COVID-19 and its influence on some aspects of sustainable development in Denmark

STATISTICS DENMARK

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-	Nil
0 0,0	Less than half the final digit shown
•	Not applicable
. .	Available information not conclusive
. . .	Data not available
*	Provisional or estimated figures
—	Break in a series, which means that data above the line are not fully comparable with data below the line
/ /	Break in a series (in diagrams)
i.sk.	Not seasonally adjusted
sk.	Seasonally adjusted
r	Revised figures

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Preface

COVID-19 has influenced our societies in many unexpected ways. As statisticians, we are constantly trying to capture the effects of the pandemic both on a national and on a global scale. In this task, we are facing various challenges, data availability being one of the most prominent. Here, statistics building on new data sources and methods can provide more timely indicators for economic and social trends during COVID-19 than usual publications. In Statistics Denmark, we call this type of statistics experimental statistics, because sources, methods and documentation may deviate from the standard and develop along the way.

The COVID-19 situation is currently creating a substantial demand for real-time data to illustrate its impact on society. Experimental statistics are not part of the official production of statistics but can be very valuable nevertheless, when you want a timely, innovative and reliable trend of development.

This publication uses experimental statistics to illustrate how and to what extent the Danish follow-up on sustainability has been influenced by the pandemic. To this aim, we have decided to focus on four themes: mortality, economic relief packages, poverty, and CO_2 emissions. With the present publication, we aim to show a current snapshot picture of the situation and, as time progresses, develop statistical tools in order to improve the information on the pandemic and its influence on Danish society.

Statistics Denmark, July 2021

Birgitte Anker, National Statistician

Contents

1. Introduction

Producing a quick statistical overview of the impacts COVID-19 had and still has on our societies is a challenge. Data may not yet be available because of the short span between the incident and the current date, and the existing data should be subject to quality assurance procedures, which are time consuming.

For this reason, and in order to respond to a huge demand for data, Statistics Denmark has decided to use experimental statistics in order to illustrate the impact of the COVID-19 in the best possible way. Experimental statistics are statistics that are in development, so methods and sources may change in the process towards the final form of the statistics based on experiences, e.g. in the form of feedback from users.

The purpose of experimental statistics is to respond to user requests for timely indicators of the development of society. Using more and more new sources and methods, we can create timely statistics in areas where the official and quality-checked statistics often have a time lag of months or perhaps years. Publishing the statistics in a preliminary form allows us to get feedback from the users, before we have found the final form, and thus gives us a more relevant product. At the same time, it gives the users an opportunity to become familiar with the statistics.

Attention should be drawn to the fact that experimental statistics differ from the rest of Statistics Denmark's statistics. In general, any statistics published by Statistics Denmark are official statistics. However, experimental statistics are not regarded as official statistics until they have been thoroughly tested to the point where they obtain a permanent form and a new status as official statistics.

It appears from the individual sets of statistics whether they have experimental status. The statistical documentation explains specifically what the experimental status of the individual set of statistics involves. It could be e.g. that the methods are not quite thoroughly tested, that new data sources are being tested, or that in its preliminary form, it only covers part of the intended area.

Statistics in this report rely mainly on experimental statistics.

2. Our approach

Monitoring the impact of COVID-19 on the Danish follow-up on Sustainable Development Goals is a challenging task at the moment. Establishing causal impacts not only requires comprehensive data frameworks and reliable time series, the findings should also be corroborated by an academic theory in a given field. The interlinkages between goals, targets and indicators are still not yet fully investigated in a statistical sense, which makes it even more challenging to draw conclusions.

Data availability is also an important factor here. Data transmissions have a predefined frequency and many indicators build on annual or even less frequent data transmissions, which makes it challenging to illustrate the up-to-date development/impact.

In order to make the best of the situation, Statistics Denmark has decided on a two-fold approach for monitoring the impact of COVID-19 on the follow-up on Sustainable Development Goals. Firstly, data availability was one of the criterions. Secondly, it was decided to delimit the areas investigated to four domains: mortality, relief packages, income levels and inequality, and CO_2 emissions.

The chapters on the investigated areas will build on the following structure:

1. General description of the topic and the underlying figures
2. Situation/development in figures before the outbreak of COVID-19
3. The development in 2020 and 2021
4. Data quality

3. Covid-19 and selected areas of sustainable development

3.1 Mortality

3.1.1 General description of the topic and the underlying figures

Denmark has a population of 5.8 million people. A quarter of the population is less than 20 years old and another quarter is 60 years or older. There is a fairly even distribution of men and women.

The vast majority live in urban areas, which means that there is a maximum of 200 meters between houses and that the urban area houses at least 200 people. For Denmark on the whole, the population density is 136 persons per km^2. It varies a great deal from one area to the next, depending on the type of area. E.g. the Greater Copenhagen Region houses 4,569 persons per km^2. In rural districts there are only 17 persons per km^2.

3.1.2 Situation/development in figures before the outbreak of COVID-19

Life expectancy at birth for girls and boys has been rising for many years. In 2020, life expectancy at birth was 79.5 years for boys and 83.6 years for girls.

