NIESR
Monthly GDP Tracker

GDP Growth Surprises at 0.2 per cent in Q2

Paula Bejarano Carbo

11th August 2023

"Today's data indicate that GDP grew by 0.5 per cent in June relative to May, driven partially by a weaker May performance due to the extra bank holiday and a strong rebound in production output in June. Further, GDP grew by 0.2 per cent in the second quarter of 2023, as production and construction output grew strongly enough in June to pull the whole quarter ahead. Both figures represent positive surprises to GDP, despite the downside risks that high inflation and interest rates pose to economic growth. These data are in line with our recent UK Economic Outlook forecast in which, despite risks being tilted to the downside, we expect the UK to avoid a recession both this year and next."

Paula Bejarano Carbo

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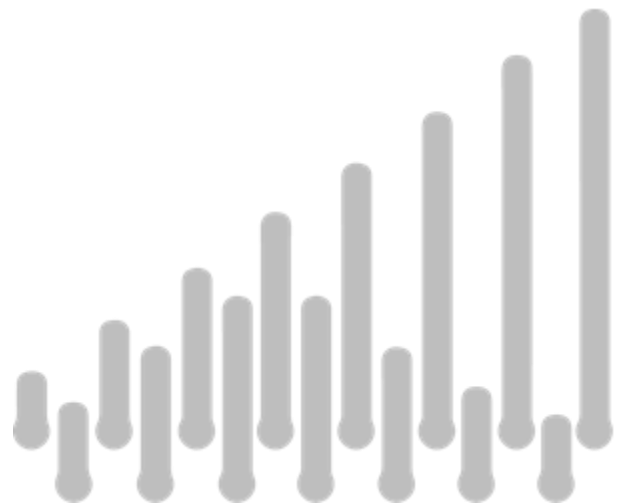
Main points

- Monthly GDP grew by 0.5 per cent in June following a contraction in growth by 0.1 per cent in May. This monthly figure was driven both by a weaker-than-normal May performance due to the extra bank holiday, as well as stronger-than-expected growth in production and construction.

- GDP grew by 0.2 per cent in the second quarter of 2023 relative to the previous quarter, higher than we had forecast last month. However, as shown in figure 1 below, the economy has largely flatlined following the initial stages of post-pandemic recovery; today's monthly GDP is estimated to be only 0.8 per cent above its pre-pandemic (February 2020) level.

- Our early forecast for the third quarter of 2023 expects GDP to grow by 0.3 per cent, remaining broadly consistent with the longer-term trend of low, but stable, economic growth in the United Kingdom. That said, as persistently high inflation continues to squeeze household budgets, alongside the effects of the high cost of borrowing, demand will be curbed in the near term. As a result, service-sector output in particular may falter and drag down on GDP in the coming months. The risks to GDP at the moment thus continue to be skewed downside.

- For a complete forecast of the UK economy, please see our UK Economic Outlook, published earlier this week.

Figure 1 - UK GDP
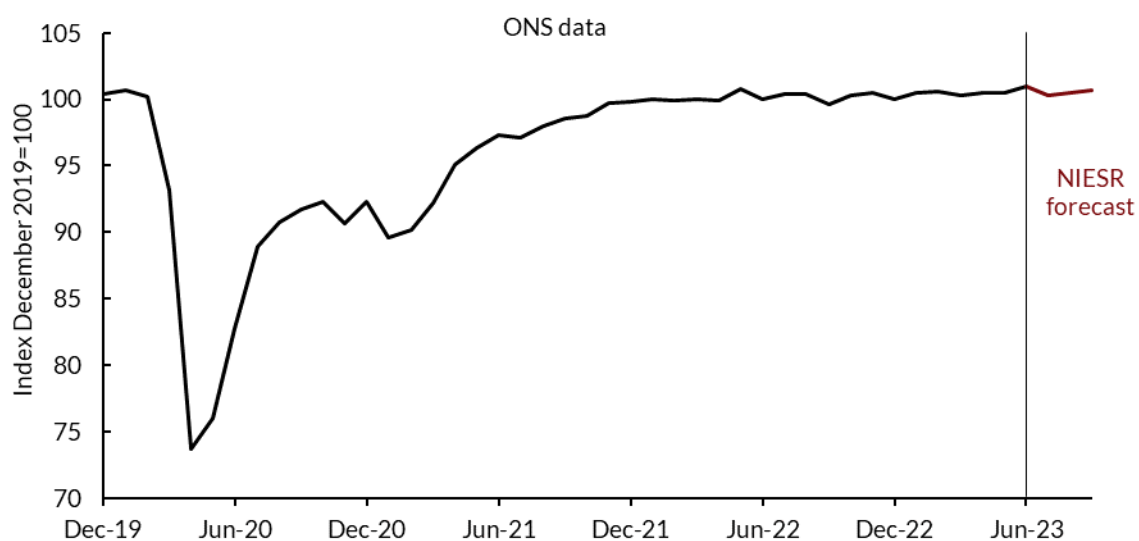
Economic setting

In our previous GDP tracker, published on 13 July, we observed that monthly GDP fell by 0.1 per cent in May following growth of 0.2 per cent in April, driven by a fall in production output and no growth in the services sector. We estimated GDP to have flatlined in the second quarter of this year, though acknowledged that high inflation and borrowing costs jointly skewed risks to GDP to the downside.

Today's data suggest that monthly GDP grew by 0.5 per cent in June, driven both by a weaker-than-normal May performance due to the extra bank holiday, as well as stronger-than-expected growth in production and construction. As a result of these positive surprises to June data, the quarterly data has also come out stronger than expected: GDP grew by 0.2 per cent in the second quarter of this year, compared to our forecast of no growth. That said, it remains the case that the economy has largely flatlined since the initial stages of post-pandemic recovery, given that today's monthly GDP is estimated to be only 0.8 per cent above its pre-pandemic level.

