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**2020 European Semester: Assessment of progress on structural reforms, prevention and
correction of macroeconomic imbalances, and results of in-depth reviews under
Regulation (EU) No 1176/2011**

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EXECUTIVE SUMMARY

Denmark has benefited from a prolonged period of sustained and balanced economic growth, but challenges remain. Additional public funding has been allocated for education, research and transport to improve productivity and bolster long-term competitiveness. The anti-money-laundering framework has been strengthened, but further measures will be necessary to regain trust in the integrity and anti-money laundering defence capabilities of Danish financial institutions. Despite recent measures, the high level of household debt combined with high house price levels and risky loan taking remains a potential financial stability risk. Denmark's ambitious target for reducing greenhouse gas emissions will require significant investments and reforms across the economy⁽¹⁾.

Economic growth has been solid, averaging 2.4 % since 2015, well above the euro area average. Consumption and investment have been the main drivers of growth in this period. Households have experienced robust income growth, which they have used for both consumer spending and debt reduction. Labour market reforms and an influx of mainly EU workers contributed to a marked increase in the labour force. This supported Denmark's prolonged economic expansion, while avoiding an overheating of the labour market. In 2018, the employment rate reached 77.5 %, markedly surpassing the long-term average, while the unemployment rate declined to 5.1 %. Consumer price inflation remained subdued, reaching 0.7 % in 2019.

Investment has risen strongly since 2012. Business investment has been particularly strong, and, since 2015, housing construction further added to the growth in investment, supported by rising housing prices. Investment amounted to 22.0 % of GDP in 2018, well above the euro area average. Public investment amounted to some 3.5 % of GDP, a little down from its peak in 2014.

⁽¹⁾ This report assesses Denmark's economy in light of the European Commission's Annual Sustainable Growth Strategy, published on 17 December 2019. In this document, the Commission sets out a new strategy on how to address not only the short-term economic challenges but also the economy's longer-term challenges. This new economic agenda of competitive sustainability rests on four dimensions: environmental sustainability, productivity gains, fairness and macroeconomic stability.

The current account surplus is estimated to have jumped above 8 % of GDP in 2019 due to strong goods export performance. Danish exports have proven resilient to an economic slowdown in several of Denmark's trade partner countries, suggesting that its export product mix is less sensitive to cyclical developments. Successful Danish multinational companies provide additional impetus for goods exports and economic growth. The high external net asset position implies that Denmark receives capital income from abroad and provides significant support to the current account balance. On the savings side, persistently high household savings contribute to a substantial current account surplus.

Real GDP growth is forecast to slow down to around 1.5 %, slightly below its potential level. Consumer spending is projected to remain the main factor driving growth. Labour demand is expected to increase at a slower pace, but companies may still face some difficulties with hiring skilled workers. Considering this, wages are expected to grow faster than productivity, weighing on competitiveness. Investment is set to remain flat amidst slowing global economy and a cooling housing market.

The government budget surplus in 2019 is estimated to have reached 2.2% of GDP, largely due to a significant hike in pension yield tax revenue. The budget is forecast to remain in surplus in 2020 and to be close to balance in 2021, as the unexpectedly high pension yield tax revenue levels off and public expenditure, notably on education, research and healthcare, is set to increase. In addition, the repayment in 2020-2022 of unduly collected housing tax revenue (amounting to 0.8% of GDP) will also contribute to reducing the government surplus.

Denmark faces significant investment needs. Although it has an investment-friendly business environment, some factors are holding back investment. Investment in research and innovation is concentrated in a small number of large companies. Broadening this investment to a wider range of companies would promote innovation diffusion. The growing productivity gaps between large and small companies suggest weaknesses in this diffusion of technological advances. Channelling investments to vocational education and adult and lifelong learning is also key to

preventing skills mismatches and labour market tensions. Road congestion is projected to increase around the larger cities, and there is a need to decarbonise the transport sector. To deliver on the climate and energy objectives and shape a new growth model, Denmark needs to identify investment needs in green technologies and sustainable solutions, and secure adequate funding for these projects.

Denmark has made some⁽²⁾ progress in addressing the 2019 country-specific recommendation on investment.

There has been some progress in the following areas:

- Denmark has taken measures to focus investment-related economic policy on education and skills. The 2020 budget allocates more funds to research in energy and climate technology, but without specific measures to broaden the innovation base. The government has presented a specific transport plan to tackle road congestion in key areas (Section 3.4).
- Denmark took several significant legislative steps, improved the supervision and enforcement of its anti-money laundering framework and increased the financial and human resources dedicated to anti-money laundering, but several issues remain (Section 3.2).

Denmark continues to perform well on the indicators of the Social Scoreboard supporting the European Pillar of Social Rights. Employment is high, the gender employment gap is narrow and long-term unemployment remains one of the lowest in the EU. Unemployment has further declined in recent years. On the other hand, the proportion of young people who drop out of education and training (early school leavers) has increased in recent years, and reached a level slightly above the Europe 2020 target of 10 % in 2018. This is likely to be linked to the fact that there is a higher labour demand, which makes it easier for people to find work. In terms of

⁽²⁾ Information on the level of progress and actions taken to address the policy advice in each respective subpart of a country-specific recommendation is presented in the overview table in the annex.

education, there has been a slight increase in the overall proportion of low achievers, with the proportion of foreign-born students who are low achievers in reading being nearly three times as high as the proportion of low achievers among non-migrant students.

Denmark has made good progress towards its targets under the Europe 2020 strategy, notably in employment, research and development, greenhouse gas emissions, renewable energy and tertiary education. However, Denmark is not likely to achieve its target of reducing the number of people at risk of poverty or social exclusion.

On the United Nations Sustainable Development Goals, Denmark has made strong progress on climate action (SDG13), where it is an international leader. On the other hand, Denmark's results on quality education (SDG4) are sliding, although the levels remain satisfactory⁽³⁾.

The key structural issues, which have been analysed in this report, point to particular challenges for Denmark's economy, are the following:

- **Denmark's ambitious target for reducing greenhouse gas emissions by 70 % by 2030 (relative to 1990 level) will require significant investments and reforms across the economy, in line with the European Green Deal.** Achieving this target would give the country an opportunity to improve economic growth, job creation and health benefits. Denmark's strong position as regards SDG13 on climate action is a good starting point. The European Green Deal could support Denmark's efforts through such channels as green investments and increasing the demand for Danish climate technology. To reach the 2030 targets for greenhouse gas emissions not

⁽³⁾ Within the scope of its legal basis, the European Semester can help drive national economic and employment policies towards the achievement of the United Nations Sustainable Development Goals (SDGs) by monitoring progress and ensuring closer coordination of national efforts. The present report contains reinforced analysis and monitoring on the SDGs. A new annex (ANNEX E) presents a statistical assessment of trends in relation to SDGs in Denmark during the past five years, based on Eurostat's EU SDG indicator set.

covered by the EU emissions trading system, Denmark faces challenges to reduce emissions from transport and agriculture.

- The Commission's proposal for a **Just Transition Mechanism** under the next multi-annual financial framework for 2021-2027, includes a Just Transition Fund, a dedicated just transition scheme under InvestEU, and a new public sector loan facility with the European Investment Bank. It is designed to ensure that the transition towards EU climate neutrality is fair by helping the most affected regions in Denmark to address the social and economic consequences. Key priorities for support by the Just Transition Fund, set up as part of the Just Transition Mechanism, are identified in Annex D, building on the analysis of the transition challenges outlined in this report.
- **Energy consumption has increased for four consecutive years, which highlights the need for additional policy and measures.** Reducing total consumption may require additional steps, notably in energy efficiency, in order to reach its ambitious decarbonisation target.
- **Productivity growth has been sluggish for a prolonged period of time.** However, labour productivity growth has picked up since 2015 due to the strong performance of the manufacturing sector, while remaining moderate in the domestically oriented services sector.
- **The current account surplus remains high, but this is mainly due to high savings rather than low investment.** Declining corporate saving is compensated by increasing household and government saving. Corporate investment, driven by large companies, is well above the euro area average, but investment by smaller companies remains relatively subdued. Increasing investment made in smaller companies and targeting more R&D investment towards smaller companies could help sustain the recent positive trends.
- **Denmark has improved the supervision and enforcement of the anti-money laundering framework.** It took several significant

legislative steps over a relatively short period, but these still have to prove their effectiveness. The Financial Action Task Force has confirmed the improvements in Denmark's anti-money laundering supervision framework, but further progress is necessary, for instance on the supervision of both financial and non-financial entities. The government has increased the budget and the number of staff at the Money Laundering Secretariat and the Financial Supervisory Authority.

- **Although housing price inflation is slowing, the valuation of property prices still seems on the high side.** Housing prices have been easing in all regions and housing categories. A forthcoming new property taxation system, strong residential construction activity and already introduced macroprudential⁴ measures are expected to further curb housing price inflation, despite mortgage interest rates being at historical lows.
- **Households continue to reduce their high debt.** They have used the favourable economic environment to reduce debt, notably through refinancing mortgage loans, thereby increasing resilience to adverse shocks and contributing to financial stability. Despite the positive trends, however the proportion of variable-interest-rate and interest-only loans in the overall mortgage stock remains high, and Danish households have one of the highest spending on mortgage debt services in the EU. The debt level remains above what is warranted by economic fundamentals and represents a risk to financial stability. Several measures have been put in place to address this, but it will take time for their positive effects to be visible in the overall mortgage stock and for overall financial risks to be effectively reduced. The high level of household gross debt should be seen in relation to significantly higher, albeit less liquid, financial assets, notably houses and pension savings.
- **The tax deductibility of mortgage interest payments encourages home ownership and indebtedness.** The tax deductibility of interest

⁴ Macroprudential measures aim to reduce risky loan taking and mitigate risks to the financial system as a whole.

payments adds a dimension of debt bias to the tax system, which fosters house ownership and by extension household indebtedness. Abandoning the tax deductibility of interest rates and compensating with an increase in the overall personal income tax allowance would change these incentives and make the Danish tax system more progressive and less biased towards homeowners.

- **The Danish banking sector is well capitalised, and a number of macroprudential measures contribute to making it more resilient.** The Danish Systemic Risk Council has recommended to gradually increase the countercyclical capital buffer⁵ from 1 % to 2 % in 2021. Furthermore, a number of macroprudential and conduct measures are in place to mitigate risks in the real estate sector.
- **Labour shortages persist, but the situation is improving.** Reported numbers of unsuccessful recruitments are declining and the labour shortages seem to be specific to certain sectors and geographic regions. However, in order to increase the supply of skilled workers, it remains crucial to incentivise youth to choose vocational education and training and to reduce dropout rates.
- **A reform of the tax administration is under way.** The reforms are a reaction to a series of problems encountered by the Danish tax administration. Challenges remain, such as the modernisation of the property tax system, which was delayed from 2021 to 2024 due to delays in the readiness of IT systems.

⁵ A variable capital requirement that aims to make credit growth less cyclical and the financial system more resilient.

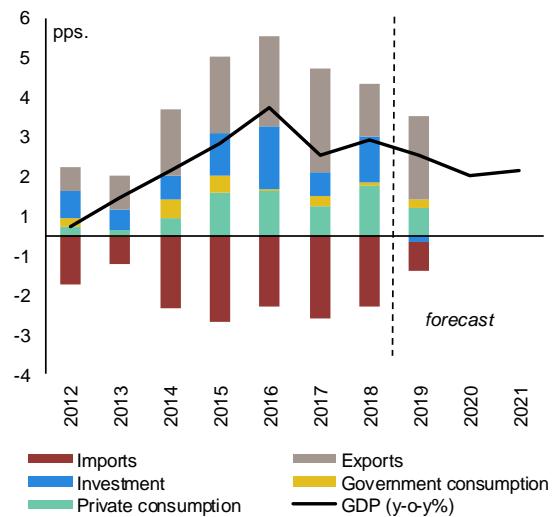
1. ECONOMIC SITUATION AND OUTLOOK

GDP growth

Denmark has experienced a solid upswing in recent years, expanding above potential growth.

The economy was slow to recover from the global financial crisis, which coincided with the burst of a housing bubble, but economic growth accelerated from 2012 onwards. The Danish economy shifted into a higher gear from 2015, growing at an estimated average rate of 2.4 % from 2015 to 2019 period (Graph 1.1), well above the euro area average of 1.6 % during the same. Denmark has also benefited from improving terms of trade and increasing returns on its foreign assets, which has increased the wealth of Danish households over the last 10 years. As a result, Denmark has experienced a robust growth in its gross national income, above the average seen in the euro area and among peer countries (Section 3.4.1).

Graph 1.1: GDP growth and contributions



Source: European Commission

Household consumption has been a key driver of growth. Private consumption has been expanding steadily since 2015 by around 2.2 % per year supported by a strong labour market and steadily rising disposable real incomes. Nevertheless, household consumption as a share of disposable income is lower than the pre-crisis average. After the crisis, private consumption growth lagged behind disposable income growth, as households focussed on building up savings and reducing their debt. Since 2015, household consumption to disposable income remained relatively stable, while at the same time household

indebtedness continued to decrease (see Section 3.2).

Investment growth has been particularly robust since 2012. Investment fosters progress towards SDG8 (decent work and economic growth). In 2018, investment accounted for 22.0 % of GDP, which is above the euro area average of 20.8 % of GDP. Business investment has been the main driver reaching a historical high of 13.9 % of GDP in 2018, with highest contributions from manufacturing, transport and dwellings. Public investment remained relatively high at 3.5 % of GDP in 2018, a little down from the peak of 3.9 % of GDP in 2014. Household investment contracted sharply following the crisis, but has been increasing robustly since 2015, in line with the rising housing prices. Overall investment is projected to decline in 2019 partly due to the negative base effect of a large acquisition in 2018 that raised investment, but high capacity utilisation rates suggest a steady, but moderate growth in the coming years.

Danish goods export growth and industrial production has decoupled from the other peer countries until the third quarter of 2019. While Danish industrial production rose by 4.8 %, it decreased by 1.7 % in the euro area in September 2019 compared to a year before. Danish goods export is estimated to have increased by around 9 % in 2019, the largest growth in the last 25 years. Favourable industrial specialisation and strong sectoral performance provided a boost for the Danish economy (Section 3.4). Nevertheless, the global slowdown started to impact and industrial production, exports and investment growth has been significantly slowing down since the last quarter of 2019. Following several years of strong expansion, real GDP growth is set to moderate to around 1.5 % in both 2020 and 2021, slightly below to its potential level.

Consumption is projected to remain robust. While employment growth is forecast to slow down, dynamic wage growth is set to underpin solid private consumption growth. A significant decline in interest rates led to a record-high number of mortgage loan re-financings in 2019. Mortgage refinancing is set to continue supporting

households' consumption by lowering their debt service⁽⁶⁾). Households have shifted towards longer fixation of interest rates and thus more predictable payment patterns (Section 3.2), while also benefiting from higher disposable income (Nationalbanken 2019a). Private consumption will be further supported by a one-off repayment of excessively collected property taxes to households being repaid from the end of 2020 until 2022 (Section 3.1). Government consumption is set to expand at a more dynamic pace due to increased spending on healthcare, education and transport infrastructure.

On the other hand, investment is expected to remain weak in the coming years. Easing housing market dynamics suggest moderate housing construction dynamics ahead. Equipment investment growth is projected to remain modest due to the uncertain global economic outlook. Both exports and imports are forecast to resume around their trend growth and net export's contribution to real GDP growth is expected to be marginal.

Denmark's commitment to become carbon neutral by 2050 at the latest will require substantial investments. Denmark's ambitious climate target will require public and private investments across the economy, with the energy, transport, agriculture and some other sectors particularly prominent. Denmark is already among the best performing EU countries as regards developing and taking-up environmental technologies. Danish "green enterprises" on average are larger, more export intensive and more productive than the rest of enterprises, placing Denmark in a strong position to also economically benefit from the green transition. The green transition could thus provide additional impetus to economic growth (Section 3.5).

Potential growth

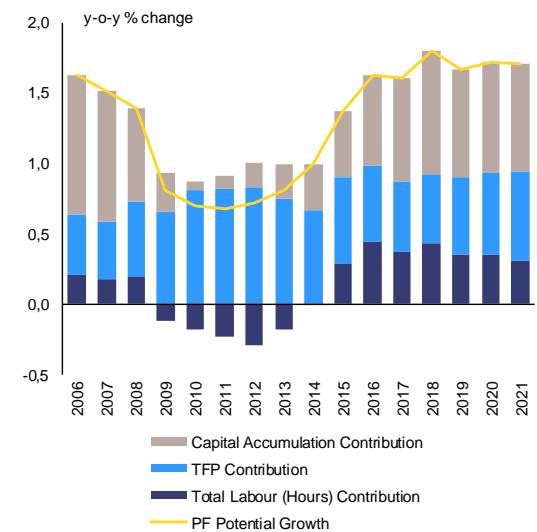
Potential growth⁽⁷⁾ has been gradually strengthening and is now stabilising. Since its low of 0.8 % between 2010 and 2012, potential growth rose to 1.8 % in 2018. The main driver

⁽⁶⁾ The debt service ratio declined from 22.9 % in 2009 to 15 % in 2019 corresponding to almost 10 % of the total consumption.

⁽⁷⁾ Potential growth is an estimate of the economic growth rate compatible with labour, capital and productivity growth at which wage and price developments would be stable.

behind this pick-up was capital accumulation, reflecting the strong investment activity. Total labour productivity contribution was solid until 2018, but is forecast to level off, as employment growth is set to moderate in the coming years. The contribution of total factor productivity, which reflects how efficiently labour and capital inputs are combined, is expected to improve and compensate moderating capital and labour contribution. As a result, potential growth rate is set to remain stable (Graph 1.2).

Graph 1.2: Contributions to potential growth



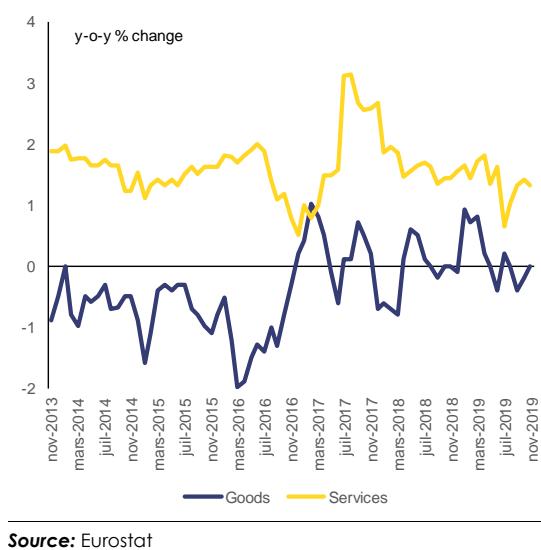
Source: European Commission

Following prolonged sluggishness, productivity growth has picked up since 2015, but it has not accelerated enough to close the accumulated gap with peer countries. Total factor productivity has been growing in line with the peer countries since 2013 and is therefore insufficient to reduce the productivity gap vis-à-vis them that opened in 2006. Labour productivity developments have a clear sectoral dimension, with labour productivity increasing by 70 % in manufacturing and by mere 18 % in services since 2000. In view of the increasing role of services in the economy, this is dragging aggregate productivity down. Positive labour productivity developments in the manufacturing sector benefitted in particular from the strong performance of the pharmaceutical sector (Section 3.4.1).

Inflation

Consumer price inflation remains moderate. The Harmonised Index of Consumer Prices (HICP) headline inflation was 0.7 % both in 2018 and in 2019. Danish inflation has been below the euro area rate since 2016 mainly reflecting lower food price inflation. While goods prices have been flat since 2017, services prices continue decelerating despite solid labour wage growth (Graph 1.3). Inflation is expected to increase moderately to 1.4 % in 2020 and to 1.5 % in 2021, helped by announced hikes in duties on tobacco.

Graph 1.3: Goods and services inflation



Source: Eurostat

Labour market and social developments

Employment continues growing and the labour force has increased. Employment grew by 1.4 % in 2018. As a result, the employment rate reached 78.2 %, approaching the national 2020 target of 80 %, and going well above the EU average of 73.2 %. Recent years' growth in the labour force is mainly driven by inflows of foreign workers, accounting for approximately one third of the growth in the period 2013-2018, as well as older workers staying longer on the labour market due to pension reform related increases in the retirement age. The expansion of the labour force helped sustain the economic upswing: without the labour market reforms and access to international labour, GDP growth would have been one percentage point (pps) lower (Danish Nationalbank 2018a). The strongest employment growth has occurred in

the private sector, in particular the services and construction sectors.

At 1.1 % in 2018, Denmark's long-term unemployment rate is among the lowest in the EU. Unemployment fell to 5.1 % in 2018, the lowest level since 2008, but the gap to the EU average (1.1 pps below EU average in 2018) has narrowed in recent years. Lower than average employment rates can be observed for youth, migrants and people with disabilities. Improving the employment rates of youth and vulnerable groups remains a challenge. While the total number of marginalised persons has decreased, the remaining are even more marginalised and more difficult to integrate applying standard policy tools.

Denmark is facing continuous labour shortages in certain sectors, but the situation appears to be stabilising. Firms report a lack of workers in construction, agriculture and services, which reflects continuous labour market tightness. Labour market bottlenecks are expected to reduce along with more moderate real GDP growth in 2020 and 2021. While higher numbers of vocational education and training (VET) graduates would help meet labour market needs, participation in such schemes remains low.

The labour force is projected to continue growing, but unevenly distributed among different sectors, which may increase the risk of skills mismatches. Skills gaps could become more severe with the current low unemployment rate. Ensuring supply of the right skills is crucial to boost productivity through better utilisation of advanced technology. However, the flexible labour market, some growth in labour supply and strong policies for reskilling of job seekers provide a strong basis to facilitate the needed reallocation of workers across sectors. Denmark has taken further measures to focus investment-related economic policy on education and skills (Section 2).

Participation in adult learning has decreased significantly in recent years, albeit from a high level. Despite this rate being more than double that of the EU average (11.1 % in 2018), the relatively sharp decline from 31.3 % in 2015 to 23.5 % in 2018 is, however, of concern. The exact drivers behind this trend remain unclear, but along with high economic activity and the need to ensure

business continuity, employers may be more reluctant to allow workers to take part in trainings.

In-work poverty, at risk of poverty or social exclusion (AROPE⁽⁸⁾) and income inequality remain low. At 17.4 % in 2018, the AROPE rate remains above the 2008 pre-crisis level. For foreign-born adults, this rate is above that of the EU average and more than double the rate of the native-born population. In 2018, in-work poverty (5.4 %) was almost half that of the EU average (9.2 %), reflecting the relatively high level of compensation. The median household income (single person) has increased to EUR 17,234 in 2018, which is among the highest in the EU (average of EUR 15,310). At the same time, income inequality appears to have stagnated in recent years, below the EU average.

The employment situation of recently arrived migrants (including refugees) remains critical but has improved. On the other hand, the situation for those who have resided in Denmark longer showed no sign of improvement. This is a result of high economic activity in addition to intensified integration measures introduced since 2016, e.g. the fast-track Integration Education (IGU) programme. On the other hand, further actions would be needed to ensure labour market integration of those who have resided in Denmark for more than five years, in particular women.

External position and competitiveness

The current account surplus increased further in 2019. Increasing savings are the main reason for the sustained high surplus. As business investment picked up, corporate saving has declined from 9 % of GDP in 2014 to 3.2 % of GDP in 2018. On the other hand, increasing household and government savings have largely compensated for the declining corporate savings and are set to sustain a current account surplus above 8 % of GDP in the coming years.

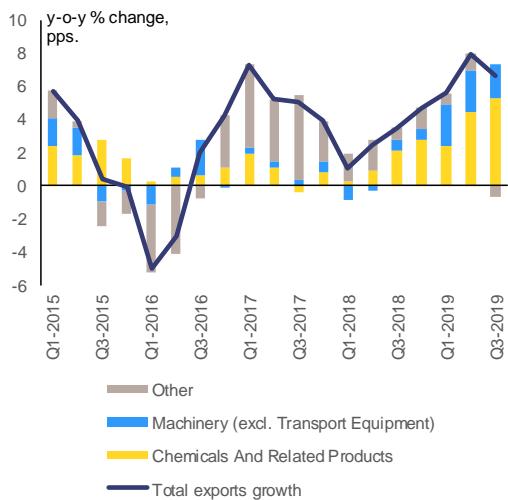
From the production side, successful Danish multinational companies are driving the

⁽⁸⁾ The at-risk-of-poverty rate is the share of people with an [equalised disposable income](#) (after social transfers) below the at-risk-of-poverty threshold, which is set at 60 % of the national [median](#) equalised disposable income after [social transfers](#).

current account surplus. Just five large industrial groups were responsible for almost the entire current account surplus in 2018 (Christensen et al 2019). The surplus is to a large extent driven by exports of goods, an increasing proportion of which never cross the Danish border because the goods are produced in foreign subsidiaries (Section 3.4). The current account surplus remains well above the level warranted by economic fundamentals supported by high pension savings⁽⁹⁾.

Denmark's share in world exports has been relatively stable since 2012. This is in line with the performance of Sweden or the Netherlands, but falls behind Germany's robust export growth. Since 2015, two sectors have been responsible for more than 70 % of Denmark's export growth since 2015 (Graph 1.4), namely chemical products (including pharmaceuticals) and machinery (including wind turbines). This changing export mix has so far proven to be less sensitive to the general slowdown in the main trading partners and provided a boost to real GDP growth in 2019.

Graph 1.4: Contribution to export growth



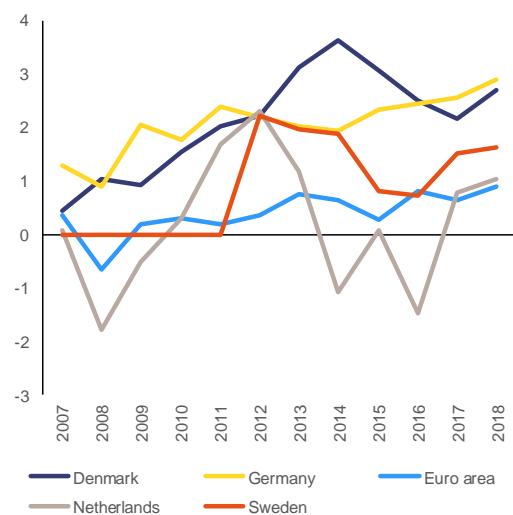
Source: Statistics Denmark

Continued high current account surpluses have contributed to the increase in the net

⁽⁹⁾ The benchmark is derived from reduced-form regressions capturing the main determinants of the saving-investment balance, including fundamental determinants (e.g. demography, resources), policy factors and global financial conditions. See also Coutinho, Turrini and Zeugner (2018).

international investment position (NIIP). The NIIP increased from close to balance in 2008 to an estimated 64 % of GDP in 2018. While the financial account surplus was the main driver of recent NIIP increases for instance in Germany or the Netherlands, Denmark mostly benefited from investment income and valuation effects. A large share of the NIIP is in equity investment. Components that may be subject to default or partly be used as collateral remain low, amounting to less than a third of the NIIP in 2018. The high net stock of foreign assets generates significant investment income, further boosting the current account surplus above that of peer countries (Graph 1.5). Substantial primary income is produced by the pharmaceutical sector, which generates high returns on investment (Isaksen et al 2016).

