Chapter 1
Summary

1.1 The current economic outlook

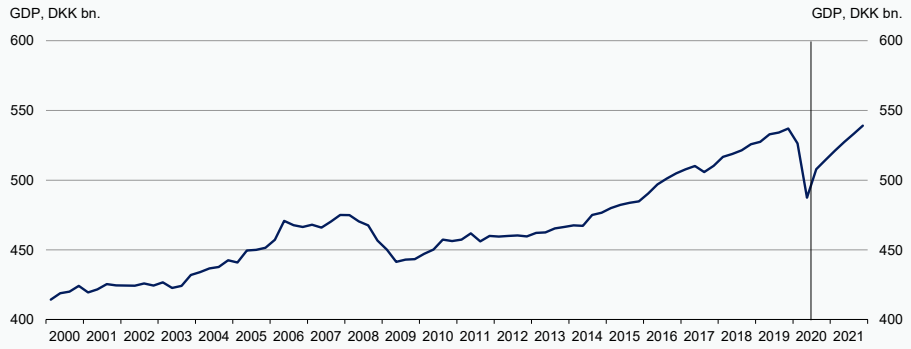
The corona pandemic continues to have a big impact on economic developments across countries. Contagion from the virus continues, with many new cases every day. The global economy has suffered a major setback, and the Danish economy has also been dealt a significant blow.

However, Denmark is among a number of countries that succeeded in getting the epidemic under control relatively early on, thereby enabling a reopening of the economy. This has lifted economic activity especially in the industries that have suffered most from the lockdown and changed consumer behaviour. However, exporting industries are facing difficult export market conditions.

The Danish economy is growing again following declines in GDP in the first and second quarter this year. A projected decline in GDP of 4.5 per cent this year is expected to be followed by an increase of 4.2 per cent next. Although GDP for this year is set to decline, the recovery is expected to have started in the third quarter, *cf. figure 1.1*. The economic recovery is aided by significant economic stimulus, which already exceed DKK 76 bn., and the proposed budget bill for 2021 proposes an expansive fiscal policy.

Figure 1.1

The recovery is underway



Note: The chart depicts a stylized quarterly path of GDP based on the projected annual level of GDP.
Source: Statistics Denmark and own calculations.

The GDP projections have been revised up since the May forecast, which largely reflect new policy decisions, that will increase demand and employment. However, significant uncertainty surrounds the projections, which are based on the assumption that the recovery will continue without major disruptions, and that the outlook for the global economy does not deteriorate further.

The uncertainty surrounding the forecast is mainly related to how the corona pandemic evolves. Recently there has been a flare-up in the number of new infections in a number of countries. This could lead to changes in behaviour, notably more restraint in consumer and investment spending. While the economic recovery seems to be well underway in Denmark, a deterioration in the global economy will weigh on Danish exports. Furthermore, a number of underlying economic risks remain, including the continued trade tensions between the United States and China.

Signs of economic recovery domestically

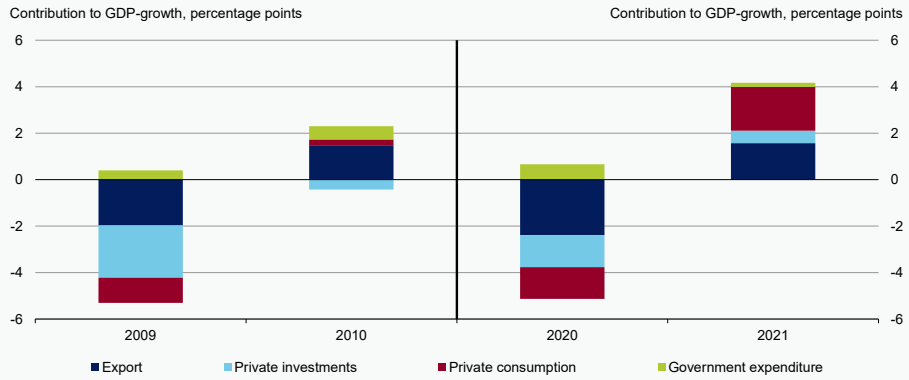
Several economic indicators suggest that economic activity in Denmark is increasing again. This follows a first half of the year where the Danish Economy experienced a decline of 9.2 per cent according to provisional accounts from Statistics Denmark.

However, the steep decline in economic activity, which especially occurred during March and April, means that there is a long way towards a full recovery. The economic recovery is only expected to be gradual, as confidence returns and patterns of consumptions and production are restored or altered to reflect new realities. At the same time, it is vital that the deterioration in international economic conditions do not intensify to a degree that would severely impact the Danish economy.

The projected recovery is expected to be driven by private consumption, while exports and private investments are set to deliver a significant negative contribution to GDP growth this year, and only a small positive contribution next year. Thus this recovery differs from the recovery following the financial crisis, which was especially driven by exports, while private consumption remained subdued for several of years, *cf. figure 1.2*.

Figure 1.2

The recovery is driven by private consumption



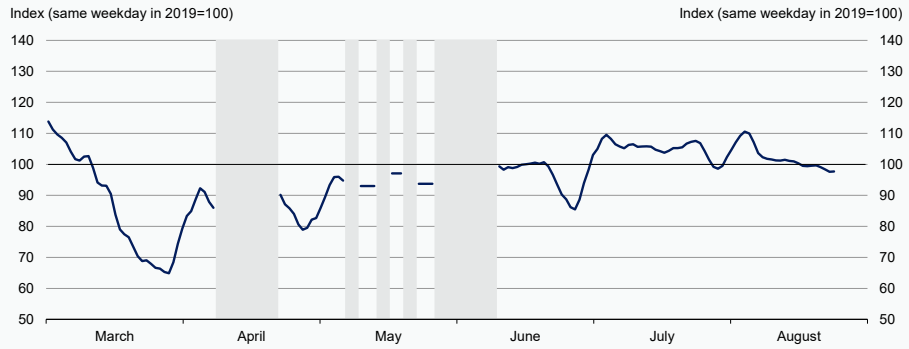
Note: The contributions to GDP-growth are net of import content.
Source: Statistics Denmark and own calculations.

The expectations for a recovery driven by private consumption should be seen in light of clear signs of increasing spending. The volume of credit card transactions and retail sales show an increase in private consumption since the spring. Although consumer confidence remains subdued, the level of credit card transactions is close to the level from 2019, *cf. figure 1.3*.

However, the increase in private consumption is partly due to catching up on deferred spending. This especially pertains to spending on clothes, which has risen significantly since the spring. Furthermore, the recent positive trends in several consumption indicators is also, to some extent, due to a shift towards credit card payments and away from payments in cash. In addition, private consumption has been affected by the fact that many Danes have remained in Denmark over the summer. The increased propensity to spend also provides grounds for assuming that the possibility of receiving three weeks of frozen holiday pay later in the year will result in a further increase in spending.

Figure 1.3

Consumption close to the levels from last year as measured by credit card transactions



Note: The figure shows a seven day moving average of actual transactions. The measure is based on transactions made in both Danish and foreign stores with payment cards and MobilePay for around 1 million Danish Danske Bank customers with active accounts. The information is not necessarily fully representative of the Danish population. Consumption is excl. cash payments and account transfers, which means that many fixed expenses for, among other things, housing are typically not included. The figure shows card transactions as an index value in relation to the same day of the week the year before to correct for the general differences in consumption over the week. There is no adjustment for price development. Public holidays give rise to significant fluctuations in the index and are therefore not included in the figure.
Source: Danske Bank Spending Monitor.

The housing market has also shown positive signs, with housing sales recovering from declines in March and April. The housing market is usually quite sensitive to the economic cycle and reacts quickly to shifts in sentiment. The quick recovery should also be seen in the context of the outlook for continued low interest rates. Furthermore, prior to the downturn the level of house prices was relatively balanced, with no signs of, for example, unsustainable increases in indebtedness as during the boom in 2005-2007.

Against this background, it is estimated that house prices will only fall slightly this year. With the Green Housing Agreement (May 2020), DKK 30 billion has also been allocated from The National Building Foundation to renovation in the public housing sector until 2026. Part of this amount will be used in 2020 and 2021 and will contribute to supporting housing investments.

The increase in domestic demand has occurred in line with the reopening of the economy and has been aided by the various support packages and compensation schemes that have helped maintain incomes and production capacity.

In addition, there are other policy decisions that will strengthen demand. In addition to the disbursement of three weeks of frozen holiday pay and the green housing agreement, these include investments derived from the climate agreement for energy and industry (June 2020) and the tax-free one-off subsidy of DKK 1,000 to all benefit recipients which will be disbursed in the autumn.

Domestic demand is also strengthened by increased public demand in the form of public consumption and public investment, *cf. section 1.2*. Overall, economic policy means that private consumption will fall less this year than would otherwise be the case, and also that part of the decline in private consumption will be offset by higher public consumption. Thus, economic policy dampens the decline in aggregate demand and supports the recovery.

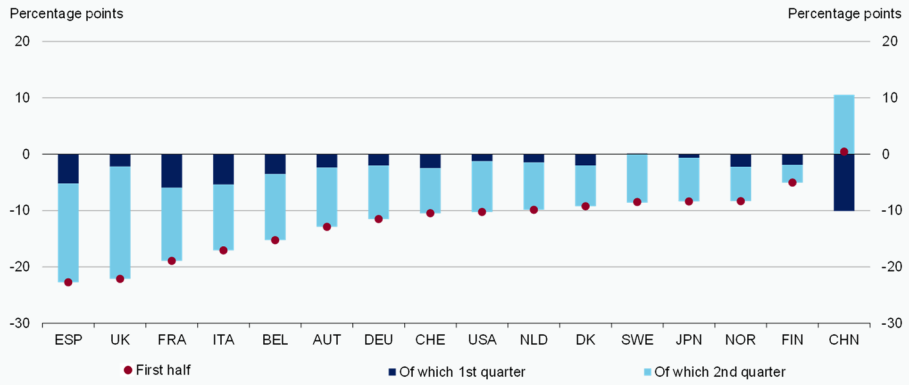
Exports affected by gloomier foreign prospects

Many countries have been hit harder by the corona pandemic than Denmark. This applies, *inter alia*, to the southern European countries, which have both experienced more widespread infection and are more dependent on tourist income. During the spring and early summer, international organisations have repeatedly lowered expectations for the world economy.

The bleak outlook has been underscored by historically large declines in GDP in the second quarter in many countries. Most countries have seen GDP decline by more than 10 per cent during the first half of the year, and for the hardest hit countries, the decline has been over 20 per cent, *cf. figure 1.4*.

Figure 1.4

Large drop in GDP, especially in the second quarter, in many countries



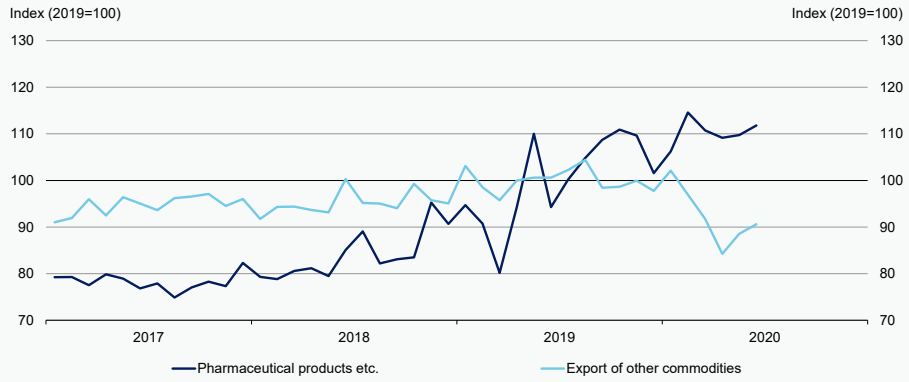
Source: Macrobond and own calculations.

The economic decline abroad is affecting export market demand. Restrictions on travel and other restrictions that have been implemented as a result of the corona pandemic also affect some export industries, for example by limiting the opportunities for new sales promotions or the ability to provide services in other countries.

These developments has led to a large decline in exports, although there are differences between industries. In particular, the pharmaceutical industry has been relatively unscathed during the first half of the year, *cf. figure 1.5*.

Figure 1.5

Exports are significantly below levels from last year, but the pharmaceutical industry has performed relatively well



Note: The figure shows exports of goods excl. aircraft, ships, fuel, etc. Pharmaceutical products etc. includes chemicals and chemical products.
Source: Statistics Denmark and own calculations.

Exports have risen somewhat in recent months, but companies with significant sales abroad generally still have a relatively pessimistic view of export prospects in the near future. Among other things, this may reflect a concern that a lack of new export orders will lead to lower exports. The export order backlog is thus assessed more negatively than prior to the crisis, but not to the same extent as during the financial crisis.

At the same time, many countries are expected to experience increasing economic activity from the third quarter onwards – in the same way as the Chinese economy already advanced in the second quarter. The recovery in many countries is also supported by comprehensive support packages as well as fiscal and monetary policy easing. In the EU, a fund (Next Generation EU) of 750 billion euro has been set up to aid the joint recovery of Member States following the worst economic downturn since World War II. This helps to support the expectation that there will be some recovery of exports, so that the growth contribution in 2021 will be positive.

Flexible labour market supports the recovery

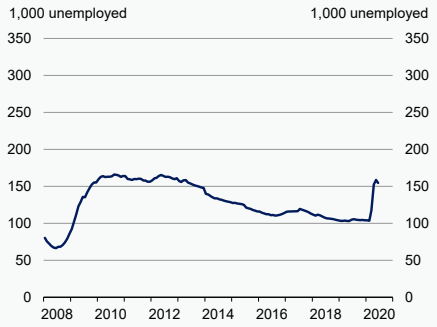
The labour market is heavily affected by the drop in economic activity in the Danish economy earlier in the year. The number of employed wage-earners fell sharply in February to June by around 74,000 persons and unemployment rose by around 51,000 persons in the same period. This includes a small improvement in the labour market recently, *cf. figure 1.6 and 1.7.*

Figure 1.6

Wage-earners

Figure 1.7

Unemployment



Source: Statistics Denmark and own calculations.

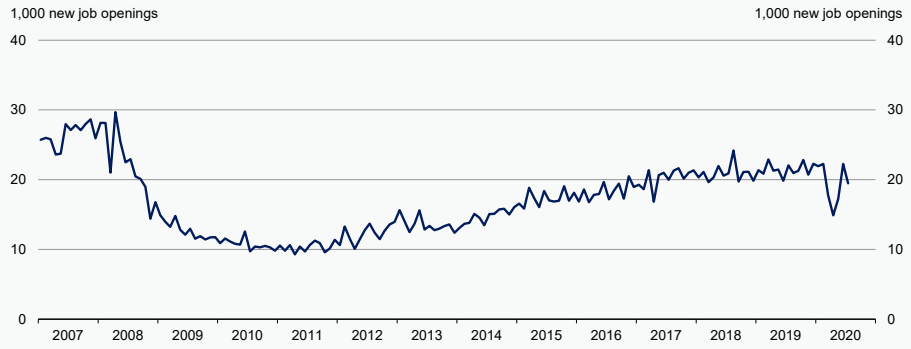
The wage compensation scheme has helped limit the setback in the labour market, which has not reacted to the extent that the drop in GDP would otherwise entail. The scheme has thus contributed to the economic recovery, partly by underpinning the income of wage-earners included in the scheme, and partly by ensuring the opportunity to return to work quickly.

