

Article

# Blue Book 2024: advanced aggregate estimates

Impact of methodological and data improvements on current price and chained volume measure of annual and quarterly gross domestic product (GDP), 1997 to 2022. Includes annual impacts on the services, production and construction sectors.

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# 1 . Overview

The 2024 UK annual national accounts, also known as Blue Book 2024, will incorporate more recent survey and administrative information, together with some methodological changes focused on data pertaining to recent years. Further information on these changes is available in our [pre-announced changes article](#).

The year 2022 will be estimated for the first time using the supply and use tables (SUTs) framework, and our estimates of 2020 and 2021 will be improved with updated data; this looks at the supply of goods and services and how they are used in the economy, and their associated prices in detail.

This article will cover the annual and quarterly impacts resulting from these improvements. A breakdown of monthly GDP is included in the accompanying datasets.

## 2 . Main impacts of our changes

- Annual volume gross domestic product (GDP) growth in 2022 is revised up 0.5 percentage points from 4.3% to 4.8%; if we compare revisions as a proportion of growth in the relevant year, the revision in 2022 is only slightly larger than the historical average.
- There are minimal revisions to 2021 and 2020 with a downwardly revised 8.6% increase in 2021 (previously an 8.7% increase) and an upwardly revised 10.3% fall in 2020 (previously a 10.4% fall).
- Growth in the transport, professional and business support services industries is revised up in 2022 and contributes to the overall upward revision to volume GDP growth; this is partially offset by downward revisions to growth in the manufacturing and healthcare industries.
- The overall volume revision in 2021 is small but there are some changes to specific industries; the largest positive influences are from the education and manufacturing industries, offset by a downward revision to the wholesale and retail trade industries.
- Revisions are mainly because we now have richer data from our annual surveys and administrative data, and we are now able to measure costs incurred by businesses (intermediate consumption) directly, and we can adjust for prices (deflation) at a far more detailed level for 2022.
- We have rebased the data to fully reflect changes in the composition of the economy for the first time following the coronavirus (COVID-19) pandemic, having suspended rebasing during the pandemic in line with international best practice; for example, the health sector, which increased its share of the economy in the pandemic, remains larger in 2022 as the sector catches up post-coronavirus; whereas the accommodation and food sector was hit hard in the pandemic and has still not returned to pre-coronavirus levels in 2022.
- The growth paths of some industries have been reviewed in detail as part of this year's annual exercise; these include the energy producing industries, rail transport and air transport.
- The quarterly and monthly profile of volume GDP through the years 1997 to 2022 is relatively unchanged.
- With the upward revisions to GDP in 2022 as well as revisions to population estimates, real GDP per head in Quarter 4 (Oct to Dec) 2022 is now estimated to have grown by 0.1% rather than showing no growth; overall GDP per head growth is lower than GDP growth over the period 2020 to 2022.
- Comparing annual growth rates before the first supply and use balance and the latest annual growth rates in this article for the years 2020 to 2022, we have seen an upward revision in cumulative growth of 0.2 percentage points from 1.9% to 2.1%, reflecting the challenges in measuring economic activity during the pandemic period.

The next Quarterly national accounts release on 30 September 2024 will incorporate these revisions into our official estimates in line with our [National Accounts Revisions Policy](#).

The full GDP revisions article to accompany this Blue Book will be released on 31 October 2024.

### 3 . Bringing together the three approaches to measuring GDP in 2022

In the [national accounts](#), gross domestic product (GDP) is measured by the output, income and expenditure approaches, where these are balanced to produce one coherent estimate of GDP.

In the UK, we use the [supply and use tables \(SUTs\) framework](#) as the basis for producing annual estimates of GDP. We use comprehensive information to fully reconcile how the economy performs across 112 industries and products. The SUTs reconciliation is first completed around 18 to 24 months after the reference period. For example, fully balanced estimates for 2021 were published for the first time in September 2023.

For those periods that have not yet been through the supply and use process, we use a [transparent framework](#) to manage this balancing process at an aggregate level, whereby we apply adjustments to GDP components. These adjustments reflect the relative strengths and weaknesses of the components and the information available at that time.

Each quarter, we publish the latest estimates for the economy within our [GDP quarterly estimate publication](#). Currently this means that:

- only data up to the last supply and use balanced year (2021) have been fully reconciled using the annual SUTs framework, covering up to the end of 2021
- data from Quarter 1 (Jan to Mar) 2022 to Quarter 2 (Apr to June) 2023 are balanced from all three approaches to produce an average - that is, the headline GDP figure reflected the average growth rates of the output, income and expenditure measures
- data for Quarter 3 (July to Sept) 2023 onwards are led by the output approach with expenditure and income balanced to produce headline GDP - the headline GDP figure reflects the output growth rate, to which income and expenditure are balanced

As explained in our most [recent GDP release](#), because of higher levels of uncertainty there were differences in the three approaches to measuring GDP in 2022 at that stage in the production cycle, with growth estimated in a range of 3.1% to 5.3%.

The differences in these approaches may be for various reasons. The three approaches rarely reconcile completely in the quarterly estimates - we are not able to measure all concepts precisely in the short term, and statistical surveys always have a degree of variability associated with them. The prevailing economic circumstances in 2022 - a period of higher inflation and some sectors still recovering from the coronavirus (COVID-19) pandemic - increase the scope for different approaches to GDP giving different results.

As part of Blue Book 2024, we now have brought together the three approaches to measuring GDP in 2022 for the first time using the SUTs framework such that, in the September 2024 quarterly national accounts:

- data up to the last supply and use balanced year (2022) will now be reconciled using the annual SUTs framework - so there is now one single estimate for all periods that have been fully balanced, which covers up to the end of 2022
- data from Quarter 1 (Jan to Mar) 2023 to Quarter 4 (Oct to Dec) 2023 will be balanced from all three approaches to produce an average - that is, the headline GDP figure reflects the average growth rates of the output, income and expenditure approaches
- data for Quarter 1 (Jan to Mar) 2024 onwards will be led by the output approach, with expenditure and income balanced to produce headline GDP - the headline GDP figure reflects the output growth rate, to which income and expenditure are balanced

As a result of changes to the level of annual GDP from 2020 onwards, the GDP quarterly and monthly path will also be revised to ensure alignment to the new annual levels.

## Uncertainty in the 2024 annual estimates

As described previously, our annual estimates of GDP benefit from a wider range of data sources and the data confrontation involved in supply and use balancing. However, revisions to these data can and do happen, for the following reasons:

- in the latest year (2022), some data sources are not yet available; these include tax data informing the gross operating surplus and mixed income transactions, the activities of some non-profit institutions serving households, and more detailed government benchmark data informing public sector output of products such as human health services
- responses to the major structural surveys such as the Annual Business Survey (ABS) are still being received and queried; 2022 data are likely to contain some revisions when the 2025 annual estimates are compiled next year
- new and updated data also has an indirect effect through supply and use balancing; a revision to one transaction leads to a reassessment of the relevant product and industry balances, and may lead to the best estimate of other transactions changing to accommodate the new data

For these reasons, the latest balanced year (2022) is likely to see at least some revision in the 2025 annual national accounts. The year before (2021) tends to see smaller revisions as it has now been through this process twice, and almost all of the data have been received.

In addition, our ongoing programme of improvement work to the national accounts leads to revisions throughout the data time series, not just in the latest three years. The work programme for 2025 will be communicated in due course, and we will communicate the outcomes of these improvements during 2025.

Our article [GDP revisions in Blue Book: 2023](#) published last year analyses the revisions performance of GDP in more detail, and will be updated on 31 October 2024.

## 4 . Impact of Blue Book 2024 on current price GDP

## Annual revisions to average current price GDP

Figure 1 shows the revision to annual current price gross domestic product (GDP) growth from 1998 to 2022. Throughout this article, quarterly data labelled "Blue Book 2023" have been taken from the latest [quarterly national accounts](#).

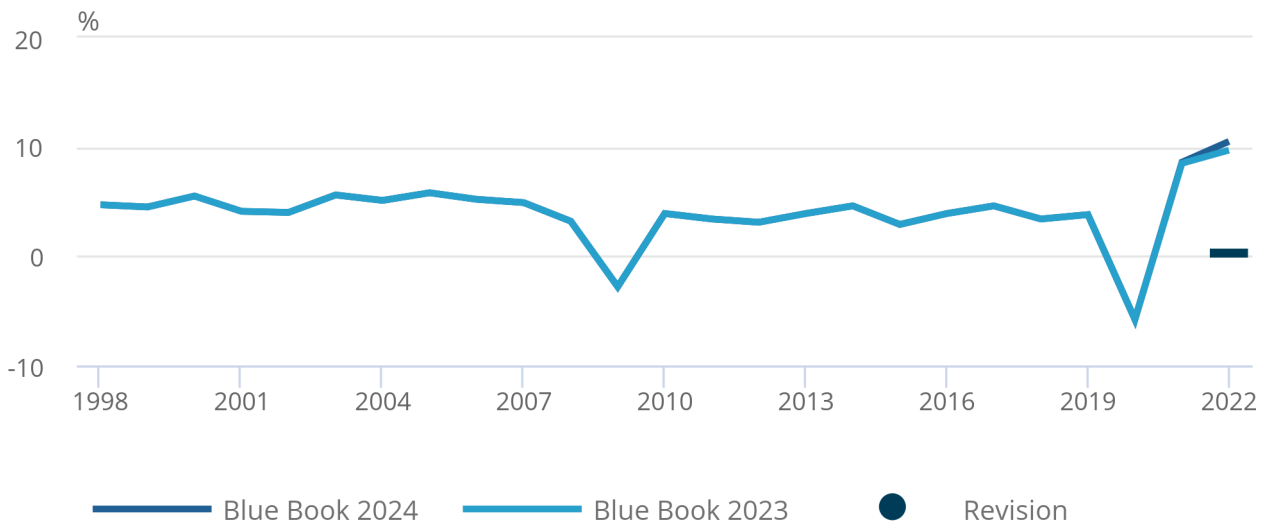
There are no revisions to current price annual growth from 1998 to 2019. In 2022, though, current price GDP is now estimated to have increased by 10.5%, revised up 0.8 percentage points. This follows an upwardly revised increase of 8.6% in 2021 (previously an 8.5% increase) and an unrevised fall of 5.8% in 2020.

### Figure 1: Current price GDP in 2022 is now estimated to have grown by 10.5%

UK, current price GDP growth, 1998 to 2022

## Figure 1: Current price GDP in 2022 is now estimated to have grown by 10.5%

UK, current price GDP growth, 1998 to 2022



Source: UK National Accounts from the Office for National Statistics

Alongside confronting the three approaches to measuring GDP for the first time through the supply and use table (SUTs) framework, we have also incorporated richer data across a number of GDP components. For example, in the income approach, compensation of employees sees upward revisions in 2022 following the availability of updated HM Revenue and Customs (HMRC) Pay As You Earn (PAYE) Real-Time Information (RTI) data for the financial year 2022 to 2023, which has been incorporated for the first time for wages and salaries.

## Quarterly revisions to current price GDP

Figure 2 shows the revisions to the quarterly profile of current price GDP growth from Quarter 2 (Apr to June) 1997 to Quarter 4 (Oct to Dec) 2019. Because of the larger movements during the coronavirus (COVID-19) pandemic, the 2020 to 2022 quarters have been shown separately in Table 1.

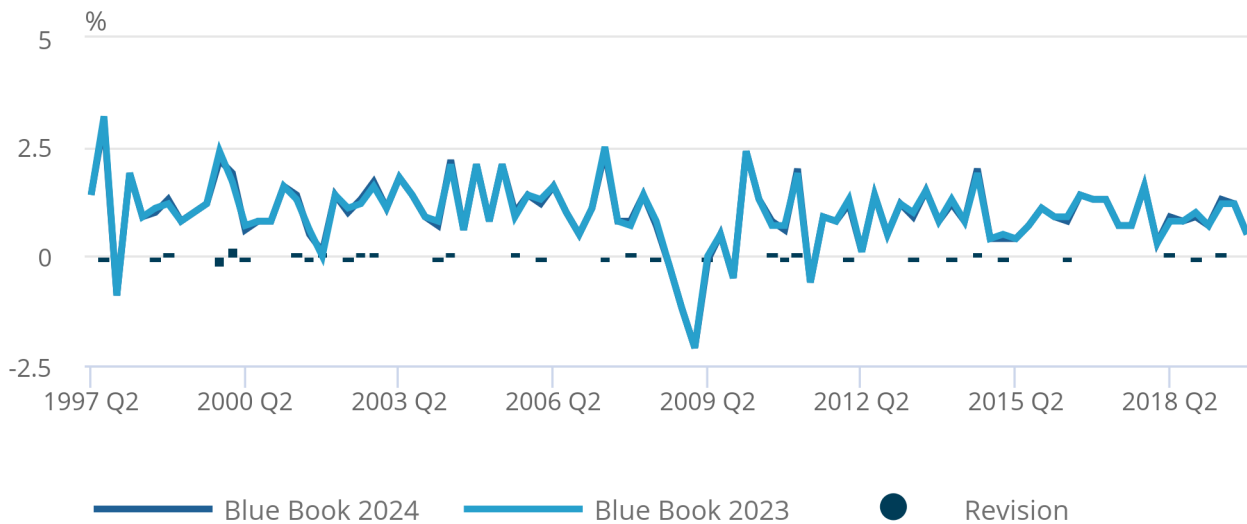
While annual current price growth is unrevised from 1998 to 2019, there are small revisions to quarterly growth because of small revisions to the implied deflator. Over the period Quarter 2 1997 to Quarter 4 2019, there is a mean absolute revision of 0.0 percentage points.