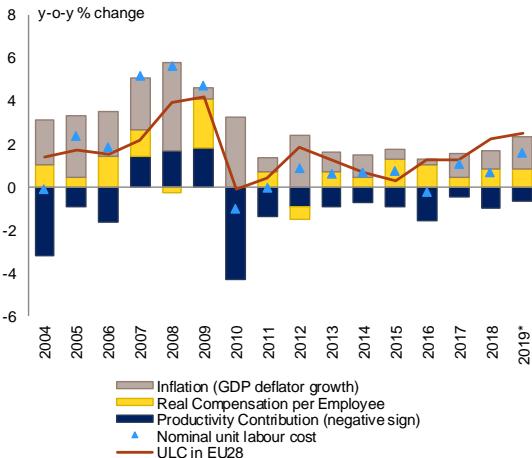
Graph 1.5: Primary income (% of GDP)



Source: European Commission, Macrobond

There are mixed signals regarding Denmark's competitiveness. The combination of higher wage growth and lower labour productivity growth fuelled unit labour costs, which increased by 1.7 % in 2018, compared to 1.6 % in 2017. These developments have so far been in line with EU trends (Graph 1.6). In nominal terms, compensation per employee has outpaced labour productivity growth since 2012. Regarding non cost-competitiveness factors, Danish exports tend to rely more on high and medium quality products and a favourable industrial specialisation (see Section 3.4).

Graph 1.6: Breakdown of unit labour cost rate of change



Source: European Commission

Risks from the domestic market appear to be contained at this stage, but several developments warrant continuous monitoring.

The unemployment rate appears close to its structural level⁽¹⁰⁾ in certain sectors, leading to labour constraints, but labour shortages appear to have eased recently (Section 3.3). Wages have been increasing above productivity since 2016 although the impact on competitiveness appear to be limited at this stage (Section 3.4). House prices are slightly overvalued and household indebtedness exceeds prudential and fundamental benchmarks, though several policy measures were introduced to increase the resilience of Danish financial sector and households (Section 3.2).

Monetary policy

The central bank deposit rate has been almost continuously negative since 2012, the longest period among EU countries. Denmark is the only country in the ERM-II mechanism and maintains a central rate of DKK 7.46038 to the euro with a narrow fluctuation band of $\pm 2.25 \%$. Following the European Central Bank's reduction of its monetary policy rates by 0.10 pp in September 2019, Danmarks Nationalbank (Denmark's central bank) has also reduced the interest rate on deposits by 0.10 pps. The policy spread between Danmarks Nationalbank and the ECB has remained unchanged at -0.25 pps since March 2016. The rate

⁽¹⁰⁾ As both the Non-Accelerating Wage Rate of Unemployment (NAWRU) and the current unemployment rate are at 4.8 % of the labour force in 2019.

cut brings the Danish benchmark to the level where it was before the last rate change in January 2016.

Financial sector

Danish banks are generally well capitalised and remain profitable, amid a challenging low interest rate environment. Negative yields and interest rates are becoming more pervasive in the Danish economy, affecting an increasing share of deposits, including by households. The authorities have required that banks progressively increase the countercyclical capital buffer, which will further strengthen their resilience against cyclical downside risks (Section 3.2).

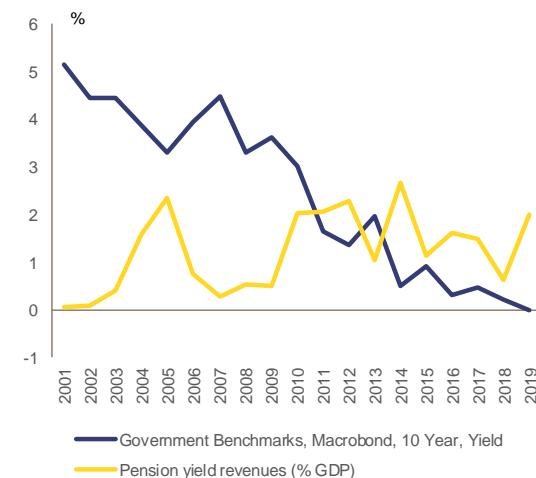
Housing market dynamics in Denmark have eased over recent quarters. This slowdown is broad-based across regions and housing categories. It is reflected in slowing housing prices, as well as falling housing starts and permits since 2016. Many borrowers take advantage of historically low mortgage rates by taking up new or converting existing mortgages to loans with a fixed rate and amortisation, making them more resilient vis-à-vis income and interest rate shocks. The increase in the share of these less risky mortgages also suggests that the macro-prudential and conduct requirements for banks put in place by Danish authorities over the past years have been effective (Section 3.2).

Danish household debt keeps declining, and, while it remains high, counterbalanced by large assets. Household debt dropped from 124.9 % of GDP in 2018 to an estimated 113.5 % in 2019, and is now estimated 2.4 times higher than gross disposable income. The high level of gross debt is matched by substantial household assets, which implies a comfortable solvency position. Danish households nonetheless remain vulnerable to certain adverse economic shocks due to liquidity mismatches on their balance sheets, even though the share of debt at variable rates, which is particularly susceptible to an interest rate shock, is declining. Danish households have one of the highest debt-servicing ratios in the EU, and despite the recent positive developments, the share of interest-only, variable interest rate loans, which are the most sensitive to shocks, remained high (Section 3.2).

Public finances

Denmark is expected to have reached a significant general government account surplus of 2.2 % GDP in 2019. The large surplus reflects strong revenue from the pension yield tax, amounting to close to 2 % of GDP, driven by particularly strong valuation effects for bonds and stocks held by pension funds (Graph 1.7). More generally, general government finances benefitted from low cyclical expenditures and strong tax revenue. Volatile revenue components, particularly the pension yield tax item, generate large fluctuations in the government finances.

Graph 1.7: Pension yield tax revenues and 10-year DK government bond yields



Source: Macrobond

The budgetary position is expected to normalise over the next couple of years and become broadly neutral by 2021. This is partly triggered by an expected normalisation of the pension yield tax revenue as well as a slightly less favourable cyclical position. The deterioration in the headline position is also influenced by the repayment of excessively-collected property taxation in 2020/2022, which in total is estimated at approximately DKK 18.5 billion (0.8 % of GDP).

The structural general government budget balance is expected to deteriorate over the next years, while remaining positive. The cyclically-adjusted budget balance is forecast to fall from some 2 % of GDP to around 0.2 % of GDP by 2021, reflecting not least the above-mentioned normalisation of pension yield tax revenue.

Sustainable development goals

Denmark performs well with regard to the United Nations' Sustainable Development Goals on equality, education and institutions. Denmark is a strong performer in all the indicators pertaining to Sustainable Development Goals (SDG) 1 (no poverty), SDG5 (gender equality) and SDG10 (reducing inequalities). Likewise, Denmark performs very well on SDG8 (decent work and economic growth), where it is among the best performers. Denmark also performs well on SDG4 (quality of education). On SDG16 (peace, justice and strong institutions) Denmark does particularly well and is ranked very high in a global context regarding the perceived absence of corruption. Denmark performs well on affordable and clean energy (SDG7). On the other hand, Denmark's results with respect to quality education (SDG4) is sliding, albeit the levels remain satisfactory⁽¹¹⁾. Denmark has high energy independence, notably due to a very high share of renewable energy. By contrast, Denmark is merely an average performer as regards greenhouse gas emissions per capita (SDG13 on climate action). On SDG9 (industry, innovation and infrastructure), Denmark is ranked first of the EU Member States on R&D personnel as a share of the active population. On SDG15 (life on land), Denmark's intensively farmed land area implies that Denmark has very little forest area as a share of the land mass. On waste generation and recycling, Denmark is broadly at the EU average (SDG11, sustainable cities and communities and SDG12, responsible consumption and production).

⁽¹¹⁾ Within the scope of its legal basis, the European Semester can help drive national economic and employment policies towards the achievement of the United Nations Sustainable Development Goals (SDGs) by monitoring progress and ensuring closer coordination of national efforts. The present report contains reinforced analysis and monitoring on the SDGs. A new annex (ANNEX E) presents a statistical assessment of trends in relation to SDGs in Denmark during the past five years, based on Eurostat's EU SDG indicator set.

Table 1.1: Key economic and financial indicators

Key economic and financial indicators - Denmark

	2004-07	2008-12	2013-16	2017	2018	forecast	2019	2020	2021
Real GDP (y-o-y)	2,5	-0,4	2,0	2,0	2,4	2,1	1,5	1,5	1,5
Potential growth (y-o-y)	1,4	0,9	1,2	1,6	1,8	1,7	1,7	1,7	1,7
Private consumption (y-o-y)	3,3	-0,3	1,5	1,6	2,6	.	.	.	.
Public consumption (y-o-y)	1,6	1,6	0,9	1,0	0,4	.	.	.	.
Gross fixed capital formation (y-o-y)	5,8	-3,6	4,8	3,0	5,4	.	.	.	.
Exports of goods and services (y-o-y)	6,2	1,0	3,1	4,6	2,4	.	.	.	.
Imports of goods and services (y-o-y)	9,5	0,5	3,4	4,3	3,6	.	.	.	.
Contribution to GDP growth:									
Domestic demand (y-o-y)	3,2	-0,5	1,9	1,6	2,5	.	.	.	.
Inventories (y-o-y)	0,3	-0,2	0,1	-0,1	0,3	.	.	.	.
Net exports (y-o-y)	-1,0	0,3	0,1	0,5	-0,4	.	.	.	.
Contribution to potential GDP growth:									
Total Labour (hours) (y-o-y)	0,2	-0,1	0,1	0,4	0,4	0,4	0,3	0,3	0,3
Capital accumulation (y-o-y)	0,8	0,3	0,4	0,7	0,9	0,8	0,8	0,8	0,8
Total factor productivity (y-o-y)	0,5	0,7	0,6	0,5	0,5	0,5	0,6	0,6	0,6
Output gap	2,4	-2,4	-1,8	0,0	-0,3	0,0	-0,2	-0,3	
Unemployment rate	4,5	6,7	6,7	5,8	5,1	4,9	4,8	4,7	
GDP deflator (y-o-y)	2,4	2,2	0,7	1,1	0,8	1,5	1,8	1,9	
Harmonised index of consumer prices (HICP, y-o-y)	1,5	2,4	0,3	1,1	0,7	0,7	1,4	1,5	
Nominal compensation per employee (y-o-y)	3,4	2,6	1,5	1,6	1,7	2,3	2,7	3,0	
Labour productivity (real, person employed, y-o-y)	1,1	0,6	1,0	0,4	1,0	.	.	.	
Unit labour costs (ULC, whole economy, y-o-y)	2,3	2,0	0,5	1,1	0,7	1,6	2,0	2,1	
Real unit labour costs (y-o-y)	0,0	-0,2	-0,2	0,0	-0,1	0,2	0,3	0,2	
Real effective exchange rate (ULC, y-o-y)	1,4	-0,7	-0,1	1,4	0,4	-1,8	-0,5	0,2	
Real effective exchange rate (HICP, y-o-y)	-0,2	-0,7	-0,2	0,5	1,1	-1,7	-0,9	-0,5	
Net savings rate of households (net saving as percentage of net disposable income)	-2,7	-0,1	2,2	6,6	6,6	.	.	.	
Private credit flow, consolidated (% of GDP)	17,5	5,3	0,7	1,4	3,5	.	.	.	
Private sector debt, consolidated (% of GDP)	192,3	224,0	212,6	202,7	198,3	.	.	.	
of which household debt, consolidated (% of GDP)	116,5	136,5	130,2	127,6	124,7	.	.	.	
of which non-financial corporate debt, consolidated (% of GDP)	74,8	86,8	82,1	74,8	73,4	.	.	.	
Gross non-performing debt (% of total debt instruments and total loans and advances) (2)	.	2,9	4,1	2,6	2,3	.	.	.	
Corporations, net lending (+) or net borrowing (-) (% of GDP)	3,6	7,8	7,7	4,4	4,5	3,1	4,2	4,6	
Corporations, gross operating surplus (% of GDP)	22,7	22,3	24,1	24,2	24,4	23,1	23,5	23,6	
Households, net lending (+) or net borrowing (-) (% of GDP)	-4,8	-1,0	0,7	1,9	2,0	1,7	1,9	2,1	
Deflated house price index (y-o-y)	11,1	-6,0	6,1	3,2	3,5	.	.	.	
Residential investment (% of GDP)	6,2	4,3	4,0	4,7	4,9	.	.	.	
Current account balance (% of GDP), balance of payments	3,0	5,2	8,2	7,8	7,0	6,9	6,5	6,5	
Trade balance (% of GDP), balance of payments	4,2	5,5	6,8	7,0	6,0	.	.	.	
Terms of trade of goods and services (y-o-y)	0,4	0,6	0,7	-0,2	-0,9	0,2	0,2	0,2	
Capital account balance (% of GDP)	0,1	0,1	-0,1	0,0	0,0	.	.	.	
Net international investment position (% of GDP)	-0,8	14,5	41,6	55,4	64,4	.	.	.	
NENDI - NIIP excluding non-defaultable instruments (% of GDP) (1)	-25,6	-18,5	8,3	18,9	16,2	.	.	.	
IIP liabilities excluding non-defaultable instruments (% of GDP) (1)	139,7	163,7	168,0	160,7	146,5	.	.	.	
Export performance vs. advanced countries (% change over 5 years)	3,2	-1,1	-8,6	-1,7	-3,5	.	.	.	
Export market share, goods and services (y-o-y)	-1,6	-3,8	0,6	-1,2	-0,4	2,6	-1,3	-1,5	
Net FDI flows (% of GDP)	1,8	2,1	1,9	1,8	-0,2	.	.	.	
General government balance (% of GDP)	4,3	-1,6	-0,3	1,7	0,8	2,2	0,5	0,0	
Structural budget balance (% of GDP)	.	.	-0,7	1,7	1,0	2,1	1,4	0,2	
General government gross debt (% of GDP)	35,1	41,4	41,3	35,5	34,2	33,0	32,3	31,7	
Tax-to-GDP ratio (%) (3)	48,2	46,3	47,8	46,8	45,9	46,7	44,9	44,1	
Tax rate for a single person earning the average wage (%) (4)	38,6	36,8	35,8	35,8	35,4	.	.	.	
Tax rate for a single person earning 50% of the average wage (%) (4)	33,4	32,0	31,0	31,0	30,3	.	.	.	

Source: (1) NIIP excluding direct investment and portfolio equity shares

(2) domestic banking groups and stand-alone banks, EU and non-EU foreign-controlled subsidiaries and EU and non-EU foreign-controlled branches.

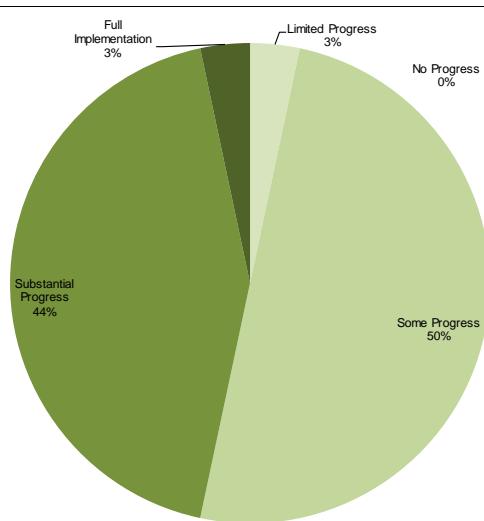
(3) The tax-to-GDP indicator includes imputed social contributions and hence differs from the tax-to-GDP indicator used in the section on taxation

Source: Eurostat and ECB as of 12-12-2019, where available; European Commission for forecast figures (Autumn forecast 2019)

2. PROGRESS WITH COUNTRY-SPECIFIC RECOMMENDATIONS

Since the start of the European Semester in 2011, 97 % of all CSRs addressed to Denmark since 2011 have recorded at least 'some' progress. Only 3 % of these country specific recommendations recorded 'limited' or 'no progress' (Graph 2.1). Substantial progress and full implementation have been achieved, in particular in areas of public finances, labour market policies and the financial sector.

Graph 2.1: Level of implementation today of 2011-2019 CSRs



(1) The overall assessment of the country-specific recommendations related to fiscal policy excludes compliance with the Stability and Growth Pact.
(2) 2011 annual assessment: Different CSR assessment categories.
(3) The multiannual CSR assessment looks at the implementation until 2020 Country Report since the CSRs were first adopted.

Source: European Commission

Following a CSR in 2011, Denmark delivered a timely and durable correction of its excessive deficit by 2013, and has since made the fiscal framework more robust. Denmark introduced legally binding multi-annual expenditure ceilings on all three levels of the public sector (i.e. central Government, regional and municipal), applicable from 2014 onwards. The comply-or-explain principle was also added to the fiscal framework in 2016, making national law compliant with the Fiscal Compact. Since 2016, Denmark's structural balance consistently outperformed its medium-term objective of -0.5 % of GDP.

The labour market and education system was subject to CSRs in the period 2011 to 2014, as well as in 2019. Long-term labour supply, the employability of people at the margins of the labour market and the quality of the education system were the subject of CSRs between 2011 and 2014. A number of labour market, pension, social and educational reforms were implemented during this period in response to these recommendations. Since then, the labour market performance has improved, and the number of people receiving social assistance has declined. Although labour shortages have been easing recently, challenges remain. Ensuring supply of the right skills is crucial to boost productivity and fostering sustainable and inclusive growth. The educational performance of children with a migrant background remains a challenge. In 2019, the Council recommended therefore Denmark to focus investment-related economic policy on education and skills.

The housing market and the financial sector were subject to CSRs in 2011 and 2012. Following the recommendations, the Danish authorities have implemented several macro- and micro-prudential measures to safeguard financial stability and limit risky loan taking. Although there was no CSR on this topic since 2013, the European Commission closely monitors the developments in this area. The Danish authorities have continued to implement measures every year since then. Recent measures include a Systemic Risk Buffer for six systemically important banks, the reduction in mortgage interest tax deductibility, limits to risky debt taking and the activation of a countercyclical capital buffer. A 2017 reform will re-align property taxes with actual property values by 2021, also better addressing regional house price divergences, although the new valuation system behind the property tax reform has been delayed.

Increasing competition and productivity has been subject to CSRs between 2011 and 2018. The Danish authorities have taken gradually several steps to address these challenges. For instance, the Parliament has adopted reforms on the services market, including the easing of retail planning and increasing competition in the taxi sector and in the mortgage market. Building regulations have been reviewed and Denmark has continued its work with implementing the utilities

Table 2.1: Summary table on CSR assessments (*)

Denmark	Overall assessment of progress with 2019 CSRs: Some progress
CSR 1: <i>Focus investment-related economic policy on education and skills, research and innovation to broaden the innovation base to include more companies, and on sustainable transport to tackle road congestion.</i>	Some progress: <ul style="list-style-type: none"> • Some progress on education and skills; • Limited progress on research and innovation to broaden the innovation base to include more companies; • Some progress on sustainable transport to tackle road congestion.
CSR 2: <i>Ensure effective supervision and the enforcement of the anti-money laundering framework.</i>	Some progress: <ul style="list-style-type: none"> • Substantial progress on new legislative measures; • Some progress on supervision and enforcement of the anti-money laundering framework; • Some progress on increasing budget and hiring additional personnel.

Source: European Commission

(*) "The assessment of CSR 1 does not take into account the contribution of the EU 2021-2027 cohesion policy funds. The regulatory framework underpinning the programming of the 2021-2027 EU cohesion policy funds has not yet been adopted by the co-legislators, pending *inter alia* an agreement on the multiannual financial framework (MFF).

strategy. Denmark has made sufficient progress when examined over a longer time horizon, and as a result, the CSR in this area has been dropped in 2019.

Research and development has been subject to CSR in 2016 and in 2019. Although overall research and development spending is high in Denmark, this has not translated into higher productivity growth. In 2016 Denmark was recommended to promote cooperation between businesses and universities. Denmark demonstrated sufficient progress in this area through a number of measures, including a prominent role to research and technology organisations and the creation of an innovation fund, which supports investments and long-term projects/partnerships. Nevertheless, the research and innovation activity remains concentrated in a small number of large firms and foundations and mostly in the pharmaceutical and biotechnology sectors. Therefore, in 2019, the Council recommended broadening the innovation base to include more companies.

Denmark has made some progress⁽¹²⁾ in addressing the 2019 country-specific recommendations (see Table 2.1).

Denmark has taken measures to focus investment-related economic policy on education and skills. The 2020 Budget Bill has allocated a marked increase in public expenditure on primary schools. Furthermore, a broad political agreement (October 2019) earmarked DKK 102 million to initiatives to upskill low-skilled workers. These initiatives should help to address sector-specific labour shortages. Nonetheless, there is a continued need to incentivise youth to choose a vocational education and training (VET) programme, and to increase the skills level of people on the margins of the labour market.

As part of the 2020 budget, research in climate technology will be markedly strengthened,

⁽¹²⁾ Information on the level of progress and actions taken to address the policy advice in each respective subpart of the CSRs is presented in the Overview Table in the Annex A. This overall assessment does not include an assessment of compliance with the Stability and Growth Pact.

however without specific measures to broaden the innovation base and include more companies. The Research Reserve for 2020 has been increased from the original plan by 38 %, totalling DKK 1.925 billion. The budget earmarks an additional DKK 1 billion for green research in 2020 raising it to a total of DKK 2.3 billion. These expenses will focus on areas such as agricultural transformation, environmentally-friendly transport and sustainable cities. The aim of the increased R&D budgets is to contribute to the objective of reducing greenhouse gas emissions by 70 % by 2030 and will open new possibilities for SMEs to participate in climate-related R&D activities.

Sustainable transport is a key priority for the government. The Government has presented a specific transport plan to tackle key road congestion areas, notably in the Greater Copenhagen and Lillebælt areas. The Government has taken action to disseminate European Rail Traffic Management System (ERTMS) signalling on Danish railroads, which is a prerequisite for more frequent train schedules and for further electrification of the rail network. In October 2019, the government announced that it is set to negotiate an agreement on infrastructure investments. Such a plan can be seen in Denmark's overall ambition on climate and environmental issues. One part of the plan is supposed to tackle road congestions through investments in public transport and cycling. In addition, the government announced a plan to phase out sales of new traditional diesel and petrol cars as of 2030. The government has set up a Commission for Green Transition to foster the sale of electric vehicles (¹³).

Denmark has made some progress in addressing the 2019 country-specific recommendation related to anti-money laundering (AML). Denmark took several significant legislative steps over a relatively short period of time. The new AML law entered into force in January 2020 and intends to transpose the 4th and the 5th AML Directives. The recently implemented policy measures still have to prove their effectiveness. Denmark has made some advances in supervision and enforcement of the

AML framework. The Financial Supervisory Authority has made progress in enhancing its supervisory capacity, but more needs to be done. Risk analysis tools and supervision manuals have been drawn up, but are still to be applied. An upgrade has yet to be sought and obtained in respect of Financial Task Force standards relevant for anti-money laundering supervision of financial entities. The Government has boosted the budget at the Money Laundering Secretariat (Denmark's Financial Intelligence Unit) and the Danish FSA to increase supervision capacity. The FSA established an AML Division and increased the number of AML-dedicated staff by close to 50 % in 2019.

⁽¹³⁾ This Commission is expected to deliver preliminary results by mid-2020 and a final report by the end of 2020.

Box 2.1: EU FUNDS AND PROGRAMMES TO ADDRESS STRUCTURAL CHALLENGES AND TO FOSTER GROWTH AND COMPETITIVENESS IN DENMARK

Denmark is benefiting from EU support. The financial allocation from the EU Cohesion policy funds⁽¹⁾ for Denmark amounts to EUR 810 million in the current Multiannual Financial Framework. By the end of 2019, some EUR 749 million (around 92 % of the total amount planned) was allocated to specific projects and EUR 284 million was reported as spent by the selected projects⁽²⁾ showing a level of implementation below the EU average.

EU Cohesion policy funding also contributes to addressing structural challenges in Denmark. The Cohesion Policy programmes for Denmark have allocated EU funds of EUR 156 million for smart growth, EUR 41 million for sustainable growth and EUR 203 million for inclusive growth. In 2019 following the performance review⁽³⁾ EUR 28 million have been made available within performing priorities.

EU Cohesion policy funding is contributing to transformations of the Danish economy by promoting growth and employment via investments, among others, in research, technological development and innovation, competitiveness of enterprises, employment and labour mobility. Support was already decided for around 5,900 enterprises, and the ongoing projects are expected to create more than 1,100 new innovative firms. ESI Funds are also expected to contribute to the reduction of greenhouse gas emissions by 50,400 tons of CO₂⁽²⁾. The European Social Fund (ESF) has, among others, targeted the up-skilling and reskilling of marginalised persons (including migrants) in Denmark, through support to comprehensive and job-oriented adult and lifelong learning programmes. Approximately 2,750 persons have participated in such programmes. The overall purpose is to increase social inclusion through access to education and employment, and thereby promote economic growth.

The European Agricultural Fund for Rural Development (EAFRD) supports Denmark with EUR 919 million for projects on competitiveness, sustainable management of nature and climate, and balanced development of the economy in rural areas. By 2018 the EAFRD had supported more than 450 agricultural holdings in their restructuring and modernisation investments, and training in agriculture and forestry for more than 34,000 participants. Moreover, some 250,000 hectares (approximately 8 %) of the agricultural and forest land were under management contracts to foster carbon sequestration and conservation. More than 50 % of the rural population were covered by local development strategies. The EAFRD makes available in total EUR 1.2 billion and the European Maritime and Fisheries Fund (EMFF) in total EUR 308 million (including the national co-financing for both). Denmark also benefits from other EU programmes, such as the Connecting Europe Facility, which allocated EU funding EUR 824 million to specific projects on strategic transport networks, Horizon 2020 allocated EU funding of EUR 1.2 billion (including 388 SMEs supported with about EUR 241 million).

EU funds already invest amounts on actions in line with the Sustainable Development Goals (SDGs). In Denmark, European Structural and Investment Funds support 9 out the 17 SDGs and up to 93 % of the expenditure is contributing to those.

⁽¹⁾ European Regional Development Fund and European Social Fund.

⁽²⁾ <https://cohesiondata.ec.europa.eu/countries/DK>

⁽³⁾ The performance review is regulated by Article 22 of the Regulation (EU) No 1303/2013, whereby 5-7 % of overall resources allocated are released to performing priority axes of the operational programmes, the amount includes national co-financing.

3. REFORM PRIORITIES

3.1 PUBLIC FINANCES AND TAXATION

Debt sustainability analysis and fiscal risks

Danish public finances are sound with limited risks to sustainability. The European Commission's assessment of the short, medium and longer-term sustainability of public finances, notably in the view of population ageing, suggests that sustainability risks remain low over all of these time horizons ⁽¹⁴⁾. At 33.8 % of GDP in 2018, Danish government debt is low in comparison with most Member States. The debt ratio has been on a declining trend over recent years, which is expected to continue over the medium term, to reach 15.4 % of GDP by 2030 (Commission baseline no-policy change scenario). A change of the financing model for social housing could however result in a lower pace of gross debt reduction (Convergence Programme scenario).

Fiscal Framework

Denmark has a strong fiscal framework. The budget law sets out boundaries for the Danish general government deficit. It is the result of the implementation of the Fiscal Compact in Denmark and is intended to subject Danish public finances to a comparable level of fiscal discipline. Despite wide tax and expenditure autonomy at local and regional levels, Denmark has a developed system for ensuring compliance at all levels of government with the decided budgetary policy stance. Notwithstanding this, the Economic Councils, in its capacity as fiscal watchdog (see below), has noted that over the period 2013-2018 municipalities failed to comply with the investment ceilings. However, with the exception of 2018 this was more than offset by lower government consumption. For 2019, the framework appears to have been respected at the general government level.

Denmark has an independent fiscal institution (IFI). The Economic Councils, in their capacity as IFI, carry out analysis on the effectiveness and

⁽¹⁴⁾ For an overview of fiscal sustainability assessment in the short, medium and long term see Annex B and European Commission (2020), 'Debt Sustainability Monitor 2019' Directorate-General for Economic and Financial Affairs, European Economy, Institutional Paper 120/2020, January 2020.

efficiency of economic policy. This includes analysing the impact of taxes, transfers and public services on behaviour of other economic agents. The IFI does not, however, carry out spending reviews *stricto sensu*. The transfer in 2018 to Horsens has had some negative effects in terms of staff shortages and delays in reports.