Earlier this week, we published our Summer UK Economic Outlook. We noted that quarterly real personal disposable income, consumption and GDP all remain below their pre-Covid peaks and the outlook for GDP growth remains subdued, consistent with the longer-term trend of low economic growth in the United Kingdom. Our forecast expects GDP growth in this year and next of 0.4 and 0.3 per cent respectively. Further, we believe that the risks to economic growth are firmly on the downside; in fact, our forecast suggests that there is a greater than 50 per cent chance that annual GDP growth in 2024 will be negative. The main downside risk to GDP is inflation remaining higher than expected, which would stall growth by putting further pressure on household and firm budgets and raising borrowing costs.

Given today's data, our tracker model's early forecast for the third quarter of 2023 sees GDP growing by 0.3 per cent, remaining broadly consistent with the longer-term trend of low, but stable, economic growth in the United Kingdom. That said, as persistently high inflation continues to squeeze household budgets, alongside the effects of the high cost of borrowing, demand will be curbed in the near term. As a result, service-sector output in particular may falter and drag down on GDP in the coming months. The risks to GDP at the moment thus continue to be skewed downside.

To further contextualise our forecast for the third quarter of 2023, figure 2 compares spending and hiring indicators to pre-pandemic levels, while figure 3 records recent trends in PMIs. High frequency spending and hiring indicators have remained broadly stable throughout 2023, though our housing indicator has seen more volatility than in previous years, possibly due to the effects of the current monetary tightening cycle on the housing market. It is notable that credit and debit card spending has remained close to pre-pandemic levels throughout 2023, despite the cost-of-living crisis and uncertain economic outlook. This supports our view that high consumer spending has been keeping the economy afloat for the majority of 2023. That said, figure 3 illustrates a decline in services sector activity since April, while the manufacturing sector has remained below the neutral 50 for a year. Taken together, these two figures suggest that the economic outlook will remain one of low but stable growth in the third quarter of 2023.

Figure 2 – Spending and hiring indicators (weekly indices)
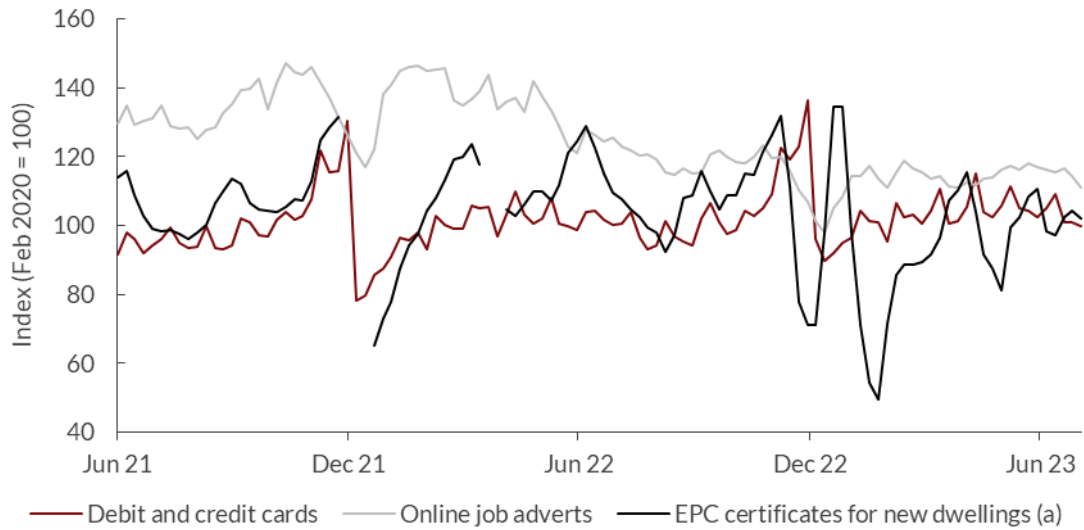
Notes: (a) England and Wales. Debit and credit cards (CHAPSbased): Index February 2020 = 100, a backward looking seven-day rolling average, non-seasonally adjusted, nominal prices. Job adverts: Index February 2020 = 100, weekly average. EPC certificates: Index February 2020 = 100, four–week rolling average, adjusted for timing of holidays.

Source: ONS, BoE, Adzuna, MHCLG, NIESR.

Figure 3 – Recent trends in PMIs
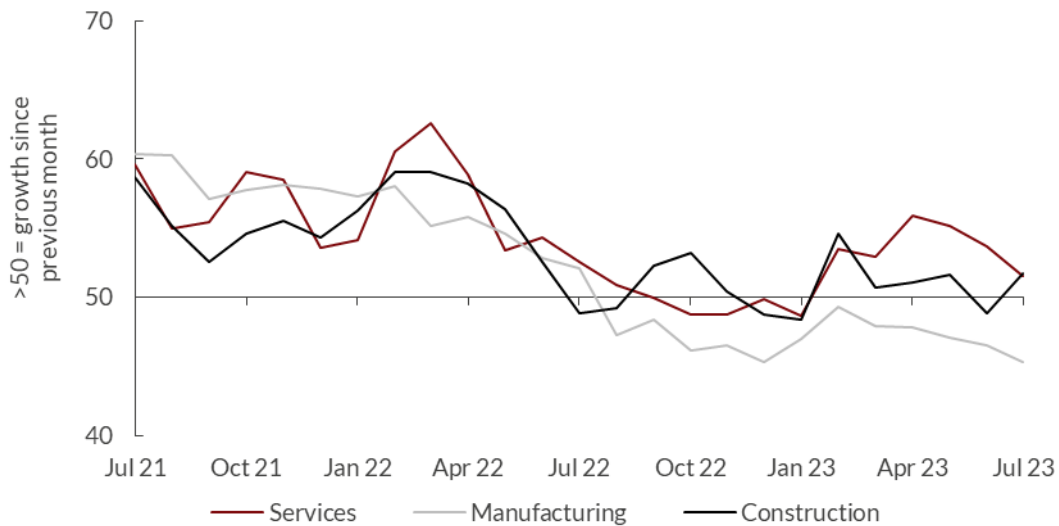
Sources: Refinitiv Datastream, S&P