### Figure 2: Quarterly current GDP growth sees minor revisions between 1997 and 2019

UK, current price gross domestic product (GDP) growth, UK, Quarter 2 (Apr to June) 1997 to Quarter 4 (Oct to Dec) 2019

## Figure 2: Quarterly current GDP growth sees minor revisions between 1997 and 2019

UK, current price gross domestic product (GDP) growth, UK, Quarter 2 (Apr to June) 1997 to Quarter 4 (Oct to Dec) 2019



Source: UK National Accounts from the Office for National Statistics

Table 1 shows the revisions to the quarterly profile of current price growth for 2020 to 2022. Overall, the quarterly profile through the years is relatively little changed. As previously explained in our article [GDP quarterly national accounts, UK: January to March 2024](#), higher levels of [uncertainty](#) have led to larger revisions in 2022, although the size of the quarterly movements needs to be considered for context.



Table 1: Current price quarterly GDP growth in 2020 to 2022  
 UK, current price gross domestic product (GDP) growth, Quarter 1 (Jan to Mar) 2020 to Quarter 4 (Oct to Dec) 2022

	<b>Blue Book 2024 (%)</b>	<b>Blue Book 2023 (%)</b>	<b>Revision (percentage points)</b>
<b>2020 Q1</b>	-1.7	-1.7	0.0
<b>2020 Q2</b>	-14.3	-14.5	0.2
<b>2020 Q3</b>	12.1	12.2	-0.1
<b>2020 Q4</b>	0.7	0.9	-0.2
<b>2021 Q1</b>	0.1	-0.1	0.2
<b>2021 Q2</b>	5.7	5.6	0.1
<b>2021 Q3</b>	2.3	2.4	-0.1
<b>2021 Q4</b>	2.6	2.6	0.0
<b>2022 Q1</b>	2.2	2.0	0.2
<b>2022 Q2</b>	2.5	2.1	0.4
<b>2022 Q3</b>	1.8	1.5	0.3
<b>2022 Q4</b>	2.8	2.4	0.4

Source: UK National Accounts from the Office for National Statistics

#### Notes

1. Estimates for Blue Book 2024 are based on the latest available information and are subject to revision as firmer data become available.

## 5 . Impact of Blue Book 2024 on volume GDP

## Annual revisions to volume GDP

As the range of improvements mainly affected the years from 2020 onwards, there have been minimal revisions to annual volume gross domestic product (GDP) from 1997 to 2019. However, annual growth in 2003 and 2004 has been revised up 0.1 percentage points. This revision is a result of very small changes caused by the impact of rebasing being just enough to move GDP growth when rounded to one decimal place.

Average volume GDP in 2020 and 2021 sees minimal revision, with GDP estimated to have fallen by 10.3% in 2020 (previously a 10.4% fall) and GDP in 2021 now estimated to have increased by 8.6% (previously an 8.7% increase) (Figure 3).

Average volume GDP for 2022 is now estimated to have increased by 4.8%, revised up from a previous estimate of 4.3%. As explained in our [most recent GDP release](#), because of higher levels of uncertainty there were differences in the three approaches to measuring GDP in 2022 at that stage in the production cycle, with annual volume growth estimated in a range of 3.1% to 5.3%. The differences in these approaches may be for various reasons such as lower response rates for the Living Costs and Food Survey, which underpin our estimates of household consumption.

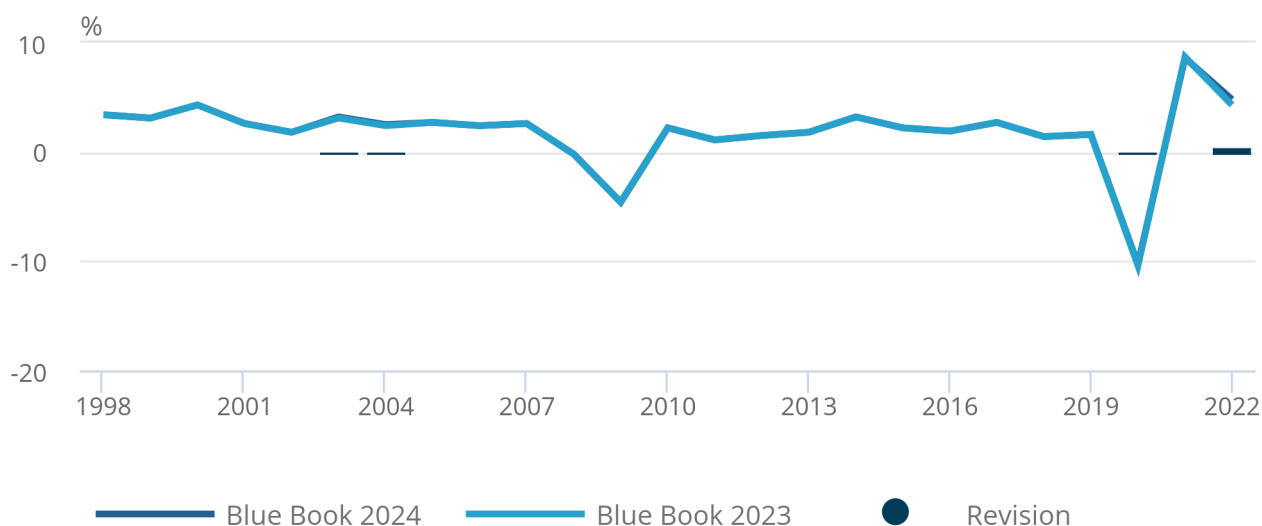
As part of Blue Book 2024, data for 2022 have now been confronted using the three approaches to measuring GDP for the first time through the supply and use table (SUTs) framework. In addition, we have also incorporated richer annual data across a number of GDP components. For example, in the expenditure approach, household consumption sees upward revisions in 2022 because of better information available for areas such as transport.

**Figure 3: Annual volume GDP is now estimated to have increased by 4.8% in 2022**

UK, volume gross domestic product (GDP) growth, 1998 to 2022

### Figure 3: Annual volume GDP is now estimated to have increased by 4.8% in 2022

UK, volume gross domestic product (GDP) growth, 1998 to 2022



Source: UK National Accounts from the Office for National Statistics

We have analysed our overall revisions performance during the period 2020 to 2022. We have taken the annual growth rates seen in the quarterly round (when we have the best available short-term information) and which are published immediately before the first time the year has gone through supply and use balancing, and then compared these estimates with the latest annual growth rates in this article.

Table 2 shows that across those three years we have seen an upward revision in cumulative growth of 0.2 percentage points from 1.9% to 2.1%. This reflects the challenges in measuring economic activity during the coronavirus (COVID-19) pandemic period, with 2020 seeing more of a fall in GDP than when it was first estimated, but 2021 and 2022 growth stronger.

Table 2: Revisions to GDP comparing last quarterly national accounts estimate before supply and use balancing and Blue Book 2024 position  
UK, annual volume gross domestic product (GDP) growth, 2020 to 2022

	<b>Last quarterly national accounts growth estimate before the 1st Supply and Use balance</b>	<b>Blue Book 2024 growth</b>	<b>Revision</b>
<b>Cumulative growth 2020 to 2022</b>	1.9	2.1	0.2
<b>2020 annual</b>	-9.3	-10.3	-1.0
<b>2021 annual</b>	7.6	8.6	1.0
<b>2022 annual</b>	4.3	4.8	0.5

Source: UK National Accounts from the Office for National Statistics

#### Notes

1. Estimates for Blue Book 2024 are based on the latest available information and are subject to revision as firmer data become available.

## Quarterly revisions to volume GDP

Over the time period Quarter 2 (Apr to June) 1997 to Quarter 4 (Oct to Dec) 2019, average volume GDP is unrevised for all quarters (Figure 4).

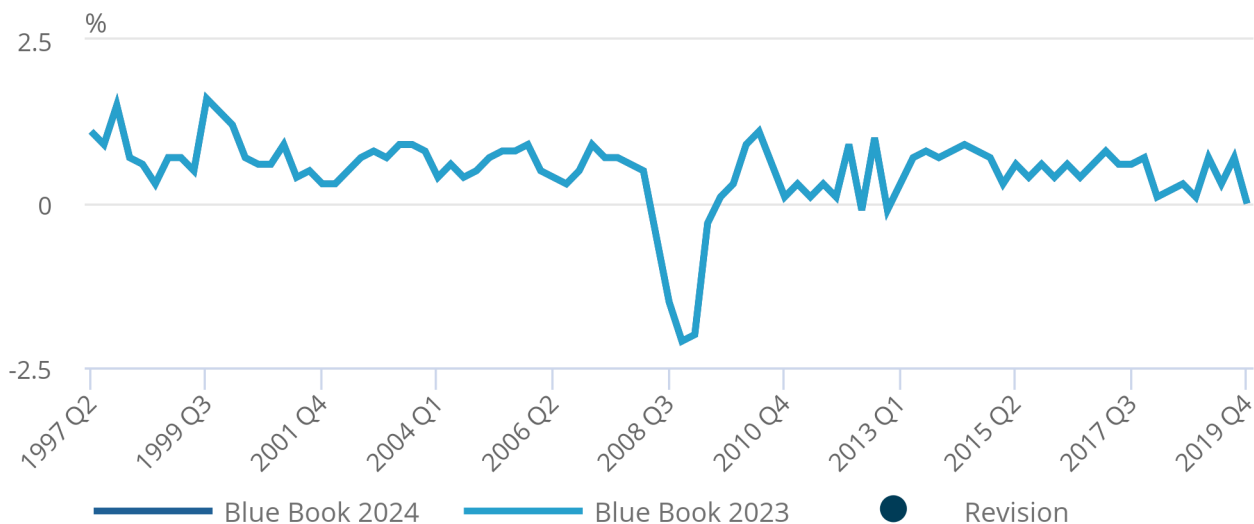
The [peak-to-trough](#) (as explained in our [Communicating the UK Economic Cycle methodology](#)) of the 2008 to 2009 economic downturn is unrevised from Blue Book 2023 and is still estimated at 6.4%. The peak-to-trough quarters (Quarter 1 2008 to Quarter 2 2009) are unchanged. GDP returned to the pre-economic downturn levels in Quarter 3 (July to Sept) 2013, unrevised from a previous estimate of Quarter 3 2013.

**Figure 4: Quarterly volume GDP growth sees no revisions between 1997 and 2019**

UK, volume gross domestic product (GDP) growth, Quarter 2 (Apr to June) 1997 to Quarter 4 (Oct to Dec) 2019

### Figure 4: Quarterly volume GDP growth sees no revisions between 1997 and 2019

UK, volume gross domestic product (GDP) growth, Quarter 2 (Apr to June) 1997 to Quarter 4 (Oct to Dec) 2019



Source: UK National Accounts from the Office for National Statistics

Because of the large movements during the coronavirus (COVID-19) pandemic, the 2020 to 2022 quarters have been shown separately in Table 3. Despite the magnitude of GDP movements during the pandemic period, average volume quarterly GDP is unrevised in Blue Book 2024 for Quarter 1 (Jan to Mar) 2020 to Quarter 4 (Oct to Dec) 2021.

The upward annual revision to volume GDP in 2022 follows directly from the changes to current price growth described earlier in this article, and this means that all quarters have been revised up 0.2 percentage points.

Table 3: Volume quarterly GDP growth in 2020 to 2022

UK, volume gross domestic product (GDP) growth, Quarter 1 (Jan to Mar) 2020 to Quarter 4 (Oct to Dec) 2022

	<b>Blue Book 2024 (%)</b>	<b>Blue Book 2023 (%)</b>	<b>Revision (percentage points)</b>
<b>2020 Q1</b>	-2.7	-2.7	0.0
<b>2020 Q2</b>	-20.3	-20.3	0.0
<b>2020 Q3</b>	16.8	16.8	0.0
<b>2020 Q4</b>	1.4	1.4	0.0
<b>2021 Q1</b>	-1.0	-1.0	0.0
<b>2021 Q2</b>	7.3	7.3	0.0
<b>2021 Q3</b>	1.7	1.7	0.0
<b>2021 Q4</b>	1.5	1.5	0.0
<b>2022 Q1</b>	0.7	0.5	0.2
<b>2022 Q2</b>	0.3	0.1	0.2
<b>2022 Q3</b>	0.1	-0.1	0.2
<b>2022 Q4</b>	0.3	0.1	0.2

Source: UK National Accounts from the Office for National Statistics

## Notes

1. Estimates for Blue Book 2024 are based on the latest available information and are subject to revision as firmer data become available.

The peak to trough of the coronavirus (COVID-19) pandemic is estimated at 22.4% (previously 22.5%). GDP returned to pre-coronavirus levels in Quarter 4 2021, unrevised from the previous estimate in Blue Book 2023.

Upward revisions to the 2022 quarters mean that the level of UK real GDP in Quarter 4 2022 is now higher compared with the previously published estimate. The level of quarterly GDP in Quarter 4 2022 is now estimated to be 2.1% above its pre-coronavirus level (Quarter 4 2019); this was previously estimated as 1.3% above. There is no change to Quarter 4 2021 and this remains the first quarter during which the UK exceeded its pre-coronavirus level.