Taxation

Denmark's tax revenue as a share of GDP is high in an EU comparison. At 45.9 % of GDP in 2018, Denmark has one of the highest tax revenue ratio among the EU Member States. Notwithstanding this, Denmark recorded the highest fall among all EU Member States, as the tax to GDP ratio fell from 46.8 % of GDP in 2017 to 45.9 % in 2018. Thus, Denmark continues the path of a moderately falling tax to GDP ratio, albeit from high levels.

The debt bias of the tax system encourages house ownership. The Danish tax system allows tax deductions for mortgage interest payments, which constitutes an incentive for households to take up mortgage lending. The mortgage interest deductibility bias of the tax system contributes to the high gross indebtedness of Danish households. At around 113.5 % of GDP, Danish households have the highest debt levels of all EU Member States, albeit the debt should be seen in the perspective of much larger (but largely illiquid) financial assets, notably real estate and pension savings (see also Section 3.2).

Tax expenditure stemming from mortgage interest deductibility raises questions as regards fairness, equality and potentially financial stability. Box 3.1.1 shows that a simultaneous abolishment of tax deductibility of mortgage interest payments and an equivalent increase in personal income tax allowance could increase welfare and economic equality while strengthening households' resilience. The current period of very low interest rates with reduced mortgage interest payments could provide a window of opportunity to improve the current system.

Corporate income taxation encourages debt over equity financing. In Denmark, as in most EU

Member States, it is possible to deduct interest, typically from a loan or debt, as expenditure when determining the amount of taxable profits, while this is generally not possible for paid out dividends. This favours the use of debt or loans for financing, instead of equity. The distortion could be addressed through the introduction of an allowance for deduction in respect of corporate equity (ACE). While the latter would contribute to narrowing the corporate tax base, it could incentivise firms to invest. The budget proposal for 2017 included an ACE, but it has not been implemented. Based on estimates published by the Ministry of Finance at that time (Finansministeriet 2017) an ACE could boost GDP by 1.7 % in the long run through its positive impact on investment. Similar recommendations have been recently made by the Economic Councils (DORS 2019), the International Monetary Fund (IMF 2019) and the OECD (2019c).

Denmark's revenues from environmentally relevant taxes have been decreasing but still among the highest in the EU. However, the falling share of environmental and labour taxes in total tax revenues are taking Denmark further away from the objectives of SDG17¹⁵. Environmental taxes accounted for 3.7 % of GDP in 2018 (EU average: 2.4 %), which has however decreased from 4.9 % of GDP in 2005. In the same year, energy taxes accounted for 2 % of GDP against an EU average of 1.9 % of GDP (Chapter 3.5). In particular, Denmark has high environmental taxes on road transport. While the tax system has components that reflects fuel economy, changes in the design of the car taxes in 2017 has contributed to an increase in the sales of heavier cars with higher emissions. There are no taxes on air transport. Energy taxation and taxation on pollution/use of resources are around EU averages.

In terms of transport fuel taxation, Denmark taxes petrol significantly more than diesel. The marked difference in taxation (diesel is taxed some 32 % lower than petrol in 2018) is significantly above the EU average and implicitly creates an incentive for diesel cars, despite higher nitric oxide

(NOx) pollution. While diesel cars are subject to a higher registration fee, the tax structure favours diesel cars in the case of high annual mileage. Fossil fuel subsidies fell in the past decade, thanks to the phasing out of indirect tax subsidy for diesel, which has a reduced energy duty compared to petrol. In 2016, fossil fuel subsidies, essentially the reduced energy duty on diesel, amounted to some DKK 9 billion (0.4 % of GDP).

Tax Administration

The Danish tax administration is undergoing a period of structural reform. As from 2018, the Danish tax administration has adopted a new structure, moving from one single administration to a group of seven agencies, each one focussing on a particular area of tax and customs administration. The reform aims to make tax collection more efficient and effective. There have been some positive results already. Among others, in September 2019, following years of investigation after a major tax scandal regarding dividends tax, the Danish tax authorities managed to obtain a large amount of tax information from Dubai, where an individual accused of having played a major role in the scandal is tax resident (which amounted to approximately 0.6 % of GDP). This signals the continuous determination of the Danish tax administration to address the consequences of the fraud case and follows successes in recovering some of the money lost. At the same time, as recently pointed out by government auditors, challenges remain more generally in the area of recovery of taxes and other fees, such as police fines due by Danish taxpayers to the Danish state.

While progress with administrative reform is visible in some areas, challenges remain in others. A much-needed modernisation of the property tax system planned for 2021 has been delayed to 2024, because of continued IT development challenges within the Danish tax administration. The development of a new IT system was markedly behind schedule, implying that any entry into operation of the new system from 2021 was considered unfeasible and could lead to additional challenges for the already-troubled housing evaluation system and the linked taxation system.

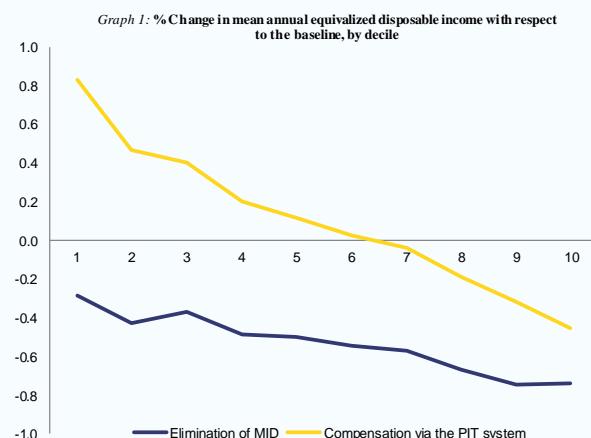
¹⁵ “Partnership for the goals”, which includes an indicator related to the “Shares of environmental and labour taxes in total tax revenues”.

Box 3.1.1: Revenue neutral tax reform within the Danish personal income tax system

Simulation of the removal of the tax deductibility of mortgage interest payments compensated by an increase in the general tax allowance.

Using the European microsimulation model, EUROMOD, the European Commission Joint Research Centre (JRC) has simulated a tax reform consisting in abolishing the deductibility of mortgage interest payments from the personal income tax (PIT) base, and simultaneously raising the general allowance by an equivalent amount, i.e. a budget neutral tax reform⁽¹⁾. In the current low interest rate environment, the abolishment of the mortgage interest deduction leads to a net budgetary effect of 2.4% rise in total public revenue net of expenditure. This amount was then used for the compensatory increase in the PIT general allowance⁽²⁾.

Such a reform would have relatively mild distributional, inequality and risk of poverty effects. Regarding the distributional effects, individuals in the first half of the disposable income distribution⁽³⁾ would be net beneficiaries of the tax reform, while individuals in the second half would stand to lose from it (see Graph 1). The annual disposable income for the lowest income decile could increase by 0.8 %, while the impact would be around zero at the 6th decile and negative afterwards. This redistribution pattern is generated because the deductibility of the mortgage interest payments is increasing with income, while a rise in the PIT general allowance would reduce the tax bill relatively more for the lower deciles. The reform would also render the Danish tax system more progressive. Both the removal of the tax deductibility of mortgage interest payments and the increase in the PIT general allowance would be inequality-reducing: the Gini coefficient is reduced by around 0.2 points as a result of the reforms. A poverty reduction effect is also registered, with the at-risk-of-poverty rate, defined at 60% of the median annual equivalised disposable income⁽⁴⁾ being reduced by around 0.2 percentage points.



Source: European Commission, Joint Research Centre, based on the EUROMOD model

⁽¹⁾ Simulations were based on the tax and benefit system of 2019, using input data extracted from EU-SILC 2017 (incomes refer to 2016).

⁽²⁾ The general tax allowance is granted to all taxpayers liable for paying personal income tax and was raised by around 7.3% in the tax reform context.

⁽³⁾ Individuals are distributed across the deciles according to their equivalised disposable income. The equivalised disposable income adjusts total household disposable income – original income plus benefits net of taxes – to the household composition, using the OECD scale (i.e. assigning a weight of 1 to the household head, 0.5 to other members above 14 years and 0.3 to children younger than 14 year-old).

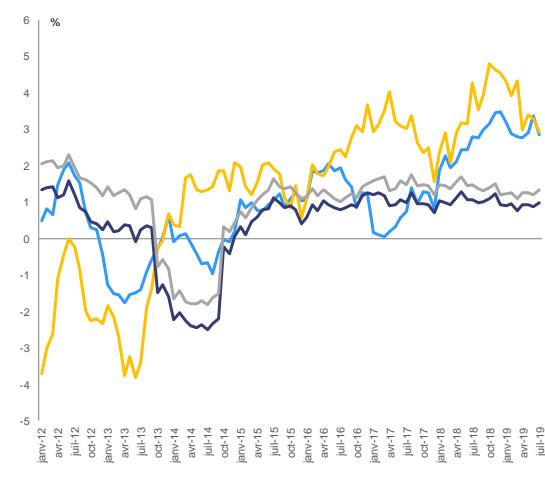
⁽⁴⁾ This amounts to around DKK 136,533.66.

3.2. FINANCIAL SECTOR

Financial sector developments

Total private credit growth has evolved at a steady pace in 2018. There has been a moderate increase in credit growth to households (1.3 %), but it remains below that of its neighbouring countries. More recently, a hike in mortgage activity has also taken place (1.3 %), largely due to mortgage refinancing. Credit to non-financial companies slowed down significantly in 2019, after a strong expansion in 2018. In access to finance, Denmark is among the top performers in the EU, although the relative cost of small loans (up to EUR 1 million) compared to the cost of large loans is high (European Commission 2019f).

Graph 3.2.1: Credit growth



Source: ECB

Danish banks are generally profitable, well capitalised and in a good liquidity position, but the low interest rate environment may pose challenges going forward. Negative yields and interest rates are becoming more pervasive in the Danish economy. For a majority of households, deposits are unremunerated and some banks have announced plans to charge negative interest rates to large private depositors, as they already do for a majority of corporate depositors. Banks' reliance on net interest income (NII) is thus increasingly under strain and only partly offset by revenues from fees and commissions. Higher expenses related to compliance with anti-money laundering provisions and to the implementation of new

financial technologies also weigh on profits ⁽¹⁶⁾. With a return on equity of an estimated 8 % in 2019, the profitability of Danish banks has been declining somewhat compared with previous years, but remains sound and higher than that of European peers. Solvency indicators are also sound, with the total capital ratio and the CET1 ratio standing at an estimated 21.5 % at 17.5 %, respectively, in the second quarter of 2019.

Banks could come under stress in an adverse scenario. While capital levels exceed the regulatory requirements, the latest stress test by the national central bank suggests that some banks would come under pressure in a severe recession scenario (Danmarks Nationalbank, 2019b). All significant banks complied with their minimum requirements for own funds and eligible liabilities (MREL) that had to be met by 1 July 2019. The short maturities of Danish banks' MREL-eligible instruments relative to similar issuances in other Member States may, however, pose rollover risks (Danmarks Nationalbank, 2019c). The liquidity position is comfortable, as reflected in a liquidity coverage ratio of 173 % at the end of the same period. Finally, asset quality is high, as it is reflected in the low ratio of non-performing loans.

Macro-prudential buffers are being progressively built to further strengthen banks' resilience. While credit growth has been easing overall, this nonetheless masks a build-up in systemic risk as intensified competition among banks may result in an easing of credit standards and as investors take higher risks in their search for yield. Against this background, the Danish Systemic Risk Council has recommended further increases in the rate of the countercyclical capital buffer (CCyB). That rate, currently at 1 %, will progressively increase to 1.5 % in the third quarter of 2020 and to 2 % in the first quarter of 2021. The Council has announced its intention to recommend a further increase of the buffer rate to 2.5 %. This buffer will contribute to further safeguarding financial stability and can be released with

⁽¹⁶⁾ In 2018 the Danish Financial supervisory authority has set up a sandbox initiative, allowing companies to test their financial technology innovations in a controlled environment. This 'FT Lab' aims to promote the developments of products that are beneficial for consumers, while also providing the supervisor with a better understanding of financial technology.

Table 3.2.1: Financial soundness indicators, all banks in Denmark

	2014q4	2015q4	2016q2	2016q3	2016q4	2017q1	2017q2	2017q3	2017q4	2018q1	2018q2	2018q3	2018q4	2019q1	2019q2
Non-performing loans	5,1	3,9	3,6	3,4	3,3	3,1	2,9	2,7	2,5	2,7	2,5	2,3	2,3	1,9	1,9
o/w foreign entities	4,2	3,7	3,7	3,5	3,2	-	-	-	-	-	-	-	-	-	-
o/w NFC & HH sectors	5,8	4,4	4,0	3,9	3,7	3,5	3,2	3,0	3,0	3,3	2,9	2,8	2,7	2,3	2,2
o/w NFC sector	10,2	7,0	6,1	5,9	5,4	5,0	4,5	4,2	4,2	4,9	4,4	4,0	3,8	3,3	3,2
o/w HH sector	2,9	2,7	2,6	2,6	2,6	2,5	2,4	2,2	2,2	2,2	2,0	2,0	2,0	1,5	1,5
Coverage ratio	31,1	35,2	35,6	28,4	27,3	25,4	25,6	26,9	25,4	27,0	32,3	32,1	32,1	36,8	35,8
Return on equity ⁽¹⁾	4,7	6,8	9,0	9,1	9,7	12,7	12,1	11,5	10,8	10,3	9,5	8,6	8,0	8,0	8,5
Return on assets ⁽¹⁾	0,3	0,4	0,5	0,5	0,6	0,7	0,7	0,7	0,7	0,6	0,6	0,5	0,5	0,5	0,5
Total capital ratio	18,2	19,8	20,2	19,9	20,7	20,4	21,2	21,5	22,1	21,3	21,7	21,5	21,6	21,5	21,3
CET 1 ratio	15,0	16,2	16,1	15,9	16,4	16,5	17,2	17,5	18,1	17,4	17,3	17,6	17,8	17,5	17,4
Tier 1 ratio	16,2	17,6	17,8	17,6	18,4	18,2	18,9	19,2	19,7	19,0	19,2	19,5	19,7	19,3	19,3
Loan to deposit ratio	192,9	213,8	206,2	210,7	211,0	236,9	227,3	228,7	228,7	225,8	229,2	231,7	240,7	238,5	236,6

⁽¹⁾ Annualized data.

Source: ECB - CBD2 - Consolidated Banking data

immediate effect if the degree of systemic risk were to decline. It complements other prudential measures specific to real estate (see below).

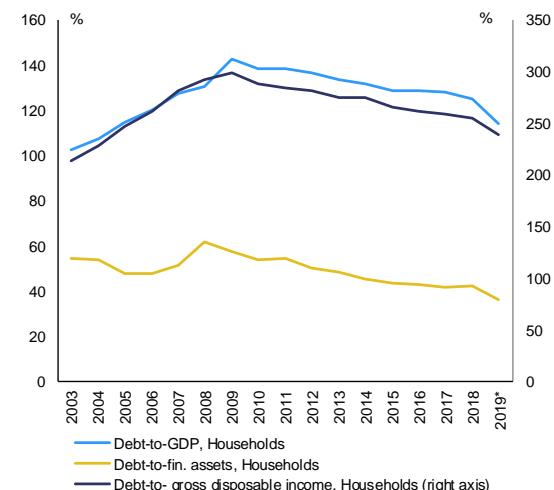
The government launched a review of Denmark's participation in the European banking union. The review was announced in July 2017 and the final report was released in December 2019. The government's review was the second study on the subject. Similarly to the 2015 report, the 2019 report also concluded that joining the banking union would in principal be advantageous for Denmark, as it would inter alia strengthen oversight of Danish financial institutions' cross-border activities. Some uncertainties highlighted in the 2015 report (for instance related to Denmark's mortgage-credit system) have now been clarified. However, the 2019 report highlights that the Banking Union is still developing and that there is ongoing work on additional measures at EU-level, which could change the regulatory framework for Danish credit institutions, whether or not Denmark participates in the Banking Union.

Household indebtedness

Debt of Danish households remains high but has been declining in recent years. Denmark is among the EU Member States among the highest household debt-to-GDP ratio. Household debt progressively fell from its peak of 143 % of GDP in 2009. The reduction between 2018 and 2019 is estimated to have been particularly strong, with debt falling by 11 pps to an estimated 113.5 % of GDP. Danish household debt was 2.4 times higher than gross disposable income in 2019, down from a multiple of three at the peak in 2009. This overall reduction primarily reflects GDP (i.e. denominator) growth and not the contraction of

credit. However, credit flows have slowed recently and households have used the low interest environment to deleverage to refinance their existing debt (Graph 3.2.2).

Graph 3.2.2: Household debt



Source: Eurostat

Commission analyses suggest a need for further reductions in gross household debt. Estimates of prudent or fundamentals-based levels of gross household debt implied by cross-country models are significantly below Danish households' actual debt level⁽¹⁷⁾. The model-implied gap between those benchmarks of sustainable debt levels and the actual debt has narrowed in recent years, but

⁽¹⁷⁾ Fundamentals-based benchmarks are derived from regressions capturing the main determinants of credit growth and taking into account a given initial stock of debt. Prudential thresholds represent the debt threshold beyond which the probability of a banking crisis is relatively high. Methodologies are described in European Commission (2017) and updates to the methodology have been subsequently proposed in European Commission (2018).

would in principle point to a need for a further deleveraging. This is under way, as households increasingly switch to mortgages with amortisation (see also Graph 3.2.4).

There are several factors that mitigate debt sustainability risks. Households have strong balance sheets and the high level of gross debt is matched by a high level of household assets – net assets of Danish households amounted to 185 % of GDP in the second quarter of 2019 - implying a comfortable solvency position. While the high level of gross debt may thus be an imperfect indicator of debt sustainability, there are nonetheless frictions that may result from the liquidity mismatch in Danish households' balance sheets and the asymmetric reaction of assets and liabilities to certain shocks.

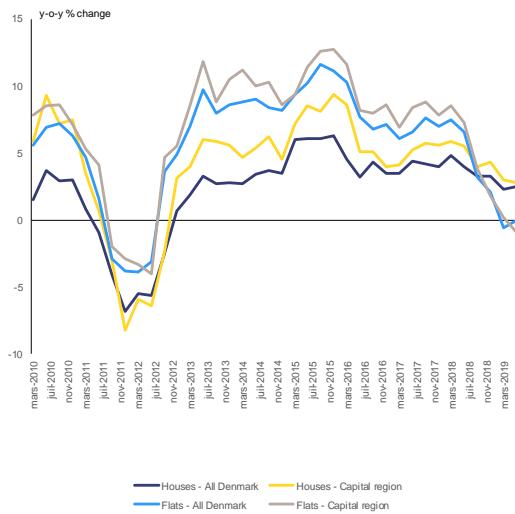
A large share of the assets mentioned above is illiquid. These include as housing or pension savings (which may also suffer from negative valuation effects in a downturn), while there is still a high, albeit declining, share of debt at variable rates that is susceptible to an interest rate shock. However, debt service ratios have declined from around 24 % at the end of 2008 to around 15 % at the end of 2018, suggesting that household resilience vis-à-vis such shocks has increased. Furthermore, gross household debt is highly correlated with high household income, indicating that the balance sheet risks reside predominantly at households more resilient to adverse shocks (Danmarks Nationalbank 2018d).

Housing market

Housing prices have been rising relatively strongly, compared with other EU Member States, but market dynamics in Denmark have eased over recent quarters. The slowdown has affected all regions and housing categories. At the national level, annual growth of prices of one-family houses decelerated from 3.9 % in 2018 to 2.4 % in the first half of 2019. In the capital region, price growth slowed from 4.9 % in 2018 to 2.8 % in the second quarter of 2019, the lowest rate observed since the third quarter of 2012. Annual price growth of owner-occupied flats, which averaged 8 % between mid-2012 and mid-2018, decelerated from the second quarter of 2018 onwards, with prices even contracting in the first half of 2019. This pattern is mirrored in the capital

region (Graph 3.2.3). The number of one-family house sales at national level in 2018 stagnated compared to the previous year, while transactions of owner-occupied flats declined, driven by developments in the Copenhagen region. The slowdown in market dynamics is also reflected in a decline in housing starts and permits for new constructions since mid-2018 and a slowdown in loans for house purchases.

Graph 3.2.3: Nominal real estate prices



Source: Statistics Denmark

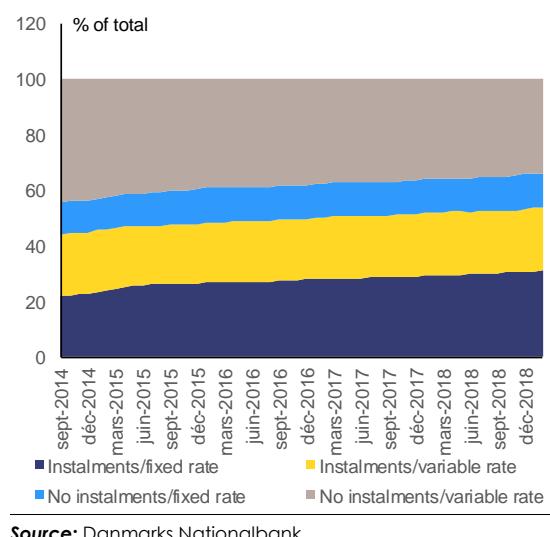
House prices valuation estimates are on the upside, but provide no signs of significant overvaluation. Increases in the price-to-income and price-to-rent ratios above their long-term values point to a marginal worsening of housing affordability over recent years.. House prices in Denmark, both at national and regional level appear broadly in line with fundamentals. This contrasts somewhat with price-to-rent or price-to-income indicators, which point to higher valuation gaps and pressures on housing affordability. However, the latter indicators do not take account of regulations affecting rental market, supply constraints and other fundamental drivers of prices, such as population growth or urban migration.

Mortgage financing conditions remain favourable with mortgage rates at historical lows. While the average effective mortgage interest rate has been declining for a long time, in September 2019 it has fallen for the first time below 1 % to 0.93 %. The average rate for new

loans was 0.73 % in September 2019, as some Danish banks started offering residential mortgages with negative interest rates. The decline in the average rate is mainly driven by the refinancing of existing mortgages at lower rates, which are counted as new loans.

Since 2014, the Danish authorities have put in place macro-prudential and requirements on banks to limit borrowing. These restrictions predominantly take the form of limits to the debt-to-income (DTI) and loan-to-value (LTV) ratios, and target in particular borrowers in areas that have experienced high price increases (the so-called “growth areas” around Copenhagen and Aarhus) and loans with characteristics that are considered risky, i.e. loans with adjustable interest rates or without amortisation. These measures seem to have been effective both in slowing down loan growth in the “growth areas” (Danmarks Nationalbank, 2018c) and in steering borrowers towards loans with longer interest rate fixation and amortisation, and thus decreasing financial stability risks emanating from the residential real estate sector. In February 2019, 46 % of the outstanding mortgage loan amount was concentrated in loans with instalments, while 57 % of that amount in loans with variable interest rates (Graph 3.2.4). This compares with shares of 54 % and 64 %, respectively, four years earlier.

Graph 3.2.4: Mortgage loans by type of loan



In June 2019, the European Systemic Risk Board (ESRB) issued a recommendation to

Denmark⁽¹⁸⁾ on vulnerabilities in the residential real estate sector⁽¹⁹⁾. The Board in particular focussed on the high share of loans with risky characteristics (deferred amortisation and variable interest rates) in combination with the high indebtedness of Danish households. It recommends Denmark to monitor these vulnerabilities and consider the tightening or activation of further capital- or borrower-based measures in the medium term, if necessary. Policy measures that are in place appear to be fairly effective in addressing the identified risks.

A new credit database will strengthen risk assessment. In addition, the Danish Systemic Risk Council and its members carry out regular assessments of both the risks emanating from the housing market and of the policies to mitigate them. In this context it is positive that as of end 2019, the Danish authorities will have access to a new credit database that will allow to further deepen their assessments. Finally, the ESRB also commends Denmark to review other policies that may support imbalances in the mortgage market, such as rental market regulation, tax deductibility of mortgages and housing taxation.

The implementation of the new, albeit delayed, housing taxation system should bring efficiency gains. Once in place, this reform will ensure that the amount of taxes paid on a property will reflect its underlying value and that of the land on which it stands. Currently, this link is weak, implying that in urban areas with high structural demand, the ratio of taxes to house prices is relatively low when compared to rural areas. As such, the current system may create feedback loops by further fuelling the demand for properties with high intrinsic value and push up their prices above levels justified by fundamentals.

Anti-money laundering

The Danske Bank money laundering case revealed end 2018 led to strengthening Denmark's anti money laundering (AML)

⁽¹⁸⁾ Recommendation of the European Systemic Risk Board of 27 June 2019 on medium-term vulnerabilities in the residential real estate sector in Denmark (ESRB/2019/05)

⁽¹⁹⁾ Denmark is one of ten EU member states to which the Board issued a warning or recommendation following a European Economic Area-wide assessment of residential real estate.

framework. Danske Bank is currently under investigation for clearing financial transactions totalling over EUR 200 billion through its branch in Estonia between 2007 and 2015. This case has led to a loss of trust in the integrity and anti-money laundering defence capabilities of Danish financial institutions and drawn international scrutiny to cross-border fight against money laundering. Important shortcomings in the prevention and investigation of money laundering had been highlighted already by the Financial Action Task Force (FATF) report of 2017 ⁽²⁰⁾. The IMF has also stressed that Danish banks' exposure to higher-risk countries poses a more substantial money laundering threat relative to the other Nordic countries (IMF, 2019). The Danish Court of Auditors (*Rigsrevisionen*) in its January 2020 report assessed Denmark's anti-money laundering administration for the period of 2016-2018 and highlighted important deficiencies in the AML prevention framework.

In 2019, Denmark has reaffirmed its commitment to address the identified issues and undertook several significant legislative steps over a relatively short period. A broad political agreement to further reinforce anti-money laundering efforts was reached in March 2019. The initiatives can be grouped into three categories: (1) strengthening of control and intervention powers, (2) significant tightening of sanctions and increased resources, and (3) clearer organisational focus. Legislative amendments to the Financial Business Act were adopted in December 2018 and June 2019, and will allow the Danish FSA to revoke financial institutions' licenses for gross violations of the AML Act and to substantially increase the fines for failure to comply with that act. The Financial Supervisory Authority (FSA) adopted a report in January 2019 on its supervision of Danske Bank with regard to its Estonian branch. The report has identified 23 initiatives that could improve anti-money laundering supervision. As of July 2019, fit and proper requirements have become applicable to anti-money laundering compliance officers employed by financial institutions.

The FATF upgraded Denmark on ten of its 40 recommendations in 2018 and on three additional recommendations in 2019. The FATF now considers Denmark "largely compliant" with its duty to assess risks and as regards the application of a risk-based approach to fighting money laundering. Despite this, Denmark remains under enhanced monitoring and an upgrade has yet to be sought and obtained in respect of FATF standards relevant for anti-money laundering supervision of financial entities. The Danish Parliament adopted the AML package in December 2019, which entered into force on 10 January 2020. The legislative package intends to transpose the 5th Anti-money laundering directive, introduce measures translating the political agreement of March 2019 into actions and the right for supervisors to issue administrative penalties. These measures allow Danish competent authorities to apply the new tools, fine-tuning procedures and keeping abreast of new trends and vulnerabilities. However, these measures are yet to be assessed and yield results.

Substantial increases in financial and human resources dedicated to AML tasks have taken place within competent authorities. The Government has boosted the budget as well as number of personnel at the Money Laundering Secretariat (Denmark's Financial Intelligence Unit) and the Danish FSA in the agreement of March 2019. The DFSA established an AML Division and increased the number of AML-dedicated staff by close to 50 % in 2019. The report by *Rigsrevisionen* might lead to additional actions to strengthen the Danish Financial Intelligence Unit..

