



ECONOMY AND LABOUR MARKET

GDP Monthly Estimate, Scotland

April 2020

17 June 2020

This is the first publication of monthly GDP statistics for Scotland, which have been developed to help track the economic impact of COVID-19 and to assist in the response.

These are designated as **experimental official statistics**, which 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 GDP is provisionally estimated to have fallen by 18.9% in real terms during April, after a fall of 5.0% in March. These results are very similar to the pattern seen across the UK as a whole, and reflect the direct economic impacts of the COVID-19 pandemic in Scotland during the first weeks and full month of the lockdown phase.
- The industries with the largest falls in output over the latest two months are those which have been required to close or where working at home is not possible. This includes Accommodation & Food Services (down 85% over two months) and Arts, Culture & Recreation Services (down 51% over two months).
- These results are provisional and likely to be revised in the coming months as data sources and methods are further improved. Any apparent differences between Scotland and the UK as a whole are within the likely margin of error and should not be interpreted as significant.

Important Information About This Release

Monthly GDP for Scotland has been produced using a combination of newly available data sources and by applying new methods to the existing data available for Scotland's Quarterly GDP statistics.

These statistics have been developed in a very short period of time to provide public value at the time of an emerging economic crisis. Users are asked to recognise that the results are provisional and will be revised when more data become available and methods have been further improved.

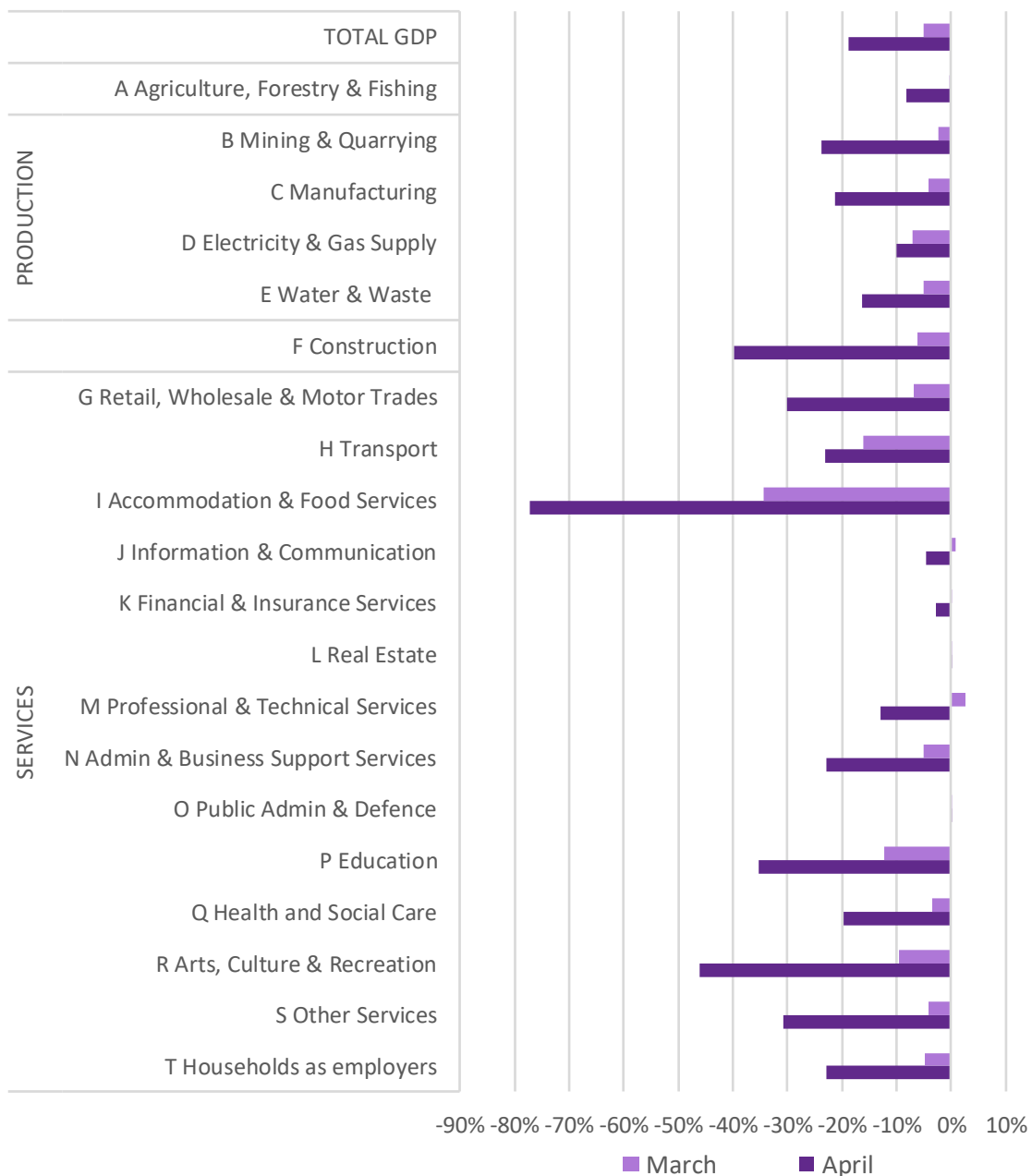
Estimates of monthly GDP growth are inherently more volatile than quarterly or annual growth. In normal times it would be sensible to concentrate on the smoother rolling quarterly growth rate (latest three months compared to previous three months). However, due to the exceptional economic circumstances at this time, all results in this release are presented in terms of monthly growth rates, or the cumulative change over the two months of March and April.

