



An Experimental Statistics Publication for Scotland

## ECONOMY AND LABOUR MARKET

# GDP Monthly Estimate, Scotland

May 2020

17 July 2020

This is the second publication of monthly GDP statistics for Scotland, which have been developed to help track the economic impact of COVID-19. 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 increased by 1.5% in real terms during May, after falling by 18.9% in April and 5.5% in March. Despite the increase in May, GDP remains 22.1% below the level in February, prior to the lockdown measures which were introduced in March.
- After output fell in nearly every industry during April, the results for May are more mixed. Some parts of the economy are estimated to have seen a pickup in activity as firms and consumers adapted to physical distancing and some people returned to work. However, other industries across the services sector experienced further falls in output.

### Important Information About This Release

These results are provisional and likely to be revised in the coming months as data sources and methods are further improved. Revisions are particularly likely to be made when the more comprehensive data sources for quarterly GDP become available in August and September.

The estimates for March to May are broadly similar to the pattern seen across the UK as a whole, which reflects the similar lockdown measures in place at these times. Any apparent differences are within the likely margin of error at this time and should not be interpreted as significant.

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 over the three months of March to May.

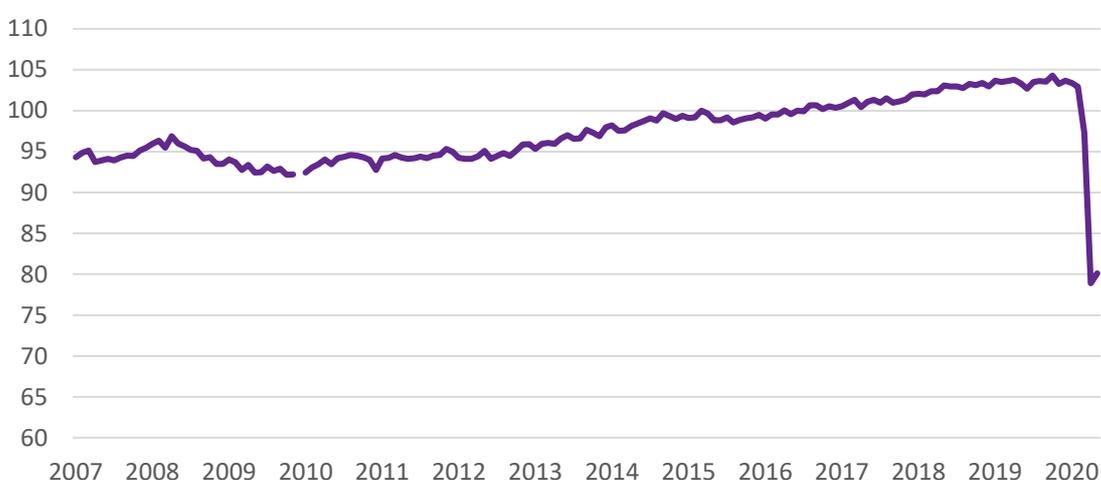
## Scotland's GDP increased by 1.5% in the month of May, but remains 22.1% below February.

Scotland's onshore GDP (which does not include offshore oil and gas extraction) is provisionally estimated to have increased by 1.5% in real terms during May, after falling by 18.9% in April and 5.5% in March.

When viewed across the three months of March to May, output remains 22.1% below the level in February, prior to lockdown measures which were introduced in March. The unprecedented nature of this drop in output 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 May 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.