⁽²⁰⁾ The Financial Action Task Force was created in 1989 by the G7 and entrusted to set global standards and recommendations. These standards and recommendations cover anti-money laundering rules for financial and other entities to be enforced by public authorities.

3.3. LABOUR MARKET, EDUCATION AND SOCIAL POLICIES

3.3.1. EMPLOYMENT DEVELOPMENTS

Supported by a solid economic upswing, the Danish labour market is performing well. The employment rate reached 77.5 % in 2018, approaching the national 2020 target of 80 %, and well above the EU average of 73.2 %. The gap between the female and the male employment rate has decreased in recent years, reaching 7.0 pps in 2018, well below the average gap at EU level (11.6 pps). The unemployment rate has continued to decline, down to 5.1 % in 2018, the lowest since the pre-crisis level in 2008. Long-term unemployment, which has dropped to 1.0 %, remains one of the lowest in the EU.

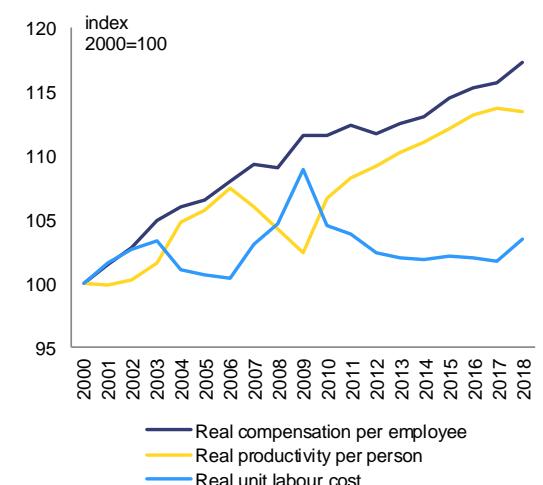
The size of the labour force reached a record in 2018 (2.8 million). This is driven by a significant inflow of foreign workers, mainly from other EU Member States, and the increasing number of older workers staying longer on the labour market. In 2018, the employment rate of people aged 55-64 stood at 73.3 %, corresponding to a 13.4 pps increase relative to 2008 (59.9 %). This is the impact of reforms introduced in the 2000's, incentivising people to stay on the labour market. Since 2006, the statutory and early retirement ages have been indexed to life expectancy. A reform in 2011 brought the indexation mechanism into effect sooner than initially decided. In the current scheme, the retirement age is increased by 0.5 years each year until 2022 and then increased to 68 in 2030. The Danish Parliament has not yet adopted further increases in the retirement age but is expected to raise the retirement age to 69 in 2035 and to 70 in 2040. These reforms are set to contribute to long-term fiscal sustainability and to help make up the 2.5 pps shortfall from the country's Europe 2020 employment target (80 %).

The labour force is projected to continue growing, but sector-specific differences may increase the risk of skills mismatches. The estimated 11 % increase of the labour force by 2030 (relative to 2016) is expected to be driven by demographic changes (Cedefop, 2018). The age cohorts of those aged 30-34 and 35-39, are expected to increase to 33 % and 29 % respectively. Overall employment is forecast to grow between 2021 and 2030, but with significant sector-specific differences (lowest in engineering by 0.7 % p.a. and highest in the primary sector and utilities by 2.2 % p.a.).

Labour shortages persist, but the overall situation appears to be slightly improving. The total number of unsuccessful recruitments (61,110) stood at 20 % in December 2019, which is slightly below the February 2019 level (70,300) of 22 % (Agency for Labour Market and Recruitment, 2019). This reflects a continuous, but slightly declining, labour market tightness. The shortages concern mainly sector-specific skilled workers, in particular in the construction sector (32 % unsuccessful recruitments), the agricultural sector (29 % unsuccessful recruitments) and the services sector (29 % unsuccessful recruitments). The low share of ICT specialists also remains a challenge. The risks of labour shortages may decline along with more moderate economic growth in 2020 and 2021, estimated at 1.5 % and 1.6 %, respectively.

Wages accelerated in 2018 and are forecast to continue growing. Nominal compensation per employee increased by 2 % in 2018, from 1.7 % in 2017. The upward pressure on wages is expected to continue in 2019. As nominal wages grew ahead of inflation, real wages have also seen an increase (1.4 % in 2018), supporting employees' purchasing power. In sectors experiencing labour shortages, construction and services, wage growth was around that of the whole economy at 2.1 % and 1.9 % in 2018, respectively (Graph 3.3.1).

Graph 3.3.1: Real compensation per employee (GDP deflator, National Currency)



Source: Eurostat

Box 3.3.1: Monitoring performance in light of the European Pillar of Social Rights

The European Pillar of Social Rights is a compass for a renewed process of upward convergence towards better working and living conditions in the European Union. It sets out twenty essential principles and rights in the areas of equal opportunities and access to the labour market; fair working conditions; and social protection and inclusion.

SOCIAL SCOREBOARD		SDGs				
Equal opportunities and access to the labour market	Early leavers from education and training (% of population aged 18-24)	4 QUALITY EDUCATION 				
	Youth NEET (% of population aged 15-24)	5 GENDER EQUALITY 				
	Gender employment gap					
	Income quintile ratio (S80/S20)	10 REDUCED INEQUALITIES 				
	At risk of poverty or social exclusion (in %)					
Dynamic labour markets and fair working conditions	Employment rate (% of population aged 20-64)	8 DECENT WORK AND ECONOMIC GROWTH 				
	Unemployment rate (% active population aged 15-74)					
	Long-term unemployment rate (% active population aged 15-74)					
	GDHI per capita growth					
	Net earnings of a full-time single worker earning AW					
Social protection and inclusion	Impact of social transfers (other than pensions) on poverty reduction	1 NO POVERTY 				
	Children aged less than 3 years in formal childcare					
	Self-reported unmet need for medical care	3 GOOD HEALTH AND WELL-BEING 				
	Individuals' level of digital skills					
Critical situation	To watch	Weak but improving	Good but to monitor	On average	Better than average	Best performers

Members States are classified on the Social Scoreboard according to a statistical methodology agreed with the EMCO and SPC Committees. It looks jointly at levels and changes of the indicators in comparison with the respective EU averages and classifies Member States in seven categories. For methodological details, please consult the proposal for a Joint Employment Report 2020, COM(2019) 653 final; NEET: neither in employment nor in education and training; GDHI: gross disposable household income. Update of January 2020.

The Social Scoreboard supporting the European Pillar of Social Rights points to well-performing labour market and good social outcomes in Denmark. The employment rate is high, and the gender employment gap is relatively low. The unemployment rate shows a downward trend, though approaching the EU average with the situation having improved in other Member States. The long-term unemployment rate is among the lowest in the EU.

The share of early school leavers from education and training has increased in recent years. In 2018 it reached 10.2 %, slightly above the Europe 2020 target of 10 %. This increase may be related to the high chances of finding a job, which incentivise young persons to interrupt their studies.

Denmark is among the best performers in terms of work-life-balance. Around 63.7 % of children aged less than 3 years are in formal childcare, which is very high compared to the EU average of 34.3 %. Subsidised childcare provision is among the factors supporting the relatively high female employment rate, at 74.8 % (EU average of 67.4 %).

The supply of vocational education and training (VET) graduates is crucial to meet labour market needs, but participation remains low. Despite a slight increase in the share of youth starting a VET programme directly after compulsory school, from 19.4 % in 2018 to 20.1 % in 2019, this remains significantly below the government's 2025 target of 30 %. Regional differences are significant, with youth residing in the larger cities having the lowest VET

participation rates. The employability rate of recent VET graduates is 85.6 % in 2018, well above the EU average (79.5 %). Previously, the lack of apprenticeship places was a barrier, but the 2016 tripartite agreement has resulted in approx. 3,000 additional apprenticeship places, well on track in reaching the overall goal of establishing 8-10,000 new places by 2025. Nonetheless, the VET programmes fail in attracting youth to choose this

direction. There appears to be a gender imbalance, with 39.7 % female VET students in 2018.

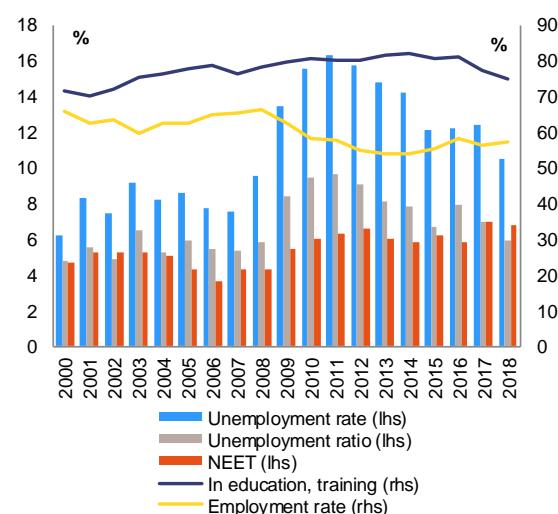
The relatively low share of the workforce specialising in ICT (4.3 %) remains a challenge. The national Technology Pact aims to increase the number of tertiary Science, Technology, Engineering and Mathematics (STEM) graduates by 20 % by 2028. Recent government initiatives focus on promotional activities, in with expected participation of 1 million persons. A key challenge is the occupation of women in digital jobs and entrepreneurship (European Commission 2019h). In the Women in Digital Scoreboard (European Commission 2019i) Denmark scores 65.4 (EU average of 50), but only 1.8 % of employed women are ICT specialists. Furthermore, 59 % of the SMEs reports difficulties recruiting ICT specialists, which is above the EU average (55.5 %).

Launched in February 2019, the National Coalition for digital skills and jobs aims to promote the enhancement of digital skills. With more than 10,000 members, it supports actions targeting adequate and continuous supply of high quality graduates in line with labour market needs. It divides digital skills in three categories: 1) basic user's skills for all citizens, 2) coding skills and 3) reflective skills that focus on developing the basic literature and culture around ICT (European Commission 2019h).

Youth unemployment has fallen in recent years, but the share of early school leavers has increased. This development hampers Denmark's progress towards SDG8²¹. Youth unemployment fell to 10.5 % in 2018, well below the EU average of 15.2 %. The share of early leavers from education and training (aged 18-24) has, however, gradually increased from 7.2 % in 2016 to 10.2 % in 2018, slightly below the EU average of 10.6 % and is classified as "to watch" in the Social Scoreboard. The drivers remain unknown, but the relatively high chances of finding unskilled or skilled jobs, may have incentivised working instead of finishing their studies (Graph 3.3.2).

²¹ "Decent work and economic growth", which includes an indicator related to "Young people neither in employment nor in education or training".

Graph 3.3.2: Youth: in education and training, employment rate, unemployment rate, unemployment-to-population ratio, NEET



Source: Eurostat

Despite a good labour market situation, certain marginalised groups face barriers to accessing the labour market. As a result of recent years' labour market improvements, the number of people on the margin of the labour market⁽²²⁾ has been on a downwards path since 2016, reaching approx. 73,000 persons in 2017, but above the 2008 pre-crisis level of 51,000 persons. This includes youth, migrants, homeless and people with disabilities, mental issues or who attend drug rehabilitation programmes.(Ministry of Social Affairs and the Interior, 2018). The widespread characteristics and the relatively small absolute sizes of each group, makes it difficult to target with standard policy initiatives. A government proposal (October 2018) aims to increase employment among people with significant disabilities, targeting 13,000 persons to find ordinary work or 'flexjobs' by 2025. A total of DKK 128.4 million was earmarked to 11 initiatives for the period 2019-2022, but it remains too early to assess these schemes.

Adult participation in life-long learning has decreased significantly in recent years, but it remains among the highest in the EU. This rate

⁽²²⁾ Those persons, who for three years in a row have been in employment (ordinary or subsidised) for max. 20 % of the year. This includes unemployment and social assistance benefits recipients, but not those on early retirement schemes and flex-jobs.

has declined from 31.3 % in 2015 to 23.5 % in 2018, which is still more than double that of the EU average (11.1 %). The drivers behind this 7.8 pps drop may be linked to high economic activity. Ensuring business continuity, employers may have allowed less time for trainings. The adult learning participation rate for those in employment has declined more than that of the unemployed, which further supports this hypothesis. Among those 23.5 % who take part in adult learning, there are no significant differences in terms of skills level or educational background. There are, however, significant gender gaps with the participation of men (19.2 %) being lower than that of women (27.8 %). In 2018, the 28.5 % of the unemployed persons took part in adult learning, which is almost triple that of the EU average (10.7 %).

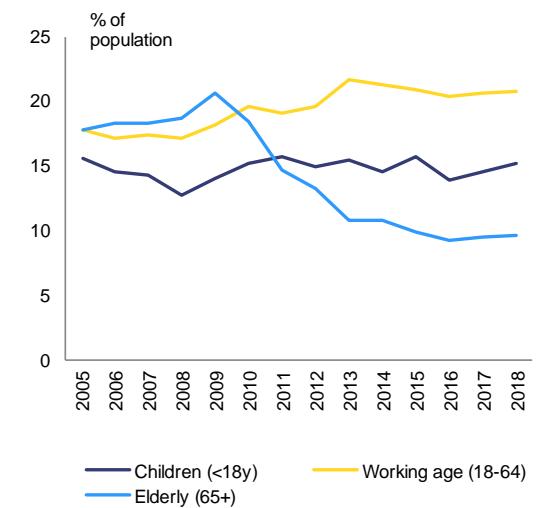
A broad political agreement (October 2019) earmarked DKK 102 million to the upskilling of unskilled workers. The overall aim is to ease the shift from unskilled to skilled work and to address the labour shortages, by ensuring the supply of skilled workers with the necessary competences. It was also agreed to continue implementing the Job Rotation scheme during the course of 2020, allowing unskilled workers in certain sectors (e.g. health) to take part in trainings to become a skilled worker in the same field, while an unemployed person fills up the position in the time-period that the training takes place.

3.3.2. SOCIAL POLICY AND INCLUSION

The ‘at risk of poverty’ or ‘social exclusion’ (AROPE) rate stood at 17.4 % in 2018, which is relatively low (EU average of 21.9 %). Despite the relatively high economic activity, it remains above the 2008 pre-crisis level, showing a slightly negative trend. The social situation for people above the age of 65 is particularly favourable compared to other EU Member States. The AROPE rate for this age group stood at 9.6 % in 2018 (EU average of 18.6 %), leading to a drop of 9 pps. during the past decade (18.6 % in 2008). This decrease may, among others, be driven by the higher share of workers above the age of 65 staying longer on the labour market, supported by the impact of active labour market and pension reforms introduced in the 00's. The share of the population experiencing severe material deprivation stood at 3.4 % in 2018, below the EU

average (5.9 %), but after a seven-year period of fluctuating around 3 % (Graph 3.3.3).

Graph 3.3.3: At-risk-of-poverty or social exclusion rate, age groups



Source: Eurostat

The number of households with very low work intensity increased significantly between 2008 and 2018. Denmark's national Europe2020 target - to reduce the number of persons in very low work intensity households by 22 000 - is far from being reached. On the contrary, the number of persons living in households with very low work intensity has increased from 347,000 in 2008 to 459,000 in 2018. Between 2017 and 2018 alone, this number rose by 50,000 persons (from 409,000 to 459,000). The gap to the national Europe 2020 target is thus far from being closed. This sharp increase contradicts with the development of other key indicators and the specific drivers remain unclear.

Income inequality has remained stable in recent years, while the median household income has increased slightly. At the same time, income inequality, as measured by the income quintile share S80/S20 ratio⁽²³⁾, has remained stable since 2014 (4.1 in 2018 vs. EU average of 5.17). Adjusted for purchasing power parities, the annual median household income (single person) has increased to EUR 17,234, among the highest in the

⁽²³⁾ The ratio of total income received by the 20 % of the population with the highest income (top quintile) to that received by the 20 % of the population with the lowest income (lowest quintile)(Eurostat).

EU (average of EUR 15,310). In-work poverty stood at 5.4 % in 2018 - almost half of the EU average of 9.2 % - and has remained relatively stable in recent years.

The share of household expenditure devoted to housing stood at 28.1 % in 2018, the second highest in the EU (average of 24.0 %). This indicator - which includes consumption on housing, water, electricity, gas and other fuels - has gradually declined since 2013 from 30.0 %. Furthermore, the housing cost overburden rate ⁽²⁴⁾ fell to 14.7 % in 2018, but remains among the highest in the EU (average of 10.4 %). The limited supply of affordable housing solutions is of particular concern in the capital area, which also has the highest number of job vacancies. This may in turn hamper labour mobility and fuel geographical labour market and social disequilibria.

Denmark is progressing towards some of the ten social mobility goals from May 2016⁽²⁵⁾ introduced by the former government in May 2016. These initiatives aim to lower the number of vulnerable persons, increase the activity rate and incentivise more people to start an education or training despite a disability. The target group include homeless people, people with disabilities, and people with social problems, including people who attend drug or alcohol rehabilitation programmes.. Some of the goals has seen a positive development, such as the crime rates for marginalised young persons and the number of persons who complete an alcohol rehabilitation programme. On the other hand, the trend has stagnated or been negative for other goals, including the share of marginalised young people who are attending an upper secondary education. The total number of homeless people stood at 6,400 in 2019, which is unchanged compared to the situation in 2017 (VIVE, 2019), but with a

⁽²⁴⁾ The share of the population living in a household where total housing costs (net of housing allowances) represent more than 40% of the total disposable household income (net of housing allowances).

⁽²⁵⁾ <http://socialministeriet.dk/media/18383/10-goals-for-social-mobility-regeringen-may-2016.pdf>

change in composition away from young and towards older homeless persons ⁽²⁶⁾.

The labour market situation of people with disabilities is less favourable on some indicators.. There is a gap in the AROPE rate of 7.9 pps, which is below the EU average (9.5 pps). Furthermore, the tertiary education attainment gap between people with and without disabilities is much higher than the EU average (21.6 pps vs. the EU average of 10.2 pps). This gap has increased in recent years, while it appears to have been stable in the EU as a whole. The Disability Barometer shows, however, that the share of people with disabilities with a tertiary education in Denmark has been constant from 2012 to 2016, while the corresponding proportion for people without disabilities has increased.

In September 2019, the government passed an agreement for a temporary child benefit scheme in Parliament. The main purpose is to mitigate the impact of a number of policy measures introduced by the former government, in particular the Ceiling of Social Assistance Benefit and the Integration Benefit. Around 27,900 children (aged 0-14) are estimated to benefit from this temporary support scheme, which will remain in place until the policy measures have been reviewed. A single parent of two children in the age group 0-14, who is receiving social assistance benefits, may receive up to DKK 1,850 (EUR 250) in additional allowance per month (tax-free).

The government has launched a review of the social benefits system. While the income level of minimum income recipients is one of the highest in the EU, a Commission for Social Benefits (*Ydelseskommissionen*) has been established, to review the system and present a number of recommendations by the end of 2020.. The recommendations must propose a replacement for the Ceiling on Social Assistance benefits of 2016 in addition to striking a balance between a reasonable living standard for children of benefit recipients and an incentive to work for recipients..

⁽²⁶⁾ The new government has not yet decided whether or not to continue monitoring the ten social mobility goals, as a key analytical tool in the social policy making.

Strong economic activity have shifted people away from social benefits and into employment, and recent policy measures targeting “making work pay” may have contributed to this shift. This include the Ceiling on Social Assistance benefits (2016) and the 225-hour work requirement (2016). The number of social assistance recipients has decreased by 29.8 % in the period June 2015 to June 2019. The number of integration benefit recipients, i.e. those who do not fulfil the residence requirements (minimum 9 of the last 10 years of residence to be in Denmark, Greenland or the Faroe Islands) and employment requirements (minimum 2 ½ years of employment within the last 10 years of residence) to receive social assistance benefits, has likewise decreased. This positive development may also be linked to the high likelihood of finding a job, as a result of economic activity and job creation.

3.3.3. INTEGRATION POLICY

Denmark has taken steps towards lowering the number of new migrants and refugees, while intensifying their labour market integration. The requirements for obtaining permanent residence, as well as the access to social benefits, have been tightened, which may have contributed to a marked decline in the number of asylum claims and family reunifications.. The government is planning to continue the overall integration policy of the previous government, but with a few adjustments, such as prolonging the residence of those refugees who have been working for minimum two years in Denmark.

Recently arrived migrants (including refugees) integrate faster on the labour market than before, while the situation remains difficult for those who have resided in Denmark longer. The employment rate of all non-EU born persons (independently of years of residence) has fluctuated around 60 % in recent years, reaching 62.8 % in 2018. The situation is more favourable for those, who have arrived in Denmark recently (i.e. within the last five years) whose employment rate stood at 58.6 % in 2018. The majority of the newly arrived work in sectors with high labour shortages, in particular services (hotels, restaurants, cleaning) (Confederation of Danish Employers, April 2019). This positive development appears to be driven by the favourable economic conditions, the job-oriented

active labour market policies and the lower social benefits.

There is, however, a significant gender gap (women 46.9 % vs. men 70.4 %). The share of refugees and their family members (aged 21-64), who were in paid employment after three years of residence, has increased from 20.4 % in first quarter of 2016 to 41.7 % in third quarter of 2019 (Ministry of Immigration and Integration, 2019 – Integrationsbarometer.dk). This increase has been more dominant among male refugees (from 30.5 % to 61.2 %) relative to female refugees (from 7.8 % to 19.7 %).

The government and the social partners have agreed to prolong the fast-track Integration Education (IGU) programme (2016), which has shown positive outcomes. This programme targets recently arrived migrants, by offering a two-year contract at apprentice wage levels, including 20 weeks of vocational education and language training. Around 48 % of the municipalities and 52 % of the firms report a high level of satisfaction with the scheme (Rambøll, 2019). As a result, the programme has been prolonged for three years (until June 2022). In absolute terms, the total number of IGU contracts registered (2,377 in December 2019), is relatively low.

As part of the 2020 Budget Bill, it has been agreed to work towards an extension of the target group. For instance in terms of age requirements (currently limited to those aged 18-39) or number of years of residence in Denmark (currently limited those with less than 5 years residence). For this purpose, DKK 10 million p.a. has been earmarked for the period 2021-2023. Furthermore, as two thirds of the IGU participants are male, it is important to consider how to attract more women to register for the programme. Dropout rates remain relatively high, as approx. 35 to 45 % interrupt the programme. In some cases, this is linked to refugees entering into ordinary work or education.

In December 2018, the initiatives from the political agreement "Denmark without parallel societies – no ghettos by 2030" went into force. Consisting of 22 initiatives, the main purpose is to break up neighbourhoods that may be characterised as ghettos, such that these no longer exist by 2030. In 2018, the number of

neighbourhoods defined as “ghettos” reached 30(²⁷). A key element of the “ghetto plan” is the introduction of higher sanctions for committing crimes within these neighbourhoods, and an upper limit of 40 % social housing has been introduced. Other elements include an obligation for children living in vulnerable housing areas to attend 25 hours of childcare per week if they are not already admitted to a childcare facility (from the age of 1 year), and Danish language test in grade 0. The impact of these measures remains to be examined. Furthermore, the new government is planning to reduce the number of elements in the agreement.

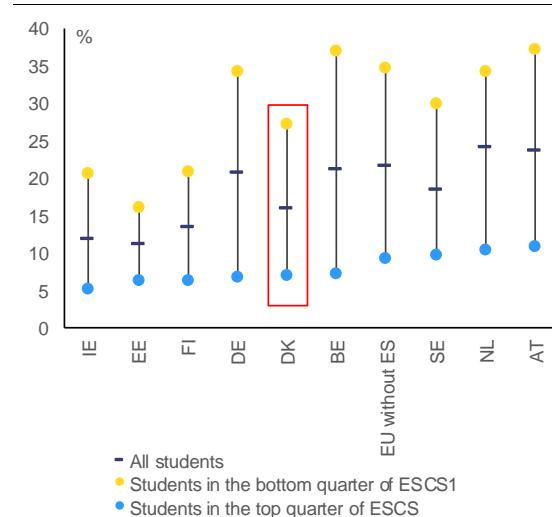
3.3.4. EDUCATION AND SKILLS

The rate of early leavers from education and training is increasing. The rate of early leavers from education and training has expanded by 3 pps since 2016, reaching 10.2 % in 2018. Most of this change takes place in the cities. While the gender gap is relatively high (4.7 pps higher for boys than for girls), the gap between the native and foreign-born population remains the narrowest in the EU, at 0.3 pps. However, native-born with migrant background do not seem to catch up as the gap persists (European Commission, 2019e).

Danish school children performed relatively well in reading and mathematics, and slightly less well in science. But learners with a migrant background continue to lag behind. The share of both low and top achievers is smaller than in comparable countries. The performance of students from disadvantaged and migrant backgrounds remain an issue (Graph 3.3.4). Overall, average basic skills continued to be strong (OECD 2019b). The share of low achievers did not improve in reading and mathematics but increased slightly in science (OECD 2019b). First-generation migrants show nearly three times the share of low achievers in reading compared to non-migrant students, and native-born students with migrant background do not close the gap. Socio-economic background continues to influence education outcomes.

Participation in early childhood education and care is nearly universal, but quality is uneven. In 2018, 98 % of the above 4-year-old participated in early childhood education and care. For those below the age of three, this rate stood at 63.2 % in 2018, among the highest in the EU. However, conditions vary between municipalities, leading to differences in quality (Danmarks Evalueringssinstitut, 2020). In 2018, 60 % of staff holds a formal degree as a pedagogue, and 7% of staff holds a formal degree as a pedagogical assistant. Recent political initiatives, such as the “Strong ECEC – everyone must form part of the community” (2017) and “1.000 days programme – a better start to life” (2019), introduces more pedagogical staff in certain areas with children from vulnerable backgrounds, upskilling of staff and a focus on continued training. There will be an expected increase of 60,000 children within the next ten years and therefore a corresponding need for additional trained staff. As part of the 2020 Budget Bill, a gradual implementation of legal minimum staff/child ratios will be introduced by 2025, specifically three children per adult in nurseries and six children per adult in kindergartens.

Graph 3.3.4: Underachievers in reading by socio-economic status (ESCS 2018)



Source: OECD

(²⁷) A “ghetto” fulfils three out of five of the following criteria; 1) a majority of residents are without work or education, 2) a majority of residents with lower secondary education diploma, 3) a majority of residents with low income, 4) crime rates are minimum three times that of the average and 5) more than half of the residents originate from non-Western countries.

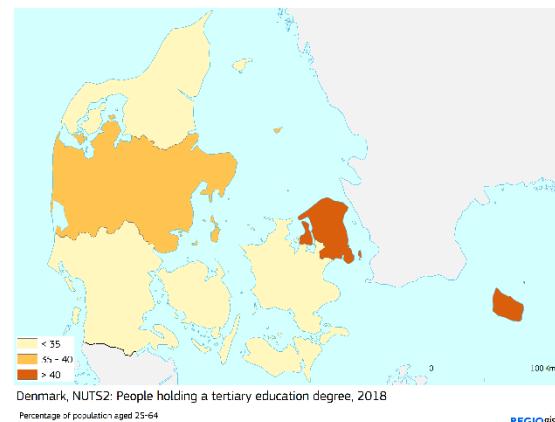
The 2020 Budget Bill includes resources to recruit more teachers, and the removal of the tertiary education ceiling (*uddannelsesloftet*). A total of DKK 275 million for 2020, which will increase to DKK 800 million in 2023, has been

earmarked to support the increase in the number of teachers. The purpose is to address the increasing shortage of teachers, combined with an increase in class size. This has a positive impact related to SDG4²⁸. Furthermore, the tertiary education ceiling, introduced in 2017, ensures that tertiary graduates can register for a degree at the same or lower academic level, only after six years upon finalisation of their initial degree. The main purpose was to avoid graduates to complete more than one state-funded tertiary degree, a second degree at the same or lower level would have to be financed by the student. This ceiling has been criticised for putting unnecessary pressure on students. The new government and supporting parties have agreed to abandon the ceiling, effective from the start of the upcoming academic year (summer 2020).