As well as producing estimates of GDP, the Office for National Statistics (ONS) also produces estimates of GDP per head (or per capita), which divides UK GDP by the total UK population. This is one proxy indicator of welfare, rather than production. As the UK population might not be changing at the same rate as GDP, this means that growth in GDP per head can show a different trend to growth in headline GDP. Table 4 shows the revisions to GDP per head as a result of the revisions to GDP but also updates to the [mid-year population estimates](#).

With the upward revisions to GDP in 2022 as well as revisions to population estimates, real GDP per head in Quarter 4 (Oct to Dec) 2022 is now estimated to have grown by 0.1% rather than showing no growth. Overall GDP per head growth is lower than GDP growth over the quarters of 2020 to 2022. GDP per head is subject to revision as we obtain the latest GDP and population estimates with the latest UK population estimates for 2023 available in autumn 2024.

Table 4: Volume quarterly GDP per head growth in 2020 to 2022  
 UK, volume gross domestic product (GDP) per head growth, Quarter 1 (Jan to Mar) 2020 to Quarter 4 (Oct to Dec) 2022

	<b>Blue Book 2024 (%)</b>	<b>Blue Book 2023 (%)</b>	<b>Revision (percentage points)</b>
<b>2020 Q1</b>	-2.7	-2.8	0.1
<b>2020 Q2</b>	-20.4	-20.4	0.0
<b>2020 Q3</b>	16.7	16.8	-0.1
<b>2020 Q4</b>	1.3	1.4	-0.1
<b>2021 Q1</b>	-1.1	-1.0	-0.1
<b>2021 Q2</b>	7.2	7.4	-0.2
<b>2021 Q3</b>	1.4	1.4	0.0
<b>2021 Q4</b>	1.3	1.2	0.1
<b>2022 Q1</b>	0.5	0.2	0.3
<b>2022 Q2</b>	0.1	-0.2	0.3
<b>2022 Q3</b>	-0.2	-0.2	0.0
<b>2022 Q4</b>	0.1	0.0	0.1
<b>Growth in 2022 Q4 compared with pre-pandemic 2019 Q4</b>	0.1	-0.2	0.3

Source: UK National Accounts from the Office for National Statistics

#### Notes

1. Estimates for Blue Book 2024 are based on the latest available information and are subject to revision as firmer data become available.
2. In Blue Book 2023 estimates, data up to 2021 were consistent with the mid-year population estimates and data for 2022 were consistent with the interim population projections as published on 27 January 2023. In Blue Book 2024, data up to 2022 have been revised to account for revisions to GDP but also revisions to the mid-year population estimates as well as replacing 2022 with actual population figures.

## 6 . Impact of Blue Book 2024 on the GDP implied deflator

The implied gross domestic product (GDP) deflator represents the broadest measure of inflation in the domestic economy, reflecting changes in the price of all goods and services that comprise GDP. It is important to note that the GDP deflator covers the whole of the domestic economy, not just consumer spending, and also reflects the change in the relative price of exports to imports. For more information on the implied GDP deflator, see our [Measuring price changes of the UK national accounts: February 2023 article](#).

Between 1998 and 2019, the average annual GDP implied deflator is unrevised, except for 2007, which has a 0.1 percentage point downward revision. More information on this revision can be found in [Section 8: Rebasing GDP and the changing composition of the UK economy](#).

There have been minimal revisions to the average GDP implied deflator in 2020 and 2021, with growth in 2020 revised down to a 5.0% increase (previously 5.1%) and 2021 growth revised up to a 0.1% increase (previously a 0.1% fall).

The 2022 average GDP implied deflator is now estimated to have increased by 5.4%, an upward revision of 0.3 percentage points. The main contributor to the upward revision in the implied deflator is government final consumption.

Compared with the same quarter a year earlier, the quarterly average GDP implied deflator is on average unrevised between Quarter 1 (Jan to Mar) 1998 and Quarter 4 (Oct to Dec) 2019. However, some quarters see revisions between negative 0.2 and 0.1 percentage points because of the effects of rebasing and re-referencing (Figure 5).

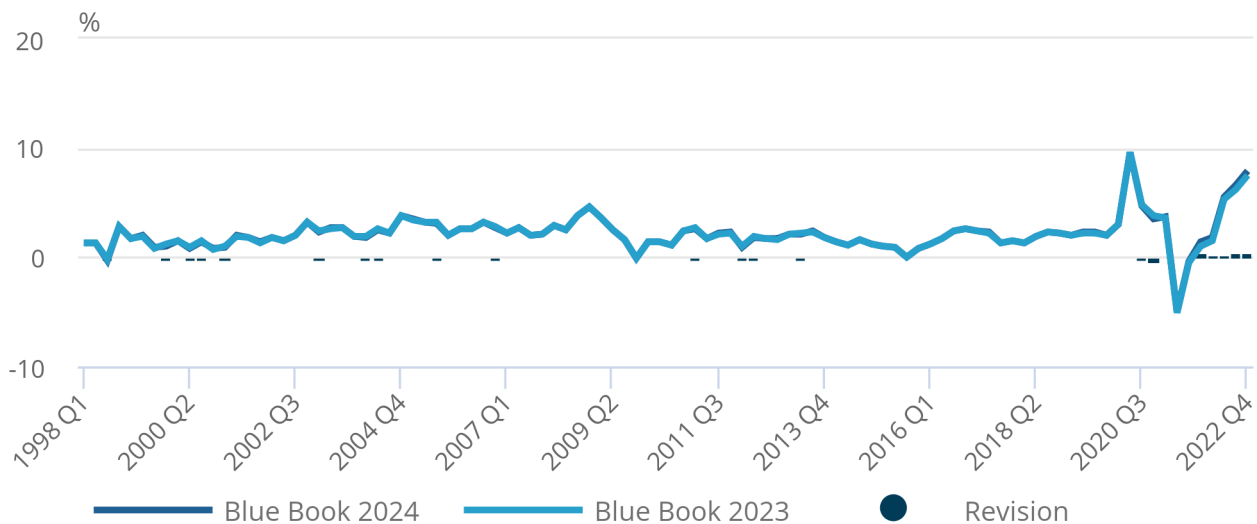
The average revision to the average GDP implied deflator compared with the same quarter a year ago is 0.1 percentage points for Quarter 1 (Jan to Mar) 2020 and Quarter 4 2022.

**Figure 5: The GDP implied deflator growth in 2021 and 2022 is now stronger because of upwardly revised current price estimates**

UK, gross domestic product (GDP) implied deflator quarter on quarter a year ago growth, Quarter 1 (Jan to March) 1998 to Quarter 4 (Oct to Dec) 2022

Figure 5: The GDP implied deflator growth in 2021 and 2022 is now stronger because of upwardly revised current price estimates

UK, gross domestic product (GDP) implied deflator quarter on quarter a year ago growth, Quarter 1 (Jan to March) 1998 to Quarter 4 (Oct to Dec) 2022



Source: UK National Accounts from the Office for National Statistics

## 7 . Measuring GVA and the importance of intermediate consumption

The production approach, or GDP (P) as it is often known, is primarily concerned with the generation of gross value added (GVA). In other words, the value of all goods and services produced within the economy. To derive estimates of GVA we require information on output and intermediate consumption (IC) such that:

$$\text{Gross value added} = \text{Output} - \text{Intermediate consumption}$$

where:



- output - goods and services that are produced within a sector that are available for purchase outside of that sector
- intermediate consumption - value of goods and services purchased to be used up in the production of goods and services, for example, raw materials such as flour in bread-making, ink and paper in printing; specifically excludes staff costs and capital investments, which are handled elsewhere in the accounts

In the context of gross domestic product (GDP), we are generally most interested in growth between periods. An increase in output between periods (other things equal) causes GVA to rise, while an increase in intermediate consumption similarly causes value added to fall. When output and intermediate consumption move in opposite directions, the resulting growth or decline in GVA can be quite large in percentage terms. For example, a fall in output coupled with a rise in intermediate consumption will cause a stronger fall in value added than one of these two movements alone.

Since the integration of [double deflation](#) and extension of supply and use tables (SUTs) in volume estimates into the [national accounts estimates in September 2021](#), monthly and quarterly industry-level current price (CP) and chained volume measures (CVM) estimates are benchmarked to their annual GVA estimates as part of the annual supply and use balancing process. In our [current published estimates](#), the CP and CVM data are benchmarked up to the last supply and use balanced year, which is 2021.

Data from after the supply and use process, that is currently for 2022 onwards, are created using the short-term measures of output only. Most indicators in the short-term measures are measuring changes in turnover and output as a proxy for changes in GVA; therefore, we assume that the intermediate consumption ratio by industry in 2021 held constant into 2022 and onwards, in other words, input costs as a proportion of turnover or output remain fixed.

As part of our Blue Book 2024 update, we now have actual estimates of intermediate consumption and industry-level GVA for 2022 as we have used the SUTs framework to estimate GDP.

New data on intermediate consumption will always lead to revisions to estimates of GVA and GDP, both at the whole economy level and in individual industries. In 2022 however, intermediate consumption has overall been less of a cause of revisions than in recent years. The volume intermediate consumption ratio of the whole economy is little changed since 2022 at 0.502, compared with 0.496 in 2021.

## 8 . Rebasing GDP and the changing composition of the UK economy

Chained volume measures (CVMs) are data time series that measure gross domestic product (GDP) in real terms by excluding price effects. In a CVM, growth is calculated as the result by comparing pairs of years in turn, with the earlier of the two years being the base year. The last base year is used as the base year for all data points beyond, including latest monthly and quarterly estimates of GDP.

Our usual working practice is to move the last base year forward one year each year, in line with the most recent year for which we have our structural annual data sources. This is two years behind the current year.

In 2022, this would have involved advancing the last base year from 2019 to 2020 and using the structure of the UK economy in 2020 to measure growth in 2021, 2022 and beyond. However, the economy in 2020 was heavily affected by the coronavirus (COVID-19) pandemic and was unlikely to be representative of economic activity during the coronavirus recovery and beyond. [International guidance on benchmarking and rebasing national accounts \(PDF, 231KB\)](#) at the time noted this challenge and recommended pausing weighting updates until activity had settled into a post-coronavirus norm.

For this reason, we took the decision to hold the last base year at 2019 until the effects of the pandemic had passed, as explained in our article [Chain-linking in the UK National Accounts: Blue Book 2022](#).

In 2022, the effects of the pandemic and consequent recovery have worked through to the point where we can resume annual rebasing, and use 2022 as the last base year for our short-term estimates of GDP. Rebasing to 2022 also changes the way in which chained volume measures are calculated in 2021 and 2022, affecting the growth rates for these years. This decision was announced in the article [Proposed changes to be implemented in Blue Book and Pink Book: 2024](#).

This is not to say the economy has returned to the same structure it had in 2019, and this structure will continue to evolve. Rather, the pandemic effects have passed through to the point that 2022 is now a more appropriate basis for weighting our latest GDP estimates than 2019.

Figure 6 shows how the structure of the economy, in terms of the contribution to total current price gross value added (GVA) from 20 industry groups, has changed since the pandemic. During the coronavirus period, human health and social work formed a larger proportion of the UK economy, with its contribution to whole economy GVA an average of 0.9 percentage points higher than the average between 2015 and 2019.

This was because of a combination of increased government expenditure on health with a decrease in economic activity across the other sectors. In 2022, human health and social work increased by 0.5 percentage points from the average from 2015 to 2019, as additional spending on health wound down, and other sectors of the economy recovered.

The largest increase in GVA weight in 2022 was in the mining and quarrying industries, in particular crude oil and natural gas extraction. This was driven by high oil and natural gas prices, which increased current price output while having little impact on intermediate consumption.

Manufacturing saw the biggest fall in GVA weight in 2022; manufacturing output grew but intermediate consumption grew faster. Industries affected by restrictions on international travel during the coronavirus period saw partial or complete returns to their weight pre-coronavirus. These include transport and storage, accommodation and food services, and arts, entertainment and recreation.

### **Figure 6: Volume GVA weights have varied between pre-coronavirus (COVID-19) pandemic, during the pandemic period and 2022**

**UK, difference in gross value added (GVA) weights, percentage compared with 2015 to 2019 average, by Standard Industrial Classification (SIC) section**

The annual difference in the weighting of GVA represents the change in the size of a section's contribution to the overall economy. The annual average absolute change in weight shows how rapidly the economy (divided into 20 industry sections) is changing over time. This measure is usually less than 0.2 percentage points, giving a baseline for the typical rate of change of the composition of the economy.

