Resolution Foundation

Recession ready?

Assessing the UK's macroeconomic framework

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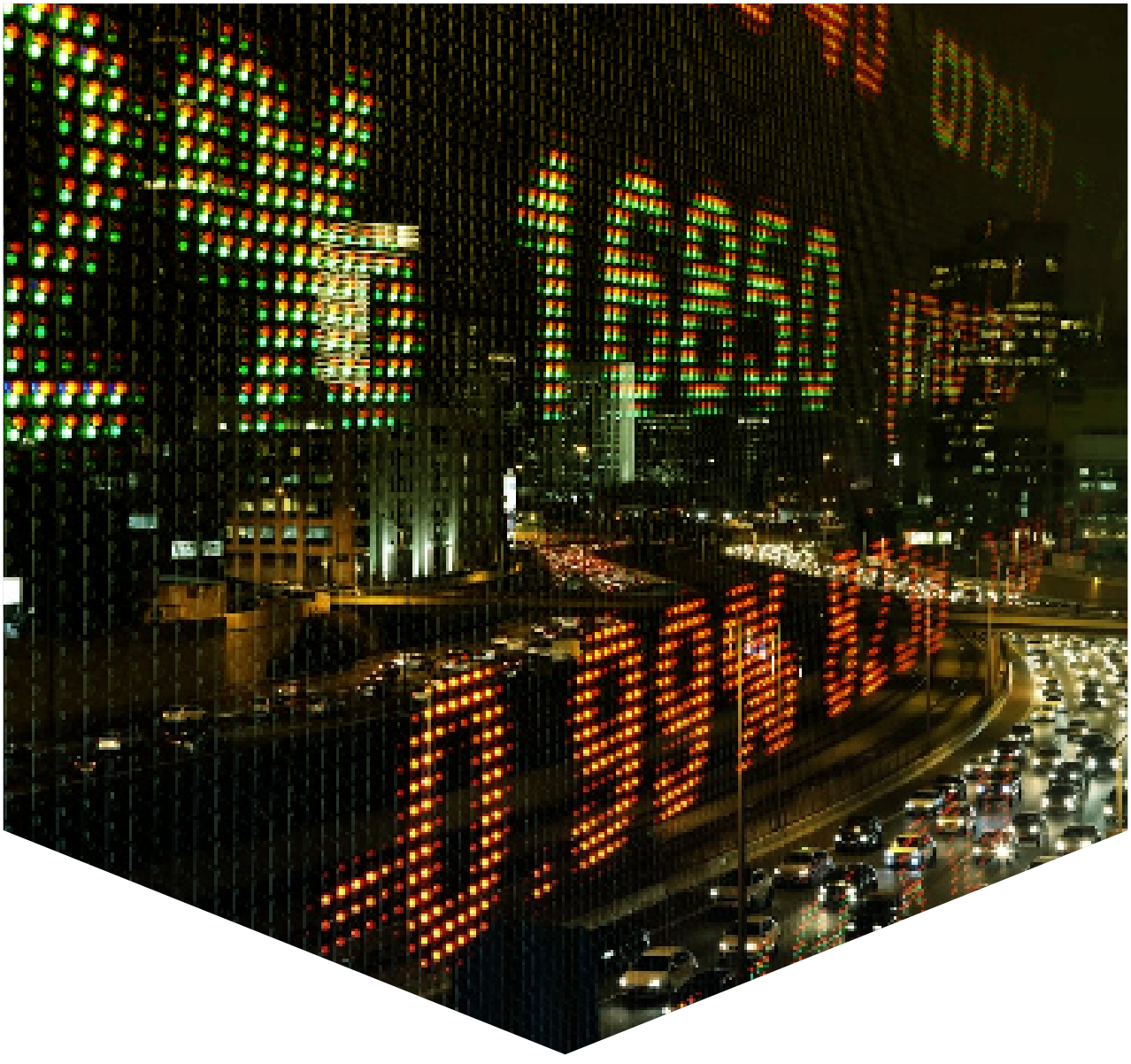

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Executive Summary

This report is the launch paper for the Resolution Foundation's new Macroeconomic Policy Unit. It provides a comprehensive assessment of the UK's macroeconomic policy framework, focusing on the ability of the framework to provide effective support to the economy in the face of the next recession. This work is important, given the crucial role macroeconomic policy plays in mitigating the negative impacts of downturns, and urgent given that the UK faces its highest recession risk since the financial crisis.

We find that the UK's macroeconomic policy framework has not kept pace with significant changes to our economic environment and is therefore at risk of leaving the country underprepared for the next recession. That is not a risk policy makers should take lightly.

Recessions happen and macroeconomic policy has a crucial role in limiting the hardship they cause

The UK currently faces a high risk of recession. With growth slowing at home and abroad, and uncertainty about the nature of the UK's exit from the European Union, the chance of a recession in the coming years is uncomfortably high. And with the economy already contracting in the second quarter, the Resolution Foundation's recession risk indictor points to that risk being at its highest since 2007.

Recessions happen and come with significant economic cost. While it is the job of macroeconomic policy to reduce the risk of recession, even good policy can't 'recession proof' the economy, especially for an open economy such as the UK. And when they happen, they are painful: the average GDP loss over the past four recessions is close to 4 per cent; the average rise in unemployment over a million.

Downturns are particularly bad for those on lower incomes, especially when they see large increases in unemployment. In the aftermath of the 1980s recession those towards the bottom of the income distribution were six times more likely to be unemployed than those towards the top. While those on lower incomes fared relatively well in the immediate financial crisis period, the subsequent squeeze in incomes has left them struggling to rebuild financial buffers. Nearly two-thirds of those on below typical incomes report having no savings, up from around half just prior to the financial crisis, and essentials (like food and transport) that are harder to cut back account for a bigger part of their consumption today than pre-crisis.

Macroeconomic policy can make a big difference in the aftermath of a recession. Effective policy works both by addressing the underlying vulnerabilities that may have caused a downturn, and by providing substantial and timely support to overall demand. During the financial crisis that meant direct action to resolve failings in the financial sector, along with large-scale policy stimulus – two-thirds of which came from monetary policy. Absent that policy support, GDP could have been 12 per cent lower after the recession – equivalent to over £8,000 for every household in the UK.

While much macroeconomic debate focuses on what could have been done differently in the previous crisis, or what should be done to prepare other economies (specifically the US and the euro area) for a downturn, this paper looks forward and specifically at the UK. It aims to provide a timely and comprehensive assessment of the UK's macroeconomic

framework's preparedness for a future downturn. In particular, we assess each major policy area in turn, assessing its likely effectiveness in the next recession, and setting out the actions that could be taken to strengthen the framework.

Monetary policy will not be able to carry the load in the next recession

The overwhelming consensus prior to the crisis was that monetary policy should be the dominant stabilisation tool, and that it should be entrusted to an independent central bank. This consensus continues to underpin many of the fundamental elements of the UK framework post-crisis.

However, what appears to be a secular decline in the level of interest rates around the world means that monetary policy will not be able to provide anything like the level of support it has previously in the next crisis. The Bank of England's policy rate averaged around five per cent in the decade prior to the financial crisis, but since then has barely been above zero. This reduces hugely the capacity of traditional monetary policy to support the economy because it is difficult to set policy rates significantly below zero. On average, policy rates have been cut by an average of five percentage points in recession. In the near future it is hard to envisage rates being cut by more than one given the current low level of forward interest rates.

As policy rates fell towards zero, the Bank of England, like other central banks, turned to quantitative easing (QE). There is strong evidence that these large-scale purchases of government debt worked to support the economy, but QE has brought with it challenges and political opposition. This is consistent with a survey of MPs which points to mixed views on the future use of QE, with only around one in three saying its future use is advisable. Controversy has focused on the fact that QE increases asset prices, only helping the already wealthy. But this is too simplistic an understanding of QE's distributional impact. Our assessment finds that while QE has increased wealth inequality (40 per cent of the increases in asset prices went to the richest 10 per cent of families), it decreased income

inequality (raising incomes of the bottom half of the income distribution by 4.3 per cent, compared to 3.2 per cent for the top half).

While QE should be used again in future, the level of support it can provide will be much lower than that seen in the financial crisis. This is because QE works by reducing longer-term interest rates, which face their own lower bound. With ten-year UK government debt yields close to all-time lows (of below 0.5 per cent), there is limited scope for further reducing longer-term interest rates. Given this, it is unlikely that an expansion of QE beyond around £120 billion (roughly equivalent to one percentage point on policy rates) would offer much additional stimulus. This combined with a maximum cut in Bank Rate of one percentage point suggests that monetary policy would be hard pushed to provide more than the equivalent of a two percentage point cut in interest rates (which would boost GDP by around 1 per cent). This falls far short of the five percentage point average loosening in past recessions.

One major difference for UK compared to most major economies has been the relative strength of inflation since the financial crisis – having been on average 0.7ppts higher than in the US, and 1ppts higher than in the euro area. The result is that, while policy makers wrestle with the lack of monetary policy space in a low rate environment, they do not yet face the complicating challenge of low inflation today pushing up real interest rates, or households inflation expectations falling.

Steps should be taken to strengthen monetary policy, but being open about its limits is crucial

Steps should be taken to improve the ability of monetary policy to respond to a future recession. More can be done to strengthen the role of QE, including normalising its use within the wider framework.

Other central banks are going further and currently reviewing their policy tools to consider a range of alternative monetary policy instruments. These include wider purchase of private

sector assets and guarantees to hold interest rates at zero for a prolonged period. The UK could undertake a similar review, but its focus should be different. While these alternative tools should be considered, they also rely on lowering longer-term interest rates and face the same constraints as QE. While these tools could increase the capacity of monetary policy only marginally, any review of monetary policy should look further ahead to consider a higher inflation target. Starting from where we are today, the zero lower bound could constrain monetary policy as much as half the time. This is such a major constraint on macroeconomic policy that it suggests a powerful in principle case for raising the 2 per cent inflation target. Doing so, however, is far from easy in practice and seems unlikely to be implemented ahead of the next recession.

All this means relying on monetary policy alone to support the economy in the next recession risks a deeper, more prolonged and more painful recession than is necessary. But, to date, this constraint has not been widely acknowledged publicly by policy makers. Our view is that doing so would facilitate preparations for the next recession and catalyse a wider debate on the best way to strengthen the macroeconomic policy framework.

One big post-crisis addition to that framework is macroprudential policy. Born out of the need to have tools which dampen financial risks, it focuses on pre-emptively mitigating system-wide financial stability threats. This is particularly important because the low interest rate environment is one in which financial institutions may face incentives to take more risk. Our assessment is that while macropru policies have an important role in managing the financial cycle, they are not well suited to playing a major role in managing the economic cycle and offer little by way of a substitute for monetary policy.

Fiscal policy can and should play a more prominent, explicit role

It is now widely accepted that fiscal policy needs to play a more

active role in supporting the economy in the next recession. But there is too little focus on how best to achieve that – in part because of the lack of openness in the UK about the constraints on monetary policy.

Some critics of the current policy framework argue that the current fiscal approach ignores cyclical considerations, with the risk being that it does not respond to a future crisis. We do not agree, given the existing role for the automatic stabilisers and evidence that fiscal policy was used during the financial crisis. Were a downturn to begin soon fiscal policy would respond, and the current fiscal rules allow it to do so in the face of a 'significant negative shock'.

The problem with the current framework is not that a counter-cyclical role for fiscal policy is entirely absent, but that it is too often implicit rather than explicit. This risks limiting the size, timeliness and effectiveness of the fiscal response to a recession.

The fact that discretionary fiscal policy is not explicitly set out as a role for the Treasury, that its use is envisaged for emergencies only, and that it requires the fiscal rules to be jettisoned, reinforces the fact that it is not part of normal fiscal policy making. This risks it taking time to mobilise, in part because the bar for using it is quite high. Its impact will be weakened by this low profile because it cannot pre-emptively influence expectations of a policy response, something we treat as a key property of transparent, forward-looking monetary policy. Policy makers may also be reluctant to engage in sufficiently large or long-lasting support when the public and financial markets are not expecting them to do so.

Moreover, the lack of an explicit recognition for this greater role for fiscal policy also means that the fact that it will regularly be used during recessions is not fully internalised within the fiscal rules that are intended to operate in normal times. In particular, the fiscal objectives you pursue in normal

times to deliver sustainable public finances will be different (tighter) in such a world.

The good news is that the scope to use debt-financed fiscal policy is greater than in other major advanced economies. In part this is because the UK's deficit and borrowing costs are both currently low. But it more importantly reflects a different political and constitutional context. In the US, for example, the process for reaching agreement on fiscal stimulus packages makes this more difficult to achieve; in Europe, the lack of a single fiscal policy decision maker or shared approaches to fiscal policy means a suboptimal policy response is dangerously likely.

The fact that the UK is able to engage in traditional fiscal policy stimulus is a key consideration when evaluating other proposals to change our macroeconomic framework. Some who agree with our assessment of the need for a more explicit counter-cyclical role for fiscal policy argue that it should be monetary financed (by the central bank creating money rather than by the government issuing debt). We do not rule out the idea that 'helicopter money' or other such proposals would have a role in extremis – that is if both monetary and traditional fiscal policy were constrained. But such an outcome is not remotely where the UK is today, and given that monetary financing of fiscal policy brings with it a whole range of challenges, including to Bank of England independence and/or democratic accountability there is no strong argument for taking such a risk when more conventional fiscal measures remain on the table.

Policymakers should strengthen rather than weaken the automatic stabilisers and the plan for discretionary fiscal stimulus

The lack of explicit endorsement of counter-cyclical fiscal policy means policy makers have not prioritised key policy changes that such a role requires. On a practical level it means too little attention being paid to the planning required to ensure fiscal policy can be optimised in a crisis. The constraints

on direct payments to households or temporary investment spending that were challenges in delivering an optimal financial crisis fiscal stimulus remain unresolved a decade later. Too little attention has also been paid to the distributional impact of planned stabilisation, not least for reasons of policy effectiveness given higher marginal propensities to consume of poorer households and their increased vulnerability to a downturn compared to 2008.

Insufficient focus has also meant too little attention to one of the key tools in our macro-stabilisation armoury - the so-called 'automatic stabilisers', which kick in to support an economy in a downturn without the delays of requiring policy makers to make and implement policy decisions. These include our tax and benefit systems, which provide a range of routes to reducing income losses of families and firms in a downturn. All else equal a country in a low interest rate environment should aim for stronger automatic stabilisers than were deemed necessary in a pre-crisis world. However, if anything the opposite has happened: microsimulation of the cash flow effects, as well as analysis using a heterogeneous-agent DSGE model, point to a modest weakening in the automatic stabilisers in recent years. Reversing that direction of travel should be part of an explicit recognition of the new role for fiscal policy.

Now is the time to update our macroeconomic framework

Overall, then, there is a strong case for a significant updating of our macroeconomic framework. The overall framework retains many desirable features, so our view is that such a task is one of evolution rather than revolution. Nonetheless, important changes are needed to reduce the risk of a particularly damaging recession in future.

The assessment in this report has revealed that the framework for macroeconomic stabilisation policy has not kept pace with significant changes to our economic environment and is

therefore at risk of leaving the country underprepared for the next recession.

These shortcomings demand a broad policy response. This report provides an assessment of the existing policy response plus the broad shape that a reform agenda should follow, leaving detailed proposals for future papers from the Macroeconomic Policy Unit.

Section 1

Good macroeconomic policy matters

The UK currently faces a high risk of recession. With growth slowing at home and abroad, and uncertainty about the nature of the UK's exit from the European Union, the chance of a recession in the coming years is uncomfortably high. The Resolution Foundation's recession risk indicator points to that risk being at its highest since 2007.

Recessions happen and come with significant economic cost. While it is the job of macroeconomic policy to reduce the risk of recession, even good policy can't 'recession proof' the economy, especially for an open economy such as the UK. And when they happen, they are painful: the average GDP loss over the past four recessions is close to 4 per cent; the average rise in unemployment over a million.

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Macroeconomic policy can make a big difference in the aftermath of a recession. Effective policy works both by addressing the underlying vulnerabilities that may have caused a downturn, and by providing substantial and timely support to overall

demand. During the financial crisis that meant direct action to resolve failings in the financial sector, along with large-scale policy stimulus – two-thirds of which came from monetary policy. Absent that policy support, GDP could have been 12 per cent lower after the recession – equivalent to over £8,000 for every household in the UK.

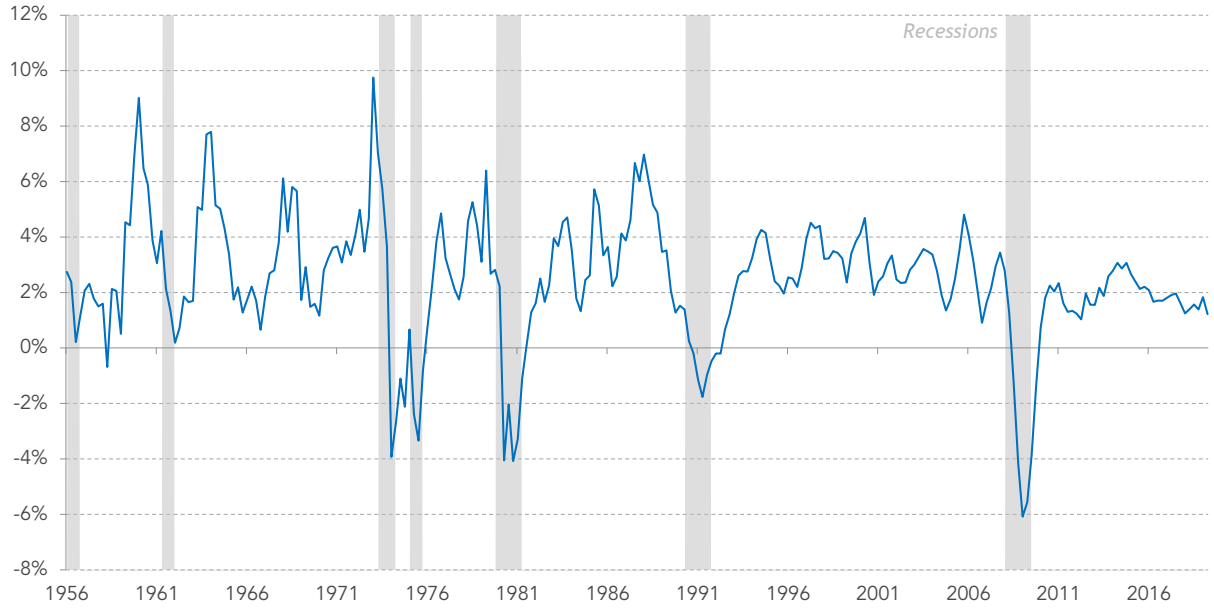
So while macroeconomic policy can seem remote and esoteric, it plays a crucial role in preventing the economic damage caused by recessions. It can support overall demand in the economy and reduce unemployment significantly, and it provides the mechanism through which economies recover following a significant downturn. Absent such interventions, a recession can become a depression.

The risk of a UK recession is at its highest since 2007

The onset of a UK recession is a question of 'when', not 'if'. In the post-war period, UK recessions have occurred roughly once a decade (Figure 1). And while there is no automatic link between the passage of time and the arrival of a recession, some of the economic vulnerabilities that can trigger recessions – such as the increase in the size of the financial sector seen before the financial crisis – tend to build over time. In this context, it is noteworthy that the current expansion is in its tenth year. So even simply based on the past pattern of recessions, there is a strong case for thinking that we are much closer to the next recession than the last.

FIGURE 1: **UK recessions have occurred roughly once a decade**

Four-quarter growth in GDP at market prices[1]



SOURCE: RF analysis of ONS, National Accounts

1 Unless otherwise specified, all charts and data in this report cover the UK.

This is all the more worrying given a number of tangible risks to the economic outlook and the slowdown in growth at home and abroad. Globally, the economic outlook has deteriorated during 2019, with a risk that the world economy could experience a sharp slowdown. As a small and relatively open economy, this global picture will lead to deterioration in the UK outlook.[2] But we also face potential domestic risks. Most obviously, these come from uncertainty about our future trading relationship with the EU, and the nature of the transition to those new arrangements.

Qualitatively, there are a number of reasons for thinking the risk of a recession has increased; and quantitatively the Resolution Foundation's recession indicator suggests the risk is at its highest level since just before the financial crisis. That indicator is based on the difference between longer-term and shorter-term yields on government bonds, often referred to as the 'slope' of the yield curve.[3] This is a helpful indictor of a recession because it reflects expectations of the near-term path of monetary policy compared to the longer-term path. Higher shorter-term rates than longer-term ones (negative slope) suggest markets are expecting looser monetary policy in future than today, implying expectations of a deterioration in the outlook for the economy.

The results of a simple model based on this measure are shown in the dark blue line in Figure 2,[4] which suggests that the probability of a recession has increased significantly in the run up to the previous three recessions. This probability has risen sharply again since 2014 to nearly 40 per cent, its highest level since 2007. We get a qualitatively similar message from the Bank of England's August *Inflation Report* projections, which put the probability of recession at around one-in-three over the next year.[5]

While clearly elevated, it is worth noting that this indicator is still somewhat below its levels recorded immediately prior to each of the three previous recessions. And in the early 2000s the probability increased sharply without a subsequent technical recession. While there is no way of knowing exactly when a recession may arrive, this analysis serves as a reminder that they happen and that the risk of one is very likely elevated at present.

2 For a discussion of the importance of the deterioration in the global outlook for the UK economy, see: M Carney, 'Sea Change', speech given at the Local Government Association Annual Conference and Exhibition, Bournemouth, July 2019.

3 There is a large literature documenting more formally the negative relationship between measures of the slope of the yield curve and the probability of a subsequent recession. For example, see: O E Ergungor, 'Recession Probabilities', Federal Reserve Bank of Cleveland Economic Commentary, August 2016.

4 Specifically, we estimate a quarterly version of the following regression:

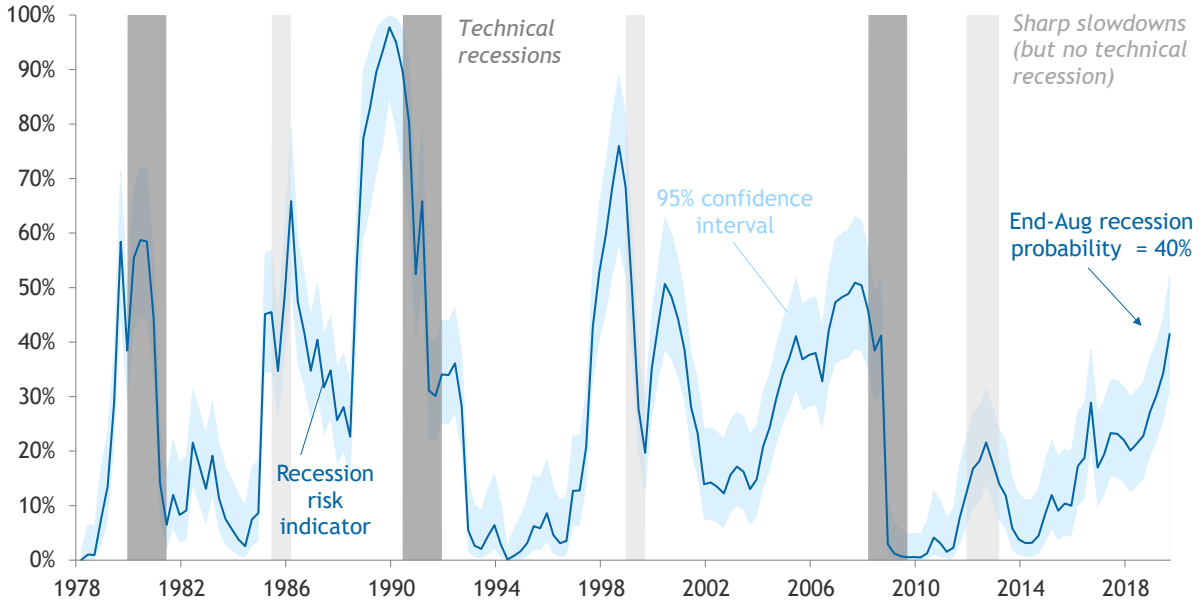
$$Pr(\text{Recession} = 1) = \Phi(\beta_0 + \beta_1 \text{Slope}),$$

where 'Recession' is an indicator that equals one if there is a recession in the next three years, but is zero otherwise; and Φ is the standard normal cumulative distribution function. We estimate the model from 1978 to 2007 to avoid possible problems created by the low level of short-term yields after 2007. We then use the estimated parameters to generate a recession probability up to 2019 Q2.

5 Based on the Monetary Policy Committee's fancharts. It is worth noting that this probability explicitly assumes a smooth transition to a new trading relationship with the EU, and so excludes disorderly Brexit outcomes. Those risks are likely to be factored into the market participants' perceptions of risk.

FIGURE 2: **The Resolution Foundation's recession indicator suggests that the risk of recession is at its highest since 2007**

Recession probability indicator based on a probit regression using the slope of the UK government yield curve (probability of recession over the next three years)



NOTES: Technical recessions are defined as at least two successive quarters of negative growth; slowdowns are defined as a sharp slowdown in quarterly growth (to below 0.1 per cent) outside of a recession (more than a year and a half away from the start or end of a recession). Predicted recession probability taken from a simple univariate Probit model of the probability of a recession in the following three years driven by the slope of the yield curve.

SOURCE: RF analysis of ONS; Bank of England

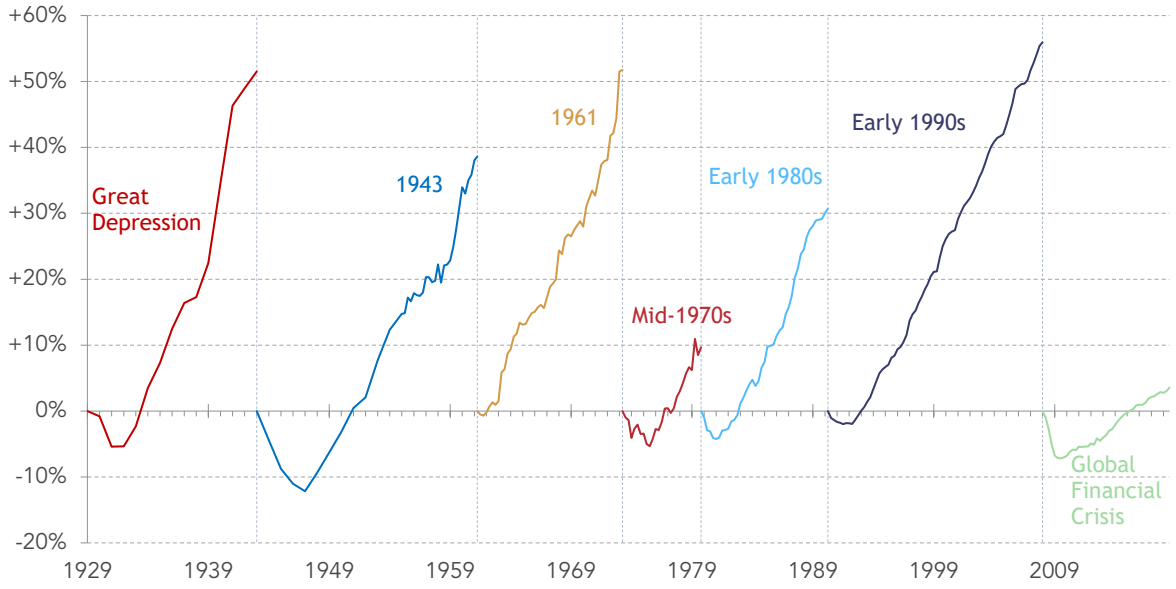
Recessions have a variety of causes and lead to significant economic hardship

While all recessions are different in their scale, duration, cause and precise implications, they always have a clear, negative effect on living standards. Figure 3 illustrates this, setting out the range of trajectories for real GDP and unemployment recorded in the aftermath of each recession since the Great Depression.[6] In all instances, the key feature is a sharp, synchronised fall in demand, with households and firms cutting back spending. That translates into falling GDP and a rise in the number of people out of work. The average peak-to-trough fall in GDP in these episodes is 3.7 per cent, or around £2,500 per household in the UK in today's terms.

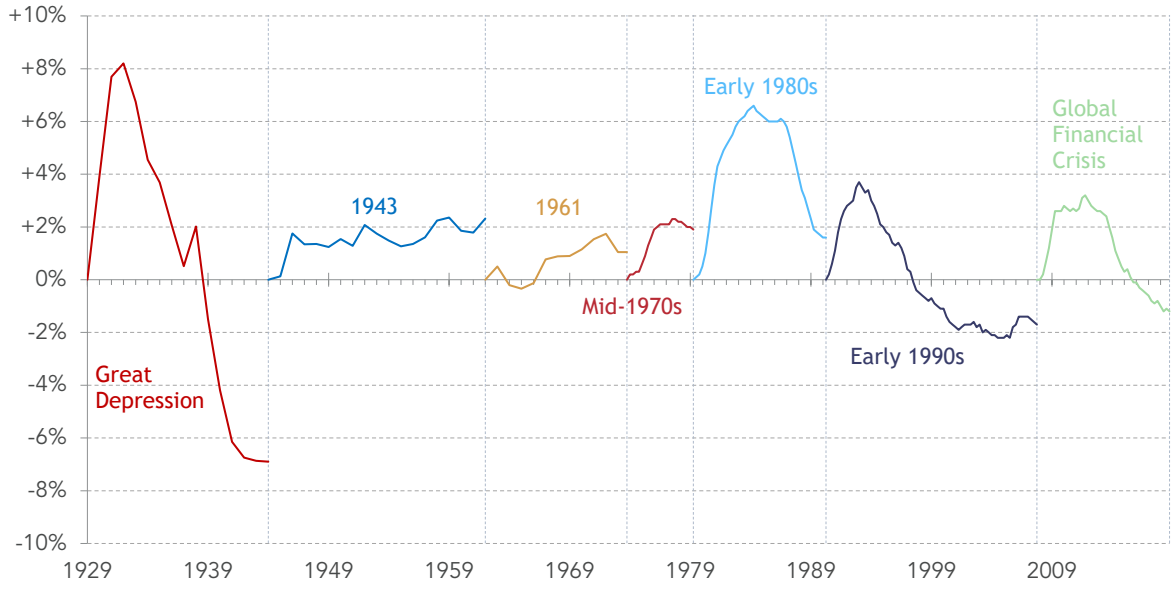
6 For more on the macroeconomic effects of recessions, see: J Smith, Failing to plan = planning to fail: The risk of recessions and the importance of macroeconomic policy in limiting the damage they cause, Resolution Foundation, July 2019.

FIGURE 3: **Recessions always result in falling GDP and rising unemployment**

Cumulative growth in real-terms GDP over successive economic cycles



Cumulative change in 16+ unemployment rate over successive economic cycles



SOURCE: RF analysis of ONS

There is much variation around this average, however. Following the financial crisis GDP fell especially sharply – dropping by around 6 per cent from peak to trough. And the subsequent recovery was also weaker than that recorded in any other recession in living memory, meaning output is now around 15 per cent below where it would be had the pre-crisis average growth rate continued.[7]

7 Compared with a continuation of the 1990 to 2007 average growth rate.

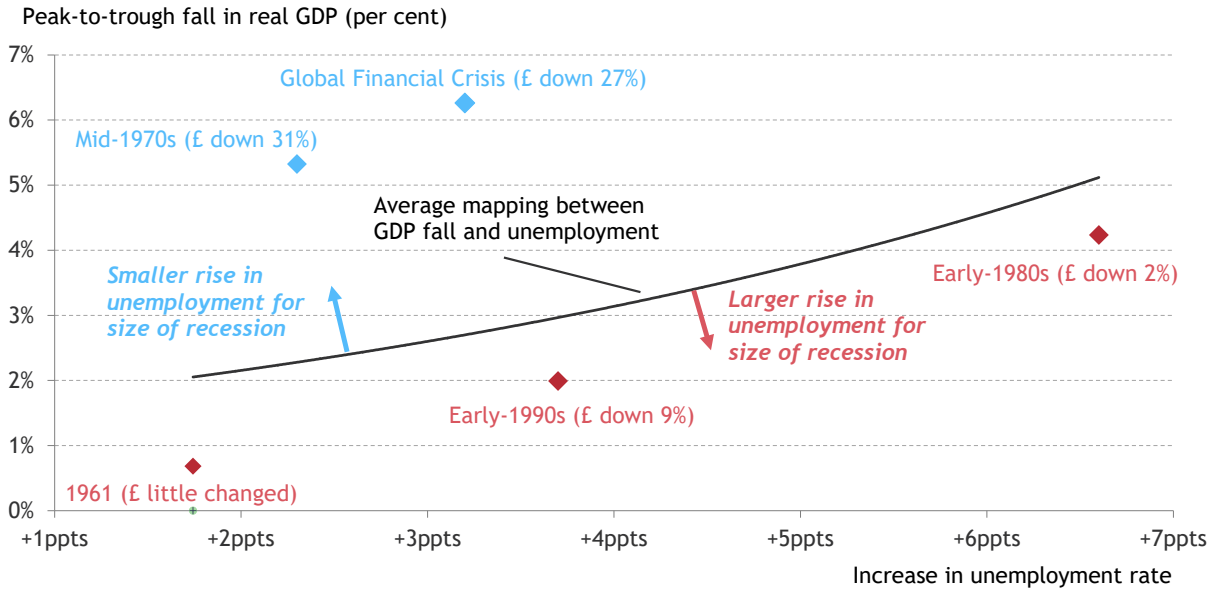
Yet this downturn was also one in which unemployment spiked more modestly than might have been expected given the scale of the downturn. UK recessions have nearly always generated substantial jumps in unemployment, and the aftermath of the financial crisis was no different. The unemployment rate rose by 3.3 percentage points (from 5.2 per cent to 8.5 per cent) between 2008 and 2012, equivalent to an additional 1.1 million people out of work. But that stands in sharp contrast to the 6.6 percentage point (or nearly 2 million) increase recorded following the 1980s recession. That comes despite the 1980s recession leading to a smaller fall in GDP (with a peak-to-trough fall of around 4 per cent).

What explains the apparently different relationships at play between GDP and unemployment movements across these different recessions? A number of factors will, of course, be important in this context, but Figure 4 provides some evidence. It plots the peak-to-trough changes in GDP and unemployment in each of the last five UK recessions, so that we can separate the episodes into two distinct groups. In the first (covering the financial crisis and the mid-1970s downturn), we observe instances where unemployment rose by less than might be expected. In the second (covering the 1961, early-1980s and early-1990s recessions), the unemployment increases are significantly larger relative to the sizes of the recessions themselves.

One feature that distinguishes these different recession experiences is movements in sterling. Both the 1970s and the 2008 recessions were characterised by very large depreciations in the value of the pound. Such devaluations can push prices up and real wages down, allowing an adjustment to lower output to take place without as big a rise in unemployment. At the level of the firm, wages are falling relative to the price of products, so overall labour costs can fall even if there is no reduction in the number of people employed.