About half of those aged 30-34 hold a tertiary degree and Danish universities continue to attract an important share of foreign students. This contributes to reducing current and future skill shortages. Among tertiary graduates, women (56.6 %) outnumber men (41.8 %). The percentage of people (25-64) holding a tertiary degree varies between regions. In the capital region more than half of working age people hold a tertiary degree, but in the Southernmost region of Denmark Sjaelland this is only 31.3 %. Higher education (ISCED 5-8) provides only a weak boost to employability of 2.2 pps compared to Vocational Education and Training (VET), one of the smallest advantages in the EU. Furthermore, 10.2 % of the graduates in Denmark studying for a degree go abroad as part of their studies. The latest reforms make higher education more flexible and link it more closely to labour market needs. An agreement from December 2018 introduced the possibility to introduce up to 25 one-year full-time professionally-oriented master courses, which allow to combine study and work, as well as work experience between degrees.

²⁸ “Quality education”

Graph 3.3.5: People holding tertiary education degree



Source: European Commission

Denmark is among those Member States with the highest level of digital skills. While the share of the population (95.5 %) who regularly makes use of the internet remained the highest in the EU, the digital skills of the overall population (ages 16-74) (European Commission 2020) and of those aged 16-19, slightly declined from 2015 to 2017 - albeit from a high level. Technological change and digitalisation are making jobs increasingly skill-intense – both in terms of level and types of skills. A digital skills set needs to be complemented by transversal skills such as problem-solving and socio-behavioural skills (i.e. communication, creativity, entrepreneurship, critical thinking) (Morandini et al, forthcoming).

Health

The Danish population benefits from a good status of health, helped by high expenditure. Denmark is among those Member States with one of the highest spending (10.1 % of GDP) on health. The population reports good health status and very low unmet needs for medical care (1.3 % in 2018), with a very small income gradient for services covered by public health insurance. In recent years, life expectancy at birth has gradually increased to 81.1 years in 2017. The number of healthy life years, years that a person at age 65 is still expected to live in a healthy condition, has remained relatively stable since 2014 and was lower than the EU average in 2018. The rate of treatable causes of mortality are lower than the EU average, but preventable mortality is only close to EU average. Smoking, lack of physical activity, poor nutritional habits, high levels of alcohol

consumption and adult obesity remain matters of concern for public health. Quality of cancer treatment is high despite overall incidence and mortality rates remaining above EU average. The IVth Danish cancer plan (to run until 2020), is implementing further steps for improving cancer prevention, detection and treatment.

The primary care sector performs efficiently and hospitalisation rate is planned to further decrease. Between 2007 and 2020, highly specialized hospitals are expected to reduce the number of bed-days by approximately 20 %. The need for better care coordination and cost control have been the key drivers behind the re-organisation of primary care. Potentially avoidable hospital admissions are still high for some chronic diseases (asthma, COPD and diabetes), with a considerable variation between regions and ages ⁽²⁹⁾. Denmark has one of the lowest number of hospital beds per capita in EU and policies to promote outpatient treatment and earlier discharge from hospital are in place.

Possible challenges emerge related to shortage of physicians in primary care and care coordination. Only around 20 % of the doctors are general practitioners and their availability to take in new patients varies widely among different regions, which increases the pressure on working conditions. On the other hand, the ratio of nurses to doctors is relatively high and the Danish Health Strategy (2018) foresees a strengthening of the primary care sector, among others by expanding the scope of tasks performed by nurses. Since 2018 a series of initiatives have been launched to strengthen the coordination of care. As part of the 2020 Budget Bill, the government has earmarked DKK 300 million in 2020 and DKK 600 million yearly from 2021 and onwards, allowing the recruitment of 1,000 additional nurses in 2021.

Denmark is among those Member States, with an advanced deployment of e-health. This includes the efficient use of IT systems and digital communication between different actors in the health care sector, such as hospitals and general practitioners. The Strategy for Digital Health (2018- 2022) focuses on digitisation and the use of

health data in the context of prevention and care, but also more flexible health care arrangement, including more regular use of home care. Furthermore, the National Strategy for Artificial Intelligence (2019) aims at creating a more effective healthcare system offering treatments based on the needs of the individual patient, as smart solutions can contribute to improved quality and coherence in patient treatment while supporting healthcare staff in their tasks. Also, a new initiative creating a "One stop-shop" for guidance on access to health data for public and private researchers and a single-entry gateway to applying for access to health data will improve research and development of new treatments and digital solutions.

⁽²⁹⁾ The number of patients above the age of 65 is twice as high in some municipalities, compared to others (OECD, 2017).

3.4. COMPETITIVENESS, REFORMS AND INVESTMENT

3.4.1. COMPETITIVENESS AND PRODUCTIVITY TRENDS

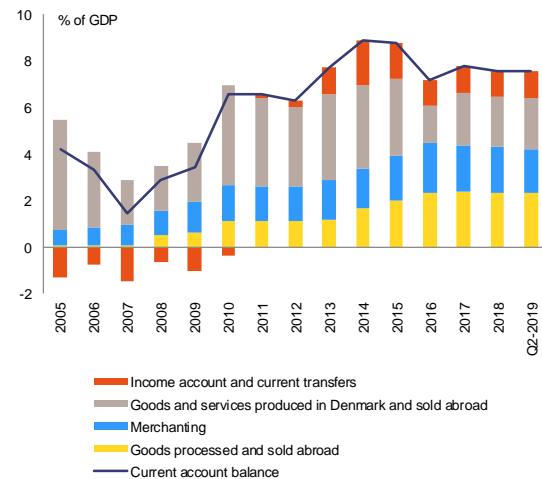
Since 2012, Denmark's share in world export markets has been relatively stable. Denmark's recent strong export growth (Section 1) has benefited from a favourable export mix. High and medium-high R&D intensity goods exports has increased from 40 % in 2008 to 50 % in 2018. On the other hand, in geographic terms, Denmark has been gradually losing relative market share in some of its dynamic export markets (such as Poland). Denmark's overall trade surplus is driven by extra-EU goods trade, while it is a net importer from other EU Member States. In 2019, the US became the second largest goods export market of Denmark, overtaking Sweden.

Denmark is among the best performing EU countries as regards developing and taking-up environmental technologies. Exports of green goods and services amounted to some DKK 81 billion in 2018, up by 13 % compared with 2015. The vast majority of green exports (over 80 %) concerns resource protection such as renewable energy production or technologies to limit energy consumption while a minor share concerns environmental protection in a narrow sense.

Danish exports of goods are increasingly produced outside Danish borders. "Merchanting" and "factoryless production" ⁽³⁰⁾ are becoming increasingly important for the Danish manufacturing industry. Merchanting and goods and services sold abroad (where the vast majority of factoryless goods production is categorised) are responsible for an increasing share of the current account surplus (Graph 3.4.1). The role of factoryless production grew from 0.5 % of the gross value added of the manufacturing sector in 2007 to 16 % by 2018. Due to the low labour intensity but high value added, factoryless production has been one of the key factors behind

the manufacturing sector's robust labour productivity performance.

Graph 3.4.1: Current account developments



Source: Statistics Denmark

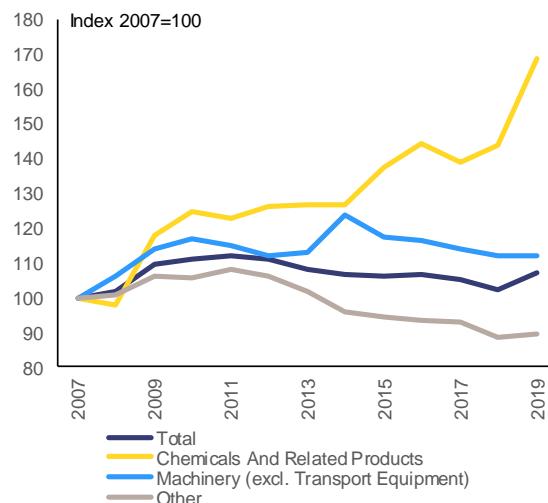
These global interconnectedness of Danish firms raises important statistical measurement challenges. The discrepancy between domestic (in a geographic sense) activity on the one hand and national activity (by Danish economic actors active both domestically and abroad) is widening. Statistics Denmark has undertaken several times relatively large data revision in the national accounts mainly due to lack of adequate data on the international activity of Danish multinationals.

Danish exports benefitted from favourable industrial specialisation and strong sectoral performance. The highly export oriented and successful pharmaceutical industry has a share of around 20 % in the Danish industrial production compared to 5 % in the EU. The transport industry, which has been most negatively affected by the recent general slowdown in the EU, contributes to less than 2 % of the Danish industrial production compared to 14 % in the EU. The production of the Danish machinery industry (which includes wind turbines) increased by 14 %, while it fell by around 3 % in the EU in 2018. Danish export benefitted from favourable pricing as well: positive terms of trade developments have been helping to sustain the sizable current account surplus (Graph 3.4.2). The growing relative size of pharmaceuticals also could imply greater dependence on fewer products and on the

⁽³⁰⁾ "Merchanting" exports cover Danish firms' purchases of goods abroad that are resold abroad without processing. "Factoryless production" is when an enterprise outsources the physical processing abroad, but retains the ownership of materials, finished goods and intangible assets. The difference between merchanting and factoryless production can be difficult to establish for the purpose of national accounts statistics.

organisation of health systems in main export markets such as the US.

Graph 3.4.2: Terms of trade development



Source: European Commission

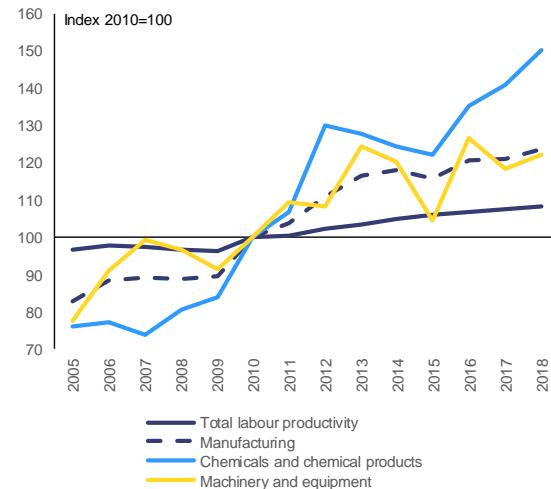
Despite recent improvements, productivity developments have been sluggish for an extended period of time. Denmark's productivity growth has been continuously slowing down in recent decades, similarly to the EU as a whole. However, total labour productivity growth has stabilised or accelerated slightly since 2015, mainly due to the strong productivity performance of the manufacturing sector (Graph 3.4.3).

The 'servicification' of the economy has been a drag to overall productivity performance. Services have gained weight in the Danish economy and impact negatively on aggregate labour productivity. Structural change alone has been responsible for a loss of 0.28 pps of average labour productivity growth in the period 1970–2016 in Denmark (Bauer *et al.*, 2020). Weak competition particularly in domestically oriented services sector has been identified as one of the main reasons for weak productivity growth (The Danish Economic Councils 2017). Some services sectors (such as pharmacies) appear to be strongly and possibly excessively regulated (OECD 2019a).

Manufacturing productivity remained robust. The progressive shift of production to merchanting and factoryless production has boosted labour productivity, reversing the declining overall trends since 2015 and masking weak productivity gains in

the services sector. Productivity developments in the manufacturing sector benefitted *inter alia* from the strong performance of the chemical (including pharmaceutical) and machinery export industries (Graph 3.4.3).

Graph 3.4.3: Sectoral labour productivity



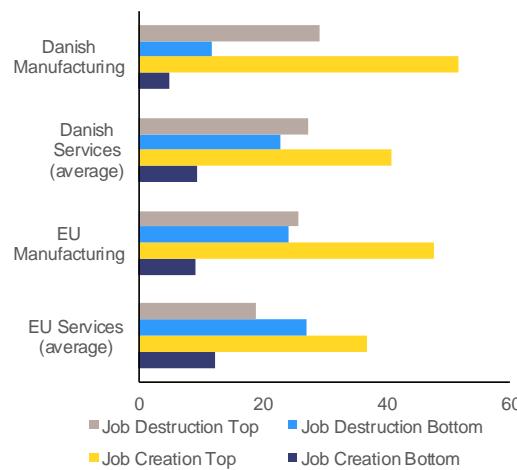
Source: European Commission

Denmark's allocative efficiency is above the EU average in both the service and manufacturing sectors. This means that labour flows help productive firms grow, while the least productive firms shrink and exit the market. In manufacturing, about 40 % of job creation takes place in the most productive quartile of firms, while this ratio is around 52 % in services (Bauer *et al.*, 2020). These labour reallocation dynamics to high productivity firms are able to support aggregate productivity (Graph 3.4.4).

Productivity increased more among exporting firms. Since the early 2000s, a wide gap in both labour and total factor productivity has opened when comparing exporters to non-exporters. The productivity gap between top performers and laggards has widened substantially over the last two decades. Top performers have usually been large exporting firms. On the other hand, most firms start small even when already internationally active. Policies in support of small firms are then able to boost productivity towards young firms as well. Furthermore, when aiming at supporting productivity through innovation, Danish firms can benefit from improvements in the quality of workforce and skills that can promote digitisation

and potentially internationalisation alongside (see also Section 3.3).

Graph 3.4.4: Job destruction per sector



Source: European Commission based on Bauer et al. (2020)

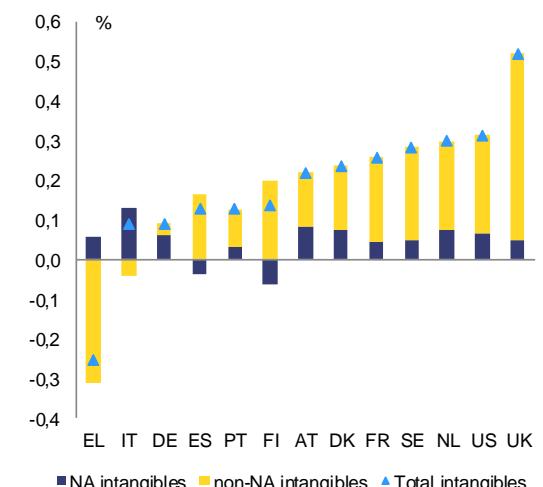
Increasing productivity gaps between large and small firms suggest weaknesses in the diffusion of technological advances. Despite the high overall R&D level, the concentration of R&D activities in a small number of large firms could be a sign of insufficient R&D capacity building within small and medium-sized enterprises. Technological diffusion could be improved by fostering cooperation between academia and businesses, facilitating the creation and growth of new, innovative start-ups, and easing entry barriers in sectors that are highly regulated (see also section 3.4.2).

Incentivising investment into intangible assets could boost the innovation capacity of small and young firms. Intangible assets can contribute more to economic growth than tangible assets (Thum-Thyssen et al 2017). Investment in so-called “non-National Account intangible assets”⁽³¹⁾ is found to accelerate the ability to internalise the benefits of technology adoption (Pellegrino and Zingales, 2017). Currently, Denmark ranks below euro area

⁽³¹⁾ “National Accounts intangible assets” (NA intangibles) are for instance software and databases, research and development, Mineral exploration and artistic originals. “Non-National Accounts intangible assets” (non-NA intangibles) are for instance design, brand, organisational capital, training.

average in terms of total intangible investment-to-capital ratio in the business sector and ranks in the middle range based on the contribution from intangible investment to productivity (Bauer *et al.*, 2020). Higher investment in intangibles assets is likely to positively affect the effectiveness of firms’ resources and in turn boosting aggregate productivity (Graph 3.4.5).

Graph 3.4.5: Contribution of intangible capital growth to productivity growth



Source: European Commission based on Bauer et al. (2020)

So-called “green enterprises” belong to the highly productive segment of Denmark’s economy. The examples of Danish wind turbine industry and other energy technologies show that it pays off to position itself within strategic value chains from the research stage up to deployment, commercialisation and export. Denmark has a unique opportunity to build on its leading position both in energy technologies and climate ambition to set standards by clearly stating objectives and funding targets in research and innovation.

Productivity developments within the public sector remain challenging. The National Productivity Board set out an attempt to measure productivity developments within the Danish primary and secondary school sectors (DORS 2019). The analysis is based on a measure of quality (OECD PISA scores) as opposed to previous attempts at merely measuring quantitative output (number of pupils times number of hours at school). If successful, the analysis could potentially be extended to include other

dimensions and may serve as inspiration for analysing developments in other areas of public sector productivity.

3.4.2. INVESTMENT, INFRASTRUCTURE AND MARKET INTEGRATION

Private investment continues its upward trend. Since its ten-year low at 18.1 % of GDP in 2010, investment has increased faster than in the EU as a whole, reaching 22.0 % of GDP in 2018. Investment in intangible assets, such as intellectual property products, accounts for a quarter of total investment. Further investment in tangible (infrastructure) as well as non-tangible assets (R&D, education) is key to boost productivity growth.

An increasing share of Danish businesses perceives uncertainty about the future as a barrier to investment. According to the European Investment Bank's Investment Survey, availability of skilled staff is still the most important investment barrier in all sectors. At the same time, Danish firms' uncertainty about the future has increased. In 2019, 59 % of Danish businesses cited uncertainty about the future as a barrier to investment up from 48 % in 2018. The pessimistic expectations by Danish businesses about the political, regulatory and economic climate over the next year also reflects this trend (EIB 2019).

The EU supports investment in Denmark also via the European Fund for Strategic Investments (EFSI). By December 2019 total financing under the EFSI amounted to EUR 940 million, intended to trigger EUR 6,057 million in additional investments. The current experience with the EU financial instruments and the EFSI budgetary guarantee demonstrated a need for simplification, streamlining and better coordination of the EU's investment support instruments during the next 2021-27 programming period. By the end of 2020, EFSI and other EU financial instruments will come under the roof of the new InvestEU programme that promotes a more coherent approach to financing EU policy objectives and increases the choice of policy implementation options and implementing partners to tackle country specific market failures and investment gaps. In addition, under InvestEU, Member States can set-up a national compartment by allocating up to 5 % of their structural funds to

underpin additional guarantee instruments supporting the financing of investments with a higher level of local specificities. InvestEU will be policy-driven and focus on four main areas: Sustainable Infrastructure, Research, Innovation, and Small Businesses.

Research and Innovation

Denmark has a strong R&D system, but there is room to improve its economic impact. At 3.05 % of GDP in 2018, Danish R&D expenditure ranks at the top of the EU and is above the 2020 target of 3 % of GDP. According to the European Innovation Scoreboard (European Commission 2019j), room for improvement remains with respect to the economic benefits from innovation, such as employment impacts and the deployment of innovation in companies (EIS 2019). A key policy challenge is how to better exploit R&D investments in terms of furthering innovation activities and outcomes in private companies and society in general.

Private sector R&D spending is concentrated in a relatively small number of large firms, especially in pharmaceuticals. The 50 largest R&D active companies accounted for 70 % of the total Danish private R&D investment, significantly higher than in a range of other advanced economies. The eight largest companies alone accounted for almost 40 % of the total private R&D expenditures. The pharmaceutical sector is responsible for almost 60 % of the total R&D expenditures, significantly higher than the worldwide average of 19 %. Overall R&D spending remains high, but the absolute number of R&D active companies has declined since 2009, largely because smaller firms not engaging in R&D. Only 33 % of SMEs introduced product or process innovations. Moreover, since 2010 these innovation activities have even slightly decreased (European Commission 2019c). Widening R&D spending to SMEs might well have the added benefit of improving the slowing pace of technology diffusion.

Despite Denmark's strong R&D system, the number of new enterprises per capita is low. Denmark provides rather favourable regulatory conditions for entrepreneurs, but risk capital and private early stage (pre-seed and seed) investment in start-ups is low. Despite the efforts of the

government to attract private venture capital and to provide early-stage funding through the Growth Fund and incubators, overall venture capital expenditure is among the lowest in Europe at 0.06 % of GDP in 2018. Despite that, Denmark ranks as the second-best performer in the EU for the availability of venture capital investments. Although many companies are created in Denmark, start-ups struggle to scale up and grow. A smaller share of businesses survive over the one, three and five year mark than in most EU countries. Additionally, young, high-growth innovative companies are often leaving Denmark as they scale, sometimes as the result of foreign acquisitions.

Private foundations play an important role but are not well integrated in the innovation system. A specific feature of the Danish National Innovation system is the important role played by private foundations. These account for a significant share of the privately funded R&D and also invest in related initiatives or physical spaces, such as incubators, networks, prizes or events. As the funding by private foundations is set to increase in the coming years, there is growing importance of strengthening coordination among private foundations and the responsible ministry (European Commission 2019c).

Denmark lacks an integrated innovation strategy. Though there are many initiatives that have a strategic ambition, there is a lack of an overarching vision across the whole of government that clearly spells out what Denmark wants to achieve within the global innovation landscape, and how it intends to get there. Due to recent changes across the Danish National Innovation System, ministries and their agencies became increasingly specialised within their specific mission and mandates. A Policy Support Facility expert panel highlighted that Denmark as an innovation leader can put forth the ‘next level’ of what leading practice means by articulating a clear, deliberate, overarching strategic direction of the innovation system, allowing to deploy and synchronise actions across the innovation system towards an ambitious goal and value proposition (European Commission 2019c).

Network industries

Road congestion has a significant cost for the Danish economy. While being concentrated around the main urban areas, the Danish Road Directorate (*Vejdirektoratet*) estimates the gross social cost of road congestion in Denmark at DKK 24 billion (1.1 % of GDP) annually. With a view to Denmark’s greenhouse gas emissions reduction target (see chapter 3.4.3), the government is set to negotiate an agreement on infrastructure investments, which takes climate and environmental issues into account, e.g. through investment in public transport and cycling.

The further electrification of the national railroad network is delayed. Denmark has a low share of electrified rail and a low efficiency of train services (European Commission 2019b). The previous government’s plan for further electrification of the railroad network has been delayed. This delay was partly due to prior necessary adaptations of the signalling system. The planned deployment of a new signalling system, European Railway Traffic Management System (ERTMS), should pave the way for electrification. New electric trains for regional and international traffic to Germany, and for regional and intercity traffic are expected to be operational as of 2021 and 2024, respectively.

The continuous deployment of offshore wind parks will increase pressure on electricity grid infrastructures. Denmark’s electricity grid is well interconnected to other countries with an interconnectivity level of 50.6 %, well above the electricity interconnection target of at least 15 % by 2030. Interconnection to other grids help to achieve several objectives, notably decarbonisation, security of supply and energy efficiency. Further investments into the grid network are necessary to ensure that the increasing share of renewable energy can be used efficiently. As regards electricity markets, ancillary services markets are open to participation for renewable energy, which indicates that the latter can compete on market terms and participate to the good functioning of the grid. Exploiting Denmark’s full renewable energy potential will require additional specific measures, *inter alia* on system flexibility, smart grids and storage.

Broadband

Denmark has a high coverage of next-generation access networks (NGA) and ultra-fast broadband, which are available to 95 % and 92 % of homes, respectively. NGA and fibre to the premises networks in rural areas are only available to 70 % and 61 % of households respectively, which is well above the EU average (52 % and 14 %, respectively). To promote broadband availability outside urban areas, the government has committed to further enhancing network quality in rural areas, for which DKK 290 million of public funds were allocated between 2016 and 2019. In mobile broadband, high take-up of 131 broadband subscriptions per 100 people (the EU average is 92 subscriptions per 100 people), and full 4G coverage (100 %) were reported. Moreover, Denmark has assigned 33 % of the harmonised spectrum for 5G use by the end of 2020 within the so-called 5G pioneer bands.

Environment

Denmark remains the country in the EU that produces the most municipal waste per capita. In 2017, Denmark produced 781 kg per year per inhabitant of municipal waste, well above the EU average of 487 kg per year per inhabitant. Much of this waste is incinerated with energy recovery. Further investments higher in the waste hierarchy as well as for recycling would allow meeting the more ambitious post-2020 targets and promoting the circular economy. Moreover, projects improving waste data reporting and extended producer responsibility would be crucial, as well as capacity building projects for municipalities to realise the necessary waste management reforms in the country. The relatively high share of toxic waste in total waste may pose a challenge to further increases of the waste recovery rate. In September 2018, the Danish government presented a strategy for circular economy, followed by a supporting political agreement in October 2018. The strategy and the political agreement include 16 initiatives funded by DKK 116 million in 2019-22.

Energy markets

There are some improvements as regards electricity transmission capacity, but new challenges emerge. Available capacity for trading of electricity with Germany has increased from 11 % to 58 % of nominal transmission capacity

between 2016 and 2018. On the contrary, at the interconnection with Sweden, transmission capacity was reduced from Eastern Denmark to Sweden (DK2-SE4 interconnection) during 37 % of operating hours in 2018, due to congestions at Sweden's West Coast Corridor. The Swedish transmission system operator, *Svenska Kraftnät*, announced in June 2019 that it would take measures to reduce the impact of the West Coast Corridor on the connections to and from Sweden.

Narrow price-cost margins point to competitive electricity retail markets. The price paid by household customers in 2018 was made up by 18 % of energy cost, 17 % of network cost, and 65 % of taxes, public service obligation and VAT. This suggests that markets are competitive and could explain the comparatively low switching rate of customers, oscillating between 4.7 % and 7.1 % between 2014 and 2018 (for household and non-household customers with an annual consumption up to 100 MWh).

The production of biogas has increased significantly in 2018 to reach 9 % of Denmark's gas consumption. This had somewhat limited the effects of the decrease in the production of natural gas (-15 % in 2018 compared to 2017). Danish gas supply will change significantly after the rebuilding of the Tyra platform until July 2022. Until then, Denmark will import the majority of its gas from Germany, as opposed to previously being a net exporter.

Retail and E-commerce

Rapid changes in the retail landscape and evolving consumer needs are triggering reflection on the suitability of existing retail regulations. The 2017 reform of the Planning Act has allowed the establishment of larger grocery shops and has removed size caps for non-grocery stores. It has also provided municipalities with more flexibility in taking local conditions into account in the planning process. An evaluation report planned for mid-2020 will take stock of the developments in the market structure, in particular as regards e-commerce, and analyse how municipalities have implemented the new rules. E-commerce continues to develop rapidly in Denmark, including in the grocery sector. After medicines and supplements, groceries have seen

the second largest increase in internet sales over the past ten years (Wanscher 2019).

A recently launched growth plan for trade and logistics aims to help Danish companies be at the forefront of digital and green transformation and enable them to cope with increasing global competition. In retail, the actions focus on the reduction of the environmental impact of e-commerce, reduction of food waste, revitalisation of city centres, improvement of digital skills and support to Danish companies in embracing the opportunities of digitalisation. The green growth of the logistics sector is to be supported among others by clear rules and access to skilled labour. The third set of actions aims to protect Danish consumers by tracking imported products not complying with the Danish health and safety regulations.

While Danish firms overall steadily progress in e-commerce, this is less the case for SMEs. Danish firms are among the European leaders in the uptake of several of the most common digital services and technologies or investing in training their employees for acquiring and improving their ICT skills (see Table 3.4.1).