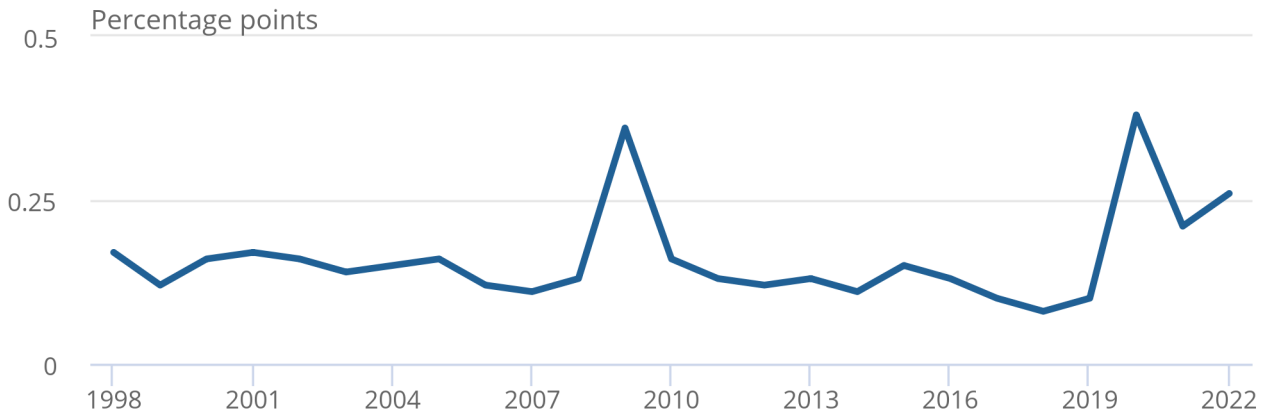
Figure 7 shows that the largest changes in the weighting of the whole UK economy happened in 2009 and 2020. These changes were caused by the 2008 to 2009 economic downturn and the coronavirus (COVID-19) pandemic. However, the average percentage difference remains higher in 2021 to 2022 than 2010 to 2019, suggesting we are still seeing larger changes in the economy than previous years.

### Figure 7: Volume GVA weights have varied more since the coronavirus (COVID-19) pandemic

UK, annual average absolute percentage difference in gross value added (GVA) weights by Standard Industrial Classification (SIC) section, 1997 to 2022

#### Figure 7: Volume GVA weights have varied more since the coronavirus (COVID-19) pandemic

UK, annual average absolute percentage difference in gross value added (GVA) weights by Standard Industrial Classification (SIC) section, 1997 to 2022



Source: UK National Accounts from the Office for National Statistics

## 9 . Impacts on the output approach to measuring GDP

## The services sector

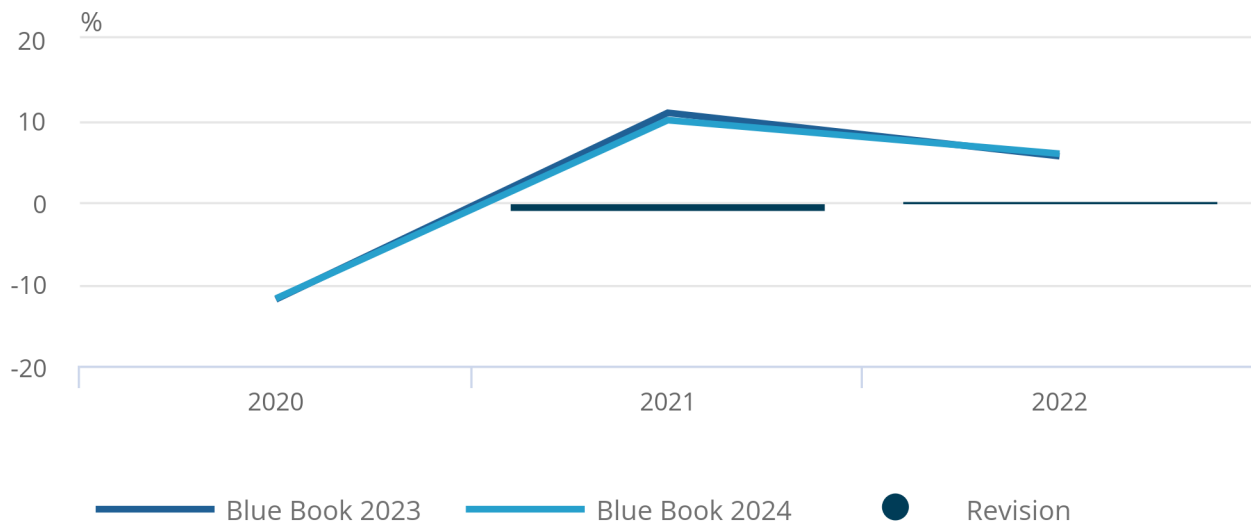
The services sector is now estimated to have grown by 5.9% in 2022, revised up by 0.3 percentage points (Figure 8). Annual services growth has also been revised down in 2021 by 0.9 percentage points.

**Figure 8: Annual volume estimates of services see lower output in 2021**

UK, annual volume growth in services, 2020 to 2022

### Figure 8: Annual volume estimates of services see lower output in 2021

UK, annual volume growth in services, 2020 to 2022



**Source: UK National Accounts from the Office for National Statistics**

The largest contribution to the services sector in 2022 was from the transportation and storage subsector, which contributed 1.23 percentage points to gross value added (GVA) growth, an upward revision of 0.70 percentage points (Figure 9). Transport and storage growth in 2022 includes the economic recoveries of rail and air transport following the effects of the coronavirus (COVID-19) pandemic in 2021.

The human health and social work industry had the largest negative contribution to the revision in GVA. Human health and social care activities contributions were revised down by 0.61 percentage points to 0.41 percentage points of the growth in the services sector.

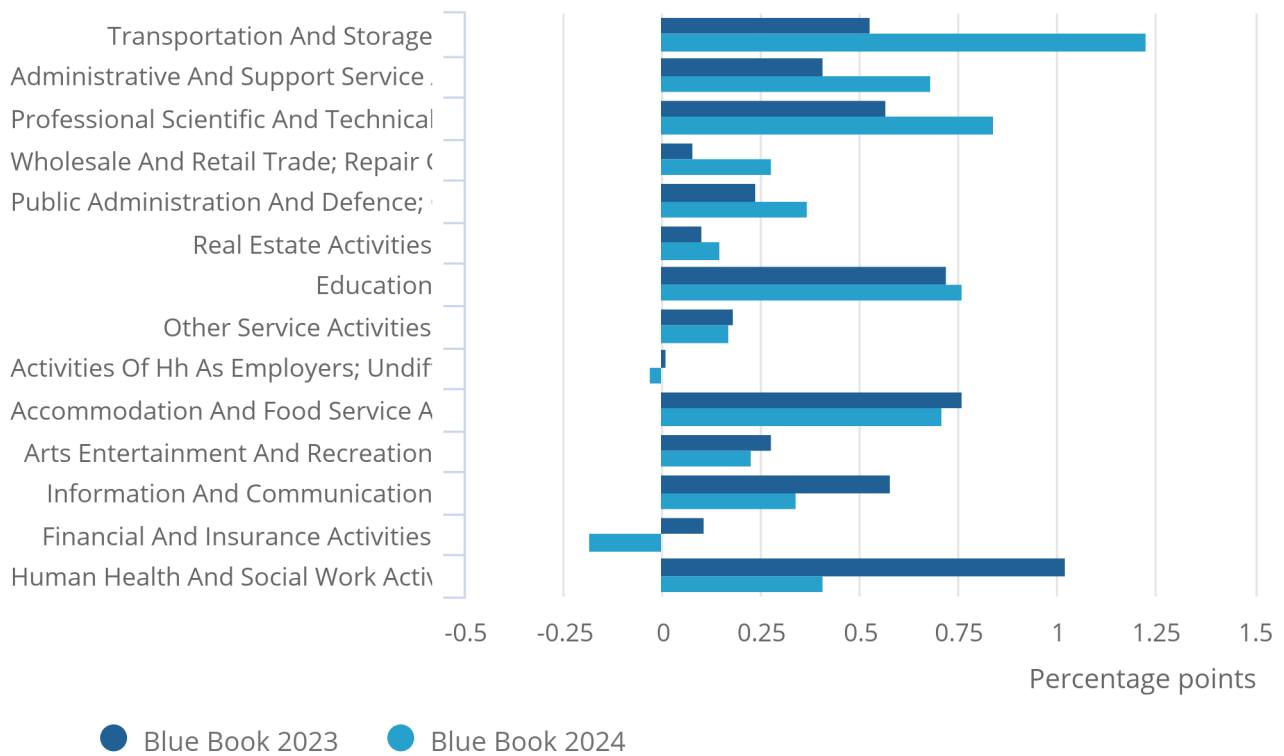
Further information on these industries is explained in the case studies later in this section.

**Figure 9: Volume gross value added growth contributions varied across service industries in 2022**

UK, volume contributions to service sector growth in 2022, Blue Book 2024 compared with Blue Book 2023

**Figure 9: Volume gross value added growth contributions varied across service industries in 2022**

UK, volume contributions to service sector growth in 2022, Blue Book 2024 compared with Blue Book 2023



Source: UK National Accounts from the Office for National Statistics

Notes:

1. Sum of component contributions may not sum to total growth because of rounding.

All of the services sector sections are now estimated to have shown growth in 2022, apart from financial and insurance activities, and activities of households as employers, undifferentiated goods and services of households for own use.

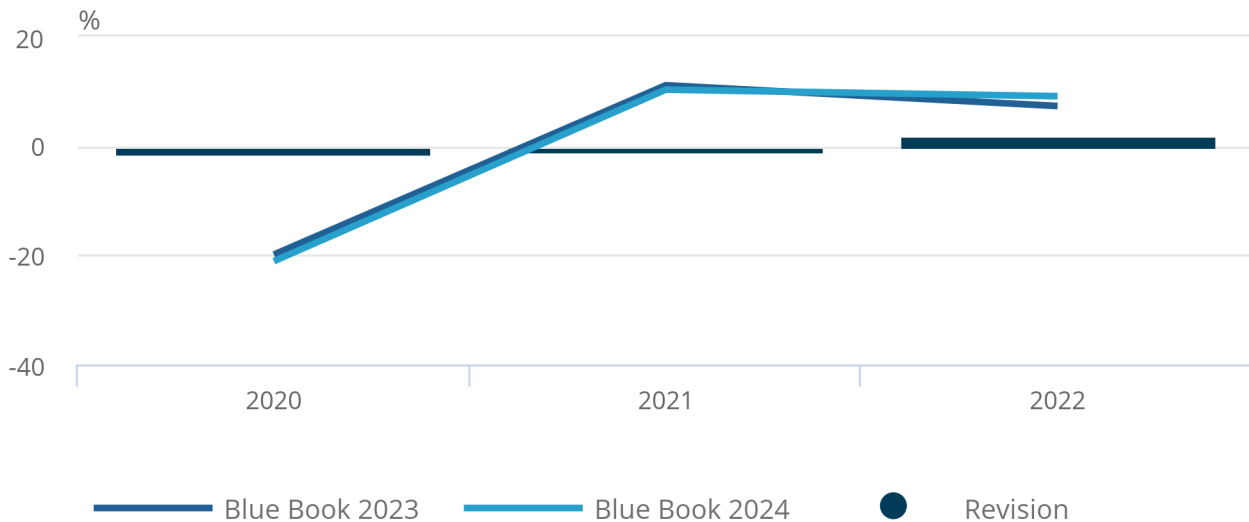
Figure 10 shows that consumer-facing services is now estimated to be stronger in 2022 but weaker in 2020 and 2021 than we previously estimated.

**Figure 10: Volume growth in consumer-facing services sees less growth in 2020 and 2021 but an increase in growth in 2022**

UK, annual volume growth in consumer-facing services, 2020 to 2022

Figure 10: Volume growth in consumer-facing services sees less growth in 2020 and 2021 but an increase in growth in 2022

UK, annual volume growth in consumer-facing services, 2020 to 2022



Source: UK National Accounts from the Office for National Statistics

Consumer-facing services are now estimated to have grown by 9.1% in 2022 compared with our previous estimate of 7.3%. The largest positive contributions to this revision come from wholesale and retail trade; repair of motor vehicles and motorcycles, followed by buying and selling, renting and operating of own or leased real estate excluding imputed rent.

