Communicating the UK Economic Cycle

Explanation of movement in gross domestic product (GDP) and wider considerations around technical recessions in the UK.

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1 . Overview

The purpose of this paper is to explain how the Office for National Statistics (ONS) communicates movements in gross domestic product (GDP) in the UK, particularly in the context of when there is little or no growth in the economy or when it is contracting. We explain some of the wider considerations that we will look at as part of any communications around a "technical" recession.

Previous analysis shows that, as a National Statistical Institute (NSI), we will acknowledge the widely held international convention that a "technical" recession comprises two or more consecutive quarters of contracting output. This is a simple way to identify recessions as and when estimates of GDP are published. It is an easy way to communicate to the wider public, but also has important shortcomings. For example, it does not take account of the scale and broader context around any consecutive GDP falls.

To address this, in our communications, we will consider not only quarterly movements, but also cumulative changes in GDP. We will continue to acknowledge how all early estimates are prone to data revision. We will also emphasise other economic indicators in our communications, rather than just headline movements in volume GDP only to provide a broader and more informed interpretation of the economy.

We looked closely at the approach in the United States where it is the responsibility of the National Bureau of Economic Research (NBER) to identify turning points. The NBER look at three criteria - depth, diffusion, and duration - in considering "a significant decline in economic activity that is spread across the economy and lasts more than a few months".

2 . "Technical" recession vs turning points

The purpose of this paper is to explain how the Office for National Statistics (ONS) communicates gross domestic product (GDP) in the UK, particularly in the context of when there is little or no growth in the economy, or when there is a contraction in economic activity. The recent experience of the US economy, where US GDP has fallen in the first two quarters of 2022 but a recession has not yet been officially called, highlights that there are more nuances in judging the cyclical state of the economy. We explain some of the wider considerations we will look at as part of any communications around a "technical" recession.

There has been a long-standing international convention that a "technical" recession comprises two or more consecutive quarters of contracting output. This originated from American presidential speechwriters in the 1960s, where it was proposed that "one period of falling output does not constitute a recession, but that two consecutive quarters do". This likely reflected the volatile movements in volume GDP, which were more common at that time, and so did not provide a useful indication of the economic cycle.

As explained in our Real-time turning point indicators article, turning points are typically communicated in the content of the economic cycle, in which the economy alternates between the recession and expansion phases. This is based on a judgement of being able to identify peaks and troughs in GDP, where recession phases are periods between a peak and a trough and expansion phases are periods between a trough and peak. These will be associated with the headline change in GDP, though identifying peaks and troughs is more nuanced.

This simple rule-of-thumb of two consecutive quarters of contracting output is likely to be more appropriate for a National Statistical Institute (NSI), particularly as it removes the need for any real-time judgement about the underlying economic cycle. Figure 1 shows the five-year profile of volume UK GDP following the onset of "technical" recessions in the UK over the last 50 years. This reinforces that there is no concept of a "typical" recession - the breadth, depth and length of these episodes varies according to the underlying causes and effects of these turning points.