FIGURE 4: **The extent to which the pain of a recession translates into higher unemployment varies with movements in sterling**

Peak-to-trough falls in GDP and maximum rise in the unemployment rate during post-1955 recessions



NOTES: Consistent data on changes in exchange rates against a broad basket of countries is only available from 1960 onwards, meaning that it is not possible to cover earlier recessions. The change in the exchange rate is defined as the peak in the year prior to the recession to the trough reached up to two years after the recession. Changes in sterling against a basket of other currencies are calculated from a long-run time series created by splicing together data from the BIS, IMF and Bank of England.

SOURCE: RF analysis of ONS; Bank of England; IMF; Bank for International Settlements

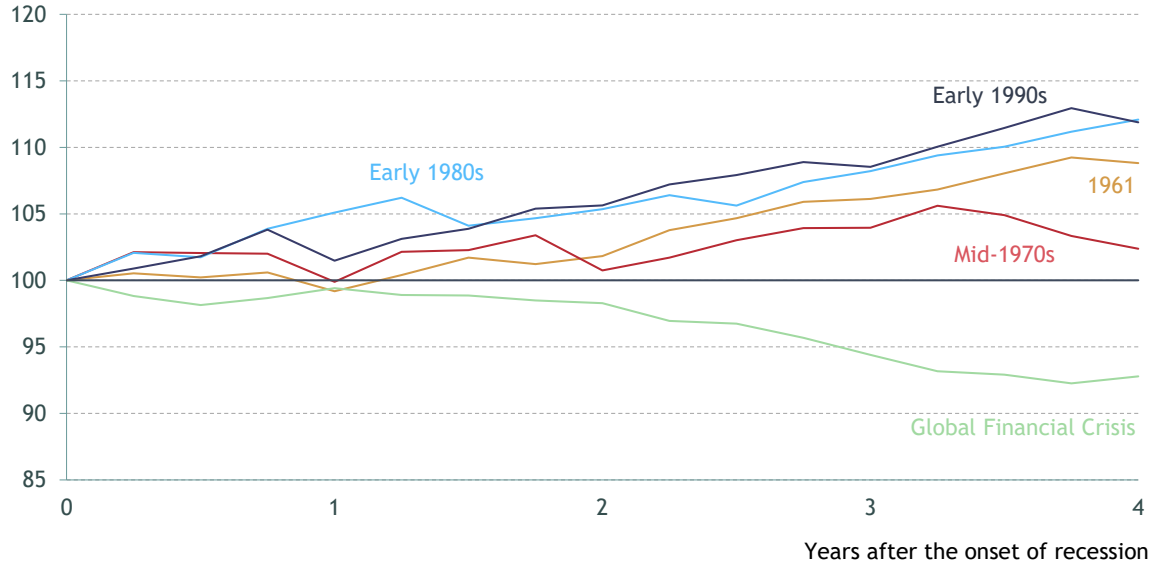
Recessions affect living standards in the long run

The effects of recessions can last for many years. Indeed, the economy rarely returns to exactly its pre-recession path, with major labour-market implications. Following the recessions in the early 1980s and 1990s, for example, unemployment took a long time to fall back. This had a lasting effect on younger workers in particular.[8] In the aftermath of the financial crisis, the lingering costs of the recession have instead been reflected in an unprecedented stagnation in incomes.[9] Following sterling's depreciation in 2008 and 2009, the inflation-adjusted value of incomes continued to fall for around six years, as shown in Figure 5. Indeed, the level of average real earnings remains below its pre-crisis peak today.

8 See: P Gregg & E Tominey, 'The Wage Scar from Male Youth Unemployment', Labour Economics 12(4), pages 487-509, August 2005.
9 See: S Clarke & P Gregg, Count the pennies: Explaining a decade of lost pay growth, Resolution Foundation, October 2018.

FIGURE 5: **Falls in real incomes seen after the GFC are unprecedented**

Index of real income per capita in the years following the onset of a recession (pre-recession peak=100)



NOTES: Household disposable income adjusted for Consumer Price Index inflation
SOURCE: RF analysis of ONS

So recessions clearly come with considerable immediate costs, leading to mass unemployment and lower incomes. What's more those costs can last, permanently affecting the living standards of at least some groups through hysteresis effects.

Recessions are particularly bad for those on lower incomes

These economy-wide indicators of the impact of recessions, bad as they are, mask a more severe impact on those on lower incomes.[10] This is particularly obvious following the unemployment-heavy recessions of the 1980s and 1990s. This reflects the higher propensity of those at the bottom of the distribution to be made unemployed. Figure 6 illustrates this point by setting out the impact of recessions on employment across the income distribution.[11] In all instances, employment rates fell furthest among lower-income households. But the effect is most marked in the very high-unemployment 1980s and 1990s recessions. For example, in the 1980s recession, the fall in employment in decile two was six times as large as the fall in decile eight.

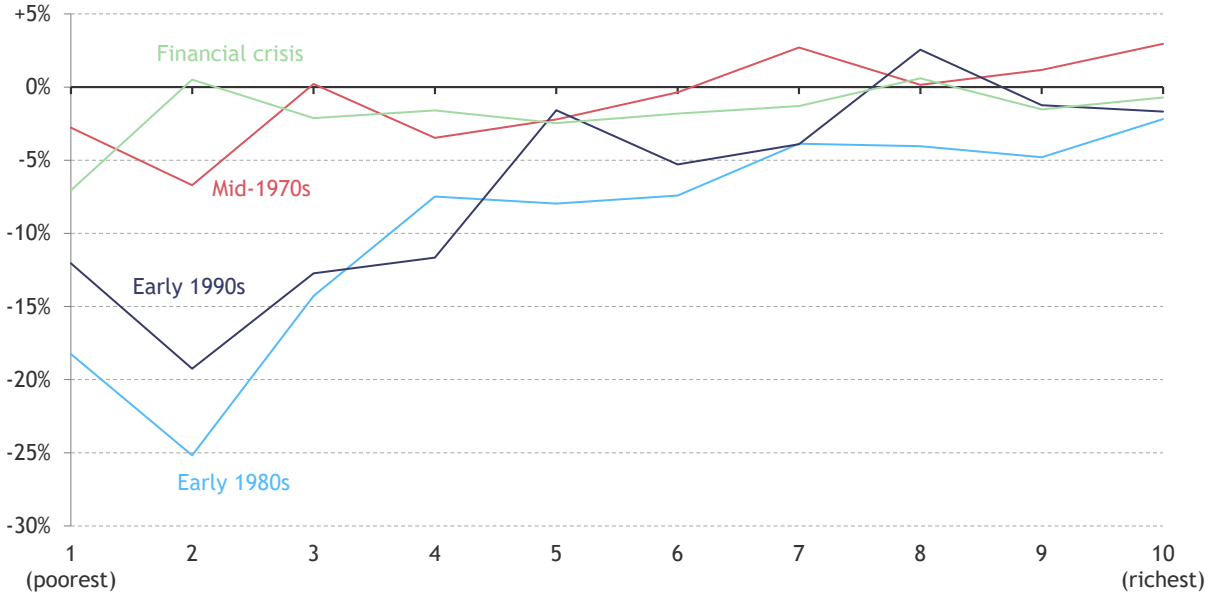
It would be wrong to assume that unemployment-heavy recessions have been consigned to history. Sterling devalued sharply during the financial crisis because of the importance of the financial sector to the UK economy; but the next recession could have very

10 For more on the distributional effects of recessions, see: C Pacitti & J Smith, A problem shared? What can we learn from past recessions about the impact of the next across the income distribution?, Resolution Foundation, August 2019.
11 Again, we define 'recessions' here as covering the year from which GDP first falls to the year in which it first rises again. The early-1990s recession is measured between 1990 and 1991 rather than 1990 and 1992, however, due to missing data for 1992.

different underlying drivers. A UK recession not accompanied by a large depreciation in the exchange rate could easily precipitate a bigger rise in unemployment, even if the actual fall in GDP was not as severe as that of the financial crisis.

FIGURE 6: **Employment falls were more concentrated at the lower end of the distribution during the 1980s and 1990s recessions**

Change in employment rate in recent recessions, by working-age equivalised household income decile (after housing costs)



NOTES: Employment rates are for non-pensioner family units (ages 16-64). Change in employment rate in recession calculated as difference between average employment by decile from the first year of negative GDP growth to the first year of positive GDP growth. Early 1990s recession is here 1990-91, rather than 1990-92 due to missing data in 1992.

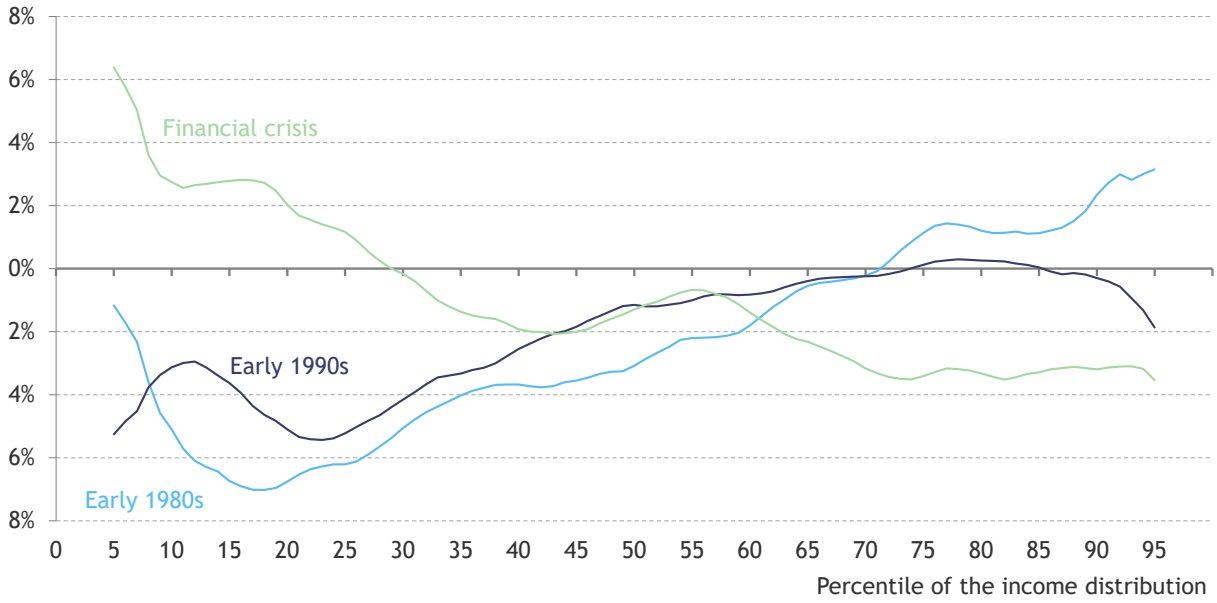
SOURCE: RF analysis of DWP, Households Below Average Income; ONS, Family Expenditure Survey

Figure 7 shows cumulative changes in inflation-adjusted incomes after housing costs in the aftermath of the past three recessions.[12] During the unemployment-heavy recessions of the 1980s and 1990s, the impact is concentrated at the bottom of the distribution. But the experience of the financial crisis stands out as being very different, with incomes falling furthest at the top of the distribution (by 3 per cent in the top quartile) and actually growing at the bottom (by 1 per cent in the bottom quintile). To a large degree, this reflects the more broad-based falls in earnings and employment, and the relative protection of benefit income from inflation in the immediate post-crisis period.

12 In each instance, our analysis covers the period from the year in which GDP first falls to the year in which it first rises again.

FIGURE 7: **The distribution of income adjustment after the financial crisis differed markedly from that which prevailed in earlier recessions**

Change in real income (after housing costs), by percentile of the income distribution



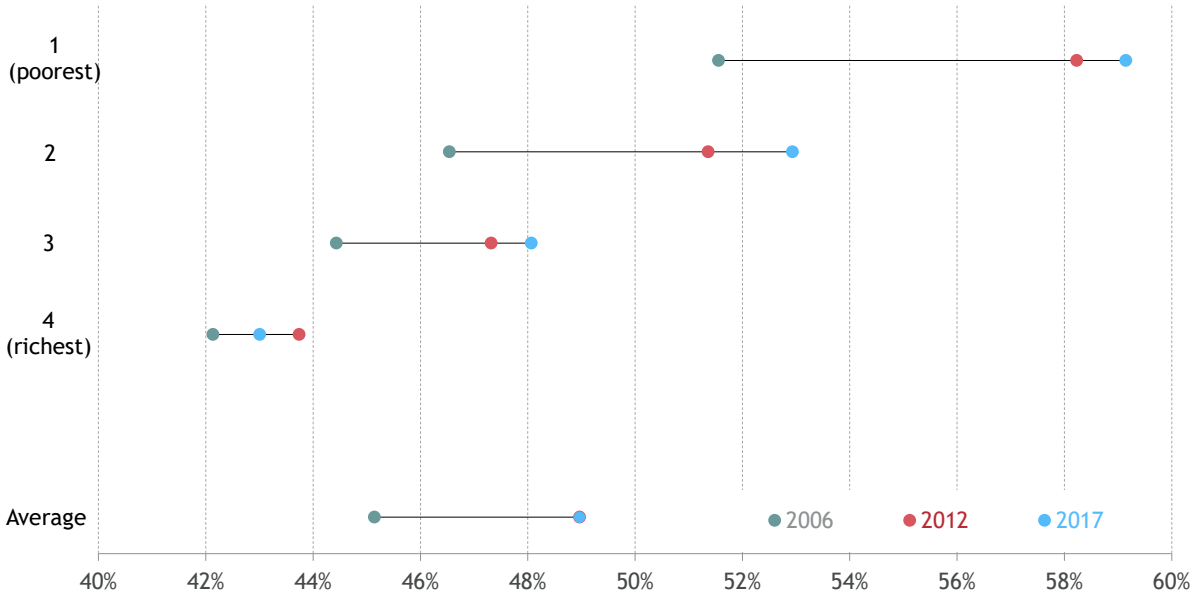
NOTES: Percentiles 1-4 and 96-100 excluded due to noise. Income change in recession calculated as difference between average incomes by percentile from the first year of negative GDP growth to the first year of positive GDP growth. Incomes are five percentile rolling averages of annual real equivalised disposable income after (direct) taxes and benefits and after housing costs. Data taken from FES-HBAI for 1961-91 and FRS-HBAI for 1994-2017, with a GB/UK adjustment. Nominal values are deflated using an after housing costs CPI that excludes rent and water costs.

SOURCE: RF analysis of DWP, Households Below Average Income; ONS, Family Expenditure Survey

While the negative impact of the most recent recession may have been more evenly shared, the substantive impact has been most severe for those on lower incomes. They have had to retrench disproportionately in the aftermath of the financial crisis, as Figure 8 shows. The proportion of the bottom quartile's consumption spent on 'essentials' – that is, food, fuel, clothing and transport – rose to 58 per cent in the aftermath of the financial crisis, up from 52 per cent beforehand. This was a significantly larger increase than recorded by any other income group. Strikingly, when thinking about the context for any future recession, that proportion has not fallen back since, and stood at 59 per cent in 2017.

FIGURE 8: **The proportion of 'essentials' in total spending increased sharply for lower-income households**

Proportion of equivalised non-housing household consumption spent on 'essentials', by income quartile



NOTES: Consumption in each detailed spending category in each year is reweighted to match figures from the National Accounts (on a per-household, per week basis), in order to correct for growing under-recording of consumption expenditure in surveys. Consumption is deflated using deflators specific to each spending category. We present trends in consumption for each individual, rather than just for the head of the household.

SOURCE: RF analysis of ONS, Living Costs & Food Survey

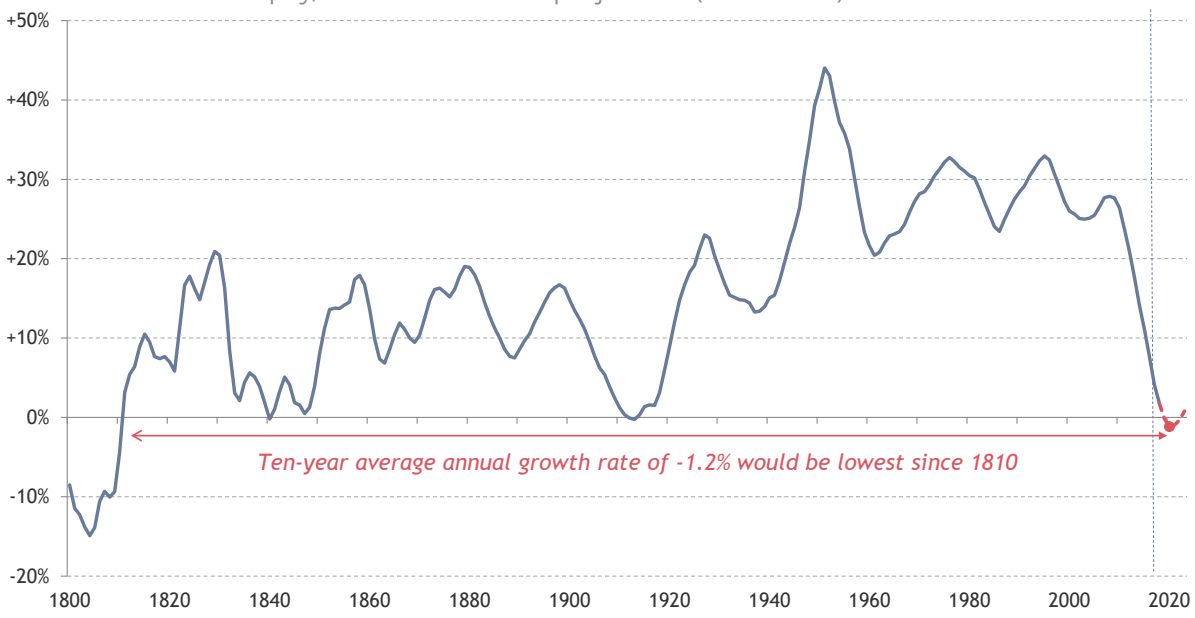
The legacy of the financial crisis has left lower-income households much more vulnerable to a future recession than they were in 2008

The defining feature of the financial crisis and its aftermath is the length of the earnings squeeze that has followed, which has taken its toll on the resilience of lower-income households. Figure 9 shows just how unusual a period this has been. Wage growth is currently on course to complete its weakest decade since 1810, and average wages fell by £32 per week between 2008 and 2014.

This matters for living standards in the here and now of course, but it also matters because of its impact on the ability of households to build up their financial buffers ahead of the next recession. A household's ability to deal with a loss of income depends on its ability to reprioritise spending away from non-essentials and draw down on any savings to support consumption. Both approaches provide a form of 'headroom' with which households can deal with unexpected costs. Importantly, weak income growth this decade has meant that those on lower incomes have been able to make too little progress in repairing their balance sheets – and, as noted above, they have less room to cut back on non-essential spending than they had pre-crisis.

FIGURE 9: **The past decade of wage growth has been the weakest since 1810**

10-year rolling average of annual growth in real-terms average weekly pay, outturn and OBR projection (smoothed)



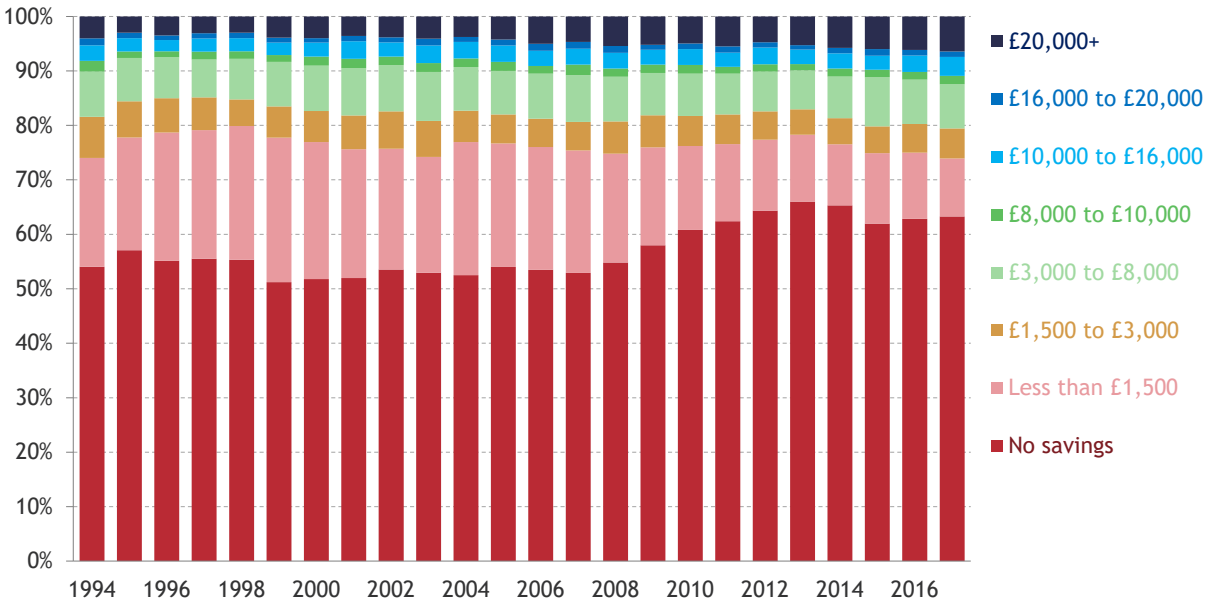
SOURCE: RF analysis of Bank of England; ONS; OBR

The good news for lower-income households is that they now hold lower levels of debt than was the case heading into the financial crisis – down by £2,500 per household in the lower half of the income distribution between 2006-08 and 2014-16. But financial resilience is about households' whole balance sheet and depends on the assets they own, not just the debt they owe. The proportion of those on below-typical incomes that report having no savings or investments rose by 13 percentage points in the aftermath of the financial crisis, peaking at 66 per cent in 2013, as shown in Figure 10.

Taken together, then, the evidence suggests that those on lower incomes are particularly exposed to the next recession. This is for three reasons. First, there is the general lesson that, were we to experience an unemployment-heavy recession, those on lower incomes may well be most affected. Second, the large and long-lasting rise in the share of spending on 'essentials' by those on lower incomes in the aftermath of the financial crisis makes further retrenchment of consumption difficult. And third, despite lower debts, lower-income households have been unable to rebuild their balance sheets significantly since the last recession. For many, this has left financial buffers worryingly small given the elevated risk of recession – cautioning against anyone concluding from the financial crisis that the impact of recessions is no longer felt most acutely by those on lower incomes.

FIGURE 10: **The proportion of households on below-typical incomes with no savings has spiked since the financial crisis**

Savings and investments of adults in low-to-middle income families (nominal)



NOTES: UK from 2002-03, GB before. Savings figures are not adjusted for inflation.
SOURCE: RF analysis of DWP, Households Below Average Income

Macroeconomic policy plays a key role in supporting the economy during recessions

Macroeconomic stabilisation policy is rarely lunchtime conversation, but it plays a crucial role in people's lives. While the debate around how policy makers can act to prevent recessions and minimise the damage when they occur can seem remote, the evidence above shows that macroeconomic outcomes have profound effects on people's lives. At its highest level, the aim of such stabilisation policy is to reduce the severity of economic fluctuations: to apply the brakes if the economy starts to grow unsustainably quickly and support the economy when growth slows. By taking action to reduce the severity of these economic fluctuations, policy makers can support overall living standards.

The power of macroeconomic policies is illustrated by estimates of their impact during the financial crisis. Indeed, studies – primarily for the US – of the macroeconomic policy response to the crisis find it played a crucial role in supporting the economy. For example, in an extensive review, Blinder and Zandi estimate that the post-crisis policy response in the US added 16 per cent to GDP by the end of 2012, and prevented unemployment rising by a further 6.7 percentage points (an increase in employment of around 10 million).[13] Of those impacts, fiscal stimulus contributed around 3 per cent of GDP, with the rest

13 See: A S Blinder & M Zandi, 'The Financial Crisis: Lessons for the next one', Policy Futures, October 2015; A S Blinder, After the Music Stopped: The Financial Crisis, the Response, and the Work Ahead, Penguin, 2013.

coming through financial and monetary policies. Furman finds a very similar effect for the impact of fiscal policy.[14] On monetary policy, Chung, Laforte, Reifschneider and Williams find that the Federal Reserve's unconventional monetary policy added 3 per cent to US GDP by 2012, with similar results found by Engen, Laubach and Reifschneider.[15]

There has been much less research into the impact of the UK policy response, and what is available has generally focused on the impact of monetary policy. But available studies point to substantial impacts. For instance, Joyce, Tong and Woods concluded that the first round of QE raised the level of GDP by up to 2 per cent.[16] Putting this together with conventional monetary stimulus, Bunn, Pugh and Yeates report a counterfactual scenario of no post-2007 monetary stimulus in which GDP is around 8 per cent lower, and the unemployment rate is 4 percentage points higher.[17]

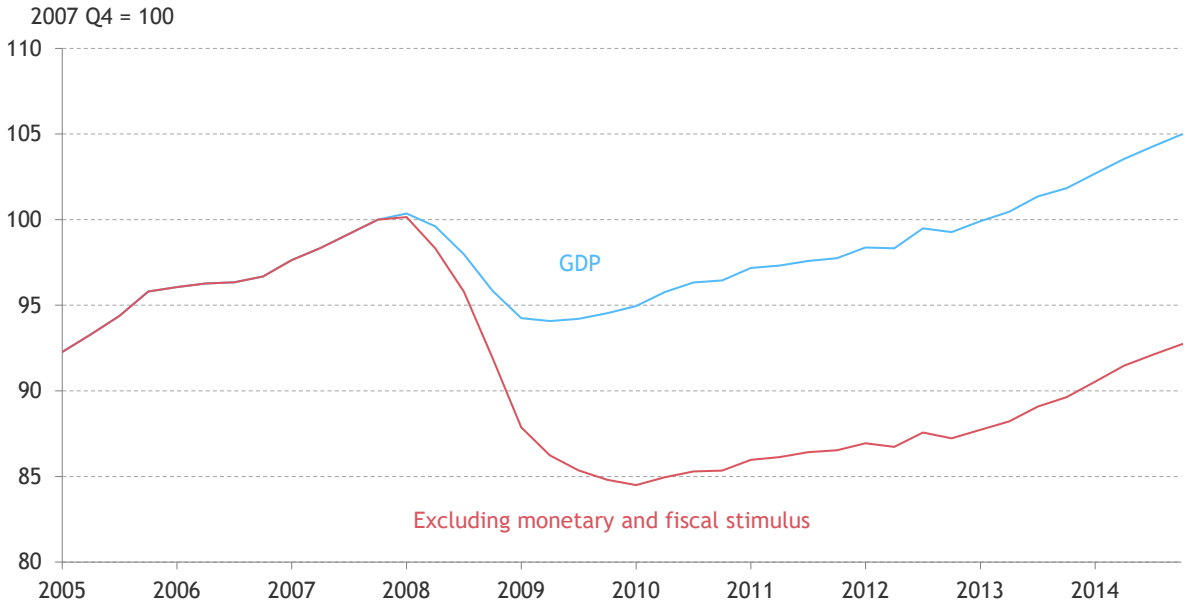
There are even fewer studies of the impact of UK fiscal stimulus during the crisis. That stimulus included a temporary cut in the main rate of Value Added Tax (VAT), reductions in income tax (higher personal allowance), the bringing forward of £3 billion of capital spending, and a number of smaller measures. To assess the impact of the path of fiscal policy on GDP growth, we can use a simple measure derived from the change in the cyclically adjusted primary balance.[18] Using this method, we find an impact of around 4 per cent on GDP.[19]

Figure 11 shows the impact of that estimate combined with the impact of monetary policy taken from Bunn, Pugh and Yeates. It is worth keeping in mind that this approach is indicative only, not least because it combines independently produced estimates of the size of the impacts of fiscal and monetary stimuli. And, more importantly, it abstracts from any decay in the impact of policy (it is common to assume that the effects of fiscal and monetary policy on GDP will unwind in the medium term). Nevertheless, these estimates serve to illustrate the very substantial impact that policy support had on the economy during the crisis period. Absent that policy stimulus, GDP might have been around 12 per cent lower coming out of the crisis, equivalent to over £8,000 per household in the UK in today's money.

14 J Furman, 'The Fiscal Response to the Great Recession: Steps Taken, Paths Rejected, and Lessons for Next Time', Hutchins Center and Yale School of Management Working paper, 2018.
15 See: H Chung, J P Laforte, D Reifschneider & J C Williams, 'Have We Underestimated the Likelihood and Severity of Zero Lower Bound Events?', Journal of Money, Credit and Banking 44, pages 47-82, February 2012; E M Engen, T Laubach, & D Reifschneider, 'The Macroeconomic Effects of the Federal Reserve's Unconventional Monetary Policies', Finance and Economics Discussion Series 2015-005, Board of Governors of the Federal Reserve System, January 2015.
16 M Joyce, M Tong, & R Woods, 'The United Kingdom's quantitative easing policy: design, operation and impact', Bank of England Quarterly Bulletin 51(3), pages 200-212, September 2011.
17 P Bunn, A Pugh & C Yeates, 'The distributional impact of monetary policy easing in the UK between 2008 and 2014', Bank of England Working Papers no. 720, Bank of England, March 2018
18 This implies a 'fiscal multiplier' of one.
19 This is a similar estimate to that produced in cross-country work by the OECD. See: OECD, 'The Effectiveness and Scope of Fiscal Stimulus', OECD Economic Outlook, Interim Report, March 2009.

FIGURE 11: **Without fiscal and monetary stimulus, GDP may have been 12 per cent lower in the aftermath of the financial crisis**

Index of real GDP (2007 Q4=100)



NOTES: Stimulatory impact of monetary and fiscal policies estimated to 2013. For monetary policy, these are taken from Bunn, Pugh and Yeates (see footnote 17); for fiscal policy these are calculated based on a simple mapping from the change in the cyclically adjusted primary balance (implying a 'fiscal multiplier' of 1). Excludes any long-run impact from the unwinding of policy stimulus.

SOURCE: RF analysis of ONS; Bank of England; OBR

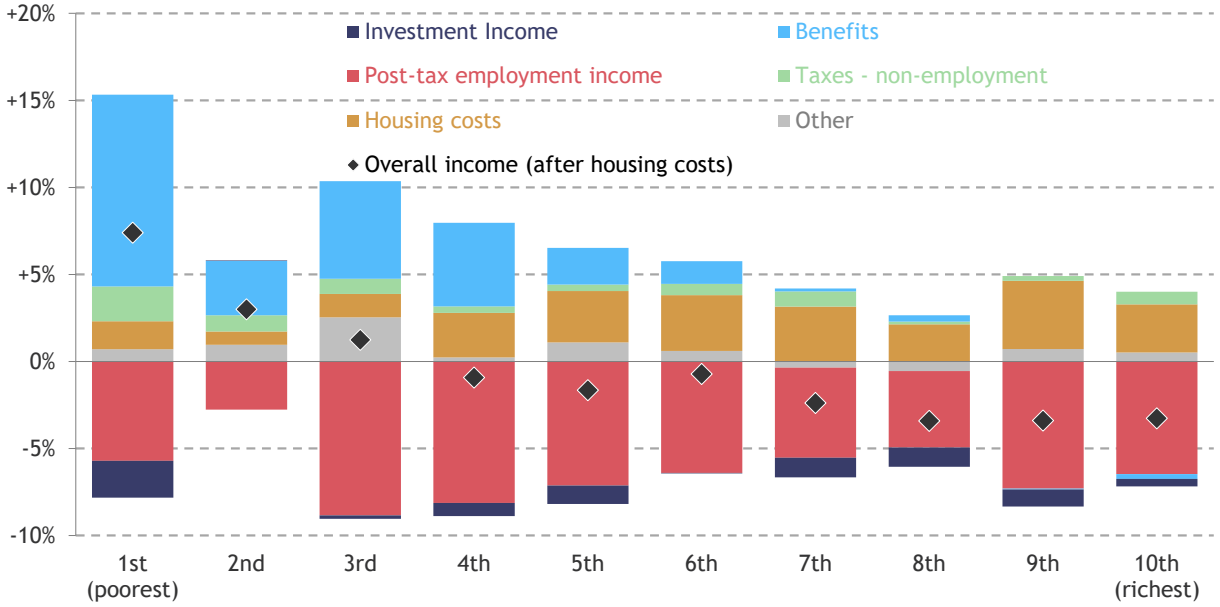
During the financial crisis, it was not just the overall level of stimulus that was important, but also the support to those on lower incomes. Figure 12 decomposes income changes experienced across the distribution in the immediate post-crisis recession into their various components. It shows that the proportional hit associated with falling employment income varied relatively little across the distribution. The stronger performance of incomes at the very bottom instead owed much to the contribution made by increasing benefits, which more than offset falling employment income in both decile one and decile two.

The large rise in the contribution of benefits in this period in part reflects the significant increase in the numbers claiming them. This is a crucial way in which the benefits system helps to cushion the impact of a recession. It means that benefit spending increases automatically in a recession, and so is a key part of what are often referred to as automatic stabilisers. For example, there was a rise in the numbers claiming housing benefit, as people moved below qualifying thresholds.[20] However, discretionary policy decisions - such as the increase in Child Tax Credit by £75 above earnings in April 2009 - also played their part in boosting the incomes of the lowest deciles.

20 D Diacon, B Pattison, J Strutt & J Vine, Support with Housing Costs: Developing a simplified and sustainable system, British Social Housing Foundation, October 2010.

FIGURE 12: **Policy responses played a key role in supporting lower-income households in the immediate post-crisis recession period**

Contribution to the change in real (CPI-adjusted) equivalised disposable household income (after housing costs) for working-age households by income decile between 2008-09 and 2010-11: GB



NOTES: Real equivalised disposable household income including housing costs. Percentiles 1-4 and 96-100 excluded due to noise. Post-tax employment income includes all employment income net of all employment-related tax, income from investment includes pensions and benefits includes all benefits including housing benefit.

SOURCE: RF analysis of DWP, Households Below Average Income

Without active stabilisation policy, a recession can become a depression

A common misconception is that economies will, given time, recover on their own, and that policy simply speeds that process up. Indeed, there is sometimes an assumption that market economies naturally revert to their sustainable growth levels over time. This stems from the idea that lower prices will be sufficient stimulus to ultimately right the economy.[21]

But a wealth of model-based evidence shows that when monetary policy is unable to perform its stabilisation role because of the lower bound on interest rates then, absent any other form of stimulus, an economy will fail to return to its sustainable growth levels for a very protracted period.[22] Put another way, absent sufficiently active policy, a recession can become a depression. Bernanke, Kiley and Roberts have shown, for

21 For an early discussion, see: D Patinkin, 'Relative prices, Say's law, and the demand for money', Econometrica 16, pages 135–154, 1948.

