



ECONOMY AND LABOUR MARKET

GDP Monthly Estimate, Scotland

May 2021

21 July 2021

Gross Domestic Product (GDP) statistics measure the output of the economy in Scotland. These monthly estimates have been developed to help track the economic impact of the COVID-19 pandemic. These are designated as **experimental official statistics**. This means that they are still in development but have been released to enable their use at an early stage. All results are provisional and subject to relatively high levels of uncertainty.

Main Findings

Scotland's onshore GDP is estimated to have increased by 0.9% in May as restrictions continued to ease, but remains 2.7% below the pre-pandemic level in February 2020.

Services sector output grew by 1.1% in May, with increases in eleven of the fourteen subsectors. The largest contribution to growth was from accommodation and food services, as most parts of the country saw a further easing of restrictions during the month.

Output in the production sector increased by 0.7% overall, with increases in the electricity and gas supply and water and waste management subsectors offset by falls in mining and quarrying and manufacturing.

Output in the construction sector is estimated to have decreased by 0.8%, in line with the UK as a whole, but is 1.1% above its pre-pandemic level in February 2020.

Important Information About This Release

These results are provisional and likely to be revised in the coming months as data sources are updated and methods are further improved.

Estimates of monthly GDP growth are inherently more volatile than quarterly or annual growth. In normal times it would be sensible to concentrate on the smoother rolling quarterly growth rate (latest three months compared to previous three months). However, at this time, results in this release are mostly presented in terms of monthly growth rates, or the cumulative change compared to pre-pandemic levels in February 2020.

All results are seasonally adjusted and presented in real terms (adjusted to remove inflation), and relate to Scotland's onshore economy (which does not include offshore oil and gas extraction).

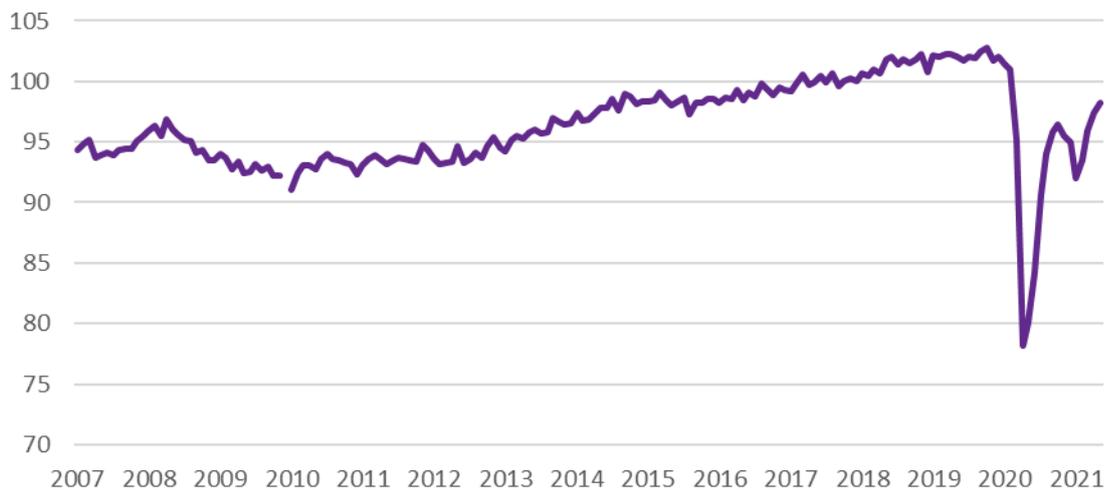
We are running a short [user survey](#) to get your views on our GDP and retail sales statistics and help us plan future development work. Further information can be found at www.gov.scot/gdp.

GDP increased by 0.9% in May, but remains 2.7% below pre-pandemic levels

Scotland's onshore GDP (which does not include offshore oil and gas extraction) is estimated to have increased by 0.9% in May, with growth across many sectors of the economy as restrictions continued to ease for most parts of the country during the month. This is the fourth consecutive monthly increase in GDP, after output reached its recent lowest point in January when the second lockdown period was extended across mainland Scotland.