Mortality in Denmark is at a very stable level of approximately 10 dead per 1,000 inhabitants per year. In general, more people die in the winter than in the summer. This is primarily due to seasonal diseases among elderly people. In Denmark, the average age of persons who die is around 78 years.

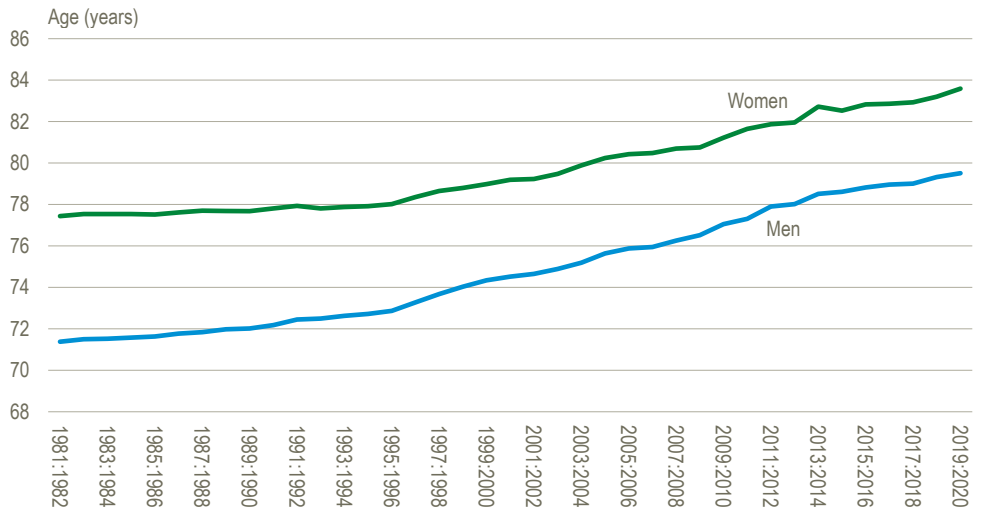
Population in Denmark 1 January 2021 by sex and age

	Men	Women	Total	Men	Women	Total
	number			per cent		
Total	**2 904 857**	**2 935 188**	**5 840 045**	**100**	**100**	**100**
0-9 years	313 103	297 107	610 210	11	10	10
10-19 years	348 549	331 491	680 040	12	11	12
20-29 years	397 273	381 467	778 740	14	13	13
30-39 years	354 174	342 505	696 679	12	12	12
40-49 years	374 633	374 191	748 824	13	13	13
50-59 years	402 277	398 889	801 166	14	14	14
60-69 years	328 751	338 832	667 583	11	12	11
70-79 years	272 754	301 943	574 697	9	10	10
80-89 years	100 102	136 546	236 648	3	5	4
90 years and more	13 241	32 217	45 458	0	1	1

Population in Denmark 1 January 2021 by city size and population density

	Number of people	Per cent	Area (km2)	Population density
	number	per cent	km2	per km2
Total	**5 840 045**	**100**	**42 947**	**136**
Greater Copenhagen Region	1 336 982	23	293	4 569
100,000 inhabitants and more	582 889	10	228	2 558
50,000-99,999 inhabitants	416 956	7	230	1 813
20,000-49,999 inhabitants	752 167	13	391	1 922
10,000-19,999 inhabitants	406 303	7	245	1 660
5,000-9,999 inhabitants	414 596	7	298	1 390
2,000-4,999 inhabitants	547 335	9	398	1 374
1,000-1,999 inhabitants	295 541	5	243	1 217
500-999 inhabitants	211 332	4	208	1 017
250-499 inhabitants	144 089	2	189	764
200-249 inhabitants	38 192	1	52	739
Rural areas	685 057	12	40 172	17
Without permanent residence	8 606	0	.	.

Figure 3.1.1 **Average life expectancy at birth**



3.1.3 Development in mortality during the COVID-19 pandemic

During the COVID-19 pandemic, we have seen a little excess mortality of 2 per cent if we compare 2020 with the average of the preceding five years. For the first four months of 2021 overall, the mortality was 2.5 per cent lower than for the same months in 2015-2019.

Compared with 2015-2019, mortality in the different age groups shows 6-10 per cent lower mortality in 2020 for persons aged 50-69 years, and 9-15 per cent lower in the first four months of 2021. For persons in the age groups 70-79 years, 80-89 years and 90 years and over, there was an excess mortality of 2-7 per cent in 2020. In the first four months of 2021, mortality was 1-6 per cent lower for persons aged 80-89 years as well as 90 years and over.

Up to and including April 2021, Denmark has registered 2,469 deaths with COVID-19. With 817 deaths in January 2021, we reached the highest number of deaths in one month. This is followed by December 2020 with 490 deaths and April 2020 with 353 deaths with COVID-19.