News in latest ONS data

The monthly GDP data for June were better than we were expecting in July, growing by 0.5 per cent rather than remaining flat. GDP grew by 0.2 per cent the second quarter of the year, higher than previous forecast of no growth.

Figure 4 – UK GDP growth (3 months on previous 3 months, per cent)

Figure 5 shows a heat map of the data surprises across sectors in the monthly data, relative to last month's GDP Tracker, highlighting the sectors where the surprises are large relative to the volatility of the output data.

Figure 5 – Surprises in monthly data

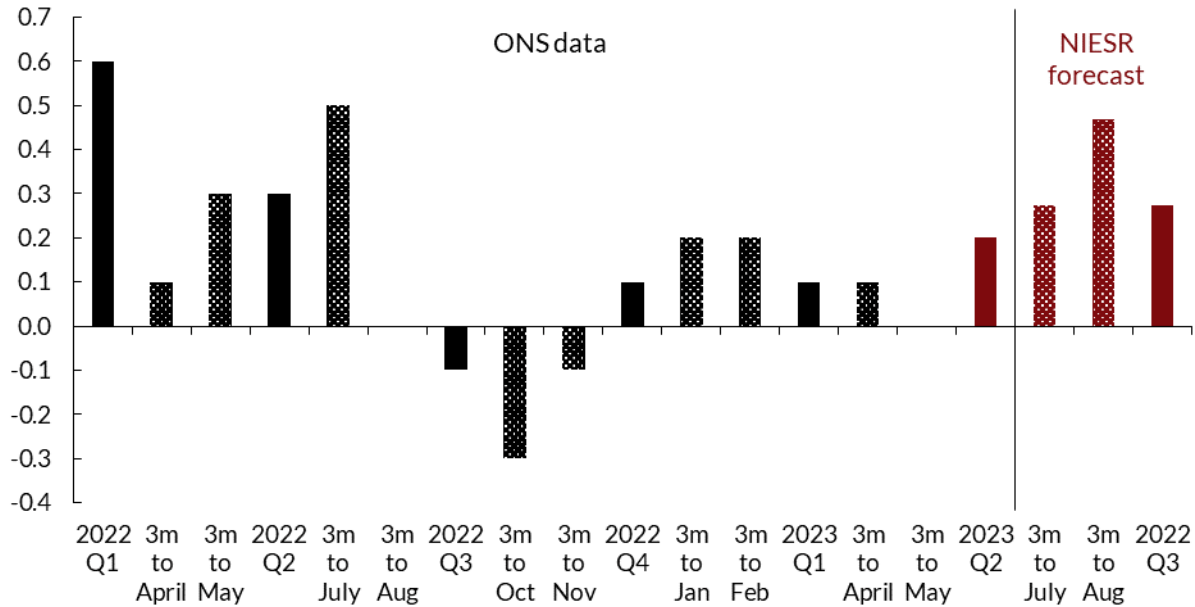|	05/22	06/22	07/22	08/22	09/22	10/22	11/22	12/22	01/23	02/23	03/23	04/23	05/23	06/23
Business services and finance	0.4	-0.4	0.0	-0.1	-0.4	0.2	0.1	0.5	-0.1	-0.3	0.0	-0.1	-0.5	-0.2
Government	0.1	0.0	0.3	-0.5	0.0	0.0	0.0	-0.9	0.4	0.0	0.0	-0.1	0.3	0.0
Distribution , Hotels and Restaurants	-0.1	0.2	0.0	0.1	-0.4	0.3	0.3	0.1	0.1	0.2	-0.2	0.2	-0.1	0.2
Transport, Storage and Communication	0.2	-0.4	0.0	0.0	-0.6	0.1	0.0	-0.3	0.3	-0.2	-0.2	0.0	0.0	0.2
Manufacturing	0.1	-0.5	-0.7	-0.7	0.0	0.3	0.1	0.1	0.1	0.1	0.3	-0.1	0.0	0.7
Electricity	1.2	1.1	-0.1	-0.5	0.0	-1.1	-0.7	0.4	0.1	-0.4	1.0	0.3	-0.2	0.2
Extraction	0.4	-0.4	0.5	-1.3	-0.1	-0.3	0.7	-0.7	-0.6	0.2	-0.8	-0.3	-0.1	-0.5
Water Supply, Sewerage, Waste Management	-0.4	0.6	-1.8	-0.4	-0.2	-1.4	-0.2	0.2	0.1	-0.8	2.0	-0.1	-1.1	0.9
Construction	0.2	-0.2	0.0	0.1	0.0	0.1	0.0	0.3	-0.4	0.5	-0.5	-0.1	-0.1	0.4
Agriculture	0.0	-0.1	-0.2	-0.2	-0.1	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

← below expectation   above expectation →

-3   -1   0   1   2

Note: Cells show forecast errors as a fraction of the standard deviation of errors for each series.