In May, output remains 2.7% below the level in February 2020, prior to the direct impacts of the COVID-19 pandemic, but is now 1.9% higher than the previous high point in October before restrictions began to be applied in the autumn.

Monthly GDP Index, January 2007 to May 2021
Chained volume measure, 2017=100



Notes:

- (1) Monthly estimates begin in 2010. Results for 2007-2009 are an illustrative path based on quarterly GDP.
- (2) Users are advised to be mindful that the axis on this chart does not start at zero.

Since the start of the Covid-19 pandemic the path of Scotland's GDP has been broadly similar to the pattern seen across the UK as a whole, with [the latest ONS estimate of monthly GDP for the UK](#), published on 9 July, showing an increase of 0.8% in May and GDP remaining 3.1% below the level in February 2020.

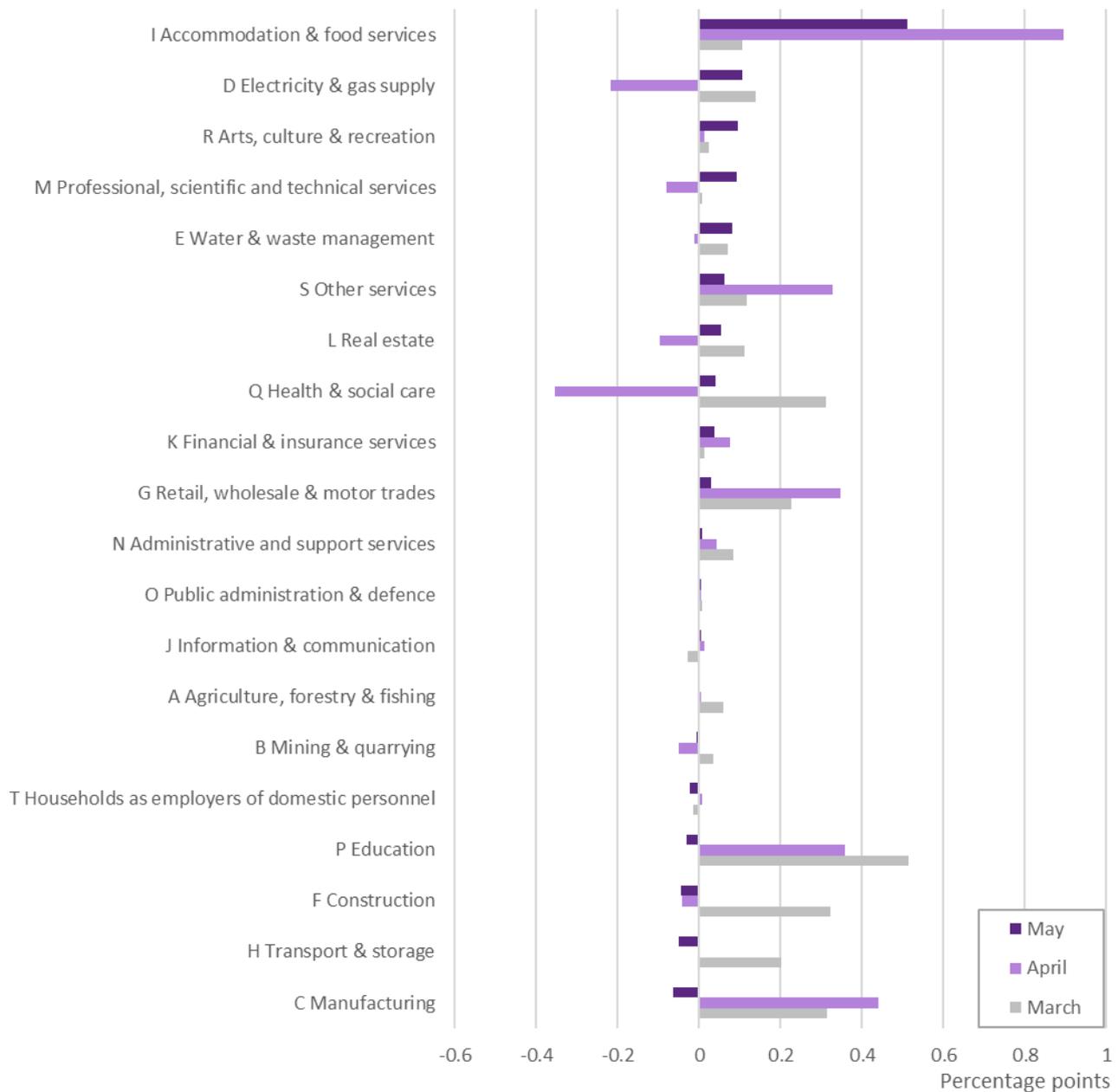
Since June 2020 there have been differences in the way restrictions have been applied across different parts of the UK, including the use of regional measures within Scotland. Accounting for these different restrictions and the timing of their application has presented a challenge for processing some of the business survey data used for GDP, especially where firms operate across different parts of the UK. For this reason, there are particularly high levels of statistical uncertainty in some of the estimates at this time, particularly in industries such as accommodation and food services where policy has varied widely over time and in different places. Users should be aware that revisions are likely to be made as more data become available over the coming months and quarters.