Figure 3.1.2 **Average life expectancy at birth**

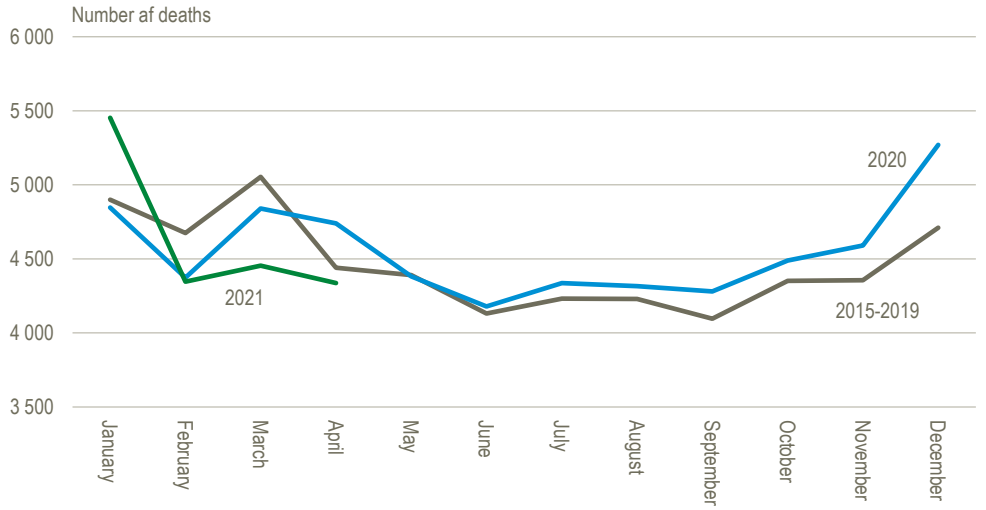


Figure 3.1.3 **Number of deaths with COVID-19 per month**

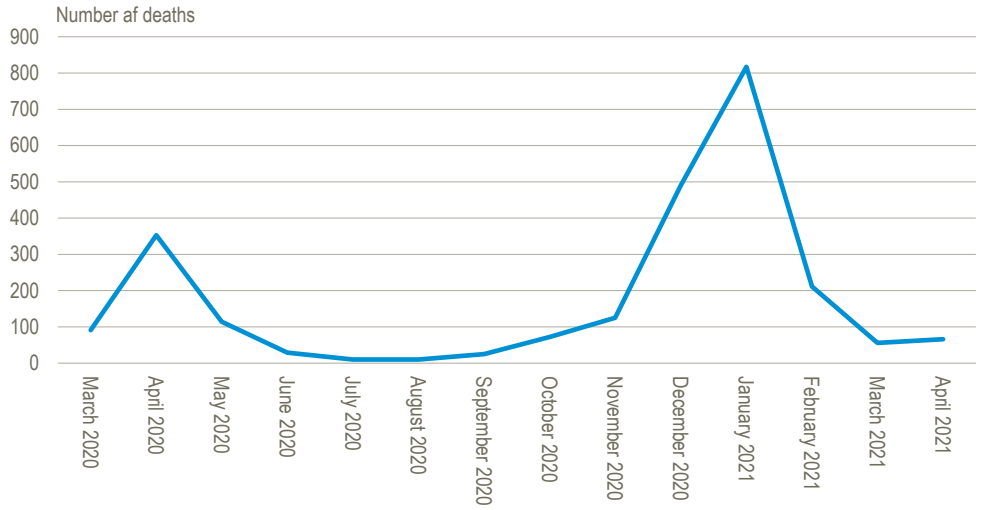
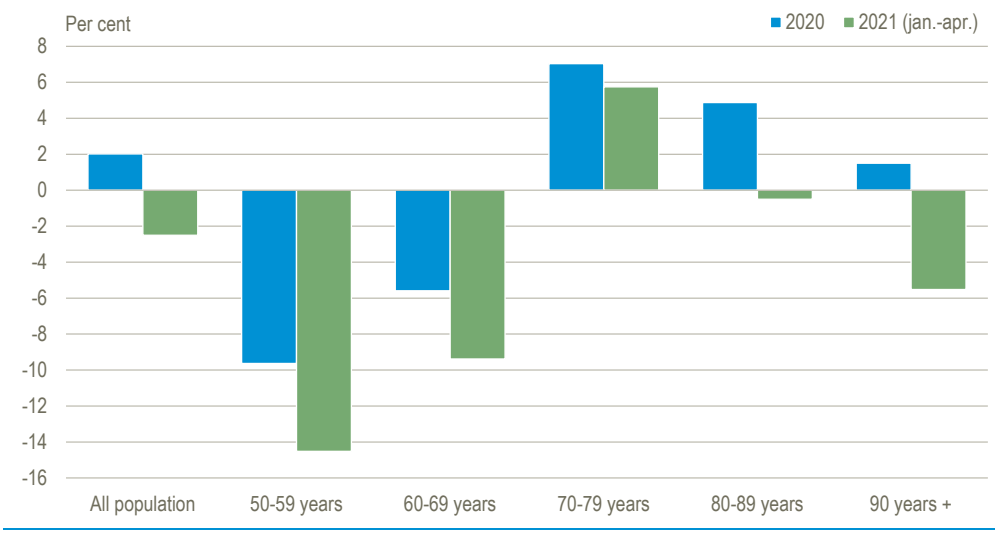


Figure 3.1.4 **Excess/lower mortality compared with 2015-2019**



3.1.4. Data quality

Data for mortality is based on regular and updated information from administrative registers. The population registers in Statistics Denmark are updated daily and data quality in this chapter is high and corresponds to other population statistics produced by Statistics Denmark.