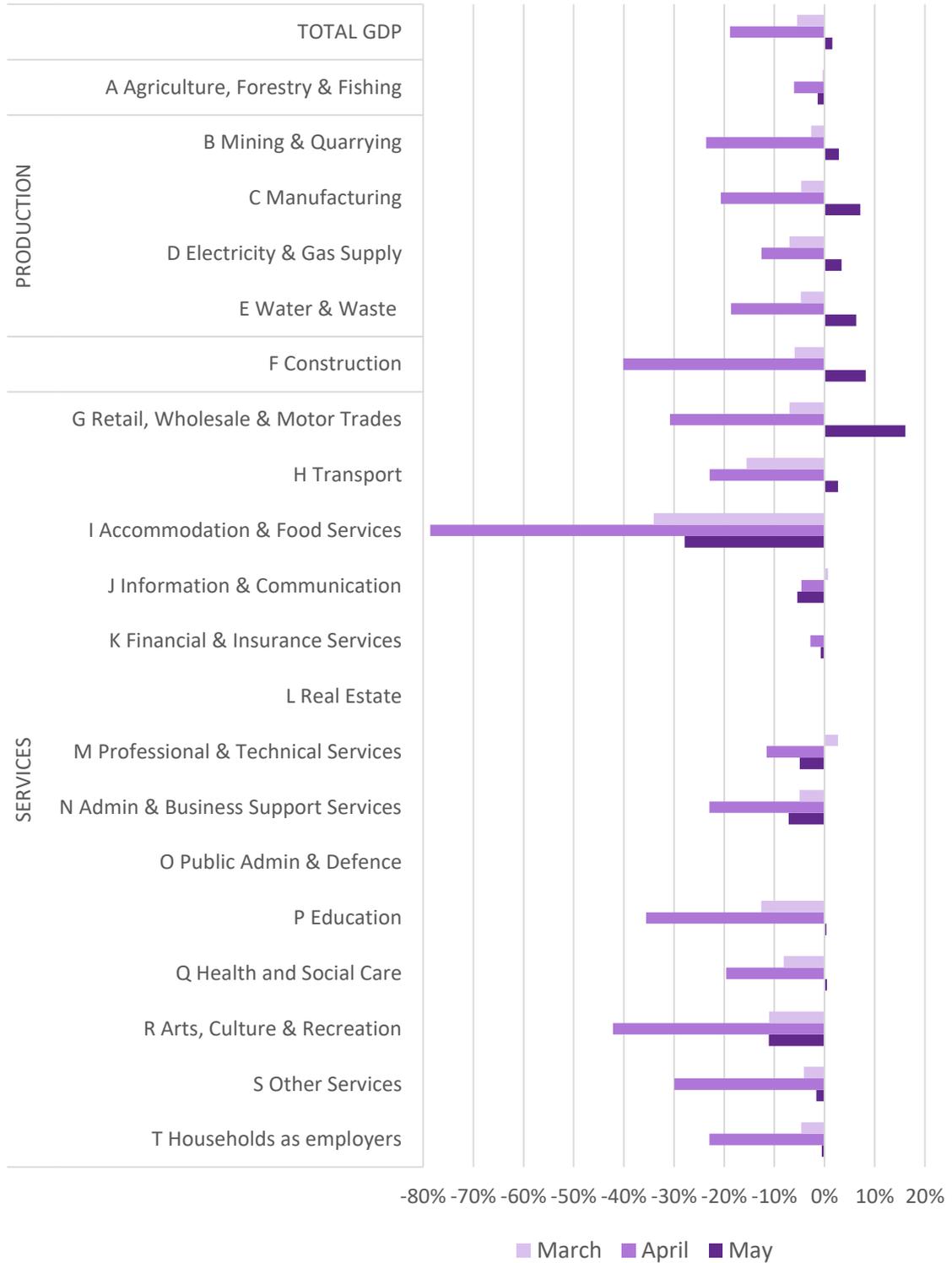
These results are broadly similar to the pattern seen across the UK as a whole, [published by ONS on 14 July](#), and reflect the direct economic impact of the COVID-19 pandemic and the reduction in economic activity during the first few months of the lockdown phase.

After output fell in nearly every industry during March and April, the results for May are more mixed. Some parts of the economy are estimated to have seen a pickup in activity as firms and consumers adapted to physical distancing requirements, including some people returning to work. This can be seen in the manufacturing and wider production sectors, and in Retail & Wholesale and Transport services. However, many of the other industries across the services sector experienced further falls in output or remained unchanged at low levels due to the ongoing lockdown and wider impacts on activity. More detailed results by industry are described below.

On a rolling quarterly basis, comparing the three months March-May to December-February, GDP fell by 17.3%. This smoother measure of growth demonstrates the sharp slowdown from the fall of 2.5% in Quarter 1 (January-March), which is mostly due to the large monthly fall in April. Users should note that the next monthly estimates, for June, will also provide a provisional estimate for Quarter 2 (April-June).

