016*, for 2017 and 2018**

	2016	2017		2018	
		Dec.	May	Dec.	May
<b>Real change, per cent</b>					
Private consumption	1.9	1.8	2.0	2.0	2.0
Total government demand	0.2	0.7	0.5	0.4	0.5
- of which government consumption	-0.1	0.7	0.7	0.8 <sup>1)</sup>	1.0 <sup>1)</sup>
- of which government investment	2.2	0.6	-0.6	-2.5	-2.9
Housing investment	11.0	6.0	7.0	8.0	8.0
Business fixed investment	4.0	3.8	3.6	3.9	3.9
<b>Total final domestic demand</b>	2.0	1.8	1.8	2.0	2.1
Inventory investment (per cent of GDP)	-0.4	0.0	0.0	0.0	0.0
<b>Total domestic demand</b>	1.6	1.7	1.8	2.0	2.1
Exports	1.7	2.4	2.9	2.7	2.8
- of which manufacturing exports	4.2	2.8	3.9	2.9	3.4
<b>Total demand</b>	1.7	2.0	2.2	2.3	2.3
Imports	2.4	3.0	3.4	3.4	3.7
- of which imports of goods	1.9	2.9	3.5	3.3	3.7
<b>GDP</b>	1.3	1.5	1.7	1.7	1.7
GDP according to the output method (technical assumption) <sup>2)</sup>	1.3	1.6	1.8	1.8	1.8
Gross value added	1.0	1.5	1.9	1.8	1.6
- of which private non-farm sector	1.9	2.1	2.5	2.4	2.0
<b>Change, 1,000 persons</b>					
Labour force, total	39	26	42	23	21
Employment, total	48	29	37	25	23
- of which private sector	54	28	36	23	21
- of which public sector	-6	1	1	2	2
Gross unemployment	-10	-3	4	-2	-3
<b>Cyclical developments, per cent</b>					
Output gap	-1.0	-0.2	-0.4	0.0	0.0
Employment gap	-0.8	-0.4	-0.2	-0.1	0.0
Unemployment gap	0.4	0.1	0.0	0.0	0.0

**Table 1.3 (continued)**  
**Key figures compared to the Economic Survey, December 2016, for 2017 and 2018**

	2016	2017		2018	
		Dec.	May	Dec.	May
<b>Change, per cent</b>					
House prices (single family homes)	3.9	4.0	3.0	4.0	4.0
Consumer prices	0.2	1.2	1.3	1.5	1.6
Hourly earnings in the private sector	2.2	2.5	2.5	2.7	2.8
Real disposable income, households	1.6	1.2	1.2	1.3	1.2
Productivity in the private non-farm sector	-0.6	0.6	0.7	1.1	0.9
<b>Per cent per year</b>					
Interest rate, 1-year rate loan	-0.3	-0.2	-0.5	0.0	-0.1
Interest rate, 10-year government bond	0.0	0.7	0.6	1.0	1.0
Interest rate, 30-year mortgage credit bond	0.0	2.9	2.5	3.1	3.0
<b>Public finances</b>					
Actual public balance (Bn. DKK)	-18.6	-32.6	-32.8	-20.5	-15.5
Actual public balance (per cent of GDP)	-0.9	-1.6	-1.5	-0.9	-0.7
Actual public balance (per cent of GDP)	-0.1	-0.5	-0.5	-0.2	-0.3
Gross debt (per cent of GDP)	37.8	37.6	36.8	36.7	35.6
<b>Labour market</b>					
Labour force, total	2,983	3,002	3,025	3,025	3,045
Employment, total	2,877	2,901	2,914	2,926	2,937
Gross unemployment (average, 1,000 persons)	113	108	117	106	114
Gross unemployment (per cent of labour force)	3.8	3.6	3.9	3.5	3.7
<b>External assumptions</b>					
Trade-weighted international GDP-growth, per cent	2.1	2.0	2.3	2.1	2.2
Export market growth (manufactured goods), per cent	3.0	3.4	3.8	3.9	4.1
Exchange rate (DKK per USD)	6.7	6.9	6.9	6.9	6.9
Oil price, dollars per barrel	43.5	50.8	53.9	58.7	59.4
<b>Balance of payments</b>					
Current account balance (per cent of GDP)	8.1	7.5	8.1	7.5	7.9

- 1) The fiscal policy projection for 2018 relies on technical assumptions, *cf. also box 1.3*. This implies, among other things, that the fiscal scope in 2018 is placed as real growth in public consumption. To this end, real growth in public consumption in 2018 does not reflect the government's prioritizations.
- 2) Adjusted for historical extra contributions to GDP-growth resulting from public consumption now being measured using the output method while previously it was measured using the input method.