3.2 Economic relief packages

3.2.1 General description of the topic and the underlying figures

In order to compensate businesses and their employees for lost turnover due to lockdown and other limitations in the Danish economy and society in response to COVID-19, the Danish Parliament launched a number of relief packages in March 2020. These relief packages are still in force but are expected to lapse in July 2021.

This section describes the use of the three most important relief packages:
1) compensation for wages and salaries,
2) compensation for fixed costs and
3) compensation for lost turnover for smaller enterprises (up to 25 employees).

3.2.2 Situation/development in figures before the outbreak of COVID-19

Not applicable as there were no economic relief packages that could be compared to the COVID-19 situation.

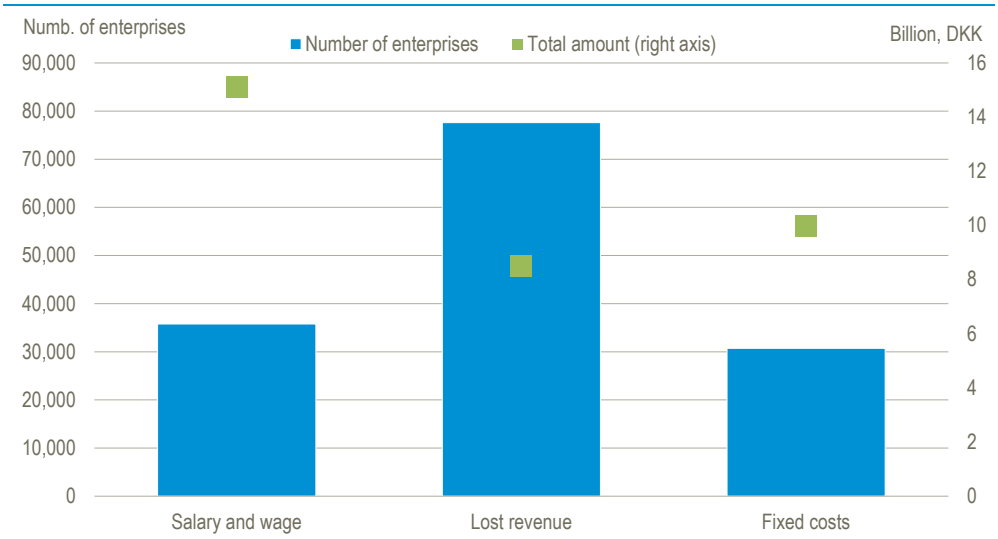
3.2.3 The development in 2020 and 2021

Danish COVID-19 Relief Packages

- At least 98,529 companies have received one or more types of compensation from the three main relief packages addressing compensation for wages and salaries, fixed costs or lost revenue for smaller enterprises (up to 25 employees). That is around 29 per cent of all active enterprises in the private sector in Denmark.
- 10,792 companies have received compensation from all of the three biggest relief packages.
- The total amount of compensation from the three biggest compensation schemes is 33.6 billion DKK equaling 1.4 per cent of total GDP (2,323 billion DKK)
- The highest amount is allocated to the relief packages for wages and salaries; 15.1 billion DKK

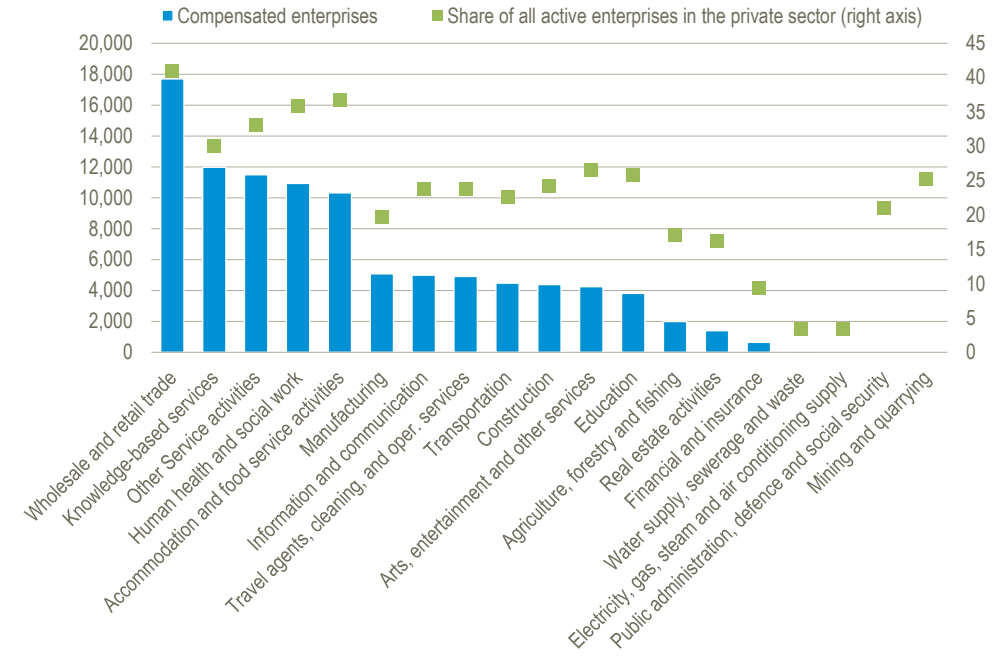
- Most of the compensated enterprises – small ones with less than 25 employees — have received compensation for lost revenue; 77,600 companies, cf. figure 3.2.1.