Table 3.4.1: Selected indicators on digitisation of businesses, 2019 (% of enterprises)

Technology	Denmark	EU average
3D printing	6,2%	4,1%
Industrial or service robots	9,6%	6,7%
Big Data (analyse from any data source)	13,6%	12,3%
Cloud services	40,9%	17,8%
Large firms selling online	61,5%	39,2%
SMEs selling online	32,7%	17,5%
Large firms with high levels of digital intensity	90%	61,5%
SMEs with high levels of digital intensity	52%	24,7%
Large firms with very low digital intensity	0,6%	9%
SMEs with very low digital intensity	15,1%	39,4%
Large firms providing upskilling ICT trainings to employees	79%	70,3%
SMEs providing upskilling ICT trainings to employees	29,2%	22,6%

Source: European Commission

3.4.3. INSTITUTIONAL QUALITY AND GOVERNANCE

Business environment

Denmark's business support system has further improved. Danish policy-makers work closely

with stakeholders and there is a culture of consensus in how policies are developed. The increased use of digital solutions will allow reaching out to a broader population of firms. Support offered through business hubs will now cover all types of businesses, rather than growth-oriented companies only. The launch of a national strategy for business promotion is planned for February 2020.

SME's report of slightly eased labour market pressure. While access to skilled labour remains a priority, mainly in construction and services, although the skills gap is now less acute than in the past (see Section 3.3). In 2018, SMEs in Denmark reported the availability of skilled staff or experienced managers as their most important issue (SAFE survey 2018).

Administrative burden remains under control. Firms benefit from an easy access to digital public administration, which efficiently deals with their requests. The efforts to make public administration more and more digital continue. To improve the support offered to policy-makers in making business-friendly policies, Denmark is currently bringing together the Business Forum for Simplified Business Legislation and the Implementation Council.

Late payment is a problem for some small companies. As many as 39 % of companies report experiencing problems due to late payments. One out of seven Danish businesses experience such problems on a regular basis (European Commission, 2019d). According to stakeholders, business tend to pay increasingly late, requiring favourable payment conditions in exchange for concluding contracts. Some business organisations call for the introduction of tighter payment rules or maximum time limits.

Public Services and artificial Intelligence

Denmark outperforms the EU average in digital public services (e-government). 90 % of people submit official forms to administrative authorities electronically, well above the EU average (56 %) (European Commission 2020). The Danish Business Authority is working towards further improvement of the digital public services. So far, 1000 forms used by businesses have been digitised and 600 are in the pipeline. All authorities having

interactions with businesses have agreed to digitise all the forms by the end of 2020. In December 2019, the Business Authority launched a new action plan on digital public services.

Denmark is committed to making progress and investing in digital technologies. Denmark signed the Declaration on cooperation on Artificial Intelligence. In March 2019, the Danish government launched its National Strategy for artificial intelligence (AI). With the strategy, the government aims to provide a common ethical and human centric foundation for AI as well as a set of goals for using AI within the public, private and research sector. The strategy also establishes a number of initiatives to further strengthen Denmark's development and application of AI. For instance AI solutions are sought to support voice recognition and assisting citizens in danger (e.g. experiencing heart attack etc.). In addition, the country is preparing the new "Digital Strategy 2020-2024" for further enhance the digital interaction of businesses and citizens with the public administration.

Public procurement

The government has taken several further steps to increase transparency and better access of SMEs for public procurements. In 2019, the Danish Competition and Consumer Authority reported improvements in the overall number of bids, higher percentage of flexible and innovation-promoting procedures and a considerable increase (30 % from 2015 to 2017, to 46 %) in the share of EU tenders won by small companies with less than 50 employees (KFST 2019). The government initiative launched in May 2018 (Økonomi- og Indenrigsministeriet 2018) and amendments to the Procurement Act aim to provide better access for smaller companies, lower their transaction costs, which often represent a relatively large share of the contract, and to reduce the complexity of public procurements (see also OECD 2019c). A central government advisory unit has been established in 2019 in cooperation between the Competition and Consumer Authority and the Ministry of Finance in order to strengthen the level of in-house knowledge, increase the knowledge sharing between the governmental authorities and to avoid duplicated efforts as well as to prevent increases in cost due to the need to outsource.

Box 3.4.1: Investment challenges and reforms in Denmark

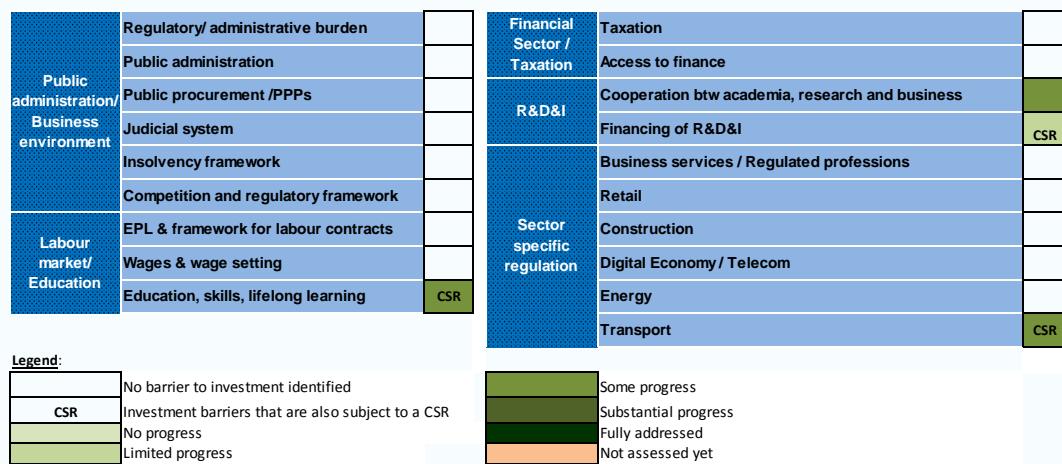
Macroeconomic perspective

Aggregate investment in Denmark is above the EU average levels as a percentage of GDP. Following a historical high of 13.9 % of GDP in 2018, business investment is forecast to contract slightly then to stabilise at high levels. Household investment picked up from low levels supported by rising housing prices. Public investment remained relatively high at an estimated 3.4 % of GDP in 2019 and set to remain robust due to increased public investment in housing, healthcare, education and transport infrastructure (Section 1).

Assessment of barriers to investment and ongoing reforms

Overall, barriers to private investment in Denmark are moderate. In recent years, the Parliament has adopted reforms on the services market, including easing of retail planning and increasing competition in the taxi sector and in the mortgage market. Recent initiatives also help to further foster cooperation between academia, business and the research community. Building regulations have been eased. A strategy to enhance public procurement, including better access for smaller firms presented in May 2018 is being implemented. However, favourable tax treatment of debt over equity financing could potentially hold back equity investment. Venture capital expenditure is among the lowest in Europe. Investment in research and innovation remains concentrated in a limited number of larger companies. Increasing productivity gaps between large and small firms suggest weaknesses in the diffusion of technological advances (Section 3.4.2). To accomplish the highly ambitious targets of energy and climate objectives, significant private and public investments will be necessary (Section 3.5).

Assessment of barriers to investment and ongoing reforms



Selected barriers to investment and priority actions underway

1. Investment in the transport infrastructure is needed with the objective to decarbonise the transport sector, reduce air pollution and reduce congestion particularly around Copenhagen. The government is set to negotiate an agreement on infrastructure investments, which takes climate and environmental issues into account, e.g. through investment in public transport and cycling (Section 3.4).
2. Investment growth is mainly driven by large enterprises. Further policy measures could help to broaden the base of innovation towards smaller companies and increase productivity of SMEs. Risk capital investment is limited and private early stage investment in start-ups is low. Reducing the debt bias in the corporate tax system could incentivise smaller firms to invest (Section 3.1).

3.5. ENVIRONMENTAL SUSTAINABILITY

3.5.1. ENERGY AND CLIMATE TARGETS

Current state of play

Denmark has high environmental standards and is on track to reach its greenhouse gas emissions 2020 target. Since 1990, Denmark has reduced its greenhouse gas emissions (excluding international aviation and land use) by 31 % in 2018, according to preliminary data. Most of the emissions reduction has come through a shift from fossil fuels to renewable energy in power and heat production. In 2018, emissions in the not covered by the European Union Emission Trading Scheme (ETS) were 19 % below the 2005 level, according to preliminary data. Denmark thus reduced its emissions by 4 pps more than the interim target for 2018. In 2020, emissions are projected to be 20 % below the 2005 level, thus achieving the 2020 target. With a share of renewable energy of 35.8 % in 2017, Denmark has already surpassed its 2020 target of 30 %. On the other hand, Denmark's final energy consumption increased in 2018 for the fourth consecutive year, a trend that has been particularly stark in the industry, road transport and international aviation.

Little progress has been made in reducing emissions from fuels and cars. The greenhouse gas intensity of the fuels supplied in 2017 was merely 2.2 % lower than in 2010 and further actions would thus be needed to reach the 2020 target of 6 % reduction (European Commission 2019b). Moreover, CO2 emissions from new passenger cars increased slightly in 2017 to 107 g CO2/km. This reflects a shift towards heavier cars, a trend that have continued throughout 2019⁽³²⁾. The emission level thus remains significantly above the emission maximum level of 95 g CO2/km that car manufacturers will have to deliver by 2020. In addition, the emission intensity of smog-precursor gas emissions (among which NOx) is high in Denmark compared to the EU-average. The major sources of these emissions are transport-related. Progress has been equally slow as regards sea

⁽³²⁾ Car sales in 2019 being the highest ever recorded both in terms of numbers and value, with the growth driven mainly by the “larger” and SUV segments and the average CO2 emissions (WLTP) of the new cars thus increasing. Introducing more electric cars has been recommended by the Climate Council as one of the most effective and cost-efficient measures to reduce emissions from the sector.

transport and as regards North Sea energy extraction.

The green shift

Denmark has set a highly ambitious greenhouse gas emissions reduction target of 70 % by 2030 relative to the 1990 level, and carbon neutrality by 2050 at the latest. Under current policies, emissions are projected to decline by 46 % by 2030, compared to the 1990 level (Graph 3.5.1). Achieving the 70 % target by 2030 thus requires the reduction rate to more than double, compared to the reduction rate seen between 2005 and 2018. Achieving these targets will require significant private and public investments as well as reforms throughout the economy. Besides investments, a successful transformation to the low-carbon economy will require reforms and modernisation in production, consumption, transportation and many other elements in the Danish economy.

The announced targets represent a unique opportunity to restructure the Danish economy and prepare it for the global transition to a low-carbon society. As a country with a high price/wage level, Denmark's continued international competitiveness will require a product mix which includes a high share of advanced technology. Business investments to reduce greenhouse gas emissions could provide Danish enterprises first-mover advantages in the development and marketing of carbon-neutral technologies, in turn placing Denmark well in the international competition in these segments. Nevertheless, firm policy actions and substantial investments are necessary in the near future. Policy choices would depend on the time horizon of the results, shifting relative prices due to technological change and on social/distributional effects. A fundamental choice exists between market conform policies (taxes) and more direct measures.

Transport and the agricultural sector are now the two largest contributors to the non-ETS sectors' emissions (Graph 3.5.1). Under EU legislation, Denmark has a target to reduce greenhouse gas emissions in the non-ETS sectors by 20 % by 2020 and by 39 % by 2030, relative to the 2005 level. Denmark is on track to achieve the 2020 target, but is projected to miss the 2030-target by 14 pps with current policies (Danish Energy Agency, 2019).

Box 3.5.1: Transition to a low-carbon economy

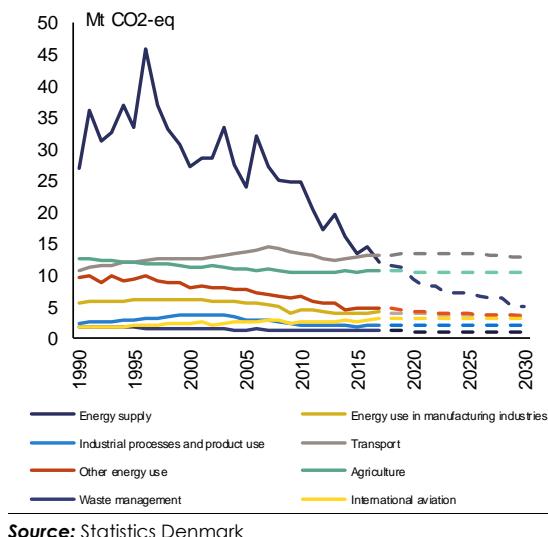
Denmark's climate objective of reducing greenhouse gas emissions by 70 % in 2030 compared to the 1990 levels will not only position Denmark as a leader in terms of climate ambition, but also constitutes a unique opportunity in terms of economic growth, jobs creation and health benefits. Denmark's sustainable energy technologies sector is already a highly successful segment of the economy with strong export market performance. Investments in the low-carbon transition could help raise productivity as green enterprises in Denmark belong to the highly productive segment (Section 3.5).

Denmark will face important investment needs and policy challenges to achieve a 70 % greenhouse gas emission reduction by 2030, compared with 1990. In its National Energy and Climate Plan (NECP) submitted to the Commission on 20 December 2019, Denmark estimated that accumulated public and private investment needs would amount to DKK 100-180 billion for the period of 2018-2030, or approximately DKK 10 billion annually (around 0.4 % of GDP). Investment needs are most significant in renewable electricity generation (estimated at DKK 60-90 billion). As regards energy efficiency and conversion of heat supply, energy efficiency and new technology, biogas and new district heating capacity, the NECP estimates additional investments needs between DKK 10-30 billion for each of these three sectors until 2030. In terms of public financing, the agreed multi-annual budget of the 2018 Energy Agreement allocates approximately DKK 0.5 billion of funding in 2019, which gradually increases to approximately DKK 2.8 billion by 2025. In addition, a new 'Denmark's Green Future Fund' will be established, which will manage a total budget of DKK 25 billion. As regards EU financing sources, Denmark has benefitted from European Fund for Strategic Investments (EFSI) targeting public and private investments with the aim to support the transition. Having a large multiplier effect in the use of public budget to leverage private finance (as achieved by the EFSI funds so far) will be key to meeting the financing needs. As regards private funds, for instance the Danish pension firms in their joint press statement of September 2019 committed to invest DKK 350 billion in new investments until 2030 related to green financial assets and direct holdings in energy generation and energy-efficient construction outside Denmark as well.

Policy choices exist between market conform, cost-efficient considerations and more direct measures, while taking into account social and distributional effects. In an agreement on the allocation of the research reserve for 2020, the Parliament has allocated DKK 1.542 billion (EUR 200.5 million) funding for green research. The current tax structure could be reviewed from a greenhouse gas reduction point of view. Taxation can play a key role in reducing emissions, in line with the principles of cost-efficiency and the polluter-pays-principle. Lowering the costs associated with a transition of the energy system greatly depends on streamlining the very dissimilar energy taxes and subsidies (Danish Ministry of Taxation 2018). Instead of slight adjustments in the existing tax system, the Council on Climate Change suggested a comprehensive reform aiming at converting the current energy tax into a single consistent CO₂ tax on emissions, which should apply to industry and households alike in line with the polluter-pays-principle.

While Denmark is among the least carbon-intensive economies in the EU, some sectors might be subject to negative impacts from the transition. An important challenge is to ensure that the transition to a low-carbon society will be socially fair and to limit any potential adverse social and distributional implications. Anticipating and mitigating these negative impacts will be crucial, for instance by ensuring that affected groups can benefit from re-skilling and up-skilling and by monitoring redistributive effects. The Commission will also monitor possible impacts of energy and climate policies on energy prices and energy poverty. The Commission's Just Transition Fund and Just Transition Mechanism will provide additional support to implement the transition (see Annex D).

Graph 3.5.1: Greenhouse gas emissions per sector



Source: Statistics Denmark

Emissions from transport increased by 7 % from 2013 to 2017 and are projected to remain stable towards 2030 under the current policies. The Council on Climate Change⁽³³⁾ has recommended a number of actions, including the reintroduction of departure taxes for aviation, setting a target for the number of zero-emission cars in 2030, a ban on sales of both diesel and petrol cars as 2030, a change in the car taxation system and the introduction of a subsidy scheme to support sales of electric cars (Council on Climate Change, 2018c). The Commission for Green Transition of Passenger Cars, established in February 2019, has been tasked to develop a strategy for how best to achieve the government's goal that all new cars from 2030 and onwards should be low- or zero-emissions cars and to provide specific proposals on financing options for maintaining state revenue, as well as changes in the taxation system (Ministry of Finance 2019). The budget law for 2020 inter alia includes temporary tax reductions for electric and plug-in hybrid cars, and measures to incentivise greener company cars. Transport policies addressing

⁽³³⁾ Denmark established its Council on Climate Change in 2014. The Council provides advice on cost-effective climate policies, aiming to ensure that efforts for lower GHG emissions are fairly balanced with welfare and development goals. To this end, the Council provides recommendations based on independent analysis with a short, medium and long-term strategy horizon; it evaluates implementation to meet national and international climate goals, and contributes to the public debate.

congestion could be a significant step to reducing both air pollution and greenhouse gas emissions challenges (Chapter 3.4.2).

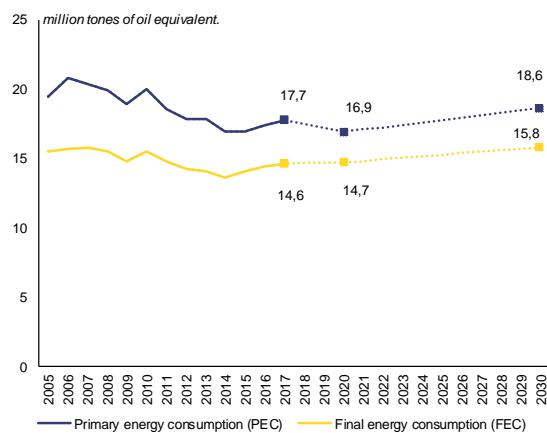
The government has announced its intentions to set a binding reduction target for the agricultural sector. Emissions from agriculture have been stable over many years, and are projected to remain so towards 2030 under current policies. The socio-economic cost of reducing emissions in the agricultural sector is estimated to be lower than equivalent reductions by passenger cars (DORS 2019). In the political agreement on the budget law for 2020, it was agreed to allocate DKK 200 million annually throughout the 2020s to fund the set aside of agricultural lands with high carbon soil content for environmental and climate purposes, and to consider the establishment of a new forest fund.

At current trends, Denmark will not contribute significantly to reach the EU 2030 energy efficiency target. Increasing investments in energy efficiency could contribute to reducing greenhouse gas emissions. Denmark indicated a very low contribution to the EU energy efficiency 2030 targets in its draft National Energy and Climate Plan (NECP) ⁽³⁴⁾. The decision to discontinue the energy savings obligation scheme after 2020 will reduce the level of funding for measures to increase end-use efficiency across all sectors.

The Government has announced that a Climate Act will be presented to Parliament in February 2020. According to the National Energy and Climate Plan, the Climate Act will be followed by a new Climate Action Plan in spring 2020. The Climate Action Plan will also include new energy efficiency measures such as energy savings in public buildings. The most prominent new energy saving measure targeting private enterprises and buildings is expected to save approximately 1.2 Mtoe of energy consumption. In the light of the observed growth in consumption, further energy efficiency measures in industry, services, private dwellings and (road and air) transport may be needed (Graph 3.5.2).

⁽³⁴⁾ The Commission will assess, in the course of 2020, the final National Energy and Climate Plan submitted by Denmark on 20 December 2020.

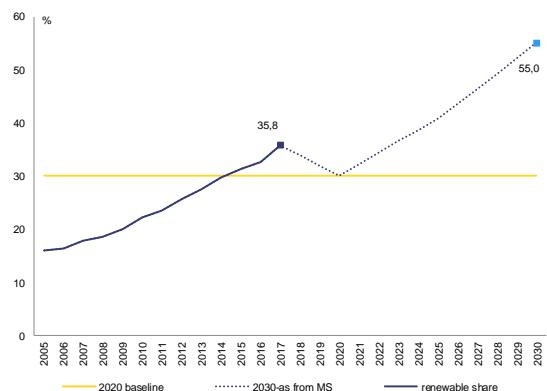
Graph 3.5.2: Energy efficiency: Primary and final energy consumption



Source: Denmark's draft National Energy & Climate Plan, Eurostat (PEC2020-2030, FEC2020-2030 indicators and renewable SHARES)

Denmark has an ambitious objective of achieving a 55 % renewable energy share by 2030. Based on the current projections, Denmark is forecast to reach 42 % renewable energy share by 2030 (well above the 30 % EU 2020 target, Graph 3.5.3). However, additional policy measures are needed to reach the ambitious new national target. As regards the electricity sector, where Denmark has set an objective of a 100 % renewable share in 2030, additional measures would be necessary as the current projections indicate a 90 % achievement by 2030.

Graph 3.5.3: Renewable energy: Share in gross final energy consumption



Source: Denmark's draft National Energy & Climate Plan, Eurostat (PEC2020-2030, FEC2020-2030 indicators and renewable SHARES)

Synergies and trade-offs on competitiveness

While Denmark is already a market leader in green energy technologies, there is potential for further growth. In the last decades, considerable spending on R&D has put Danish companies in a strong position globally in several areas relating to green energy technology, such as wind energy and district heating. Denmark thus has a strong green technology brand and in 2017, export of green energy technology made up 11 % of Denmark's total exports of goods, the highest share among the EU (Danish Ministry of Climate, Energy and Utilities, 2018). Taking into account the investments needed worldwide to live up to the Paris Agreement, the potential for further technology development and export is considerable. The business opportunities arising from green transition could spark second-round effects, with potential important positive impacts for the entire economy.

Denmark has adopted an indicative political target that 50 % of all public procurement should be green. A national strategy on Green Public Procurement is being implemented as part of the government strategy on 'intelligent public procurement'. As part of this strategy, the 'Partnership for Green Public Procurement' is a collaborative effort of twelve municipalities, two regions and others, in order to reduce their environmental impact from their procurement actions and drive the market in a greener direction. In addition, the Municipality of Copenhagen adopted the Copenhagen 2025 Climate Plan, with objectives and initiatives for achieving carbon neutrality. It highlights the important role of public procurement, to "actively seek to move the market in a climate friendly direction".

Synergies and trade-offs on social and territorial cohesion and just transition analysis

Certain sectors face reskilling and upskilling needs due to the energy/climate transition. The work force in several sectors needs to adapt to significant technological changes required in the transition to a low-carbon economy (European Commission 2019g). Policies concern preserving the competitiveness of the Danish industry, in order to avoid that jobs and/or emissions are transferred abroad.

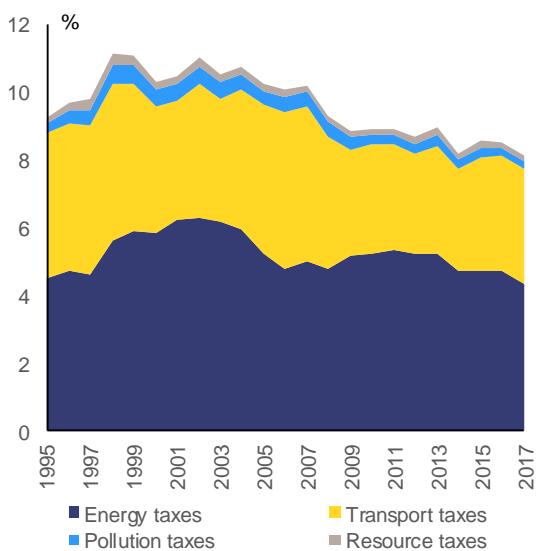
Denmark's cement industry could be affected. Cement production is the major source of CO₂ emissions from industrial processes. The cement industry is included in the first of the Government's climate partnerships. These partnerships concern different business sectors and aim to come up with proposals to contribute to the new national target of 70 % CO₂ reduction by 2030. The Commission's proposal for a Just Transition Mechanism will also help ensure that the transition towards climate neutrality is fair by helping most affected regions address the social and economic consequences (see Annex D).

The Just Transition Fund could contribute to the development of new and innovative solutions for the whole value chain. Innovation hubs and transition labs could use the knowledge in the Danish areas of smart specialisation. This could facilitate the necessary technological innovation, ease the social impact of the transition and stimulate a circular economy approach to the sustainability issues in the value chain.

Impact on public finances

The climate objectives will impact public finances as well. The main objective of greenhouse gas taxation is to address negative externalities that are not internalised in a firms' production costs, and thereby affect consumption incentives. While they are thus meant to reduce excess production, they also generate tax revenues. Environmental taxes constituted 8.1 % of the total tax revenues in 2018, a share that has gradually declined over the last 15 years as the Danish economy advanced to meet the climate objectives (Graph 3.5.4). Further decline in environmental tax revenues is projected in the coming years as the transition to carbon neutrality continues.

Graph 3.5.4: Revenues from environmental taxes (% of total tax revenues)



Source: Eurostat

A more ambitious climate policy could translate into higher environmental taxation and a broadening of the climate policy-related tax base. Higher tax rates on emissions could be a cost-efficient policy to stimulate emissions reductions. A ticket tax introduced with the same structure and level as the German Air Transport Tax could for example generate a fiscal revenue of some EUR 171 million annually for Denmark (European Commission 2019k). Due to the sharp increase in the carbon price in the ETS, revenues from auctioning ETS allowances in 2018 were more than twice as high as in previous years reaching EUR 190 million. Future revenues from auctioning will depend on the number of ETS allowances (which will be gradually reduced according to EU legislation) and the carbon price.