Figure 1: There is no 'typical' profile of UK recessions and recoveries

Volume UK GDP, 1973; 1979; 1990 and 2008 episodes
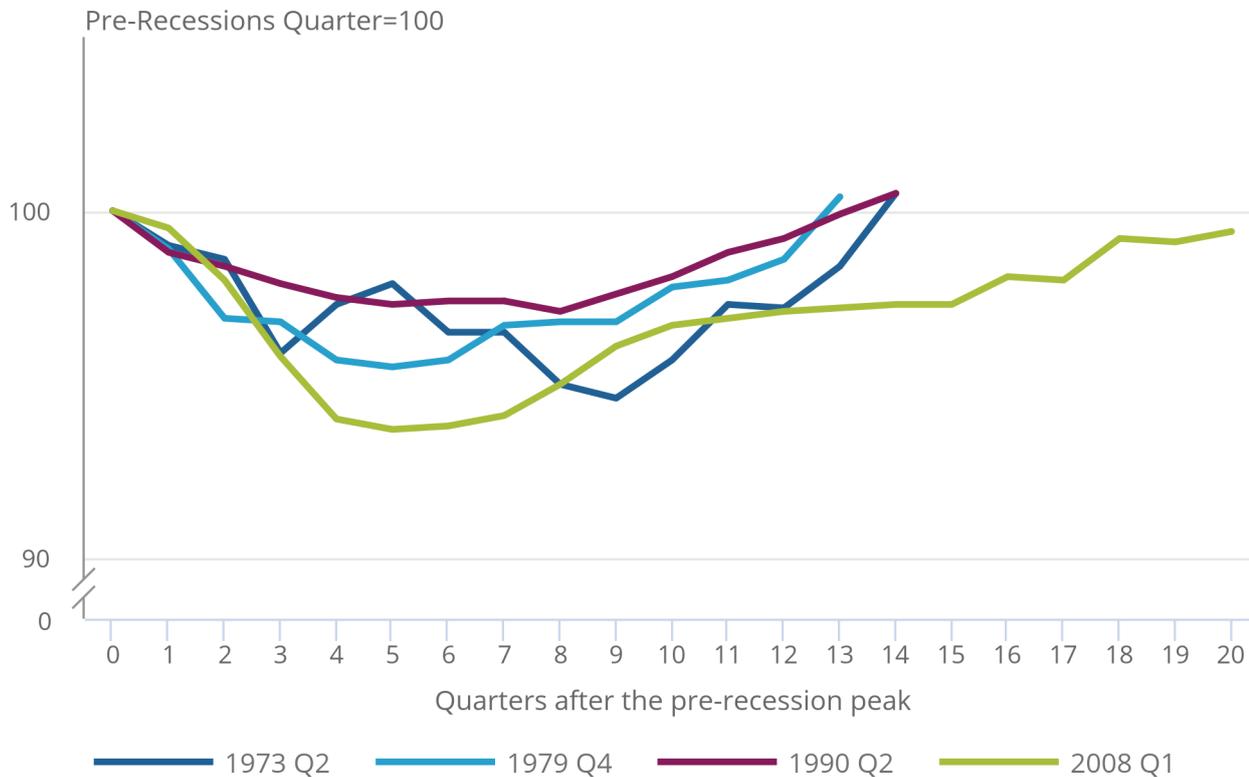
Source: Office for National Statistics

Notes:

1. Pre-recession quarters have been identified as Quarter 2 1973, Quarter 4 1979, Quarter 2 1990, and Quarter 1 2008.

2. The coronavirus (COVID-19) episode has been excluded for illustrative purposes, given the record 23.1% peak-to-trough fall in volume GDP in the first half of 2021.

3. Quarter 1 refers to January to March, Quarter 2 refers to April to June, Quarter 3 refers to July to September and Quarter 4 refers to October to December.

This technical recession rule-of-thumb has attractive features. Following it, recessions are easily defined as and when those estimates of GDP are published. It is also easy to communicate to the wider public in real time and there is no explicit real-time or ex-post judgment around the economic cycle. While there are important shortcomings to this approach, the five 'technical' recessions that have taken place in the UK in peacetime would also be expected to be identified by those studying business cycles. Table 1 provides the latest information on the features of the impact on volume GDP.

Table 1: There have been five technical recessions over the last 50 years
Impact on volume GDP, UK

	Peak-to-trough decline in volume GDP	Number of quarters to recover to pre-recession levels of volume GDP
Quarter 3 1973 – Quarter 3 1975	-5.4	14
Quarter 1 1980 – Quarter 1 1981	-4.5	13
Quarter 3 1990 – Quarter 2 1992	-2.9	14
Quarter 2 2008 – Quarter 2 2009	-6.3	21
Quarter 1 2020 – Quarter 2 2020	-23.1	-

Source: Office for National Statistics

Notes

1. Time periods refer to the peak-to-trough decline in volume GDP which may include some quarters of expanding GDP.

2. As of Quarter 2 2022, UK GDP had not yet recovered to pre-pandemic levels.

3. Quarter 1 refers to January to March, Quarter 2 refers to April to June, Quarter 3 refers to July to September and Quarter 4 refers to October to December.

3 . Challenges in communicating gross domestic product (GDP)

One of the challenges is that this takes no account of the scale and broader context around any consecutive falls in GDP. Not every technical recession will correspond to a turning point, but also that not every meaningful downturn need comprise two consecutive quarterly falls. Cumulative changes in the level of GDP should also be considered.