Figure 3.2.1 **Overview of compensation**



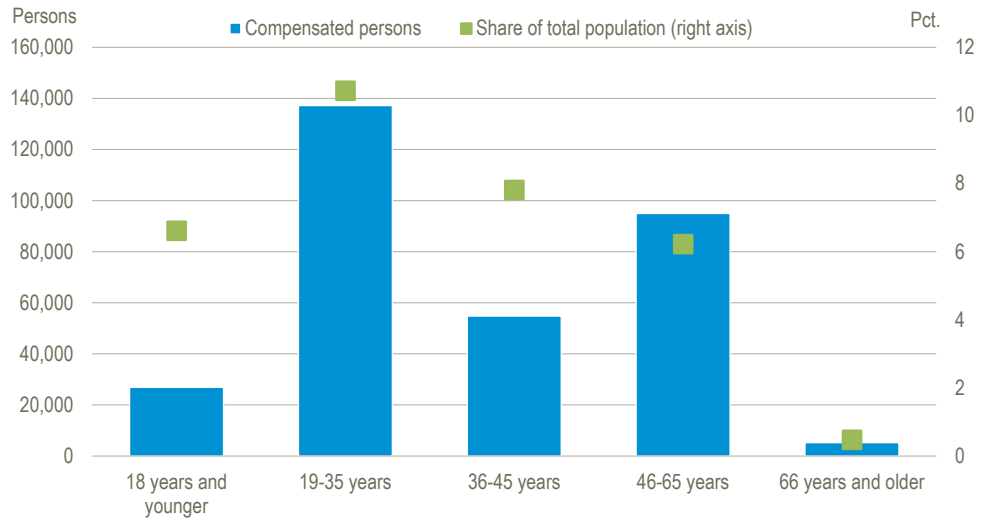
- Around one third of the compensated enterprises are engaged in trade and transportation, equaling approx. 45 per cent of all enterprises in this activity grouping, followed by business services accounting for around 15 per cent of the compensated enterprises, which is more than every fourth enterprise in this activity grouping, see figure 3.2.2.

Figure 3.2.2 **No. of compensated enterprises broken down by activity grouping and share of total population in the activity grouping**



- Around 310,000 employees or 6 per cent of the population aged 13 years or more have received salary or wage compensation due to lockdown, nearly half being female employees.
- Mainly employees aged 19-35 years (accounting for 45 per cent of all compensated persons) have received compensation, equaling 11 per cent of all persons in this age group.

Figure 3.2.3 **Salary or wage compensation for different age groups**



Impact of the relief packages

The purpose of this chapter is to provide a preliminary estimation of the impact of the relief packages, as it is too early at this point to assess the full impact of the COVID-19 crisis and the compensation schemes for the business sector and the employment in this respect. A lot of enterprises have earned less money than under normal circumstances, and it will take years before the final impact can be estimated, for example counted in number of lost jobs and bankruptcies.

At this stage, the usual short-term indicators for business development can provide an early indication of the situation and the immediate impact of the relief packages. The following main observations can be made on this basis:

- The overall number of employees has not decreased drastically. However, in the spring of 2020, a decrease of 2-3 per cent compared to same period in 2019 was observed. In concrete figures, about 60,000 persons lost their jobs. The decrease was highest in the private sector. Since the summer of 2020, when the relief packages came into force, the number of employees has been around 1 per cent lower compared to 2019. However, possible shifts from fulltime to part-time jobs may underestimate the decrease in employment.

- For some types of industries, the number of employees has shown a high decrease, in particular in the beginning of the crisis. For Accommodation and food service activities, figures show up to a 25 per cent decrease and for Arts, entertainment and other services up to 20 per cent lower employment can be observed. Furthermore, Travel agents, cleaning and operational services are also clearly affected.

- The unemployment rate went up significantly from in the beginning of the COVID-19 crisis. An increase of up to 80 per cent compared to the situation in 2019 in net employment was observed, affecting about 55,000 individuals. The increase was slightly higher for men than for women, most probably caused by the employment structure, with the highest share of men in the private sector.

- Also, the initiatives to assist persons through training and special jobs to return to the labour market were strongly affected in the spring of 2020,

where job activation fell by about 60 per cent, equivalent to 10,000 persons, compared to 2019. The level has gone up again, but is still lower than in 2019, in particular for persons under social assistance.

- The number of enterprises adjudicated bankrupt was slightly lower from March to December 2020 than during the same months in 2019. On the other hand, there were approximately twice as many bankruptcies from January to February 2021 than in the same months in 2019. The sharp increase in the number in the beginning of 2021 was observed in a majority of business types. However, banks and creditors may have been hesitant to file for bankruptcies in the present situation, where the value of assets can be considered lower than under normal circumstances.

