



An Experimental Statistics Publication for Scotland

ECONOMY AND LABOUR MARKET

GDP Monthly Estimate, Scotland

September 2020

25 November 2020

Gross Domestic Product (GDP) measures 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

In September, Scotland's GDP is provisionally estimated to have increased by 1.6% compared to August. This is the fifth consecutive month of increasing GDP, but output remains 7.6% below the level in February prior to the direct impacts of the COVID-19 pandemic.

In September there has been growth in all of the main sectors of the economy, but at a slower rate than seen over the summer months. Output in the services sector is estimated to have increased by 1.6% compared to August, production sector output increased by 1.4%, and construction sector output increased by 2.7%.

Using the experimental monthly statistics for Quarter 3 as a whole (July to September), GDP is provisionally estimated to have increased by 14.7%, after falling by a total of 22.0% across Quarters 1 and 2.

The Quarterly GDP First Estimate (national statistics) will be published on 16 December. Results for July to September will be revised when more detailed and comprehensive data are available at that time.

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, due to the exceptional economic circumstances at this time, results in this release are mostly presented in terms of monthly growth rates, or the cumulative change compared to February. In this release for September there are also provisional estimates in quarterly terms for Quarter 3 (July-September).



Scotland's GDP increased by 1.6% in September, but remains 7.6% below February

Scotland's onshore GDP (which does not include offshore oil and gas extraction) is provisionally estimated to have increased by 1.6% in real terms in September. This follows updated estimates of 2.6% growth in August, 6.9% in July, 6.3% in June and 2.4% in May, and falls of 19.3% in April and 5.6% in March.

When viewed across the period of the pandemic so far, output remains 7.6% below the level in February. At the lowest point in April, GDP is currently estimated to have fallen by 23.8% over two months. The unprecedented scale of this drop can be contrasted to the financial crisis and recession in 2008 and 2009, where GDP decreased by around 4% over the course of 18 months.

Monthly GDP Index, January 2007 to September 2020

Chained volume measure, 2016=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.

These results remain broadly similar to the pattern seen across the UK as a whole over the course of this year, [most recently updated by ONS on 12 November](#), with growth in September slowing down from the rates seen over the summer following the initial easing of restrictions after the initial lockdown period.

Between June and September there were some differences in the dates at which restrictions were eased between Scotland and other parts of the UK. In June, the main differences applied to non-essential retail. In July, August and September there were some differences between the dates for re-opening parts of the hospitality industry, personal services such as hairdressers, and other leisure and recreation businesses including gyms. The timing of the school holidays also differs between Scotland and the other parts of the UK, with pupils returning to school in mid-August. Accounting for these timings 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. The key dates for reopening during phase 3 in Scotland can be found [here](#). Looking ahead to the local and regional restrictions which have been introduced across the UK from October onwards, there will be further methodology challenges in the coming months.

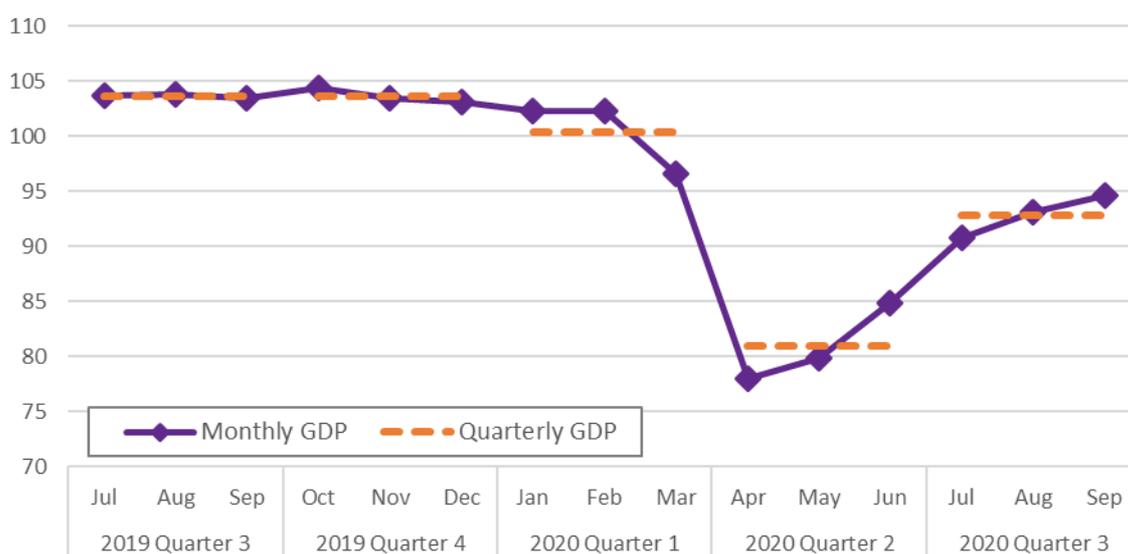
Quarterly GDP is provisionally estimated to have grown by 14.7% in Quarter 3