For more information on our forecast estimates relative to ONS data, please see the 'Health Warning' section below.

Sectoral detail

We forecast GDP to grow by 0.3 in the third quarter of this year. As seen in Figure 6 below, we expect to see a fall in production output offset by increases in all other sectors.

Figure 6 - Contributions to quarterly GDP growth (percentage points)
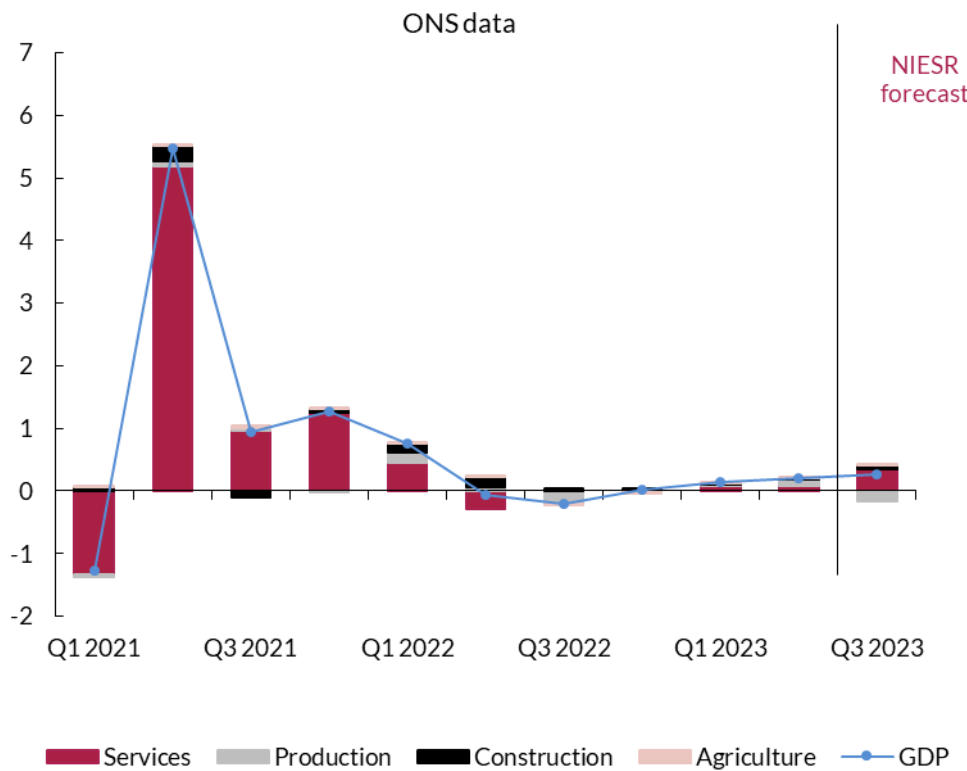
Services (80 per cent of GDP)

The survey balances point to a fifth consecutive month of increasing business activity in the services sector, though by its softest rate in this streak, as shown by the survey indicators in figures 3 and 7. The S&P Global/CIPS UK Services PMI reported a balance of 51.5 in July, down from 53.7 in June. High interest rates and inflation were often cited by survey respondents as the causes behind this loss in momentum in service sector growth. Despite these signs of weakening demand, the rate of prices-charged inflation increased in July relative to June as surveyed businesses noted that higher wages and supply chain disruptions were offsetting the impact of lower fuel costs.

Based on recent developments we forecast UK service sector activity grow by 0.4 per cent in the third quarter of 2023 relative to the previous quarter.

Figure 7 - ONS service sector growth (3 months on previous 3 months, per cent) compared with swathe of business survey balances (standardised)

Survey range (LHS)
ONS services output
● Forecast (Percentage change, 3 months on previous 3 months)
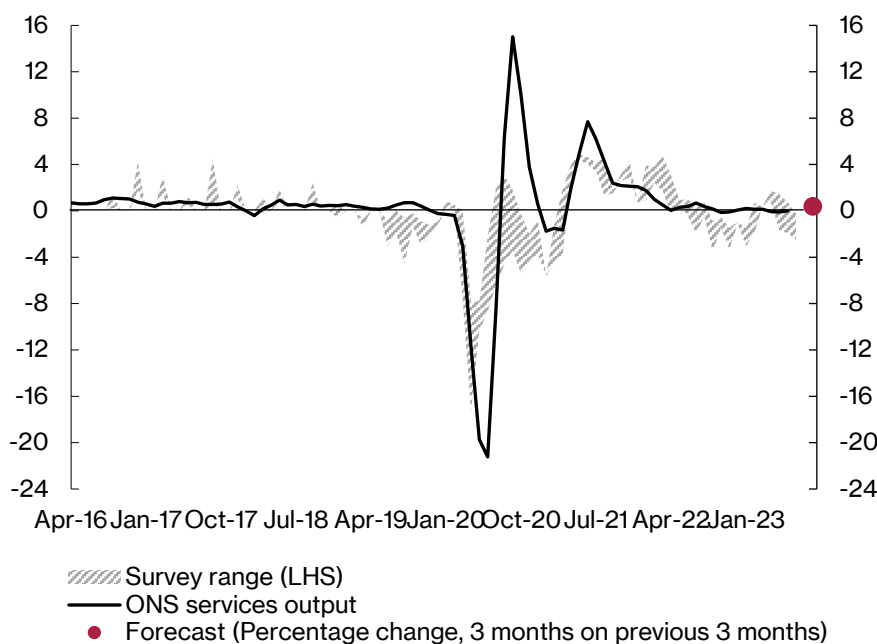
Note: The shaded swathe shows the highest and lowest values each month of a range of business survey balances that have been standardised so that they have the same mean and standard deviation as the quarterly growth of the ONS series.
Source: ONS, CBI, Markit, Bank of England Agents, EC, NIESR calculations.