Accommodation & food services made the largest contribution to growth in May

In May, overall output in the services sector grew by 1.1%, with increases in eleven of the fourteen subsectors. The largest contribution to growth was from accommodation and food services for the second month in a row, due to the further easing of restrictions on trading in the hospitality sector with the move to Protection Level 2 across most of mainland Scotland.

Output in the production sector increased by 0.7% overall, with increases in the electricity and gas supply and water and waste management offset by falls in mining and quarrying and manufacturing. Output in the construction sector is estimated to have decreased by 0.8%, in line with the UK as a whole, but remains 1.1% above its pre-pandemic level in February 2020.

Contributions to GDP Monthly Growth: March 2021 to May 2021 Percentage points by SIC 2007 industry section



Production Sector

In the production sector, output is estimated to have increased by 0.7% overall in May, but remains 1.1% below the pre-pandemic level in February 2020.

In the latest month, output increased by 3.1% in the electricity and gas supply subsector following the end of maintenance work at large power stations. Output in this subsector is volatile from month to month, and remains 12% below pre-pandemic levels in the latest results. Output in the water and waste management subsector increased by 5.7% in May, and although it has been volatile over the winter is now 0.4% above pre-pandemic levels. Output in the mining and quarrying sector fell by 0.3% in May and remains 16.8% below February 2020 levels, mostly due to reduced demand for mining support services.

The largest part of the production sector is manufacturing, where output is estimated to have fallen by 0.6% in May, following very strong growth in March and April across a broad range of subsectors. Overall output in the manufacturing sector is estimated to be 3.9% above the level of February 2020. However, within the manufacturing sector there are wide variations between the trends seen in different industries, and the estimates can be quite volatile from month to month.

Most of the results for the production sector are estimated using monthly business survey data, or other monthly data sources such as electricity supply and demand. For many of the industries within the Production sector, results can be quite volatile from month to month even after accounting for regular seasonal variations.

Construction Sector

In the construction sector, total output is estimated to have fallen by 0.8% in May, in line with the UK as a whole. This follows a drop of 0.7% in April, but despite falling for the last two months construction output is still estimated to be back above the pre-pandemic level of February 2020 after strong growth of 2.6% in quarter 1 of 2021.

There is particular uncertainty in the estimates for construction sector output in Scotland at this time due to there being very limited short-term regional data on output in the industry. At present, provisional monthly output is estimated based on the results for Great Britain as a whole, and has been adjusted using data on the relative differences in uptake of the [Coronavirus Job Retention Scheme](#) and some data available from the Business Impact of Coronavirus Survey (BICS). These results will remain under review and be updated when any other relevant data becomes available.

Services Sector

Overall output in the services sector is estimated to have increased by 1.1% in May, but remains 3.3% below the level in February 2020 prior to the direct impacts of the COVID-19 pandemic.