On a quarterly basis, comparing the whole of Quarter 3 (July-September) to Quarter 2 (April-June), GDP is provisionally estimated to have increased by 14.7%. This follows contractions of 19.4 in Quarter 2 and 3.2% in Quarter 1.

As seen in the monthly measure of GDP, there have been widespread increases across all the main sectors of the economy relative to Quarter 2. On the quarterly basis, output in agriculture, forestry and fishing increased by 3.1% compared to Quarter 2, production sector output increased by 14.7%, construction output is estimated to have increased by 58.0%, and services output increased by 12.7%. Further detail on these sectors is available in the following pages, and in the downloadable tables.

Comparison of Quarterly and Monthly GDP

Chained volume measure, 2016=100



Notes:

(1) Users are advised to be mindful that the axis on this chart does not start at zero.

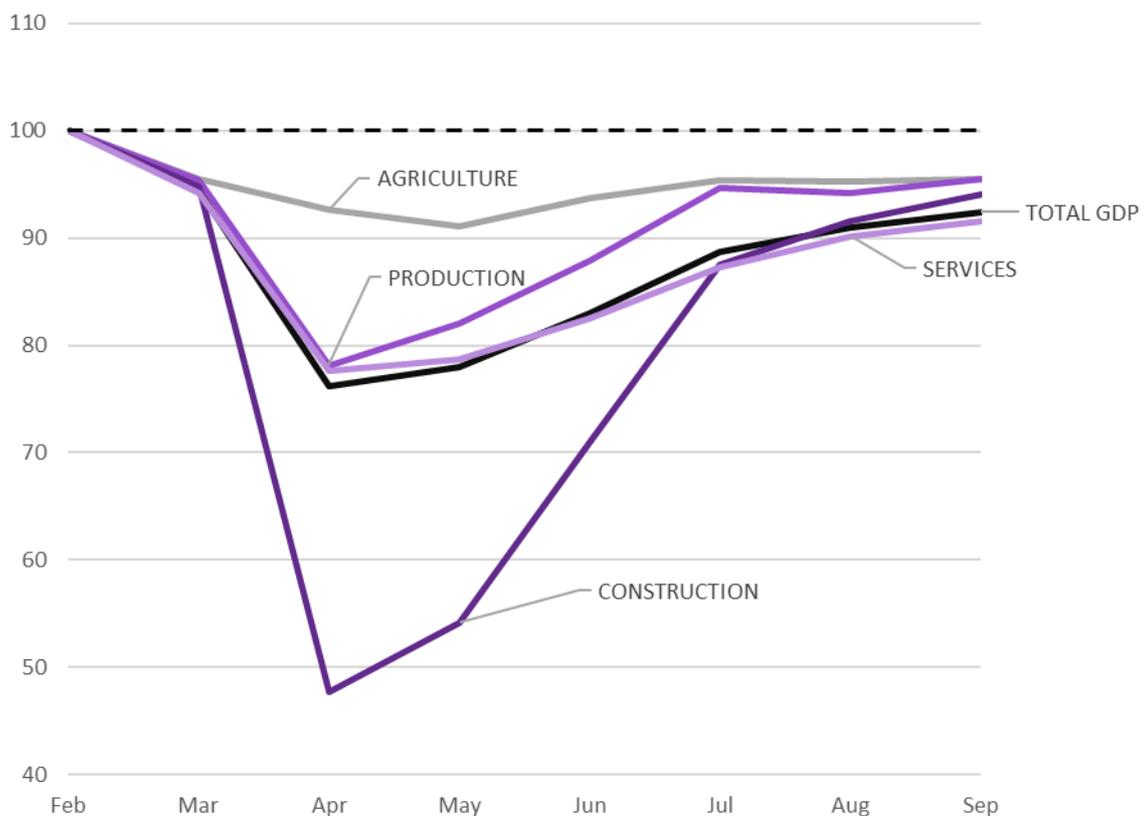
The results for quarterly GDP presented in this release are based on the monthly estimates and are experimental statistics. The Quarterly GDP First Estimate (national statistics) will be published on 16 December, and the results for all months in July to September may be revised at that time when the more detailed and comprehensive data are available.