Output has increased marginally in May, with increases in some industries offset by further falls or unchanged output across the Services sector

**GDP Monthly Estimates: March to May 2020**  
percentage change month on month, by SIC 2007 industry section



## **Agriculture, Forestry & Fishing output has fallen by 7.7% since February**

Output in the Agriculture, Forestry and Fishing sector is estimated to have fallen by a further 1.3% in May, after falling 6.0% in April and 0.4% in March.

The largest component to changing monthly growth in this sector has been a sharp reduction in fish landings during April, which picked up a bit in May but remain subdued. Agricultural 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.

## **Production sector output has fallen by 18.7 since February**

In the production sector, output is estimated to have increased by 5.7% overall in May, after falling by 19.1% in April and by 4.9% in March. Output increased in all four production subsectors during May, but remains a long way below normal levels.

In the dominant manufacturing sector, output is estimated to have increased by 7.1% during May, reflecting a pickup across many parts of the industry as producers adapted to physical distancing requirements. In this release we have added more detailed breakdowns of manufacturing industries in the tables. This shows that the hardest hit part of manufacturing is estimated to be the Textiles, Wearing Apparel and Leather Products sector, where, despite a strong rebound in May, output is still estimated to be nearly 34% down compared to February. The most resilient subsector has been Chemical, Pharmaceutical & Refined Petroleum Products, where output is down 3.5% compared to February, but still remains up over the year.

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 39.0% since February**

Users should note that there is particular uncertainty in the estimates for construction sector output in Scotland at this time. There are no monthly data sources for regional construction output, so short term changes are currently being forecast to move in line with the UK as a whole.

In the construction sector, total output is estimated to have increased by 8.2% in May, after falling by 40.1% in April and 6.0% in March. The ONS has noted that growth in May reflects a limited increase in activity, though not equally across all construction sectors and all UK regions.

We are continuing to investigate other data sources, such as the ONS Business Impact of Coronavirus Survey (BICS), which may enable us to improve these short term estimates to reflect any different trends in Scotland relative to the UK as a whole, and users should expect revisions to the estimates for Scotland in future releases as more data becomes available.

## **Services output is estimated to have fallen by 21.9% since February**

Overall output in the services sector is estimated to have increased by 0.3% in May, after falling by 17.5% in April and 5.7% in March. Within services, there is a wide variation between industries, although since February 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 three months are those which have been required to close or where working at home is not possible. This includes Accommodation & Food Services (down 89.8% over three months) and Arts, Culture & Recreation Services (down 54.3% over three months). There are other subsectors showing similar falls, including the Travel Agency & Tour Operators industry (part of Administrative and Business Support Services).

In May, output picked up in Retail, Wholesale & Motor Trades sector due to increased activity by garages, supermarkets, non-store retailers and some wholesalers. ONS has noted a sharp increase in online sales by retailers, although the overall output of non-food retailers remains at a low level. Parts of the Transport & Storage sector also saw growth in the month, reflecting strong demand for services such as post and courier activities, although demand for public transport remained at low levels. In this release, more detailed industry breakdowns of the Wholesale, Retail & Motor Trades sector have been provided in the tables, similar to the level of detail in the Monthly Business Turnover Index.

Across the rest of the Services sectors, output either remained broadly unchanged from April, or fell further as the impacts of the lockdown continued to effect business activity.

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.

Some parts of services are estimated to grow in line with the UK as a whole in the short term. For example, 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 monthly in line with UK growth.

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 are being developed for these industries to accurately reflect the impact of COVID-19 on the provision of public services, such as lower levels of education activity due to school closures and reductions in routine health service activity. In the short term, 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.

## Next Release

The Monthly GDP Estimate for June 2020 is planned for Wednesday 19 August.

Results in this release will be revised to be consistent with the updated estimate for Quarter 1 (January to March) published in the GDP Quarterly National Accounts on 29 July.

## 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.

## Correspondence and enquiries

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## Complaints and suggestions

If you are not satisfied with our service or have any comments or suggestions, please write to the Chief Statistician, St Andrew's House, Edinburgh, EH1 3DG, Telephone: (0131) 244 0302, e-mail [statistics.enquiries@gov.scot](mailto:statistics.enquiries@gov.scot).

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