The largest contribution to monthly growth was from the accommodation and food services subsector for the second month in a row, where output is provisionally estimated to have increased by 72.5% in April and a further 24.4% in May following the lifting of the stay at home restriction and phased easing of restrictions from April onwards. However, output is estimated to remain 27.6% below pre-pandemic levels, with ongoing restrictions on the sector still applying past the end of May.

In May there were smaller contributions to growth from the other consumer facing services sectors than in April, when there were high growth rates due to the easing of restrictions on businesses including non-essential retail and close contact personal services. Activity in the education sector is estimated to have contracted by 0.5% in May, after increasing strongly in previous months due to the resumption of in-school teaching, due to the increasing levels of COVID-related absence as the summer term progressed. The ONS has recently published [updated information on the treatment of education output for UK GDP](#), which is the approach followed in these estimates as well.

Estimates for much of the services sector are based on monthly business survey data, including the retail sales inquiry, or other monthly data sources including passenger transport information. Since June 2020, specific adjustments and checks have been required to account for the different timings of re-opening in Scotland compared to England and Wales, and the subsequent new restrictions introduced across parts of the UK from October onwards. The methodologies used for these adjustments remain under review and will be updated and extended as other industries fall into scope and more data become available.

Estimates for Public Administration & Defence, Education and Health are mostly based on annual data sources which are normally forecast smoothly for Quarterly GDP. Specific adjustments have been developed to reflect the impact of COVID-19 on the provision of some public services, such as lower levels of education activity due to school closures. For changes in health service activity, provisional adjustments have been made which are broadly in line with the estimates of monthly GDP for the UK as a whole, and will be reviewed and revised over time as more data becomes available. There was a particular methodology challenge for the education sector in accounting for the school holiday period in monthly seasonally adjusted terms, because of the shift from schools operating with most pupils at home before the holidays and then returning to normal after the holidays. Initial estimates have been made which spread the level shift of this re-opening smoothly over the course of the holidays.

The Scottish Government has used similar methods to ONS to ensure comparisons can be made within the UK, but ONS also note that [differences in the methods for estimating the output of health and education services](#) across different countries mean GDP may be less internationally comparable during the COVID-19 pandemic and recovery than usual, so should be made with increased caution.

Revisions

Revisions to previous estimates are detailed in Table R1 on the downloadable tables.

Quarterly results in this release are still constrained to the GDP First Quarterly Estimate for 2021 Quarter 1 and are unrevised from the previous release. The monthly path within the quarter is open for revision though.

The estimate of growth for April has been revised down from 2.0% to 1.6%, with most of the revision accounted for a revision to the ONS monthly estimates for UK health activity, which we use as our short term indicator for NHS activity in Scotland. After accounting for the monthly fluctuations, the rolling quarterly growth rate (3 month on 3 month) to April has been revised up by 0.1 percentage points.

About These Statistics

Gross Domestic Product (GDP) is the broadest summary measure of economic activity, covering the activities of households, businesses and government as both producers and consumers.

Changes in GDP for the whole economy are estimated using the output of each industry. Monthly estimates have been developed as a faster indicator of the changes in output to help monitor the economic impact of the COVID-19 pandemic and policies in place to curtail its spread. These are intended to assist with analysis of the economy, including short term modelling and forecasting.

Data Sources

The Scottish Government produces estimates of quarterly GDP growth for Scotland using data sources and methods which are very similar to those used by ONS for the UK as a whole.

A large proportion of the data used for quarterly GDP is built up from monthly information. We have developed new methods and systems to use these data for monthly estimates. At the same time, we are continuing to seek out additional data and information which help to provide better monthly estimates for the parts of the economy covered by other data sources.

We are grateful to the data suppliers across other Government departments, the ONS, and businesses which have been able to supply us with timely monthly data in addition to the regular quarterly data we receive.

Information on the data sources and methods used for quarterly GDP can be found [here](#). Information relating to the ongoing development of monthly GDP will be added in due course.

Methodology

Around 45% of GDP by weight is based on the Monthly Business Survey and Retail Sales Inquiry. These surveys collect turnover data from all large businesses and a sample of smaller firms across the manufacturing and services sectors.