ANNEX A

Overview table

Commitments	Summary assessment ¹⁾
2019 country-specific recommendations (CSRs)	
<p>CSR 1: Focus investment-related economic policy on education and skills, research and innovation to broaden the innovation base to include more companies, and on sustainable transport to tackle road congestion.</p> <p>Focus investment-related economic policy on education and skills,</p>	<p>Denmark has made Some Progress in addressing CSR 1.</p> <p>Some Progress: The re-prioritisation contribution (<i>omprioriteringsbidraget</i>) to education will be cancelled from 2020, thereby significantly increasing the funding of education (approx. DKK 678 million per year). Increased funding for basic education (<i>Folkeskolen</i>) from 2020 till 2023 (i.e. raising by DKK 275 million in 2020 up to DKK 807 million in 2023). A broad political agreement (October 2019) earmarked DKK 102 million to initiatives targeting the upskilling of unskilled workers.</p>
<p>research and innovation to broaden the innovation base to include more companies,</p>	<p>Limited Progress: Denmark has taken measures to increase funding for research and innovation. The Research Reserve for 2020 has been increased from the original plan by 38 %, totalling DKK 1.925 billion. The budget earmarks an additional DKK 1 billion for green research in 2020 raising it to a total of DKK 2.3 billion. However no specific measures were proposed to broaden the innovation base and to include more companies.</p>
<p>and on sustainable transport to tackle road congestion.</p>	<p>Some Progress: The Government has presented a specific transport plan to tackle key road congestion areas, notably in the Greater Copenhagen and Lillebælt areas. With a view to Denmark's greenhouse gas emissions reduction target, the government is set to negotiate an agreement on infrastructure investments, which takes climate and environmental issues into account, e.g. through investment in public transport and cycling. The Government has taken action to disseminate European Rail Traffic Management System (ERTMS) signalling on Danish railroads, which is a prerequisite for further electrification of the rail network. New electric trains for regional and international traffic to Germany are expected to be operational from 2021.</p>
<p>CSR 2: Ensure effective supervision and the enforcement of the anti-money laundering framework</p>	<p>Denmark has made Some Progress in addressing CSR 2: Denmark undertook several significant legislative steps over a relatively short period of time, but the recently implemented measures still</p>

	have to prove their effectiveness. The Financial Supervisory Authority has made progress in enhancing its supervisory capacity, but upgrade has yet to be sought and obtained in respect of Financial Task Force standards relevant for anti-money laundering supervision of financial entities. The DFSA established an AML Division and increased the number of AML-dedicated staff by close to 50% in 2019.
Europe 2020 (national targets and progress)	
Employment rate target set in the NRP: 80 %.	77.5 % (2018) The employment rate has gradually increased, from 74.3 % in 2012, to 75.4 % in 2015 and up to 77.5 % in 2018. It remains, however, below pre-crisis levels (79.0 % in 2007). Denmark has adopted a series of active labour market reforms in recent years, with the overall purpose of increasing the supply of labour, promote the incentives to work and reduce the number of social benefit recipients. These measures are expected to contribute to closing the 2.5 percentage point gap from Denmark's national Europe 2020 employment target (80 %).
R&D target set in the NRP: 3 % of GDP	3.03 % (2018) Research and development (R&D) intensity in Denmark has been above 3 % of GDP since 2015. In 2018, R&D intensity reached 3.03 % of GDP, a slight decrease from the previous year figure of 3.05 %. Business R&D investments in the country account for around 2/3 of total R&D expenditure, while there is a political commitment to keep public R&D intensity at least at 1 % of GDP.
National greenhouse gas (GHG) emissions target: - 20 % in 2020 compared with 2005 (in sectors not included in the EU emissions trading scheme)	In 2020, emissions are projected to be 21% below the 2005 level. Denmark would thereby achieve the 2020 target. Interim target, 2018: -15% compared with 2005: In 2018, emissions were 19% below the 2005 level.
2020 renewable energy target: 30 %	36.7 % (2018) With a 36.7 % share of renewable energy in final

	energy consumption in 2018, Denmark is on track to meet its 2020 target of 30 %. Progress is most noticeable in electricity generation (biomass and wind energy) and in heating (largely biomass)
Energy efficiency, 2020 energy consumption targets: Denmark's 2020 energy efficiency target is 17.52 Mtoe expressed in primary energy consumption (15.14 Mtoe expressed in final energy consumption)	<p>Between 2017 and 2018, Denmark increased its primary energy consumption by 0.6 % and its final energy consumption by 0.8% (respectively from 17.8 Mtoe in 2017 to 18 Mtoe in 2018 and from 14.8 Mtoe in 2017 to 15 Mtoe in 2018).</p> <p>After four consecutive years of increase in energy consumption, Denmark is above its indicative national 2020 target for primary energy consumption. Final energy consumption is below target only because Denmark changed the target to align with a higher expected consumption.</p> <p>Denmark's practice of updating its indicative targets so that they correspond to the level in the latest available baseline forecasts will by definition tend to narrow or eliminate any gaps between targets and actual energy consumption as 2020 gets closer. These gaps are therefore not the best indicators for Denmark's contribution to the EU 2020 target. In this respect, recent increases in the Danish energy consumption have contributed to widening the gap towards the EU 2020 target.</p>
Early school/training leaving target: 10 % (less than 10 % school drop-out rates of the population aged 18-24).	<p>10.2 % (2018)</p> <p>Since 2016, the school drop-out rate of the population aged 18-24 has increased. It rose from 8.8 % in 2017 to 10.2 % 2018, reaching a level above the <10 % target for the first time in eight years (11 % in 2010).</p>
Tertiary education target: More than 40 % of population aged 30-34.	<p>49.1 % (2018)</p> <p>The more-than-40 % target has been reached and even surpassed by 9.1 percentage points. The share of the population aged 30-34 which has successfully completed tertiary studies has increased from 39.2 % in 2008 to 49.1 % in 2018.</p>
Target for reducing the number of people at risk of poverty or social exclusion, expressed as an absolute number of people: reduce the number of people in households with low work intensity by 22 000	<p>459 000 persons (2018)</p> <p>The number of people living in low-work intensity households rose from 433 000 in 2010 to 459 000 in 2018, corresponding to an increase of 26 000</p>

towards 2020 (base year 2010: 433 000).	persons. The gap to the national Europe 2020 target in the area of poverty and social exclusion (reducing the number of persons living in low work intensity households with 22 000 by 2020) is thus far from being closed. Denmark has introduced a strategy to progress towards its ten social mobility goals (May 2016), aiming among others to reduce the number of vulnerable persons and increasing their employability and the participation rates in education and training. Denmark is making progress on some of these goals (e.g. crime rates for marginalised young persons) but lagging behind on others (e.g. share of marginalised young people attending upper secondary education).
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(1) The following categories are used to assess progress in implementing the country-specific recommendations (CSRs):

No progress: The Member State has not credibly announced nor adopted any measures to address the CSR. This category covers a number of typical situations to be interpreted on a case by case basis taking into account country-specific conditions. They include the following:

- no legal, administrative, or budgetary measures have been announced
- in the national reform programme,
- in any other official communication to the national Parliament/relevant parliamentary committees or the European Commission,
- publicly (e.g. in a press statement or on the government's website);
- no non-legislative acts have been presented by the governing or legislative body;
- the Member State has taken initial steps in addressing the CSR, such as commissioning a study or setting up a study group to analyse possible measures to be taken (unless the CSR explicitly asks for orientations or exploratory actions). However, it has not proposed any clearly-specified measure(s) to address the CSR.

Limited progress: The Member State has:

- announced certain measures but these address the CSR only to a limited extent; and/or
- presented legislative acts in the governing or legislative body but these have not been adopted yet and substantial further, non-legislative work is needed before the CSR is implemented;
- presented non-legislative acts, but has not followed these up with the implementation needed to address the CSR.

Some progress: The Member State has adopted measures

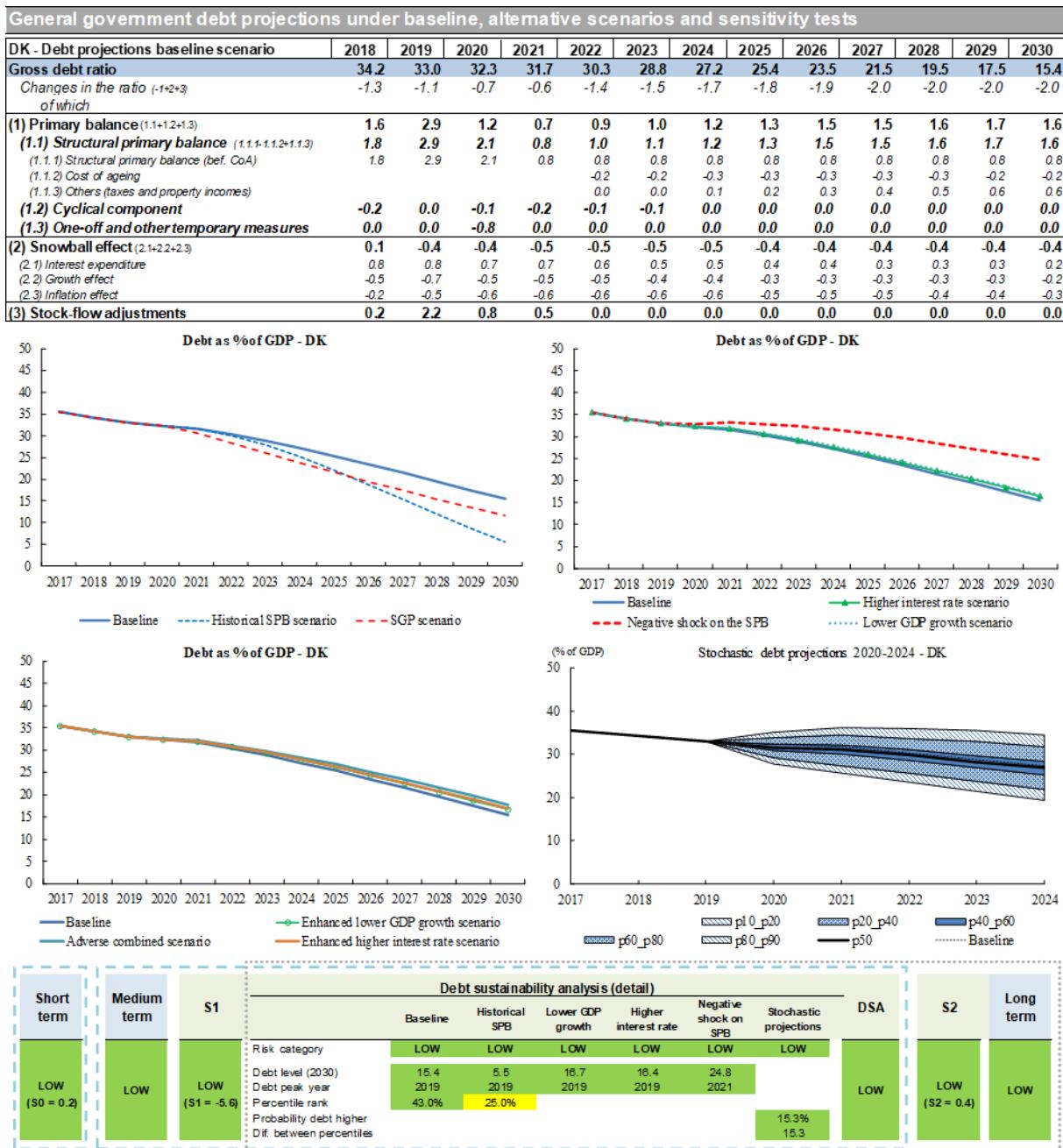
- that partly address the CSR; and/or
- that address the CSR, but a fair amount of work is still needed to fully address the CSR fully as only a few of the measures have been implemented. For instance, a measure or measures have been adopted by the national Parliament or by ministerial decision but no implementing decisions are in place.

Substantial progress: The Member State has adopted measures that go a long way towards addressing the CSR and most of them have been implemented.

Full implementation: The Member State has implemented all measures needed to address the CSR appropriately.

ANNEX B

Commission debt sustainability analysis and fiscal risks



Note: For further information, see the European Commission Debt Sustainability Monitor (DSM) 2019.

[1] The first table presents the baseline no-fiscal policy change scenario projections. It shows the projected government debt dynamics and its decomposition between the primary balance, snowball effects and stock-flow adjustments. Snowball effects measure the net impact of the counteracting effects of interest rates, inflation, real GDP growth (and exchange rates in some countries). Stock-flow adjustments include differences in cash and accrual accounting, net accumulation of assets, as well as valuation and other residual effects.

[2] The charts present a series of sensitivity tests around the baseline scenario, as well as alternative policy scenarios, in particular: the historical structural primary balance (SPB) scenario (where the SPB is set at its historical average), the Stability and Growth Pact (SGP) scenario (where fiscal policy is assumed to evolve in line with the main provisions of the SGP), a higher interest rate scenario (+1 pp. compared to the baseline), a lower GDP growth scenario (-0.5 pp. compared to the baseline) and a negative shock on the SPB (calibrated on the basis of the forecasted change). An adverse combined scenario and enhanced sensitivity tests (on the interest rate and growth) are also included, as well as stochastic projections. Detailed information on the design of these projections can be found in the FSR 2018 and the DSM 2019.

[3] The second table presents the overall fiscal risk classification over the short, medium and long term.

a. For the short-term, the risk category (low/medium/high) is based on the S0 indicator. S0 is an early-detection indicator of fiscal stress in the upcoming year, based on 25 fiscal and financial-competitiveness variables that have proven in the past to be leading indicators of fiscal stress. The critical threshold beyond which fiscal distress is signalled is 0.46.

b. For the medium term, the risk category (low/medium/high) is based on the joint use of the S1 indicator and of the DSA results. The S1 indicator measures the fiscal adjustment required (cumulated over the 5 years following the forecast horizon and sustained after that) to bring the debt-to-GDP ratio to 60 % by 2034. The critical values used are 0 and 2.5 pps of GDP. The DSA classification is based on the results of five deterministic scenarios (baseline, historical SPB, higher interest rate, lower GDP growth and negative shock on the SPB scenarios) and the stochastic projections. Different criteria are used such as the projected debt level, the debt path, the realism of fiscal assumptions, the probability of debt stabilisation, and the size of uncertainties.

c. For the long term, the risk category (low/medium/high) is based on the joint use of the S2 indicator and the DSA results. The S2 indicator measures the upfront and permanent fiscal adjustment required to stabilise the debt-to-GDP ratio over the infinite horizon, including the costs of ageing. The critical values used are 2 and 6 pps of GDP. The DSA results are used to further qualify the long term risk classification, in particular in cases when debt vulnerabilities are identified (a medium / high DSA risk category).

ANNEX C

Standard tables

Table C.1: **Financial market indicators**

(1) Latest data Q3 2019. Includes not only banks but all monetary financial institutions excluding central banks.

- (1) Latest data Q3 2017.
- (2) Latest data Q2 2019.

(3) Quarterly values are annualized.

* Measured in basis points.

Source: European Commission (long-term interest rates); World Bank (gross external debt); Eurostat (private debt); ECB (all other indicators)

Table C.2: Headline Social Scoreboard indicators

	2014	2015	2016	2017	2018	2019 ⁵
Equal opportunities and access to the labour market						
Early leavers from education and training (% of population aged 18-24)	7,8	7,8	7,2	8,8	10,2	:
Gender employment gap (pps)	7,4	7,8	6,9	6,7	7,0	7,2
Income inequality, measured as quintile share ratio (S80/S20)	4,1	4,1	4,1	4,1	4,1	:
At-risk-of-poverty or social exclusion rate ⁽¹⁾ (AROPE)	17,9	17,7	16,8	17,2	17,4	:
Young people neither in employment nor in education and training (% of population aged 15-24)	5,8	6,2	5,8	7,0	6,8	:
Dynamic labour markets and fair working conditions						
Employment rate (20-64 years)	74,7	75,4	76,0	76,6	77,5	78,1
Unemployment rate ⁽²⁾ (15-74 years)	6,9	6,3	6,0	5,8	5,1	5,0
Long-term unemployment rate (as % of active population)	1,7	1,7	1,4	1,3	1,1	0,8
Gross disposable income of households in real terms per capita ⁽³⁾ (Index 2008=100)	104,1	107,4	111,3	112,9	114,2	:
Annual net earnings of a full-time single worker without children earning an average wage (levels in PPS, three-year average)	25491	26170	26568	:	:	:
Annual net earnings of a full-time single worker without children earning an average wage (percentage change, real terms, three-year average)	0,59	1,22	1,27	:	:	:
Public support / Social protection and inclusion						
Impact of social transfers (excluding pensions) on poverty reduction ⁽⁴⁾	55,0	52,7	52,2	51,0	47,3	:
Children aged less than 3 years in formal childcare	69,6	77,3	70,0	71,7	63,2	:
Self-reported unmet need for medical care	1,4	1,3	1,3	1,0	1,3	:
Individuals who have basic or above basic overall digital skills (% of population aged 16-74)	:	75,0	78,0	71,0	:	:

(1) People at risk of poverty or social exclusion (AROPE): individuals who are at risk of poverty (AROP) and/or suffering from severe material deprivation (SMD) and/or living in households with zero or very low work intensity (LWI).

(2) Unemployed persons are all those who were not employed but had actively sought work and were ready to begin working immediately or within two weeks.

(3) Gross disposable household income is defined in unadjusted terms, according to the draft Joint Employment Report 2019.

(4) Reduction in percentage of the risk of poverty rate, due to social transfers (calculated comparing at-risk-of poverty rates before social transfers with those after transfers; pensions are not considered as social transfers in the calculation).

(5) Average of first three quarters of 2019 for the employment rate, unemployment rate and gender employment gap.

Source: Eurostat

Table C.3: Labour market and education indicators

Table C.3: Labour market and education indicators

Labour market indicators	2014	2015	2016	2017	2018	2019 ⁵
Activity rate (15-64)	76,6	76,9	77,5	77,9	78,2	79,0
Employment in current job by duration						
From 0 to 11 months	19,2	18,8	20,8	20,3	18,3	:
From 12 to 23 months	11,1	12,5	12,2	13,0	14,0	:
From 24 to 59 months	16,8	17,4	18,0	19,0	20,6	:
60 months or over	52,4	51,1	49,0	47,8	47,2	:
Employment growth*						
(% change from previous year)	0,9	1,4	1,7	1,6	1,4	1,2
Employment rate of women						
(% of female population aged 20-64)	71,0	71,5	72,5	73,2	73,9	74,5
Employment rate of men						
(% of male population aged 20-64)	78,4	79,3	79,4	79,9	80,9	81,7
Employment rate of older workers*						
(% of population aged 55-64)	60,7	63,0	65,8	68,2	69,2	71,3
Part-time employment*						
(% of total employment, aged 15-64)	24,6	24,7	26,4	25,3	24,8	23,9
Fixed-term employment*						
(% of employees with a fixed term contract, aged 15-64)	8,2	8,4	12,9	12,3	10,7	10,8
Transition rate from temporary to permanent employment						
(3-year average)	32,2	39,2	44,8	41,8	39,4	:
Youth unemployment rate						
(% active population aged 15-24)	14,2	12,1	12,2	12,4	10,5	10,1
Gender gap in part-time employment						
	19,5	18,9	20,2	19,0	18,9	18,3
Gender pay gap ⁽²⁾ (in undadjusted form)						:
	16,0	15,1	15,0	14,7	:	:
Education and training indicators	2014	2015	2016	2017	2018	2019
Adult participation in learning						
(% of people aged 25-64 participating in education and training)	31,9	31,3	27,7	26,8	23,5	:
Underachievement in education ⁽³⁾	:	13,6	:	:	14,6	:
Tertiary educational attainment (% of population aged 30-34 having successfully completed tertiary education)	44,9	47,6	47,7	48,8	49,1	:
Variation in performance explained by students' socio-economic status ⁽⁴⁾	:	:	:	:	9,9	:

Notes:

* Non-scoreboard indicator

(1) Long-term unemployed are people who have been unemployed for at least 12 months.

(2) Difference between the average gross hourly earnings of male paid employees and of female paid employees as a percentage of average gross hourly earnings of male paid employees. It is defined as "unadjusted", as it does not correct for the distribution of individual characteristics (and thus gives an overall picture of gender inequalities in terms of pay). All employees working in firms with 10 or more employees, without restrictions for age and hours worked, are included.

(3) PISA (OECD) results for low achievement in mathematics for 15 year-olds.

(4) Impact of socio-economic and cultural status on PISA (OECD) scores.

(5) Average of first three quarters of 2019. Data for youth unemployment rate is seasonally adjusted.

Sources: Eurostat, OECD

* Non-scoreboard indicator

(1) Long-term unemployed are people who have been unemployed for at least 12 months.

(2) Difference between the average gross hourly earnings of male paid employees and of female paid employees as a percentage of average gross hourly earnings of male paid employees. It is defined as "unadjusted", as it does not correct for the distribution of individual characteristics (and thus gives an overall picture of gender inequalities in terms of pay). All employees working in firms with ten or more employees, without restrictions for age and hours worked, are included.

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(4) Impact of socio-economic and cultural status on PISA (OECD) scores.

(5) Average of first three quarters of 2019. Data for youth unemployment rate is seasonally adjusted.

Source: Eurostat, OECD

Table C.4: Social inclusion and health indicators

	2013	2014	2015	2016	2017	2018
Expenditure on social protection benefits* (% of GDP)						
<i>Sickness/healthcare</i>	6,4	6,3	6,2	6,1	6,6	:
<i>Disability</i>	4,1	4,1	4,0	3,9	5,1	:
<i>Old age and survivors</i>	13,3	14,0	13,5	12,7	12,1	:
<i>Family/children</i>	3,6	3,5	3,5	3,4	3,4	:
<i>Unemployment</i>	1,8	1,6	1,5	1,4	1,4	:
<i>Housing</i>	0,7	0,7	0,7	0,7	0,7	:
<i>Social exclusion n.e.c.</i>	1,3	1,3	1,5	1,5	1,6	:
Total	31,3	31,6	31,0	29,7	30,9	:
<i>of which: means-tested benefits</i>	11,2	11,3	11,3	11,1	11,2	:
General government expenditure by function (% of GDP)						
<i>Social protection</i>	24,5	24,0	23,5	23,0	22,4	22,1
<i>Health</i>	8,5	8,6	8,5	8,5	8,4	8,4
<i>Education</i>	6,9	7,1	7,0	6,8	6,5	6,5
Out-of-pocket expenditure on healthcare	13,8	13,8	13,7	13,7	13,7	:
Children at risk of poverty or social exclusion (% of people aged 0-17)*	15,4	14,5	15,7	13,9	14,5	15,2
At-risk-of-poverty rate ⁽¹⁾ (% of total population)	11,9	12,1	12,2	11,9	12,4	12,7
In-work at-risk-of-poverty rate (% of persons employed)	5,5	4,9	5,5	5,3	5,3	5,4
Severe material deprivation rate ⁽²⁾ (% of total population)	3,6	3,2	3,7	2,6	3,1	3,4
Severe housing deprivation rate ⁽³⁾ , by tenure status						
<i>Owner, with mortgage or loan</i>	0,9	1,1	1,5	0,5	0,9	1,5
<i>Tenant, rent at market price</i>	4,8	4,7	5,1	3,6	6,0	5,9
Proportion of people living in low work intensity households ⁽⁴⁾ (% of people aged 0-59)	11,9	12,2	11,6	10,7	10,0	11,1
Poverty thresholds, expressed in national currency at constant prices*	107205	108491	109962	110964	113538	114955
Healthy life years						
<i>Females</i>	12,7	12,8	11,9	11,9	12,0	:
<i>Males</i>	11,6	11,0	11,0	11,5	11,1	:
Aggregate replacement ratio for pensions ⁽⁵⁾	0,4	0,5	0,4	0,5	0,5	0,5
Connectivity dimension of the Digital Economy and Society Index (DESI) ⁽⁶⁾	:	66,4	71,1	72,4	76,4	:
GINI coefficient before taxes and transfers*	49,9	51,4	50,7	51,2	50,4	:
GINI coefficient after taxes and transfers*	26,8	27,7	27,4	27,7	27,6	:

* Non-scoreboard indicator

(1) At-risk-of-poverty rate (AROP): proportion of people with an equivalised disposable income below 60 % of the national equivalised median income.

(2) Proportion of people who experience at least four of the following forms of deprivation: not being able to afford to i) pay their rent or utility bills, ii) keep their home adequately warm, iii) face unexpected expenses, iv) eat meat, fish or a protein equivalent every second day, v) enjoy a week of holiday away from home once a year, vi) have a car, vii) have a washing machine, viii) have a colour TV, or ix) have a telephone.

(3) Percentage of total population living in overcrowded dwellings and exhibiting housing deprivation.

(4) People living in households with very low work intensity: proportion of people aged 0-59 living in households where the adults (excluding dependent children) worked less than 20 % of their total work-time potential in the previous 12 months.

(5) Ratio of the median individual gross pensions of people aged 65-74 relative to the median individual gross earnings of people aged 50-59.

(6) Fixed broadband take up (33%), mobile broadband take up (22%), speed (33%) and affordability (11%), from the Digital Scoreboard.

Source: Eurostat, OECD

Table C.5: Product market performance and policy indicators

Performance indicators	2013	2014	2015	2016	2017	2018
Labour productivity per person ¹ growth (t/t-1) in %						
Labour productivity growth in industry	0,41	-0,96	-1,75	3,84	0,88	1,94
Labour productivity growth in construction	3,62	0,81	7,55	5,16	-2,17	5,61
Labour productivity growth in market services	1,90	0,34	1,43	1,50	-0,02	1,14
Unit Labour Cost (ULC) index ² growth (t/t-1) in %						
ULC growth in industry	1,15	3,16	3,97	-1,36	0,91	-0,11
ULC growth in construction	-2,98	1,22	-4,07	-1,42	4,50	-3,75
ULC growth in market services	-0,82	1,01	0,42	-0,26	1,58	0,63
Business environment	2013	2014	2015	2016	2017	2018
Time needed to enforce contracts ³ (days)	515	485	485	485	485	485
Time needed to start a business ³ (days)	6,0	6,0	3,5	3,5	3,5	3,5
Outcome of applications by SMEs for bank loans ⁴	0,70	0,44	0,98	0,79	0,48	0,67
Research and innovation	2013	2014	2015	2016	2017	2018
R&D intensity	2,97	2,91	3,06	3,09	3,05	3,03
General government expenditure on education as % of GDP	6,90	7,10	7,00	6,80	6,50	6,50
Employed people with tertiary education and/or people employed in S&T as % of total employment	48	48	48	49	50	50
Population having completed tertiary education ⁵	29	30	31	31	32	33
Young people with upper secondary education ⁶	72	73	74	75	75	75
Trade balance of high technology products as % of GDP	-0,10	-0,04	0,19	0,10	-0,24	-0,27
Product and service markets and competition	2003	2008	2013			2018*
OECD product market regulation (PMR) ⁷ , overall	1,48	1,35	1,22			1,02
OECD PMR ⁷ , retail	3,00	1,83	1,69			1,01
OECD PMR ⁷ , professional services ⁸	0,87	0,78	0,82			0,97
OECD PMR ⁷ , network industries ⁹	2,05	1,70	1,61			0,99

1 Value added in constant prices divided by the number of persons employed.

2 Compensation of employees in current prices divided by value added in constant prices.

3 The methodologies, including the assumptions, for this indicator are shown in detail here: <http://www.doingbusiness.org/methodology>.

4 Average of the answer to question Q7B_a. "[Bank loan]: If you applied and tried to negotiate for this type of financing over the past six months, what was the outcome?". Answers were codified as follows: zero if received everything, one if received 75% and above, two if received below 75%, three if refused or rejected and treated as missing values if the application is still pending or don't know.

5 Percentage population aged 15-64 having completed tertiary education.

6 Percentage population aged 20-24 having attained at least upper secondary education.

7 Index: 0 = not regulated; 6 = most regulated. The methodologies of the OECD product market regulation indicators are shown in detail here: <http://www.oecd.org/competition/reform/indicatorsofproductmarketregulationhomepage.htm>

Please be aware that the indicator values from 2003 to 2013 are comparable, however the methodology has considerably changed in 2018 and therefore past vintages cannot be compared with the 2018 PMR indicators!

8 Simple average of the indicators of regulation for lawyers, accountants, architects and engineers.

9 Aggregate OECD indicators of regulation in energy, transport and communications (ETCR).

Source: "European Commission; World Bank — Doing Business (for enforcing contracts and time to start a business); OECD (for the product market regulation indicators); SAFE (for outcome of SMEs' applications for bank loans)."

Table C.6: Green growth

Green growth performance		2013	2014	2015	2016	2017	2018
<i>Macroeconomic</i>							
Energy intensity	kgoe / €	0,07	0,07	0,07	0,07	0,07	0,07
Carbon intensity	kg / €	0,22	0,20	0,18	0,19	0,17	-
Resource intensity (reciprocal of resource productivity)	kg / €	0,49	0,49	0,49	0,51	0,51	0,51
Waste intensity	kg / €	-	0,08	-	0,08	-	-
Energy balance of trade	% GDP	0,3	0,0	0,0	0,0	-0,1	-0,2
Weighting of energy in HICP	%	10,31	10,56	11,32	10,15	11,06	9,45
Difference between energy price change and inflation	p.p.	0,8	0,7	-5,9	-2,2	-1,5	0,8
Real unit of energy cost	% of value added	10,9	9,5	9,8	10,1	-	-
Ratio of environmental taxes to labour taxes	ratio	0,17	0,16	0,17	0,17	0,16	-
Environmental taxes	% GDP	4,1	4,0	4,0	3,9	3,7	3,6
<i>Sectoral</i>							
Industry energy intensity	kgoe / €	0,04	0,04	0,04	0,04	0,04	0,04
Real unit energy cost for manufacturing industry excl. refining	% of value added	5,5	4,9	4,9	4,9	-	-
Share of energy-intensive industries in the economy	% GDP	7,31	7,24	7,08	6,93	6,85	6,49
Electricity prices for medium-sized industrial users	€ / kWh	0,10	0,10	0,09	0,09	0,08	0,08
Gas prices for medium-sized industrial users	€ / kWh	0,04	0,04	0,04	0,03	0,03	0,04
Public R&D for energy	% GDP	0,05	0,04	0,03	0,02	0,02	0,03
Public R&D for environmental protection	% GDP	0,02	0,02	0,02	0,02	0,01	0,01
Municipal waste recycling rate	%	42,0	43,7	45,6	46,7	46,9	47,9
Share of GHG emissions covered by ETS*	%	39,1	36,0	32,7	34,2	31,6	31,5
Transport energy intensity	kgoe / €	0,33	0,36	0,38	0,37	0,37	0,37
Transport carbon intensity	kg / €	2,66	2,73	2,99	2,97	2,97	3,07
<i>Security of energy supply</i>							
Energy import dependency	%	12,4	12,3	13,0	13,4	11,7	-
Aggregated supplier concentration index	HHI	5,8	7,6	4,9	5,9	7,9	-
Diversification of energy mix	HHI	26,3	26,8	27,2	27,1	28,7	28,8

All macro intensity indicators are expressed as a ratio of a physical quantity to GDP (in 2010 prices)

Energy intensity: gross inland energy consumption (in kg) divided by GDP (in EUR)

Carbon intensity: greenhouse gas emissions (in kg CO₂ equivalents) divided by GDP (in EUR)

Resource intensity: domestic material consumption (in kg) divided by GDP (in EUR)

Waste intensity: waste (in kg) divided by GDP (in EUR)

Energy balance of trade: the balance of energy exports and imports, expressed as % of GDP.