Construction (6 per cent of GDP)

The S&P Global/CIPS UK Construction PMI survey registered an increase to a 5-month high of 51.7 in July from to 48.9 in June. Nonetheless, decreasing activity in house building (generated by high interest rates) continues to weigh down on this sector.

Our forecast for the third quarter of 2023 sees this sector growing by 1.1 per cent relative to the second quarter of 2023.

Production (14 per cent of GDP)

We forecast production sector output to contract by 1.1 per cent in the third quarter of 2023, though output in this sector is volatile and difficult to predict with accuracy on a quarterly basis. The production sector comprises of: manufacturing; mining and quarrying (which includes oil and gas extraction); electricity, gas, steam and air conditioning; and water supply and sewerage. The largest of these sectors are manufacturing, accounting for 10 per cent of GDP, and mining and quarrying, accounting for 1 per cent of GDP.

Manufacturing

The S&P Global/CIPS UK manufacturing PMI posted 45.3 in July, down from 46.5 in June–representing the 12th consecutive month this sector has contracted. This sustained decline has been driven by a continuing combination of weakened domestic and export demand, eroding consumer confidence, Brexit-related trade difficulties, and a preference for reduced inventory holdings (as a cashflow-improving measure). That said, 53 per cent of respondents forecast growth over the coming 12 months.

Our forecast for the third quarter of 2023 sees output growing by 0.4 per cent in this sector.

The S&P Global/CIPS UK Composite PMI – which combines comparable services and manufacturing indices – fell to 50.8 in July from 52.8 in June. It seems that the rebound in private sector output that took place in early 2023 may be starting to dwindle down.

Mining and quarrying

Mining and quarrying (extraction) is a small but erratic component of industrial production that can have an influence on overall GDP growth. We forecast a contraction of 1.8 per cent in this sector in the third quarter of 2023.

Figure 8 - ONS manufacturing sector growth (3 months on previous 3 months, per cent) compared with swathe of business survey balances (standardised)
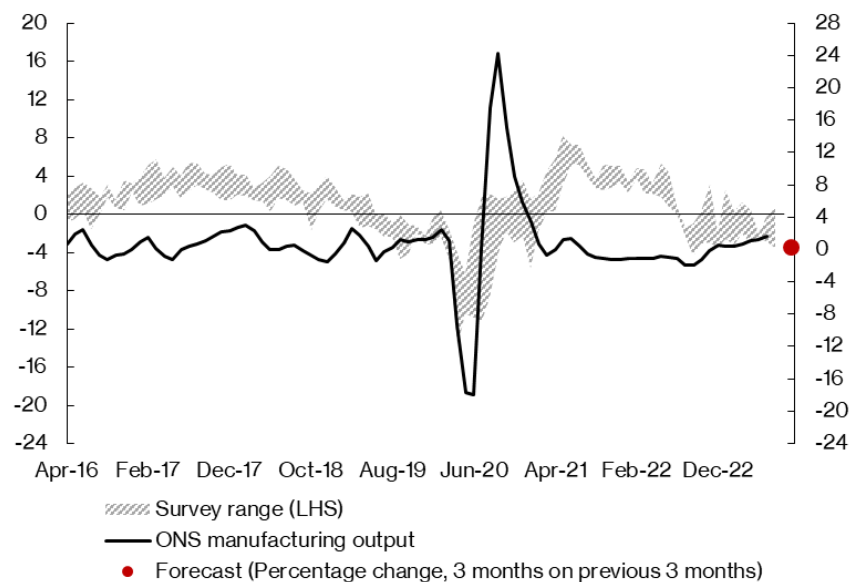
Note: The shaded swathe shows the highest and lowest values each month of a range of business survey balances that have been standardised so that they have the same mean and standard deviation as the quarterly growth of the ONS series.
Source: ONS, CBI, Markit, Bank of England Agents, EC, NIESR calculations.

Table 1 - Summary Table of GDP growth (2019=100)