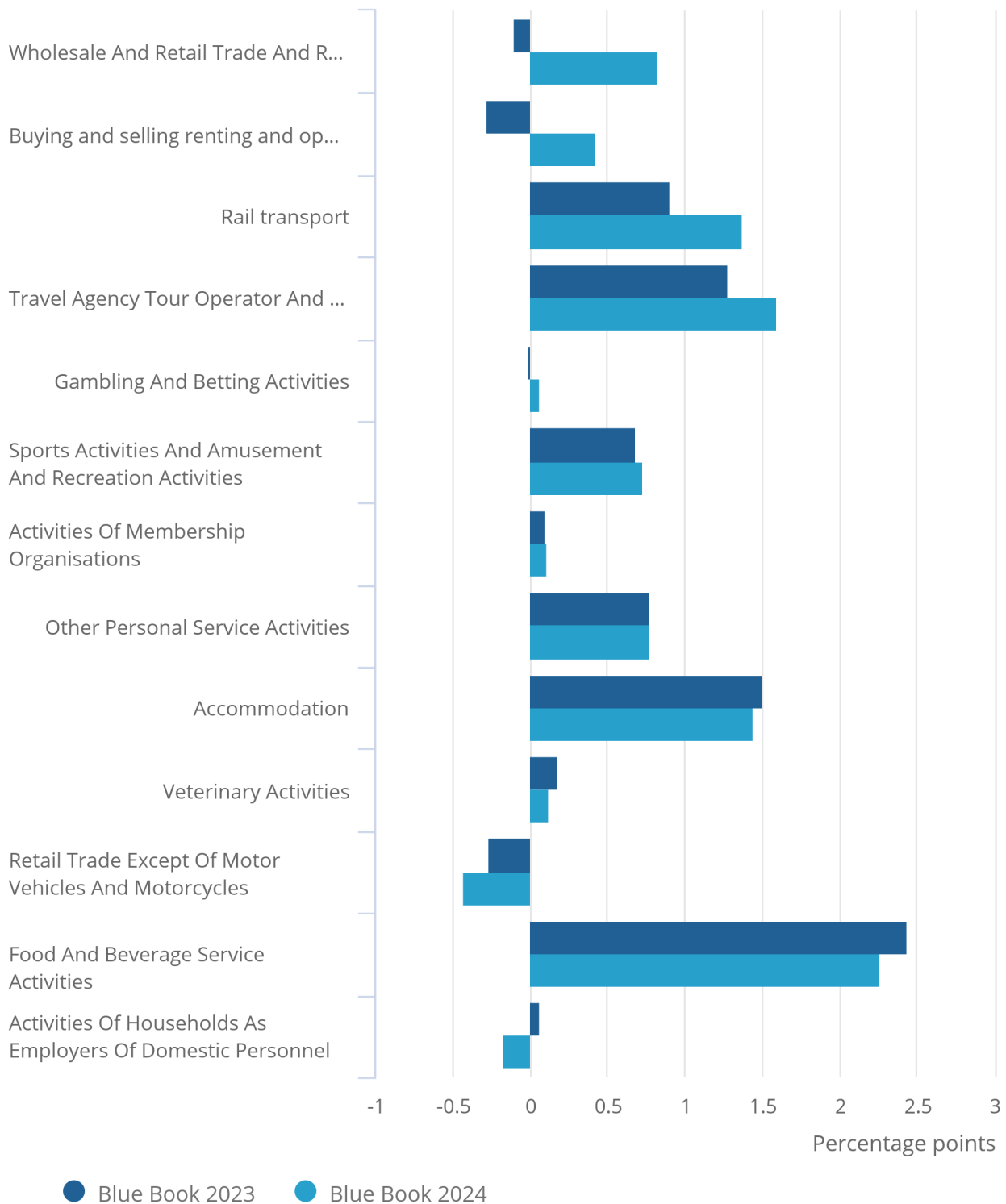
Wholesale and retail trade; repair of motor vehicles and motorcycles now contributes 0.82 percentage points, and buying and selling, renting and operating of own or leased real estate excluding imputed rent now contributes 0.43 percentage points of GVA growth in consumer-facing services (Figure 11).

**Figure 11: Wholesale and retail trade; repair of motor vehicles and motorcycles contributed the most to the revision in 2022 for consumer-facing services**

UK, annual contributions to growth in consumer-facing services in 2022, Blue Book 2024 compared with Blue Book 2023

# Figure 11: Wholesale and retail trade; repair of motor vehicles and motorcycles contributed the most to the revision in 2022 for consumer-facing services

UK, annual contributions to growth in consumer-facing services in 2022, Blue Book 2024 compared with Blue Book 2023





**Source: UK National Accounts from the Office for National Statistics**

**Notes:**

1. Sum of component contributions may not sum to total growth because of rounding.

## Rail and air transport case study

Rail and air transport were both heavily affected by the coronavirus (COVID-19) pandemic, although there were differences between the two industries. We have closely reviewed both industries with the benefit of additional data for 2022.

Rail transport continued to run during the pandemic but with a large reduction in passenger numbers. The rail industry received substantial subsidies so it could continue to operate. As a result, the output of the rail industry (which is net of subsidies received) was lower than the input costs of running rail transport. This resulted in GVA being negative in current prices in the industry in 2020 and 2021, a position which is broadly unchanged since the 2023 annual national accounts.

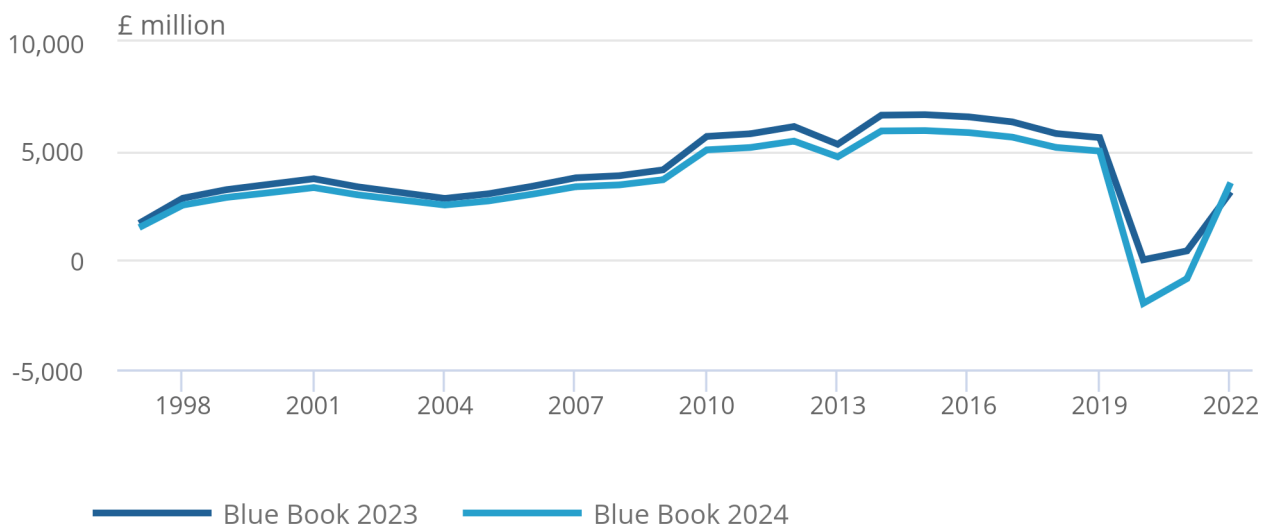
The review of the current data and the recovery in 2022 suggests that the fall in output GVA in 2020 was greater than previously thought, and that volume GVA was also negative in 2020 and 2021. This is unusual, as it suggests that even accounting for inflation, the transport service produced was less than the value of goods and services involved in producing it. However, in this situation, inputs remained high while the service provided (primarily passengers being transported) fell dramatically in 2020 and stayed low in 2021. Volume GVA then recovers to more normal levels in 2022, though still below the pre-coronavirus position (Figure 12).

**Figure 12: Rail transport GVA has been revised down in 2020 and 2021 but shows a stronger recovery in 2022**

UK, volume gross value added (GVA) of the rail transport industry, 1997 to 2022

Figure 12: Rail transport GVA has been revised down in 2020 and 2021 but shows a stronger recovery in 2022

UK, volume gross value added (GVA) of the rail transport industry, 1997 to 2022



Source: UK National Accounts from the Office for National Statistics

Notes:

1. Blue Book 2024 and Blue Book 2023 used different base years.

The experience of air transport was somewhat different during the pandemic. Air transport largely stopped running, reducing output but also reducing intermediate consumption. In current price terms, GVA fell but was not negative. However, the direct volume data indicated an even sharper fall in output, resulting in negative volume GVA.

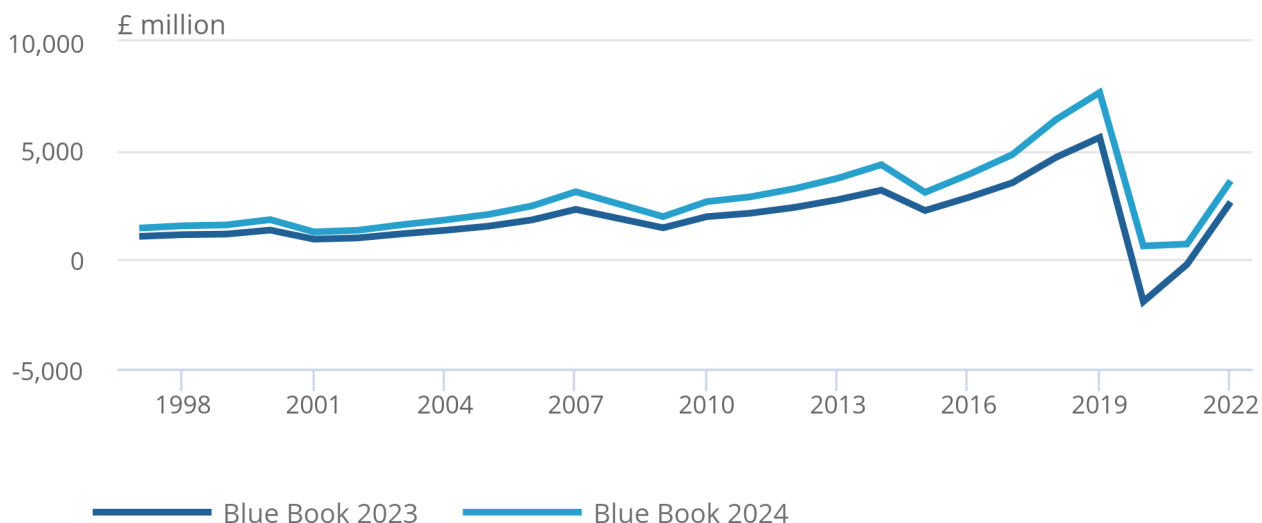
With the additional context of the 2022 data now being available, we have reviewed the air transport industry and concluded that volume GVA should follow current price GVA more closely than was shown in the 2023 annual national accounts. As a result, volume GVA still falls in 2020 and stays low in 2021 before recovering in 2022, although a little more slowly than previously estimated (Figure 13).

**Figure 13: Air transport GVA has been revised up in 2020 and 2021 but shows a slower recovery in 2022**

UK, volume gross value added (GVA) of the air transport industry, 1997 to 2022

Figure 13: Air transport GVA has been revised up in 2020 and 2021 but shows a slower recovery in 2022

UK, volume gross value added (GVA) of the air transport industry, 1997 to 2022



Source: UK National Accounts from the Office for National Statistics

Notes:

1. Blue Book 2024 and Blue Book 2023 used different base years.

## Wholesale and retail trade case study

The main output of retailers and wholesalers is their margins (known as distributor trading margins), the difference between their sales and the cost of goods sold. Unlike other products, we cannot observe price or volume or retail and wholesale margins directly. To create a volume measure, an approach called "rate of the previous year" is used, explained in more detail in our article [Double deflation and the supply and use framework in the UK National Accounts](#).

Assessing the volume of activity of retailers and wholesalers has been challenging during the pandemic. The nature of the services they provide has been changing, with moves to more online ordering and home delivery leading to more uncertainty than usual regarding estimates of volume GVA of these industries. In the 2024 annual national accounts, we have the additional context of 2022 data, and rebasing also has an impact.

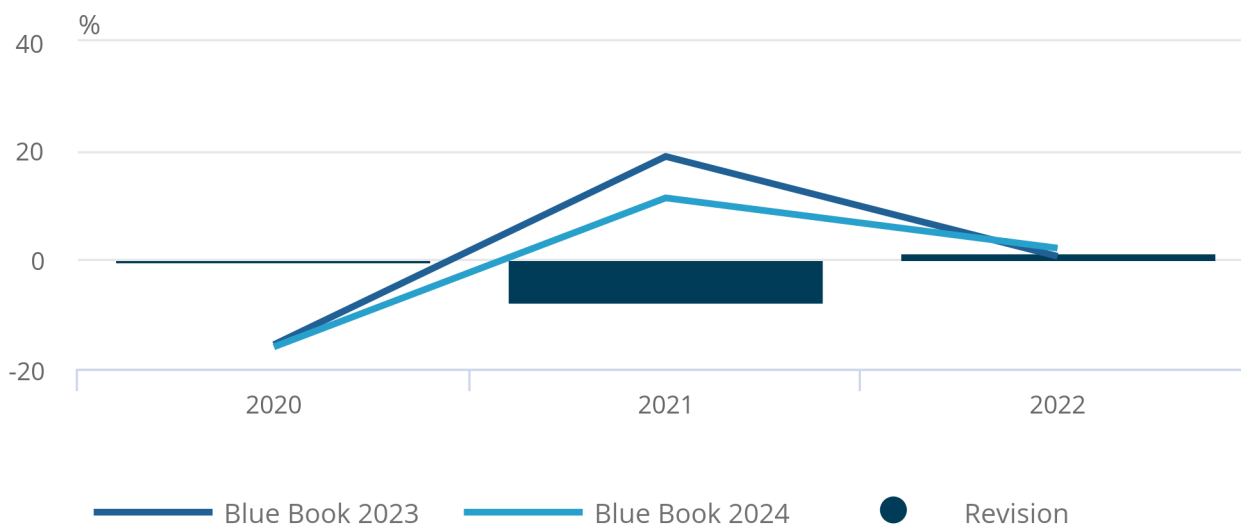
As a result, our estimate of the volume of retail and wholesale GVA growth is somewhat reduced in 2021 (Figure 14). The impact this has across the whole economy is offset to a large extent, as lower margins earned by retailers and wholesalers tend to result in more GVA in the manufacturing sector.

**Figure 14: Volume growth of wholesale and retail trade gross value added**

UK, annual volume growth in wholesale and retail trade, 2020 to 2022

Figure 14: Volume growth of wholesale and retail trade gross value added

UK, annual volume growth in wholesale and retail trade, 2020 to 2022



Source: UK National Accounts from the Office for National Statistics

## Human health services case study

The human health services industry covers both public and private sector provision of these services. GVA of human health services saw downward revisions in 2021 (from positive 57.1% growth to positive 34.7% growth) and 2022 (from positive 15.0% growth to positive 1.5% growth) from the annual data update and rebasing (Figure 15). There were several reasons for this change.