When the crisis was at its peak in the spring, around 250,000 persons were furloughed. Since then many have left the scheme which, alongside the stabilisation in the number of unemployed and many new job openings, indicate that many have actually returned to work.

High-frequency data shows that there has been an improvement in the labour market since the middle of April. Daily observations for unemployment have stabilized and have begun trending downwards going into August. At the same time there are signs that firms are again willing to recruit. The number of new job openings had almost normalised in June after a sizeable drop in the spring, *cf. figure 1.8*.

Figure 1.8

Firms are willing to recruit again



Note: The figure shows new job openings in *Jobnet*. Own seasonal adjustment.
Source: Danish Agency for Labour Market and Recruitment and own calculations.

The Danish labour market is generally characterised by a large degree of flexibility with large movements in and out of employment, also in the case of unemployment. These labour market dynamics contribute importantly to the continual allocation of labour towards prosperous firms, and that the composition of unemployment changes such that persons generally do not remain unemployed for longer periods.

The experience from previous economic downturns is that a large number of hirings take place also during these periods – despite the worsened economic outlook. That was, for example, the case during the financial crisis, during which around 60,000 persons entered employment each month after shorter or longer spells without employment, *cf. figure 1.9*.

During the corona crisis, there has also continually been unemployed persons that have found a job become employed. 55 per cent of those that left unemployment since March 9 left in order to start in a new job. Other reasons for unregistering from unemployment are, for instance, education, maternity leave, early retirement, pension, or sick-leave. In comparison, from 2015-2019 an average of 46 per cent of people who unregistered as unemployed entered employment.

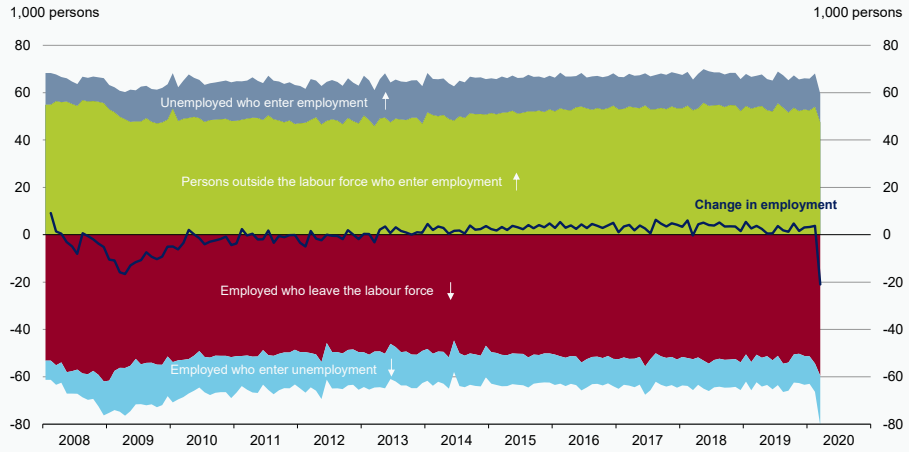
These dynamics ensure that economic setbacks do not leave permanent scars on the Danish labour market. A steady stream of new job openings and recruitments also underpin the recovery by supporting confidence that those who have lost their job they can get back into employment. In this, Denmark has a strong position in an international comparison due to a flexible labour market and the extensive efforts to help unemployed persons into employment.

With the agreement *aftale om styrket opkvalificering* (June 2020) funds have been reserved until 2023 that will ensure a lift in the level of education, also related to skills that

can support the green transition. An addition to this, a particular initiative has been agreed upon aimed at those who have lost their job during the corona crisis. Among other things, this implies that insured unemployed from August 1, 2020 through 2021 get the option to start a vocational education with 110 per cent of their previous unemployment benefit rate, if the education is within an area in with labour shortages.

Figure 1.9

Large dynamics in the labour market



Note: The figure shows the streams in and out of employment. If a person has a shorter period between two jobs without employment this will enter as a movement from and to employment, respectively. Persons who change directly from one job to the next are not included in the figure. There is a degree of uncertainty attached, among other related to when movements are registered.
Source: Statistics Denmark and own calculations.

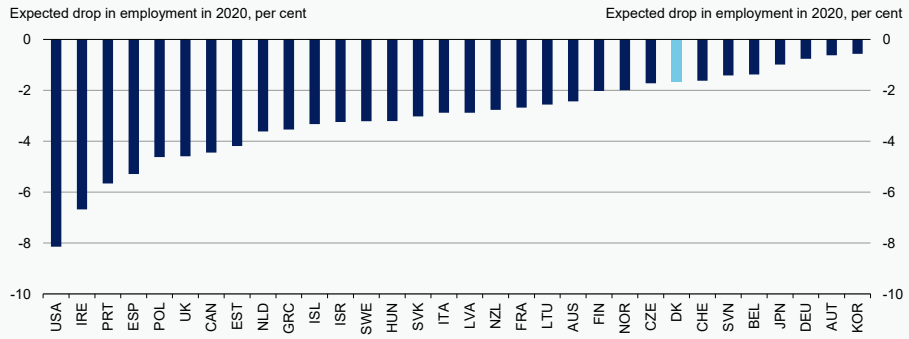
In sum, the nature of the Danish labour market and the policy measures which have been taken will limit the decline in employment this year. In an international comparison, the Danish labour market looks to be relatively less affected compared to a number of other countries, *cf. figure 1.10*.

The extensive stimulus initiatives and the expansive fiscal policy will contribute to further increasing employment next year. Moreover, the improvement in employment depends crucially on an improvement abroad, due to the impact on employment in the export oriented industries.

At the same time, a flexible labour market supports the increase in employment as the recovery also affects the labour market. Normally the labour market reacts with some degree of delay. On that basis, a drop in employment of 50,000 persons this year is set to be followed by an increase of 17,000 persons next year, as measured by the annual average. This includes larger shifts during the year. The rather moderate improvement from 2020 to 2021, measured by annual average levels, reflects an expected increase in private employment of around 55,000 people from the end of 2020 to the end of 2021.

Figure 1.10

The drop in employment is limited compared to other countries

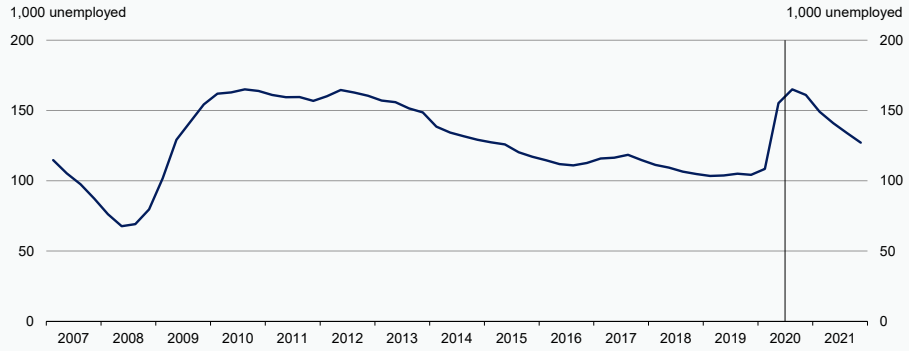


Note: Own estimate for Denmark. The OECD estimate for other countries is taken from the single-hit scenario. OECD estimates a drop in employment of 2.4 per cent for Denmark. When furloughed in the wage compensation scheme a person is counted as employed in Denmark. The employment figure for other countries may to a varying degree be affected by similar schemes.
Source: OECD Economic Outlook No. 107 (June 2020) and own calculations.

The improvement in employment is also reflected in unemployment which is set to decrease from the fourth quarter this year and onwards. Through 2021 unemployment is expected to decline by around 34,000 persons, reaching 127,000 persons at the end of the year, *cf. figure 1.11*.

Figure 1.11

The recovery will also lead to lower unemployment



Note: The figure shows a stylised quarterly path for gross unemployment based on the estimated development for the year as a whole.
Source: Statistics Denmark and own calculations.

Great uncertainty regarding the forecast

The corona pandemic has led to enormous uncertainty and a generally weakened confidence in the economic outlook. Uncertainty increased considerably in March when it became clear that the coronavirus outbreak would develop into a pandemic. Among other things, this led to large declines in stock prices. Since then, things have calmed down somewhat, but uncertainty remains elevated and will probably remain so until an effective vaccine or effective treatment options against the coronavirus are found.

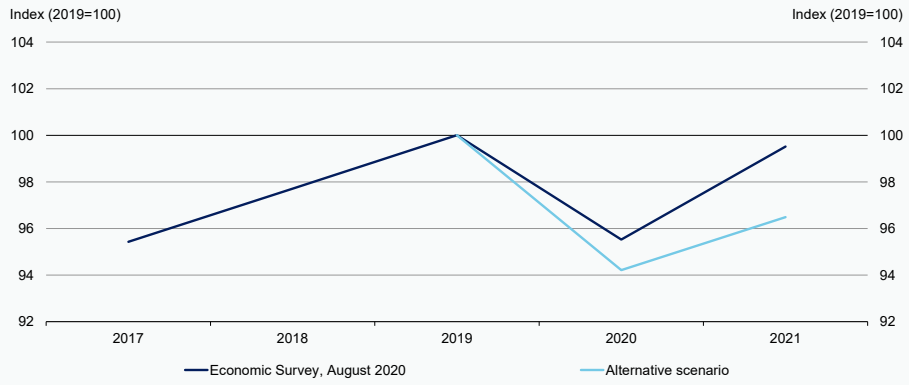
The forecast assumes that there will be a gradual recovery both at home and abroad. Recently, there has been an upsurge in the number of infection cases in several countries, including in Denmark. This can potentially lead to changes in the behaviour of households and businesses, which, among other things, can result in greater restraint regarding consumption and investments.

In the so-called *double-hit* scenario, which is based on a number of containment measures having to be reintroduced around the world, the OECD has estimated that growth in the global economy will decrease from -6.0 per cent to -7.6 per cent in 2020.

If the OECD's *double-hit* scenario is used as a basis for developments abroad, a more negative growth projection is also estimated for Denmark. The estimated decline in GDP in 2020 will increase from 4.5 per cent to 5.8 per cent. At the same time, the level of GDP in 2021 will be significantly lower, *cf. figure 1.12*.

Figure 1.12

Alternative scenario for Danish GDP based on the OECD's *double-hit* scenario



Note: In the alternative scenario, the OECD's double-hit scenario is used as a basis for assumptions about international growth. The alternative course is calculated as a marginal change in the ADAM model due to export market demand on the basis of the alternative assumptions about foreign growth. Furthermore, a corresponding change in the growth rate of business investments and inventory investments is assumed, which fits with the historical correlation with export market demand.
Source: Statistics Denmark and own calculations.

Moreover, the corona pandemic has overshadowed a number of other negative risks that, even before the crisis, implied great uncertainty. These are, for example, trade tensions between the United States and especially China, and the still unresolved relationship between the United Kingdom and the EU after Brexit. These uncertainties have not diminished and may lead to a more negative development in the global economy, which will also affect the Danish economy.

However, the pandemic has not caused an economic downturn in the same way as, for example, a financial crisis, where the need to reduce economic imbalances in the private sector together with weakened confidence and low expectations may hold back economic growth over a longer period of time. Thus, in the current situation, there is an opportunity for a relatively rapid recovery if, for example, effective treatment options are developed and confidence in the economic development strengthens quickly.

The Danish economy was in a good state before the crisis with no signs of significant imbalances, including on the labour market and the housing market. At the same time, a number of economic policy initiatives support the possibility of a speedy recovery. A more positive development is thus also a possibility.

Box 1.1

The forecast basis and changes since last forecast

The forecast is based on the national accounts, which are available until the first quarter of 2020, as well as a number of indicators for economic development, which for the most frequent range into August.

Since the assessment in May, there are new data for activity and employment, which provide a better basis for assessing the size of the economic downturn in the first and second quarters, as well as indications that the economy is once again improving. The forecast is also based on new policy decisions that strengthen demand.

The estimates for private consumption and public demand have been revised upwards in both forecast years, while the estimate for exports in 2020 has been lowered as a result of a more negative assessment of developments abroad. Overall, the decline in GDP in Denmark is expected to be smaller this year than assessed in May, and growth next year is expected to be slightly larger. The assessment is that the Danish economy will remain at below normal production levels in 2021.

The assessment is subject to exceptionally high uncertainty, and risks are primarily assessed to be in a downward direction. This is especially the case for developments abroad.

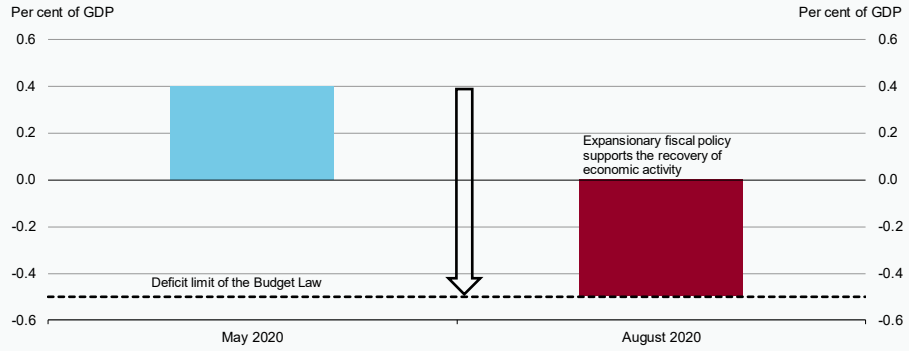
1.2 Fiscal policy and public finances

In the current situation, a central objective of the economic policy is to contribute to increase the activity in the Danish economy and support new economic progress.

In the general government draft budget proposal for 2021, the fiscal policy is planned to be expansionary and complies with the deficit limit of the structural budget balance requirement of the Danish Budget Law. Measured by the structural budget balance, the fiscal expansion amounts to approximately DKK 21 billion corresponding to 0.9 per cent of GDP compared to the presuppositions in *Economic Survey*, May 2020, c*f. figure 1.13*.

Figure 1.13

The structural budget balance in 2021 reflects the expansionary fiscal policy



Source: Statistics Denmark and own calculations.

The expansionary fiscal policy is both feasible and responsible. This reflects that the fiscal expansion is temporary and that the Danish economy had a strong foundation before the coronavirus pandemic with sustainable public finances, low public debt and high credibility. At the same time, the public finances was expected to show a surplus in the next few years.

This Economic Survey includes the impact of the fiscal stimulus implemented since the May projection as well as the general government draft budget proposal for 2021. Consequently, the fiscal policy contributes more considerably to the recovery of the economic activity and employment than previously projected.