2019=100	GDP index	Index of Services	Index of Services - Components				Index of Production	Index of Production - Components				Index of Construction	Agriculture
			Business services and finance	Government and other services	Distribution, Hotels and Restaurants	Transport, Storage and Communications		Manufacturing	Electricity, gas, steam and air conditioning	Mining and Quarrying	Water Supply, Sewerage and Waste Management		
Latest weights	1000	796	338	220	134	103	135	102	15	6	13	62	7
May-22	100.8	99.4	105.3	95.3	88.3	103.5	106.7	106.9	112.5	88.5	114.6	105.5	106.0
Jun-22	100.0	98.8	104.6	94.5	88.1	102.9	105.6	105.5	111.5	86.2	116.4	102.8	106.1
Jul-22	100.4	99.3	104.8	95.2	88.4	104.0	105.2	104.9	110.9	91.3	113.4	104.0	106.2
Aug-22	100.4	99.4	105.0	95.3	87.7	105.3	103.9	104.0	110.2	83.8	113.7	104.6	106.0
Sep-22	99.7	98.5	104.2	94.9	86.3	102.9	104.0	104.0	110.0	84.6	114.2	104.5	105.4
Oct-22	100.4	99.2	104.7	95.8	87.7	103.2	104.4	105.2	106.7	84.4	112.8	105.2	105.5
Nov-22	100.5	99.5	104.9	95.4	87.9	104.8	104.4	104.6	106.7	86.7	115.1	105.5	105.3
Dec-22	100.0	98.7	105.4	93.2	87.7	103.7	104.6	104.6	110.7	82.3	115.9	106.3	105.3
Jan-23	100.5	99.5	105.3	94.7	88.3	104.8	104.4	104.4	108.6	79.5	115.2	104.4	105.3
Feb-23	100.5	99.4	105.7	94.1	88.1	104.6	104.3	104.3	106.4	81.3	113.8	107.1	105.4
Mar-23	100.3	98.9	105.5	94.1	87.2	103.6	105.1	105.1	109.2	78.9	116.1	106.9	105.4
Apr-23	100.5	99.3	105.0	93.9	88.3	104.6	105.2	105.2	110.2	76.8	113.8	106.1	105.5
May-23	100.4	99.3	105.0	95.0	87.8	104.7	104.5	104.5	107.0	77.1	111.3	105.8	105.5
Jun-23	101.0	99.5	105.0	94.9	88.9	105.5	106.4	106.4	107.0	75.5	113.5	107.5	105.6
Jul-23	100.7	99.6	105.3	95.0	88.5	105.9	104.2	105.7	107.3	75.4	113.6	107.5	105.8
Aug-23	100.9	99.8	105.6	95.2	88.4	106.2	104.1	105.7	107.3	75.2	113.5	107.6	105.9
Sep-23	101.1	100.0	105.9	95.2	88.9	106.7	104.2	105.8	108.2	74.6	113.8	107.6	106.0

Percentage change, 3 months on previous 3 months

	GDP index	Index of Services	Business services and finance	Government and other services	Distribution, Hotels and Restaurants	Transport, Storage and Communications	Index of Production	Manufacturing	Electricity, gas, steam and air conditioning	Mining and Quarrying	Water Supply, Sewerage and Waste Management	Index of Construction	Agriculture
May-22	0.4	0.3	0.6	-1.4	0.9	1.5	-0.6	-0.8	0.3	0.4	0.3	3.0	0.9
Jun-22	0.3	0.4	0.9	-0.6	0.5	0.6	-0.9	-1.0	0.3	-3.0	0.2	1.9	0.6
Jul-22	0.4	0.7	0.8	0.5	0.3	0.8	-1.1	-1.2	0.1	-0.9	-1.6	1.6	0.4
Aug-22	0.0	0.4	0.3	0.3	0.1	1.2	-1.8	-2.0	-0.7	-2.1	-1.5	-0.1	0.2
Sep-22	-0.1	0.2	0.0	0.6	-0.9	1.1	-1.8	-1.9	-1.4	-1.1	-2.2	0.5	-0.1
Oct-22	-0.2	-0.1	-0.3	0.4	-1.2	0.3	-1.6	-1.3	-2.4	-5.0	-1.1	0.6	-0.4
Nov-22	-0.1	-0.1	-0.2	0.4	-0.9	-0.4	-0.6	-0.2	-2.8	-2.1	-0.4	1.2	-0.7
Dec-22	0.1	0.1	0.3	-0.4	0.3	-0.2	0.1	0.5	-2.1	-2.4	0.7	1.3	-0.5
Jan-23	0.2	0.2	0.5	-0.9	0.8	0.6	0.4	0.1	-0.3	-1.7	1.6	0.6	-0.3
Feb-23	0.1	0.1	0.8	-1.4	0.8	0.7	0.2	-0.2	0.7	-4.9	0.8	0.8	-0.1
Mar-23	0.1	0.1	0.5	-0.5	0.1	0.4	0.1	-0.2	0.0	-5.4	0.4	0.4	0.0
Apr-23	0.1	0.0	0.2	-0.4	-0.1	-0.2	0.4	0.3	-0.1	-4.6	-0.7	1.2	0.2
May-23	0.1	0.0	-0.3	0.4	-0.3	-0.1	0.5	0.5	0.2	-4.2	-1.1	0.3	0.2
Jun-23	0.2	0.1	-0.5	0.3	0.5	0.6	0.7	0.7	0.0	-4.3	-1.9	0.3	0.2
Jul-23	0.3	0.3	-0.3	1.0	0.6	1.0	0.1	0.7	-1.4	-3.8	-1.5	0.2	0.2
Aug-23	0.5	0.5	0.1	0.7	0.9	1.5	-0.1	1.0	-1.5	-2.9	-0.2	1.2	0.2
Sep-23	0.3	0.4	0.6	0.6	0.3	1.3	-1.1	0.4	-0.4	-1.8	0.7	1.1	0.3