Output grew in all main sectors of the economy during September

In September there has been growth in all of the main sectors of the economy, but at a slower rate than seen over the summer months.

Output in the services sector is estimated to have increased by 1.6% compared to July, but remains 8.4% below its level in February. Output in the production sector increased by 1.4% and remains 4.5% below its level in February, and Construction sector output is estimated to have increased by 2.7% in August, but remains 5.9% below its level in February. In September, output was estimated to have increased by 0.2% in the Agriculture sector, and remains 4.5% below February level.

GDP Monthly Estimates: February to September 2020
Index (February = 100) by SIC 2007 main industry sector



Further detail on the industry level estimates can be found on the following pages.

Agriculture, Forestry & Fishing

Output in the Agriculture, Forestry and Fishing sector is estimated to have increased by 0.2% in September. This follows a decrease of 0.1% in August and increases of 1.8% in July and 2.8% in June. Compared to February, total output in the sector remains down by 4.5%.

The largest component to change in this sector has been from data on fish landings, which dropped sharply during April and have picked up in subsequent months, but remain lower than pre-crisis levels. Agriculture and Forestry output is usually estimated based on smooth forecasts from annual data, but has been adjusted to reflect reported reductions in production and demand for some products during the lockdown phase.

Taken over the whole of Quarter 3 (July-September), output in the sector increased by 3.1% compared to Quarter 2.

Production

In the production sector, output is estimated to have increased by 1.4% in September, after a fall of 0.4% in August and increases of 7.8% in July, 7.0% in June and 5.0% in May. Output increased in three of the four main subsectors during September, and remains 4.5% down compared to February.

The largest part of the production sector is manufacturing, where output is estimated to have decreased by 0.2% in September, following a fall of 0.7% in August and increases of around 7-8% in each of the prior three months. Total manufacturing output remains 4.6% down from February.

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.

Taken over the whole of Quarter 3 (July-September), output in the production sector increased by 14.7% compared to Quarter 2, including growth of 14.1% in manufacturing.

Construction

In the construction sector, total output is estimated to have increased by 2.7% in September, after increasing by 4.7% in August, 23.2% in July, 31.0% in June and 13.5% in May. Construction output remains 5.9% down from February.

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, monthly output is estimated based on the results for Great Britain as a whole 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.

Taken over the whole of Quarter 3 (July-September), output in the construction sector increased by 58.0% compared to Quarter 2.

Services

Overall output in the services sector is estimated to have increased by 1.6% in September, after increasing by 3.3% in August, 5.8% in July, 4.9% in June and 1.4% in May. Compared to February, total output in the sector remains down by 8.4%.

Within services, there is a wide variation between industries, although since February output is down in all subsectors except for Real Estate (which is mostly the imputed rental of owner-occupiers) and Public Administration & Defence where output remains broadly flat each month. Most subsectors saw increased output during September, except for the accommodation and food services where output fell by 7.4% and remains 30.6% below February levels.

While some industries have recovered relatively close to their level of output in February, other sectors remain considerably below normal levels of output, reflecting the ongoing disruption to normal business activity and reduced demand from consumers.

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. In the last two months, specific adjustments and checks have been required to account for the different timings of re-opening in Scotland compared to England and Wales. The methodology used for these adjustments remains 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 the reductions in routine 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 is 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. In September school education had returned close to normal levels, with reported absence rates only slightly lower than average attendance figures from previous years. Combined with data for other education and training, output in the sector increased by a further 8.4% in September and is now estimated to be 4.8% below its February level.

Taken over the whole of Quarter 3 (July-September), output in the services sector increased by 12.7% compared to Quarter 2, with increased in all subsectors.

Revisions

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

Quarterly results in this release have been open for revision back to 2019 Quarter 1 in line with the latest GDP Quarterly National Accounts for 2020 Q2 published on 28 October, and all monthly estimates have been updated to be consistent with these figures.

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 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, 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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Complaints and suggestions

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