22 See: M T Kiley & J M Roberts, 'Monetary Policy in a Low Interest Rate World', Brookings Papers on Economic Activity 48, pages 317-396, March 2017; B S Bernanke, M T Kiley & J M Roberts, 'Monetary Policy Strategies for a Low-Rate Environment', Finance and Economics Discussion Series 2019-009, Board of Governors of the Federal Reserve System, 2019.

example, that large shocks can lead to a prolonged period of low growth when monetary policy is unable to support the economy because of the lower bound on interest rates.[23] In particular, they show that following the onset of a significant recession, policy rates can become stuck at zero for a period of five years. As a result of this, the economy takes nearly twice as long to recover compared to a situation in which interest rates are unconstrained.

The size and nature of the recession will affect the appropriate macroeconomic response

Because different underlying developments lead to recessions, the appropriate macroeconomic policy response will differ in its size and composition. In general, the policy response will address the drop in the overall level of demand in the economy but will also include a component that addresses the source of the underlying economic shock. During the financial crisis, for example, when the recession was triggered by distress in the financial sector, policy makers responded with a number of measures that sought to address that distress directly. In the UK, a number of schemes were launched to address the reduction in banks' access to wholesale funding markets.[24] These sought to reduce the cost at which retail banks could access funding to supply credit to the economy. In this way, the policy supported spending and provided a boost to the economy, but did so in a way that was specific to that crisis.

Looking back, UK recessions have had a variety of causes, but it is striking how often they have been exacerbated by bad policy. Table 1 illustrates this for post-war recessions, in particular showing that UK recessions are often driven by external factors. Indeed, a deterioration in the global outlook has coincided with all UK recessions since 1955. The trade and financial openness of the UK economy means it is particularly exposed to developments in the global market. The implication is that recessions can be triggered unexpectedly and normally from elsewhere in the world, well beyond the reach of UK policy makers. And with the benefit of hindsight, it is clear that in a number of instances bad macroeconomic policy exacerbated the impact of those international shocks. For example, overly tight fiscal policy in the face of a recession was an exacerbating factor in the 1970s and 1980s, and tight monetary policy was in the early 1990s. So while good policy cannot 'recession proof' such an open economy as the UK, bad policy can certainly make things worse.

23 B S Bernanke, M T Kiley & J M Roberts, 'Monetary Policy Strategies for a Low-Rate Environment', Finance and Economics Discussion Series 2019-009, Board of Governors of the Federal Reserve System, 2019.

24 For a discussion of such schemes, see: R Churm, M Joyce, G Kapetanios, & K Theodoridis, 'Unconventional Monetary Policies and the Macroeconomy: The Impact of the United Kingdom's QE2 and Funding for Lending Scheme', Bank of England Working Paper No. 542, August 2015.

TABLE 1: **The causes and consequences of past UK recessions**

		Peak-to-trough/trough-to-peak change				
Recession	**Cause**	**GDP**	**Unemp-loyment**	**Exchange rate**	**Monetary policy response**	**Fiscal policy response**
Mid-1970s recession	Global oil price shock exacerbated by industrial disputes	-5.3%	+0.6m	-35%	Policy rate cuts of 1.5ppts and 3.25ppts in two episodes	Fiscal policy was relatively tight with little change in overall debt levels
Early-1980s recession	Tight domestic policy in the face of oil price shock	-4.2%	+1.9m	-2%	Policy rate cuts of 5ppts	Fiscal policy remained tight during this recession with almost no increase in debt
Early-1990s recession	Domestic policy response to German reunification	-2.0%	+1.0m	-9%	Exit from ERM and policy rate eventually cut 9.75ppts	Deficit increased from 0.9 to 6.7 per cent of GDP between 1990-91 and 1993-94; debt increased by 13%
Global Financial Crisis	Global financial volatility exposing vulnerabilities at home and abroad	-6.3%	+1.1m	-27%	Policy rate cuts of 5.25ppts; asset purchases of £375bn	Deficit increased from 2.6 to 9.9 per cent of GDP between 2007-08 and 2009-10

NOTES: Recessions are defined as two quarters of negative growth. For the purposes of this table, recessions from 1955 onwards are included, as this is the start of consistent, quarterly ONS data on GDP (ABMI). Peak-to-trough depreciation in sterling is calculated by comparing the peak in the year before the recession to the trough up to two years afterwards, based on the Bank of England's broad exchange rate index.

SOURCE: RF analysis of ONS; Bank of England

So this paper evaluates the stabilisation framework

Although the different underlying causes of recessions shown in Table 1 may shape some elements of the policy response, a crucial feature of the macroeconomic policy framework is its ability to provide overall support to the economy when demand has fallen. Because of that, there is little to be gained from trying to anticipate the precise circumstances of the next recession. Instead, this paper assesses the framework for stabilisation policy. It attempts to answer the question of whether the current framework can deliver an effective policy response, in the form of temporary support to demand, during the next recession.

While we mention policy makers' individual bad choices as a driver of bad outcomes, an ineffective policy *framework* can make bad policy outcomes much more likely and mean unnecessary hardship for many. And with much macroeconomic debate focusing

on what could have been done differently in the previous crisis, or what should be done to prepare other economies (specifically the US and the euro area) for a downturn, this paper looks forward and specifically at the UK. It aims to a provide and timely and comprehensive assessment of the UK's macroeconomic framework's preparedness for a future downturn. In particular, we assess each major policy area in turn, assessing its likely effectiveness in the next recession, and setting out the actions that could be taken to strengthen the framework.

While this report focuses on providing an assessment of the current framework, it also provides the basis for the Macroeconomic Policy Unit's work programme going forward by setting out the broad directions that an agenda of reform should follow. Each element of that agenda will be returned to in detailed papers in the months ahead.

The rest of this report focuses on the extent to which the macroeconomic policy framework is ready for the next recession. To this end, this report is structured as follows:

- Section 2 briefly summarises the current framework for stabilisation policy in the UK.
- Section 3 looks at the current approach to monetary policy, particularly in the context of the low interest rate environment.
- Section 4 discusses how the introduction of macroprudential policy changes the overall policy framework.
- Section 5 discusses how the issues facing monetary policy affect the approach to fiscal policy, and discusses coordination between the two policies.
- Finally, Section 6 presents our overall evaluation of the framework and sets out some broad parameters on the direction of travel.

Section 2

The current framework for stabilisation policy

The 1990s bequeathed to the UK, and most advanced economies, an overwhelming policy consensus with two elements. First, that monetary policy – and more specifically short-term interest rates – should be the dominant tool with which the economy is stabilised; and second, that the wielding of that tool should be entrusted to an independent central bank. By contrast, fiscal policy was not viewed as well suited to stabilising the economy. Its role was instead seen as being confined to ensuring sustainable debt objectives. While additional monetary tools - in the form of quantitative easing - have been developed since then, this consensus about the relative roles of monetary and fiscal policy largely continues to underpin the UK's macroeconomic policy framework today.

Many of the lessons that informed the original development of this consensus remain relevant today but it is also true that much has changed since the 1990s. The failure to update the objectives and coordination of UK macroeconomic policy to reflect those changes risks making it collectively less effective in the post-crisis environment.

The pre-crisis consensus held that monetary policy was the key tool for stabilising the economy, and it still holds today

During the so-called 'Great Moderation' (a prolonged period of relatively low inflation and steady growth in the decade or so prior to the financial crisis) there was a remarkable

level of consensus – across a majority of advanced economies – around the best approach to economic stabilisation: namely that it was a task that fell primarily to monetary policy.[25]

The consensus held that the distortions to economic incentives and the practical shortcomings associated with the use of fiscal policy meant that it was not to be used as a tool for managing the macro economy – beyond the operation of the so-called automatic stabilisers. Instead, short-term interest rates – set by an independent central bank – were viewed as being the primary counter-cyclical tool. By varying short-term interest rates appropriately, central banks can influence the path of aggregate demand though expectations about future interest rates, asset prices and macroeconomic variables. In many countries, this emphasis on future expectations was enshrined in an explicit inflation target.[26]

Despite many changes in the economic backdrop since this consensus was first established – especially following the events of the financial crisis – it largely continues to hold today. In this section we provide a short summary of the current macroeconomic policy framework, focusing on the targets, tools and governance for each part of the framework (with an overview in Table 4). In subsequent sections we will go on to assess the suitability of these aspects of policy to supporting the economy effectively in the next recession.

i) Monetary policy

The framework for monetary policy is consistent with 'flexible inflation targeting',[27] whereby a politically independent central bank aims to return inflation to a particular numerical target, with reference to the temporary effects of monetary policy on real variables such as GDP growth and inflation. In the UK, the 2 per cent Consumer Prices Index (CPI) inflation objective is the primary objective for the Bank of England's Monetary Policy Committee (MPC). Indeed, inflation targeting frameworks of this kind have become ubiquitous across advanced economies, as Table 2 shows. Relative to other countries, the Bank of England only really stands out for having no say in setting the level of its own inflation objective.

25 For a description of this consensus, see: C R Bean, M Paustian, A Penalver & T Taylor, 'Monetary policy after the fall', Proceedings - Economic Policy Symposium - Jackson Hole, Federal Reserve Bank of Kansas City, pages 267-328, 2010.

26 The state of the art for academic macroeconomists was so-called 'New Keynesian' dynamic general equilibrium models. These models were predicated on the idea that pricing frictions lead the path of real output to diverge from its long-run sustainable growth path. See, for example: M Woodford, Interest and Prices: Foundations of a Theory of Monetary Policy, Princeton University Press, 2003.

27 See: Monetary policy remit: Budget 2018, HM Treasury, October 2018, available at: https://www.gov.uk/government/publications/monetary-policy-remit-budget-2018.

Determination of the optimal inflation target is a key element of the framework for monetary policy, so it is worth discussing the rationale for it. Ultimately, it is the product of a balancing by policy makers of the costs associated with higher inflation against the costs of having inflation too low.

TABLE 2: **Inflation targets for advanced economies**

Central Bank	Inflation target (per cent)	Process for setting target
Reserve Bank of Australia	2 to 3	Agreed with government
Bank of Canada	2 (±1)	Agreed with government
Czech National Bank	2 (±1)	Full target independence
Danmarks Nationalbank	*Exchange rate target*	Set by government
European Central Bank	Below, but close to, 2	Full target independence
Central Bank of Iceland	2.5	Agreed with government
Hong Kong Monetary Authority	*Exchange rate target*	Set by government
Bank of Israel	1 to 3	Set by government
Bank of Japan	2	Full target independence
Bank of Korea	2	Agreed with government
Reserve Bank of New Zealand	1 to 3	Agreed with government
Norges Bank	2	Set by government
Riksbank	2	Full target independence
Monetary Authority of Singapore	*Exchange rate target*	Set by government
Swiss National Bank	Below 2	Full target independence
Bank of England	2	Set by government
Federal Reserve	2	Full target independence

SOURCE: Bank for International Settlements, central bank websites

The costs of running inflation too high relate to both the uncertainty introduced by price volatility and the practical 'hassle' of changing prices. The costs of running inflation too low include the difficulty low-inflation economies can have in adjusting to relative price changes given that many prices (including wages) tend not to fall in cash terms. But crucially, the costs also reflect the constraint of the zero lower bound on nominal interest rates: in essence, if nominal interest rates cannot be set at a significantly negative level, then central banks must face a floor when setting real interest rates. As a result, a lower

inflation rate raises the probability that this constraint will leave policy makers unable to cut real interest rates sufficiently in a recession.

Prior to the financial crisis, a 2 per cent inflation target was seen to balance these considerations in the UK: low enough that the public could avoid thinking about inflation day-to-day, but high enough to aid economic adjustment and allow the Bank of England to set real interest rates sufficiently low to return inflation to target. The fact that this last point is likely to no longer hold is something we return to in Section 3.

Today, a number of tools are used to achieve the inflation target. Prior to the crisis, the primary mechanism was the short-term or policy interest rate (referred to as 'Bank Rate' in the UK). But as policy rates swiftly hit their zero lower bound during the crisis, the Bank of England – with HM Treasury support – introduced quantitative easing (QE). This involved purchasing financial assets (almost exclusively UK government debt), with the objective of raising their prices and thereby putting downward pressure on longer-term interest rates, loosening financial conditions across the economy. More recently, following the framework review in 2013, the MPC has additionally undertaken explicit 'forward guidance'.[28] By setting out how it plans to change its policy rate in future, the MPC aims to manage expectations of future policy rates, influencing overall demand in the economy by changing what households and businesses expect to happen to their cost of borrowing in future.

It is worth emphasising that these additional tools have been added to the Bank of England's policy options not to fundamentally change the underpinnings of the pre-existing macroeconomic framework, but to maintain it. By providing the Bank of England with more ammunition, they reinforce the goals of having monetary policy delegated to an independent central bank and serving as the main tool of macroeconomic stabilisation. The most often rehearsed case for such delegation is that independent central bankers without direct political pressure are likely to be more successful in combating inflation than politicians – because they do not have the same incentives to keep interest rates low. But there are a number of other reasons for delegating monetary policy to central banks, and Box 1 provides further discussion.[29]

In terms of governance, monetary policy is scrutinised in much the same way as decisions taken by elected politicians. Because central banks derive their power from elected governments, they are rightly accountable to politicians. In the UK, for example, decisions are scrutinised through parliament, primarily through appearances at the

28 See: Review of the monetary policy framework, HM Treasury, March 2013, available at: https://www.gov.uk/government/publications/review-of-the-monetary-policy-framework.

29 The classic reference here is R J Barro & D B Gordon, 'A Positive Theory of Monetary Policy in a Natural-Rate Model', Journal of Political Economy, vol. 91 (4), pages 589–610, 1983.

House of Commons Treasury Select Committee. In this context, an important issue is the extent to which the expansion of monetary policy tools since the financial crisis has changed the need for such scrutiny. In particular, QE policies are seen as blurring the distinction between central bank and fiscal authority.[30] We return to this issue in Section 3 below.

BOX 1: The rationale for delegating monetary policy to an independent central bank

The term 'central bank independence' is often used to describe delegation of monetary policy decisions to appointed rather than elected policy makers in such institutions. But it is important to recognise that such a term provides only a simplistic description of the more complex relationship between a central bank and the government. There are important benefits to institutional separation, but these should be viewed within context of that relationship.

It is helpful to think about this relationship through what economists refer to as a principal-agent setup.[31] Here, the state is the 'principal', delegating agency over certain tasks to the central bank. Crucially, the state remains the source of the central bank's powers, appoints its executive, sets its objectives and has the authority to hold its 'agent' to account. But as an 'agent' the central bank enjoys autonomy within the tasks it is mandated to perform. This framing illustrates that the central bank is neither absolutely independent, nor fully subordinate to the state. Both sides of this dynamic - autonomy over a defined set of functions and a close principal-agent relationship - have significant benefits for the functioning of a central bank and likelihood that it meets its objectives.

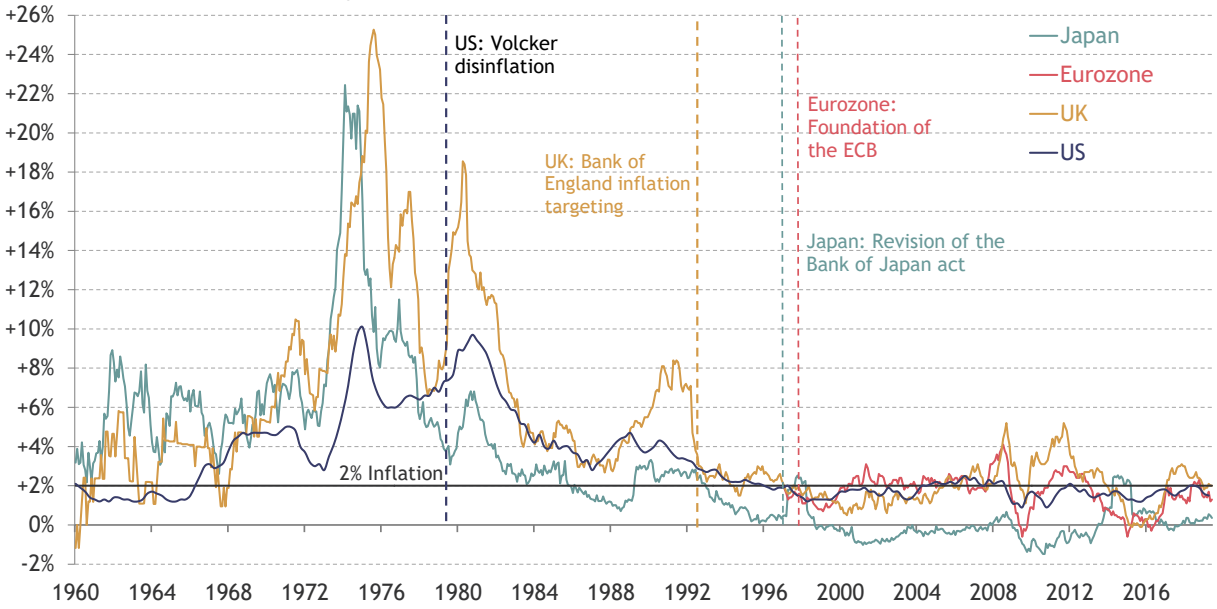
The most oft cited benefit of delegating monetary policy setting is insulating monetary policy from political considerations. Importantly, central banks can ensure continuity of monetary policies that can take effect over far longer time horizons than the average government. Similarly, removing political considerations from the setting of monetary policy removes any incentive to 'game' interest rates to reduce the government's deficit or to delay monetary policy announcements for political reasons. Elected politicians are often accused of 'inflation bias', whereby they gravitate towards looser monetary policy - and therefore higher levels of inflation - due to political pressures.

30 For example, the Bank of England has previously undertaken QE policies through an off-balance-sheet vehicle owned by HM Treasury.
31 For a discussion, see: C Bean, 'Central Banking after the Great Recession', The 2017 Harold Wincott Memorial Lecture, 2018.

And certainly the targeting of inflation by independent central banks has corresponded with significantly lower and less volatile inflation levels, as Figure 13 shows.

FIGURE 13: **Inflation targeting by central banks has reduced volatility in inflation rates**

Consumer price inflation rates



NOTES: US data shows the personal consumption expenditures (PCE) index excluding food and energy. The Fed inflation target is based on the measure of PCE including food and energy but the Fed tend to highlight the measure excluding food & energy as it reflects underlying inflationary pressure in the US.

SOURCE: ONS, Eurostat, Federal Reserve Bank of St. Louis

But it is worth keeping in mind that the benefits of central bank independence are broader than simply reducing inflation bias, including practical advantages of doing so. For example, the setting of monetary policy is a technical tasks requiring specialist knowledge that the government may not have the resources to utilise. Similarly, an autonomous central bank is often able to communicate more directly and coherently with financial markets than a government that has many more message carriers and indeed messages to communicate. Adding to this, depending on constitutional set-ups an independent central bank may be able to take quicker decisions, allowing it to respond more effectively to changes in the economic climate than a government.[32]

Despite all this, central bank independence has increasingly come under pressure in recent years. In part,

32 More detail on such arguments can be found in: B Bernanke, Monetary Policy for a New Era, paper prepared for 'Rethinking Macroeconomic Policy', a conference held at the Peterson Institute for International Economics, Washington, October 12 2017.

that reflects the fact that inflation in some countries now seems stuck below 2 per cent inflation targets. Indeed, some have argued that in a world in which inflation is too low, inflation bias should be less of a concern. The argument runs that central banks struggle to switch to a model in which they must increase inflation having spent so many years focusing on controlling it.[33] For the UK, however, inflation has remained at or above target consistently: CPI inflation has averaged 2.3 per cent since the financial crisis, 0.7 percentage points higher than in the US and 1 percentage point higher than in the euro area.

QE policies have also led some to call into question the independence of central banks, because of the way in which they increase the interaction with fiscal policy. In making purchases of government debt, QE can been seen as influencing the amount governments can spend, albeit indirectly, blurring further the distinction between central bank and fiscal authority. But because of the potential for central banks to make losses on their QE purchases, governments need to find a way to explicitly stand behind central bank decisions, making it clear that QE is undertaken for explicit monetary policy purposes. In the context of the discussion above, this represents an expansion of the role delegated to the central bank, and so a strengthening of its independence.

In summary, there are strong arguments for delegating the setting of monetary policy to an independent central bank. But the case for this independence is always part of wider judgements about the desirable policy framework. Independence is not an end in and of itself, and should always be based on whether it furthers the effectiveness of policy making. It must also be balanced with the need for democratic accountability.

ii) Macro prudential policy[34]

Macropru policy is an important post-crisis addition to the overall framework for macroeconomic policy. It recognises that financial cycles – that is, the tendency for bank and non-bank credit conditions to vary over time - are not the same as business cycles. And it also recognises that monetary and fiscal policies are not well suited to targeting financial cycles. These issues imply a need for separate policy tools to head off risks to financial stability pre-emptively; put another way, there is a need for counter-cyclical policy for the financial cycle. Such policy is particularly important in an environment of

33 See: G Eggertsson, 'Fiscal Multipliers and Policy Coordination', in Luis Felipe Cespedes and Jordi Gali (eds.), Fiscal Policy and Macroeconomic Performance, Central Bank of Chile,Chapter 6, pages 175-234, 2013.

34 See: Remit and recommendations for the Financial Policy Committee, HM Treasury, 2018, available at: https://www.gov.uk/government/collections/financial-policy-remit.

low interest rates, where some finnacial institutions may be encouraged to take more risk in order to generate higher returns, potentially increasing the risk of financial instability.

In terms of governance, the approach to macropru policy in the UK is similar to that for monetary policy. Responsibility for such policy is delegated to the Bank of England's Financial Policy Committee (FPC), which has a primary objective of identifying and mitigating systemic risks to the financial system and, subject to that, is charged with promoting strong growth and employment.

The FPC has to date used a range of policy tools. As well as directing regulators to take action to mitigate specific risks, the FPC can also use aggregate macropru tools. Perhaps the most obvious example is the countercyclical capital buffer, which allows macropru policy makers to adjust the levels of loss-absorbing capital in the banking system as a whole. The case for such decisions being taken by an independent central bank is similar, but weaker, than that for monetary policy.

The technical nature of these policy deliberations provide one argument for delegating such policies to technocratic institutions, but a stronger argument comes from the pressure on politicians to exploit the short-term tradeoff between growth and the buildup of financial stability risks. However, the lack of an obvious performance metric for macropru policy makes it harder to delegate in a transparent way, and the very focused nature of who bears the impact of specific decisions is also more problematic from an accountability stand-point. For example, FPC measures to reduce the availability of high loan-to-income mortgages directly impact on the small number of lower income households for whom such a policy prevents them becoming homeowners. These considerations explain why government officials are involved directly in such policy decisions in many countries.[35]

iii) Fiscal policy

Like that for monetary policy, the framework for fiscal policy is grounded strongly in the pre-crisis consensus.

From a purely macroeconomic perspective, fiscal policy makers have the scope to adjust overall levels of taxation and spending in order to improve welfare. Economists have identified two key macroeconomic rationales for doing this. First, to smooth out cyclical economic fluctuations by supporting demand in downturns and softening it in

35 In the US, for example, officials from across the regulatory spectrum, as well as from the Treasury Secretary, take part in macropru policy decisions, see: https://www.treasury.gov/initiatives/fsoc/about/Pages/default.aspx.

upswings.[36] And second, to maximise long-run welfare by ensuring fiscal policy enables rather than undermines other desirable objectives, such as investing in infrastructure projects which boost productivity in the long term.

In practice, the delegation of the principal counter-cyclical policy role to the Bank of England has meant that fiscal policy makers have focused on longer-term issues, particularly ensuring the sustainability of the government's debt position. As explained in Box 2, in the UK (as in many other countries) this objective is enshrined in a set of fiscal rules.[37,38] And while fiscal policy also has a secondary objective of delivering strong growth, large-scale use of counter-cyclical fiscal policy is only envisaged in exceptional circumstances.[39]

In the same way to which inflation bias justifies the delegation of monetary policy, a tendency for fiscal policy makers to set policies that mean government borrowing (and therefore debt) is too high, provides a strong argument for fiscal rules. This 'deficit bias' reflects the fact that politicians have strong incentives to find ways to justify fiscal giveaways, and weak incentives to bring deficits back down afterwards.[40] Fiscal rules aim to limit this behaviour, particularly when they are evaluated independently, as they are in the UK by the Office for Budgetary Responsibility (OBR).

To date, UK fiscal rules have focused on reinforcing the primacy of sustainability as the objective of fiscal policy. However, it is also important for fiscal rules not to limit the scope for undertaking discretionary policy in response to changes in the economic outlook. If too-rigid fiscal rules were to result in policy tightening in the face of negative shocks to the economy then they could contribute to a deterioration in macroeconomic outcomes. Box 2 discusses the evolution of fiscal rules both internationally and in the UK.

36 Some economists have argued that the welfare gains from stabilising the economy in the face of cyclical fluctuations are relatively small (see, for example: R E Lucas, 'Macroeconomic Priorities', American Economic Review, vol. 93, pages 1-14, 2003) and that governments should prioritise measures which increase the average growth rate of the economy. But the distributional effects of recessions discussed above provide an additional rationale for undertaking cyclical macroeconomic policy because the effects for some groups may be very large (a conceptual discussion of these issues can be found in: G de Giorgi & L Gambetti, 'Business Cycle Fluctuations and the Distribution of Consumption', Review of Economic Dynamics, vol. 23, pages 19-41, 2017).

37 See: Charter for Budget Responsibility: Autumn 2016 update, HM Treasury, available at:https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/583547/charter_for_budget_responsibility_autumn_2016_update_final_for_laying_web.pdf, 2017.

38 In particular, there are currently four fiscal rules. A 'fiscal objective' which specifies that Public Sector Net Borrowing (PSNB) should be brought into balance early in the next Parliament (taken to be 2025-26); A 'fiscal mandate' which involved returning the cyclically-adjusted PSNB to less than 2 per cent of GDP by 2020-21; a 'supplementary target' which specifies that Public Sector Net Debt (PSND) should be falling as a percentage of GDP by 2020-21; and a cap on welfare spending by 2022-23.

39 Although this is not mentioned explicitly in the Charter for Budget Responsibility, the Monetary Policy Remit notes that one element of the government's economic strategy includes, 'providing the flexibility to support the economy'.

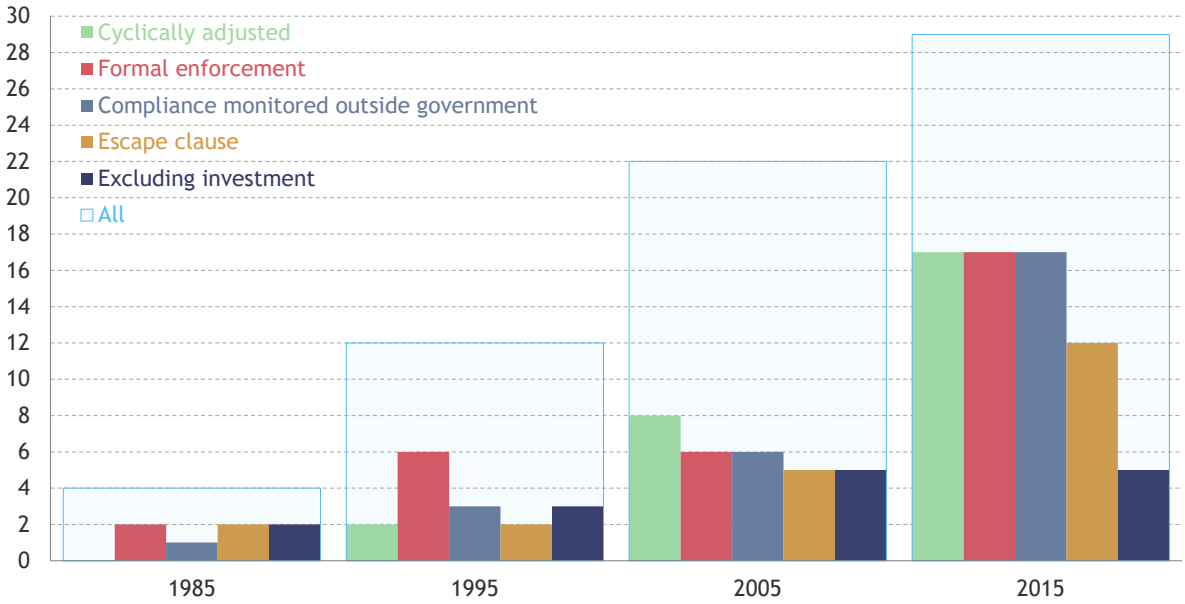
40 There are a number of other sources of deficit bias. For a discussion, see: L Calmfors & S Wren-Lewis, 'What Should Fiscal Councils Do?', Economic Policy, vol. 26, pages 649-695, 2011.

BOX 2: The increasing use of fiscal rules in advanced economies

Fiscal rules have been growing in popularity over the past 30 years, with national or supranational rules adopted in over 90 countries.[41] These include rules limiting either the level or trajectory of government debt, or the balance between revenue and expenditure. Their intended effect is to mitigate the short termism and 'deficit bias' of governments, with the incentive to spend as much as possible during their term in power, at the expense of the long-term sustainability of the public finances. Fiscal rules also have further benefits of improving the credibility of a state's economic and fiscal forecasts, and lowering government borrowing costs through enhanced fiscal credibility. Rules imposed by supranational organisations on the other hand, are often a mechanism to impose certain baseline standards on their members in terms of fiscal stability.

FIGURE 14: **The number of advanced economies adopting fiscal rules has increased significantly in the past 30 years, with these rules becoming increasingly sophisticated**

Number of advanced economies with fiscal rules adopted at a national level by year, split by characteristics of rules: advanced economies



NOTES: Supranational-only rules are excluded and rules are shown from implementation date rather than announcement date.
SOURCE: Fiscal Rules Dataset 1985-2015, IMF

41 Source: Fiscal Rules Dataset 1985-2015, IMF.

Figure 14 shows the growing number of advanced economies adopting national fiscal rules over recent decades. As the overall number has increased, so too has the use of more sophisticated approaches – including the incorporation of escape clauses triggered by exceptional economic events, the use of cyclically adjusted targets, and the exclusion of investment from borrowing targets. On top of their baseline objective of ensuring fiscal sustainability, these newer fiscal rules are expected to fulfil such diverse objectives as enabling fiscal policy to stabilise the macroeconomy or supporting investment in public infrastructure.

The UK was an early adopter of fiscal rules. The Labour government of 1997 introduced a budget-balancing rule (excluding investment) and a sustainable investment rule, as outlined in Table 3. These rules supported a dramatic increase in public sector net investment and a drop in debt to below 40 per cent of GDP. However, they lost significant credibility when HM Treasury chose to alter the start and end dates of the economic cycle over which the 'golden rule' was measured. And they were ultimately broken during the 2008 financial crisis. At this point, the fiscal rules were suspended and replaced with a temporary operating rule, as debt and borrowing rapidly sky-rocketed. This was then superseded in 2010 by a new set of fiscal rules from the coalition government, with the aim of reducing the deficit incurred during the crisis and reigning in debt, while simultaneously retrenching capital expenditure. These rules were further bolstered by the formation of the independent Office for Budget Responsibility (OBR), with a mandate for macroeconomic and fiscal forecasting, the costing of policy measures and, crucially, judging the government's performance against its fiscal rules.

The most recent batch of fiscal rules were adopted by the 2015 Conservative government and included a commitment to deliver overall balance in the budget by 2019-20 and to keep debt falling every year from 2015-16 onwards. The 2016 EU referendum resulted in the swift pushing back of the balanced budget rule, although the debt rule survived the transition. The new balance rule in 2016 included a less stringent aim to balance the budget by 2025-26, and an interim target to keep cyclically adjusted public sector borrowing below 2 per cent of GDP. Both the debt and 2 per cent cyclically adjusted borrowing rules were met in 2018-19, but have since come under increasing pressure. Speaking at his first major fiscal event, the new Chancellor of the Exchequer announced that he would be presenting new rules as part of an updated 'fiscal framework' ahead of this autumn's Budget.[42]

42 See: S Javid, Spending Round 2019, 4 September 2019.

TABLE 3: **Fiscal rules in the UK**

Year Introduced	Type of rule	Definition
1997	Budget-Balance Rule	Golden rule over the cycle: To balance the public sector current budget over the economic cycle, allowing borrowing for investment, but not to fund current spending.
1997	Debt Rule	Sustainable investment rule: public sector net debt in percent of GDP should be held at below 40 percent of GDP over the cycle.
2008	Temporary Operating Rule	To set policies to improve the cyclically adjusted current budget each year, once the economy emerges from the downturn, so it reaches balance and debt is falling as a proportion of GDP once the global shocks have worked their way through the economy in full.
2009	Budget-Balance Rule	A year-on-year reduction in public sector net borrowing to 2015/16, so that public sector net borrowing as a percentage of GDP is more than halved over the four years to 2013/14 (from 2009/10).
2009	Debt Rule	Ensure that public sector net debt as a percentage of GDP is falling in 2015-16.
2010	Budget-Balance Rule	Achieve cyclically adjusted current balance by the end of the rolling, five-year forecast period.
2010	Debt Rule	Achieve a falling public sector net debt-to-GDP ratio by 2015/16.
2015	Budget-Balance Rule	To run a budget surplus starting in 2019/20 as long as Q4 on Q4 growth exceeds 1 percent.
2015	Debt Rule	Reduce the net debt to GDP ratio in every year to 2019/20.
2016	Budget-Balance Rule	To balance the budget by 2025-26 with an interim target of reducing cyclically adjusted borrowing to below 2% of GDP
2016	Debt Rule	Falling net debt to GDP ratio by 2020-21

SOURCE: Fiscal Rules Dataset 1985-2015, IMF

The UK's fiscal rules have supported a drop in borrowing and debt in most periods, but there have also been episodes in which the incentives they have created have threatened to damage fiscal sustainability. A key issue here is the focus on public sector debt, ignoring the wider public sector balance sheet and the UK's significant financial and non-financial assets and liabilities. This has resulted in a lack of scrutiny of the creation or disposal of assets such as student loans and social housing, as well as liabilities such as public sector pensions. Fiscal rules have also lacked flexibility in the face of major economic events such as the financial crisis, and have underestimated the headroom needed to adjust to major shocks. As the government looks to create a new set of fiscal rules, these will be crucial considerations for the future of the UK's fiscal sustainability.

While the UK's macroeconomic framework currently gives monetary policy the primary stabilisation role, it retains the flexibility for fiscal policy to play more of a counter-cyclical role in some circumstances. If there is headroom relative to the fiscal rules, then that can be used to support the economy while the rules can also be suspended in the face of a 'significant negative shock'. While these flexibilities exist they are under-defined and seen as carve outs from, rather than as integral features of, the UK's current fiscal framework.

Table 4 summarises the elements of the framework that we assess in this report for their likely effectiveness in the next recession. But the way these policies are used in combination is also incredibly important.