Another challenge is around data uncertainty. Real-time estimates of GDP are subject to data revisions, reflecting the inherent trade-off between timeliness and accuracy. As more survey and administrative information becomes available, National Statistical Institutes (NSIs) will improve the accuracy of their estimates and the scope for revisions is inevitable. NSIs must communicate in real time, but the focus on "technical" recessions leads to there being heightened sensitivity to a revision around turning points.

This highlights the weight that the concept of technical recession puts on the sign of the change in GDP. Given the natural revisions process, smaller recessions could easily be revised away or missed in the first place. Figure 2 highlights that there is a tendency for revisions to be more pronounced around turning points. Even if those revisions are not larger in magnitude, the change in activity is likely to be close to zero at these points in time, so it will not take much to revise in one direction or the other. This was particularly a concern in the UK around the time of the global financial crisis (GFC). Early findings show that revisions have also been prominent in the coronavirus (COVID-19) pandemic for many countries.

Figure 2: There have been instances where revisions have been larger around turning points

Revisions to volume UK GDP, Quarter 1 1970 to Quarter 2 2019

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Revisions to volume UK GDP, Quarter 1 1970 to Quarter 2 2019
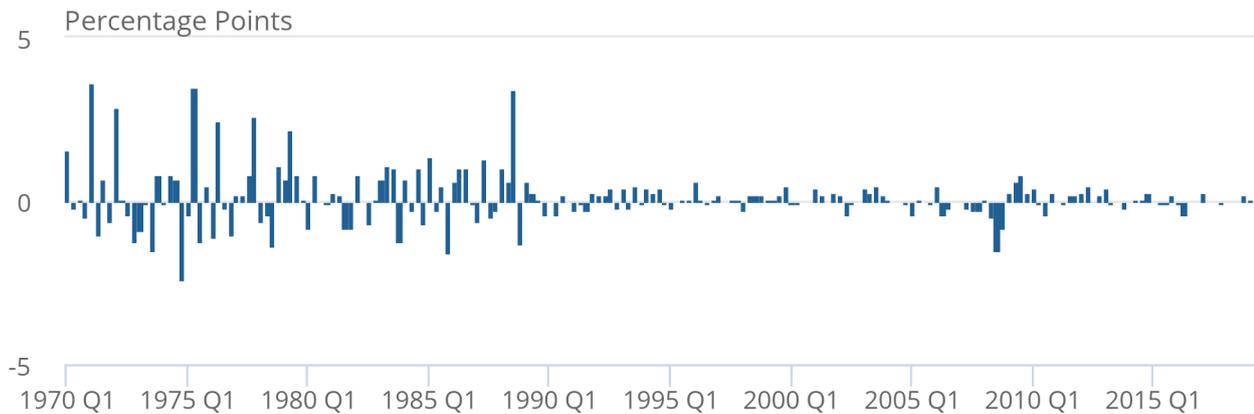
Source: Office for National Statistics

Notes:

1. Revisions are between the first and 'final' estimate, which is taken to be the one published 3 years later. Final estimates are not yet available for the Covid-19 recession, so are not included here.

2. The shaded areas capture the latest estimates of the peak-to-trough falls in volume GDP in UK technical recessions (Table 1), where pre-recession quarters have been identified as Quarter 2 1973, Quarter 4 1979, Quarter 2 1990, and Quarter 1 2008.

3. There has been an improvement in the quality of early estimates over time, as shown by the lower mean and lower variance of these revisions in more recent times. This includes the move from producing Average GDP to producing a balanced estimate of GDP in April 1993, where adjustments were introduced to bring the three approaches of GDP within a tolerance limit for the years after SUTs balancing.

4. Quarter 1 refers to January to March, Quarter 2 refers to April to June, Quarter 3 refers to July to September and Quarter 4 refers to October to December.

Figure 3 shows the impact of these revisions, capturing the challenge of identifying these "technical" recessions in real time. It shows how the level of volume GDP has evolved over these periods, comparing the latest estimates available with the first estimates published.