The key figures for the public finances are summarized in table 1.1. In 2020, deviations from the balanced budget rules of the EU and the Danish Budget Law are allowed due to the exceptional circumstance of the corona crisis. Accordingly, the actual public deficit is not required to stay below the limit of 3 per cent of GDP as prescribed by the Stability and Growth Pact. Based on the current projections for the business cycle etc., the Danish fiscal policy is not planned on the basis of similar exceptional circumstances in 2021.

Thus, the basis for the fiscal policy in 2021 is the usual framework provided by the Danish Budget Law and the EU.

The government presents this Economic Survey at the same time as the general government draft budget proposal for 2021 in which funds are allocated to restore the Danish economy and handle the health care challenges effectively. Additionally, funds are allocated to improve welfare, enhance safety and trust, prioritize the climate and improve the conditions of Danish businesses etc. Based on the budget agreements with the municipalities and regions in 2021 and the general government draft budget proposal, the estimate of public consumption growth is 0.6 per cent in 2021.

Table 1.1

Key figures relating to fiscal policy

	2019	2020	2021
Structural budget balance, per cent of structural GDP	0.6	-0.4[4)]	-0.5
Actual budget balance, per cent of GDP	3.8	-3.9	-2.4
EMU-debt, per cent of GDP	33.3	46.3	41.9
Public consumption growth[1)]	0.0	2.2	0.6
Multi-year fiscal effect, per cent of GDP[2)]	-0.1	2.6	2.2
Multi-year fiscal effect, excl. extraordinary COVID-19 measures, per cent of GDP[2)]	-0.1	1.0	1.8
Output gap, per cent[3)]	0.3	-3.1	-1.1
Employment gap, per cent[3)]	0.8	-1.1	-1.0

1) Public consumption is calculated using the input method incl. depreciations. The estimated growth in public consumption is technically calculated to be the same using the input and the output method.
2) Calculated measure of how changes in fiscal and structural policies since 2019 affect the capacity pressure in the Danish economy (measured by the output gap). The fiscal effect in 2019 is measured as the one-year fiscal effect relative to 2018.
3) Calculated measure of how far production and employment are from their structural levels. When the gaps are approximately zero, the economy has no more available resources than under normal cyclical conditions. The shown output gap is calculated excl. the oil and gas extractions and is used in the cyclical correction when calculating the structural balance.
4) In 2020, several large measures directly related to containing and mitigating the coronavirus pandemic have been implemented. These are considered as one-off measures in the computation of the structural budget balance. In an illustrative example of not correcting for COVID-19 one-off measures, i.e. if the structural budget balance is calculated incl. COVID-19 one-off measures, it is estimated as -2.3 per cent of GDP in 2020, *cf. also chapter 8*.

Source: Statistics Denmark and own calculations.

Along with the general government draft budget proposal for 2021 and the updated projection, the government also presents *DK2025 - A green, fair and responsible recovery of the Danish economy* which determines the overall frame for the fiscal policy towards 2025 including an updated medium term projection for the Danish economy.

This includes an unchanged objective of structural balance in 2025 which, among other things, implies that permanent initiatives must be financed responsibly. The target of structural balance in 2025 supports that the Danish economy is able to handle the future

period with demographic headwind where large generations are replaced by small generations on the labour market. Furthermore, it helps to ensure that the EMU-debt – which has increased following the corona crisis – remains well below the EU-limit of 60 per cent of GDP.

Towards 2025, fiscal policy is planned based on an adjusted profile for the structural budget balance which supports the recovery of the economic activity in the following years. Within this fiscal policy frame, the highest possible growth in public consumption exceeds the growth in the demographic pressure in every year. Furthermore, the frame entails an increase in public investments and a reserve for additional fiscal stimulus.

The 2025-frame and the medium term projection in *DK2025 – A green, fair and responsible recovery of the Danish economy* provide the basis for the bill regarding the adjusted expenditure ceilings for 2021-2023 as well as the proposed expenditure ceilings for the new fourth year 2024.

Expansionary fiscal policy supports the recovery of the Danish economy

The economic downturn following the corona pandemic calls for economic stimulus – as in the case of the financial crisis – that supports economic growth and employment. Thus, the expansionary fiscal policy is in line with the current state of the economy and the view that the stabilization policy should have a symmetric impact during both economic up- and downturns such that it dampens the fluctuations in the economy, *cf. figure 1.14 and 1.15*.

Figure 1.14

The economic downturn….

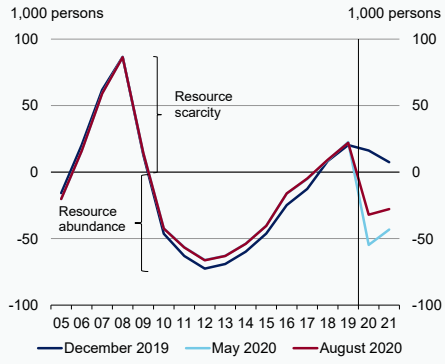
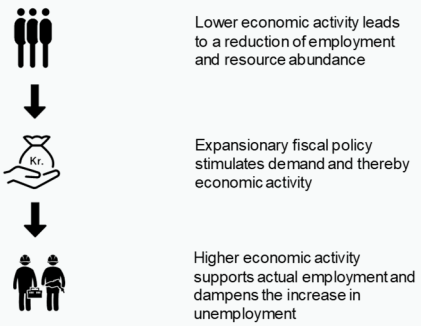


Figure 1.15

… calls for expansionary fiscal policy



Note: Figure 1.14 shows the employment gap.
Source: Economic Survey, December 2019 to August 2020 and own calculations.

Since the outbreak of the coronavirus pandemic, both comprehensive temporary compensation schemes and a number of expansionary fiscal policy measures have been implemented in order to stimulate the Danish economy. Most recently, before the summer break, the government reached a climate agreement for energy and industry etc. and an agreement on the payout of three of five weeks of otherwise frozen holiday pay.

With the temporary compensation schemes and fiscal stimulus, the fiscal support of the economy is large from a historic perspective, *cf. box 1.2*. The contribution from the planned expansionary fiscal policy in the current years is in the same order of magnitude as the fiscal stimulus in the years following the financial crisis in 2008. However, the expansionary fiscal policy following the financial crisis did not only reflect planned fiscal stimulus but also that public consumption expenditures increased more than planned, which was mainly a result of budget exceedances in municipalities and regions.

The EU recovery fund supports European economies

Due to the corona crisis, the EU leaders have – along with the agreement on the 2021-2027 budget of the EU – agreed on a recovery fund of EUR 750 billion (2018-prices) intended to support the economic recovery of the member states, *cf. box 1.3*.

Box 1.3

EU has agreed on a recovery fund of EUR 750 billion

On 21 July 2020, the EU leaders agreed on the 2021-2027 Multiannual Financial Framework (MFF) of EUR 1,074.3 billion and a Recovery fund under Next Generation EU of EUR 750 billion to support the European economies following the corona crisis.

The EU Commission is authorized to borrow funds on the capital markets in order to finance the recovery fund. The borrowed funds must be repaid by 2058. Of the total EUR 750 billion borrowed funds, EUR 390 billion are used for grants under individual EU programmes while the remaining EUR 360 billion may be used for loans.

The majority of the funds (approximately 90 per cent) are allocated under the Recovery and Resilience Facility (RRF). The total EUR 672.5 billion from the facility – of which EUR 360 billion are loans and EUR 312.5 billion are grants – shall be committed in the years 2021 and 2023. The remaining funds are allocated to other EU programmes including ReactEU, Horizon Europe, InvestEU, Rural Development, Just Transition Fund and RescEU.

Source: The EU Commission.

The majority (approximately 90 per cent) of the funds from the EU recovery fund will be used to support investments, reforms as well as the green and digital transition in EU member states and in particular those member states who are hit most severely by the corona crisis. Export to other EU member states is important to the Danish economy. While traditional, national fiscal policy can affect domestic demand, the EU recovery fund and the national fiscal policies of the other EU member states have the potential to support the recovery of the Danish economy through improved opportunities for export and investments.

Box 1.2

Implemented policies in 2020-2021 contribute considerably to the economic activity

Following the outbreak of COVID-19, the Danish government and parliament have implemented a number of expansionary fiscal policies with effect in 2020 and 2021. The fiscal policy consists partly of general fiscal initiatives such as higher public consumption and investment. The economic activity is also supported by the payout of holiday pay, which amounts to approximately DKK 39 billion after tax (2020-level), as well as private investments from The National Building Foundation and the climate agreement. These initiatives are estimated to increase demand by almost 2 per cent of GDP in 2021, *cf. figure a*.

In addition, the extraordinary compensation schemes support businesses and jobs during the COVID-19 pandemic. The payments from the compensation schemes are carried out primarily in 2020 but increase GDP by 0.5 per cent in 2021. In total, the fiscal policy is estimated to increase demand by 2.4 per cent of GDP in 2021 which contributes to reduce the output gap such that the negative output gap is approximately 1 per cent of GDP in 2021, *cf. figure b*.

The planned fiscal policy supports the economy considerably – also from a historical perspective. The economic stimulus in 2020 and 2021 is in the same order of magnitude as the impact of the expansionary fiscal policy following the global financial crisis in 2008. However, the fiscal effects in 2009-2010 also reflected unintentional budget exceedances in municipalities and regions.

The expansionary fiscal policies following both COVID-19 and the global financial crisis are several times larger than the stimulus during the recovery of the economy in 1993-1994, which had an estimated effect of 0.4 per cent of GDP on the economic activity in 1994. The fiscal effect in 1993-1994 was smaller than intended reflecting that the planned growth in public investments was harder to realize than expected. In the current situation, the larger fiscal stimulus also reflects the larger expected output gap.

Figure a
Fiscal effect on GDP

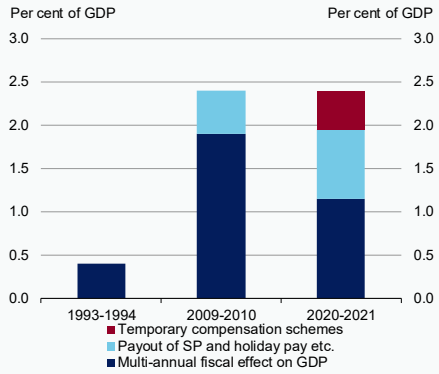
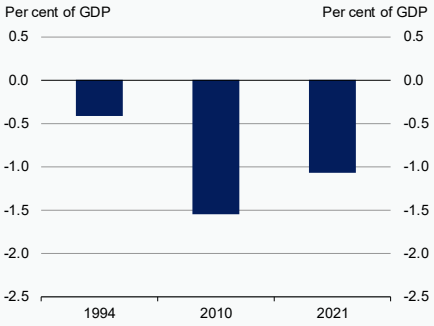


Figure b
Output gap



Note: The fiscal effect is measured as the multi-annual effect on GDP in year 2. The estimate does not account for the impact of structural reforms on the capacity pressure and thus solely reflects the effect of fiscal policy on demand. In figure a, 0.5 per cent of GDP of the fiscal effect in 2009-10 is due to The Special Pension (SP) payout amounting to approximately DKK 34 billion after tax (2020-level).
Source: Statistics Denmark and own calculations.

Actual budget balance and debt

The public finances in 2020 and 2021 reflect the economic setback following the coronavirus pandemic as well as the expansionary fiscal policies implemented in order to recover the Danish economy. Therefore, the actual public surplus of 3.8 per cent of GDP in 2019 is expected to turn into a deficit of respectively 3.9 per cent of GDP in 2020 and 2.4 per cent of GDP in 2021, *cf. figure 1.16*.

However, the actual budget balance in 2020 is estimated to be improved considerably in comparison with the public deficit of approximately 7.2 per cent of GDP in 2020 as estimated in the Economic Survey from May. This reflects that the expenses to the compensation scheme for businesses' fixed costs are adjusted downwards by approximately DKK 52 billion compared to the May projection. Furthermore, the tax revenue following the payment of three weeks of otherwise frozen holiday pay is estimated to improve the actual budget balance by approximately DKK 20 billion in 2020. Extensions of the compensations schemes as well as other implemented policies etc. pull the actual budget balance in the other direction.

Figure 1.16

Actual budget balance

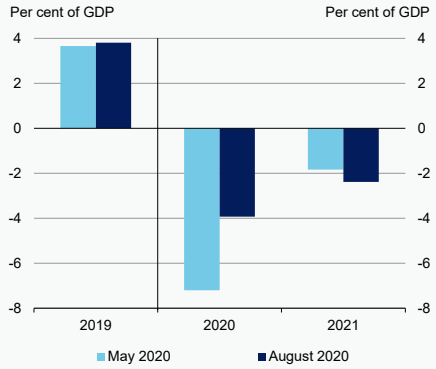
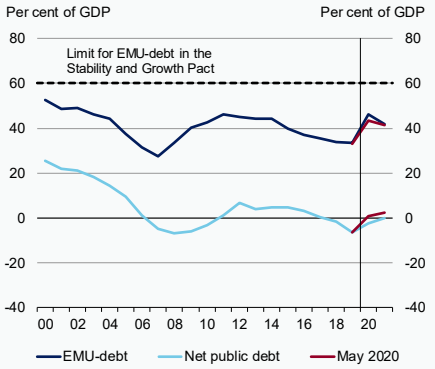


Figure 1.17

EMU-debt and net public debt



Source: Statistics Denmark and own calculations.

In 2019, the public assets exceeded the liabilities yielding a net public worth of 6.3 per cent of GDP corresponding to a negative net public debt. The net worth is estimated to be reduced to 2.6 per cent of GDP in 2020 and 0.1 per cent of GDP in 2021. The net public debt is the relevant measure for the sustainability of the public finances, and almost two years after the outbreak of the corona pandemic, the public sector is not expected to have a net public debt.

The Danish gross debt – measured by the EMU-debt – is projected to increase from approximately 33 per cent of GDP in 2019 to 46 per cent of GDP in 2020 after which it is expected to drop to approximately 42 per cent of GDP by the end of 2021, *cf. figure 1.17*. Thus, the EMU-debt is still expected to remain well below the limit of 60 per cent of

GDP as prescribed by Stability and Growth Pact – and Denmark is still among the countries with the lowest debt in the EU.

Compared to the Economic Survey in May, the estimate of the EMU-debt is adjusted upwards in 2020 and 2021, while the net public debt is adjusted downwards. This reflects that EMU-debt is a measure of the gross debt which corresponds to the financial liabilities in the public subsectors, while the net public debt is measured as the difference between public liabilities and assets. The payout of three weeks of otherwise frozen holiday pay will – in similarity with other initiatives – increase both assets and liabilities implying that the net public debt is not affected to the same extent as the EMU-debt. Additionally, the downward adjustment of the expenses related to the compensation schemes contributes in itself to both lower EMU-debt and net public debt.