Weighting of energy in HICP: the proportion of 'energy' items in the consumption basket used for the construction of the HICP.

Difference between energy price change and inflation: energy component of HICP, and total HICP inflation (annual % change).

Real unit energy cost: real energy costs as % of total value added for the economy.

Industry energy intensity: final energy consumption of industry (in kg) divided by gross value added of industry (in 2010 EUR).

Real unit energy costs for manufacturing industry excluding refining: real costs as % of value added for manufacturing sectors.

Share of energy-intensive industries in the economy: share of gross value added of the energy-intensive industries in GDP.

Electricity and gas prices for medium-sized industrial users: consumption band 500–20 000 MWh and 10 000–100 000 GJ; figures excl. VAT.

Recycling rate of municipal waste: ratio of recycled and composted municipal waste to total municipal waste.

Public R&D for energy or for the environment: government spending on R&D for these categories as % of GDP.

Proportion of GHG emissions covered by EU emissions trading system (ETS) (excluding aviation): based on GHG emissions (excl. land use, land use change and forestry) as reported by Member States to the European Environment Agency.

Transport energy intensity: final energy consumption of transport activity including international aviation (kg) divided by gross value added in transportation and storage sector (in 2010 EUR).

Transport carbon intensity: GHG emissions in transportation and storage sector divided by gross value added in transportation and storage sector (in 2010 EUR).

Energy import dependency: net energy imports divided by gross inland energy consumption incl. consumption of international bunker fuels.

Aggregated supplier concentration index: Herfindahl index covering oil, gas and coal. Smaller values indicate larger diversification and hence lower risk.

Diversification of the energy mix: Herfindahl index covering natural gas, total petrol products, nuclear heat, renewable energies and solid fuels. Smaller values indicate larger diversification.

* European Commission and European Environment Agency - 2018 provisional data.

Source: European Commission and European Environment Agency (Share of GHG emissions covered by ETS); European Commission (Environmental taxes over labour taxes and GDP); Eurostat (all other indicators).

ANNEX D

Investment guidance on Just Transition Fund 2021-2027 for Denmark

Building on the Commission proposal, this Annex⁽³⁵⁾ presents the preliminary Commission services' views on priority investment areas and framework conditions for effective delivery for the 2021-2027 Just Transition Fund investments in Denmark. These priority investment areas are derived from the broader analysis of territories facing serious socio-economic challenges deriving from the transition process towards a climate-neutral economy of the Union by 2050 in Denmark, assessed in the report. This Annex provides the basis for a dialogue between Denmark and the Commission services as well as the relevant guidance for the Member States in preparing their territorial just transition plans, which will form the basis for programming the Just Transition Fund. The Just Transition Fund investments complement those under Cohesion Policy funding for which guidance in the form of Annex D was given in the 2019 Country Report for Denmark⁽³⁶⁾.

In Denmark, the cement industry is located in the region of Northern Jutland. In this industry, process related greenhouse gas emissions intensity significantly exceed the EU average.

The carbon intensity of the industry in the region highlights the scale of the decarbonisation challenge, suggesting that the sector would be likely to undergo, by 2030, significant restructuring in its industrial processes. There is a risk of a negative impact on the around 350 people directly employed in the production, as well as further impact on the subcontractors and the regional economy. A restructuring, which takes into account social aspects, requires new innovative solutions for the whole value chain. Based on this preliminary assessment, it appears warranted that the Just Transition Fund concentrates its intervention on that region.

The smart specialisation strategies⁽³⁷⁾ provide an important framework to set priorities for innovation in support of economic transformation. In order to tackle these transition challenges, investment needs have therefore been identified for making the regional economy more modern and competitive. Key actions of the Just Transition Fund could target in particular:

- investments in research and innovation activities and fostering transfer of advanced technologies;
- investments in enhancing the circular economy, including through waste prevention, reduction, resource efficiency, reuse, repair and recycling;
- investments in the deployment of technology and infrastructures for affordable clean energy, in greenhouse gas emission reduction, energy efficiency and renewable energy;
- investments in the creation of new firms, including through business incubators and consulting services;
- productive investments in SMEs, including start-ups, leading to economic diversification and reconversion;
- upskilling and reskilling of workers.

⁽³⁵⁾ This Annex is to be considered in conjunction with the EC proposal for a Regulation of the European Parliament and of the Council on the Just Transition Fund 2021-2027 (COM(2020) 22) and the EC proposal for a Regulation of the European Parliament and of the Council laying down common provisions on the European Regional Development Fund, the European Social Fund Plus, the Cohesion Fund, and the European Maritime and Fisheries Fund and financial rules for those and for the Asylum and Migration Fund, the Internal Security Fund and the Border Management and Visa Instrument (COM(2020) 23)

⁽³⁶⁾ SWD(2019) 1003 final

⁽³⁷⁾ As defined in Article 2(3) of Regulation EU 1303/2013 (CPR)

Cement production sites in Northern Jutland, performing activities listed in Annex I to Directive 2003/87/EC, employ a substantial number of workers and their activity is at risk due to their high greenhouse gas emission. Support to investments to reduce the emissions could be considered, provided that they achieve a substantial reduction of emissions (going substantially below the relevant benchmarks used for free allocation under Directive 2003/87/EC) and on the condition that the investments are compatible with the European Green Deal.

ANNEX E

Progress towards the Sustainable Development Goals (SDGs)

Assessment of Denmark's short-term progress towards the SDGs (38)

Table E.1 shows the data for Denmark and the EU-28 for the indicators included in the EU SDG indicator set used by Eurostat for [monitoring progress towards the SDGs in an EU context](#) (39). As the short-term trend at EU-level is assessed over a 5-year period, both the value at the beginning of the period and the latest available value is presented. The indicators are regularly updated on the [SDI dedicated section](#) of the Eurostat website.

Table E.1: Indicators measuring Denmark's progress towards the SDGs

SDG / Sub-theme	Indicator	Unit	Denmark				EU-28			
			Starting year	Latest value	Starting year	Latest value	Starting year	Latest value	Starting year	Latest value
SDG 1 – No poverty										
Multidimensional poverty	People at risk of poverty or social exclusion	% of population	2013	18.3	2018	17.4	2013	24.6	2018	21.9
	People at risk of income poverty after social transfers	% of population	2013	11.9	2018	12.7	2013	16.7	2018	17.1
	Severely materially deprived people	% of population	2013	3.6	2018	3.4	2013	9.6	2018	5.8
	People living in households with very low work intensity	% of population aged 0 to 59	2013	11.9	2018	11.1	2013	11.0	2018	8.8
	In-work at-risk-of-poverty rate	% of population aged 18 or over	2013	5.5	2018	5.4	2013	9.0	2018	9.5
Basic needs	Population living in a dwelling with a leaking roof, damp walls, floors or foundation or rot in window frames or floor	% of population	2013	16.6	2018	16.4	2013	15.6	2018	13.9
	Self-reported unmet need for medical care	% of population aged 16 or over	2013	1.3	2018	1.3	2013	3.7	2018	2.0
	Population having neither a bath, nor a shower, nor indoor flushing toilet in their household	% of population	2013	0.6	2018	0.4	2013	2.2	2018	1.7
	Population unable to keep home adequately warm	% of population	2013	3.8	2018	3.0	2013	10.7	2018	7.3
	Overcrowding rate	% of population	2013	7.9	2018	9.2	2013	17.0	2018	15.5
SDG 2 – Zero hunger										
Malnutrition	Obesity rate	% of population aged 18 or over	2014	14.9	2017	:	2014	15.9	2017	15.2
Sustainable agricultural production	Agricultural factor income per annual work unit (AWU)	EUR, chain linked volumes (2010)	2012	60 716	2017	43 461	2012	14 865	2017	17 304
	Government support to agricultural research and development	million EUR	2013	91.6	2018	87.4	2013	3 048.6	2018	3 137.9
	Area under organic farming	% of utilised agricultural area	2013	6.4	2018	9.8	2013	5.7	2018	7.5
Environmental impacts of agricultural production	Gross nitrogen balance on agricultural land	kg per hectare	2010	90	2015	80	2010	49	2015	51
	Ammonia emissions from agriculture	kg per ha of utilised agricultural area	2012	27.1	2017	27.4	2011	19.7	2016	20.3
	Nitrate in groundwater	mg NO ₃ per litre	2010	18.3	2015	16.7	2010	18.8	2015	18.3
	Estimated soil erosion by water	km ²	2010	2.0	2016	1.0	2010	207 232.2	2016	205 294.5
SDG 3 – Good health and well-being										
Healthy lives	Life expectancy at birth	years	2012	80.2	2017	81.1	2012	80.3	2017	80.9
	Share of people with good or very good perceived health	% of population aged 16 or over	2013	72.6	2018	71.2	2013	67.3	2018	69.2
Health determinants	Smoking prevalence	% of population aged 15 or over	2012	26	2017	19	2014	26	2017	26
	Obesity rate	% of population aged 18 or over	2014	14.9	2017	:	2014	15.9	2017	15.2
	Population living in households considering that they suffer from noise	% of population	2013	15.6	2018	18.2	2013	18.8	2018	18.3
Causes of death	Exposure to air pollution by particulate matter	µg/m ³	2012	11.1	2017	9.2	2012	16.8	2017	14.1
	Death rate due to chronic diseases	number per 100 000 persons aged less than 65	2011	124.4	2016	108.9	2011	132.5	2016	119.0
	Death rate due to tuberculosis, HIV and hepatitis	number per 100 000 persons	2011	1.0	2016	1.2	2011	3.4	2016	2.6
	People killed in accidents at work	number per 100 000 employed persons	2012	1.75	2017	0.92	2012	1.91	2017	1.65
	People killed in road accidents	number of killed people	2012	167	2017	175	2012	28 231	2017	25 257
Access to health care	Self-reported unmet need for medical care	% of population aged 16 or over	2013	1.3	2018	1.3	2013	3.7	2018	2.0

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(38) Data extracted on 15 January 2020 from the Eurostat database (official EU SDG indicator set; see <https://ec.europa.eu/eurostat/web/sdi/main-tables>).

(39) The EU SDG indicator set is aligned as far as appropriate with the UN list of global indicators, noting that the UN indicators are selected for global level reporting and are therefore not always relevant in an EU context. The EU SDG indicators have strong links with EU policy initiatives.

Table (continued)

SDG / Sub-theme	Indicator	Unit	Denmark				EU-28			
			Starting year	value	Latest year	value	Starting year	value	Latest year	value
SDG 4 – Quality education										
Basic education	Early leavers from education and training	% of the population aged 18 to 24	2013	8.0	2018	10.2	2013	11.9	2018	10.6
	Participation in early childhood education	% of the age group between 4-years-old and the starting age of compulsory education	2012	98.0	2017	98.0	2012	94.0	2017	95.4
	Underachievement in reading	% of 15-year-old students	2015	15.0	2018	16.0	2015	19.7	2018	21.7
	Young people neither in employment nor in education and training	% of population aged 15 to 29	2013	7.5	2018	8.5	2013	15.9	2018	12.9
Tertiary education	Tertiary educational attainment	% of the population aged 30 to 34	2013	43.4	2018	49.1	2013	37.1	2018	40.7
	Employment rate of recent graduates	% of population aged 20 to 34	2013	81.9	2018	85.9	2013	75.4	2018	81.7
Adult education	Adult participation in learning	% of population aged 25 to 64	2013	31.4	2018	23.5	2013	10.7	2018	11.1
SDG 5 – Gender equality										
Gender-based violence	Physical and sexual violence to women experienced within 12 months prior to the interview	% of women	N/A	:	2012	11	N/A	:	2012	8
Education	Gender gap for early leavers from education and training	percentage points, persons aged 18–24	2013	3.7	2018	4.7	2013	3.4	2018	3.3
	Gender gap for tertiary educational attainment	percentage points, persons aged 30–34	2013	16.6	2018	14.8	2013	8.5	2018	10.1
	Gender gap for employment rate of recent graduates	percentage points, persons aged 20–34	2013	7.1	2018	5.1	2013	4.4	2018	3.4
Employment	Gender pay gap in unadjusted form	% of average gross hourly earnings of men	2012	16.8	2017	14.7	2012	17.4	2017	16.0
	Gender employment gap	percentage points, persons aged 20–64	2013	6.3	2018	6.7	2013	11.7	2018	11.6
	Gender gap in inactive population due to caring responsibilities	percentage points, persons aged 20–64	2013	4.8	2018	4.9	2013	25.5	2018	27.1
Leadership positions	Seats held by women in national parliaments and governments	% of seats	2014	38.5	2019	39.1	2014	27.2	2019	31.5
	Positions held by women in senior management	% of board members	2014	24.0	2019	30.0	2014	20.2	2019	27.8
SDG 6 – Clean water and sanitation										
Sanitation	Population having neither a bath, nor a shower, nor indoor flushing toilet in their household	% of population	2013	0.6	2018	0.4	2013	2.2	2018	1.7
	Population connected to at least secondary wastewater treatment	% of population	2012	88.4	2017	91.8	N/A	:	N/A	:
Water quality	Biochemical oxygen demand in rivers	mg O ₂ per litre	2010	1.52	2015	1.72	2010	2.11	2015	2.02
	Nitrate in groundwater	mg NO ₃ per litre	2010	18.3	2015	16.7	2010	18.8	2015	18.3
	Phosphate in rivers	mg PO ₄ per litre	2010	0.050	2015	0.051	2010	0.073	2015	0.060
	Inland water bathing sites with excellent water quality	% of bathing sites with excellent water quality	2013	93.9	2018	92.2	2013	76.5	2018	80.8
Water use efficiency	Water exploitation index	% of long term average available water (LTAA)	2011	5.3	2016	4.5	N/A	:	N/A	:
SDG 7 – Affordable and clean energy										
Energy consumption	Primary energy consumption	million tonnes of oil equivalent (Mtoe)	2012	17.8	2017	17.7	2012	1 589.4	2017	1 561.6
	Final energy consumption	million tonnes of oil equivalent (Mtoe)	2012	14.2	2017	14.6	2012	1 110.6	2017	1 122.8
	Final energy consumption in households per capita	kgoe	2013	799	2018	797	2012	593	2017	563
	Energy productivity	EUR per kgoe	2013	13.2	2018	14.7	2012	7.5	2017	8.3
	Greenhouse gas emissions intensity of energy consumption	index 2000 = 100	2012	78.4	2017	67.3	2012	91.8	2017	86.6
Energy supply	Share of renewable energy in gross final energy consumption	%	2012	25.7	2017	35.8	2012	14.7	2017	17.5
	Energy import dependency	% of imports in gross available energy	2012	-2.7	2017	11.7	2012	53.7	2017	55.1
Access to affordable energy	Population unable to keep home adequately warm	% of population	2013	3.8	2018	3.0	2013	10.7	2018	7.3

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Table (continued)

SDG / Sub-theme	Indicator	Unit	Denmark				EU-28			
			Starting year	Latest value						
SDG 8 – Decent work and economic growth										
Sustainable economic growth	Real GDP per capita	EUR per capita, chain-linked volumes (2010)	2013	44 410	2018	48 260	2013	25 750	2018	28 280
	Investment share of GDP	% of GDP	2013	19.1	2018	22.4	2013	19.5	2018	20.9
	Resource productivity	EUR per kg, chain-linked volumes (2010)	2013	2.02	2018	1.93	2013	1.98	2018	2.04
Employment	Young people neither in employment nor in education and training	% of population aged 15 to 29	2013	7.5	2018	8.5	2013	15.9	2018	12.9
	Employment rate	% of population aged 20 to 64	2013	75.6	2018	78.2	2013	68.4	2018	73.2
	Long-term unemployment rate	% of active population	2013	1.8	2018	1.1	2013	5.1	2018	2.9
	Gender gap in inactive population due to caring responsibilities	percentage points, persons aged 20-64	2013	4.8	2018	4.9	2013	25.5	2018	27.1
Decent work	People killed in accidents at work	number per 100 000 employed persons	2012	1.75	2017	0.92	2012	1.91	2017	1.65
	In-work at-risk-of-poverty rate	% of population	2013	5.5	2018	5.4	2013	9	2018	9.5
SDG 9 – Industry, innovation and infrastructure										
R&D and innovation	Gross domestic expenditure on R&D	% of GDP	2013	2.97	2018	3.03	2013	2.01	2018	2.12
	Employment in high- and medium-high technology manufacturing and knowledge-intensive services	% of total employment	2013	55.0	2018	53.4	2013	45.0	2018	46.1
	R&D personnel	% of active population	2013	2.04	2018	2.20	2013	1.15	2018	1.36
	Patent applications to the European Patent Office (EPO)	number	2012	1 318	2017	1 418	2012	56 772	2017	54 649
Sustainable transport	Share of buses and trains in total passenger transport	% of total inland passenger-km	2012	20.0	2017	18.5	2012	17.2	2017	16.7
	Share of rail and inland waterways in total freight transport	% of total inland freight tonne-km	2012	10.9	2017	11.5	2012	25.4	2017	23.3
	Average CO2 emissions per km from new passenger cars	g CO2 per km	2013	112.7	2018	109.5	2014	123.4	2018	120.4
SDG 10 – Reduced inequalities										
Inequalities within countries	Relative median at-risk-of-poverty gap	% distance to poverty threshold	2013	23.5	2018	19.1	2013	23.8	2018	24.6
	Income distribution	income quintile share ratio	2013	4.0	2018	4.1	2013	5.0	2018	5.2
	Income share of the bottom 40 % of the population	% of income	2013	23.5	2018	23.2	2013	21.1	2018	21.0
	People at risk of income poverty after social transfers	% of population	2013	11.9	2018	12.7	2013	16.7	2018	17.1
Inequalities between countries	Purchasing power adjusted GDP per capita	Real expenditure per capita (in PPS)	2013	34 300	2018	39 700	2013	26 800	2018	31 000
	Adjusted gross disposable income of households per capita	Purchasing power standard (PPS) per inhabitant	2013	22 128	2018	24 957	2013	20 387	2018	22 850
	Financing to developing countries	billion EUR, current prices	2012	1 868	2017	5 293	2012	147 962	2017	155 224
	Imports from developing countries	billion EUR, current prices	2013	9 938	2018	11 455	2013	817 475	2018	1 013 981
Migration and social inclusion	Asylum applications	Positive first instance decisions, per million inhabitants	2013	500	2018	227	2013	213	2018	424
SDG 11 – Sustainable cities and communities										
Quality of life in cities and communities	Overcrowding rate	% of population	2013	7.9	2018	9.2	2013	17.0	2018	15.5
	Population living in households considering that they suffer from noise	% of population	2013	15.6	2018	18.2	2013	18.8	2018	18.3
	Exposure to air pollution by particulate matter (PM _{2.5})	µg/m ³	2012	11.1	2017	9.2	2012	16.8	2017	14.1
	Population living in a dwelling with a leaking roof, damp walls, floors or foundation or rot in window frames or floor	% of population	2013	16.6	2018	16.4	2013	15.6	2018	13.9
	Population reporting occurrence of crime, violence or vandalism in their area	% of population	2013	9.2	2018	7.4	2013	14.5	2018	12.7
Sustainable mobility	People killed in road accidents	number of killed people	2012	167	2017	175	2012	28 231	2017	25 257
	Share of buses and trains in total passenger transport	% of total inland passenger-km	2012	20.0	2017	18.5	2012	17.2	2017	16.7
Adverse environmental impacts	Settlement area per capita	m ²	2009	969.6	2015	1 052.3	2012	625.0	2015	653.7
	Recycling rate of municipal waste	% of total waste generated	2013	42.0	2018	47.9	2013	41.7	2018	47.0
	Population connected to at least secondary wastewater treatment	% of population	2012	88.4	2017	91.8	N/A	:	N/A	:

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Table (continued)

SDG / Sub-theme	Indicator	Unit	Denmark				EU-28			
			Starting year	Latest value						
SDG 12 – Responsible consumption and production										
Decoupling environmental impacts from economic growth	Consumption of toxic chemicals	million tonnes	N/A	:	N/A	:	2013	300.3	2018	313.9
	Resource productivity	EUR per kg, chain-linked volumes (2010)	2013	2.02	2018	1.93	2013	1.98	2018	2.04
	Average CO2 emissions per km from new passenger cars	g CO2 per km	2013	112.7	2018	109.5	2014	123.4	2018	120.4
	Energy productivity	EUR per kgcoe	2013	13.2	2018	14.7	2012	7.5	2017	8.3
Energy consumption	Primary energy consumption	million tonnes of oil equivalent (Mtoe)	2012	17.8	2017	17.7	2012	1 589.4	2017	1 561.6
	Final energy consumption	million tonnes of oil equivalent (Mtoe)	2012	14.2	2017	14.6	2012	1 110.6	2017	1 122.8
	Share of renewable energy in gross final energy consumption	%	2012	25.7	2017	35.8	2012	14.7	2017	17.5
Waste generation and management	Circular material use rate	% of material input for domestic use	2011	7.1	2016	8.2	2011	10.6	2016	11.7
	Generation of waste excluding major mineral wastes	kg per capita	2012	1 747	2016	1 657	2012	1 716	2016	1 772
	Recycling rate of waste excluding major mineral wastes	% of total waste treated	2012	59	2016	61	2012	55	2016	57
SDG 13 – Climate action										
Climate mitigation	Greenhouse gas emissions	index 1990 = 100	2012	77.3	2017	70.5	2012	82.1	2017	78.3
	Greenhouse gas emissions intensity of energy consumption	index 2000 = 100	2012	78.4	2017	67.3	2012	91.8	2017	86.6
	Primary energy consumption	million tonnes of oil equivalent (Mtoe)	2012	17.8	2017	17.7	2012	1 589.4	2017	1 561.6
	Final energy consumption	million tonnes of oil equivalent (Mtoe)	2012	14.2	2017	14.6	2012	1 110.6	2017	1 122.8
	Share of renewable energy in gross final energy consumption	%	2012	25.7	2017	35.8	2012	14.7	2017	17.5
	Average CO2 emissions per km from new passenger cars	g CO2 per km	2013	112.7	2018	109.5	2014	123.4	2018	120.4
Climate impacts	European mean near surface temperature deviation	temperature deviation in °C, compared with the 1850–1899 average	N/A	:	N/A	:	2013	1.4	2018	2.1
	Climate-related economic losses	EUR billion, in 2017 values	N/A	:	N/A	:	2012	2 719	2017	2 649
	Mean ocean acidity	pH value	N/A	:	N/A	:	2011	8.07	2016	8.06
Support to climate action	Contribution to the international 100bn USD commitment on climate related spending	EUR million, current prices	N/A	:	2017	181.7	N/A	:	2017	20 388.7
SDG 14 – Life below water										
Ocean health	Coastal water bathing sites with excellent water quality	% of bathing sites with excellent water quality	2013	75.2	2018	86.8	2013	85.5	2018	87.1
	Mean ocean acidity	pH value	N/A	:	N/A	:	2011	8.07	2016	8.06
Marine conservation	Surface of marine sites designated under NATURA 2000	km²	2013	19 062	2018	19 048	2013	251 566	2018	551 899
Sustainable fisheries	Estimated trends in fish stock biomass	index 2003 = 100	N/A	:	N/A	:	2012	110.0	2017	136.0
	Assessed fish stocks exceeding fishing mortality at maximum sustainable yield (Fmsy)	% of stocks exceeding fishing mortality at maximum sustainable yield (F>F _{MSY})	N/A	:	N/A	:	2012	52.9	2017	42.7
SDG 15 – Life on land										
Ecosystems status	Share of forest area	% of total land area	2009	13.7	2015	15.6	2012	40.3	2015	41.6
	Biochemical oxygen demand in rivers	mg O ₂ per litre	2010	1.52	2015	1.72	2010	2.11	2015	2.02
	Nitrate in groundwater	mg NO ₃ per litre	2010	18.3	2015	16.7	2010	18.8	2015	18.3
	Phosphate in rivers	mg PO ₄ per litre	2010	0.050	2015	0.051	2010	0.073	2015	0.060
Land degradation	Soil sealing index	index 2006 = 100	2009	101.2	2015	103.3	2009	101.7	2015	104.2
	Estimated soil erosion by water	km²	2010	2.0	2016	1.0	2010	207 232.2	2016	205 294.5
	Settlement area per capita	m ²	2009	969.6	2015	1 052.3	2012	625.0	2015	653.7
Biodiversity	Surface of terrestrial sites designated under NATURA 2000	km²	2013	3 584	2018	3 616	2013	787 766	2018	784 252
	Common bird index	index 2000 = 100	N/A	:	N/A	:	2011	95.1	2016	93.3
	Grassland butterfly index	index 2000 = 100	N/A	:	N/A	:	2012	72.2	2017	74.1

(Continued on the next page)

Table (continued)

SDG / Sub-theme	Indicator	Unit	Denmark				EU-28			
			Starting year	Latest value	Starting year	Latest value	Starting year	Latest value	Starting year	Latest value
SDG 16 – Peace, justice and strong institutions										
Peace and personal security	Death rate due to homicide	number per 100 000 persons	2011	0.8	2016	0.5	2011	0.9	2016	0.6
	Population reporting occurrence of crime, violence or vandalism in their area	% of population	2013	9.2	2018	7.4	2013	14.5	2018	12.7
	Physical and sexual violence to women experienced within 12 months prior to the interview	% of women	N/A	:	2012	11	N/A	:	2012	8
Access to justice	General government total expenditure on law courts	million EUR	2013	446	2018	461	2012	48 381	2017	51 027
	Perceived independence of the justice system	% of population	2016	88	2019	87	2016	52	2019	56
Trust in institutions	Corruption Perceptions Index	score scale of 0 (highly corrupt) to 100 (very clean)	2013	91	2018	88	N/A	:	N/A	:
	Population with confidence in EU institutions	% of population	2013	60	2018	62	2013	39	2018	48
	SDG 17 – Partnerships for the goals									
Global partnership	Official development assistance as share of gross national income	% of GNI	2013	0.85	2018	0.71	2013	0.43	2018	0.48
	EU financing to developing countries	billion EUR, current prices	2012	1 868	2017	5 293	2012	147 962	2017	155 224
	EU imports from developing countries	billion EUR, current prices	2013	9 938	2018	11 455	2013	817 475	2018	1 013 981
Financial governance within the EU	General government gross debt	% of GDP	2013	44.0	2018	34.2	2013	86.3	2018	80.4
	Shares of environmental and labour taxes in total tax revenues	% of total tax revenues	2013	9.0	2018	8.1	2013	6.4	2018	6.1

More detailed information regarding the data used for the assessment available on the [Eurostat SDI dedicated section](#)

Source: Eurostat

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