Other than the early 1990s, we have revised the timing of when these contractions in GDP first took place since additional or updated information has become available. This has subsequently shown that the decline in GDP took place at least one quarter earlier than was the case at the time. There are also some contrasting experiences for estimates of the peak-to-trough fall in GDP, including the timing of that trough. Revisions have led to the early 1990s recession now being considered a milder one than was known in real time, while we know now that the 2008 financial crisis led to a larger decline in real activity. It also shows that there have been impacts on how long it has taken for the economy to have recovered, where the 1980s experience contrasted to that of the early 1990s and late 2000s episodes. Previous analysis explains how we have responded to the lessons learnt around these experiences of data uncertainty.

Figure 3: Data revisions reflecting updating information have had an impact on our understanding of UK recessions and recoveries

First and latest estimates of volume GDP, UK

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First and latest estimates of volume GDP, UK
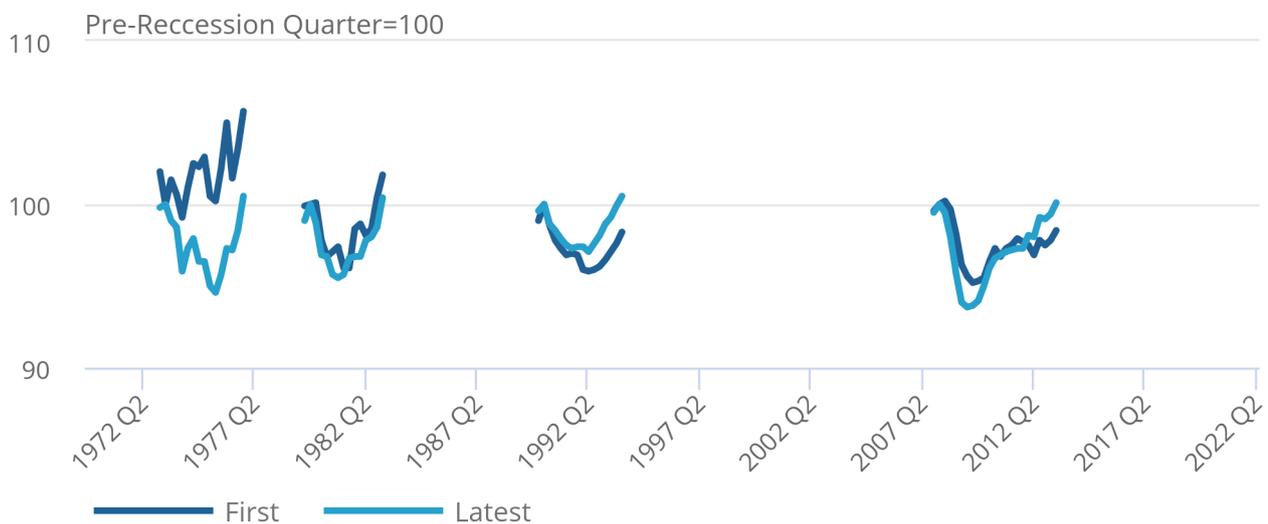
Source: Office for National Statistics

Notes:

1. Pre-recession quarters have been identified as Quarter 2 1973, Quarter 4 1979, Quarter 2 1990, and Quarter 1 2008. This includes the preceding quarter, which captures the impact of real-time identification of these 'technical' recessions. It covers up to when the latest estimates show UK GDP recovered to pre-recession levels.

2. Quarter 1 refers to January to March, Quarter 2 refers to April to June, Quarter 3 refers to July to September and Quarter 4 refers to October to December.

There are also other communication challenges with this rule-of-thumb.

Italian GDP contracted over consecutive quarters between Quarter 2 (April to June) 2008 and Quarter 2 2009 and between Quarter 3 (July to September) 2011 and Quarter 1 (January to March) 2013. However, the level of volume GDP did not recover to its Quarter 1 2008 level before the second downturn commenced. The rule-of-thumb offers no view as to whether this would be recorded as one or two technical recessions.

The focus on data revisions typically focuses on timings of recessions. However, revisions can also lead to a reassessment of whether a recession took place. For example, the real-time 2011 to 2012 recession in the UK was subsequently revised away, where references to a double-dip recession have been proven to be incorrect in hindsight.