3.2.4. Data quality

Denmark receives compensation data from the Danish Business Authority every week. This is preliminary data, and the figures are based on data received in early May 2021. Data received from the Danish Business Authority is matched with data in the Statistical Business Register at enterprise level in order to enrich the administrative data with information about activity class, location and size class. Furthermore, data concerning the reimbursed employees is matched with data in the Population Register to enrich the administrative data with information about age and gender.

3.3 Income levels and inequality in 2020

3.3.1. General description of the topic and the underlying figures

Many service and cultural industries have been severely impacted by the lockdowns in response to COVID-19. However, preliminary data on incomes indicates that the introduction of new COVID-19 benefits has contributed significantly to the reduction of the effects of the economic lockdowns on the income levels of the Danish households.

Preliminary income data actually shows that personal wages and transfers subject to taxation for people above the age of 18 grew by 4.2 per cent from 2019 to 2020, while wages and transfers for the 40 per cent with the lowest income grew by 2.75 per cent. However, in this context, it is important to know that the preliminary income data available for 2020 at this stage only covers wages and transfers. Thus these results are by no means final – please read the last section on the data quality as well.

This chapter starts with a brief overview of the COVID-19 benefits introduced during the pandemic. Then we take a look at the SGD indicator 10.1.1 on income levels and income inequality and finally look at some preliminary data for 2020.

Overview of COVID-19 related transfers

Benefit	Long description	Effect included in the preliminary income data?
Wage compensation	Employers who temporarily had to send their workers home without the ability to work, but did not dismiss them, could get compensation for up to 90 per cent of wages or DKK 30,000 per month per employee.	Yes
Compensation for self-employed persons	Self-employed persons impacted by lockdowns have been compensated for losses in revenue due to forced lockdowns. Compensation could cover up to 90 per cent of their loss, however with a maximum of DKK 30,000 per month.	No
Early payouts of funded holiday payments	Due to a change in the legislation concerning the system of holidays with pay in Denmark, savings accrued in the transition period were frozen until retirement age. This amounts to 5 weeks of wages total. The equivalent to 3 weeks of wages out of these mandatory frozen savings was paid out to employees in the autumn of 2020 as an initiative to get the economy going. The payouts amounted to more than DKK 45 billion to 1.748 million persons in the tax year of 2020. The payouts are subject to taxes. It was possible to decline the payout and save it for the day of retirement. This may have been preferable for employees that either already had ample funds in their bank accounts or who would be facing high tax rates due to progressive taxation rates. Furthermore savings equivalent to 2 weeks of wages can be paid out in the 2021 for those who opt in.	Yes
Cheque for non-employed persons	Beneficiaries of social transfers in April 2020 received a tax free cheque of DKK 1,000. Most of these have been paid out during the autumn of 2020.	No
Prolonged period on unemployment benefits	For unemployed persons, the COVID-19 lockdown period does not count towards the maximum of 2 years a person can receive unemployment benefits. Thus, it prolonged the period for which an unemployed person can get these benefits. Fewer persons transfer from unemployment benefits to social benefits (or no income).	Yes
Easier access to unemployment benefits for self-employed persons	Formerly self-employed persons that have closed their businesses and were not insured against unemployment can apply for unemployment benefits. Unemployment benefits are normally contributory – but this has been suspended temporarily for the self-employed. This could potentially lead to transitions from self-employment to unemployment benefits. There does seem to be very low take-up rates though.	Yes
Increased access to sick leave benefits	Immediate access to sick leave compensation for employers for COVID-19 cases.	Yes
Tax free gift cards	From March 2021: Private sector employers can give employees a tax-free gift card for 1.200 DKK. It can be used for restaurants, amusement parks, theatres and museums etc.	No
Coverage of fixed expenses	In lockdown periods, self-employed persons affected by lockdown have had their fixed expenses (such as rent) covered.	No
Cancelled events	From March 2020, organisers of cultural events receive compensation for cancelled events due to COVID-19.	No

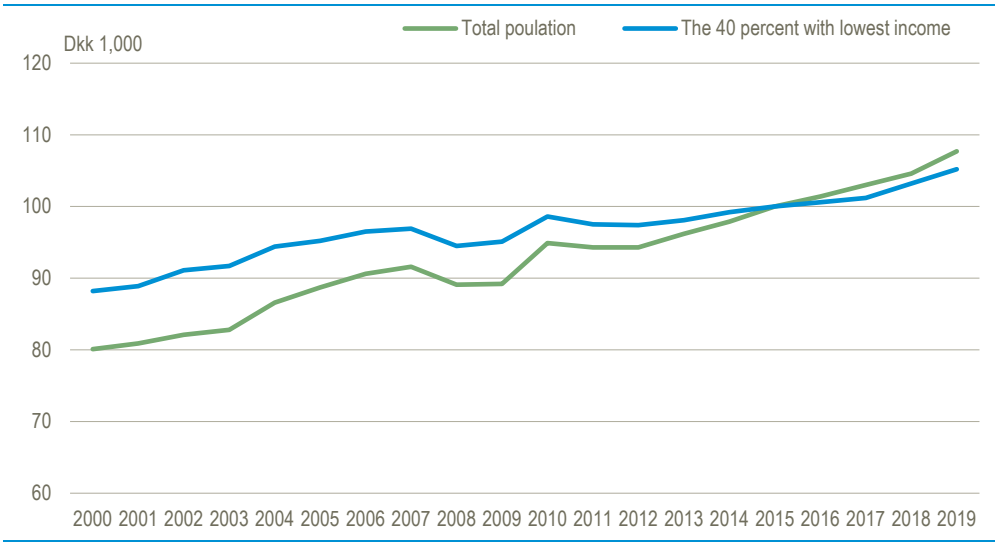
In addition, there have been postponements of deadlines for tax reporting, deadlines for VAT payments and various government subsidies (i.e. for re-training of employees) for the business sectors that have been affected the most by COVID-19. While many of these benefits and regulation adjustments do not directly affect income levels, they have been able to keep employment rates at a relatively stable level during the COVID-19 crisis up until this point.