TABLE 4: **Summary of the macroeconomic policy framework to be assessed in this report (changes to the framework since the financial crisis shown in italics)**

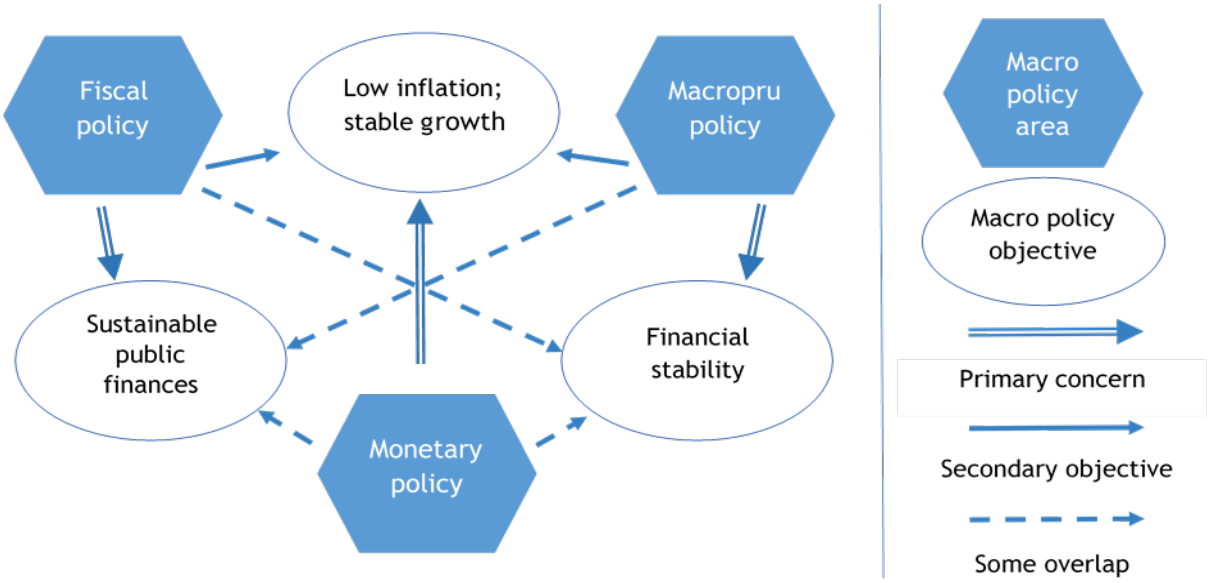
	Target	Tools	Governance
Monetary policy	Inflation	Bank Rate, *QE*, *forward guidance*	Independent Bank of England, accountable to parliament
Macroprudential policy	*Stability of the financial system*	*Multiple*	*Independent Bank of England, accountable to parliament*
Fiscal policy	Fiscal rules for debt sustainability	Discretionary tax and spending; automatic stabilisers	Set by elected politicians, scrutinised by parliament

Policy coordination

The relationship between these different macro policies gives rise to an important and potentially complex set of policy interactions, summarised in Figure 15.

While the MPC, FPC and fiscal policymakers have distinct primary objectives — delivering inflation to target, mitigating systemic financial stability risks and ensuring debt sustainability — they have overlapping secondary objectives to support growth. All three policies therefore face a trade-off between their primary objectives and real growth, meaning they can each, in principle at least, be used to support the economy in a recession.

FIGURE 15: **Policy coordinated is complex under the current framework**



SOURCES: RF analysis

Given that each policy is likely to be affected by the other, desirable macroeconomic outcomes are most likely to result from some combination of approach. Equally, if the primary objectives of each policy were pursued without any reference to the others then we might experience poor economic outcomes. For example, if monetary policy makers ignored a significant tightening in fiscal policy to ensure debt sustainability, they could prompt an undershooting of the inflation target. This implies the need for a mechanism by which coordination is achieved in order to make macroeconomic policy effective. But, in practice the benefits of delegating policy – most obviously through eliminating deficit and inflation bias - mean that policies are set with some degree of independence from each other.

Pre-crisis, coordination was essentially delivered tacitly. This was achieved by taking fiscal policy decisions only infrequently, meaning monetary policy – which needs to respond quickly to changes in the outlook – could be set taking fiscal policy as given. For their part, fiscal policy makers could set fiscal policy knowing that the MPC would adjust its policy response accordingly. All this meant that monetary policy makers were able to decide the overall path of inflation (and, as a consequence, the path for growth), but that fiscal policy determined the broad mix of policies used to achieve that growth rate. The resulting policy mix can be thought of as a tacit equilibrium between both monetary and fiscal policymakers.[43]

43 This type of coordination can be thought of as a repeated 'game' with two players: a leader (fiscal policy makers) and a follower (monetary policy makers). Such a game is analogous to a Stackelberg game – a setting in which two firms compete on quantity by making decisions sequentially (following the work of H. von Stackelberg, Market Structure and Equilibrium, 1934). The resulting policy mix, which relies both players to have full information, can be thought of as an equilibrium of that game with neither fiscal or monetary policy makers having an incentive to behave differently given the sequencing and information available. Such an outcome is referred to as a 'Nash' equilibrium.

There are, of course, informal channels of coordination: for example, the Governor of the Bank of England and the Chancellor meet regularly, and a HM Treasury representative attends the MPC meeting. But crucially, there is no single decision maker in this process setting the overall stance of both fiscal and monetary policy.

The post-crisis approach to coordinating policy has many of the features of the pre-crisis consensus. Monetary policy is still set taking infrequent fiscal decisions as a given, for example – allowing the Bank of England to remain operationally independent in pursuit of the inflation target. However, by housing macropru policies at the Bank of England, with significant overlap in the policy setting committees, the ability of policymakers to internalise the joint trade-offs between them has been maximised.[44]

Central to this approach is the assumption that monetary policy has sufficient firepower to be able to deliver on its objective. With monetary policy the primary tool for delivering macroeconomic stability, the system of coordination breaks down if it is unable to fulfil its role. At that point, the use of other policies to support macroeconomic objectives may be necessary. In that case, alternative mechanisms for coordinating policy are required. This could be made even more complicated if fiscal and monetary policy makers have differing views about the ability of monetary policy to achieve its primary target.

The current policy framework bolts on macropru policy to the pre-crisis consensus

In summary, monetary and fiscal policies continue to operate in fundamentally the same way as they did under the pre-crisis consensus. And while macropru policy is a key addition to the overall framework, it does not change the approach to monetary and fiscal policies substantively.

This approach relies on the primacy of monetary policy in stabilising the economy following a recession. If it is unable to perform this role (as discussed in the next section, that is almost certainly the case), then it is necessary to rethink the overall framework. Thus, there is an argument that the current approach to macroeconomic stabilisation policy needs wholesale reconsideration. The rest of this report is devoted to assessing that issue. In the subsequent sections we take each area of the stabilisation framework and consider how it may need to be updated for the legacy of the financial crisis.

44 For a full discussion of the coordination of monetary and macropru policies, see: T Shakir, The interaction of the FPC and the MPC, Bank of England Quarterly Bulletin, 2014 Q4, pages 396-408, 2014.

Section 3

Monetary policy

The assignment of the dominant counter-cyclical role to monetary policy in our macroeconomic framework is running up against the dominant feature of the post-crisis economic landscape: the long-lasting decline in interest rates. That decline appears to be a secular decline in the level of interest rates around the world and means that monetary policy will not be able to provide anything like the level of support it has previously in the next crisis. The Bank of England's policy rate averaged around five per cent in the decade prior to the financial crisis, but since then has barely been above zero. This reduces hugely the capacity of traditional monetary policy to support the economy because it is difficult to set policy rates significantly below zero. On average, policy rates have been cut by an average of five percentage points in recession. In the near future it is hard to envisage rates being cut by more than one given the current low level of forward interest rates.

As policy rates fell towards zero, the Bank of England, like other central banks, turned to quantitative easing (QE). There is strong evidence that these large-scale purchases of government debt worked to support the economy, but QE has brought with it challenges and political opposition. This is consistent with a survey of MPs which points to mixed views on the future use of QE, with only around one in three saying its future use is advisable. Controversy has focused on the fact that QE increases asset prices, only helping the already wealthy. But this is too simplistic an understanding of QE's distributional impact. Our rounded assessment finds that while QE has increased wealth inequality (40 per cent of the increases in asset prices went to the richest 10 per cent of families), it decreased income inequality (raising incomes of the bottom

half of the income distribution by 4.3 per cent, compared to 3.2 per cent for the top half).

While QE should be used again in future, the level of support it can provide will be much lower than that seen in the financial crisis. This is because QE works by reducing longer-term interest rates, which face their own lower bound. With ten-year UK government debt yields close to all-time lows (at below 0.5 per cent), there is limited scope for further reducing longer-term interest rates. Given this, we think it is unlikely that an expansion of QE beyond around £120 billion (roughly equivalent to one percentage point on policy rates) would offer much additional stimulus. This combined with a maximum cut in Bank Rate of one percentage point suggests that monetary policy would be hard pushed to provide more than the equivalent of a two percentage point cut in interest rates (which would boost GDP by around 1 per cent). This falls far short of the five percentage point average loosening in past recessions.

Steps should be taken to improve the ability of monetary policy to respond to a future recession. More can be done to strengthen the role of QE, including normalising its use within the wider framework. A range of alternative monetary policy instruments – including wider purchases of private-sector assets and guarantees to hold interest rates at zero for a prolonged period – should be considered. Other countries are currently reviewing their policy tools to consider a range of alternative monetary policy instruments. The UK should undertake a similar review, but its focus should be different. While these alternative tools should be considered, they also rely on lowering longer-term interest rates and face the same constraints as QE. While these tools could increase the capacity of monetary policy only marginally, any review of monetary policy should look further ahead to consider a higher inflation target. Starting from where we are today, the zero lower bound could constrain monetary policy as much as half the time. This is such a major constraint on macroeconomic policy that it suggests a powerful in principle case for raising the 2 per cent inflation target. Doing so, however, is far from easy in practice and seems unlikely to be implemented ahead of the next recession.

All this means relying on monetary policy alone to support the economy in the next recession risks a deeper, more prolonged and more painful recession than is necessary. But, to date, this constraint has not been widely acknowledged publicly by policy makers. Our view is that doing so would facilitate preparations for the next recession and catalyse a wider debate on the best way to strengthen the macroeconomic policy framework.

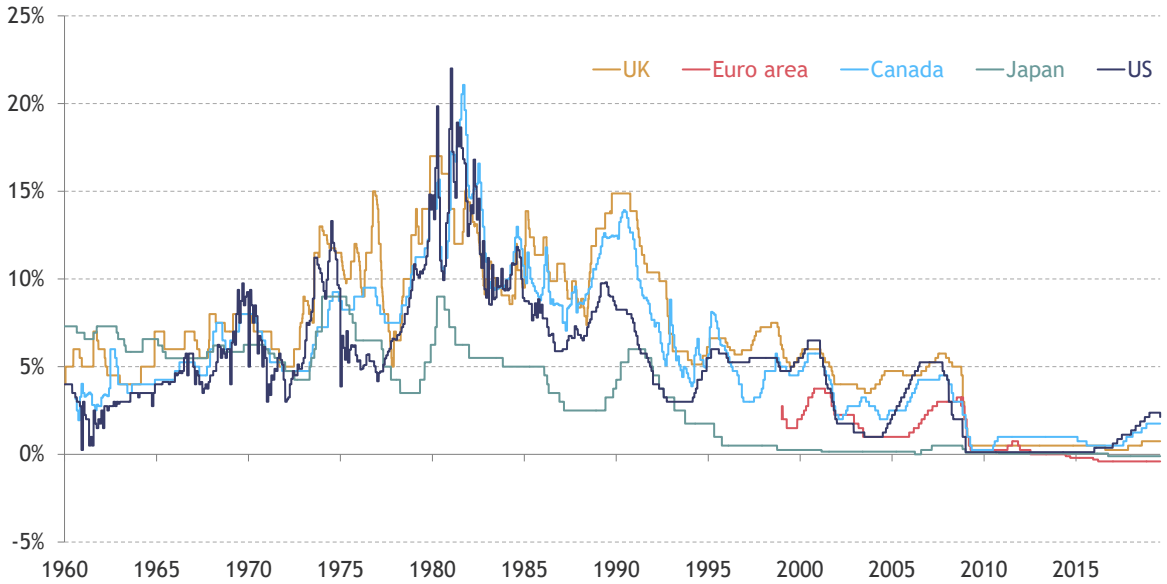
Persistently low interest rates mean the zero bound will almost certainly stop monetary policy stabilising the economy in future

Prior to the crisis, monetary policy was the key tool for supporting the economy in a downturn. Following the onset of a downturn, central banks respond by cutting policy rates, helping the economy recover by boosting household and firm spending, including by reducing the cost of borrowing. Without such active stabilisation policy, economies can stagnate - stuck in a state of low growth and low inflation.[45]

This is the theoretical basis for the very real practical problem that the current low interest rate environment decreases the capacity for traditional monetary policy to support the economy in the next recession. As shown in Figure 16, despite recent increases, policy rates remain at extremely low levels in the UK.

FIGURE 16: **Policy rates remain close to zero across advanced economies**

Official policy rates for major advanced economies



SOURCE: Bank of England, ECB, Federal Reserve Board, BIS

The same is true across advanced economies, and has been for some time. With very low longer-term interest rates also prevailing, the suggestion is that common, secular drivers must be at play. There are a large number of candidates (as discussed in Box 3) but the key implication is that, not only is there little scope for policy rates to be cut in the near future if required, but also that this constraint may be long lasting.

45 The necessary condition for monetary policy to stabilise the economy is known as the 'Taylor Principle' and involves policy rates being adjusted more than one-for-one with changes in the outlook for inflation. For a discussion, see: S Schmitt-Grohé & M Uribe, 'Liquidity Traps and Jobless Recoveries', American Economic Journal: Macroeconomics, vol. 9, pages 165–204, 2017.

BOX 3: Low interest rates reflect factors that look likely to be long lasting

While central banks increase or decrease policy interest rates to achieve their inflation targets, the average levels around which these movements take place are out of their control and depend on a wide range of factors. These factors, which can be long- and short-term, determine the 'equilibrium interest rate' - the rate consistent with inflation remaining at target in the medium term.

In the long run, the equilibrium rate is affected by the underlying, slow-moving structure of the economy. One way to view such structural factors is through the balance of saving and investment which will determine that long-run equilibrium interest rate. Viewed in this way, a fall in the equilibrium interest rate will be a symptom of a fall in the propensity to invest, an increase in the propensity to save, or some combination of the two.

These long-run factors are currently thought to be putting downward pressure on the equilibrium interest rate. Perhaps the most obvious, if slightly circular, factor reducing the propensity to invest has been the slowing in the growth rate of productivity. This reduces the returns to new investment.[46] Ageing societies will also push up savings with a higher overall rate of asset accumulation desired in order to pay for retirement.[47]

For a small, open economy like the UK, the long-term factors driving equilibrium interest rates will be international as well as domestic. Adjusted for risk, UK interest rates cannot permanently diverge in any significant way from those in the rest of the world: that is, any divergence would be reduced over time by flows of capital towards higher interest rates countries.

Equilibrium interest rates are also influenced by more short-term factors, which may be particularly important in pushing the equilibrium rate down in the aftermath of the financial crisis. A financial sector less keen to provide credit for investment, or firms and households preferring higher savings given increased economic risk, would push the equilibrium rate down in the short term.

While many of these factors are unobservable, the behaviour of interest rates in the post-crisis period points strongly towards material downward

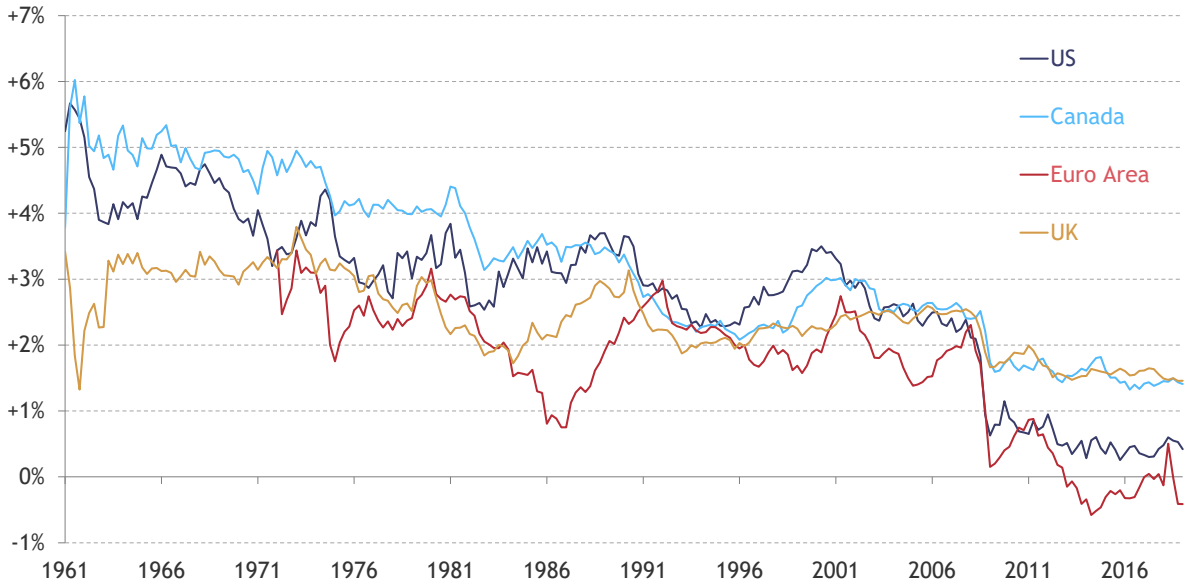
46 For a discussion of the weakness in productivity, see: S Clarke & P Gregg, Count the pennies: Explaining a decade of lost pay growth, Resolution Foundation, October 2018.

47 The implications of an ageing population are discussed extensively in: A new generational contract: the final report of the Intergenerational Commission, final report by the Resolution Foundation's Intergenerational Commission. For more on the underlying drivers of low equilibrium real interest rates, see: B S Bernanke, 'The Global Saving Glut and the U.S. Current Account Deficit', Remarks at the Sandridge Lecture, 10 March, Virginia Association of Economists, Richmond, VA, 2005; L H Summers 'U.S. Economic Prospects: Secular Stagnation, Hysteresis, and the Zero Lower Bound', Business Economics 49(2), 65–73, 2014; R J Gordon, 'The Rise and Fall of American Growth: The U.S. Standard of Living since the Civil War', Princeton University Press, 2016.

pressure on the equilibrium interest rate. Market-based measures of long-term real interest rates (derived from long-term government bond yields) are close to historical lows - below one per cent in many countries.[48] And model-based estimates also suggest a range of factors are pushing down on the equilibrium real rate (Figure 17), although these estimates are somewhat above 1 per cent.[49]

FIGURE 17: **Equilibrium real interest rates are estimated to have fallen significantly in recent years**

Estimates of long-term equilibrium interest rates



SOURCE: Taken from the estimates in K Holston, T Laubach, & J C Williams, 'Measuring the natural rate of interest: International trends and determinants', Journal of International Economics, vol. 108, pages 59-75, 2017

The low interest rate environment means that the zero bound is almost certain to bind in the next UK recession. The Bank of England's policy rate (Bank Rate) remains very close to zero (at 0.75 per cent), and markets for future interest rates suggest that this picture is unlikely to change markedly in the coming years. That suggests there will be very limited scope to cut Bank Rate in the next recession. Indeed, it is difficult to see cuts of more than 1 percentage point being possible.[50]

48 Such measures are derived from available estimates of long-term risk premia from the yields on government bonds. For a detailed description of how to estimate such risk premia, see for example: M Abrahams, T Adrian, R Crump, E Moench & R Yu, 'Decomposing real and nominal yield curves', Journal of Monetary Economics, vol. 84, December, pages 182–200, 2016; G Vlieghe, 'Monetary policy expectations and long-term interest rates', Speech, Bank of England, 2016.

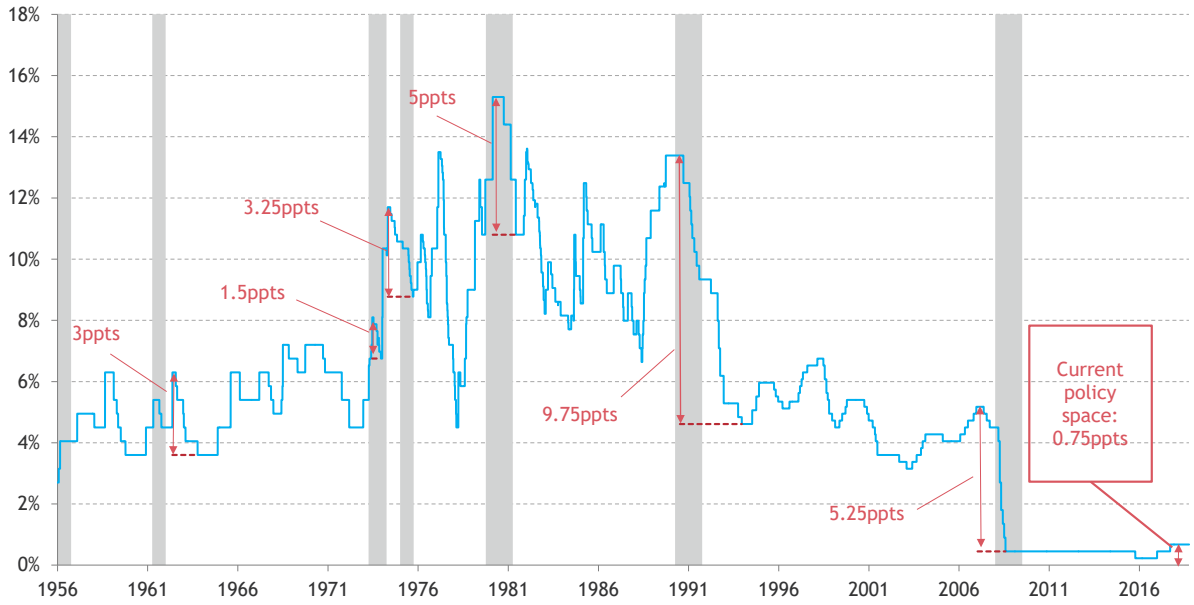
49 As Figure 17 shows, equilibrium real rates started decreasing long before the crisis, but the crisis lowered them further. It is worth noting that this appears to be a relatively unusual period. The only analogous period in the past couple of hundred years when the underlying real rate of interest appears to have been so low for so long is the decade or so after World War II (for evidence, see: C M Reinhart & M. B. Sbrancia, 'The Liquidation of Government Debt', IMF Working Paper 15/7, 2015; J Hamilton, E Harris, J Hatzius & K West, The Equilibrium Real Funds Rate: Past, Present and Future', NBER Working Paper No. 21476, 2015; and G Kindberg-Hanlon, Low real interest rates: depression economics, not secular trends, Bank Underground, 2017.

50 The Bank of England has made it clear that, despite other central banks cutting rates to slightly negative rates, it sees zero as the lower bound on the level of its policy rate. See: M Carney, New Economy, New Finance, New Bank, speech given at The Mansion House, June 2018.

As Figure 18 shows, policy rate cuts have ranged from 3.25 percentage points to 9.75 percentage points over the past five recessions, coming in at over 5 percentage points on average.

FIGURE 18: **Large cuts in policy rates have been the cornerstone of the policy response to past recessions, but this will not be an option in the next recession**

Bank of England policy rate cuts during recessions



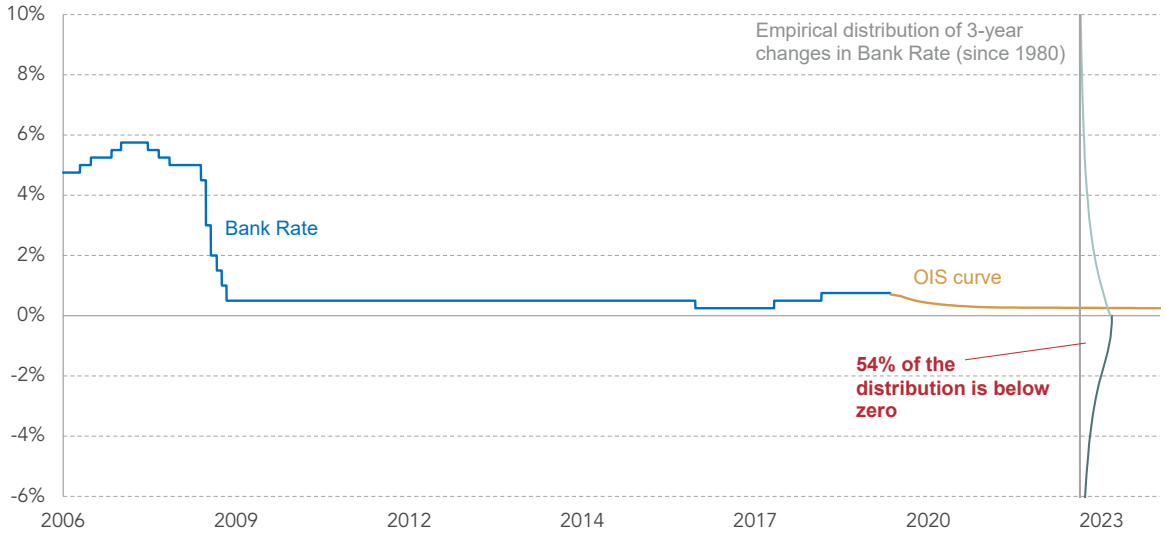
NOTES: Bank Rate until 1972, Minimum Lending Rate 1972-1981, Minimum Band 1 Dealing Rate 1981-1997, Repo Rate 1997-2006, Bank Rate, 2006-2016.
SOURCE: Bank of England

This is very similar to the average in the US, where rate cuts have averaged 5 percentage points and ranged from 2.1 percentage points to 10.5 percentage points. Figure 19 shows one simple way of assessing the likelihood of monetary policy being constrained by the zero lower bound. In particular, it shows that, starting from where we are, an estimate of the distribution of Bank Rate changes over three years implies around 50 per cent chance of the zero bound constraining interest rates, a similar number to studies for the US economy.[51] That distribution is estimated from 1980, and so almost certainly points to a much more diffuse distribution than might be expected to hold today. That said, the high risk of recession goes in the other direction, suggesting rates may be more likely to be cut, increasing the chances that the zero lower bound might bind.

51 Kiley and Roberts find that, based on the historical behaviour of the US economy and policymakers, a fall in the equilibrium interest rate to three per cent would lead to the lower bound to bind roughly two fifths of the time. See: M T Kiley & J M Roberts, 'Monetary Policy in a Low Interest Rate World', Brookings Papers on Economic Activity, vol. 48, pages 317-396, 2017. Similarly high costs of lower bound episodes are found by J C Williams, 'Heeding Daedalus: Optimal Inflation and the Zero Lower Bound', Brookings Papers on Economic Activity, pages 1–37, 2009; and O Coibion, G Yuriy & J Wieland, 'The Optimal Inflation Rate in New Keynesian Models: Should Central Banks Raise Their Inflation Targets in Light of the Zero Lower Bound?', Review of Economic Studies, vol. 79, pages 1371–406, 2012.

FIGURE 19: **There is a very high likelihood that the zero lower bound will constrain monetary policy in the future**

Bank Rate, interest rate futures and the distribution of Bank Rate changes



NOTES: The OIS curve refers to an instantaneous forward rate curve derived from futures for Overnight Index Swap markets (as at 3 September 2019), and the empirical distribution of Bank Rate changes is estimated using an Epanechnikov kernel function.

SOURCE: RF analysis of Bank of England

BOX 4: The impact of changes in monetary policy rates on the UK economy

The extent to which monetary policy is likely to be constrained in a future recession depends not only on the expected level of interest rates going into a crisis, but also the extent to which the policy rate set by the Bank of England actually influences spending and boosts the economy. If rate changes were now exerting a more powerful influence on demand than in the past, then the fact that rates cannot fall as far in a crisis might be less concerning. Conversely, any reduction in influence would be a cause for additional concern.

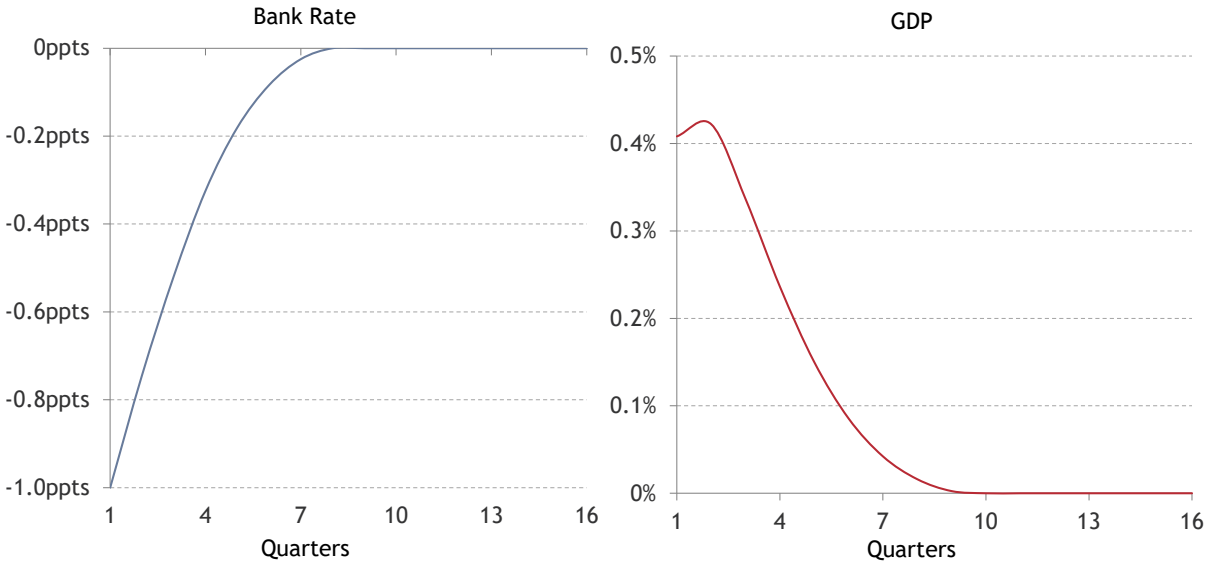
Since it was given responsibility for achieving the inflation target, the Bank of England has published a number of estimates for the size of the impact of change in policy rates.[52] These estimates have varied, reflecting changes in methodology, as well as changes in the economy. The Bank's most recent estimates, shown in Figure 20, underpin its forecasting model and are consistent with other estimates for

52 An early example is given in, MPC, The transmission mechanism of monetary policy, 1999. The most recent estimate is given in S Burgess, E Fernandez-Corugedo, C Groth, R Harrison, F Monti, K Theodoridis & M Waldron, The Bank of England's forecasting platform: COMPASS, MAPS, EASE and the suite of models, Bank of England Working Paper No. 471, 2013.

the UK.[53] They suggest a temporary cut in interest rates of 1 percentage point has a peak impact of around 0.4 per cent on GDP.

FIGURE 20: **Bank of England estimates point to a 1 percentage point cut in interest rates leading to an increase in GDP of around 0.4 per cent**

Change in policy rate (percentage points) and impact on GDP (per cent) taken from the Bank of England's policy model



SOURCE: Figure 3 in S Burgess, E Fernandez-Corugedo, C Groth, R Harrison, F Monti, K Theodoridis & M Waldron, 'The Bank of England's forecasting platform: COMPASS, MAPS, EASE and the suite of models', Bank of England Working Paper No. 471, 2013.

A number of factors are likely to have altered the impact of a given rate cut over recent years. For example, improved resilience in the financial sector should mean there is less chance of banks reducing credit supply and so watering down the transmission of monetary policy in a future recession.[54] Likewise, recent history has taught us to treat changes in interest rates as more persistent, suggesting their effect may be larger than was previously the case. Conversely, we might expect banks to have more difficulty in passing on future interest rate cuts to borrowers in a world in which retail rates are already low by historical standards. Similarly, significant reductions in both the number of households with mortgages and the proportion of those on variable rate products would also reduce the rate change impact (and change its timing). Indeed, recent cross-country

53 See: J Cloyne & P Hürtgen, 'The Macroeconomic Effects of Monetary Policy: A New Measure for the United Kingdom', American Economic Journal: Macroeconomics, American Economic Association, vol. 8, pages 75-102, October 2016; and C Ellis, H Mumtaz and Pawel Zabczyk, 'What Lies Beneath? A Time-Varying FAVAR Model for the UK Transmission Mechanism', The Economic Journal, Vol. 124, pages 668 – 699, 2014.

54 For a discussion of those changes, see: M Carney, True Finance – Ten years after the financial crisis, speech given at the Economic Club of New York, 19 October 2018.

work finds smaller impacts of changes in policy rates in an environment of low growth and weak inflation.[55] Overall, there is no clear case for concluding that a change in Bank Rate should wield a significantly larger or smaller impact than has previously been estimated.

The low rate environment is also likely to limit the extent to which QE can substitute for policy rates

The first alternative monetary policy tool central banks turned to once policy rates approached zero was central bank asset purchases – or quantitative easing (QE). If such policies are able to substitute for constrained policy rates in the next recession, then concerns about the limitations on monetary policy are diminished substantively.

But, while there is a wealth of evidence that QE was supportive during the crisis (see Box 5), it may be less well placed to repeat the trick next time around. Empirical work on the impact of QE often focuses on the substantial impact on asset prices but, like policy rates, QE works by reducing interest rates – in this case more long-term interest rates than those directly set by traditional monetary policy. So QE too can be thought of as having a lower bound, past which further QE purchases will do little to bring down longer-term interest rates and so support the economy. The nature of today's low interest rate environment is such that this bound may be more likely to bite than was previously the case.

BOX 5: **Evidence on the efficacy of QE**[56]

QE policies have been very widely adopted by central banks as policy rates fell to zero in the aftermath of the financial crisis.[57] This is at least in part because QE can be thought of as acting to boost demand in a way that is similar to changes in policy rates. When central banks cut their short-term policy rates, that feeds through to a range of more long-term interest rates in the economy, such as those on borrowing by households and firms. In this way, cuts in the policy rates reduce borrowing costs and increase spending. QE works by affecting longer-term interest rates directly, and so boosting spending. To

55 See: Ò Jordà, M Schularick & A M Taylor, 'The effects of quasi-random monetary experiments', Journal of Monetary Economics, vol. 134, pages 1225-1298, February 2019.
56 See: J E Gagnon, J Leslie, F Rahman & J Smith, Quantitative (displ)easing?, Resolution Foundation, September 2019.
57 For a discussion of survey of QE policies, see: J E Gagnon, Quantitative Easing: an Underappreciated Success, Peterson Institute for International Economics Policy Brief, April 2016.

achieve this, central banks buy assets in openly traded financial markets, influencing longer-term interest rates in two ways.

First (and the impact most-focused on when QE was first introduced), the buying of longer-term safe assets, like government bonds in open markets, forces up their price and therefore forces down the yield (interest rate) related to them. Private investors selling assets to the central bank undertake portfolio rebalancing, leading some investors to buy more risky assets, such as bonds issued by companies. This puts downward pressure on the yields of those assets too.