Percentage change, month on same month in previous year

	GDP index	Index of Services	Business services and finance	Government and other services	Distribution, Hotels and Restaurants	Transport, Storage and Communications	Index of Production	Manufacturing	Electricity, gas, steam and air conditioning	Mining and Quarrying	Water Supply, Sewerage and Waste Management	Index of Construction	Agriculture
May-22	4.7	6.1	4.7	7.3	2.3	11.9	-3.4	-4.0	-12.0	15.2	3.2	6.5	5.4
Jun-22	2.8	3.7	3.1	4.2	-0.7	10.1	-2.8	-4.7	-7.4	25.3	2.4	4.5	3.7
Jul-22	3.3	4.4	3.7	5.3	0.0	9.8	-3.3	-4.8	-3.3	11.5	-0.9	6.4	2.4
Aug-22	2.4	3.4	3.6	3.7	-2.9	10.5	-5.0	-5.5	-0.1	-13.7	0.4	7.5	1.0
Sep-22	1.1	1.7	1.4	1.5	-4.5	8.7	-4.0	-5.1	1.6	-9.7	2.6	6.9	0.7
Oct-22	1.7	2.0	2.0	1.6	-2.1	6.2	-2.6	-3.3	3.7	-6.2	-1.9	7.9	0.7
Nov-22	0.8	1.1	1.1	-0.8	-0.9	6.3	-2.9	-3.6	-2.0	-1.1	0.1	6.2	0.7
Dec-22	0.2	0.3	1.2	-4.4	2.2	4.6	-2.7	-3.6	0.9	-3.9	0.2	6.1	0.6
Jan-23	0.5	0.9	1.8	-1.3	0.9	2.9	-2.9	-3.1	-3.0	-11.9	-0.7	3.2	0.5
Feb-23	0.6	0.9	1.6	-0.6	-0.3	1.7	-2.7	-2.7	-5.3	-9.8	-1.7	5.8	0.0
Mar-23	0.3	0.4	1.4	-0.8	-0.2	1.2	-1.9	-2.0	-1.2	-12.8	-0.2	3.6	-0.3
Apr-23	0.5	0.8	0.8	0.0	0.0	2.0	-1.3	-1.3	-1.5	-12.6	-3.4	2.9	-0.3
May-23	-0.4	-0.1	-0.3	-0.3	-0.6	1.2	-2.1	-2.3	-4.9	-12.9	-2.9	0.3	-0.4
Jun-23	1.0	0.7	0.4	0.4	0.9	2.5	0.8	0.8	-4.0	-12.4	-2.5	4.6	-0.4
Jul-23	0.3	0.3	0.5	-0.2	0.1	1.8	-1.0	0.8	-3.2	-17.4	0.2	3.4	-0.4
Aug-23	0.5	0.4	0.6	-0.1	0.8	0.9	0.2	1.6	-2.7	-10.2	-0.2	2.8	-0.1
Sep-23	1.4	1.6	1.6	0.3	3.0	3.6	0.2	1.8	-1.7	-11.9	-0.4	2.9	0.6

Percentage change, month on previous month

	GDP index	Index of Services	Business services and finance	Government and other services	Distribution, Hotels and Restaurants	Transport, Storage and Communications	Index of Production	Manufacturing	Electricity, gas, steam and air conditioning	Mining and Quarrying	Water Supply, Sewerage and Waste Management	Index of Construction	Agriculture
May-22	0.8	0.9	1.1	1.5	0.0	1.0	0.1	0.4	0.5	0.7	-2.7	2.3	0.2
Jun-22	-0.8	-0.6	-0.7	-0.8	-0.2	-0.6	-1.0	-1.3	-0.9	-2.6	1.6	-2.6	0.1
Jul-22	0.4	0.5	0.2	0.7	0.3	1.1	-0.4	-0.6	-0.5	5.9	-2.6	1.2	0.1
Aug-22	0.0	0.1	0.2	0.1	-0.8	1.3	-1.2	-0.9	-0.6	-8.2	0.3	0.6	-0.2
Sep-22	-0.7	-0.9	-0.8	-0.4	-1.6	-2.3	0.1	0.0	-0.2	1.0	0.4	-0.1	-0.6
Oct-22	0.7	0.7	0.5	0.9	1.6	0.3	0.4	1.2	-3.0	-0.2	-1.2	0.7	0.1
Nov-22	0.1	0.3	0.2	-0.4	0.2	1.6	0.0	-0.6	0.0	2.7	2.0	0.3	-0.2
Dec-22	-0.5	-0.8	0.5	-2.3	-0.2	-1.0	0.2	0.0	3.7	-5.1	0.7	0.8	0.0
Jan-23	0.5	0.8	-0.1	1.6	0.7	1.1	-0.2	-0.2	-1.9	-3.4	-0.6	-1.8	0.0
Feb-23	0.0	-0.1	0.4	-0.6	-0.2	-0.2	-0.1	-0.1	-2.0	2.3	-1.2	2.6	0.2
Mar-23	-0.2	-0.4	-0.2	0.0	-1.0	-1.0	0.8	0.8	2.6	-3.0	2.0	-0.2	0.0
Apr-23	0.2	0.3	-0.5	-0.2	1.3	1.0	0.1	0.0	0.9	-2.7	-2.0	-0.7	0.1
May-23	-0.1	0.0	0.0	1.2	-0.6	0.1	-0.7	-0.6	-2.9	0.4	-2.2	-0.3	0.0
Jun-23	0.5	0.2	0.0	-0.1	1.3	0.8	1.8	1.8	0.0	-2.1	2.0	1.6	0.1
Jul-23	-0.3	0.1	0.3	0.1	-0.5	0.4	-2.1	-0.6	0.3	-0.1	0.1	0.1	0.1
Aug-23	0.2	0.2	0.3	0.3	0.0	0.3	-0.1	0.0	-0.1	-0.3	-0.1	0.0	0.1
Sep-23	0.2	0.3	0.3	0.0	0.5	0.4	0.2	0.1	0.8	-0.9	0.2	0.0	0.1

Health warning

The NIESR GDP Tracker provides a rolling monthly forecast for GDP growth. Our first estimate of growth for any particular quarter starts in the first month of that quarter and is then updated each month until the first official release in the second month of the following quarter. So, for example, our first estimate of growth in the first quarter of 2020 was published in January and then updated four times (in February, March, April, and May) before the ONS published its first estimate for the first quarter of 2020 in May 2020. In other words, we publish four estimates of GDP for any particular quarter before the official release and change them as new evidence becomes available. Figure 9 shows how our short-term forecasts for recent quarters have changed as new information has become available.