3.3.2. Situation/development in figures before the outbreak of COVID-19

In 2019, the 40 percent with lowest income had an annual average equivalised disposable income of DKK 159,000 (roughly EUR 21,300). The average for the total population was DKK 288,000 (EUR 38,600).

Income has been growing in Denmark in recent years for most income groups. Since the millenium, the inflation-adjusted incomes among the 40 per cent with lowest income have grown in the respective years by 19.4 per cent, while income for the entire population has grown by 34 percent. The SDG indicator 10.1.1 shows that the bottom 40 per cent earned 22 per cent of the total of incomes. This is down from 25 per cent in the year 2000.

Figure 3.3.1 **Index (2015=100) of income levels on equivalised disposable income, fixed-prices.**



Income inequality has been on the rise in Denmark in the last few decades. One of the driving factors in recent years has been higher capital incomes, which are very concentrated among top income groups. Besides this, increased education attendance rates have greatly curbed income growth among young people. Looking at age-groups, incomes have actually declined among 15-24-year-olds, contributing to the increased income inequality. The education attendance rates have been levelling out in recent years. In addition to this, tax rates – mainly for employed and thus mainly for higher income groups - have been lowered on incomes to increase labour supply. Finally, some types of cash benefits have been lowered – this primarily lowers the income of unemployed refugees in Denmark. Combined with the large influx of Syrian refugees around 2015, this has contributed to the lower income growth in the bottom deciles in recent years.

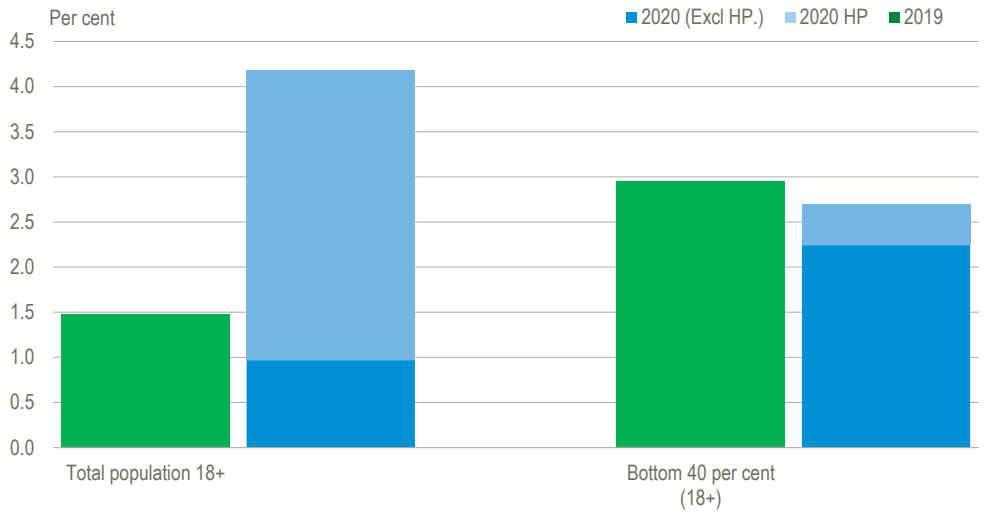
3.3.3. The development in 2020 and 2021

Preliminary income data shows that personal wages and transfers for people above the age of 18 grew by 4.2 per cent from 2019 to 2020. This is the highest level of growth recorded since 2008 in wages and transfers. However, this record breaking growth can be contributed in large part to extraordinary holiday payments as part of the COVID-19 relief effort. Without the holiday payments (HP) the growth in incomes was only 1 per cent.

Because of the change in the Danish system for a 'holiday year', the holiday payments that were paid out, were accrued in the period from September 2019 to August 2020 to people employed in that period. This is reflected in the low amount of holiday payments to the bottom 40 per cent measured on personal income. Few are employed in this group and thus the holiday payment does not contribute much to income growth for the bottom 40 percent. However, this group has benefited

from the cheque for a lump sum of 1,000 DKK as well as the prolonged period of entitlement to unemployment benefits. The one-off cheque is not included in the preliminary data as it is tax-free. This will further add to income growth for the bottom bracket once it is added to the input data.