Second, QE works via a related policy-signalling, or expectations, channel. It does this by presenting a commitment by the central bank to maintain policy rates at the zero lower bound, demonstrating that the policy rate is not going to rise from near zero anytime soon. This affects longer-term interest rates, which move with expectations of future movements in policy rates. Put simply, QE convinces people that policy rates are going to stay low for a long time. This could be for several reasons, for example a perception that central banks are unlikely to reverse QE given the likely disruption that would cause in money markets.[58]

There is plenty of evidence that QE has been effective in supporting the economy in the past. The most common examples have been event studies which identify the impact of asset purchases in financial markets over relatively short windows (generally between 30 minutes and three days). But as QE becomes a more systematic part of central bank policy, the identification of the surprise impact from QE becomes more difficult. An alternative method is through the use of time-series regressions which estimate the impact of asset purchases over time based on specific assumptions about their transmission to asset prices.

There is a strong consensus from these studies that QE has had a meaningful impact on government bond yields across all the countries in which it was implemented. Table 5 summarises the impact of QE in the US and UK on 10-year government bond yields produced by a range of studies. For the UK, estimates fall in the range of 40 to 100 basis points for the initial rounds of QE.[59]

58 A Krishnamurthy & A Vissing-Jorgensen, 'The effects of quantitative easing on interest rates: channels and implications for policy', Brookings Papers on Economic Activity, 2011.

59 See: N McLaren, R Banerjee & D Latto, 'Using changes in auction maturity sectors to help identify the impact of QE on gilt yields', Economic Journal, 2014. M Joyce & M Tong, 'QE and the gilt market: a disaggregated analysis', Economic Journal, 2012.

TABLE 5: **Estimates of effects of QE bond purchases on 10 year yields**

Study	Time period covered	Method	Yield reduction (basis points) for bond purchases equal to 10% of GDP
United Kingdom			
Joyce, Lasaosa, Stevens, & Tong (2011)	2009	Event study	78
	1991-2007	Time series	51
Christensen & Rudebusch (2012)	2009-11	Event study	34
Churm, Joyce, Kapetanios, & Theodoris (2015)	2011-12	Time series	42
Euro area			
Altavilla, Carboni, & Motto (2015)a	2014-15	Event study	44
Middeldorp (2015)[b]	2013-15	Event study	45-132
Middeldorp & Wood (2016)b	2015	Event study	41-104
Sweden			
De Rezende, Kjellberg, & Tysklind (2015)	2015	Event study	68
United States			
Bauer & Rudebusch (2011)	2008-09	Event study	44
Gagnon, Raskin, Remache, & Sack (2011)	2008-09	Event study	78
	1985-2007	Time series	44
Krishnamurthy & Vissing-Jorgensen (2011)	2008-09	Event study	91
	2010-11	Event study	47
Li & Wei (2012)	1994-2007	Time series	57
Neely (2012)	2008-09	Event study	84
Rosa (2012)	2008-10	Event study	42
Swanson (2015)	2009-15	Time series	40

NOTES: (a) The estimate is for an average of euro area bonds. (b) The smaller estimate is for German bonds and the larger one is for Italian bonds. There are 100 basis points in 1 percentage point. Most studies present a range of estimates. This table displays each study's preferred estimate if one exists; if not, it presents the midpoint of the range. For event studies, we normalise by purchases of all long-term bonds, not only government bonds. Some of the non-event studies include non-government bond purchases and others do not. For event studies, the normalisation is based on GDP in the final year of the event.

SOURCE: For a full list of sources, see: J E Gagnon, J Leslie, F Rahman & J Smith, Quantitative (displ) easing?, Resolution Foundation, September 2019.

The impact of QE in asset markets is estimated to have fed into substantial effects on the wider economy, with one study of the UK experience suggesting a peak effect of 1.5 per cent on the level of real GDP and 1.25 percentage points on annual CPI inflation.[60]

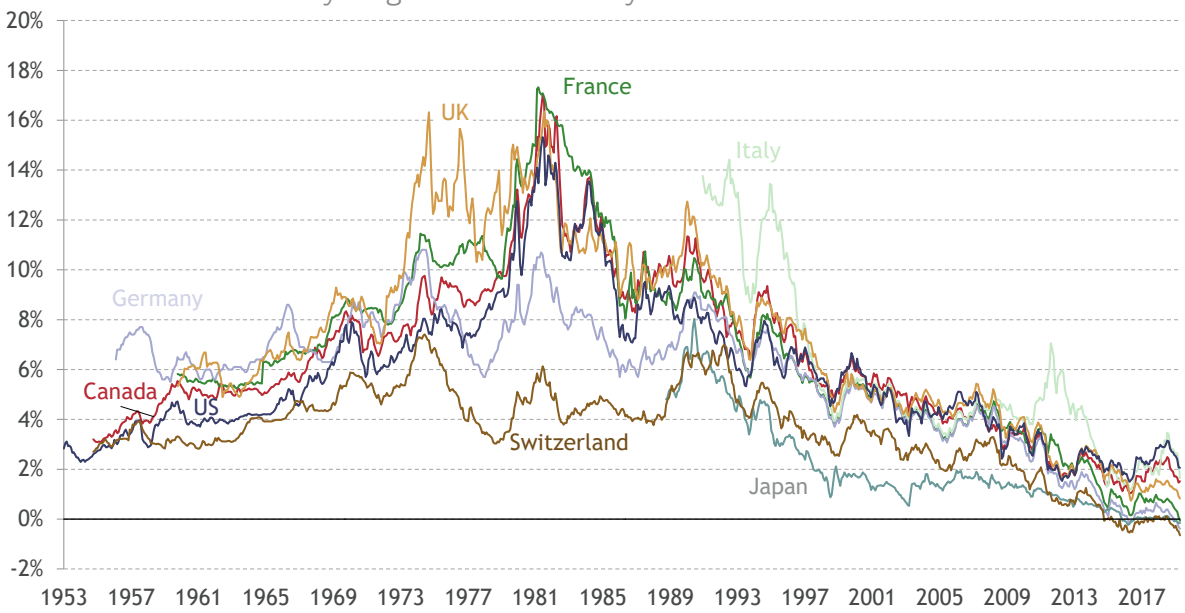
When longer-term interest rates are close to zero, additional QE will only have relatively small effects given that investors always have the option of holding currency with a fixed yield of zero. This is the situation many advanced countries now find themselves in, with

60 G Kapetanios, H Mumtaz, I Stevens & K Theodoridis, Assessing the economy wide effects of Quantitative Easing, Bank of England Working Paper, 2012. Similar effects are found by J Bridges & R Thomas, The impact of QE on the UK economy — some supportive monetarist arithmetic, Bank of England Working Paper No. 442, 2012. For the US, estimates suggest that QE had an impact of three per cent on real GDP and one per cent on inflation. See: H Chung, J Laforte, D Reifschneider & J Williams, 'Have we underestimated the likelihood and severity of zero lower bound events?', Journal of Money, Credit and Banking, 2012.

10-year interest rates across a number of advanced economies close to all-time lows and – in some instances (for example, Japan, Switzerland and Germany) – very close to, or even below, zero (see Figure 21).

FIGURE 21: **The low levels of longer-term rates point to limits to future use of QE**

Ten-year government bond yields



NOTES: Averages of daily interest rates implied by the prices at which the government bonds are traded in financial markets.

SOURCE: OECD

Long-term interest rates have been on a downward trajectory for over a decade in the UK, and have fallen sharply again recently to around just 0.5 per cent for a 10-year gilt. This implies a limited ability for further QE to reduce long-term rates here, although there are risks with assessing the efficacy of future QE by considering the current conditions in financial markets. If longer-term interest rates were to rise significantly prior to, or during, a recession there would be scope for QE to play a larger role in supporting the economy. The historical record is, however, one of recessions pushing longer-term interest rates even lower as investors look for the safety of government bonds. If that is the case, then it is unlikely that QE would have more impact in a recession than it would now.[61]

And political economy considerations may make QE harder to use

Alongside playing an important role post-crisis, QE has taken central banks into politically sensitive territory. Criticism in this context has focused on two aspects of the policy.

61 An important exception to this, discussed in more detail below, is a situation in which a recession is accompanied by concerns about future government debt default. In this situation, a recession may be accompanied by higher longer-term interest rates.

First, the fact that QE has fiscal implications. Partly this arises because the significant expansion of the Bank of England's balance sheet from QE exposes it to asset price risk – which HM Treasury underwrites. But more importantly it's because the past decade has shown that QE has a very real impact on the cost of government debt (given that it works by reducing yields on government bonds). In aggregate, this puts pressure on the idea (which always had limits) of a clear demarcation between the roles of the Bank of England and HM Treasury.

The second criticism relates to the perceived distributional consequences of QE. Disapproval has focused on both who QE asset purchases are made from (i.e. financial institutions) and the fact that the benefits of the higher asset prices are disproportionately felt by the better-off. In reality, however, the distributional impact of QE is much more nuanced (as Box 6 sets out), with its role in increasing wealth inequality going hand -in-hand with a reduction in income inequality. But what is without doubt is that the unexpected length and depth of monetary easing has had much bigger distributional consequences than anyone would have anticipated when QE was first introduced, leading to much more public and political questioning of any further use of the policy.

BOX 6: **Distributional effect of QE in the UK**

A common criticism of the Bank of England's QE programme, and argument for why it should not be used in future, has been that the lion's share of the benefits have accrued to the already wealthy. This critique has elements of truth, but rests on a partial view of the effects of the policy. A complete analysis shows a more nuanced picture: by design, QE increases wealth (via rising asset prices) which has the largest effect on the already wealthy; but counterbalancing macroeconomic effects (via changes to inflation, employment and wages) increase income most for lower income households.

This box summarises new analysis quantifying the channels through which QE has affected the welfare of different types of UK households. These channels are:

Wealth effects

- Changes in financial wealth. Purchases of government bonds pushes up bond prices and, through the portfolio rebalancing mechanism, increases the price of other financial

assets. This increases the wealth of those holding these financial assets.[62]

- Changes in property wealth. Financial asset price rises will spill over into increasing property prices and thus property wealth for those owning a house.
- Inflation effect. QE raises the level of inflation which, in real terms, reduces the value of loans and the value of assets held in nominal amounts (e.g. current accounts). This effectively redistributes net wealth from savers towards borrowers.

Income effects

- Employment effect. QE supports economic activity – reducing the output gap – and so raises the employment level, benefiting those who would otherwise be unemployed.
- Wage effect. Improved macroeconomic conditions leads to a tighter labour market, pushing up on wage growth.

As with conventional monetary policy, QE should not have long-run effects on asset prices or economic activity – aside from helping to smooth economic fluctuations and thus reducing the drag on potential output from hysteresis. This analysis abstracts from the long-run view by focussing on the period up to 2014 where we can be more certain of QE's effect. This excludes the most recent round of QE undertaken after the EU referendum, for example.

The results use a similar methodology to a Bank of England working paper[63] and are conditional on the Bank's estimate of the macroeconomic impacts. The analysis has not adjusted these estimates and so the impact of QE on wealth and income will be smaller or larger depending on the actual efficacy of the asset purchase programme. But, for distributional analysis, what is important is not the size of the macroeconomic impact, rather the relative effects across different parts of the economy (e.g. scale of asset price changes vs improvements in employment/wages). In general, if you believe that the macroeconomic benefits are smaller relative to increases in asset prices, the benefits of QE accrue more to the already wealthy. And the reverse is true if the macroeconomic effects are relatively larger.

Figure 22 shows the estimated impact of QE, from the first three channels outlined above, on average net wealth for each net wealth decile. Around 40 per cent of the aggregate boost to wealth went to families in the highest wealth decile – while only 12 per cent went to the bottom half of the distribution. This reflects the already highly skewed wealth distribution in the UK (around 50 per cent of total wealth

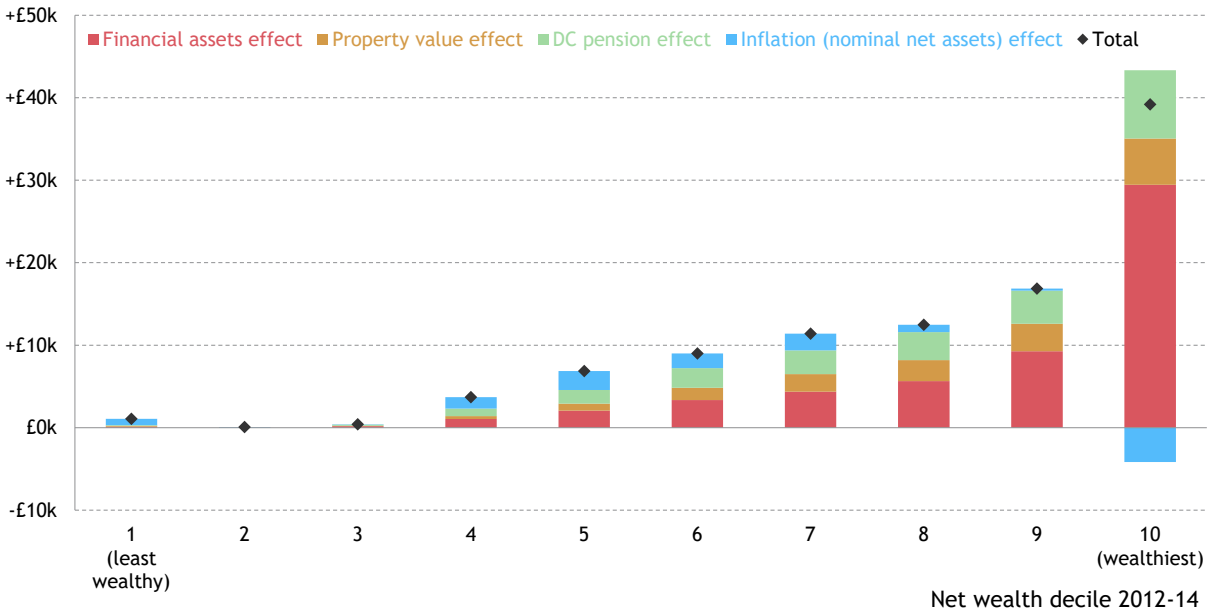
62 Changes in financial asset prices and interest rates will have a material effect on the implied value of defined benefit pensions and pensions in payment. However, as QE will not affect the actual income for pensioners, these effects have not been discussed in this box.

63 P Bunn, A Pugh & C Yeates, The distributional impact of monetary policy easing in the UK between 2008 and 2014, Bank of England Working Paper No. 720, March 2018.

is held by the highest wealth decile): a rise in asset prices will simply benefit those already holding those assets. The types of asset held by those in each wealth decile also affects the aggregate impact: those holding proportionally more financial assets are advantaged more by QE than those with larger property wealth.[64]

FIGURE 22: **Increase in financial asset prices leads to large increases in wealth of families at the top of the wealth distribution**

Average real change in net wealth as a result of QE, by net wealth decile: GB, 2006-08 – 2012-14



NOTES: Net wealth covers net property wealth, net financial wealth, and private pension wealth; we exclude physical wealth due to data limitations. Wealth is measured for an average adult within a family unit (defined as a single adult or couple and any dependent children). Wealth is measured in real terms at beginning of 2019 prices, adjusted using CPIH.

SOURCE: RF analysis of ONS, Wealth and Asset Survey

We should expect the wealth effects to unwind when QE is withdrawn. Policy makers originally envisaged QE to be a short-term measure and therefore the 'real world' impact of the temporary changes in wealth would be small.[65] However, QE stimulus has been bigger and much longer lasting than envisaged when it begin, resulting in wealth changes feeling far from temporary and impacting the real economic position of households. This will happen in three main ways: first, it is more expensive to buy assets (e.g. housing) which will

64 Evidence on the distributional impact of the US QE programme has shown that the property value channel has had a progressive effect (in contrast to the financial asset price channel). See J Bivens, Gauging the impact of the Fed on inequality during the great recession, Brookings working paper no. 12, June 2015.

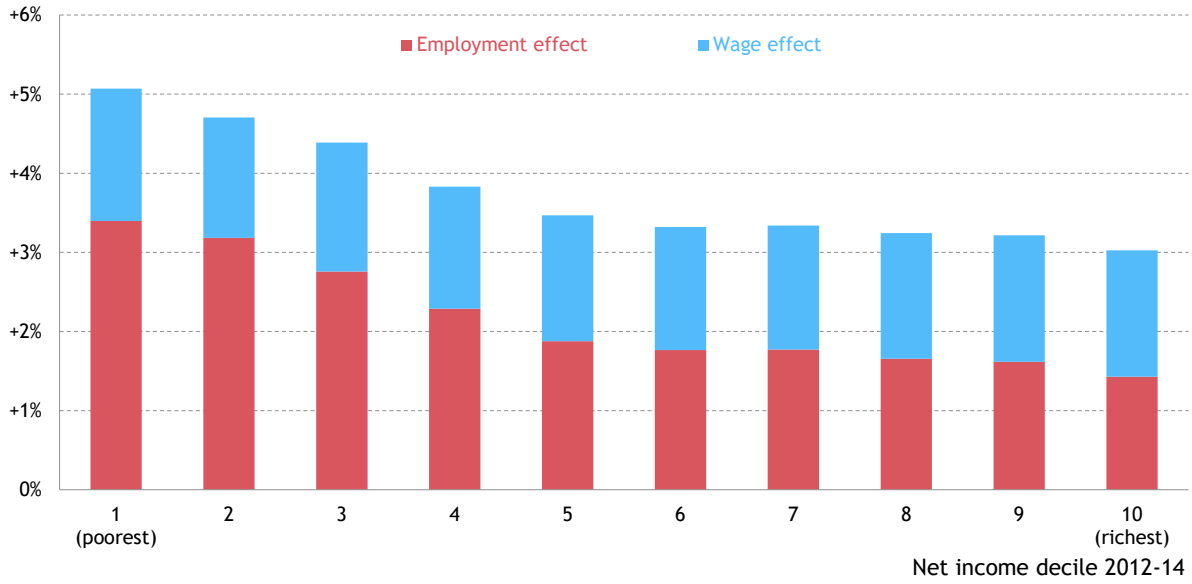
65 See B Bernanke, Monetary policy and inequality, Brookings blog, June 2015, available: https://www.brookings.edu/blog/ben-bernanke/2015/06/01/monetary-policy-and-inequality/

prevent some people from purchasing them over time; second, when QE is unwound and asset prices move back to the underlying value, those who purchased assets at the higher price will lose out; and third, pre-existing owners of assets are able to sell them at the higher price and realise a higher level of consumption.

QE's effects on output, inflation and labour markets are often overlooked. Figure 23 sets out the boost from the employment and earnings channels in average labour income. The benefits are much more evenly distributed across the income distribution than the wealth effects were and, as a proportion of income, help the bottom half of the distribution the most. This is driven by the fact that QE is estimated to have increased employment more at the bottom of the income distribution than the top. The aggregate result of this is that the macroeconomic effect will reduce, rather than increase, income inequality.

FIGURE 23: **The effect of QE on income is much more evenly distributed**

Average real change in annual labour and benefit income as a result of QE, by net income decile: GB, 2006-08 – 2012-14



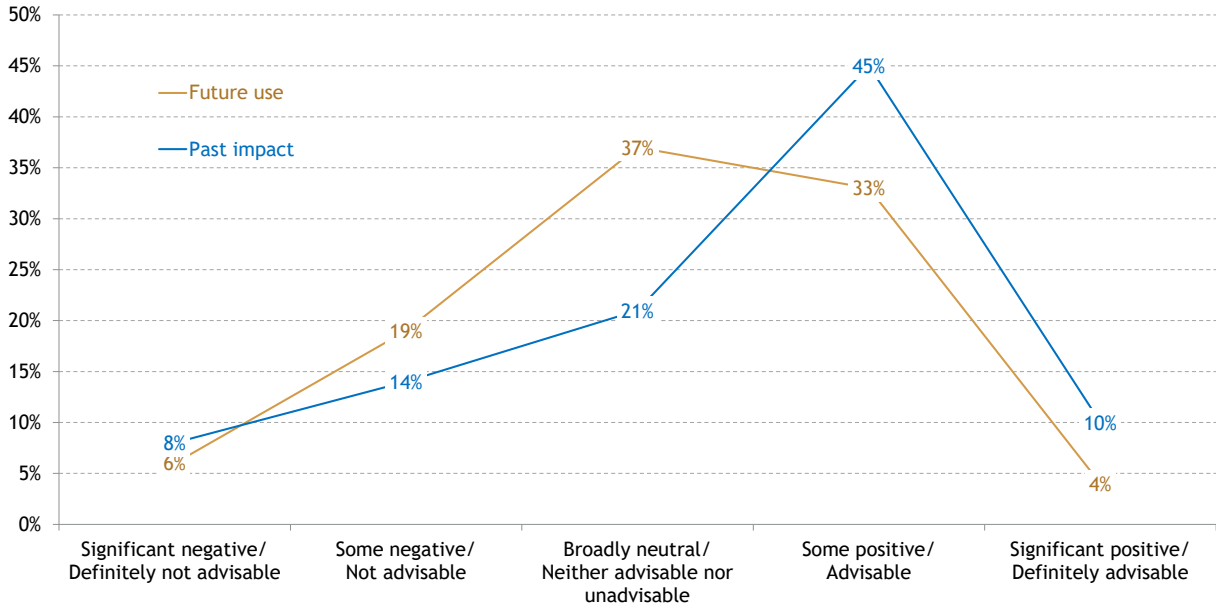
NOTES: Income refers to net household income before housing costs. It is measured in real terms, adjusted using CPIH. Individuals are randomly drawn to become unemployed based on the probability of becoming unemployed that was observed during the financial crisis according to individual characteristics (age and education level). The newly unemployed are assigned additional benefit income to replace lost wages (which is based on the observed benefits level of unemployed people and is conditional on the individual's partner's employment status). This simulation is repeated 4,000 times and results are averaged over the entire sample. See notes to Figure 22.

SOURCE: RF analysis of ONS, Wealth and Asset Survey

All this has led to popular pressure on QE around the world. In the US, this has manifested as political pressure to limit the Fed's powers, particularly within the Republican Party. Similar objections to QE have been raised in Germany, where QE has led to protests and court cases. And in the UK the public pressure on QE was exemplified by critical remarks made by the then Prime Minister at the October 2016 Conservative Party Conference.[66]

FIGURE 24: **MPs are circumspect about future use of QE**

Proportion of responding MPs



NOTES: Results of a survey of MPs conducted for the Resolution Foundation by ComRes between 4 November 2018 and 13 December 2018. 150 MPs responded to the survey online or by self-completion of paper survey. Data have been weighted by party and region to be representative of the House of Commons. MPs were asked two questions. First: 'Which of the following best describes your view? Since its inception in 2009, the Bank of England's Quantitative Easing (QE) program (the purchase of assets, including government debt, funded by the issuance of electronic money by the Bank of England) has had: significant negative effect, some negative effect, was broadly neutral, some positive effect, or significant positive effect. And second: Which of the following best describes your view? In the event of a future downturn, the use of Quantitative Easing (QE) (the purchase of assets, including government debt, funded by the issuance of electronic money by the Bank of England) is: definitely not advisable, not advisable, neither advisable nor unadvisable, advisable, or definitely advisable.

SOURCE: ComRes on behalf of RF.

To help get a sense of the extent to which political economy considerations might constrain future QE, Figure 24 shows the results of a novel survey of MPs, commissioned by the Resolution Foundation. It focuses on perceptions of the past impact of asset purchases and their views on whether such policies should be used in future downturns. While MPs generally see the impact of QE in the past as having been broadly positive,

66 "Because while monetary policy – with super-low interest rates and quantitative easing – provided the necessary emergency medicine after the financial crash, we have to acknowledge there have been some bad side effects. People with assets have got richer. People without them have suffered. People with mortgages have found their debts cheaper. People with savings have found themselves poorer." See: T May, 'The new centre ground', speech delivered to the Conservative Party conference, October 2016.

their support for future asset purchases is noticeably weaker. The proportion declaring it at least somewhat positive drops from 55 per cent when looking to the past to just over one-third (37 per cent) when looking to the future. And just 4 per cent say that it would be 'strongly advisable' in any future recession.

In some ways, these results mirror our analysis of the economic impact of QE – that it has real effects but is unlikely to be able to play as big a role in a future recession. But they also help illustrate that political support for future use of QE is far from guaranteed, while campaign group opposition would almost certainly follow in a way that it did not back in 2009.

This suggests a strong case for considering alternative monetary policy tools and strategies, while recognising their limits

If QE is unable to substitute adequately for constrained policy rates, or if policy makers are unwilling to use it, an obvious question is whether there are any other policy tools which can step in and provide additional stimulus in a future recession?

Table 6 sets out a number of alternative monetary policy tools that would be feasible under the current UK institutional structures. It also indicates countries in which those options have been implemented.

Several of these are worth exploring, although we are sceptical of policies that aim to influence inflation expectations with non-binding statements of intent. Given incentives will exist to deviate from those commitments in future, they are likely to be seen as non-credible today.[67] For those that have more attractions, like wider asset purchases, relying on them too heavily seems unwise. Partly that relates to the lack of evidence on their impact.[68] But, with the exception of currency devaluations, they all seek to influence the same long-term interest rates that standard QE targets – bringing with it the same constraints on impact in a low interest rate environment.

That said, there is a strong case for reviewing the MPC's tools and strategies for achieving the inflation target. Such a review is already underway in a number of other jurisdictions.[69] And by reviewing publicly tools and strategies ahead of a recession, it would be possible to build public understanding of how the MPC would react in a recession.

67 In textbook monetary policy models, manipulating future expectations in the key way in which policy can impart stimulus at the lower bound. Such a policy is, however, 'time-inconsistent'. So promises that rates will stay 'low for long' are only likely to be credible for a short period ahead.
68 This appears to be a consensus view, see, for example: O J Blanchard & L H Summers, 'Rethinking Stabilization Policy: Back to the Future', Peterson, 2017.
69 For example, details of the Federal Reserve's review, see R Clarida, The Federal Reserve's Review of Its Monetary Policy Strategy, Tools, and Communication Practices, speech given to the At "New England Perspectives on Fed Policymaking: A 'Fed Listens' Conference" hosted by the Federal Reserve Bank of Boston, Boston, Massachusetts, 13 May 2019.

TABLE 6: **Alternative monetary policy tools and strategies at the lower bound that would be available in the UK**

Policy	Description	Ways in which policy increases spending	Countries in which implemented	Assessment
Negative rates[1]	Set official policy rates below zero.	Transmission channels likely to be similar to conventional short-term interest rate policy.	Denmark, euro area, Japan, Sweden.	Evidence and international experience suggests very limited scope to go below zero. In the UK, impact on bank lending means marginal effect may be negative.[2]
Bank funding schemes[3]	Provide subsidised wholesale funding to the banking sector.	Increases the flow of credit from the banking sector.	Japan, UK, US, euro area.	Works if deficient credit supply is driver of macroeconomic slowing but not well suited to supporting demand.
Yield curve control[4]	Commitment to purchase government bonds in unlimited amounts to achieve a yield target.	Reduces longer-term rates in a similar way to standard QE (if credible, may lead to larger impact for a given quantity of asset purchases).	Japan.	Best thought about as an extension of standard QE. Opens the central bank up to risk of unlimited balance sheet expansion.
Private sector asset purchases[5]	Purchases of private sector securities financed by central bank reserves.	Potential for a larger impact through the portfolio balance channel than conventional QE.	UK, US, euro area, Japan.	Erodes central bank independence as effectively implies intermediating credit and taking distributional decisions on the public balance sheet.
Currency devaluation[6]	Sales of domestic currency in foreign exchange markets.	Clear link between policy and inflation.	Switzerland.	Can be seen as effectively exporting deflationary pressure.
Attempts to raise inflation expectations	Commitments to keep rates low with the aim increasing expected future inflation and so reducing expected real borrowing costs.	Easy to implement under the current structure and would transmit to the economy in much the same way as QE.	Japan	Central banks may have incentives to renege on commitment to keep rates low, particularly if those commitments lead to a prolonged period of above target inflation. Also is not clear how this policy leads to increased spending if rates are low.

NOTES:

1. A recent discussion of the conceptual issues of negative interest rates can be found in, M O Brunnermeier & K Yann, 'The Reversal Interest Rate', NBER Working Papers 25406, 2018.
2. For a discussion of why setting negative rates in the UK may have undesirable effects, see: M Carney, 'Redeeming an unforgiving world', speech given at the 8th Annual Institute of International Finance G20 conference, Shanghai, February 2016.
3. The macroeconomic impact of such schemes is discussed in R Churm, M Joyce, G Kapetanios & K Theodoridis, 'Unconventional Monetary Policies and the Macroeconomy: The Impact of the United Kingdom's QE2 and Funding for Lending Scheme', Bank of England Working Paper No. 542, 2015.
4. Yield Curve Control is unique to Japan and has not been the subject of major studies. For details, see: Bank of Japan, 'New Framework for Strengthening Monetary Easing: Quantitative and Qualitative Monetary Easing with Yield Curve Control', 2016. For a description, see: S Belz & D Wessel, 'What is yield curve control?', Brookings Hutchins Center Explains series, 2019.
5. A number of central banks have purchased private sector assets. For evidence on the impact of the ECB's Corporate Sector Purchase Programme, see: R A de Santis, A Geis, A Juskaite & L V Cruz, 2018; and for Japan, see: Suganuma, K and Y Ueno, 'The Effects of the Bank of Japan's Corporate and Government Bond Purchases on Credit Spreads', IMES Discussion Paper Series 18-E-04, 2018.
6. L E O Svensson, 'Escaping from a Liquidity Trap and Deflation: The Foolproof Way and Others', Journal of Economic Perspectives, vol. 17, pages 145-166, 2003, discusses the use of the exchange rate in easing monetary conditions.

There is a powerful case for examining a higher inflation target

While it is worth considering marginally additional policy tools within the current macroeconomic framework, the significant risk of long lasting periods of nominal rates being stuck at the zero lower bound should encourage wider consideration of how that situation can be changed. The level of the inflation target stands out as being worthy of focus.

As discussed in Section 2, the appropriate level of the inflation target reflects a balance between the costs and benefits of a given level of inflation. The low interest rate environment significantly raises the costs associated with any given inflation target in terms of the frequency with which monetary policy is constrained by the zero lower bound. Prior to the crisis, studies suggested the probability of interest rates being constrained by the lower bound was very low, perhaps just 5 per cent.[70] If this probability is now much higher, this represents a major increase in the costs associated with the current level of the inflation target. A higher target would reflect a better balance of the costs and benefits we now face.

It would be far from cost-free, with households arguably less likely to be able to effectively ignore the effect of inflation than under the current target.[71] But, if successfully implemented, it would lead to a wider range for nominal interest rates, providing more policy space for rates falls in a recession.[72] If the inflation target was to be raised by a similar amount to the fall in equilibrium interest rates, that would point to an inflation target in the region of 4 per cent.[73] To the extent that the low interest rate environment is an international phenomenon, however, there is a risk that an open economy like the UK may have trouble driving its longer-term interest rates above those prevailing in global markets.

But considerations of changes to the inflation target are much more complex than this static analysis of the costs and benefits involved of different rates. Our view is that if a monetary policy regime was being designed from scratch in the world we now find ourselves in then, you would choose a target above 2 per cent. But that is very different from saying that moving from our 2 per cent target to a higher target today is straightforward. Clearly once policy makers have raised the inflation target once, the

70 See: J B Taylor, Monetary Policy Rules, University of Chicago Press, 1999.
71 For a discussion, see: C Bean, Central banking after the Great Recession, Harold Wincott Memorial Lecture, 28 November 2017.
72 An alternative, suggested by Summers, would be a shift to a nominal GDP target calibrated to deliver nominal interest rates close to four per cent in normal times. See: L H Summers, 'Secular Stagnation and Macroeconomic Policy', IMF Economic Review, vol. 66, pages 226-250, June 2018.
73 Estimates in K Holston, T Laubach, & J C Williams, 'Measuring the natural rate of interest: International trends and determinants', Journal of International Economics, vol. 108, pages 59-75, 2017 point to a fall of around one and half percentage points in equilibrium real interest rates since inflation targeting started. That suggests and inflation target of either 3 or 4 per cent. Much more research would be need to determine the optimal level of the inflation target.

risk that people assume it can be raised again are very real – putting stable inflation expectations at jeopardy and leading to higher inflation risk premiums. Such a move would also very significantly reduce the inflation-assisted value of longer-term assets, particularly non-indexed government debt. The impact on those investors particularly exposed (including the insurance and pension industries) would be complex, and in some cases significant.

Perhaps the biggest challenge in raising the inflation target is that announcing it may be easier than achieving it, given the policy constraints that are the focus of this paper. Because announcing a new inflation target may not be immediately credible, and inflation expectations may take time to adjust, simply announcing that the central bank will target higher inflation is unlikely to be sufficient to generate higher inflation without policy action. As a result, announcing a higher target either in a recession or when a central bank is already well short of its inflation target seems unlikely to be a credible route to committing to higher future inflation. This is illustrated by the difficultly that the Bank of Japan has had in recent years in moving inflation expectations and achieving its inflation target, despite implementing very significant stimulus measures.

So while we believe, all else equal, a higher inflation target is desirable, no one should pretend the path to achieving it is remotely straightforward.[74]

Taken together, monetary policy is very likely to be constrained in the next recession, and so action is needed to ease, but also recognise, that constraint

In the event of a serious downturn today, monetary policy would respond with conventional policy rate cuts. In some countries policy rates have been taken slightly negative, but the Bank of England's assessment is that policy rate cuts below zero would reduce banking sector profitability, and therefore credit supply. With the zero lower bound swiftly hit, policy makers would rightly turn to further QE purchases. Given the increased opposition to such an approach, their ability to do so might be strengthened by steps in advance to further regularise the use of QE so that it is very much an ordinary tool of monetary policy.

The proposals of Gagnon and Sack provide a starting point in this area.[75] These proposals include emphasising the similarity to changes in the policy rate in communications; using QE gradually and in a way that is linked explicitly to the underlying view of the economy;

74 More radical options to relax the lower bound constraint include a proposed scheme to allow the unit of account to change over time (effectively imposing a negative interest rate on money holdings) or for central banks to implement digital currency, the value of which can be adjusted to implement significantly negative interest rates. These approaches may have potential but involve fundamental changes to the monetary system in the UK and we leave detailed consideration of such proposals tow further work.

75 See J E Gagnon and B Sack, QE: A User's Guide, Peterson Institute for International Economics Policy Brief, October 2018.

and taking steps to ensure that the MPC has a clear mandate to implement the necessary QE to achieve its targets, with explicit prior approval from elected politicians. One possibility, consistent with these principles, and which is worth considering, is for the MPC to influence longer-term interest rates using Yield Curve Control.