1.3 Annex table

Table 1.2

Key figures from the August survey and comparison with estimates from May

	2019	2020		2021	
		May	Aug.	May	Aug.
Real change, per cent					
Private consumption	2.2	-3.0	-2.8	3.7	4.7
Total government demand	1.2	1.6	2.9	0.2	0.9
- of which government consumption	1.2	1.8	2.2	0.1	0.6
- of which government investment	0.7	0.5	7.9	0.9	3.4
Housing investment	6.1	-7.9	-0.5	-0.8	3.2
Business fixed investment	2.5	-12.2	-12.2	-0.5	-0.5
Domestic demand excl. inventories	2.0	-3.1	-2.3	1.8	2.8
Inventory investment (per cent contribution to GDP)	-0.3	-1.1	-0.9	1.2	0.8
Total final domestic demand	1.7	-4.3	-3.2	3.1	3.7
Exports	1.8	-8.9	-10.2	6.1	6.2
- of which manufacturing exports	7.8	-8.0	-8.3	7.3	6.0
Total demand	1.7	-6.0	-5.8	4.2	4.6
Imports	0.5	-7.5	-8.6	4.5	5.5
- of which imports of goods	1.1	-8.0	-7.0	4.5	5.0
GDP	2.3	-5.3	-4.5	4.0	4.2
Gross value added	2.4	-5.5	-4.8	4.2	4.3
- of which private non-farm sector	2.7	-7.1	-5.7	5.9	5.2
Change, 1,000 persons					
Labour force, total	31	-27	-8	12	8
Employment, total	35	-68	-50	20	17
- of which private sector	30	-74	-56	21	15
- of which public sector	5	6	6	-1	2
Gross unemployment	-4	42	43	-9	-9
Cyclical developments, per cent					
Output gap	0.3	-3.8	-3.1	-1.7	-1.1
Employment gap	0.8	-1.9	-1.1	-1.5	-1.0
Unemployment gap	-0.4	0.9	0.9	0.6	0.6

Note: The real change in government consumption is based on the output method in 2019. For 2020-2021 the real change in government consumption calculated by the input and output method is assumed to be the same.
Source: Statistics Denmark and own calculations.

Table 1.2 (continued)

Key figures from the August survey and comparison with estimates from May

	2019	2020		2021	
		May	Aug.	May	Aug.
Change, per cent					
House prices (single family homes)	3.0	-4.2	-1.5	0.5	1.9
Consumer prices	0.8	0.2	0.3	1.2	1.2
Hourly earnings in the private sector[1)]	2.5	2.1	2.1	2.4	2.4
Real disposable income, households	1.5	1.1	1.3	2.2	3.4
Productivity in the private non-farm sector	1.4	-0.8	-0.4	2.5	2.3
Interest rate, per cent per year					
1-year rate loan	-0.6	-0.5	-0.6	-0.4	-0.4
10-year government bond	-0.2	-0.3	-0.3	-0.4	-0.3
30-year mortgage credit bond	1.6	1.3	1.2	1.3	1.3
Public finances					
Actual public balance (DKK bn.)	88	-160	-88	-43	-56
Actual public balance (per cent of GDP)	3.8	-7.2	-3.9	-1.8	-2.4
Structural public balance (per cent of GDP)	0.6	-0.1	-0.4	0.4	-0.5
Gross debt (per cent of GDP)	33.3	43.2	46.3	41.5	41.9
Labour market					
Labour force, total (1,000 persons)	3,100	3,073	3,092	3,085	3,100
Employment, total (1,000 persons)	2,998	2,930	2,948	2,950	2,965
Gross unemployment (yr. avg., 1,000 persons)	104	146	147	138	138
Gross unemployment (per cent of labour force)	3.4	4.8	4.8	4.5	4.4
External assumptions					
Trade-weighted international GDP-growth	2.5	-6.0	-7.4	4.7	5.3
Export market growth (manufactured goods)	1.8	-12.2	-15.1	8.0	9.0
Exchange rate (DKK per USD)	6.7	6.8	6.6	6.9	6.4
Oil price, dollars per barrel	64.4	34.1	41.9	36.3	47.4
Balance of payments					
Current account balance (DKK bn.)	181	130	125	162	133
Current account balance (per cent of GDP)	7.8	5.8	5.6	6.9	5.7

Note: The real disposable income includes the projected effects of currently undisbursed holiday pay. Hourly earnings are based on the Confederation of Danish Employers' Structural Statistics (but in 2019 on the Confederation of Danish Employers' Business Cycle Statistics excl. inconvenience allowances)

Source: Statistics Denmark, IMF, Macrobond, Confederation of Danish Employers and own calculations.

Chapter 2

Preparation and accuracy of economic forecasts

Economic forecasts are a central part of the basis for decisions in relation to, for example, budgeting and planning of economic policy. Forecasts are also used in a number of other contexts, e.g. collective bargaining and investment decisions, and can generally play an important role in aligning expectations with economic developments among various actors.

However, forecasts are inherently uncertain and rest on a number of assumptions, which are partly model-based, but also have elements of a more subjective assessment, in which general economic knowledge and experience play a role. Forecasts express, at best, only the most likely development at a given point in time and will never be a certain prediction. For the same reason, an assessments of risks and the general state of health of the economy is also an integral part of a forecast.

This chapter provides an insight into the preparation of forecasts and the accuracy of forecasts. The chapter is not a technical documentation of the forecast work itself, but provides a more general presentation of some of the most important considerations and tools that are used.

2.1 Information on the current economic situation

The starting point for the forecast is a thorough assessment of the current economic situation, which should uncover the state and development of the economy. The most important source for this is the national accounts, which reflect production and demand in the economy at a very detailed level.

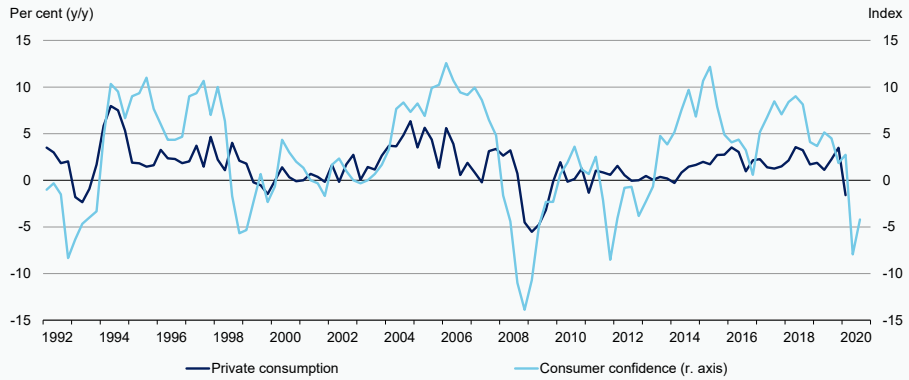
However, national accounts are only available with a certain delay, due to the time it takes to collect and process information. Furthermore, the initial versions of the national accounts are regularly revised as new information becomes available, and these revisions can often be significant.

Therefore, the assessment of the current economic situation must necessarily depend on a number of supplementary indicators that at an early stage can provide information on the present state of the economy. For example, these may include sentiment indicators which are based on surveys of assessments and expectations for future developments.

The relevance of using indicators depends on their information content. For example, it appears, that the consumer confidence indicator correlates relatively closely with private consumption, without the correlation being one-to-one, *cf. figure 2.1.*

Figure 2.1

Consumer confidence and private consumption



Note: Consumer confidence is shown as quarterly averages. The third quarter of 2020 is the average of July and August.
Source: Statistics Denmark and own calculations.

Correspondingly, there is also evidence of some information from the business confidence indicator on developments in, among other things, business investment and GDP, *cf. box 2.1*.

Studies generally find that confidence indicators and expectation indicators contain some information about the current situation.[1] This also means that a change of mood will be reflected in confidence indicators at an early stage, but only later in, for example, the national accounts. On the other hand, they typically do not have a large information content regarding future developments. Therefore, there is a limit as to how far into the future this type of indicator is useful in relation to predicting developments.

Indicators can also be derived from digital information, which may potentially be collected and processed quickly. Such indicators contain useful information and are an important complement to existing statistics. However, their use is also subject to certain pitfalls, as long time series are typically not available, and seasonal patterns and relationships with other economic variables are not yet very well known. This applies, for example, to information on card transactions, which is increasingly in use as an early indicator for the development in private consumption, *cf. box 2.2*.

[1] See e.g. Sørensen, J.: Business Surveys as forecasting tools, Danmarks Nationalbank, Quarterly Review, 3rd quarter 2010.

Box 2.1

The information content of survey-based sentiment indicators

Indicators, which are based on surveys, may at an early stage provide information on the development in, for example, production and demand or in the labour market. For example, there are signs that expectations of employment in construction and manufacturing are useful an early indicator of actual development. A formal analysis of the covariation between the companies' expectations and the later realized employment development shows that the expectations contain a significant signal about the current employment development, *cf. Ministry of Economics and the Interior (2019): Virksomhedernes forventninger som indikator for beskæftigelsen, Økonomisk Analyse nr. 42 (April).* However, the confidence band is relatively broad, and expectations can only be used to predict employment with considerable uncertainty. Nevertheless, the indicator is useful, as the analysis also shows that persistent changes in expectations, which run counter to the most recent developments, may provide a signal that a turning-point is coming.

Similarly, consumer confidence and business confidence can contain information on the development in private consumption and business investment, respectively, as well as production. Consumer confidence reflects consumers' assessment of the current and future economic situation - both their own and the broader economy. Business confidence is based on information about the companies' assessment of production, turnover and order backlog over the past three months as well as expectations for the next three months. The confidence indicators have a significant predictive power in models for the development in private consumption and business investment, *cf. figure a and b*. The models show that there is a high degree of covariation in with an estimated development, where the development in previous periods is included together with the confidence indicators. The models thus capture both the magnitude of fluctuations and the direction of change. The confidence indicators thus contain valuable information about current developments. On the other hand, there is not much extra information in the confidence indicators about the future, including in relation to turning points. Both private consumption and business investment are important components of GDP. Therefore, the confidence indicators also contain information on developments in GDP. An analysis based on the same approach also finds a significant positive correlation between the development in GDP and business confidence.

Figure a

A model of private consumption based on consumer confidence

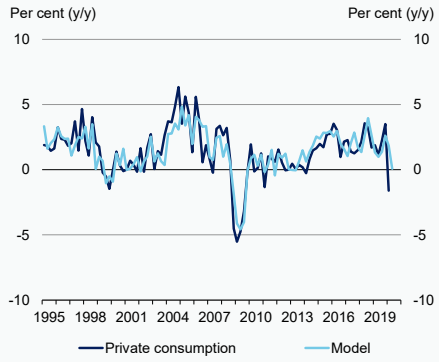
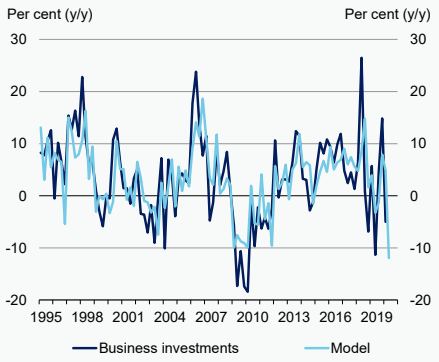


Figure b

A model of business investment based on business confidence



Note: The models are based on autoregressive models for the development of private consumption and business investment. The models are estimated with OLS, while the standard errors are estimated with heteroscedasticity and autocorrelation robust standard errors (Newey-West standard errors). The final models are found by gradually removing insignificant lags in the estimation.
Source: Statistics Denmark and own calculations.

Box 2.2

Payment card transactions as an indicator

The corona crisis has highlighted the importance of high-frequency data that, rather than more traditional economic indicators, such as the consumer confidence indicator or retail trade, can say something about current economic developments. These are, for example, data on household card transactions, which are published by Danske Bank in their Spending Monitor, *cf. figure a*. The volume of card transactions serves as a quick, but relatively uncertain benchmark for the development in private consumption. This uncertainty comes from a number of factors. First, the data only covers a fraction of total private consumption. In addition, card transactions only cover consumption using payment cards and not fluctuations in the use of cash or bank transfers as a means of payment. Finally, there has long been a trend toward increasing use of card payments. This trend has intensified during the corona crisis, as more purchases were made online or because customers preferred to use payment cards, or it was recommended by stores. All other things equal, this increases the volume of card payments. This means that a narrow view of total consumption - which does not take into account the decline in cash payments - will to some extent overestimate total private consumption.

Excluding account-to-account payments, the distribution between cash and card payments is estimated with considerable uncertainty to have been approx. 10 per cent and 90 per cent before the corona crisis. Based on cash-withdrawals, the use of cash payments is estimated with uncertainty to have fallen by around 30-40 per cent in the period from March to July compared to the same period last year, *cf. figure b*. If card transactions are used as a guideline for the development in private consumption during 2020, consumption was around 8 per cent lower in the second quarter of this year compared to last year, disregarding a lower share of cash payments. Taking into account a lower share of cash payments this year, consumption was an additional good 3 percentage points lower compared to the same time last year. This calculation is subject to considerable uncertainty. In addition, mobile payments such as MobilePay, which are included, are account-to-account payments. This will increase uncertainty.

Figure a

Volume of payment card transactions in 2020

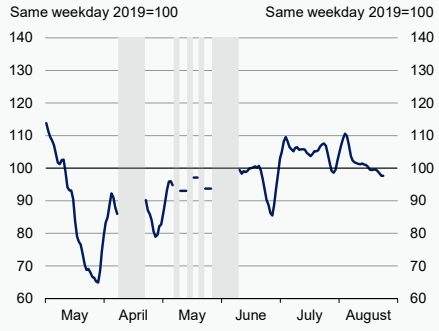
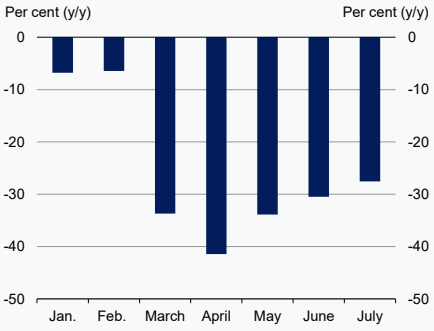


Figure b

Drop in cash withdrawals in 2020



Note: Figure a shows a seven-day moving average of actual transactions made in Danish and foreign stores with payment cards and MobilePay of around 1 million Danish Danske Bank customers with active accounts. The information is not necessarily fully representative of the Danish population. Payments made using notes and coins or account transfers are excluded, so that many expenses associated with, among other things housing are typically not included. Calculated as an index value in relation to the same day of the week in the same month last year. Public holidays give rise to significant fluctuations and are not included. Figure b shows cash withdrawals for all private customers in Danske Bank.

Source: Danske Bank Spending Monitor, information from Danske Bank and own calculations.

Another example is traffic and mobility data, which are indirect indicators of activity. So far, however, experience with this type of information is limited, and as these data often only covers a shorter period of time, it is often a challenge that seasonal patterns and the underlying connection with economic developments are not well known.