First, government health output is now benchmarked to the more comprehensive measure of healthcare output to the end of the financial year ending March 2022. This improves our measurement of 2021 and gives us more information about 2022 activity despite only covering the first three months of the year.

The annual benchmark includes additional activities not captured in our short-term health data. Some of these activities, such as ambulance services, mental health and community health, are growing less rapidly in the financial year ending March 2022 than the services that make up the more timely quarterly measure, which includes elective care, general practice activity and dental services. We anticipate future revisions to healthcare volume output relating to benchmarking to be smaller in post-coronavirus periods, particularly in light of [improvements to the coverage of healthcare services in our timely quarterly measure](#).

Second, rebasing has changed the composition of the health industry in volume terms in 2021. The rebased data show that the output (in volume terms) of the private sector is somewhat lower than before rebasing. This has a knock-on effect in lowering volume GVA. In combination, these two effects mean that while volume GVA in the health sector still grew rapidly in 2021, this growth was somewhat less than previously estimated.

There is a third factor that does not affect the health industry's GVA but does affect the contribution that human health services makes to the whole economy.

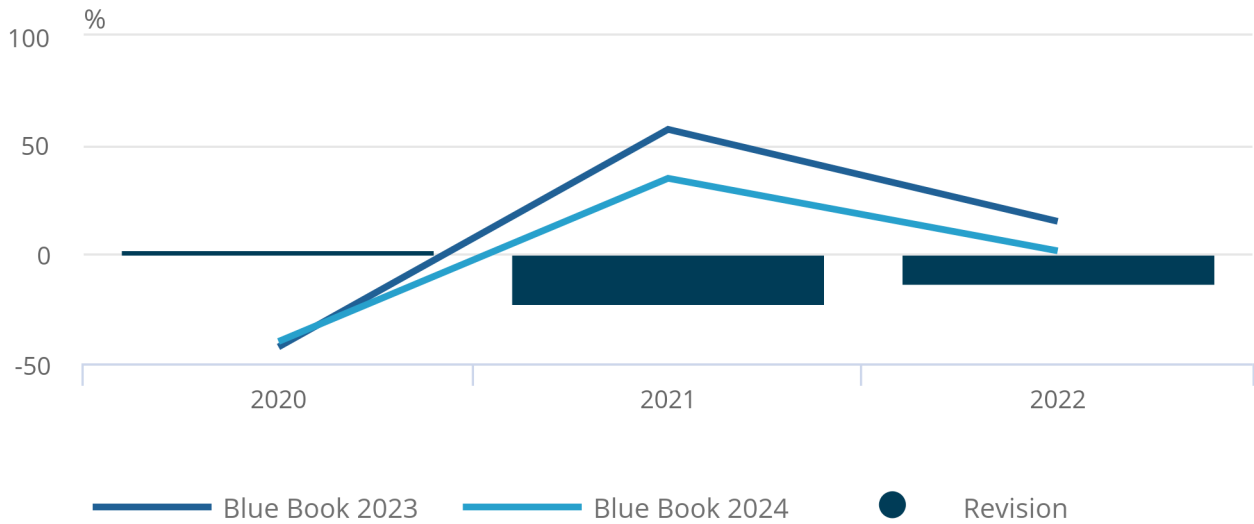
Before rebasing, industry contributions to 2021 gross domestic product (GDP) growth were determined by the structure of the economy in the last base year, 2019. Rebasing means that contributions to 2021 GDP growth are now determined by the previous year, 2020. The size of the health industry increased a lot between 2019 and 2020, as the sector expanded to deal with the coronavirus pandemic. This increase in size means that the still strong growth in health industry GVA has a larger weight and so makes a larger positive contribution to GDP.

**Figure 15: Volume growth of human health services gross value added**

UK, annual volume growth in human health services, 2020 to 2022

Figure 15: Volume growth of human health services gross value added

UK, annual volume growth in human health services, 2020 to 2022



Source: UK National Accounts from the Office for National Statistics

## The production sector

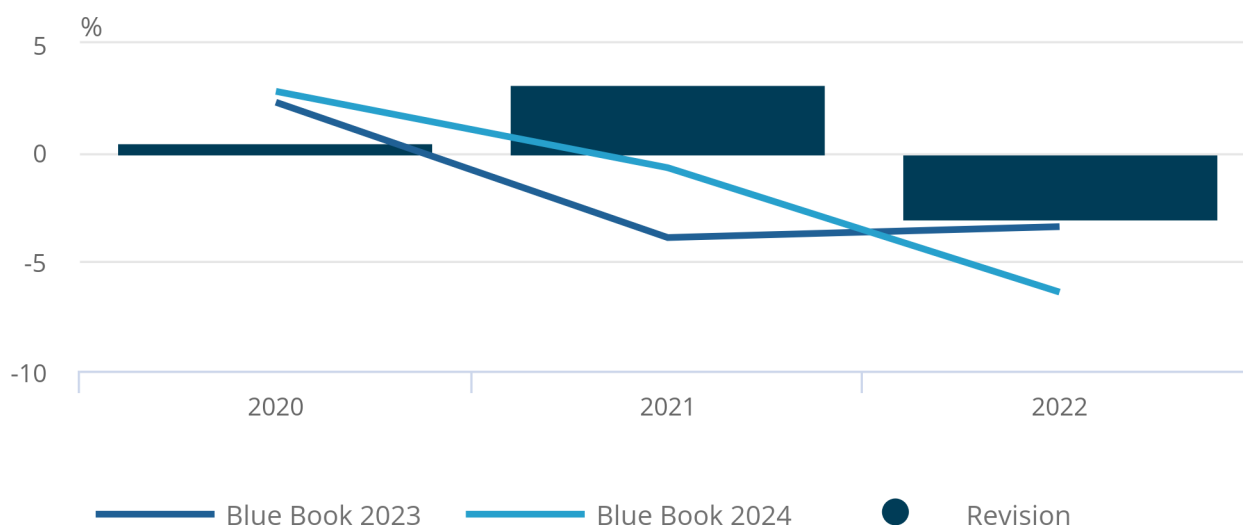
The production sector sees a downward revision to volume GVA growth of 3.0 percentage points to negative 6.4% in 2022, and an upward revision to growth in 2021 of 3.2 percentage points to negative 0.7% (Figure 16).

**Figure 16: Annual volume estimates of production are now estimated to have fallen by a larger amount in 2022**

UK, annual volume growth of gross value added (GVA) in production, 2020 to 2022

Figure 16: Annual volume estimates of production are now estimated to have fallen by a larger amount in 2022

UK, annual volume growth of gross value added (GVA) in production, 2020 to 2022



Source: UK National Accounts from the Office for National Statistics

The 2021 revision is partly because of the detailed review of energy products, described in the case study later in this section. Improved data on natural gas prices led to a reassessment of the supply and use of the crude oil and natural gas product. Another factor contributing to the 2021 revision is the review of wholesale and retail trade. This led to overall lower margins on manufactured goods, which in turn led to higher output by the manufacturing industries.

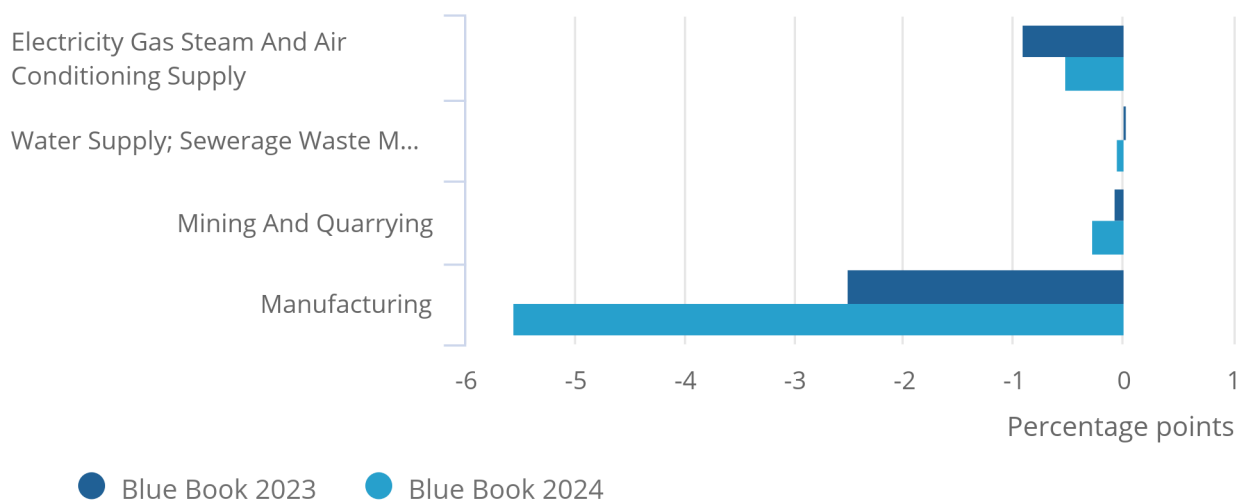
Three of the four industrial sectors that make up production see downward revisions in volume GVA growth in 2022 (Figure 17). In the mining and quarrying industries, the main driver is mining and support services, where the annual survey data give us a better picture of the industry. The electricity, gas, steam and air conditioning supply industry is revised up from negative 11.2% growth to negative 7.9% growth in 2022, mainly because of a reworking of the energy products (see the case study later).

## Figure 17: Three subsectors of production see downward revisions, contributing to the fall in production in 2022

Industry annual contributions to growth in production sector gross value added (GVA) in 2022, Blue Book 2024 compared with Blue Book 2023

### Figure 17: Three subsectors of production see downward revisions, contributing to the fall in production in 2022

Industry annual contributions to growth in production sector gross value added (GVA) in 2022, Blue Book 2024 compared with Blue Book 2023



Source: UK National Accounts from the Office for National Statistics

#### Notes:

1. Sum of component contributions may not sum to total growth because of rounding.

Figure 18 shows the components' contributions to the manufacturing sector growth in 2022 that will be published in Blue Book 2024 compared with our currently published estimates.

As discussed earlier, there are several reasons why annual data differ from the early estimates. We have more detailed annual production data, and the first cut of survey data on intermediate consumption. This greater richness of data allows us to reconcile our data in the supply and use framework, first in current prices and then again after applying appropriate deflators to all transactions.

Manufacturing volume GVA decreased by 7.4% in 2022; this has been revised down by 4.1 percentage points in Blue Book 2024. Volume manufacturing output growth slowed to 0.5% in 2022, while the volume of intermediate consumption increased by 5.1%. The volume of inputs used in manufacturing such as materials, energy and business services has risen in 2022.

Manufacturing of food, beverage and tobacco products saw a decrease of 4.9% in volume GVA for 2022. This was driven by the 4.2% increase in the volume of intermediate consumption, as the volume of agricultural products used in manufacturing rose. The volume of output by food manufacturers saw a smaller increase of 1.5% in 2022.

Volume GVA by chemical manufacturers decreased by 20.5% in 2022. Output in the industry decreased 10.3% in 2022 while intermediate consumption only fell by 5.5%, resulting in volume value added being squeezed.



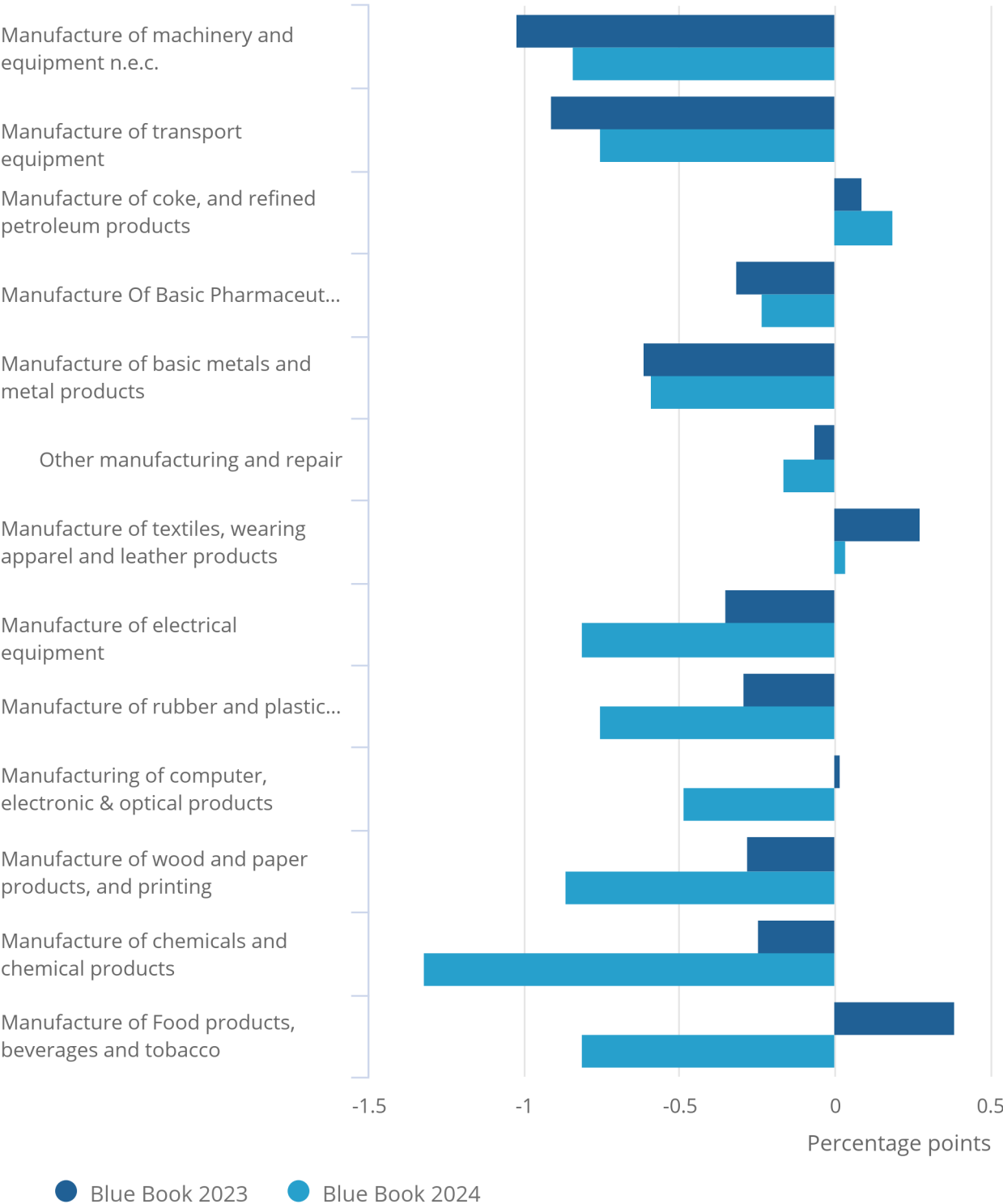
These price-changing effects are also present across other manufacturing industries such as chemicals, electrical equipment, textiles and clothing. Details on supply and use of products will be published in datasets alongside Blue Book 2024.