Figure 3.3.2 **Growth in personal wages and transfers (18 years +)**



Note: The results in figures 3.3.1 and 3.3.2 are not directly comparable due to differing income definitions and population. The results in figure 3.3.2 are preliminary and cover only wages and transfers.

3.3.4. Data quality

It is important to note that the data shown for 2020 is based on personal wages and transfers subject to taxation only. Tax-free transfers (mainly Corona-check, housing- and family benefits), capital income and income for the self-employed are not included. Especially data on income for self-employed persons may significantly alter some of the overall conclusions, as small businesses in certain business sectors have been severely affected by lockdowns.

The uncertainty is also notable in 2019, where stock markets and growth in income for self-employed persons actually ended up ensuring slightly higher income growth for the overall population than for the bottom 40 per cent – despite the fact that the opposite was true when looking only at personal wages and transfers.

Furthermore the results in section 3.3.2 are based on equivalised net incomes, while section 3.3.3 results are based on personal gross incomes and only include wages and transfers. Thus, the results are not directly comparable and are still very uncertain.

3.4 CO2 emissions

3.4.1 General description of the topic and the underlying figures

The activities of the Danish economy result in emissions into the air. Attention is often focused on carbon dioxide (CO_2) and other greenhouse gasses. The emission of greenhouse gasses contributes to the greenhouse effect and global temperature increases. Greenhouse gas emissions come from energy consumption as well as from agriculture and industrial processes etc.

A complete set of statistics for Danish greenhouse gas emissions in 2020 is not yet available. However, the Danish Energy Agency has published tentative numbers for 2020 for a share of total emissions, namely the CO_2 emissions associated with energy consumption.

The tentative numbers in this section were published by the Danish Energy Agency in April 2021 (press release and data available: https://ens.dk/presse/stort-fald-i-energiforbrug-og-co2-udledning-i-2020).

Only CO2 emissions associated with energy consumption are included in the currently available data. The CO2 emissions from energy consumption are only a share of the total greenhouse gas emissions, which also includes emissions from agriculture and industrial processes etc. A complete set of statistics for Danish greenhouse gas emissions in 2020 will be published in 2022 by DCE – Danish Centre for Environment and Energy.

3.4.2 Situation/development in figures before the outbreak of COVID19

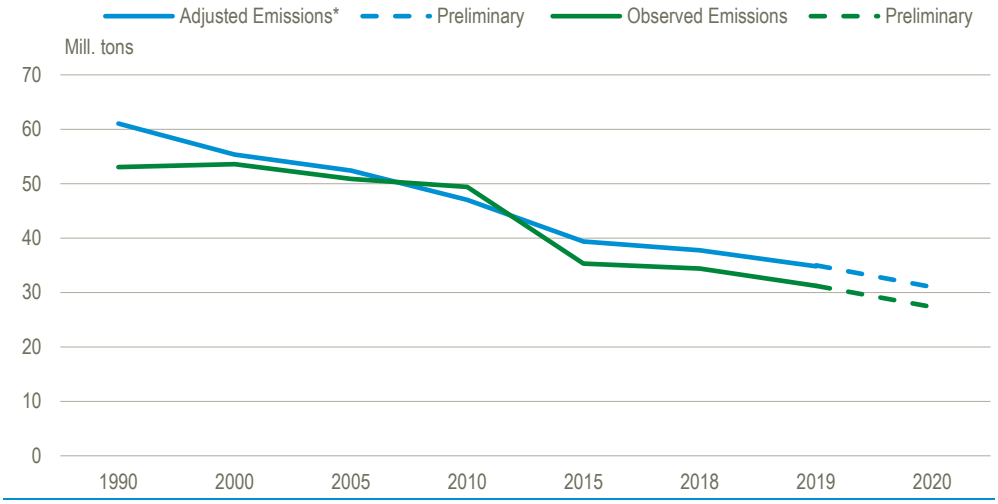
Emissions from Danish economic activities peaked in 2006 and declined every year after that until 2015. In 2016, emissions increased for the first time in a decade as a results of e.g. a cold winter and increasing activity in international transport operated by Danish companies. In 2019, emissions were 6 per cent above the 1990 level. Excluding the part of the Danish emissions that come from international transport, emissions had declined by 37 per cent since 1990. The emissions described are excluding emissions from burning biomass.

3.4.3 The development in 2020 and 2021

Figure bellows shows a large decrease in emissions derived from energy consumption, according to the first tentative estimates from the Danish Energy Agency. Adjusted for fuel consumption associated to net electricity imports and climate fluctuations, the CO2 emissions from energy consumption declined by 10.2 per cent compared to 2019.

The decrease in emissions from energy consumption can be explained by a large decline in use of fossil fuels such as oil, gas and coal. In particular, a large decline is seen in sales of fuel for air transport and other forms of transport in 2020. A part of the decline in fossil fuels can be explained by the COVID-19 pandemic.

Figure 3.4.1 **Development in emissions derived from energy consumption**



* The adjusted calculations concern the impacts of annual fluctuations in the temperature and fuel consumption linked to net electricity trade
Source: Danish Energy Agency.

3.4.4 Data quality

The figure is available from the Danish Energy Agency and is based on tentative energy statistics.

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