Finally, labour market indicators can shed light on the current state of the economy. Labour is an important input in production, and assessment of developments in the labour market is an essential part of economic forecasts. This is partly due to the fact that employment is important for private consumption, and in times of economic boom, labour will often be the scarce resource that limit the opportunities for continued growth.

Data on employment and unemployment are typically subject to fewer revisions compared to a number of other statistics, which makes them relatively reliable indicators. However, their value is limited by the fact that developments in the labour market usually lags the general economic trends, as companies usually wait to hire and fire until they have seen more certain signs of a given change of developments.

As a rule of thumb, the delay between production and employment is normally around two quarters. Therefore, under normal circumstances, it takes some time before a turnaround in the general economy is seen in the labour market. This was also the case during the financial crisis, where employment continued to increase up to and including the third quarter of 2008, while GDP already declined from the second quarter.

2.2 Assessing where the economy is heading

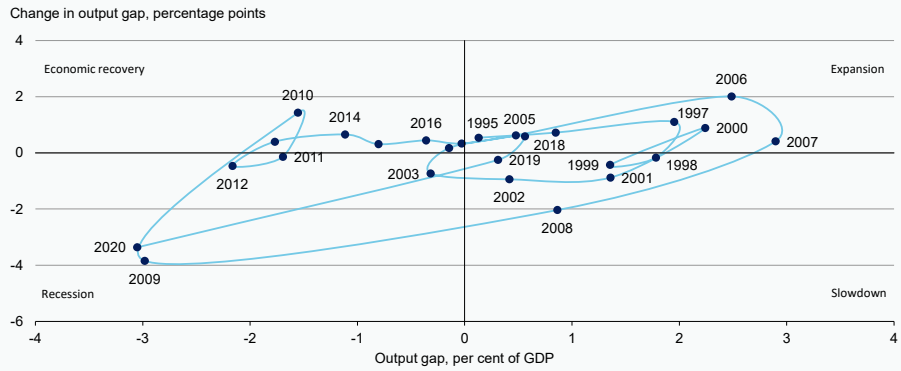
Reviewing economic indicators and key figures for the current situation are only the initial step in economic forecasting. A significant part of the work on assessing the business cycle consists of identifying what will drive economic developments in the forecast period. In this, the position in the business cycle and any imbalances that may require adjustment play a crucial role.

Over time, the economy grows along a trend that reflect higher levels of education, technological advances and other things that expand production capacity. In addition, population growth and reform measures that affect the workforce are also important for the rate of economic growth. On the whole, these factors define the neutral level of production and employment, which is compatible with stable price and wage developments and around which the economy will fluctuate.

Over a complete economic cycle, the economy will typically go through four phases: from a recession through a recovery to a boom and further through a slowdown to a recession, *cf. figure 2.2*.

Figure 2.2

Business cycles



Source: Statistics Denmark and own calculation.

Business cycles are rarely symmetrical. Typically, setbacks are short-lived, with a relatively sharp period of decline, while periods of recovery and boom are often more long-lasting. Thus, upswings (periods of recovery and boom) in Denmark have lasted an average of eight years, while recessions (periods of slowdown and recession) have averaged almost five quarters.

The assessment of the state of the business cycle is also based on economic models that model relationships between economic variables. Examples of well-established relationships are Okun's law and the Phillips curve.

Okun's law dictates that unemployment falls when growth is above a certain level (and vice versa when growth is below this level). The simple correlation illustrated below shows that unemployment in Denmark typically increases when growth is below 1.5 per cent, and that a 1.0 percentage point fall in the growth rate typically increases unemployment by 0.7 percentage points, *cf. figure 2.3*.

The absence of a one-to-one relationship between unemployment and growth is partly due to the fact that productivity improvements are typically a significant driver of growth, and also delays in the change in unemployment due to labour hoarding, and the fact that not all newly hired workers are unemployed. These factors can reduce the correlation between unemployment and growth over a given period of time.

The Phillips curve in its original form describes the relationship between the rate of wage increases and the unemployment rate. A simple version of a price Phillips curve shows that inflation fluctuates around 2 per cent when unemployment fluctuates around the structural level, *cf. figure 2.4*. The negative correlation has become less pronounced over time, which may reflect, among other things, that inflation expectations have become more stable, as well as the effects of increased international division of labour and international economic integration.

Figure 2.3

Okuns' law

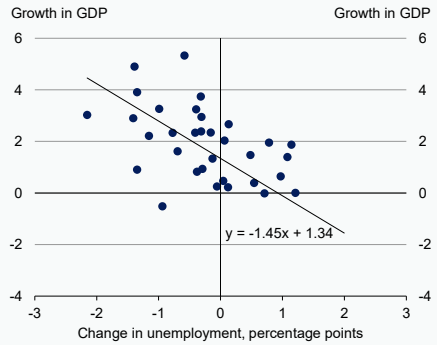


Figure 2.4

The Phillips curve

Note: The figures show data since 1986.
Source: Statistics Denmark and own calculations.

More elabourate versions of Okun's law and the Phillips curve are used in the calculation of business cycle gaps at the Ministry of Finance, which are key in assessing where the economy is in the business cycle. The output gap and the employment gap measure, for example, how far production (GVA) and employment are from the structural level.

In calculating the business cycle gaps, the output gap is technically linked to the employment gap rather than the unemployment gap as in the original form of Okun's law. However, the relationship between output and unemployment that emerges generally corresponds to the simple version, as the unemployment gap typically responds to changes in the output gap after approx. two quarters.[2]

In practice, very large models are also used, which contain many more economic relationships than these. The model ADAM, which is used at the Ministry of Finance, contains approx. 2,500 equations and approx. 3,500 variables.[3] The model helps to ensure that estimates are in accordance with historical contexts, ensure consistency and provide derived estimates for variables that are not directly estimated, e.g. productivity growth.

ADAM is an annual model. That is, it describes the development from year to year, while the development during a given year is not captured in the model. Furthermore, the model is largely retrospective and cannot in itself identify shifts in behavior or new trends. Thus, the model is not necessarily suited to capturing the sudden shifts in the economy that may occur, for example, in connection with overheating in the labour market and the housing market. However, the model will project an adjustment to a long-

[2] Cf. Ministry of Finance (2015): *Opdatering af finansministeriets beregning af gab og strukturelle niveauer.*
[3] Cf. Statistics Denmark (2012): *ADAM – En model af dansk økonomi.*

term equilibrium, which, among other things, helps to determine the size of the companies' desired stock of capital and the households' desired consumption. These conditions will also imply a need for adjustment in the investment ratio and the consumption ratio.

ADAM may also help to understand and quantify the impact of changes in assumptions relative to a baseline scenario (unless these are of unusual size or character). These include assumptions regarding interest rates, oil prices and developments abroad (see also section 2.4).

Thus, the preparation of forecasts ultimately becomes an interaction between model and forecaster, where experience, intuition and assessments play a role. Such an assessment will also include the significance of any current imbalances.

Imbalances increase the risk, and depth of downturns

The presence of economic imbalances such as excessive growth in borrowing or an overheated labour market increases the risk that shocks to the economy, including fluctuations in the financial markets, will cause an economic downturn.[4] Moreover, the presence of imbalances will, as a general rule, lead to a deeper economic downturn and a weaker subsequent recovery. In Denmark, for example, the financial crisis was exacerbated by both a bubble in the housing market and an overheated economy, where there was a widespread shortage of labour.

In light of the experiences from the financial crisis and the subsequent sovereign debt crisis in the euro area, there has been an increased focus on imbalances, including in the coordination (monitoring) of economic policies of EU countries. This applies not least to the development in lending and house prices, both of which intensified the downturn during the financial crisis, as housing prices and housing investment dropped and there was a longer period of restraint among consumers and companies. For the same reason, several financial variables in the EU's monitoring are included in the so-called macro-imbalance procedure in the EU together with indicators of competitiveness and the balance of payments, etc.

In the current economic situation, it has been a concern that the downturn would also strongly impact on the housing market. However, the housing market has proved fairly resilient. This should be viewed in the context of a starting point without significant imbalances that could have exacerbated a situation with declining prices. To the contrary, house prices appear to be below the level indicated by fundamental factors such as the interest rate and income level, *cf. box 2.3*.

[4] See e.g., Kramp, P. and J. Pedersen (2020): Expansion do not necessarily end because of old age, Danmarks Nationalbank, *Analysis* – June – No. 10.

Box 2.3

Model-based calculations of housing prices

The housing market is one of the areas in the economy where imbalances can arise. The supply of housing is naturally sluggish, as the housing stock can only respond slowly to changing demand. Therefore, house prices will have to adjust in the short term to balance demand and supply.

There are several models that can be used to determine the underlying level of house prices that is interpreted as the house price level that reflects fundamental factors such as interest rates and the income level. If actual house prices exceed the underlying price level, it may be a sign of imbalance in the housing market. This was seen, for example, during the 2000s, when the house price significantly exceeded the underlying price level.

In the macro model ADAM, the demand for housing is, among other things, determined by the development in income, interest rates and housing taxes. In the short term, rising demand will affect house prices, while housing supply will adapt over the longer term so that house prices will reflect construction costs, including labour and building materials. The model's house price equation indicates that the prices of single-family houses are currently somewhat lower than the current income and interest rates, etc. dictate, *cf. figure a*. However, model-based calculations cannot stand alone and must be interpreted with caution. This is due to several factors. First, there are a large number of assumptions that lie behind model calculations. The results of the calculations are thus sensitive to the way the model is specified. Secondly, the models are an expression of historical averages and thus do not necessarily capture structural shifts in the economy, for example in the relationship between house prices and interest rates. Therefore, continuous work is being done to improve the models. For example, Statistics Denmark is working to improve the housing capital ratio in ADAM, *cf. Statistics Denmark (2018): Hvad med boligkapitalrelationens fit?* The paper shows that a better explanation of housing capital can be obtained if the relationship between the price of an existing home and the cost of building a new one (Tobins q) is used to explain gross investment instead of net investment, where depreciation on housing capital is deducted.

Danmarks Nationalbank has also developed a model for the price of single-family houses, which provides a similar picture, *cf. figure b*. The model includes several factors that can describe the development in the short term, e.g. the change in house prices in the previous period and changes in interest rates, and in the long rund the model determines house prices based on household housing demand. Danmarks Nationalbank's model indicates that the real prices of single-family houses are currently somewhat below the model-estimated level.

Figure a

Real house price estimates – ADAM

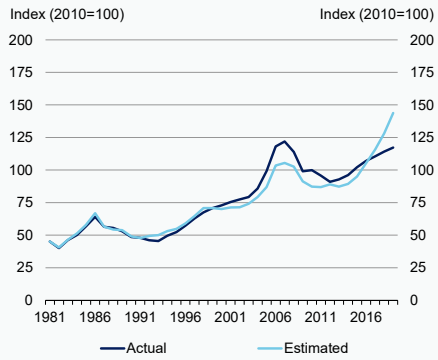
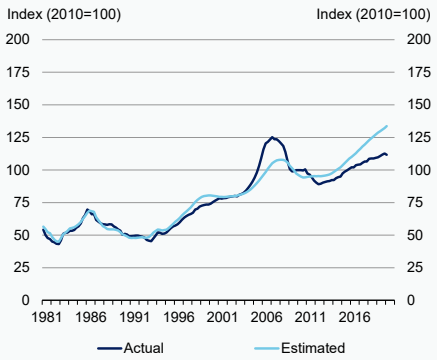


Figure b

Real house price estimates – Nationalbanken



Note: In figure a, the underlying price level is assumed to equal the actual price level in the starting year.
Source: Statistics Denmark, Danmarks Nationalbank and own calculations.

2.3 Why is it difficult to predict economic turning points?

Forecasts are largely accurate in predicting whether growth will be higher or lower. For instance, the estimates in the *Economic Survey* correctly predict the direction of the rate of economic growth for the next calendar year in roughly 80 per cent of cases.[5] Historically, however, economic forecasts have performed poorly when it comes to predicting large setbacks and economic crises.

The difficulty associated with predicting business cycle turning points – mainly economic setbacks – is partly due to the fact that periods of general economic progress do not usually end on their own, but are triggered by shocks that negatively affect the economy or the result of imbalances in the economy that have grown too large. However, for a small open economy like the Danish, it is also often international economic developments that trigger an economic downturn.

Some shocks to the economy, such as the September 11 terrorist attacks on or natural disasters, are inherently impossible to predict. This also applies to the corona crisis, which epidemiologists had warned about, but where the specific timing and extent is unpredictable and thus has a low probability of occurring within the forecast period.

With regards to imbalances, even when they have been identified, it may nevertheless still be difficult to predict how and when they are corrected. If imbalances are corrected through a period of gradual adjustment, for instance a change in the households' propensity to consume or a longer period of weak growth in house prices, it does not necessarily lead to an economic downturn, but rather a slowdown in growth.

But a more abrupt economic adjustment can also occur, and the probability of a sudden downturn increases if an external shock hits the economy at the same time, for instance if an event triggers a sudden change in business and consumer confidence.

Financial data can help forecast economic downturns

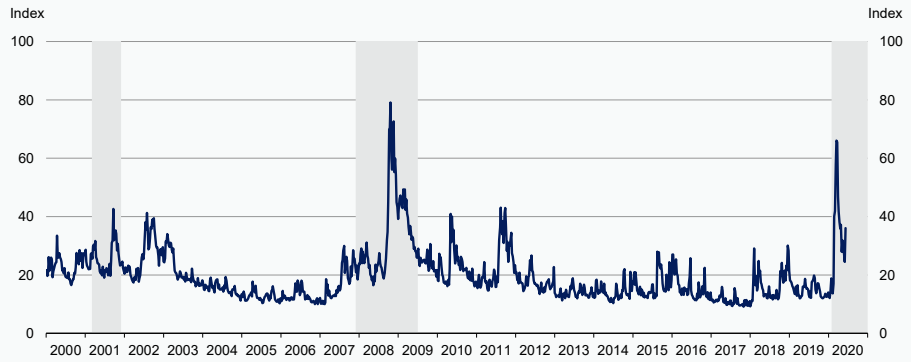
The difficulty of identifying economic turning points is partly due to the fact that the knowledge about the current state of the economy is incomplete, and that data is only available with a significant lag. However, data from financial markets are continuously updated and respond immediately to major shocks or events.

Share prices reflect, among other things, expected future earnings as well as associated risk and uncertainty. In times of great uncertainty and risk of an economic downturn, large price movements are common. A widely used indicator to identify the degree of concern in the financial markets is the volatility in the stock markets, which at the beginning of the corona crisis rose to levels similar to the financial crisis, *cf. figure 2.5*.

[5] See The Danish Ministry of Finance (2020): *How accurate are forecasts for GDP in the Economic Survey?* and chapter 2 in *Economic Survey, May 2018:* Evaluation of forecast accuracy.