For quarterly GDP, estimates for each industry are produced using stratified ratio estimation. This approach requires extensive data processing and quality assurance checks which take several weeks to complete each quarter.

For monthly GDP, a faster method was developed and used in releases up to February 2021, estimating growth for each industry using a dynamic panel of companies which are surveyed in consecutive months. From March 2021, stratified ratio estimates have also been used for the monthly GDP estimates based on the MBS and RSI. This methodology and the detection and treatment of outliers remains in development, and users may notice that historic estimates (2010-2019) include relatively high levels of month to month noise while these systems are being improved. All estimates are constrained to the more robust quarterly results for previous periods.

Around 7% of GDP by weight is based on other data sources which are specific to Scotland, such as volumes of output by industry or electricity generation. Most of these sources have already been supplied to us as monthly data, or have been supplemented by additional monthly information during the development of monthly GDP.

Around 30% of GDP by weight is usually based on quarterly forecasts from annual data sources for Scotland. This includes the activities of much of the public sector, such as civil service, education and health services, as well as other industries including agriculture, and the imputed rental of owner-occupiers.

The output of these industries is normally assumed to move smoothly over time, with little variation from trend, and it would be a trivial process to interpolate a monthly path instead of quarterly. However, at this time of widespread economic disruption, the forecasts for these industries must be reviewed for quarterly GDP as well as monthly. For example, adjustments are needed to account for changes in the provision of education via remote learning. Provisional adjustments have been made which are consistent with the approach adopted by ONS for the UK and explained [here](#), with similar adjustments made for consistency in health and other sectors.

Around 18% of GDP by weight is based on estimates which are derived as shares of UK output, using indicator data such as Scottish employment shares, or are simply modelled to grow in line with the same industry across the UK as a whole. For example, this includes industries such as financial services, where quarterly output in Scotland is estimated using an employment based regional model run by the Bank of England for ONS.

At present, where the data used to take a share of UK output are not available for the latest months, many of these industries are forecast to grow in line with the UK as a whole, consistent with the latest UK monthly GDP release.

For all industries where estimates are not based directly on monthly data for Scotland, we are continuing to investigate potential sources of new data or information which can be used to ensure that estimates of short term output are as accurate as possible. Updates will be applied when possible in future releases.

Accuracy and Reliability

In all economic statistics there is a trade-off between timeliness and accuracy. Early estimates are always provisional and are revised over time as more complete data become available.

It is not possible to assess the accuracy of monthly GDP growth rates because there are no “true” values to compare them with. However, the accuracy of the rolling quarterly growth rate (latest three months compared to previous three months) can be compared to the corresponding quarterly GDP growth rate to indicate how reliable the short term measures are over a horizon of three months – the farthest out that the monthly measures go without being constrained to Quarterly GDP.

Analysis of the estimates over the last five years (20 quarters to 2020 Q1) indicates that there has been an average absolute revision of around 0.2 percentage points between the provisional quarterly growth rate in monthly GDP and the corresponding estimate from quarterly GDP, with revisions slightly more likely to be down than up (-0.05%).

Under the current circumstances, with unprecedented changes in output, and data collection issues including falling sample sizes and response rates, it is likely that this margin of error will be higher over the course of the pandemic, and that measures of quarterly and annual GDP could also be revised considerably over time.

In normal times, these levels of revision might be considered too high to make the trade-off between timeliness and accuracy worthwhile. However, during the current economic crisis, and based on the forecast level of disruption which is expected to occur, we judge that there is public value in producing these estimates to help with the analysis, modelling and forecasting of output in Scotland.

An Experimental Statistics Publication for Scotland

Experimental statistics are a subset of newly developed or innovative official statistics undergoing evaluation. They are published to involve users and stakeholders in the assessment of their suitability and quality at an early stage.

The Office for Statistics Regulation publishes guidance on experimental statistics [here](#).

The Scottish Government is developing these estimates on an ongoing basis, and is grateful to the ONS, BEIS, and other departments and businesses which have assisted in the identification or delivery of earlier data sources which enable the timely production of monthly GDP.

We welcome any feedback on the development of these statistics, using the contact details below.

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