For some countries, typical rates of output growth are either so low or so high that the two-quarter rule is not particularly informative. For example, Japan would have recorded eight recessions between 1993 and 2019, while Australia would have recorded no recessions over the same period. It is not clear that a "one-size-fits-all" rule is always appropriate.

4 . How the United States identifies turning points in the US economy

We have looked at the approach in the US where it is the responsibility of the National Bureau of Economic Research (NBER) - specifically, the Business Cycle Dating Committee - to identify turning points in the US economy. Their focus is on a retrospective view of peaks and troughs in the cycle, given the inherent uncertainties of identifying turning points in real time.

This provides more confidence of whether a peak or trough has taken place, so the NBER is more likely to avoid significant revisions to the business cycle chronology. There is no fixed timing rule as to how long it must take to identify these turning points. It typically takes around 12 months for the NBER to produce their judgement; their focus is to provide a definitive view, reflecting all available information. This also reduces the likelihood that the NBER will have to revise their call, especially given revisions to early vintages of GDP. However, it could be argued that the lack of timeliness has an impact on these communications.

In forming its ex-post views, the NBER look at three criteria - depth, diffusion, and duration - as to whether the US economy is in recession. This is considered as involving "a significant decline in economic activity that is spread across the economy and lasts more than a few months". This is a more objective practice, where the criteria needs to be met, although it is possible for extreme conditions that are revealed by one to be partially offset by weaker indications from another criterion. For example, the NBER concluded that there was a peak in February 2020, as the subsequent fall in activity had been so large and so widely diffused throughout the economy that, even if it proved to be brief, this period should be classified as a recession.

There have been instances when the NBER have departed from the two-quarter rule. For example, the 2001 recession is universally accepted, even though the two quarters of contraction in that year were not in consecutive quarters. Similarly, the start of the GFC recession is still officially recorded as December 2007, despite volume GDP being higher in Quarter 2 (April to June) 2008 than in Quarter 4 (October to December) 2007. This is because the NBER considered broader indicators than just GDP; in these examples, job losses were thought important.

The NBER considers that a recession must influence the broader economy, rather than be confined to one industry, and so volume GDP is considered as the best single measure of aggregate economic activity. The NBER gives equal weight to real GDP and real GDI. This "statistical discrepancy" - the difference between GDP and GDI - was particularly relevant in the 2001 and 2007 to 2009 recessions. However, the focus of the NBER is on the monthly chronology of the business cycles. Therefore, the NBER places more emphasis on a plethora of economic indicators in identifying peaks and troughs, rather than only looking at movements in volume GDP. These include real personal incomes, payroll employment, real personal consumption expenditures, real wholesale-retail sales, and industrial production. There is no fixed rule about what indicators contribute information to this identification process or how these are weighted in the NBER considerations.

The focus on the size of the change in economic activity enables it not to concern itself about having to identify peaks and troughs in the cycle if there has only been a small decline in real GDP over two consecutive quarters. The depth of these turning points is important so that minor changes in economic activity are not classified as a specific phase in the cycle, while time is essential so that brief changes in economic activity are not recorded separately.

5 . Conclusion

The rule-of-thumb where a "technical" recession comprises of two or more consecutive quarters of contracting output is simpler and more transparent for communications. However, there are some challenges in having this simple convention. Therefore there is value in having more consideration of the depth, diffusion, and duration of the change in gross domestic product (GDP). In our communications, we will consider both the level and change in GDP. We will also continue to acknowledge how all early estimates are prone to data revision. We will also emphasise other economic indicators in our communications, rather than only headline movements in volume GDP only to provide a broader and more informed interpretation of the economy.

Unlike other countries, the UK does not yet have a committee who is responsible for considering the economic cycle. However, one facet of the National Bureau of Economic Research (NBER) is that these US cycles tend to be universally accepted by media, researchers, and policymakers. In most other advanced countries, there is far weaker consensus regarding the exact dates of economic cycles.

Our Recent research with the Economics Statistics Centre of Excellence looks at the impact of GDP data revisions on dating UK business cycles, which may reinforce how we communicate uncertainty.

6 . Related Links

Communicating gross domestic product (GDP)
Article | Released 27 April 2020
Update on how we analyse gross domestic product (GDP), including how to convey data uncertainty and how this relates to newly published estimates of monthly and regional GDP.

7 . Cite This Methodology

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