Such an approach would help, but the underlying challenge is that the size of slowdown which monetary policy alone would be able to offset is small: based on available estimates of the impact of changes in policy rates on the economy (Box 4), of the order of around 1 per cent of GDP. Depending on the starting point for that recession, Bank Rate could still be close to the zero lower bound. Indeed, current market pricing does not suggest that the Bank of England's policy rate will rise above its current level (of 0.75 per cent) in the coming years. While there is significant uncertainty around that path, it is difficult to see the MPC being able to cut rates by more than 1 percentage point if a recession was to hit in the coming years. Based on estimates of the effectiveness of cuts in Bank Rate, a 1 percentage point cut in policy rates would boost GDP by around 0.5 per cent.[76]

As discussed above, with longer-term interest rates close to all-time lows, additional QE in the form of gilt purchases, is unlikely to drive yields down much further. So even if monetary policy tools can be expanded to some extent, it seems to us optimistic to assume that monetary policy can deliver stimulus of more than 1 per cent of GDP in total. This would be roughly equivalent to expanding QE by around £120bn. This would only be sufficient in a mild recession, and is far less than the 3.7 per cent average peak-to-trough fall in GDP recorded in more recent recessions (and the peak-to-trough fall in output will be smaller than the total output loss given the long-lasting effects of recessions). The shortfall of 2.7 per cent of GDP roughly translates into a fall in employment of around 350,000 (based on the post-1990 mapping between employment and GDP).

In summary, then, it is very likely that monetary policy will be insufficient to stabilise the economy in the next recession. Given the low interest rate environment, policy rates are likely to be mired close to zero at least into the medium term, leaving very little scope for conventional monetary policy to support the economy in the face of a significant downturn. Compounding this, while QE seems to have had significantly beneficial effects during the height of the crisis, there are important reasons for thinking that it will not do so again in future, not least that low levels of yields on financial assets suggest that the market may be saturated with central bank reserves. Alternative monetary instruments

76 This ignores the idea that when there is a risk that policy rates might be constrained by the lower bound rates should be cut more aggressively to reduce the risk of the need for further cuts. See: D Reifschneider & J C Williams, 'Three Lessons for Monetary Policy in a Low Inflation Era', Journal of Money, Credit and Banking, vol. 32, pages 936-66, 2000.

exist, but are untested and so inherently uncertain, and also come with potentially significant costs

The aim of this paper is to assess the current framework for stabilisation policy, rather than to recommend precise changes to the framework: that is something which will form the future work programme of the MPU. Nonetheless, below we set out a broad direction of travel for policy.

First, it is important to find ways to ease the constraints on QE. This could take a number of forms, but finding ways to regularise the use of QE, communicating its use, and undertaking strategies which emphasise the parallel with the use of policy rates could all prove useful. Moreover, finding a way for elected politicians to 'pre-authorise' an expansion of QE would support transparency and confidence.

Second, the MPC and HM Treasury should undertake to review jointly the instruments and strategies for monetary policy. The highest priority here is to consider alternative policies that might allow the MPC to ease policy if Bank Rate is constrained by the zero lower bound. This would allow the MPC to make clear which alternative approaches it might wish to adopt, and lead to a better understanding of the MPC's approach to a future recession. And, if credible, this would also allow financial markets to understand the strength of the monetary policy response to a serious downturn.

And third, as part of that MPC and HM Treasury review, the appropriate level of the inflation target should be considered. The low interest rate environment changes profoundly the calculus of the costs and benefits of the two per cent target: the low interest rate environment implies that the frequency with which the zero lower bound binds is likely to be very significantly higher.

Even if these steps are taken, however, monetary policy is very likely to be constrained in the next recession. Acknowledging this publicly would facilitate preparations for the next recession. That suggests a need for fiscal policy to play a larger role in supporting the economy. We turn to how this can be achieved in the next section.

Section 4

Macroprudential policy

One big post-crisis addition to that framework is macroprudential policy. Born out of the need to have tools which dampen financial risks, it focuses on pre-emptively mitigating system-wide financial stability threats. This is particularly important because the low interest rate environment is one in which financial institutions may face incentives to take more risk. Because the tools used to do so often trade off financial stability risks against near-term growth prospects, the possibility of using them as part of the stabilisation framework for the economic cycle has been raised. Our assessment is that while macropru policies have an important role in managing the financial cycle, they are not well suited to playing a major role in managing the economic cycle and offer little by way of a substitute for monetary policy. That said, there is a clear case for a narrower role for macropru policies in a coordinated response to a downturn, specifically to reduce the extent to which the financial system acts to amplify recessions.

The emergence of macropru policy is a key addition to the macro policy framework in reducing the probability of financial crises

The financial crisis demonstrated emphatically the risks from a sharp turn in the financial cycle. Before that, it was common for macroeconomic analysis and modelling to abstract from developments in the financial sector.[77] But the scale of the global recession demonstrated that the tendency of the financial sector to expand and contract can play a dramatic role in driving developments in the wider economy. Put simply, it became clear

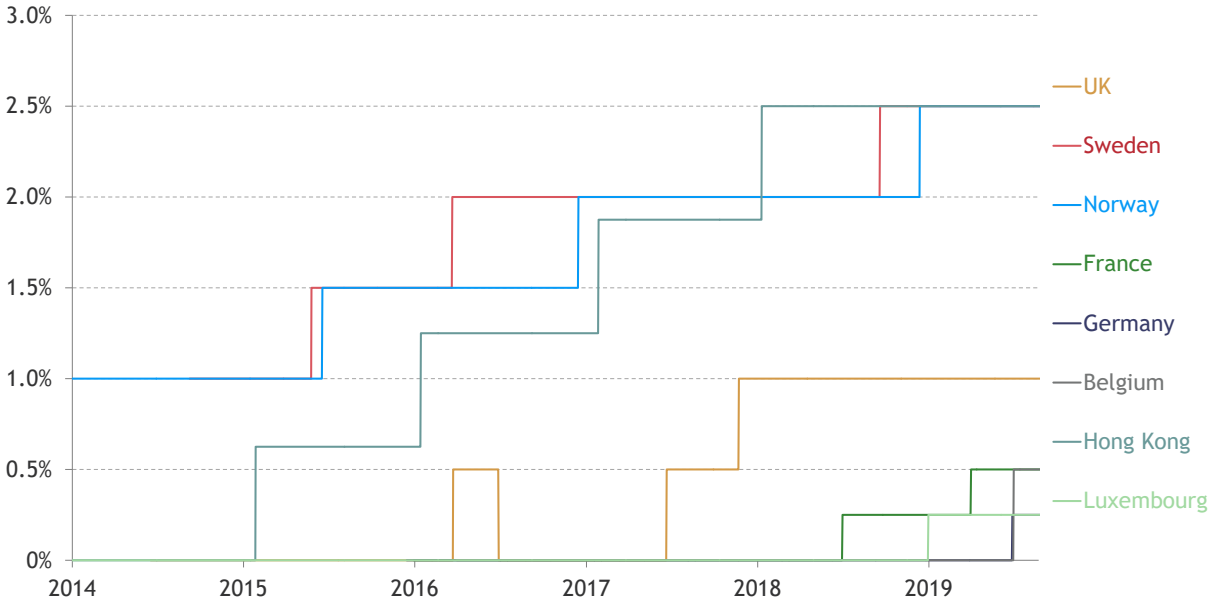
77 For a non-technical summary on the state of macroeconomic modelling, see: O J Blanchard, 'Do DSGE Models Have a Future?', Peterson Policy Brief, 2016, available at: https://piie.com/system/files/documents/pb16-11.pdf.

that financial cycles don't just reflect business cycles, but can drive developments in the wider economy. Consistent with the slow, post-crisis recovery, history shows that such episodes of financial instability have long lasting real economic effects.[78]

All this emphasised the need for policy tools that dampen financial cycles. Stable inflation and consistent growth were insufficient to stop very large financial vulnerabilities from building; and indeed might have contributed to a build-up of particularly large risks.[79] This points to the need for a separate set of policy tools which head off emerging financial risks – in other words the need for macropru policy. In the UK such policy has now been institutionalised with the creation of the Financial Policy Committee (FPC) within the Bank of England.

FIGURE 25: **Macroprudential tools have been used across advanced economies**

Countercyclical capital buffer (CCyB) rates in advanced countries



NOTES: The CCyB is a time-varying capital buffer which aims to ensure that banking sector capital requirements take account of the macro-financial environment in which banks operate. The CCyB rate only applies to banking assets within the respective jurisdiction; actual CCyB buffers for cross-border banks are therefore typically lower than the stated CCyB rate. Rates shown at announcement date, rather than the date of application, which tends to be one year later.

SOURCE: BIS; EBA; Bank of England

A number of such tools have been developed to reduce risks to the financial system, with the UK and FPC at the forefront of leading their development. They aim to improve the resilience of the overall financial system, reduce the build-up of risks, or directly limit the financial sector's tendency to amplify the economic cycle. For example, the

78 See, for example: M Schularick & A M Taylor, 'Credit booms gone bust: monetary policy, leverage cycles, and financial crises, 1870–2008', American Economic Review, Vol. 102, pages 1029-1061, 2012.

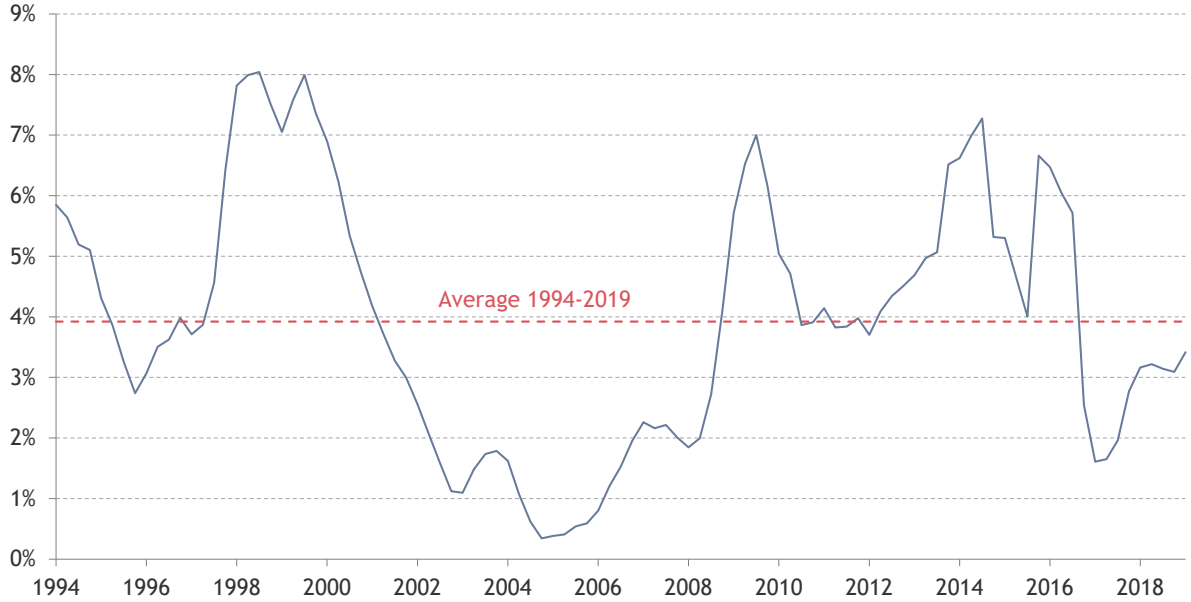
79 See for example: J Yellen, (2009), 'A Minsky Meltdown: Lessons for Central Bankers', Speech 70, Federal Reserve Bank of San Francisco.

countercyclical capital buffer (the 'CCyB') is now used by policy makers to vary how much loss-absorbing capital above normal microprudential standards banks must hold, depending on their view of wider risks to the financial system.[80] Policy makers wishing to cool the financial cycle can increase the buffers disincentivising banks to lend. As shown in Figure 25, this policy has been used to different extents across countries, with the UK one of the first to change the rate (with the rate set by the FPC).

Another key macropru policy, currently utilised in the UK, is a direct limit on riskier mortgage lending. In particular, the FPC has set policy to restrict the proportion of new mortgage lending with a loan-to-income (LTI) ratio above 4.5 to no more than 15 per cent of any individual bank's total lending. In contrast to the CCyB, this is not targeted primarily at improving the resilience of banks, partially because losses from residential mortgages makes up a small proportion of total losses (as shown in Figure 26). Instead, the LTI limit lowers the proportion of households that would need to adjust their consumption patterns in the face of a weakening macroeconomy. This should limit amplification of economic shocks from over-indebted households.

FIGURE 26: **Residential mortgages are not a large source of losses for UK banks**

Proportion of UK-resident monetary financial institutions' sterling write-offs coming from lending secured on dwellings to individuals (four-quarter rolling average)



SOURCE: RF analysis of Bank of England, Bankstats

80 For a description of the countercyclical capital buffer, see: https://www.bis.org/bcbs/ccyb/.

Macropru policies, more generally, trade off longer-term financial stability risks against more short-term growth prospects. By reducing risks and increasing resilience, macropru policies tend to dampen the flow of bank and non-bank credit to the real economy, weakening the outlook for growth. But, by reducing the instance of painful financial crises, they will tend to increase growth in the medium to long term.[81] Because of this trade-off, macropru policies have the potential to overlap with monetary and fiscal policy and, at least in principle, can have a place in a framework seeking to stabilise demand.

Macropru policies are not well suited to playing a major role in stabilising the economy during a downturn

Macropru policies are unlikely to play a large role in the framework for supporting the economy during the next recession for a number of reasons. First, the transmission mechanism of macropru policies is uncertain and varies based on the design and application of each individual policy. The effect of macropru policies during sharp downturns is not well understood, not least because we have yet to experience a large-scale economic contraction since their introduction. The uncertainty over their use makes them less reliable than other policies for managing short-term changes in macroeconomic conditions.

The second challenge in using macropru tools to stabilise the economy in a downturn is that their transmission mechanisms are asymmetric. It is easier to design tools that restrict credit growth in the upswing of the financial cycle than to successfully encourage financial institutions to take more risk and increase the flow of credit to the real economy in a downturn. For example, the CCyB provides a buffer that can be reduced so that banks can lend more in a downturn, but there is no certainty this will outweigh incentives for banks to reduce lending in such circumstances.

The third challenge is that, by design, the impact of macropru policy on overall macroeconomic variables is likely to be second order, given that they are targeted at financial stability not output. Studies find relatively muted effects on macroeconomic variables.[82]

The fourth challenge is the potential for microprudential rules to work against macroprudential tools. In normal times, macropru and micropru rules work together to improve the resilience of the financial system. But macropru and micropru policies may

81 See, for example: Ò Jordà, M Schularick, & A M Taylor, 'The Great Mortgaging: Housing Finance, Crises, and Business Cycles', Economic Policy 31(85), pages 107–152, January 2016.

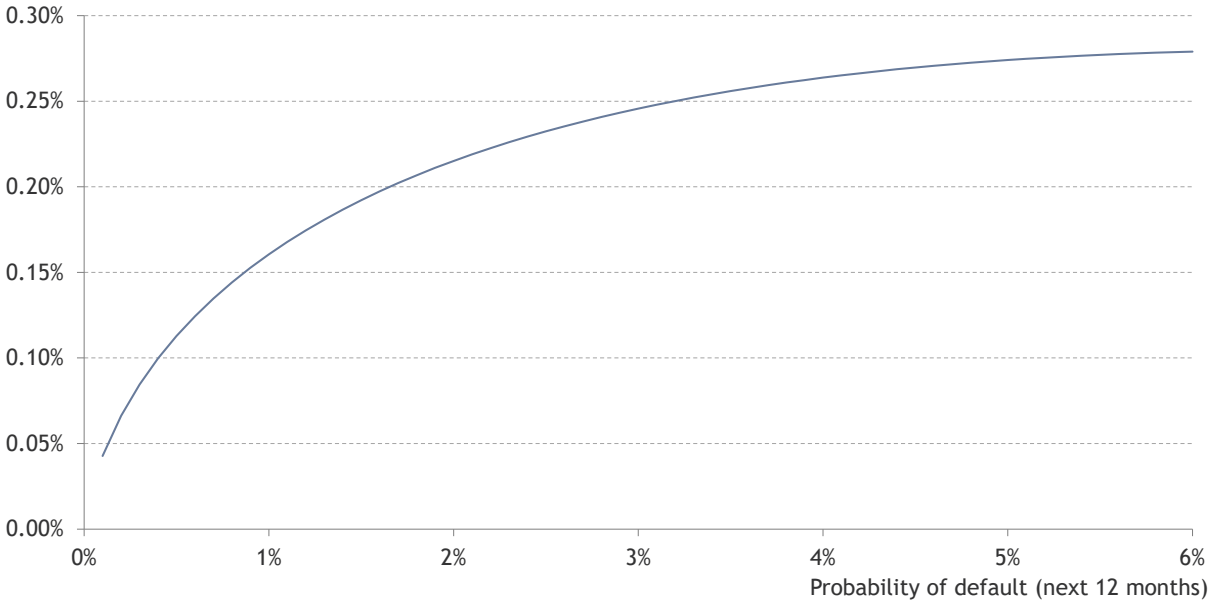
82 See for example: L C Columba, F, Costa, A, Kongsamut, P, Otani, A, Saiyid, T Wezel & X Wu, 'Macroprudential Policy: What Instruments and How to Use them? Lessons From Country Experiences', IMF Working Papers, International Monetary Fund, 2012; C E Tovar, G-E Mercedes & M Mercedes Vera, 'Credit Growth and the Effectiveness of Reserve Requirements and Other Macroprudential Instruments in Latin America', IMF Working Papers, International Monetary Fund, 2012; and J Vandenbussche, U Vogel & E Detragiache, 'Macroprudential Policies and Housing Prices', IMF Working Papers, International Monetary Fund, 2012.

pull against each other during a downturn: macropru policy will try to encourage financial institutions to take on more risk (i.e. lend more to the real economy) while micropru regulation may try to prevent firm failures by tightening regulatory requirements in the face of a worsening macroeconomic environment (i.e. reducing lending).

This tension is 'baked-in' to the micropru rules, with bank capital requirements changing as risks in the broader economy change. Figure 27 shows how capital requirements vary based on the probability of a mortgage loan defaulting over the next 12 months. If the economy worsens, the risk of default will rise substantially leading to large increases in capital requirements.

FIGURE 27: **Microprudential rules mean that banks must have more loss-absorbing capital in a recession**

Minimum capital requirement for a mortgage loan as a proportion of loan amount, by probability of default



NOTES: Minimum capital requirement defined as the Core Equity Tier 1 capital requirement for mortgages, excluding any requirements applied under Pillar 2, and calculated based on the internal ratings based (IRB) approach assuming a loss given default of 10 per cent. Requirements calculated under the standardised approach do not vary based on the likelihood of default.

SOURCE: RF analysis using the Basel Committee on Banking Supervision standards

In practise, the impact of an economic downturn on bank capital requirements is complex, but the Bank of England quantified an example of the total effect in their 2018 stress test. This showed a typical large UK bank's risk-weighted capital ratio falling by 2.5 percentage points (from 14.5 per cent) due to the automatic tightening of micropru requirements.[83] This effect can of course be partially taken into account when setting the

83 Bank of England, Financial Stability Report, November 2018.

CCyB, but the current UK CCyB rate of 1 per cent shows that, even if this was set to zero, it is unlikely to be sufficient for the combination of macro and micropru policies to have a net-stimulatory effect if the next economic downturn were severe.

While it is unlikely to be a major demand stabilisation tool, there is a strong case for macropru to be part of the policy response to a downturn

All this is not to say macropru policy has no role in a recession. While monetary and fiscal policies are better suited to supporting the economy in the face of demand shortfalls, it makes sense to use such policies in a coordinated way with macropru policy to address corresponding developments in the financial cycle. For example, the FPC reduced the CCyB in July 2016, reflecting the post-referendum deterioration in the macroeconomic outlook.[84] Underlying this was a judgement that the financial cycle had deteriorated at the same time as the business cycle. In addition, the view was that financial firms should be able to continue to lend to individuals and businesses without facing immediate regulatory constraints despite the riskier environment.

Macropru policy's most important role is containing financial risk and reducing the probability of future financial crises

Reducing the build-up of financial risk is more important in a low interest rate environment, in which financial stability risks can emerge more frequently. One way this problem plays out is through stickiness in nominal return targets as investors fail to adjust their expectations of returns to the low rates world. This can mean some financial firms – for example asset managers – face incentives to take on more risk, and means there is a role for financial regulation and macropru policy to play in reducing the overall risks to the system.[85]

In this context, however, it is important to remember that macropru tools remain relatively untested – and may not have much bite on financial institutions' decisions in some circumstances. The Bank of England's 2018 stress test found that all major UK banks would meet minimum capital requirements in an economic downturn more severe than the financial crisis. This implies that banks are not currently capital constrained and thus the effect of a tightening in the CCyB may be limited.

Concerns over the effectiveness of macropru policy has led some to suggest that monetary policy could be used to address financial sector risks. But monetary policy is

84 See: Bank of England, Record of the Financial Policy Committee Meetings, 28 June and 1 July 2016, July 2016.
85 J C Stein, 'Overheating in Credit Markets: Origins, Measurement and Policy Responses', Remarks at a Research Symposium sponsored by the Federal Reserve Bank of St. Louis, 2013.

a blunt tool with which to target financial stability objectives, and using it to this end is likely to come with higher costs.[86] This is particularly true when it is one particular sector or type of financial activity that is the source of potential instability. In that case, using a broad, macro policy tool to dampen risk taking - essentially by slowing the economy - would obviously have undesirable side effects. More importantly, given the lags with which monetary policy affects the wider economy, a tightening in policy prior to the crystallisation of financial stability risks is likely to exacerbate the subsequent contraction. Indeed, higher interest rates worsen the position of debtors, potentially increasing the risk of financial instability.

The experience of the financial crisis is helpful in illustrating these issues. Large increases in policy rates would have been required to moderate the increase in credit and asset prices to the point where the resilience of financial institutions would have been improved materially. Using monetary policy in this way would have come at the cost of a sharp, policy-driven downturn in aggregate output.[87,88] The more targeted nature of macropru policies will tend to reduce their macroeconomic costs relative to monetary policy. For example, studies have found that increasing capital requirements for banks has generally small, if any, macroeconomic costs (within a reasonably wide range).[89]

Macropru policy faces challenges around distributional impacts and governance

Because of the more targeted nature of macropru tools, it is important that policy makers recognise their distributional effects, which can be significant for small groups. For example, LTI limits have a much larger impact on income and wealth for members of younger generations, who are more likely to be buying their first home and wishing to borrow a high multiple of their income.

Questions around distributional impacts are magnified when macropru policy is delegated to technocratic institutions, as is the case in the UK (via the FPC). Technocrats lack the democratic legitimacy of elected policy makers to implement policies that have material distributional effects. For the Bank of England, then, there may be a risk that the independence of monetary policy could be undermined due to perceived unfairness in how macropru policies are applied.

86 See 'The interaction of monetary and macroprudential policies', International Monetary Fund.
87 For a counterfactual discussion of how macroprudential policy might have been used in the run up to the crisis, see: D Aikman, J Bridges, A Kashyap & C Siegert, 'Would Macroprudential Regulation Have Prevented the Last Crisis?', Journal of Economic Perspectives, vol. 33(1), pages 107-130, 2019.
88 See L Svensson, 'Cost-benefit analysis of leaning against the wind'. Journal of Monetary Economics, pages 193–213, 2017.
89 See M Brooke, O Bush, R Edwards, J Ellis, B Francis, R Harimohan, K Neiss & C Siegert, 'Measuring the macroeconomic costs and benefits of higher UK bank capital requirements', Financial Stability Paper No. 35, 2015.

These risks can be reduced with transparency in both decision making and in understanding the distributional impacts of decisions, alongside the normal requirements of clear targets and accountability mechanisms for any major delegated responsibility. And there are good reasons for the government to delegate macropru policy. These include the highly technical nature of the decisions and the inherent time consistency problem that exists in any incentive to trade off faster near-term growth for long-term financial instability.

Other countries have taken a different approach, involving elected officials directly in decisions on macropru policies. These differences in approach are worth evaluating in the years ahead.

Macropru policy is an essential part of the framework, but is not well suited to playing a major role in supporting the economy in a recession

The financial crisis demonstrated that a sharp deterioration in the financial cycle can have large welfare costs. Given the substantial costs in using existing monetary and fiscal tools to address the build-up of financial stability risks, macropru policy is a crucial addition to the macroeconomic policy toolkit. But while it has a role in countering the financial cycle, its second-order impacts on aggregate macro variables combined with possible side effects for the financial sector mean that it is unsuited to playing a major role in addressing significant shortfalls in demand. In short, our assessment is that macropru policy is not well placed to play a substantial role in supporting the economy during a recession.

Section 5

Fiscal policy

Monetary policy can and should be strengthened, but policy makers cannot be confident that it will provide sufficient stimulus in a future recession given today's low-rate environment. Macropru policy offers little with which to fill this gap. So, in order to ensure that policy is able to support the economy in the next recession, fiscal policy will need to play a larger countercyclical role. Crucially, in the UK it is perfectly possible for it to do so, and certainly more feasible than in the Euro area or US. But that does not mean it is straightforward to do well.

Within the big-picture assignment of economic stabilisation to monetary policy and sustainability to the fiscal authorities, the UK's current fiscal framework does provide for a limited stabilisation role for fiscal policy. This is visible in practice. A fiscal stimulus was introduced during the financial crisis and is likely to be repeated in any downturn in the near future. It is also referenced (lightly) in statements of policy, with Treasury documents before the crisis recognising that fiscal policy may need to support the economy, and additions to fiscal rules post crisis including knock-outs to prevent rules acting in a pro-cyclical way. Some believe this implicit or tacit acceptance of a stabilisation role for fiscal policy is sufficient, given that policy makers would act in a downturn with monetary policy constrained. We disagree for at least five reasons, and believe the framework should be updated to explicitly recognise the changed nature of the role expected of fiscal policy in a low-rate environment.

First, this is because being explicit that fiscal policy will actively step in may well affect the speed, scale and duration of any stimulus – reducing the chance that policy makers will feel constrained by an overriding prioritisation of fiscal sustainability.

Second, leaving fiscal policy's countercyclical role as implicit reduces its effectiveness by hampering its ability to pre-emptively influence expectations (a valued property of transparent, forward-looking monetary policy).

Third, the fact that it is not explicit may in part explain the lack of policy and political debate about preparations for discretionary stimulus – preparations that are important to navigating trade-offs between the speed and impact of fiscal measures available in a crisis. Specifically, temporary investment spending, which has a larger effect on the economy, tends to take more time to plan and execute.

Fourth, an explicit recognition of the counter-cyclical role of fiscal policy would have led policy makers to strengthen the so-called 'automatic stabilisers' post crisis. But the opposite has happened, with new microsimulation and general equilibrium model-based analysis pointing to a modest weakening in their ability to support the economy in the next recession.

Fifth, recognising the need for a shift in fiscal policy's role in a low-rate environment also helps to navigate some of the unavoidable challenges that come with that shift. These include the fact that the neat demarcation of pre-crisis roles will need to give way to periods when the stances of monetary and fiscal policies are closely aligned with overlapping objectives. This is in contrast to the recent UK experience of very accommodative monetary policy alongside neutral-at-best fiscal policy. The public finance implications of accepting a more active counter-cyclical role are also more likely to be internalised in wider decision-making if that role is explicit. All else equal, a more active approach in downturns would be combined with a tighter fiscal approach in upswings to deliver against a long-term falling debt objective. Crucially, while fiscal constraints today are not biting, it does not follow that they do not exist or could not increase in future.

So the macroeconomic framework would be strengthened by an explicit stabilisation role for fiscal policy when monetary policy is constrained, with the Fiscal Charter setting out that such an approach will be followed. This would provide impetus for formalised plans for how to deliver such a stimulus, and the planning to make sure that it can be done quickly via routes that deliver the strongest support to demand. The automatic stabilisers should also be strengthened.

Some take a different view, arguing that, while fiscal policy should have a role at the zero lower bound, it should be in the form of monetary-financed fiscal policy. We do not rule out the possibility that such an approach may be needed in extremis. But

we do note that arguments for taking such an approach should rest on the idea that traditional fiscal policy is constrained by political, constitutional or funding limits. While the first two of these challenges may be significant in the US and the Eurozone, they are not significant problems here in the UK. Given the risks that a direct form of monetary financing of deficits brings, it seems very odd to turn first to such an approach, when traditional fiscal policy is very much an option here in the UK.

A more prominent role for fiscal policy in supporting the economy is needed

The conclusion of our discussions of monetary and macropru policy is that the former is likely to be constrained in a recession and the latter no substitute. This means fiscal policy needs to play a much larger countercyclical role. In itself, this is not a particularly novel conclusion.[90] But while it may seem difficult to argue with such a high-level conclusion, a key question is: how is this best achieved in the UK given an existing framework still largely premised on independent monetary policy as the very dominant tool of macroeconomic stabilisation. Our view is that it will require significant but manageable changes to our framework that reflect the structural changes to macroeconomic conditions since the financial crisis. That is the focus of this section.

While monetary policy has advantages, if used effectively, fiscal policy can also have powerful effects

Monetary policy has distinct advantages to fiscal policy in providing support to the economy during a recession. For example, monetary policy decisions can be taken quickly, with frequent MPC meetings able to change policy rates and QE purchases. And because monetary policy supports the economy by bringing forward spending, there is also an economic rationale for using monetary policy to smooth temporary fluctuations in the cycle.

By contrast, fiscal policy is generally slower acting. Changing tax and spending policy typically requires the preparation of a revised budget and, in some cases, parliamentary approval. This takes time and, as with any political process, brings with it questions about whether a government will be able to implement its wishes. There are also costs associated with the use of fiscal policy, with the literature focusing on: the potential distortionary impacts of taxes on incentives; the fiscal costs of servicing higher debts; and the risk that systematic use of fiscal policy in recessions would result in looser policy

90 See, for example: C Bean, 'Central banking after the Great Recession', 2017 Harold Wincott Memorial Lecture; O J Blanchard & L H Summers, 'Rethinking Stabilization Policy: Evolution or Revolution?', NBER Working Papers no. 24179, 2017.

even when not justified by the cycle. These costs underpinned the pre-crisis case for confining the contribution of fiscal policy to delivering a stable debt position.[91]

But there is a strong case for using fiscal policy when monetary policy is constrained, with academic research finding that fiscal policy has larger effects in those circumstances. A number of studies have raised the possibility that so-called fiscal 'multipliers' – which measure the impact on GDP of a given change in fiscal policy - are larger at the lower bound for interest rates. A number of studies discuss fiscal policy when the economy is at the zero lower bound.[92] In this situation, not only is there less risk of government borrowing crowding out private investment, but an increase in government spending gains additional traction by reviving depressed inflation expectations. When nominal interest rates are stuck at the lower bound, this increase in inflation expectations drives the real interest rate down, spurring the economy.

On top of there being a conceptual case for using fiscal policy when monetary policy is constrained, there is practical experience of using fiscal policy as the primary tool of stabilisation policy. This is usually in cases where the primary objective of monetary policy is related to the exchange rate (Denmark, Singapore and Hong Kong are examples given in Table 2). For these countries, fiscal policy has previously had to be more active in supporting the economy in recessions.

So there are conceptual arguments for using fiscal policy to support the economy during a recession, and there is practical experience of advanced economies using fiscal policy as the primary tool for stabilising the economy.

Widely recognising the new role for fiscal policy in advance of a recession is desirable – but is a bigger change than often recognised

The bar for changing the macroeconomic policy framework ahead of the next recession is likely high given competing demands on policy makers. After all, fiscal policy played a significant role in supporting the economy during the crisis and likely would again. In those circumstances, why spend time changing the macroeconomic framework?

Our view is relying on the status quo is deeply suboptimal, and simply assuming that, because fiscal policy was used in the financial crisis it would be optimally used in a much

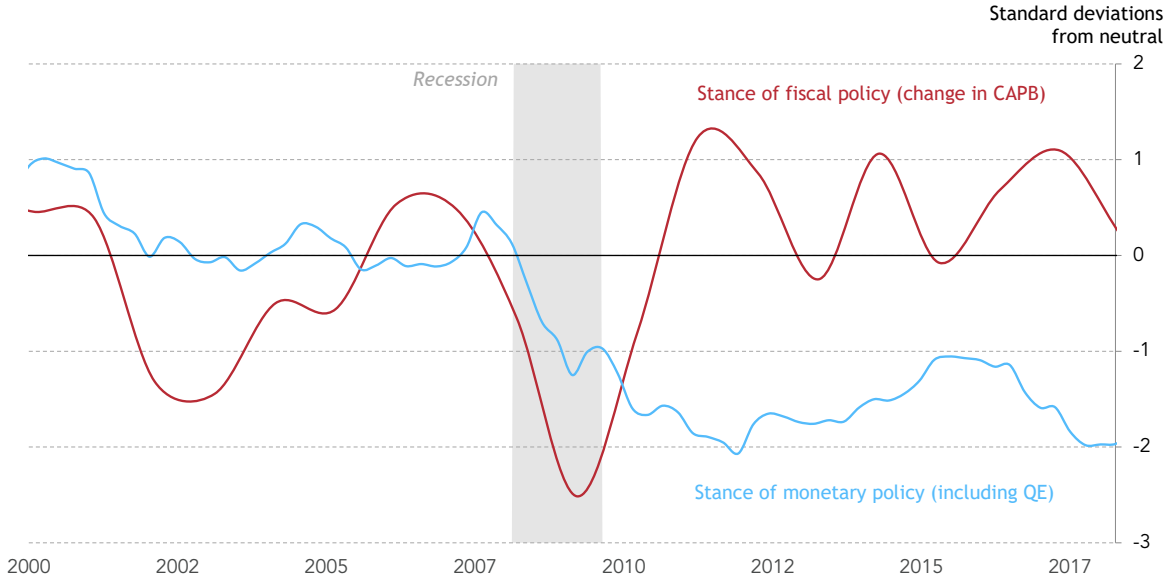
91 As mentioned in Section 2, it is worth keeping in mind that compartmentalising macro policies in this way will almost certainly lead to some deviation from an optimal policy, in which both instruments are used jointly to achieve cyclical and fiscal stability. That said, the arguments above suggest that there may be reasons for thinking that monetary policy dominates fiscal policy when it comes to stabilising demand. For a discussion of this issue, see: T Kirsanova, C Leith & S Wren-Lewis, 'Monetary and fiscal policy interaction: the current consensus assignment in the light of recent developments', Economic Journal 119, pages 482–96, 2009.