Figure 2.5

Volatility index



Note: The shaded areas indicate recessions in US as defined by the research institute NBER. The volatility index is a measure of the market's assessment of short-term uncertainty, which is based on the prices of hedging against price fluctuations on the S&P500-index (the leading stock index in US) via futures contracts.
Source: Macrobond.

Studies from Danmarks Nationalbank and IMF show that developments in share prices can to a certain extent help to assess the risk that a recession is imminent.[6]

However, it is not easy to extract an accurate signal from the often volatile stock prices. This is due to the fact that stock prices are inherently forward-looking, and can be subject to large fluctuations, which do not necessarily always have a clear background in underlying economic conditions. Thus, price declines of more than 10 per cent are not unusual, and predictions of downturns in the economy on the basis of stock price developments will therefore involve a number of false positives.[7]

Financial markets are characterized by periods of optimism and pessimism and therefore it is possible that self-fulfilling expectations may at times influence stock prices. The development after Black Monday (October 1987) and the Flash Crash in 2010 (May 2010) are often highlighted as examples of large price declines in stock markets, which were not followed by an economic downturn. The relatively robust real economy in these cases, was partly due to the fact that Black Monday led to rapid monetary policy stimulus. Furthermore, share prices quickly recovered after the Flash Crash and the crash was therefore too short-lived to have real economic significance.

Another financial indicator that is often used to predict economic downturns is the spread between long and short interest rates, i.e. the slope of the yield curve. A flattening of the yield curve may reflect expectations of monetary policy stimulus, which will

[6] See footnote 4 and Bluedorn, J., J. Decressin, and M. Terrones (2013): Do Asset Price Drops Foreshadow Recessions? IMF Working Paper.
[7] See e.g. Paul Samuelson (1966): The stock market has predicted nine of the last five recessions. *Newsweek*, 19, September 1966.

usually be implemented when growth prospects are lower. The flattening of the yield curve can therefore reflect that market participants expect a slowdown in growth.

In other situations, the yield curve may flatten if monetary policy is tight in order to alleviate capacity pressures in the economy via lower growth. However, interest rates also reflect other factors, for instance quantitative easing, cf. box 7.2 in *Economic Survey, August 2018*.[8]

2.4 The assessment of risks and the illustration of uncertainty using fan-charts and scenarios

It is important to keep in mind that the uncertainty surrounding with economic forecasts gives rise to a relatively broad interval of possible outcomes.

The uncertainty can be illustrated by so-called fan charts, which provide a picture of the accuracy of the forecast based on previous forecast deviations. To illustrate the normal uncertainty in forecasts the estimated growth rate of GDP from *Economic Survey, December 2019* is shown together with a band corresponding to the average historical forecast deviation, *cf. figure 2.6*. Based on the historical accuracy the December projection for GDP growth in GDP in 2020 of 1.5 per cent lies in an interval between 0.5 per cent and 2.5 per cent. In 2021, the band widens.

Under usual circumstances, actual developments will land inside the band. Some of the uncertainty is also due to the fact that preliminary national accounts figures are revised regularly. Thus, Statistics Denmark estimate that the uncertainty surrounding the preliminary figures of quarterly GDP-growth is in the order of +/- ½ percentage points.

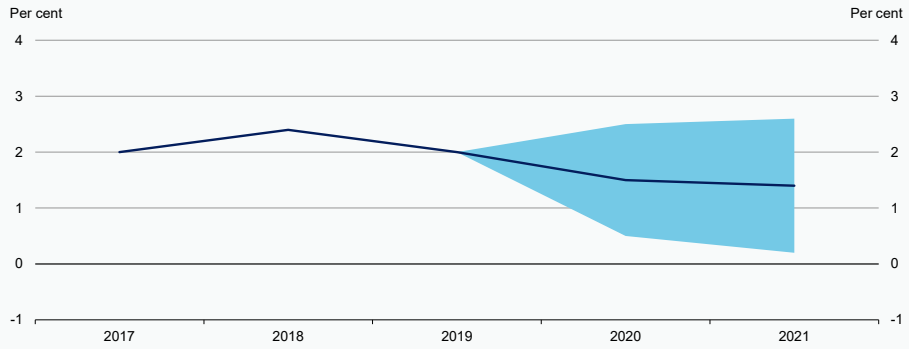
Even wide ranges of possible outcomes will not necessarily capture larger shifts in the economic cycle. Due to the coronavirus, the uncertainty surrounding growth and employment is presently much greater than under normal circumstances and is largely related to the development of the corona pandemic. The expected GDP decline in Denmark in 2020 is indeed markedly outside of the range shown.

In the present situation, it is therefore difficult to translate the usual forecast uncertainty to a confidence band. Consequently, the European Commission has, among others, excluded the usual confidence bands around their growth forecast in their Spring forecasts, with reference to the increased uncertainty related to the corona outbreak.

[8] See for instance also Deanie M. Haugaard Jensen and Rasmus Mose Jensen, Risks of global recession has increased, Danmarks Nationalbank, *Economic analysis number 16*, 2019 and Sirio Aramonte and Dora Xia, Yield curve inversion and recession risk, BIS Quarterly Bulletin, September 2019.

Figure 2.6

Illustration of uncertainty in GDP forecast for Denmark, December 2019



Note: The shaded band corresponds to the average historical forecast deviation in the Economic Survey, which is 0.9 percentage points in the first forecast year and 1.2 percentage points in the second forecast year.
Source: Statistics Denmark and own calculations.

For this reason several institutions including the Danish Economic Council, Danmarks Nationalbank and the Ministry of Finance has employed scenarios to illustrate the uncertainty. As an exception, OECD also showed two scenarios for the economic outlook of the international economy in their latest forecast, *cf. chapter 1*.

2.5 Forecast accuracy

The value of forecasts is linked to their accuracy. The more accurate the forecasts, the better the basis for decisions, for example on economic policy. But even the best economic forecast, is as mentioned, fraught with considerable uncertainty. The end result against which the forecast is measured - in the form of the national accounts - is also continuously revised, as Statistics Denmark receives more data from companies and authorities and incorporates the information into the national accounts.

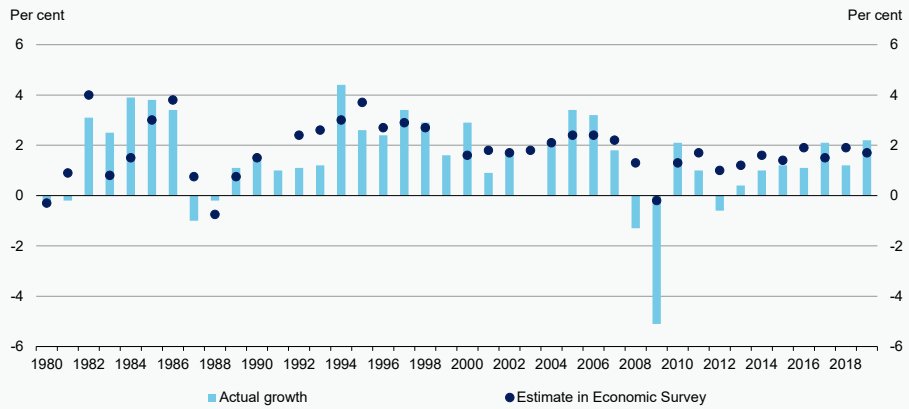
The forecast accuracy of the Economic Survey is evaluated at regular intervals, including in relation to other organizations. These evaluations focus on GDP growth, which is the most widely used and comprehensive measure of economic activity.

The evaluation shows that the forecasts in the Economic Survey tend to underestimate growth when it is relatively strong, such as in 2005-2006, and overestimate growth when there is an economic downturn. This was particularly the case in 2009, when the severity of the setback was significantly underestimated, *cf. figure 2.7*. This will also be the case in 2020, where the projection in December 2019 was a growth rate of 1.5 per cent.

Despite these episodes there is no evidence of systematic forecasting errors in the sense that estimates are systematically too high or too low.[9] The evaluation also indicates that the forecasts in the Economic Survey are generally at least as accurate as those from other institutions.

Figure 2.7

Actual GDP-growth and forecasts from Economic Survey



Note: The figure shows the actual GDP growth according to Statistics Denmark's first preliminary version and the GDP estimate in the Economic Survey in December in the previous year.
Source: Statistics Denmark and various issues of Economic Survey/Economic Overview.

The challenge in terms of predicting periods of very high or low growth and cyclical turning points affect all forecasters. This reflects that different institutions' forecasts for the Danish economy are largely based on the same basic economic understanding. They also typically include the same information and indicators for the state of both the Danish and the international economy that are inherently associated with significant uncertainty. This also applies to the assumptions underlying the economic models that are used in the preparation of the forecasts.

It is also evident that there is a close correlation between the size of the forecast deviations for the international economy - exemplified by forecast deviations for GDP growth in the euro area from the European Commission - and the forecast deviations in the Economic Survey for the Danish economy, *cf. figure 2.8*.

The close relationship is quite natural in light of the great importance that developments on export markets have for activity in Denmark.[10] In addition, demand in various countries is often affected by the same shocks and shifts in expectations, including changes in

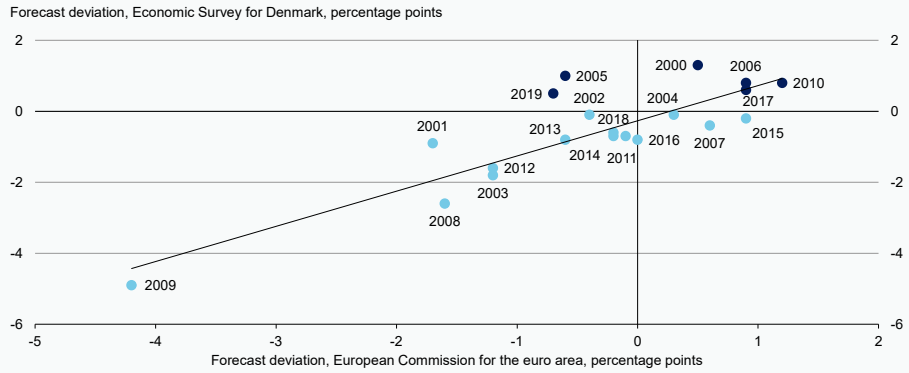
[9] Ministry of Finance (2020): Hvor godt rammer prognosen for BNP i Økonomisk Redegørelse? Published on the Ministry of Finance's website: www.fm.dk. Only available in Danish.
[10] Only available in Danish.

interest rates, oil prices, financial turmoil or, as is currently the case, the corona pandemic and international trade tensions.

The European Commission has also analysed the forecast deviations for the euro area. They are generally in the same order of magnitude as the forecast deviations for the Danish economy in the Economic Survey and in line with forecast deviations in forecasts from other international organisations.[11]

Figure 2.8

Forecast accuracy



Note: Each dot in the figure shows the forecast deviation for one year. The forecast deviations for the euro area are calculated in the same way as the forecast deviations in the Economic Survey for Denmark, but are based on the European Commission's estimates for the euro area in the autumn forecasts.

Source: Eurostat, European Commission, Statistics Denmark, various issues of Economic Survey/Economic Overview and own calculations.

[11] Chabin A., S. Lamproye and M- Výskrabka (2020): Are We More Accurate? Revisiting the European Commission's Macronomic Forecasts, European Economy, Discussion Paper 128, EU-Kommissionen, juli 2020.

Annex tables

Table B.1

Demand, income and production

	2019	2020	2021	2019	2020	2021	2019	2020	2021
	DKK bn.			Volume, per cent			Prices, per cent		
Private consumption	1,079	1,053	1,116	2.2	-2.8	4.7	0.8	0.3	1.2
Public consumption[1)]	556.8	583.9	590.8	0.0	2.2	0.6	1.9	2.6	0.6
Public investments[2)]	77	83	87	0.7	7.9	3.4	1.0	0.6	1.6
Residential investment	120	119	125	6.1	-0.5	3.2	2.6	-0.3	1.7
Fixed business investment	317	282	286	2.5	-12.2	-0.5	0.7	1.1	2.2
Domestic demand excl. inventories	2,152	2,124	2,209	2.0	-2.3	2.8	0.8	1.0	1.2
Inventory investment[3)]	10	-11	7.8	-0.3	-0.9	0.8			
Total final domestic demand	2,161	2,113	2,217	1.7	-3.2	3.7	0.7	1.0	1.2
Exports of goods and services	1,300	1,171	1,262	1.8	-10.2	6.2	2.1	0.3	1.4
Total demand	3,461	3,284	3,478	1.7	-5.8	4.6	1.2	0.7	1.3
Imports of goods and services	1,147	1,053	1,129	0.5	-8.6	5.5	2.4	0.5	1.6
GDP	2,315	2,230	2,349	2.3	-4.5	4.2	0.7	0.9	1.1
Taxes on products, net	297	288	300						
Gross value added	2,017	1,942	2,049	2.4	-4.8	4.3	1.1	1.1	1.2
- Non-farm private sector[4)]	1,397	1,323	1,417	2.7	-5.7	5.2	1.3	0.4	1.8
Gross national income	2,376	2,275	2,390						

Note: The division into volume and price components is made based on a fixed price calculation in the previous year's prices. The figures state the annual percentage change.

1) The change in volume for public consumption is calculated using the input method. In 2020-2021 growth in public consumption using the input method is assumed to equal growth using the output method.

2) Public investments exclude general government net purchases of buildings, and therefore the figures will deviate from public investments in table B.7.

3) The volume figures reflect changes in inventories compared to GDP.

4) Non-farm private sector consists of manufacturing, construction and private services excl. shipping.

Source: Statistics Denmark and own calculations.

Table B.2

Interest rates, oil price and exchange rates and external assumptions

Interest rate, per cent		2017	2018	2019	2020	2021
USA	Federal Funds Target Rate	1.1	1.9	2.3	0.5	0.3
	3-month LIBOR	1.3	2.3	2.3	0.7	0.2
	10-year government bond	2.3	2.9	2.1	0.8	0.7
Euro area	Main Refinancing Operations Rate	0.0	0.0	0.0	0.0	0.0
	3-month EURIBOR	-0.3	-0.3	-0.5	-0.4	-0.5
	10-year government bond (Germany)	0.4	0.5	-0.3	-0.5	-0.5
Denmark	Certificates of deposit rate	-0.7	-0.7	-0.7	-0.6	-0.6
	3-month CIBOR	-0.3	-0.3	-0.4	-0.2	-0.3
	1-year adjustable mortgage rate	-0.6	-0.5	-0.6	-0.6	-0.4
	10-year government bond	0.5	0.5	-0.2	-0.3	-0.3
	30-year mortgage interest rate	2.3	2.1	1.6	1.2	1.3
	Average interest rate	0.7	0.7	0.4	0.3	0.3
Oil price						
Dollar per barrel		54.3	71.1	64.4	41.9	47.4
DKK per barrel		358.1	448.7	429.2	277.0	305.0
Exchange rate						
DKK per 100 dollar		660.1	631.5	666.9	661.1	643.6
DKK per 100 euro		743.9	745.3	746.6	745.5	744.4
Effective Krone Rate Index (1980=100)		102.1	103.6	102.9	103.9	104.7
External assumptions						
Export market growth[1)], per cent		5.3	3.7	1.8	-15.1	9.0
Trade weighted GDP-growth[2)], per cent		2.8	2.4	2.5	-7.4	5.3

Note: The projections are based on data through July 29, 2020. Annual averages are own calculations. For monetary policy interest rates, the interest rate estimate is based on an assessment of the latest announcements by central banks and market expectations. For money market rates and the yield on 10-year government bonds, estimates are based on market expectations, which are based on the prices of swap interest rates. For the 1-year and 30-year mortgage rate bonds, data is Finance Denmark's bond rates and estimates are based on spreads to the 3-month money market rate and the 10-year government bond rate respectively. Estimates for exchange rates are calculated technically by assuming that the exchange rate for the remaining forecast period corresponds to the average during the last ten days prior to the estimation. Estimates for the oil price are based on the International Energy Agency, *World Energy Outlook*, November 2019, as well as futures prices.