**Figure 18: The manufacturing sector has seen contributions to manufacturing growth revised down in 8 out of the 13 subsectors**

UK, components contribution to the revision of annual manufacturing volume growth in 2022, Blue Book 2024 compared with Blue Book 2023

# Figure 18: The manufacturing sector has seen contributions to manufacturing growth revised down in 8 out of the 13 subsectors

UK, components contribution to the revision of annual manufacturing volume growth in 2022, Blue Book 2024 compared with Blue Book 2023



Notes:

1. Sum of component contributions may not sum to total growth because of rounding.

## Energy products case study

The energy industries were identified as an area for further work in our article [Impact of Blue Book 2023 changes on gross domestic product](#), because of the ongoing challenges associated with rapidly changing energy prices.

In the case of crude oil and natural gas extraction, we have revisited what has happened to natural gas prices in 2021 and 2022. Our most recent data now benefit from a new natural gas deflator for exports. We have worked with colleagues at the Department for Energy Security and Net Zero and the North Sea Transition Authority to improve our estimate of prices of domestically produced natural gas in 2021 and 2022.

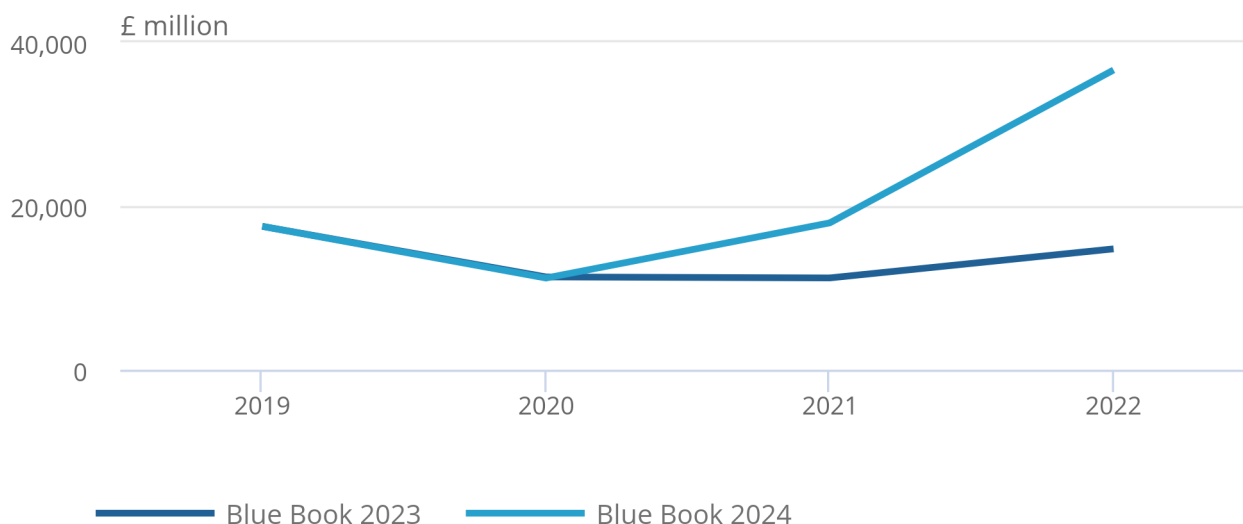
The data also benefit from updated data from HM Revenue and Customs (HMRC) on exports of natural gas, as discussed in their note [7 August 2024: Corrections to the Overseas Trade in Goods Statistics](#).

### Figure 19: Crude oil and natural gas GVA has been revised up in 2021 and 2022

UK, current price gross value added (GVA) of the crude oil and natural gas industry, 2019 to 2022

Figure 19: Crude oil and natural gas GVA has been revised up in 2021 and 2022

UK, current price gross value added (GVA) of the crude oil and natural gas industry, 2019 to 2022



Volume of GVA from the electricity, gas, steam and air conditioning industries (SIC Section D, from here referred to as the energy industries) are revised up in 2022, from an 11.2% fall previously to a 7.9% fall now (Figure 19). These revisions reflect more detailed annual data, but also several improvements to the treatment of crude oil and natural gas, one of the main inputs to these industries.

## **Figure 20: New data on crude oil and natural gas have led to significant movements in current price GVA in energy industries between 2021 and 2022**

**UK, annual growth in gross value added (GVA) in energy industries, current prices**

Figure 20 shows that output and gross output and GVA in current prices increased substantially in 2021 and 2022. Crude oil and natural gas are primarily used by the other three industries shown in Figure 20: the petroleum manufacture, electricity and gas industries. The changes upstream to oil and gas have a knock-on impact on these industries as well.

The year 2021 continued to see low GVA in the electricity and gas industries, during which 28 electricity and gas providers went out of business and had to be taken over. In 2022, several schemes aimed at managing the impact of high energy prices were introduced. In national accounts terms, the value of gas and electricity providers' output was able to rise (because of high input costs) with the government subsidy reducing the prices actually paid by consumers, leading to a recovery in current price GVA in 2022.

## **Figure 21: Volume GVA of the gas distribution industry is most affected by new and improved data on energy products**

**UK, annual growth in gross value added (GVA) in energy industries, chain volume measures**

The change in output volumes is much smaller, as shown in Figure 21. This is in part because we now have separate data on energy product volumes, which also support these estimates. However, there are still some impacts on GVA estimates, particularly in the gas distribution industry where the data are less strong. These industries operate at small margins (that is, their GVA is small compared with their intermediate costs) and so small changes to output and intermediate consumption can have substantial impacts on their GVA.

## The construction sector

Figure 22 shows the revisions to the annual profile of the construction sector. Revisions to volume GVA growth in 2020 and 2022 are minor, with volume GVA growth now estimated to have increased by 7.3% in 2022.

Volume GVA growth in 2021 is revised up by 2.1 percentage points and is now estimated to have grown by 11.9% in 2021 compared with the previous estimate of 9.8%. This increase reflects modest revisions to the survey data and a minor reassessment of the impact of price inflation in the sector.

Volume GVA for the construction sector in 2022 is revised up by 0.5 percentage points. The largest contribution came from growth in GVA in construction of buildings, which was revised up by 4.5 percentage points from 7.1% to 11.6%. Growth in value added by civil engineering and specialised construction activities was revised down by 3.3 percentage points and 1.0 percentage points, respectively.

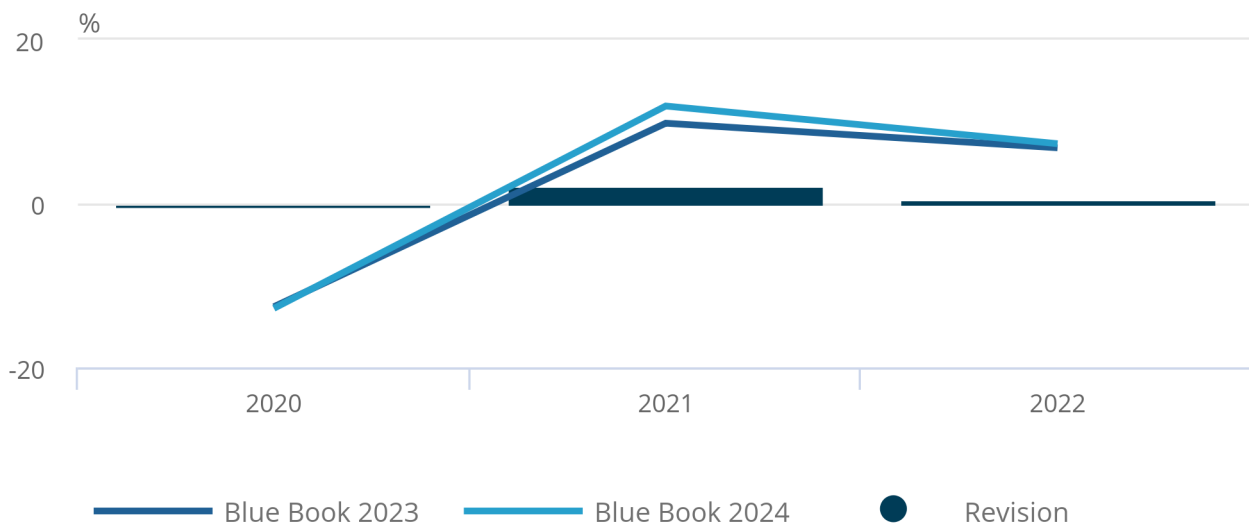
Our [May 2024 Construction output bulletin](#) only includes output data and therefore GVA estimates published in our [GDP releases](#) will be different from the construction output release.

### Figure 22: Annual volume estimates of construction see an upward revision in 2022

UK, annual volume growth in gross value added (GVA) in construction, 2020 to 2022

## Figure 22: Annual volume estimates of construction see an upward revision in 2022

UK, annual volume growth in gross value added (GVA) in construction, 2020 to 2022



Source: UK National Accounts from the Office for National Statistics

## 10 . Impacts on the expenditure approach to measuring GDP

The expenditure approach is the sum of all final expenditures within the economy, that is, all expenditure on goods and services that are not used up or transformed in the production process. This approach to gross domestic product (GDP) includes gross fixed capital formation and exports less imports.

The expenditure method of calculating GDP combines values of consumption, investment, government spending and net exports. The major components of the expenditure method of calculating GDP are gross capital formation, change in inventories and valuables, exports, imports and final consumption expenditure by households, non-profit institutions serving households, and government.

The expenditure approach to GDP benefits from significant additional data sources not available when the quarterly estimates are compiled. These include:

- benchmark data for many products purchased by households, including the Annual Business Survey (ABS) covering retail sales of many goods
- benchmark data for gross fixed capital formation and changes in inventories, also from the ABS
- results from the Annual International Trade in Services (ITIS) survey
- data for non-profit institutions serving households, including from the Higher Education Statistics Agency (HESA) and the National Council for Voluntary Organisations (NCVO)
- more detailed benchmark data on the volume of government output, for example, covering public sector health services

The contributions to current price revision by expenditure component in 2022 are shown in Table 5. The most significant contribution to the revision to 2022 GDP in current prices is the increase in household expenditure, compared with the previous 2022 estimates. The underlying data for household expenditure have changed relatively little since the quarterly estimates. These data suggest weaker growth in the economy than is suggested by the rest of the GDP dataset.

In the quarterly national accounts, these differences are resolved by allowing a statistical discrepancy between the three approaches. In the annual estimates, the data are reconciled through the supply and use balancing process. In 2022, confrontation with the rest of the GDP dataset suggests that household expenditure is being under-reported. Household expenditure is also the largest component of the expenditure approach to GDP and so tends to make a large contribution to revisions.

Exports makes the next largest contribution to revisions in 2022. Exports have seen revisions on natural gas exports and from the annual International Trade in Services Survey (which also affect imports, somewhat offsetting the GDP impact). Gross fixed capital formation benefits from annual benchmark data taken from the ABS, which results in stronger growth than indicated by the quarterly sources.



Table 5: Contributions to expenditure gross domestic product (GDP) revisions in current prices, 2020 to 2022 UK, expenditure current price revisions to contributions to growth in 2020 to 2022, Blue Book 2024 compared with Blue Book 2023

	2020	2021	2022
<b>GDP</b>	-0.04	0.10	0.83
<b>Household FCE</b>	-0.06	-0.10	1.66
<b>Non-Profit Institutions Serving Households FCE</b>	0.07	0.12	0.10
<b>Government FCE</b>	0.00	0.00	0.00
<b>Gross Fixed Capital Formation</b>	0.04	0.01	-0.41
<b>Changes in inventories</b>	0.00	0.10	-0.20
<b>Acquisitions less disposals of valuables</b>	-0.04	0.00	-0.06
<b>Exports</b>	-0.03	-0.40	0.85
<b>Imports</b>	-0.02	0.37	0.22
<b>Statistical Discrepancy to expenditure</b>	0.00	0.00	-1.32

Source: UK National Accounts from the Office for National Statistics

#### Notes

1. Sum of component contributions may not sum to total growth because of rounding.

Revisions to the contributions to volume GDP under the expenditure approach broadly follow those seen in current prices, as shown in Table 6.