Scotland's GDP has fallen by 18.9% in the month of April

Scotland's onshore GDP (which does not include offshore oil and gas extraction) is provisionally estimated to have fallen by 18.9% in real terms during April, after a fall of 5.0% in March. These results are very similar to the pattern seen across the UK as a whole, [published by ONS on 12 June](#), and reflect the direct economic impact of the COVID-19 pandemic in Scotland during the first weeks and full month of the lockdown phase.

When viewed across the two months of March and April, the total fall in output since February is provisionally estimated as 23%, and output has fallen by an unprecedented amount in nearly every industry of the economy.

Output has fallen in March and April across most industries in Scotland percentage change month on month, by SIC 2007 industry section



Agriculture, Forestry & Fishing output is estimated to have fallen by 8% in April

Output in the Agriculture, Forestry and Fishing sector is estimated to have fallen by 8.1% in April, after a fall of 0.4% in March. The largest component of this fall is a sharp reduction in fish landings during April. Agricultural output is usually estimated based on forecasts from annual data, but has been adjusted to reflect reported reductions in production and demand for some products during the lockdown phase.

Production sector output is estimated to have fallen by 19% during April

In the production sector, output is estimated to have fallen by 18.8% in April, and by 4.6% in March. In the manufacturing sector, output is estimated to have fallen by 25% over the two months since February, and has fallen in most industries with the exception of the manufacture of pharmaceuticals and some chemical products. Most of the production sector is estimated using monthly business survey data, or other monthly data sources such as electricity supply and demand.

Construction output is estimated to have fallen by 40% in April, in line with the UK

In the construction sector, total output is estimated to have fallen by 39.8% in April, and by 6.2% in March. Construction output is estimated for quarterly GDP based on employment shares of output in Great Britain. At the present time there is no up to date employment data for Scotland in April, so monthly growth has been forecast from the latest quarter in line with the UK as a whole.

Services output is estimated to have fallen by nearly 18% in April

Overall output in the services sector is estimated to have fallen by 17.6% in April, after a fall of 5.0% in March. This is a total fall of 22% over the two months. Within services, there is a wide variation between industries, although output is down in all sectors except for Real Estate (which is mostly the imputed rental of owner-occupiers) and Public Administration & Defence.

The industries with the largest falls in output over the two months are those which have been required to close or where working at home is not possible. This includes Accommodation & Food Services (down 85% over two months) and Arts, Culture & Recreation Services (down 51% over two months). There are other subsectors showing similar falls, including the Travel Agency & Tour Operators industry (part of Administrative and Business Support Services). Within the Retail, Wholesale & Motor Trades sector, sharp falls in motor trades and non-food retail have been partially offset by growth in supermarkets and non-store retailers.

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. Output in financial services is estimated for quarterly GDP using regional banking estimates compiled for ONS by the Bank of England, but has been forecast in line with UK growth.

Estimates for Public Administration & Defence, Education and Health are mostly based on annual data sources which are forecast for Quarterly GDP as well. Specific adjustments are being developed for these industries to accurately reflect the impact of COVID-19 on the provision of public services. In the short term, provisional adjustments have been made in line with the estimates of monthly GDP for the UK as a whole.

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. This cannot feasibly be replicated on a monthly basis.

For monthly GDP, a faster method has been developed to provisionally estimate growth for each industry using a dynamic panel of companies which are surveyed in consecutive months. The methodology for this panel approach, for example to adjust the results so that smaller companies are appropriately weighted, remains in development and will be improved over time. 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 construction, where quarterly output in Scotland is estimated using an employment share of total UK output.

At present, where the data used to take a share of UK output are not available for the latest months, 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) 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, 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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