1) Calculated as the weighted average of import growth in Denmark's 36 most important trade partners. The weights reflect the countries' share of Danish manufacturing exports in 2019

2) Calculated as the weighted average of the GDP-growth in Denmark's 36 most important trade partners. The weights reflect the countries share of Danish export of goods and services in 2019.

Source: Macrobond, Nordea Markets, The International Energy Agency, *OECD Economic Outlook*, June 2020 and own calculations.

Table B.3

Population and labour market

	2017	2018	2019	2020	2021
1,000 persons					
Total population	5,765	5,794	5,814	5,834	5,856
- Labour force	3,035	3,069	3,100	3,092	3,100
- Total employment	2,922	2,963	2,998	2,948	2,965
- Ordinary employment[1)]	2,842	2,880	2,909	2,854	2,866
- Subsidised employment[2)]	80	84	89	95	100
- Gross unemployment (incl. activation)[3)]	116	108	104	147	138
- Net unemployment	92	87	86	123	115
- Outside the labour force	2,730	2,725	2,715	2,742	2,755
- Recipients of unemployment benefits and cash benefits in activation outside the labour force	110	103	97	98	98
- Disability pensioners outside the labour force	181	178	182	194	206
- Voluntary early retirement	61	49	46	47	48
- Persons under 15 years	961	959	955	951	946
- Pensioners outside the labour force	975	989	987	976	965
- Others outside the labour force	442	447	447	476	492

Note: Recipients of education assistance benefit, the special education benefit and other temporary benefits (kontantydelse) are included as cash benefit recipients.

1) Calculated as the difference between employment as determined in the national accounts and subsidised employment, which is based on data from AMFORA. Due to differences in the definition of employment in the two sources, the data is subject to a degree of uncertainty.

2) Includes persons in employment with wage subsidies (including flexi-jobs and sheltered jobs).

3) The number of unemployment benefit recipients in activation and labour-market-ready cash benefit recipients includes persons in subsidised employment.

Source: Statistics Denmark and own calculations.

Table B.4

Employment by industry

	2017	2018	2019	2020	2021
1,000 persons					
Employment, total	2,922	2,963	2,998	2,948	2,965
- Service industries	1,533	1,554	1,577	1,542	1,550
- Construction	182	189	193	189	190
- Manufacturing	302	305	304	287	292
- Agriculture	70	70	68	68	69
- Public sector	818	824	829	835	837

Note: The industry division is based on the division in the ADAM model, which are not identical to the division in the national accounts.
Source: Statistics Denmark and own calculations.

Table B.5

Unemployment

	2017	2018	2019	2020	2021
1,000 persons					
Gross unemployment	116	108	104	147	138
- per cent of workforce	3.8	3.5	3.4	4.8	4.4
Net unemployment	92	87	86	123	115
LFS unemployment (per cent)	6.0	5.3	5.1	5.4	5.1

Note: Differences in the definition of the labour force between the Ministry of Finance and Statistics Denmark mean that the gross unemployment rate in per cent of the workforce is estimated at a lower level.
Source: Statistics Denmark and own calculations.

Table B.6

Benefit recipients etc.

	2017	2018	2019	2020	2021
1,000 persons					
Unemployment benefits (excl. activation)[1)]	70	69	71	101	95
Cash benefits (excl. activation)	95	87	80	86	86
Recipients of unemployment benefits and cash benefits in activation[2)]	35	34	34	39	38
Holiday benefit	5	5	4	4	3
Disability pensioners[3)]	203	199	203	217	229
Resource assessment benefit	33	37	38	37	36
Early retirement	61	49	46	47	48
Flexi-job scheme benefit	4	3	3	3	3
Revalidation benefit[4)]	5	4	3	3	3
Sickness benefit[5)]	57	57	59	71	60
Maternity leave	48	50	50	51	50
Benefit for unemployed	15	15	16	17	18
Integration benefit[6)]	22	17	13	15	13
Total	**653**	**627**	**620**	**690**	**682**
Student grant (SU)	329	328	322	315	317
Total, incl. SU	**982**	**954**	**942**	**1.005**	**999**
Pensioners	1,128	1,147	1,145	1,131	1,119
Total, incl. SU and pensioners	**2,111**	**2,102**	**2,087**	**2,136**	**2,118**
Subsidised employment[7)]	80	84	89	95	100
Total, incl. SU, pensioners and subsidised employment	**2,190**	**2,185**	**2,176**	**2,230**	**2,218**

Note: Recipients of education assistance benefit, the special education benefit and other temporary benefits (kontantydelse) are included as cash benefit recipients.

1) From 2018 and onwards, a new method of projections for recipients of unemployment benefits is applied. The new method causes a minor upward revision to the forecasts.

2) The data does not cover persons in subsidized employment and thereby differs from other register-based data and table B.3. Furthermore, both labour market ready and non-labour market ready cash benefit recipients are included in the group of recipients of unemployment benefits and cash benefits in activation schemes.

3) Disability pension and old age pension include pensioners living abroad as well as pensioners, who are employed.

4) Excl. persons on revalidation with wage support.

5) The number of sickness benefit recipients does not reflect the total absence due to illness. It includes the part of the sickness absence, which is not covered by the employer. Specifically, this covers sickness absences longer than 30 days as well as sickness among the unemployed.

6) Excl. recipients of integration benefits with wage subsidies.

7) Includes persons in employment with wage subsidies (including flexi-jobs and sheltered jobs).

Source: Statistics Denmark, DREAM and own calculations.

Table B.7

Gross investments

	2019	2017	2018	2019	2020	2021
	DKK bn.	Real growth rate, per cent				
Gross fixed capital formation	512	3.0	5.4	2.4	-6.1	1.1
divided into group:						
- Residential investments	120	12.1	5.3	6.1	-0.5	3.2
- Public investments	75	-8.0	1.8	-3.3	10.5	3.8
- Total business investments	317	3.2	6.5	2.5	-12.2	-0.5
- Construction investment	92	6.3	4.7	11.4	-14.0	-0.5
- Tangible and intangible investments	225	2.0	7.1	-0.8	-11.5	-0.5

Source: Statistics Denmark and own calculations.

Table B.8

Balance of payments

	2017	2018	2019	2020	2021
DKK bn.					
Goods exports	739	755	801	741	793
Goods imports	648	682	687	639	684
Goods balance, total	90	73	114	102	110
Service exports	461	495	499	430	468
Service imports	399	432	459	415	446
Service balance, total	62	63	39	15	22
Balance of goods and services	152	136	153	117	132
- Per cent of GDP	7,0	6,0	6,6	5,3	5,6
Investment income from abroad, net	55	67	71	52	50
Wage income from abroad, net	-12	-13	-13	-12	-13
EU payments, net	-10	-14	-14	-15	-17
Other current transfers from abroad, net	-16	-18	-17	-18	-19
Net transfers from abroad, total	16	22	27	8	1
Current account, total	169	158	181	125	133
- Per cent of GDP	7.8	7.0	7.8	5.6	5.7
Net assets against other countries	1,206	1,446	1,814	1,771	2,244
- Per cent of GDP	55.4	64.4	78.4	79.4	95.5

Source: Statistics Denmark and own calculations.

Table B.9

Exports and imports

	2019	2017	2018	2019	2020	2021
	DKK bn.	Real growth rate, per cent				
Exports						
Goods, total	801	5.5	1.8	6.4	-7.7	5.1
- Agricultural goods etc.	125	3.1	-1.4	4.1	-3.0	2.0
- Industrial goods (excl. ships etc.)	605	6.3	2.6	7.8	-8.3	6.0
- Other goods[1)]	71	2.5	1.2	-0.6	-10.8	2.5
Services, total	499	3.3	3.3	-5.1	-14.3	8.2
- Sea transport	207	-1.1	-1.1	-5.0	-8.2	4.0
- Other services	231	5.6	7.6	-6.9	-9.0	6.0
Total	1,300	4.6	2.4	1.8	-10.2	6.2
Imports						
Goods, total	687	6.3	2.6	1.1	-7.0	5.0
- Agricultural goods etc.	87	3.1	3.1	2.1	-1.8	1.5
- Industrial goods (excl. ships etc.)	443	7.1	1.2	2.8	-8.0	5.0
- Other goods[2)]	157	5.7	6.6	-3.9	-7.1	7.2
Services, total	459	1.1	5.1	-0.3	-10.9	6.2
Total	1,147	4.3	3.6	0.5	-8.6	5.5
Memo		Nominal growth rate, per cent				
Export of basic goods[3)]	761	5.3	1.3	7.4	-6.6	7.1
		Change, per cent				
Export prices						
Goods, total		0.2	0.4	-0.2	0.2	1.9
Services, total		4.4	4.0	6.1	0.5	0.7
Total		1.8	1.8	2.1	0.3	1.4
Import prices						
Goods, total		1.6	2.6	-0.3	-0.1	1.9
Services, total		2.5	2.9	6.7	1.3	1.2
Total		1.9	2.7	2.4	0.5	1.6

1) Raw materials, energy and ships etc.
2) Raw materials, energy, cars and ships etc.
3) Export of basic goods consists of export of goods excl. energy, ships and airplanes.
Source: Statistics Denmark and own calculations.

Table B.10

Private consumption

	2019	2017	2018	2019	2020	2021
	DKK bn.	Real growth rate, per cent				
Total consumption	1,079	1.6	2.6	2.2	-2.8	4.7
Retail trade goods	343	2.2	3.9	1.4	1.1	1.1
- Food, drinks and tobacco	156	1.3	2.2	0.2	1.2	1.5
- Other goods	187	3.0	5.3	2.4	1.0	0.8
Purchase of vehicles	43	3.8	8.8	4.2	-7.0	8.0
Electricity, fuels and gas	50	-2.2	1.0	-2.4	0.4	-1.5
Gasoline and similar	27	-0.2	1.0	2.2	-6.0	6.5
Housing	237	0.9	0.8	1.1	1.5	1.6
Other services	394	2.8	2.4	3.8	-10.9	11.9

Source: Statistics Denmark and own calculations.

Table B.11

Net lending by sectors

	2017	2018	2019	2020	2021
DKK bn.					
Private sector, total	137	147	94	213	189
- Households	42	46	-18	26	67
- Corporations	95	102	112	187	122
- Non-financial corporations	60	62	87	145	115
- Financial corporations	35	40	26	42	8
General government	33	11	88	-88	-56
Total	170	158	182	125	133

Note: Net lending of general government corresponds to the general government budget balance. The total (except for typically small net capital transfers from abroad) corresponds to the current account balance, *cf. table B.8.*

Source: Statistics Denmark and own calculations.

Table B.12

Gross value added (GVA)

	2019	2017	2018	2019	2020	2021
	Share, per cent	Real growth rate, per cent				
Total GVA	100	2.0	2.4	2.4	-4.8	4.3
Public sector	20	0.6	0.4	2.0	-0.2	1.4
Private sector	80	2.4	2.9	2.5	-6.0	5.1
Private sector excl. mining and quarrying	79	2.5	3.1	2.7	-5.9	5.2
Non-farm private sector[1)]	69	2.4	4.0	2.7	-5.7	5.2

1) Non-farm private sector consists of manufacturing, construction and private services excl. shipping.
Source: Statistics Denmark and own calculations.

Table B.13

Hourly productivity in selected industries

	Avg. 1995-2019	2017	2018	2019	2020	2021
Real growth rate, per cent						
Total	1.2	0.9	2.6	1.3	-0.9	1.7
Public sector	0.8	0.4	0.2	1.5	0.7	-0.5
Private sector	1.2	0.9	3.4	1.1	-1.0	2.2
Private sector excl. mining and quarrying	1.4	1.0	3.6	1.3	-0.9	2.3
Non-farm private sector[1)]	1.3	0.7	4.6	1.4	-0.4	2.3

Note: Hourly productivity is defined as gross value added in constant prices relative to the total hours worked.
1) Non-farm private sector consists of manufacturing, construction and private services excl. shipping.
Source: Statistics Denmark and own calculations.

Table B.14

Contributions to growth in households' real disposable income[1)]

	2017	2018	2019	2020[2)]	2021
Real growth rate, per cent					
Disposable income	1.9	2.3	1.5	1.3	3.4
Contribution, percentage points					
Compensation of employees[3)]	2.0	2.4	2.0	-0.2	1.7
Social benefits	0.0	0.0	0.6	1.9	-0.1
Income taxes	-1.1	-0.7	-1.4	0.1	0.0
Net interest income	0.3	0.0	0.4	0.0	0.0
Dividend etc.[4)]	-0.2	0.4	-0.4	-2.4	2.6
Pension contribution[5)]	-0.1	0.4	-0.5	0.8	-0.1
Payment from pension schemes[5)]	0.0	0.2	0.1	0.1	0.2
Others[6)]	1.0	-0.1	0.8	0.9	-0.7

1) The households in the Economic Survey include the NPISH-sector.
2) Disposable income in 2020 includes taxation of disbursement of frozen holiday pay.
3) Covering only employees residing in Denmark.
4) Incl. dividends from investment funds.
5) Occupational pensions etc. (but not individual pension schemes in banks, etc.)
6) Including self-employed.

Source: Statistics Denmark and own calculations.

Table B.15

Households' net lending[1)]

	2017	2018	2019	2020	2021
DKK bn.					
Disposable gross income[2)]	1,067	1,101	1,127	1,145	1,199
Private consumption	1,012	1,048	1,079	1,053	1,116
Gross investment[3)]	104	112	119	116	121
Net capital transfers[4)]	4	10	3	4	20
Direct net lending	**-45**	**-48**	**-69**	**-20**	**-19**
Adjustment for the change in pension entitlements[5)]	87	94	51	46	85
Net lending[6)]	**42**	**46**	**-12**	**26**	**67**
Per cent of disposable gross income					
Direct net lending	-4.2	-4.3	-5.6	-1.8	-1.5
Net lending	3.9	4.1	-1.1	2.2	5.6

1) The households in the Economic Survey include the NPISH-sector.
2) Disposable income in 2020 includes taxation of disbursement of frozen holiday pay.
3) Households' gross investments include investments in owner-occupied housing and investments in buildings and materials by sole proprietors.
4) Net capital transfers in 2021 include refunded property taxes to owner-occupied property owners and reserves for stimulus policies etc. on the Budget proposal for 2021.
5) Net payment to and return (excl. tax on pension yield) on household capital in life insurance companies and pension funds.
6) Household acquisition (net) of financial assets (incl. shares) in other sectors.
Source: Statistics Denmark and own calculations.