Figure 9 - Evolution of the NIESR quarterly GDP forecast (3 months on previous 3 months, per cent)
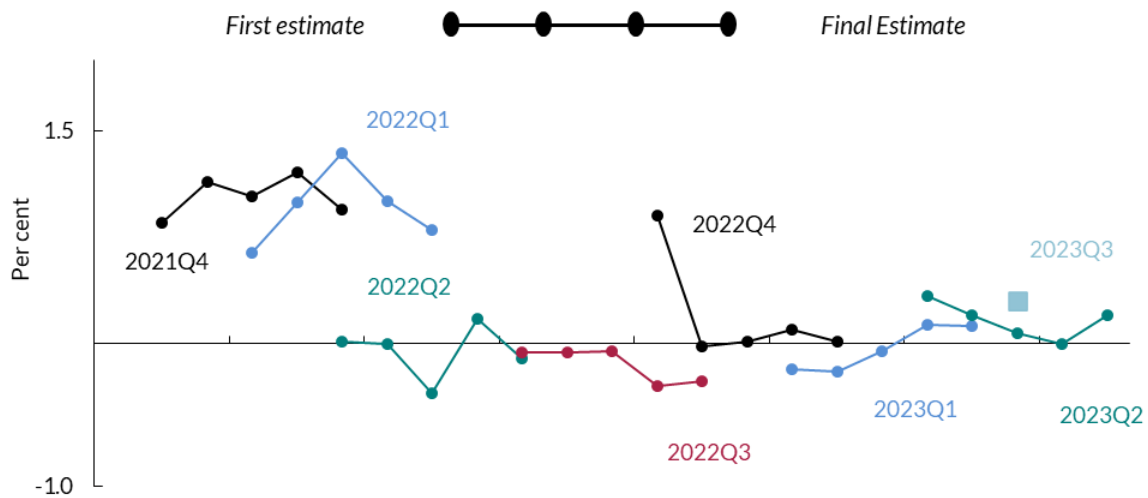
NIESR's short-term predictions of monthly GDP growth are based on bottom-up analysis of recent trends in the monthly sub-components of GDP. These predictions are constructed by aggregating statistical model forecasts of ten sub-components of GDP. The statistical models that have been developed make use of past trends in the data as well as survey evidence to build short-term predictions of the sub-components of monthly GDP. These provide a statistically-based guide to current trends based on the latest available data. Each month these predictions are updated as new ONS data and new surveys become available. Table 2 shows the growth in each sector for the three months to June, compared with the previous three months, against the forecast for each in our July GDP Tracker.

Table 2 - 3-month-on-3-month growth to June (per cent)

	GDP	Index of Services	Index of Production	Manufacturing	Mining and Quarrying	Index of Construction
Forecast	0.0	0.0	0.0	0.2	-3.3	-0.3
Outturn	0.2	0.1	0.7	0.7	-4.3	0.3

It is important to stress that the timelier NIESR guide to quarterly GDP growth is less reliable than the subsequent ONS data releases as its data content is lower, particularly for estimates of the current quarter which in some months will be based only on forecasts rather than hard data. To mitigate this issue, NIESR provides a guide to average errors based on past performance. NIESR also provides clear guidance on how the latest news has caused its estimates of GDP growth in the current and preceding quarter to change and thereby quantify how the short-term outlook is being affected by recent data releases (see, e.g., Figure 5).

As the bottom-up methodology for producing estimates of GDP growth for the current and preceding quarters is still relatively new, we do not yet have a long track record of estimates produced by this approach. To check how our methodology would work in real time we went back to late 2016 to produce judgement-free forecasts of GDP growth in future months based on the monthly data series available for the components in November 2016 (this was the earliest vintage then available on the ONS website) and in each subsequent three months. These are shown in Table 3, which has been updated to include estimates since we started producing the GDP Tracker in July 2018. We calculate the forecast quarter-on-quarter growth rates for the current quarter and compare these to the ONS first estimates of quarterly growth. The average absolute error for the quarters considered was 0.22 percentage points. The largest error was for the second quarter of 2020 when our GDP tracker in May pointed to growth of -22.8 per cent, 2.4 percentage points lower than the ONS first estimate of GDP growth.

Table 3 - Forecast Error Analysis: Quarterly GDP growth (per cent)

Quarter	ONS first estimate	ONS latest estimate	NIESR nowcast*	Error in NIESR nowcast**	ONS latest – first
2016Q4	0.6	0.7	0.7	-0.1	0.1
2017Q1	0.3	0.6	0.6	-0.3	0.3
2017Q2	0.3	0.3	0.4	-0.1	0.0
2017Q3	0.4	0.3	0.4	0.0	-0.1
2017Q4	0.5	0.4	0.4	0.1	-0.1
2018Q1	0.1	0.0	0.5	-0.4	-0.1
2018Q2	0.4	0.5	0.0	0.4	0.1
2018Q3	0.6	0.6	0.5	0.1	0.0
2018Q4	0.2	0.2	0.4	-0.2	0.0
2019Q1	0.5	0.6	0.2	0.3	0.1
2019Q2	-0.2	-0.2	0.3	-0.5	0.0
2019Q3	0.3	0.4	0.2	0.1	0.1
2019Q4	0.0	0	0.2	-0.2	0.0
2020Q1	-2.0	-2.1	0.2	-2.2	-0.1
2020Q2	-20.4	-20.4	-22.8	2.4	0.0
2020Q3	15.5	16.1	15.0	0.5	0.6
2020Q4	1.0		-2.2	3.2	
2021Q1			-3.8		
Average absolute error				0.22	0.08

Notes for Editors:

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