92 L J Christiano, M Eichenbaum & S Rebelo, 'When is the Government Spending Multiplier Large?', Journal of Political Economy 119, pages 78-121, 2011; G B Eggertsson, 'What Fiscal Policy is Effective at Zero Interest Rates?', NBER Macroeconomics Annual 2010 25, pages 59-112, 2011; M Woodford, 'Simple Analytics of the Government Spending Multiplier', American Economic Journal: Macroeconomics 3, page, 1-35, 2011.

more demanding stabilisation role in future (given the greater constraint on monetary policy today), is unwise. To get a sense of why, it is instructive to reconsider the stances of monetary and fiscal policy since the financial crisis. Figure 28 shows how the stance of fiscal and monetary policy has evolved in recent decades. Here the 'stance' means the extent to which each policy is stimulating the economy: a more positive (negative) number indicates that the policy is more restrictive (loose), and so it is subtracting from (adding to) growth. How the stance is measured is not straightforward, particularly for fiscal policy.[93] But the basic narrative for policy in the aftermath of the crisis shown by this chart is an intuitive one: in 2008, both monetary policy and fiscal policy were loosened aggressively, before fiscal policy returned to being broadly neutral around 2011. This tightening in fiscal policy reflected its debt-sustainability assignment under the pre-crisis consensus.[94]

FIGURE 28: **Without monetary policy, fiscal policy would've had to be much looser since the Crisis**

Measures of the 'stance' of monetary and fiscal policy (standard deviations from neutral)



NOTES: Stance of monetary policy is given by the deviation of the short-term real interest rate from long-term equilibrium (as estimated by Holston, Laubach and Williams, 2017) plus an adjustment for QE. Stance of fiscal policy is given by the change in the cyclically adjusted primary balance (CAPB, expressed as a share of GDP).[95]

SOURCE: RF analysis of OBR; Bank of England; Holston, Laubach & Williams (2017)

But if monetary policy had been constrained, this outcome would have had to be fundamentally different in two important dimensions. First, the expansion of fiscal policy

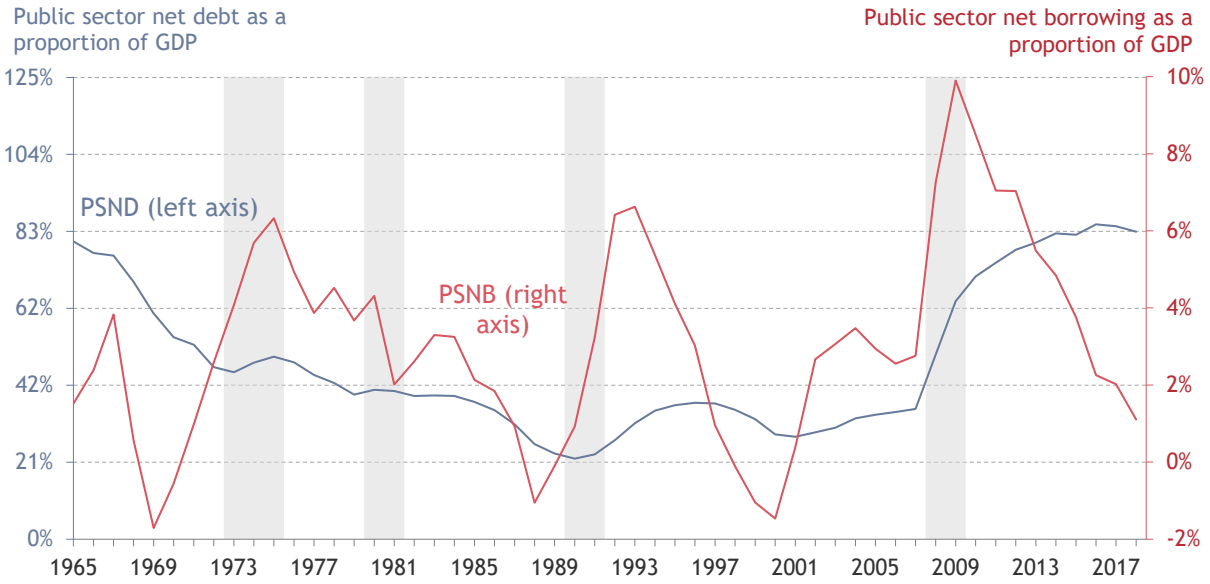
93 See Box 2.2 in: Office for Budget Responsibility, Forecast Evaluation Report – October 2017, October 2017.
94 For a discussion of the evolution of fiscal policy since the crisis, including its impact on growth, see: O J Blanchard & D Leigh, 'Growth Forecast Errors and Fiscal Multipliers', American Economic Review 103(3,) pages 117–20, 2013.
95 K Holston, T Laubach & J C Williams, 'Measuring the Natural Rate of Interest: International Trends and Determinants', Journal of International Economics 108, pages 39-75, 2017.

would have to have been much larger. As discussed in Section 1 above (see Figure 11), absent fiscal and monetary policy measures to support the economy, the initial hit to the economy could have been larger by around 12 per cent of GDP. Fiscal policy stimulus was around a third of that. So to deliver the same scale of stimulus through fiscal policy alone would have required a fiscal stimulus roughly three times the size of that actually undertaken. A simple back-of-the envelope calculation suggests that even a very well-designed fiscal stimulus package would have implied the PSNB-to-GDP ratio increasing by 12 percentage points, compared to around 7 percentage points.[96] All this suggest that the increases in debt and deficits that are typically seen in recession (Figure 29), would be very much larger if fiscal policy was more active in recessions.

As well as being much larger, with constraints on monetary policy, fiscal policy would have had to be much looser for longer. It is not clear that even many of those who agree in principle to a greater counter-cyclical role for fiscal policy recognise the scale of what might be required. That alone implies that a full updating of our macroeconomic framework is required, rather than making do with the status quo.

FIGURE 29: **Debt and deficits rise sharply in recessions**

Public sector net debt and public sector net borrowing



NOTES: Shaded bars indicate recessions.
SOURCE: OBR

96 Based on estimates of monetary stimulus contained in P Bunn, A Pugh & C Yeates, 'The distributional impact of monetary policy easing in the UK between 2008 and 2014', Bank of England Working Papers no. 720, Bank of England, March 2018. We assume that the fiscal multiplier is 1 based on the OBR's maximum. For a discussion of the OBR's fiscal multipliers, see box 3.2 on page 39 of: Office for Budget Responsibility, Economic and Fiscal Outlook – July 2015, July 2015.

A more explicit role for fiscal policy would also increase its effectiveness significantly

There are a number of conceptual and practical considerations that are highly likely to impede fiscal policy if it had to be used as a major tool of macroeconomic stabilisation. Overcoming these is significantly more likely if a shared understanding of the new role of fiscal policy is integral to our macroeconomic framework.

Conceptual considerations

There are two conceptual challenges introduced by the framework for stabilisation policy in its current form:

1) The role for substantial countercyclical fiscal policy is not explicit in the current framework

As discussed in Section 2, the Government's fiscal rules are expressed in terms of deficit and debt objectives. This means that the response of fiscal policy to the onset of a sharp downturn is likely to be: less timely; less effective; and smaller than if the framework explicitly countenanced a role for fiscal policy in supporting the economy in a downturn.

The response would be less timely because it could take time for policy makers to agree on the need for action. As explained in Section 2, under the current fiscal rules, debt stabilisation objectives remain primary unless there has been a 'significant negative shock', at which point the rules are suspended.[97] This means that policy makers would need to judge that is the case, before making any changes to fiscal policy settings. This might take time, particularly if fiscal policy makers expect monetary policy to be able to provide sufficient stimulus.

The response would be less effective because uncertainty around the role of fiscal policy means that it is unlikely to be factored into expectations of the policy response. To see why this is the case it is helpful to think about the response of monetary policy to a downturn. When it becomes evident that the economy is slowing, people anticipate that monetary policy will be loosened. This means that longer-term interest rates in financial markets - which embody expectations of the path of policy interest rates - fall in anticipation of a monetary policy response. This supports spending in the immediate aftermath of a downturn. But if monetary policy is constrained and it is unclear how fiscal

97 Absent that, fiscal policy can be loosened in response to macroeconomic developments, but only within the headroom available under the primary debt-sustainability objectives. But, as discussed in T Bell & D Tomlinson, Breaking the rules: Analysing the credibility of the Chancellor's commitment to keep to his fiscal rules, Resolution Foundation, August 2019, such headroom is currently much too small to provide credible countercyclical support to the economy. Moreover, that available fiscal space would decrease further if the economic outlook deteriorated.

policy will react, this mechanism of support for the economy from anticipated policy action will be weaker.

The response of fiscal policy to a recession could be smaller because policy makers may feel constrained by the current fiscal framework not allowing them to pursue a countercyclical objective without publicly abandoning their existing fiscal objectives first. This could lead to actual or perceived market pressure to provide too little stimulus or tighten policy prematurely.

In this context, there is evidence that such concerns have affected the decisions of fiscal policy makers in a number of countries. In particular, Romer and Romer highlight evidence that in practice, fiscal policy has been tightened during recent recessions because of actual and perceived concerns about market access. In turn, this led to those countries experiencing more severe downturns.[98]

2) There is a risk that monetary policy and fiscal policy are poorly coordinated in a downturn, undermining the stimulus

As discussed in Section 2, under the pre-crisis consensus, policy coordination is delivered tacitly by fiscal policy acting as a first mover under the assumption that monetary policy will always do what is needed to achieve the inflation target. This tacit coordination is supported by informal coordination (for example, meetings between the Governor and the Chancellor). But if fiscal policy becomes a more central tool for stabilising the economy, then it becomes problematic if policy makers have different beliefs about the economy, for example a different view about the amount of spare capacity. This risk may be limited in the event of a full-blown crisis, as both policies are likely to respond by loosening aggressively, but could be more of an issue in the event of less severe downturn.[99] So reconsidering the role for coordination on the nature of any downturn would be desirable.

Practical considerations

In addition to the framework considerations discussed above, there are a number of more general and well-known practical issues with using fiscal policy to stabilise the economy in the event of a sharp downturn. These lead to fiscal policy being deployed more slowly than would be desirable in a recession. Ensuring that fiscal

98 For recent evidence, see: C D Romer & D H Romer, 'Fiscal Space and the Aftermath of Financial Crises: How It Matters and Why', NBER Working Papers No. 25768, 2019.

99 The yields on government debt are often described as being made up of two components: the path of expected policy rates and the risk (or term) premium for holding government debt which redeems over the longer term. The risk premium will reflect a number of factors, including the likelihood of higher inflation and the returns to other assets that do not provide a guaranteed nominal return. For a discussion, see for example: G Duffee, 'Expected Inflation and Other Determinants of Treasury Yields', Journal of Finance 73(5), 2018.

policy's counter-cyclical role is explicit and widely recognised will also help reduce these challenges, of which two standout.

First, there is a trade-off between how quickly fiscal policy can be implemented and how large the ultimate impact is on output. This reflects a broad finding in studies of fiscal policy that spending, and particularly infrastructure-based measures, have a larger impact on the economy than changes in taxes.[100] The justification for this finding is that, while spending represents a direct injection of final demand, a proportion of changes in taxes and transfers tend to be saved by households. Consistent with this, the OBR's assumed fiscal multipliers are: 1 for government investment (that is, a discretionary increase in investment of 1 per cent of GDP would increase output by 1 per cent); 0.6 for current expenditure; 0.35 for VAT increases; and 0.3 for income tax and National Insurance Contributions (NICs).[101]

But, while spending measures are generally thought to have a larger impact on the economy, they are often very slow to implement. This is because the administrative steps in the process of spending-out public expenditure and investment programmes take time.[102]

Second, fiscal policy is set infrequently, so a delay between a deterioration in the outlook and a decision point at which to loosen policy is possible.

Only two 'fiscal events' are routinely scheduled each year, indeed only one is currently being aimed for. And the OBR need a statutory notice period of two months in order to prepare a forecast. So while there is scope for an emergency Budget, which could be done at shorter notice, the decision cycle for fiscal policy is inherently lower frequency (facilitating the tacit coordination with independent monetary policy makers) and means that a fiscal response to a sharp downturn may be delayed. Changes to some tax rates or thresholds, other than VAT, also require primary legislation to be debated and passed by parliament, which adds to the delay and uncertainty around implementation. This could be exacerbated by the current excessive concentration of expertise in analysing short-term economic developments at the Bank of England rather than the Treasury.[103]

100 For a review of the evidence see: V A Ramey, 'Ten years after the financial crisis: what have we learned from the renaissance in fiscal research?', Journal of Economic Perspectives 33, pages 89-114, 2019.
101 See box 3.2 on page 39 of: Office for Budget Responsibility, Economic and Fiscal Outlook – July 2015, July 2015.
102 For example, work for the US finds that for each $1 appropriated for highway expenditures, less than one-third is likely to be spent within a year. See: A S Blinder, 'The Case Against the Case Against Discretionary Fiscal Policy', Working Paper 102, Princeton University, Department of Economics, Center for Economic Policy Studies, 2004.
103 The number of staff working in the area of the Bank of England directly responsible for supporting the MPC's month-to-month decisions is around 250 (in the Monetary Analysis Directorate); by comparison, the number of staff working in the main area of macroeconomic analysis at the Treasury is less than 50 (Economics Group), although, in response to a Freedom of Information request the Treasury noted that work in this area involves contributions from officials across the Treasury; finally, the number of staff at the OBR is around 30.

BOX 7: **Implications of low interest rates for fiscal policy: the importance of r – g**

Advanced economies have emerged from the financial crisis with higher levels of public debt. The extent to which high debt should constrain fiscal policy is a topic that is hotly debated.[104] From a macroeconomic perspective, high levels of government debt are potentially a problem for two reasons. First, they imply high debt-servicing costs which need to be met by higher taxes in future. And second, high public debt can 'crowd out' issuance of private sector assets, reducing investment and, therefore, output and ultimately living standards. But offsetting the risk from high levels of debt is the current low level of interest rates, which significantly reduces these costs. So a key question becomes: how should low interest rates affect our view of the risks from high levels of government debt?

What matters for debt sustainability is the ratio of debt servicing costs (the interest paid on our debt, denoted by economists as r) to the growth rate of GDP in current prices (g). When r is less than g (that is, r – g is negative), debt will tend to fall over time without the need to raise taxes. This is because the government can just rollover its debts, increasing it only to pay the interest, meaning debt growth is equal to r; meanwhile, GDP will grow at the faster rate g, so the debt-to-GDP ratio falls over time without the need to increase taxes in future. Negative r – g, then, allows governments to run higher debts. As shown in Figure 30, r – g is currently negative for a number of advanced economies.

But this situation cannot be relied upon to continue indefinitely. Indeed, interest rates exhibit substantial variability with moderate probabilities of reversion to conditions in which debt servicing costs rise above growth rates over a medium-term horizon.

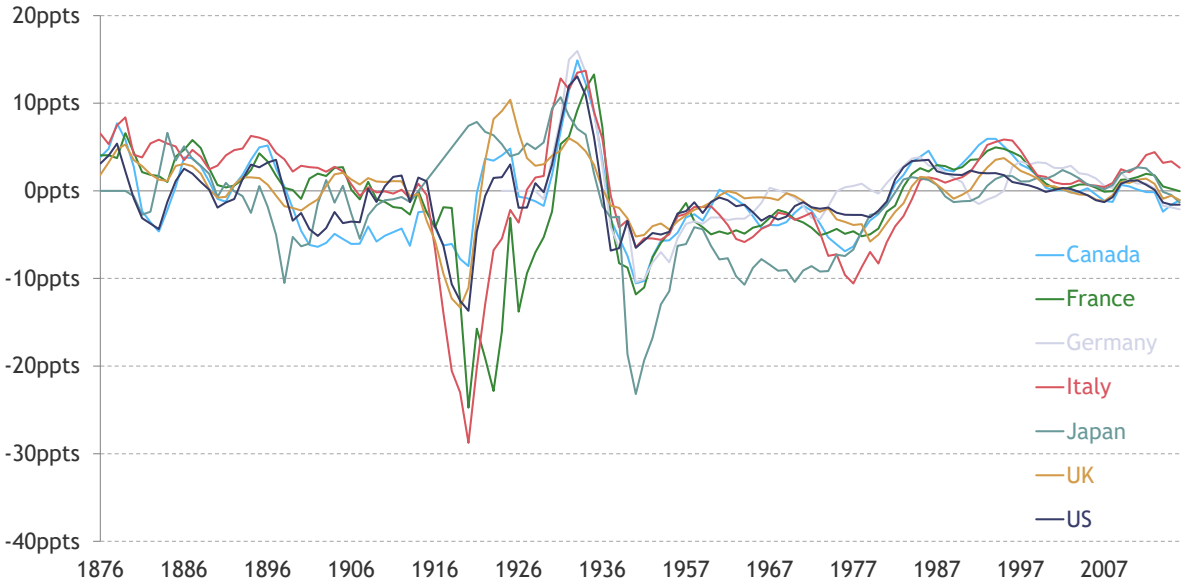
Does this give governments licence to increase spending dramatically and permanently so debt simply rises? The answer is no for two reasons.

First, even if the fiscal costs of increasing government debt levels are negligible, there is still likely to be a welfare cost from crowding out private investment when interest rates are not at the zero lower bound. That said, the size of this effect is contentious and likely to be small at low levels of interest rates on a range of assets.

104 For a detailed discussion of this issue, see: O J Blanchard, 'Public Debt and Low Interest Rates', American Economic Review 109, pages 1197-1229, April 2019.

FIGURE 30: **Growth rates exceed interest rates in most large, advanced countries**

The difference between debt servicing costs and nominal GDP growth rates (r – g) in G7 countries



SOURCE: O Jordà, M Schularick & A M Taylor, 'Macrofinancial history and the new business cycle facts', NBER Macroeconomics Annual, vol. 31, pages 213–263, 2017.

And second, there is evidence that the relationship between debt-servicing costs and the rate of growth for the economy can reverse over time. This is not a surprise as crowding out means that private investment will fall. As private capital becomes scarcer, this will tend to increase the returns to adding capital, pushing up interest rates. In this way, over time r will move back toward g. A simple estimate suggests this adjustment tends to be quite slow on average for the UK, however, with a half-life of over seven years.[105] The idea that it takes time for r to move back towards g is supported by wider research [106]

Nonetheless, as discussed in Box 3, the drivers of low interest rates look likely to persist for a prolonged period. This increases significantly the level of debt that policy makers, balancing a wide range of objectives and risk, should see as sustainable. And while there is a risk that the current situation is unlikely to prove permanent, governments can minimise this risk by extending the maturity of their debt so that it takes time for any rise in interest rates to feed through into higher debt-servicing costs.

105 Based on estimating a simple partial adjustment process using data from 1875 to 2016.
106 See, for example: N R Mehrotra, 'Debt Sustainability in a low interest rate world', Hutchins Center Working Paper No.32, 2017.

A solution to these problems would be to strengthen the automatic stabilisers, but they have actually been weakened in recent years

If fiscal policy can be designed to respond systematically and rapidly to economic fluctuations, then the problems discussed above would be reduced. Indeed, both the administrative delays in mobilising fiscal stimulus, as well as the problems with the timing and size of discretionary fiscal stimulus introduced by the current framework for fiscal policy, could be ameliorated if more fiscal stimulus could somehow be made automatic. In short, there is a clear case for powerful automatic stabilisers – that is, the tax and benefit system that fluctuates automatically over the economic cycle. In the current environment, these could improve the efficacy of countercyclical fiscal measures. A macro-framework that recognises the greater role for fiscal policy going forward would provide an impetus for just such a strengthening.

A key question, then, is whether the UK's automatic stabilisers have been strengthened during the period in which its short-term interest rates have been close to zero. In the following sub-section we describe the channels through which the tax and benefits system can stabilise the economy, and provide evidence from two quantitative models that if anything this stabilisation has become less powerful in recent years.

The tax and benefits system stabilises the economy in four distinct ways.[107] First, when a recession hits and pre-tax incomes fall, net tax payments also fall and benefit payments rise. This partially offsets falls in incomes, and will stabilise household spending to the extent that it is sensitive to current incomes. This will be particularly true for households who cannot borrow and have no savings to spend. This 'disposable income channel' is the most familiar one. Focusing on this channel in a detailed model of the UK tax and benefit system, as set out in detail below, we find that this channel has weakened since 2010.

But there are three further, less familiar, channels through which the tax and benefits system stabilises the economy. The first of these relates to work incentives. Progressive income taxes mean the marginal tax rate of workers falls in recessions and increases in expansions. So incentives to work may be stronger in a recession. The second relates to income redistribution. By shifting resources from richer to poorer families during a recession, the higher propensity to spend by those on low incomes will provide a boost to the economy. And the third comes from the insurance that income-related tax and benefits provide. The fact that people know this insurance system exists reduces the incentives to increase savings when a recession strikes.

107 For an authoritative discussion of these channels, see: A McKay & R Reis, 'The Role of Automatic Stabilizers in the US Business Cycle', Econometrica 84, pages 141-194, 2016.

These latter three channels all work by affecting household behaviour. For this reason, to quantify how their impact has changed we model the behavioural response of varied, interacting households in a so-called a heterogeneous-agent dynamic stochastic general equilibrium (DSGE) model. As shown in detail below, the results point tentatively to stabilisation having weakened since the crisis.

Modelling taxes and benefit changes points to weaker automatic stabilisers

The first approach to assessing the strength of the automatic stabilisers looks at the cumulative effect of changes to the direct tax and benefit system since 2010. Below are a few key changes over that period:

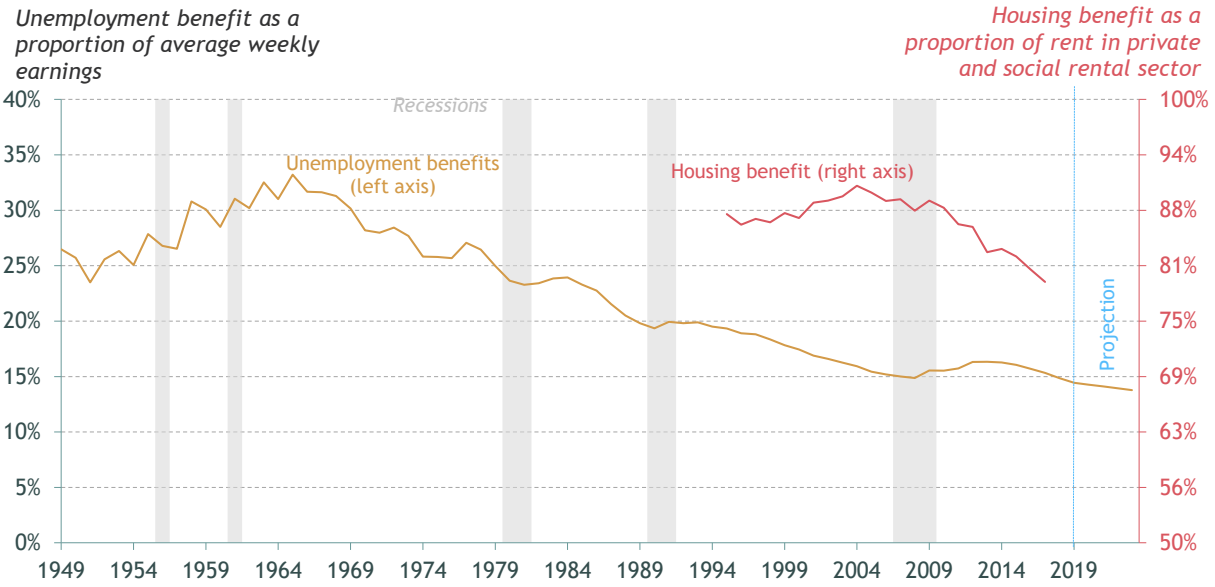
- The income tax personal allowance has risen, increasing the level of income at which people begin to pay income tax, and so reducing the amount paid by the majority of people. For top earners, this was offset by the freezing of the higher-rate threshold;
- There have been a number of changes that have reduced the generosity of the benefits system. These include, initial caps - and then an outright freezes – on increases in a number of benefits, including: Jobseeker's Allowance, Working Tax Credits, Housing Benefit, and Universal Credit (UC) allowances;
- For the system of tax credits (in the process of being replaced by Universal Credit), there have been additional steps to reduce generosity. These include: the introduction of the two-child limit, and removal of the 'family element' for new claimants;
- Reductions to Local Housing Allowance rates, which reduce support for private renters.

Figure 31 provides one simple way of thinking about the automatic stabilisation role of benefits – focusing on those benefits that provide income replacement for those losing their job in a downturn. It shows that the value of such benefits relative to average earnings has declined markedly, and is on course to decline further. In particular, Jobseeker's Allowance is expected to reach an all-time low in 2019-20, at 14.5 per cent of average weekly earnings.[108]

108 For a discussion of the outlook for benefit generosity, see: A Corlett, The Living Standards Outlook 2019, Resolution Foundation, February 2019.

FIGURE 31: **The benefits system has become less generous since the financial crisis**

Unemployment benefits as a proportion of average weekly earnings, and housing benefit as a proportion of rent



NOTES: 'Unemployment benefits' refers to Jobseeker's Allowance and predecessors. Years refer to the main year in the financial year, e.g. 2017 is 2017-18 financial year.

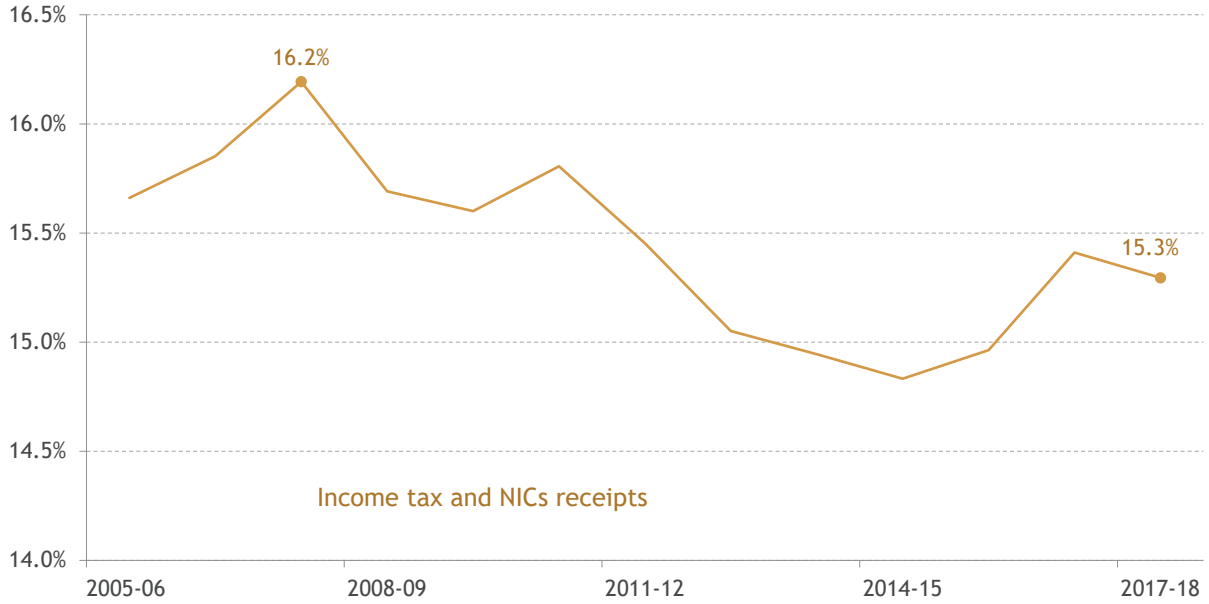
SOURCE: RF analysis of IFS, Fiscal Facts; ONS; Bank of England; OBR, Economic and Fiscal Outlook; DWP, Family Resources Survey

Stabilisation through tax and benefits is about far more than supporting incomes for those losing their jobs. The extent to which changes in earnings levels feed through into income changes is also stabilised by work-related taxes and in-work welfare spending. Figure 32 illustrates the scale of the former of these, showing the extent to which post-2008 income-related taxes have shrunk relative to the size of the economy, falling from 16 per cent of GDP in 2007-08 to 15 per cent in 2017-18.

To assess how a wide range of offsetting policy developments have affected the ability of the automatic stabilisers to cushion a downturn, the effect of a recession on family incomes can been assessed using a microsimulation model. This approach allows a comparative analysis of the stabilisation role of the current income-related tax and benefits system and that in place in 2010.

FIGURE 32: **Tax receipts have fallen since the financial crisis**

Income tax and NICs receipts as a proportion of GDP



NOTES: Income tax includes PAYE and Self-Assessed income tax receipts, in order to isolate the impact on the working-age population.

SOURCE: RF analysis of HMRC, Tax and NIC Receipts 2018; DWP, Benefit expenditure and caseload tables 2018; ONS, GDP quarterly national accounts time series

The modelled recession assumes changes in employment and earnings based on those observed in the aftermath of the financial crisis – with relatively large earnings and relatively small employment falls.[109] For further detail on methodology, see Annex 1.

The results of this exercise are summarised in Figure 33. The top panel shows the decline in incomes under the two different tax and benefit systems, split by income quartiles, while the bottom panel shows the percentage point difference in the income change between the two systems. In the event of a recession, average household incomes are estimated to decline by around 4.6 per cent under the current tax and benefit system. This compares with 4.5 per cent under the 2010 system. This represents a relatively small difference of 0.1 percentage points, or nearly £364 million annually across the population. A recession with a larger relative fall in employment would expose a bigger decline in the effectiveness of the automatic stabilisers since 2010, as detailed in Annex 1.

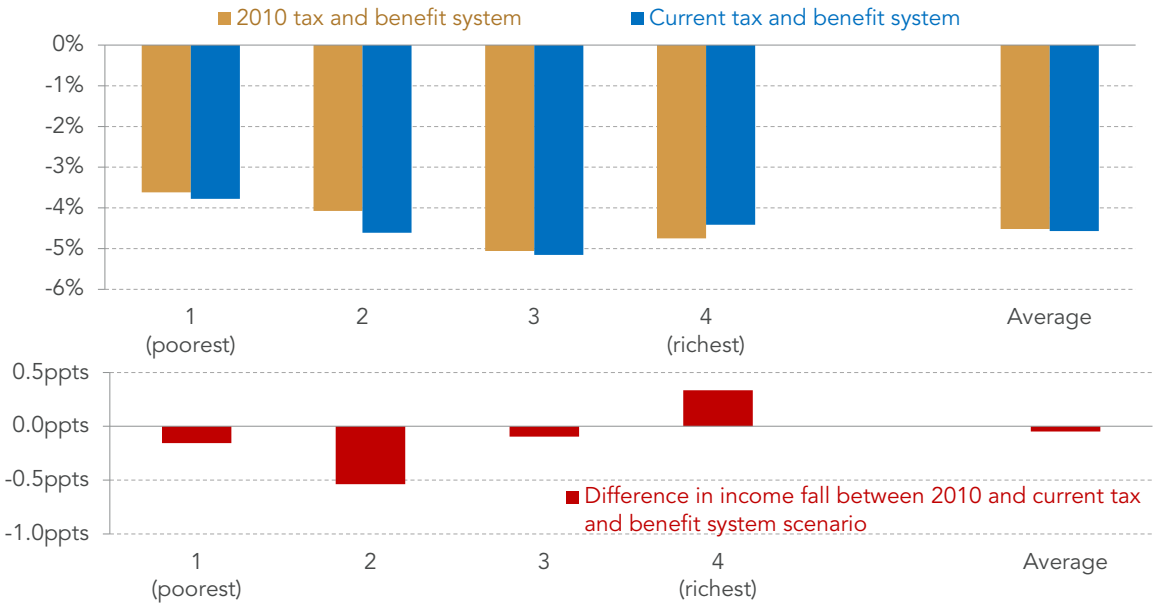
More importantly, the reduction in income smoothing from changes to the tax and benefit system is greater for people in the bottom half of the income distribution. Those in the first and second quartiles experience additional income reductions as a result of a recession of 0.2 percentage points and 0.5 percentage points respectively. In contrast, those in the top quartile are better off under the current system, in part because the

109 The overall approach is similar to that found in J Cribb, A Hood & R Joyce, Recessions, income inequality and the role of the tax and benefit system, Institute for Fiscal Studies, November 2017

threshold at which the higher rate of income tax starts to be paid is lower than it would have been had 2010 policy been maintained. Given that the impact of changes in incomes on consumption is greater for lower-income households, this is of concern from the perspective of automatic stabilisation.

FIGURE 33: **The support from the current tax and benefit system is weaker, particularly at the lower end of the income distribution**

Projected proportional changes in weekly income following a recession based on the current benefits system and the 2010 benefits system, by net income quartile



NOTES: Shows fall in incomes after taxes and benefits as a result of a recession. Full details of the modelling approach are provided in Annex 1.

SOURCE: RF analysis of DWP, Family Resources Survey; ONS, Labour Force Survey, using the IPPR tax- benefit model

Overall this suggests that, under the same sort of recession as that experienced during the financial crisis, we have weakened rather than strengthened the automatic stabilisers in so far as they operate through the disposable incomes channel. This is particularly the case for those in the bottom half of the distribution; and these results are even starker for an unemployment-heavy recession (as Annex 1 details).

These findings are supported by analysis that takes account of household behaviour

Taxes and benefits affect households' incomes directly, but also influence how much households work and spend. Changes in these behavioural responses, not considered in the microsimulation model above, will therefore affect how much the system stabilises the economy. To quantify these effects, this section presents results from a heterogeneous-agent DSGE model, with a set of nominal (price) rigidities and a full set

of automatic stabilisers that allow for detailed behavioural modelling of both fiscal and monetary policy. This approach also allows us to include taxes on firms' profits alongside taxes and transfers for families. The model allows us to analyse the overall volatility of the economy under different tax and benefit systems. Specifically, it draws on the work of McKay and Reis, with methodological details set out in Annex 2.[110] This methodology is more sensitive to the differences in the cyclical position of the economy, so we compare the effectiveness of the automatic stabilisers in the run up to the crisis (2004-07), with the recovery phase (2015-18).

The key conclusion that emerges from this work is that, while both the pre- and post-crisis tax and benefit systems deliver considerable stabilisation, the current system is somewhat less effective in dampening the economic cycle. This conclusion holds for the volatility of GDP, but is even more pronounced when considering consumption. In particular we find that, in the absence of automatic stabilisers present in 2004-07, the model-estimated volatility of consumption would have been around three-quarters higher. But this stabilising effect on consumption is around one-fifth weaker under the current regime.

The most important mechanisms behind this result are the disposable income and social insurance channels, particularly driven by the role of benefit transfers. Transfers soften the feedback loop from households becoming unemployed or facing incomes falls cutting back on consumption, and thereby reinforce the original downturn by reducing aggregate demand.[111]

This work points to the transfer system being much more powerful in stabilising the economy than the tax system. This is because transfers shift resources to those on lower incomes, who tend to have larger marginal propensity to consume.[112] In contrast, and consistent with the results from the cash-flow approach, recent changes to the income tax system have little overall effect on the strength of the automatic stabilisers.

Of course these are indicative models and come with constraints. In particular, in following the work of Mckay and Reis, we have compared the UK tax and benefit system within a model in some areas calibrated for the US economy. A key difference between the two economies is that the US economy is less open than the UK, meaning the model may overstate the impact of fiscal policy. But we see no reason for such effects to have a disproportionate impact under one tax and benefit system or the other, and so remain

110 See: A McKay & R Reis, 'The Role of Automatic Stabilizers in the US Business Cycle', Econometrica 84, pages 141-194, 2016. The generous sharing of the code for that paper by Alisdair McKay and Ricardo Reis is gratefully acknowledged, although responsibility for the analysis is entirely that of the Resolution Foundation. The work in this section was undertaken with Marco Graziano and Gregory Thwaites.