Table B.16

Real estate market and construction

Per cent	2017	2018	2019	2020	2021
Increase in the price of traded single-family houses[1)]	3.9	3.8	3.0	-1.5	1.9
Housing gross investment (real growth)	12.1	5.3	6.1	-0.5	3.2

1) The increase is adjusted for developments in the volume of housing sales.
Source: Statistics Denmark and own calculations.

Table B.17

Labour wage ratio, wage increases and computational preconditions

	2017	2018	2019	2020	2021
Labour wage ratio, per cent					
Private sector	57.3	57.2	56.6	58.8	57.1
The entire economy	63.2	63.2	62.6	65.0	63.4
Wage increase, per cent					
Private sector					
- Hourly earnings (excl. nuisance bonus)	2.2	2.3	2.5	2.1	2.4
Public sector					
- Hourly earnings (excl. nuisance bonus)[1)]	2.1	1.5	2.2	-	-
- Budgetary impact	1.7	1.6	1.8	2.5	1.6
Wage adjustment rate, per cent[2)]	2.0	2.0	2.0	2.0	2.0

Note: The labour income ratio is calculated as aggregated labour income relative to the GVA (gross value added) and adjusted for the number of self-employed. The hourly wage increases in the private sector are published by The Confederation of Danish Employers. The hourly wage increases in the public sector are a weighted average of wage indices for the state, the municipalities and the counties, all reported by Statistics Denmark. No estimates are made on the development in public sector hourly earnings. The budgetary impact is based on the contractually agreed wage increases including contributions from the adjustment scheme (regulerings-ordningen) but excluding any residual increases. The hourly wage increases for the private and public sectors are not comparable.

1) The estimated rate of increase in hourly earnings in the public sector in 2018 is affected by a technically relatively low wage increase in Q2 2018 compared to the agreed wage increases. This is because the wage increase agreed by April 1 2018 has been implemented retroactively in the wages for June 2018, while Statistics Denmark calculates Q2 wages on the basis of information about May.

2) The wage adjustment rate stated is the announced wage adjustment rate.

Source: The Confederation of Danish Employers, Statistics Denmark, and own calculations.

Table B.18

Price developments and explanatory factors

	2017	2018	2019	2020	2021
Change, per cent					
Net price index	1.2	0.9	0.9	0.1	1.4
Tariffs and housing benefits, contribution	-0.1	-0.1	-0.1	0.2	-0.2
Consumer price index	1.1	0.8	0.8	0.3	1.2
HICP	1.1	0.7	0.7	0.3	1.2

Note: The contribution from tariffs and housing benefits is computed as the difference between the consumer price inflation and the net price inflation. Changes in the prices of taxed goods such as energy can therefore influence the contribution from taxes, even though the tax level remains unchanged.

Source: Statistics Denmark and own calculations.

Table B.19

Public finances

	2017	2018	2019	2020	2021
DKK bn.					
Public consumption	535.6	546.8	556.8	583.9	590.8
Income transfers[1)]	353.2	355.9	365.4	388.2	391.2
Investments	72.3	75.4	76.7	83.3	87.5
Interest expenditures	23.4	23.8	17.3	16.0	15.8
Subsidies	38.7	38.1	38.2	88.0	41.3
Other expenditures[2)]	69.4	81.0	71.1	91.1	93.2
Total expenditure[3)]	**1,092.6**	**1,121.0**	**1,125.5**	**1,250.4**	**1,219.7**
Personal income taxes, etc.[4)]	455.3	463.7	483.1	495.9	496.7
Labour market contributions	94.2	98.1	100.7	104.9	104.5
Pension yield taxation	32.2	13.8	63.3	35.5	19.3
Corporate taxes	71.9	65.2	71.3	48.6	53.7
VAT	208.0	217.0	221.2	216.9	226.6
Other duties	143.4	146.7	145.0	142.7	144.7
Other taxes[5)]	5.5	5.6	4.5	3.3	2.2
Interest revenues	19.3	26.3	24.3	22.7	22.8
Other revenues[6)]	98.9	98.5	103.4	95.1	96.0
Tariffs etc. to the EU	-3.2	-3.2	-3.1	-2.9	-3.0
Total revenue[7)]	**1,125.7**	**1,131.7**	**1,213.7**	**1,162.7**	**1,163.6**
General government budget balance	**33.1**	**10.7**	**88.1**	**-87.7**	**-56.0**
Net interest expenditure	4.1	-2.5	-7.0	-6.7	-7.0
General government primary balance[8)]	**37.2**	**8.2**	**81.1**	**-94.4**	**-63.1**

1) Income transfers exclude other regular transfers to households such as mileage allowance and index supplement.
2) Other expenditures include capital transfers, transfers to the Faroe Islands and Greenland and the Danish EU-contributions.
3) Total expenditure differs from Statistics Denmark's equivalent. Total expenditure is calculated from a definition of the total expenditure, where all sub-elements of public consumption – e.g. imputed expenditure from depreciation and revenue from sales of goods and services – are defined as expenditures.
4) Personal income taxes include withholding taxes, tax on imputed income from owner-occupied dwellings, specific taxes from households, tax on estates of deceased persons and other personal taxes.
5) Other taxes include media license and mandatory pension payments for civil servants.
6) Other revenues include profits from public enterprises, current and capital transfers from other domestic sectors and the EU, and imputed (calculated) revenues such as contributions to civil servants' earned pension. Moreover, revenues from oil and gas explorations in the North Sea, duty on pipelines, and the hydrocarbon tax are included in other revenues.
7) Total revenue differs from Statistics Denmark's equivalent, where the sales of public goods and services are counted as revenue and not – like here – counted as a part of the total expenditures. Furthermore, total revenue here includes a revenue-counterpart to the imputed depreciation expenditures included in public consumption.
8) The general government primary balance states the balance of the general government finances before net interest expenditures.

Source: Statistics Denmark and own calculations.

Table B.20

Taxes and tax burden

	2017	2018	2019	2020	2021
Indirect taxes					
- VAT	**348.3**	**360.6**	**363.1**	**356.7**	**368.3**
- Registration tax	208.0	217.0	221.2	216.9	226.6
- Excise duties	20.0	20.6	20.3	17.4	19.8
- Energy (incl. PSO)	72.6	72.2	69.1	69.3	68.5
- Environmental	43.2	42.6	38.4	38.4	37.5
- Tobacco and spirits etc.	3.4	3.6	3.3	3.3	3.4
- Others	11.5	11.0	11.6	12.0	11.5
- Property taxes	14.4	15.1	15.9	15.6	16.1
- Motor vehicle tax paid by businesses	28.5	29.6	30.6	31.6	32.5
- Other indirect taxes	3.5	3.6	3.7	3.7	3.6
Direct taxes	15.7	17.6	18.2	17.8	17.4
- Withholding taxes[1)]	**653.7**	**640.5**	**715.6**	**682.2**	**670.0**
- State tax	435.1	442.9	461.1	475.2	475.5
- Bottom-bracket tax	150.6	156.4	164.3	172.2	169.6
- Top-bracket tax	111.3	126.9	144.1	149.9	149.5
- Health contributions	17.5	17.4	17.5	19.9	17.6
- Limited tax liability	19.2	9.7	0.0	0.0	0.0
- Total municipal tax	2.6	2.4	2.7	2.4	2.4
- Property value tax	236.9	239.2	248.4	260.6	258.1
- Other withholding taxes[2)]	14.2	14.5	14.6	15.1	15.7
- Pension yield tax	33.4	32.8	33.8	27.3	32.0
- Corporate tax	32.2	13.8	63.3	35.5	19.3
- Other personal taxes	71.9	65.2	71.3	48.6	53.7
- Media license	8.2	8.2	8.2	8.4	8.5
- Motor vehicle tax paid by households	4.4	4.5	3.5	2.3	1.2
- Labour market contributions	7.7	7.8	7.5	7.3	7.2
Social security contributions[3)]	94.2	98.1	100.7	104.9	104.5
Capital taxes	1.1	1.1	1.0	1.0	1.0
Customs and import duties (collected by the EU)	4.4	4.8	6.2	5.0	5.6
Total taxes	3.2	3.2	3.1	2.9	3.0
GDP	**1,010.6**	**1,010.1**	**1,089.1**	**1,047.8**	**1,047.9**
Total taxes, share of GDP	2,175.1	2,246.0	2,314.5	2,230.4	2,349.1
Indirect taxes	**46.5**	**45.0**	**47.1**	**47.0**	**44.6**

1) For 2017-2019, the distribution of withholding taxes to the state and municipalities is from Statistics Denmark. For 2020-2021, an estimate is used based on the Ministry of Finance's tax base forecast.
2) Includes equity income tax, tax on estates of deceased persons and revenue from the Danish business scheme etc.
3) Includes mandatory pension payments for civil servants in public enterprise etc.
Source: Statistics Denmark and own calculations.

Table B.21

Development in the tax base for municipalities

	2017	2018	2019	2020	2021	2017	2018	2019	2020	2021
	DKK bn.					Per cent				
May 2016	951.2	-	-	-	-	2.5	-	-	-	-
August 2016	958.4	-	-	-	-	2.6	-	-	-	-
December 2016	957.1	989.3	-	-	-	2.9	3.4	-	-	-
May 2017	954.3	988.0	-	-	-	2.8	3.5	-	-	-
August 2017	955.4	982.8	-	-	-	3.0	2.9	-	-	-
December 2017	961.4	990.9	1,010.5	-	-	3.7	3.1	2.0	-	-
May 2018	955.3	981.2	1,005.3	-	-	3.1	2.7	2.5	-	-
August 2018	959.2	979.9	1,008.0	-	-	3.5	2.2	2.9	-	-
December 2018	960.5	979.2	1,013.2	1,045.9	-	3.6	1.9	3.5	3.2	-
August 2019	960.6	966.7	1,005.7	1,033.8	-	3.6	0.6	4.0	2.8	-
December 2019	960.6	966.1	1,006.3	1,035.9	1,073.4	3.6	0.6	4.2	2.9	3.6
May 2020	960.6	965.7	1,008.8	997.6	1,042.7	3.6	0.5	4.5	-1.1	4.5
August 2020	960.6	965.7	1,010.7	1,054.6	1,044.9	3.6	0.5	4.7	4.3	-0.9

Note: Rows show the time of the budgeting of the municipal tax base in billion kroner and growth rates. The columns show the tax base in the year concerned.
Source: Statistics Denmark and own calculations.

Table B.22

Income transfers

	2017	2018	2019	2020	2021
DKK bn.					
Unemployment benefits (excl. activation)	14.6	14.0	14.5	21.1	21.2
Cash benefits[1] (excl. activation)	23.5	24.0	24.4	29.1	29.4
Vacation allowance	0.8	0.8	0.7	0.7	0.6
Anticipatory pensions[2]	40.2	40.2	41.9	44.9	48.1
Resource rehabilitation allowance	5.9	6.5	6.8	6.5	6.5
Early retirement benefit	11.6	9.0	8.2	8.3	8.4
Rehabilitation benefit	1.1	0.9	0.8	0.7	0.6
Sickness benefit	11.3	11.4	11.9	14.1	12.2
Maternity pay	10.7	10.9	11.1	11.5	11.5
Rent benefit	14.6	14.8	15.1	15.5	15.6
Child and youth benefit	14.7	14.6	14.7	14.8	14.8
Other transfers[3]	23.3	21.9	22.0	25.5	24.5
Student grants (SU)	20.6	20.7	20.7	20.4	21.1
Public pension scheme[4]	132.0	136.6	142.5	144.2	145.3
Other pension schemes[5]	28.5	29.6	30.2	30.8	31.3
Total[6]	**353.2**	**355.9**	**365.4**	**388.2**	**391.2**
Total, excl. public and other pensions	**192.7**	**189.7**	**192.7**	**213.2**	**214.6**
Total, excl. education grants, public pensions and other pensions	**172.1**	**168.9**	**172.0**	**192.8**	**193.5**

1) Taxable and non-taxable benefits incl. the integration benefit.
2) Incl. early retirement benefits to retired citizens in foreign countries.
3) Activation benefits, dependent child allowance, subsidy for childcare, unemployment benefits, special education benefit, green check and pay scheme for holders of flexi-jobs etc.
4) Incl. differentiated allowances and heating allowance for pensioners. Incl. pension schemes for citizens in foreign countries.
5) Civil servants in public enterprises and part-time early retirement scheme etc.
6) Income transfers exclude other regular transfers to households such as mileage allowance and index supplement.

Source: Statistics Denmark and own calculations.

Table B.23

Key figures estimated at different times

	Aug. 2018	Dec. 2018	Aug. 2019	Dec. 2019	May 2020	Aug. 2020
2018						
GDP (real growth rate, per cent)	1.8	1.7	1.5	2.4	2.4	2.4
Gross unemployment (1.000 persons)	108	108	108	108	108	108
Consumer prices (change, per cent)	1.1	0.9	0.8	0.8	0.8	0.8
Balance of payments (DKK bn.)[1)]	137	129	127	158	158	158
Actual budget balance (DKK bn.)	0	4	12	11	11	11
2019						
GDP (real growth rate, per cent)	1.8	1.7	1.7	2.0	2.4	2.3
Gross unemployment (1.000 persons)	103	103	103	104	104	104
Consumer prices (change, per cent)	1.6	1.5	1.0	0.8	0.8	0.8
Balance of payments (DKK bn.)[1)]	139	128	141	178	183	181
Actual budget balance (DKK bn.)	-8	-2	44	59	85	88
2020						
GDP (real growth rate, per cent)	-	1.6	1.6	1.5	-5.3	-4.5
Gross unemployment (1.000 persons)	-	99	101	105	146	147
Consumer prices (change, per cent)	-	1.8	1.4	1.2	0.2	0.3
Balance of payments (DKK bn.)[1)]	-	122	136	171	130	125
Actual budget balance (DKK bn.)	-	-3	10	-6	-160	-88
2021						
GDP (real growth rate, per cent)	-	-	-	1.4	4.0	4.2
Gross unemployment (1.000 persons)	-	-	-	108	138	138
Consumer prices (change, per cent)	-	-	-	1.6	1.2	1.2
Balance of payments (DKK bn.)[1)]	-	-	-	168	162	133
Actual budget balance (DKK bn.)	-	-	-	-5	-43	-56

1) The current account balance.
Source: Statistics Denmark and own calculations.