Household expenditure is again the strongest contributor to the growth rate revision in 2022, followed by exports, with the changes to current price contributions feeding through to the volume measure.

Government final consumption expenditure, however, sees revisions in volume but not in value. This is primarily because of revisions to the benchmark activity data that determines the volume of output, particularly in the human health and education industries. Human health services are discussed in the case study earlier in this article. Education service output was revised upwards in 2020 and 2021 because of revised estimates of pupil numbers receiving education in this period.

Table 6: Contributions to expenditure gross domestic product (GDP) revisions in chained volume measures, 2020 to 2022

UK, expenditure chained volume revisions to contributions to growth in 2020 to 2022, Blue Book 2024 compared with Blue Book 2023

	<b>2020</b>	<b>2021</b>	<b>2022</b>
<b>GDP</b>	0.06	-0.10	0.49
<b>Household FCE</b>	-0.02	-0.47	1.38
<b>Non-Profit Institutions Serving Households FCE</b>	0.08	0.15	0.01
<b>Government FCE</b>	0.21	0.31	-0.32
<b>Gross Fixed Capital Formation</b>	-0.02	-0.05	-0.53
<b>Changes in inventories</b>	-0.02	0.34	-0.28
<b>Changes in valuables</b>	-0.03	-0.01	-0.07
<b>Exports</b>	-0.10	-0.59	0.96
<b>Imports</b>	-0.04	0.21	0.60
<b>Statistical Discrepancy to expenditure</b>	0.00	0.00	-1.25

Source: UK National Accounts from the Office for National Statistics

#### Notes

1. Sum of component contributions may not sum to total growth because of rounding.

# 11 . Impacts on the income approach to measuring GDP

The income approach adds up all income generated by production in the form of gross operating surplus (profits), compensation of employees (CoE) (income from employment), mixed income (self-employment income) and taxes on products and production less subsidies for the whole economy.

As with the other approaches to gross domestic product (GDP), the income approach also benefits from additional annual data that only become available some time after the time period being measured. The source of much of this additional data is tax data provided by HM Revenue and Customs. This includes employee compensation data from the Pay As You Earn system, mixed income data from Self Assessment tax returns, and profits data informing gross operating surplus from Corporation Tax returns.

Self Assessment and Corporation Tax data are available one year later than other sources, meaning that 2021 includes actual data, while forecasts of mixed income and gross operating surplus for 2022 are updated based on the data received before going through the supply and use balancing process.

Most of the income components to GDP saw revision contributions of 0.2 percentage points or less from 2020 to 2022 (Table 7). The largest revision was from the removal of the statistical discrepancy to income in 2022. This is because the quarterly estimate of GDP following the income approach was closer to the position reached using annual data sources and the supply and use balancing process. This is despite the fact that the income approach has lower data content in the quarterly estimates than the other two approaches to GDP.

Table 7: Contributions to income gross domestic product (GDP) revisions in current prices, 2020 to 2022 UK, income current price revisions to contributions to growth in 2020 to 2022, Blue Book 2024 compared with Blue Book 2023

	<b>2020</b>	<b>2021</b>	<b>2022</b>
<b>GDP</b>	-0.04	0.10	0.83
<b>Wages and Salaries</b>	-0.09	0.03	-0.01
<b>Employer's social contributions</b>	0.00	-0.01	0.10
<b>Taxes on products &amp; production</b>	0.01	0.00	-0.01
<b>Subsidies on products &amp; production</b>	0.00	-0.01	0.01
<b>Gross operating surplus and mixed income</b>	0.04	0.09	-0.24
<b>Statistical discrepancy to income</b>	0.00	0.00	0.99

Source: UK National Accounts from the Office for National Statistics

## Notes

1. Sum of component contributions may not sum to total growth because of rounding.

## 12 . Impacts on the household saving ratio

The household saving ratio is the proportion of the household sector's total resources that are available but have not been used for consumption.

In Blue Book 2024, the households' annual saving ratio is estimated at 6.0% in 2022, which is a downward revision of 2.0 percentage points from 8.0% previously published (Figure 23). The main driver behind this revision is the upward revision in household final consumption expenditure of £34.3 billion in 2022.

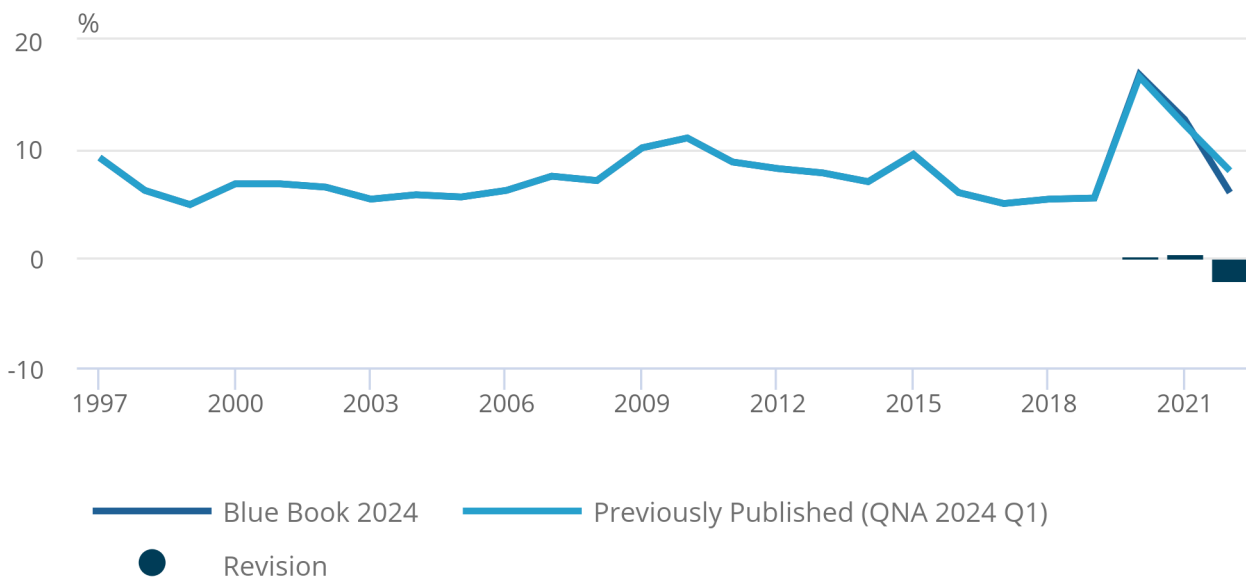
Smaller upward revisions can be seen in 2020 and 2021 of 0.2 percentage points and 0.5 percentage points, respectively. The saving ratio in 2020 is estimated at 16.8% when it peaked because of reduced final consumption expenditure from households during the coronavirus (COVID-19) pandemic. In 2021, the saving ratio is estimated at 12.7%.

**Figure 23: The households annual saving ratio in 2022 is now estimated at 6.0% revised from 8.0% as previously published**

UK, savings ratio, seasonally adjusted, 1997 to 2022

Figure 23: The households annual saving ratio in 2022 is now estimated at 6.0% revised from 8.0% as previously published

UK, savings ratio, seasonally adjusted, 1997 to 2022



Source: UK National Accounts from the Office for National Statistics

## 13 . Indicative Blue Book 2024 impacts on labour productivity

Blue Book 2024 leads to minor revisions in output per hour, our headline measure of productivity, and output per worker. In 2022, the upward revision to gross value added (GVA) for the whole economy in Blue Book 2024, compared with Blue Book 2023, resulted in an upward revision to both output per hour and output per worker of the whole economy of 0.7 percentage points.

Figure 24 shows that 2022 year-on-year output per hour growth rate of 0.0%, published in the [Output per hour dataset](#) as part of our [Productivity flash estimate and overview, UK: January to March 2024 and October to December 2023](#) was revised up to 0.4%.

The 2022 year-on-year output per worker growth rate of 2.7%, published in our [Output per worker dataset](#), was revised up to 3.0%.

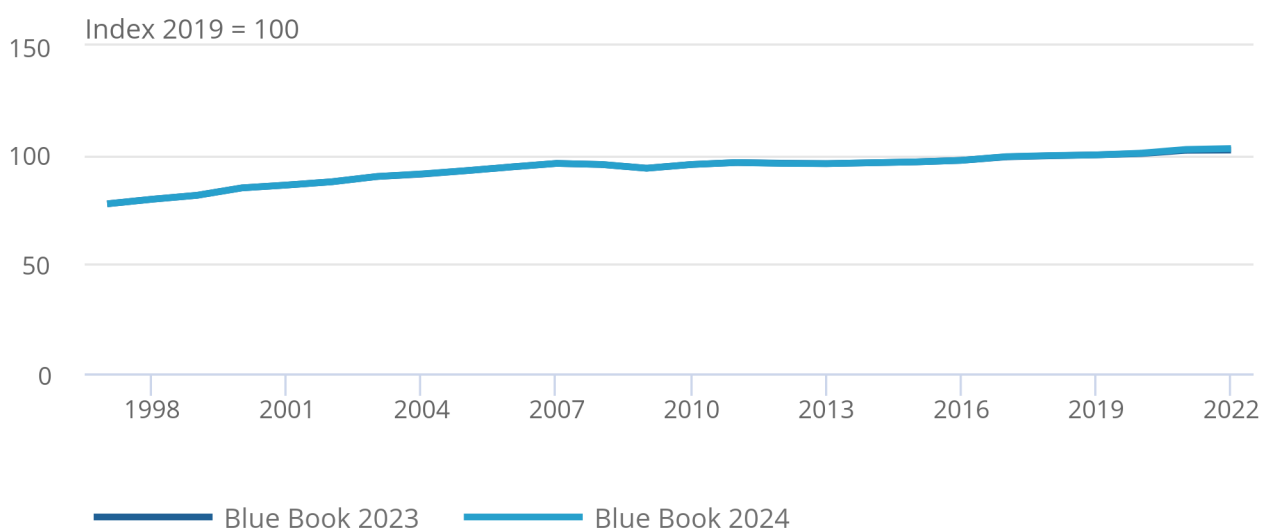
The updated Blue Book 2024 changes will be fully reflected in the November publication of our Productivity flash estimate and overview.

### Figure 24: Output per hour worked in 2022 is now higher because of upward revisions in gross value added

UK, output per hour worked, 1997 to 2022

Figure 24: Output per hour worked in 2022 is now higher because of upward revisions in gross value added

UK, output per hour worked, 1997 to 2022



Source: UK productivity from the Office for National Statistics

## 14 . Next steps; publication and addition of 2023 to 2024 data

The 2024 UK annual national accounts, also known as Blue Book 2024, will incorporate a number of methodological changes focused on data pertaining to recent years, along with the addition of more recent survey and administrative information.

We have now estimated 2022 for the first time using the supply and use tables (SUTs) framework, as well as improved the estimates of 2021 with the latest data. We have also implemented outstanding classification decisions affecting the public sector, as well as to the UK trade gas exports deflator. Additionally, we have updated the base year to 2022 after holding this fixed since the start of the coronavirus (COVID-19) pandemic.

The next Quarterly national accounts release on 30 September 2024 will incorporate these revisions into our official estimates in line with our [National Accounts Revisions Policy](#). This will incorporate the Blue Book 2024 methodological changes; improved source data and additional updated data as would happen in all quarterly national accounts releases.

Early indications show that estimating the output approach to quarterly GDP using the 2022 weights does not significantly change the growth rates of Quarter 1 (Jan to Mar) 2023 to Quarter 1 2024 output GDP. Of course, by the time these quarters (and consistent months) are published at the end of September 2024 in the Quarterly national accounts, we will have taken on further data updates to expenditure and income components across 2023 and 2024 quarters to form the average GDP estimates.

Within our output measure of GDP, we also currently plan to bring in new Value Added Tax (VAT) turnover data for Quarter 4 (Oct to Dec) 2023 and Quarter 1 (Jan to Mar) 2024, as well as any updated source data received since our previous publication and complete a full seasonal adjustment review, which could cause revisions to growth in these quarters when we publish the Blue Book 2024 consistent dataset.

## 15 . Glossary

## 16 . Related links

### [Impact of Blue Book 2023 changes on gross domestic product](#)

Article | Released 1 September 2023

Impact of methodological and data improvements on current price and chain volume measure of quarterly gross domestic product (GDP), 1997 to 2021.

### [Impact of double deflation on industry chain volume measure annual estimates, 1997 to 2018: Blue Book 2021](#)

Article | Released 28 June 2021

Indicative impacts of a new framework which will be implemented in Blue Book 2021, including the first official estimates of double-deflated gross domestic product.

### [Chain-linking in the UK National Accounts: Blue Book 2022](#)

Article | Released 20 June 2022

An explanation of the impacts the coronavirus (COVID-19) pandemic has had on the output and expenditure structures of the UK economy over this period. These affect how we compile volume estimates of gross domestic product (GDP) through chain-linking. Includes proposed changes we will be making to Blue Book 2022 in response to these impacts.

## 17 . Cite this article

Office for National Statistics (ONS), released 7 August 2024, ONS website, article, [Blue Book 2024: advanced aggregate estimates](#)