111 M Browning & T F Crossley, 'Unemployment insurance benefit levels and consumption changes', Journal of Public Economics 80, pages 1-23, 2001.

112 J A Parker, N Souleles, D S Johnson & R McClelland, 'Consumer spending and the economic stimulus payments of 2008', The American Economic Review 103, pages 2530-2553, 2013.

confident in the conclusion that the automatic stabilisers are, if anything, somewhat weaker than they were pre-crisis.

The conclusion from these explorations of changes in the role of the automatic stabilisers is that policy makers should be explicitly aiming to strengthen them in future. We will return to the issue of how to do this in future work.[113] But there are clear constraints, including in terms of work incentives, to strengthening the stabilisers through higher marginal deduction rates.[114] This means they will never be enough to alleviate the constraints on monetary policy alone. So there is a clear need for more active use of discretionary fiscal stimulus in the next recession.

The fiscal rules should be updated to explicitly incorporate a credible countercyclical response to a recession

The priority, then, is to strengthen the ability of fiscal policy more generally to step up to the significant increase in its stabilisation role. Doing so is best achieved through a new set of fiscal rules. Traditionally, as discussed in Section 2, fiscal rules have aimed to provide the basis for sustainable fiscal policy while ensuring that taxation and spending decisions remain in the hands of elected politicians. An additional goal of explicitly recognising the changed role for fiscal policy now needs to be incorporated. Doing so successfully is not just a matter of reducing the constraints that such rules provide. Indeed, a key implication of more active use of fiscal policy during a downturn is that, all else equal, it will require somewhat faster deficit reduction once the economy has normalised and monetary policy is no longer constrained. Failing to do so will mean debt permanently being on an upward path. While fiscal constraints have been significantly eased in today's low-rate environment, it may not be wise to simply assume this continues indefinitely, as discussed in Box 7.

While this report does not set out a specific proposal for updating the fiscal rules – which we leave to a subsequent report - the legacy of the crisis suggests the new rules should meet the following four key principles:

1. *Set out an explicit role for counter-cyclical policy*. The rules should be explicit about the desirability of fiscal policy playing a countercyclical role, rather than simply including a knock-out clause to allow it;
2. *Be medium term in orientation*. The rules should be medium term in orientation – allowing policy makers time to correct for shocks but still providing a binding framework for setting fiscal policy with targets that are realisable over the period of the rules;

113 Given the constraints on implementing fiscal policy measures quickly in the US, there is a debate around how such measures could be designed. See, for example: H Boushey, R Nunn & J Shambaugh (eds.), Recession Ready: Fiscal Policy to Stabilize the American Economy, Washington Center for Equitable Growth, May 2019.

114 For a discussion of these issues in a US context, see: A McKay & R Reis, 'Optimal Automatic Stabilizers', CEPR Discussion Papers No. 11337, 2016.

3. *Be resilient enough to provide a credible framework in the face of economic shocks*. The rules should ensure that fiscal policy settings are affordable under a plausible range of scenarios, including changes to debt servicing costs and economic circumstances. In so far as is possible, the rules should contain contingencies so that they apply in bad times as well as good times, allowing the framework to specify a credible path for ensuring long-run sustainability even in the face of shocks; and
4. *Ensure a sustainable fiscal position, providing an anchor for expectations about the fiscal position*. The rules should ensure that fiscal policy settings are consistent with affordable levels of public debt, while also allowing for welfare-enhancing investment in economic, human, and social capital that supports long-term economic growth and resilience.

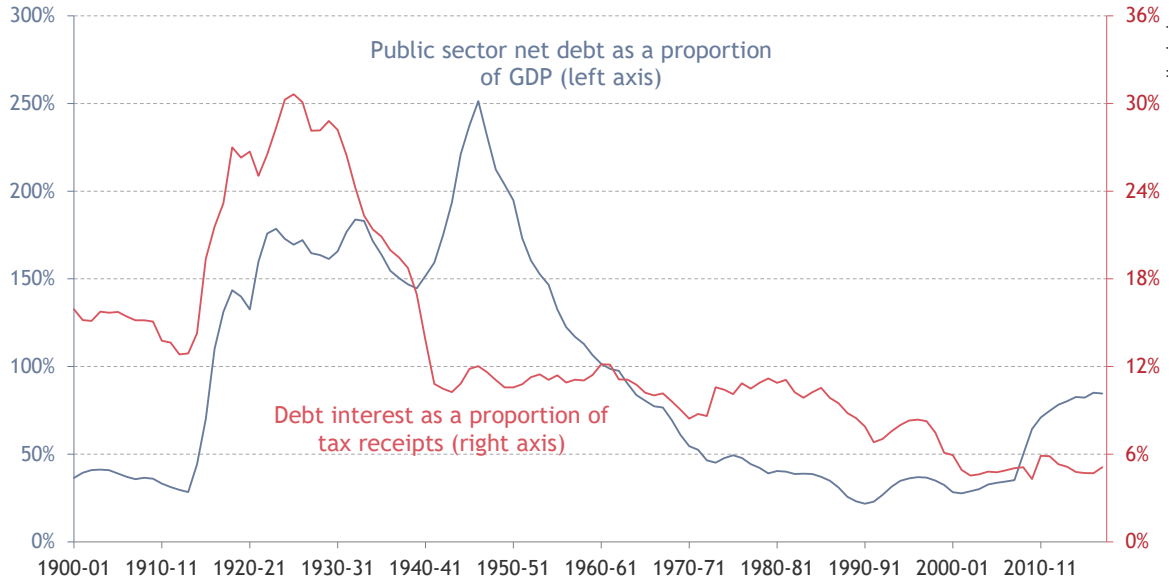
Our assessment is that these four criteria collectively define the conditions for a credible macroeconomic framework for making fiscal policy decisions. It is, however, important to stress that such a framework would also need to be supported by sound fiscal management arrangements. Perhaps most importantly, the rules should continue to be monitored by the Office for Budget Responsibility. In addition, fiscal rules should also be: based on established and independently-defined statistical or accounting concepts; be benchmarked to reliable and timely fiscal data; and should include all institutions engaged in fiscal activity.

Any new fiscal framework needs to be robust to a range of potential future interest rate paths – but funding constraints are unlikely to materialise in a crisis

A key challenge for the design of a future fiscal framework is uncertainty about the future path of interest rates. While government debt levels have more than doubled since 2008, the Government's borrowing costs have more than halved. The net result, as shown in Figure 34, has been that the burden of servicing that debt (the debt-interest-to-revenue ratio) has been largely unchanged over this period. With global and UK interest rates falling further, and in some cases into negative territory, fiscal constraints are clearly reduced, and the long-term sustainable level of debt becomes increasing difficult to judge. Were this trend to reverse and interest rates return to closer to their historic levels, then current levels of debt would look increasingly difficult to sustain without putting significant pressure on other areas of public spending.

FIGURE 34: **Debt servicing costs have remained stable in recent years despite higher debt levels, reflecting falls in the costs of government borrowing**

Public sector net debt and debt interest payments as a proportion of tax receipts



SOURCE: RF analysis of OBR

So future fiscal frameworks need to take account not only the level of debt, but also the cost of servicing that debt. Policy makers will need to wrestle with the trade-off between low borrowing costs today and the challenge of swiftly turning around the countries debt stock tomorrow if interest rates turn out to be higher than currently expected.

But what does that mean for using fiscal policy during a crisis? In so far as recognising fiscal policy's stabilisation role is seen as a general loosening of the public finances, there is a risk that debt servicing costs could rise. However our view is that concerns about debt sustainability would be very unlikely to limit debt-financed spending in a recession where interest rates are at the zero lower bound and the Bank of England is also undertaking QE purchases of gilts. Indeed, the onset of a recession is likely to put downward pressure on already-low debt-servicing costs, and the last decade of cross-country experiences of government borrowing in the context of central bank asset purchases is of very low volatility compared to historic norms. In these circumstances, fiscal policy could be used actively without concerns about a sharp rise in borrowing costs. Of course, the situation when the economy recovers and these factors started to reverse, could be quite different, and is more likely to be when any increase in government borrowing costs would take place.

Proposals for monetary financing of fiscal policy would mean taking unnecessary risks – in the UK at least

This paper advocates a more explicit and strengthened counter-cyclical role for traditional fiscal policy. But some proponents of a greater role for fiscal policy argue that it should be far from traditional – and instead advocate monetary financing of such fiscal policy at the zero lower bound.[115]

We do not rule out the possibility that such an approach may be needed in extremis if both monetary and traditional fiscal policy *were* constrained. But arguments for monetary financing of fiscal support as a tool of macroeconomic policy today often rest on the idea that traditional fiscal policy is constrained in the here and now – be it by political, constitutional or funding limits.

We have argued above that it is unlikely that the UK would face market access constraints at the ZLB with an asset purchasing central bank. More importantly, while political and constitutional constraints on the use of fiscal policy may be very real indeed in the US and the Euro area, they are not significant problems here in the UK. It is true that a move away from large-majority governments and elements of devolution have weakened the ease with which central government can swiftly make changes to fiscal policy. But the UK remains a country where the government of the day is able to exercise a great deal of control over spending on its own behalf, and has a majority in the House of Commons for any fiscal decisions requiring legislation. No constraint of the scale of US congressional deadlock over fiscal policy, or the diffuse fiscal decision-taking amongst highly variable political economy cultures seen in the Euro area, exists in the UK.

While an updating of our current macroeconomic framework should focus on institutionalising and clarifying the greater counter-cyclical role for traditional fiscal policy, it is of course desirable that thought is put into what should happen in the extreme situation when both monetary and fiscal policy are constrained. Such a situation is only likely in a truly deep recession, and would necessitate closer coordination between fiscal and monetary policy makers. There are many ways in which this could work, but their common feature is combining expansionary fiscal and monetary policies by funding higher government spending or tax cuts through the issuance of central bank reserves (i.e. electronic money).[116]

115 For a proposal which focuses on the use of monetary financing, see: BlackRock Investment Institute, Dealing with the next downturn, Blackrock Macro and Market Perspectives, August 2019.

116 Such schemes are often associated with Milton Friedman's notion of 'helicopter money', see: M Friedman, 'The Optimum Quantity of Money', New York: Macmillan, 1969. More recently, they have been discussed by other economists; see, for example: W H Buiter, 'The Simple Analytics of Helicopter Money: Why It Works – Always', CEPR Discussion Papers no. 9998, 2014.

Such coordination does, however, come with very significant risks to the credibility of the framework. These include eroding the credibility of central bank independence and putting more pressure on the need for the central bank and fiscal authorities to have a shared understanding of not only their respective roles but the state of the economy. Such risks could be reduced, but not eliminated by, the following conditions:[117]

- The coordination should be explicitly temporary, with the objectives clear at the outset;
- The fiscal authority should determine the nature of spending which monetary financing would enable, to maintain accountability; and,
- The level of any monetary financing should be driven purely by a wish to achieve the Bank of England's inflation target in the medium term.

While these issues should be explored, our view is that, given very significant risks that inevitably follow a direct form of monetary financing of fiscal policy, it seems very odd to turn first to such an approach when traditional fiscal policy is very much an option here in the UK.

The fiscal policy framework is underprepared for next downturn, implying the need for it to be updated substantially

Overall, there is a clear case that the current fiscal policy framework is underprepared for the next downturn. Absent monetary policy as a stabilising mechanism, fiscal policy must be more active in supporting the economy in a downturn. In practice, it already has an implicit role, but this is too often ignored by critics of the current framework. It is time to provide fiscal policy with an explicit countercyclical objective to ensure it can substitute effectively for monetary stabilisation policy and reduce the risks that a recession is more damaging than necessary.

The analysis above argues for the following priorities for updating the macroeconomic policy framework:

- First, the fiscal policy rules need to be rewritten to include an explicit objective for economic stabilisation and commensurate and credible deficit reduction thereafter.
- Second, examine ways to strengthen the automatic stabilisers, which have instead been weakened in recent years;

117 These conditions draw on: B Bernanke, 'Monetary Policy for a New Era', paper prepared for 'Rethinking Macroeconomic Policy', a conference held at the Peterson Institute for International Economics, Washington, October 2017; J E Gagnon, 'What Have We Learned about Central Bank Balance Sheets and Monetary Policy?', Cato Journal, Spring/Summer 2019.

- Third, there should be explicit preparations for a future recession. The key principles of any policies to boost demand in the face of a sharp slowing is that they should maximise the impact on growth; minimise distortions to the economy; and be temporary in nature in as far as possible. For example, an obvious step would be to prepare a pipeline of government expenditure projects, which can be accelerated as the economy slows.
- Fourth, the distributional impact of planned stabilisation policies should be well understood, not least for reasons of policy effectiveness given higher marginal propensities to consume of poorer households, and their increased vulnerability to a downturn compared to 2008; and
- Fifth, consider the best approach to delivering effective stimulus when debt-financed fiscal policy is also contrained to minimise the risks to the overall framework.

Section 6

Conclusions and steps to strengthen the macroeconomic policy framework

Our assessment is that the current framework is underprepared for the next recession

The UK currently faces a high risk of recession, with the Resolution Foundation's recession risk indictor pointing to that risk being at its highest since 2007. While the job of macroeconomic policy to reduce the risk of recession, even good policy can't stop recession altogether, especially for an open economy such as the UK. And when they happen, they are painful: the average GDP loss over the past four recessions is close to 4 per cent; the average rise in unemployment over a million.

Downturns are particularly bad for those on lower incomes, especially when they see large increases in unemployment, as was the case in the aftermath of the 1980s and 1990s recessions. While those on lower incomes fared relatively well in the immediate financial crisis period, the subsequent squeeze in incomes has left them struggling to rebuild financial buffers. Nearly two-thirds of those on below typical incomes report having no savings, up from around half just prior to the financial crisis, and essentials that are harder to cut back account for a bigger part of their consumption today than pre-crisis. This means that those on lower incomes are particularly exposed to a recession.

Macroeconomic policy is crucial in limiting the damage in a recession. It works both by addressing the underlying vulnerabilities that may have caused a downturn, and by providing substantial and timely support to overall demand. During the financial crisis

that meant direct action to resolve failings in the financial sector, along with large-scale policy stimulus - two-thirds of which came from monetary policy. Absent that policy support, GDP could have been 12 per cent lower after the recession – equivalent to over £8,000 for every household in the UK. Moreover, the tax and benefit system did much to cushion the incomes of those on lower incomes.

An effective macroeconomic policy framework is, therefore, crucial to preventing an unnecessarily damaging recession. So this report provides a comprehensive assessment of that framework, focusing on the ability of it to provide effective support to the economy in the face of the next recession.

The bottom line from this assessment is that the UK's macroeconomic policy framework has not kept pace with significant changes to our economic environment and is therefore at risk of leaving the country underprepared for the next recession.

The key change has been what appears to be a secular decline in the level of interest rates around the world, which means that monetary policy will not be able to provide anything like the level of support it has previously provided in the next recession. Importantly this means there are limits to what can be achieved by further cuts in policy rates and even QE. We estimate that these tools only have capacity to boost GDP by around 1 per cent (although it is difficult to be precise about such an estimate). While our view is that it is helpful to consider specific tools and strategies for monetary policy, it seems unlikely that other alternatives would be able to substitute completely for the constraint on policy rates. The key reason for this is that those approaches also tend to rely on reducing longer-term interest rates, which are currently close to all-time lows and would be likely to fall further in a recession.

Because monetary policy was the key tool for supporting the economy in a recession, this necessitates a significant updating of the macroeconomic policy framework. This is because monetary and fiscal policies continue to operate in much the same way as they did prior to the financial crisis. That approach relies heavily on monetary policy to stabilise the economy as it falls into recession. Without it, a rethink is required.

While monetary policy can and should be strengthened, policy makers cannot be confident that it will provide sufficient stimulus in a future recession given today's low-rate environment. Macropru policy offers little with which to fill this gap. So, in order to ensure that policy is able to support the economy in the next recession, fiscal policy will need to play a larger countercyclical role.

The UK starts in better position than in other countries. In part this is because the UK's deficit and borrowing costs are both currently low. But it also reflects different political and constitutional context. In the US, for example, the process for reaching agreement on fiscal stimulus packages is difficult; in Europe, the lack of a single fiscal policy decision maker or shared approaches to fiscal policy means a suboptimal policy response is dangerously likely.

There is a need for a significant updating of the stabilisation framework, and there is a compelling case to act now

The aim of this paper has been to assess the likely effectiveness of the current policy framework in a future recession, rather than to recommend precisely what the future framework should look like. Nonetheless, the analysis above points to a clear direction of travel for policy. Those areas should be debated openly with future reports from the MPU playing a key role in informing the public discourse.

Priorities for updating the macroeconomic framework

Monetary policy:

- Take steps to ease the constraints on QE, including regularising its use within the wider framework;
- MPC and HM Treasury should undertake a review of the instruments and strategies for monetary policy, with the aim of identifying alternative policies that might allow the MPC to ease policy if Bank Rate is constrained by the zero lower bound;
- As part of that review, consider the approproiate level of the inflation target, in particular the powerful in principle case for raising the 2 per cent target; and
- Acknowledge publicly that monetary policy alone will not be able to support the economy in the next recession. Doing so would facilitate preparations for the next recession and catalyse a wider debate.

Macropru policy:

- In the coming years, review the case for involving elected officials directly in decisions on macropru policies, as is the practice in some other countries.

Fiscal policy:

- The fiscal policy rules need to be rewritten to include an explicit objective for economic stabilisation and commensurate and credible deficit reduction thereafter;

- The automatic stabilisers should be strengthened, as a minimum unwinding the weakening in recent years.
- There should be explicit preparations for providing effective discretionary fiscal stimulus. The key principles of any such policies should be that they maximise the impact on growth, minimise the distortions to the economy, and be temporary in nature in as far as is possible.
- Ensure the distributional impact of planned stabilisation policies is well understood, given the vulnerability of poorer households to a downturn; and
- Review the approach to delivering effective stimulus when debt-financed fiscal policy is also constrained to minimise the risks to the overall framework.

Annex 1

Tax and benefit modelling of changes to the automatic stabilisers

This annex discusses analysis of changes in the tax and benefit system based on a microsimulation approach. This is done by simulating the response of (mainly income-related) taxes and benefits to a recession. It focuses on the impact on earnings, inequality and employment for a range of groups in society based on underlying data from the Labour Force Survey and the Family Resources Survey. This exercise points to a weakening in the automatic stabilisers since 2010.

The approach taken is to consider the cash-flow effects of the response of the direct tax and benefit system to a recession

To estimate the effects of alternate tax and benefit systems on weekly household incomes during a recession, we use a bottom-up approach. In particular, in this section we use a microsimulation model of the tax and benefit system.[118] This approach focuses on the cash-flow impact through the tax and benefit system of a simulated recession within a number of subgroups of the population (defined by age, sex and education).

A recession is simulated in the model under the tax and benefit system in operation at different points in time. To do this, changes in employment and earnings are simulated based on those observed in the aftermath of the financial crisis. The overall approach is similar to that found in Cribb, Hood and Joyce (2017).[119] For the purposes of this

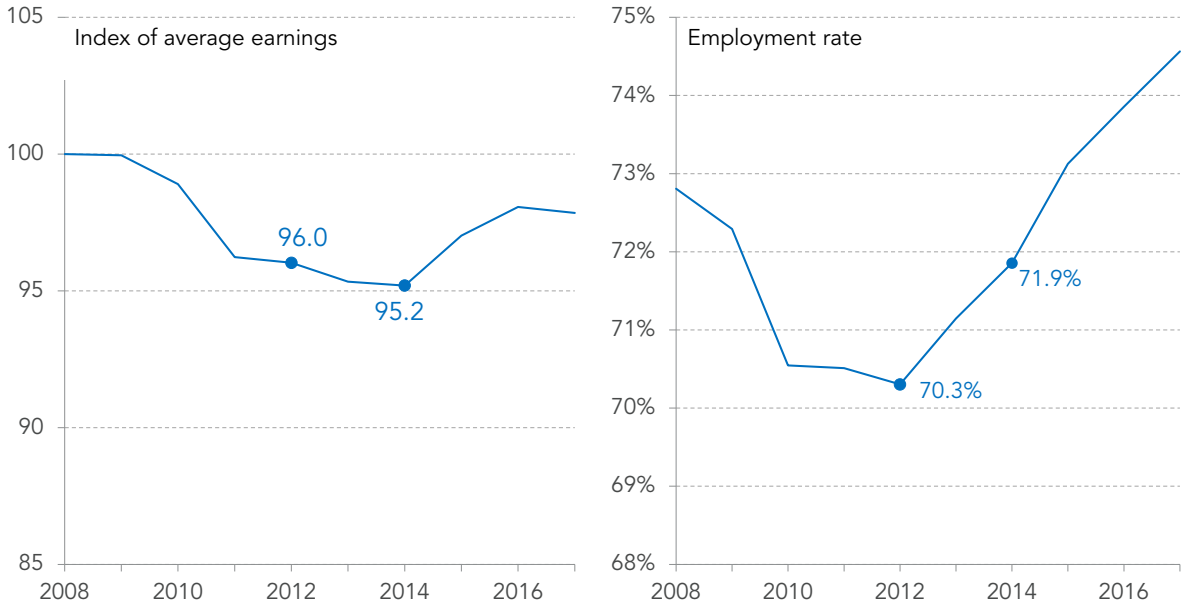
118 In particular, we use the IPPR's tax-benefit microsimulation model, which is similar to the Institute for Fiscal Studies' 'TAXBEN' model, updated for recent changes in the tax and benefit system. See, for example: T Waters, TAXBEN: The IFS tax and benefit microsimulation model, Institute for Fiscal Studies, November 2017.

119 J Cribb, A Hood & R Joyce, Recessions, income inequality and the role of the tax and benefit system, Institute for Fiscal Studies, November 2017.

simulation, the peak-to-trough change in employment and earnings is taken from Labour Force Survey data for 2008 and 2012 respectively. This is shown in Figure 36.

FIGURE 36: **2012 serves as a combined low point for earnings and employment data**

Index of real average weekly earnings, and average employment growth



SOURCE: RF analysis of ONS, Labour Force Survey

To simulate the employment changes, drawing on the IFS method, individuals are separated into 12 subgroups based on gender, age groups (under 30, 30–49 and 50–64), and whether they left full-time education before or after the age of 16. Changes in full-time and part-time employment rates and the unemployment rate are then calculated for each of these subgroups over the simulated recession period. The change in the proportion of households with at least one person in work is also calculated, split by household type – that is, single adults, single parents, households with two or more adults and no children, and households with two or more adults and at least one child. Reweighting techniques are then used to apply these changes observed in the Labour Force Survey to the population of the latest year of the Family Resources Survey (2017-18), on which the microsimulation model is based. In doing so, the participation rate is held constant for each subgroup to ensure that unemployment rises, as opposed to inactivity.

For earnings, these 12 employment subgroups are further split into 24 earnings subgroups based on their part-time or full-time work status. The change in earnings for each of these groups observed in the Labour Force Survey is calculated and then applied to the current earnings data in the latest year of the Family Resources Survey.

In effect, this means that we modify the current picture of the UK household population to reflect a recession-related employment fall and pay squeeze happening 'overnight'.

These employment and pay falls reduce incomes , with the average loss of income amounting to around 6.8 per cent. The effect of the pay fall is greater than the effect of the employment fall on incomes in this simulation.

Disaggregating pay and employment effects

Given the intricacies of tax and benefit policy, its interaction with income levels will vary depending on how a downturn affects employment and earnings. To illustrate this, the headline results shown in Section 5 are simulated for the employment and earnings falls separately. The results are shown in Figure 37 and Figure 38.

Figure 37 shows that the pay fall has a greater effect on incomes in the top half of the distribution under both policy scenarios. But, the impact of the policy changes is greatest in the second and third quartiles, with income losses as a result of a pay squeeze around 0.3 percentage points and 0.2 percentage points larger, respectively. In comparison, those in the bottom quartile are relatively better off under the current policy scenario, with an income loss as a result of a simulated pay squeeze 0.5 percentage points smaller under the current tax and benefit system.

FIGURE 37: **Pay fall effects have been worsened as a result of policy changes since 2010 in the second and third quartiles**

Projected proportional changes in weekly income following a pay squeeze of the size experienced in the financial crisis, based on the current tax and benefit system and the 2010 system, by net income quartile

Quartile	1	2	3	4	Average
Current tax and benefit system	-1.2%	-3.6%	-4.7%	-4.2%	-3.9%
2010 tax and benefit system	-1.7%	-3.3%	-4.5%	-4.4%	-3.9%
Difference in income fall	0.5pp	-0.3pp	-0.2pp	0.2pp	0.0pp

NOTES: Shows fall in incomes, after taxes and benefits, as a result of a pay-squeeze recession (with no employment changes).

SOURCE: RF analysis of DWP, Family Resources Survey; ONS, Labour Force Survey, using the IPPR tax- benefit model

In contrast, Figure 38 shows that the employment-fall effects are more regressive than the pay-fall effects, both in terms of the decline in weekly incomes as a result of an employment fall, and in terms of the effect of policy changes on the scale of decline. The effects of policy changes are significantly worse for those in bottom quartile than for any other income group, with a 0.8 percentage point decline as a result of an employment fall under the current policy scenario compared to the 2010 one.

FIGURE 38: **The employment fall effects are more regressive than pay fall effects**

Projected proportional changes in weekly income following an employment fall of the size experienced in the financial crisis, based on the current tax and benefit system and the 2010 system, by net income quartile

Quartile	1	2	3	4	Average
Current tax and benefit system	-2.7%	-1.1%	-0.5%	-0.2%	-0.7%
2010 tax and benefit system	-2.0%	-0.9%	-0.7%	-0.4%	-0.7%
Difference in income fall	-0.8pp	-0.2pp	0.1pp	0.2pp	-0.1pp

NOTES: Shows fall in incomes, after taxes and benefits, as a result of an employment-fall recession (with no pay changes).
SOURCE: RF analysis of DWP, Family Resources Survey; ONS, Labour Force Survey, using the IPPR tax- benefit model

All this makes it clear that, for the purposes of looking at automatic stabilisers, out-of-work benefits are important. The value of unemployment benefits relative to average weekly earnings has been in decline since the mid-1960s (Figure 31), representing a long-term weakening of protection against sharp increases in unemployment. In particular, Jobseeker's Allowance will reach its lowest value ever in 2019-20, at 14.5 per cent of average weekly earnings. And this ratio is set to fall further in coming years.

This decline in the relative value of unemployment benefits means that if we were to have a recession with a greater unemployment fall, the effects of the weaker stabilisers mean the pattern of income changes is likely to be yet more regressive, with benefits offering less protection to those affected. The income effects of a recession with double the employment fall than that presented above are shown in Figure 39. The difference in income loss resulting from changes to the tax and benefit system more than doubles in the bottom quartile to -2.1 percentage points, while the average difference in loss

increases to -0.2 percentage points.

FIGURE 39: **The automatic stabilisers are less effective in a higher unemployment scenario**

Projected proportional changes in weekly income following an employment fall double the size of that following the financial crisis, based on the current tax and benefit system and the 2010 system, by net income quartile

Quartile	1	2	3	4	Average
Current tax and benefit system	-8.4%	-3.6%	-2.2%	-1.2%	-2.8%
2010 tax and benefit system	-6.3%	-3.7%	-2.2%	-1.3%	-2.7%
Difference in income fall	-2.1pp	0.2pp	0.0pp	0.1pp	-0.2pp

NOTES: Shows fall in incomes, after taxes and benefits, as a result of a large employment-fall recession (with no pay changes).
SOURCE: RF analysis of DWP, Family Resources Survey; ONS, Labour Force Survey, using the IPPR tax- benefit model

In effect, this means that while the overall effects of changes to the tax and benefit system of the automatic stabiliser function are small, the effect for those losing their jobs in a recession is large. As such, the weakening of the stabilisers is likely to have sizeable effects if a future recession bears more resemblance to those of the 1980s and 1990s.

Annex 2

Using a heterogeneous-agent DSGE model to assess the strength of automatic stabilisers

This annex describes the quantitative analysis of the effects of automatic stabilisers on the United Kingdom business cycle using a heterogeneous-agent DSGE model.[120] This work is based on the model developed by McKay and Reis and incorporates price rigidities and a full set of automatic stabilisers.[121]

Approach

The aim of this work is to compare the effectiveness of automatic stabilisers during two time periods - 2004-07 and 2015-18 - in a model which takes into account the behavioural effects of automatic stabilisers. In particular, four theoretical channels are explored in this work:

1. The disposable income channel. A fiscal instrument that reduces the volatility of after-tax income across the business cycle will stabilise consumption and investment, and so aggregate demand as well.
2. The marginal incentives channel. Another possible channel acts through decisions to supply labour over time. For instance, a progressive income tax makes the marginal tax rate of workers fall in recessions, and increase in expansions, inducing counter-cyclical substitution of work effort.
3. The redistribution channel. Stabilisers shift resources from richer to poorer individuals. If low-income households have higher marginal propensities to consume, in recessions the system of transfers will smooth aggregate

120 For more detail on the approach here, see: M Graziano, G Thwaites & Smith, The effect of automatic stabilisers in the UK, unpublished manuscript.
121 A McKay & R Reis, 'The Role of Automatic Stabilizers in the US Business Cycle', Econometrica 84, pages 141-194, 2016. The generous sharing of the code for that paper by Alisdair McKay and Ricardo Reis is gratefully acknowledged, although responsibility for the analysis here is entirely that of the Resolution Foundation. The work in this section was undertaken with Marco Graziano and Gregory Thwaites.

consumption as spending on automatic stabilisers increases, and receivers will spend a relatively higher portion of resources. Furthermore, Oh and Reis (2012) argue that redistribution can have a labour supply effect: if receivers are unemployed, and hence not working, while payers work more to offset the loss in income, aggregate labour supply will be stabilised as well.

4. The social insurance channel. The existence of automatic stabilisers reduces the volatility of income, for example by providing benefits to those who lose their jobs in a recession. In turn this affects savings behaviour outside of recessions. In the absence of policies such as safety-net transfers and unemployment benefits, households may engage in precautionary savings when facing unemployment risk, hence reducing their consumption when they are employed. Automatic stabilisers can reduce the need for precautionary savings, hence potentially reducing the volatility of consumption.

The set of stabilisers modelled allows investigation of all four channels. On the revenue side, the personal income tax is quantitatively the most significant automatic stabiliser and it acts through all four channels identified by McKay and Reis. It affects the marginal returns of labour across the business cycle, lowers the volatility of after-tax income and provides social insurance. We include National Insurance Contributions along with the personal income tax because its revenue is not earmarked for a specific type of expenditure, and so it constitutes effectively an additional element of the income tax.

Three types of proportional taxes are also included in the model: corporate income taxes, property taxes and sales and excise taxes. They all act through the after-tax income stabilisation channel. And Council Tax is the key tax on property included in the model, although this has the disadvantage that it is the occupant of residential property who pays it, rather than the owner. Nonetheless, we found Council Tax to be the closest proxy to a model-consistent tax on property value in the UK.

On the spending side, two automatic stabilisers in the form of transfers are considered. One is unemployment benefits, represented by Jobseeker's Allowance. These act counter-cyclically, because spending increases during recessions with the increase of unemployment. The other type of transfers is safety-net programmes, which work through the redistribution, income stabilisation and social insurance channels. Their counter-cyclical potential lies in the increase of the number of households qualifying for safety-net benefits during recessions. Safety-net transfers include disability benefits (Incapacity Benefit and Employment and Support Allowance), Income Support and Housing Benefit. All of these programmes are not conditional on looking for employment or being employed, to reflect the fact that only long-term unemployed households receive these transfers in the model. Consistently with this criterion, Child Tax Credits are included as a safety-net programme because, although formally a tax credit, they are not subject to any requirement of employment.

Government spending is also included, even though it does not vary automatically through the cycle. Indeed, most work on automatic stabilisers neglects government spending for this reason. However, it might still represent an important source of stabilisation if government systematically, although not automatically, increases spending in recessions.

Modelling

Full details of the model used can be found in Mckay and Reis, although we include a short summary of the key features here:

- The economy is populated by two groups of households. The first group is more patient and has access to financial markets such that they can insure their incomes effectively. There is also an impatient group that is not able to fully insure their income and so faces employment risks in recessions. There is a distribution of incomes within those groups.
- There are firms which produce final goods, intermediate goods and capital goods. This allows the effect of corporate taxes to be explored fully.
- The government is assumed to run a balanced budget in the long term, but temporary deficits are permitted.
- Monetary policy is assumed to act to close the output gap and bring inflation back to its long-run level.

All agents within the economy are assumed to have rational expectations (that is, they understand the structure of the economy and the implications of aggregate developments). All agents within the economy respond by behaving rationally in the face of those developments (so, for example, households maximise their utility given income).

As described in the main text, an important caveat to this work is that the structural features of this economy – that is, those outside the tax and benefit system – are calibrated to the US economy.

Results

The results of experiments aimed at establishing the effect of all the automatic stabilisers in the model are presented below. Table 9 shows changes in the variance of consumption from cutting stabilisers. In the case of welfare and averages, a negative value implies a positive effect of the stabiliser, while in the case of variances, a positive value implies a positive effect.

Table 9 presents results from a counterfactual exercise in which all the automatic stabilisers are removed. For income tax, this is modelled by replacing taxes which vary by incomes with a system of flat taxes; and unemployment benefits and safety-net transfers are cut by 50 per cent (and the expenditure is replaced by a reduction in capital taxes, in order to keep the exercise revenue neutral). It shows two variants of the model: one where the effect of redistributing between households is supressed (the 'representative agent' case) and one in which households are unable to save ('hand-to-mouth').

Overall, both the pre- and post-crisis regimes are very effective at reducing the volatility of consumption, with effects of similar magnitude. Hours worked and GDP are little affected but the former become slightly less volatile when stabilisers are cut under the old regime.

TABLE 7: **The effect of cutting all stabilisers on the variance of consumption (a positive number indicates the variance is higher after removing stabilisers)**

	2004-07 tax and benefit system	2015-18 tax and benefits system
Full model	86%	71%
Representative agent'	129%	92%
Hand to mouth'	10%	33%

NOTES: The table shows the proportional change caused by removing the system of automatic stabilisers.
SOURCE: RF analysis.

Indeed, there is a very large increase in the volatility of consumption resulting from the weakening of automatic stabilisers: over 80 per cent in the 2004-07 period. The most important mechanism behind this result is the social insurance channel, as demonstrated by the much weaker impact on consumption in the hand-to-mouth case, in which there are no precautionary savings. The fact that the effect on consumption is stronger under the old regime suggests that, as in the case of the tax and benefit modelling, there is a secondary stabilising role for income tax. Therefore, the main source of stabilisation is plausibly transfers.

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