

# As good as it gets?

The forces driving economic stagnation and what they mean for the decade ahead

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## The Economy 2030 Inquiry

The Economy 2030 Inquiry is a collaboration between the Resolution Foundation and the Centre for Economic Performance at the London School of Economics, funded by the Nuffield Foundation. The Inquiry's subject matter is the nature, scale, and context for the economic change facing the UK during the 2020s. Its goal is not just to describe the change that Covid-19, Brexit, the Net Zero transition and technology will bring, but to help the country and its policy makers better understand and navigate it against a backdrop of low productivity and high inequality. To achieve these aims the Inquiry is leading a two-year national conversation on the future of the UK economy, bridging rigorous research, public involvement and concrete proposals. The work of the Inquiry will be brought together in a final report in 2023 that will set out a renewed economic strategy for the UK to enable the country to successfully navigate the decade ahead, with proposals to drive strong, sustainable and equitable growth, and significant improvements to people's living standards and well-being.

## The Nuffield Foundation

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## Summary

With inflation at levels not seen since the early 1980s, it is clear that the UK is in the middle of an extraordinary hit to real incomes. But the seeds for the devastating impact of this crisis were sown by a slump in growth that is unprecedented in the post-war period: average growth in GDP per capita in the 15 years to 2019 was the lowest for any such period since the 1930s, with the level of per capita GDP around 20 per cent below the pre-financial-crisis trend, equivalent to around £10,000 per person in the UK by the end of 2021. This has been mirrored in household income growth: the median non-pensioner income grew by just 12 per cent (0.7 per cent a year) between 2004-05 and 2019-20, compared with an average of 40 per cent every 15 years (2.3 per cent a year) since 1961. Anaemic income growth in turn has led to a low level of financial resilience among British households with just over one-in-four (26 per cent) of all adults (or just under two-in-five of those in the bottom two income deciles) saying that they would not be able to manage for a month if their main source of income stopped. Many now expect the UK to underperform relative to other countries – for example, the OECD forecasts that the UK economy will not grow at all in 2023 – the worst performance of any G20 country bar Russia, in large part reflecting a bigger hit from the cost of living crisis.

As a result, addressing low growth should be top priority for economic policy makers as the cost of living crisis eventually eases. Indeed, the big question facing policy makers is: is the low growth trajectory of the past 15 years ‘as good as it gets’? That is, should policy makers try to work within the tight constraints implied by on-going anaemic growth, or should they be more optimistic and try to engineer an increase in the growth rate? Either way, a clear, hard-headed strategy is needed, a key issue for the Economy 2030 Inquiry to which this briefing note contributes.

Since the financial crisis, we have been locked in a debate about whether the growth slump is a structural, supply-side phenomenon – in other words, reflecting a fundamental underlying feature of our economy. If it is, then the slump is telling us something about the on-going ability of the UK economy to produce more goods and services. But this diagnosis also means that it could be difficult for policy makers to shift the dial at least in the short term, as structural policies which boost the supply side of the economy are thought to have an impact on growth only in the medium-to-long term. But if it is not a supply-side phenomenon – in other words, if it reflects weak demand – then there is the possibility that the outlook could be improved. Many have simply concluded that the sheer length of time that growth has been weak means that we have become inherently unable to sustain pre-financial-crisis growth rates. Such pessimism is particularly evident in official forecasters, which have assumed that essentially all of the growth slump is driven by a weaker supply-side potential.

Pessimism about future growth is sometimes mistakenly seen as following from ‘growth accounting’. This approach decomposes overall output growth into contributions from inputs – such as capital and labour – and from total factor productivity (TFP). Such decompositions typically find that the bulk of the slowdown reflects TFP slowing (and we also find that more than 80 per cent is down to TFP). A slowdown in the growth of TFP is sometimes interpreted as a slowdown in the rate of technological innovation in the UK. This is, however, not necessarily the case because TFP is a residual and captures a range of influences on the economy.

Looking at the data on the supply side, it is far from obvious what justifies this pessimistic view that the growth slump is structural. In this context, studies suggest a relatively small number of possible drivers of a long-term supply-side slowdown. Looking across these drivers, it is not clear that any of them fit the pattern of a post-financial crisis slowdown that has affected many rich countries. Research and development (R&D) spending, for example, has continued to grow at similar rates to those prior to the financial crisis. Patent production has remained at broadly constant levels since the turn of the century. There is also little to suggest that competition or firm dynamism have changed materially over this period. And while productivity in the information and communication technology (ICT) sector has slowed, with the rate of falls in the relative price of computer equipment easing from 5 per cent between 1970 and 2007 to just 1 per cent between 2008 and 2021, it is hard to link that to the UK slowing given the small contribution of ICT to growth prior to the financial crisis.

Others have argued that growth has been low because of weakness in demand. Here, there seems to be evidence that this is a good description of much of the previous decade. The idea that demand may be important is supported by an increasing number of studies that link its strength to longer-term changes in the size of the economy. This can happen, for example, through demand-driven changes in the pace at which workers acquire human capital or firms invest in new machines and equipment. In this context, ageing and increased longevity has put lasting downward pressure on household spending as workers save for retirement; a number of countries reached an inflexion point in terms of the old-age dependency ratio around the time of the financial crisis, fitting with the broad pattern of slowing growth across countries at that time. In addition, weak macroeconomic stabilisation policy following the financial crisis may have contributed to the slump: monetary policy makers, who would normally be expected to cut interest rates when the growth outlook weakens, were constrained by low levels of interest rates following the financial crisis. Between 2007 and 2012, policy was loosened by the equivalent of 0.34 percentage points for each 1 per cent of weaker GDP. But after 2012, there was a clear change with just 0.07 percentage points of loosening for each 1 per cent markdown in the GDP outlook. Fiscal policy can provide a substitute when

monetary policy is constrained, but around this time fiscal policy was tightening, on average, in response to weaker GDP, keeping the Bank of England pinned to all-time low levels of interest rates.

But the recovery from the pandemic has made it clear that the country is bumping up against supply constraints meaning that insufficient demand cannot be our only challenge right now. Indeed, some have argued that as inflation has on average actually been slightly above the Bank of England's target since the financial crisis, this is a long-standing issue, suggesting that demand weakness has not been a factor. But once the impact of two large falls in the exchange rate are accounted for (a 25 per cent fall in the aftermath of the financial crisis and a 12 per cent fall after the Brexit referendum), UK inflation looks much more like that in economies where there has been significant concern about the weakness of inflation (notably the US and euro area). Nonetheless, the huge rise in inflation following the pandemic has intensified concerns that growth may be structurally weak – with few calling for policies to boost demand at this time.

While these big debates about relative roles of supply and demand are not conclusive, something else is: the UK has lots of catch-up potential. For the UK, growth does not depend solely on our own ability to create new ideas and products – there should be scope to catch up to growth at the frontier. In the UK, GDP per capita is around 27 per cent below the frontier (the US), putting us roughly as far behind the US as Hungary or Poland are behind the UK. In principle, then, the UK should be able to catch up by learning from how things are done at the frontier. The case for optimism is supported by statistically-significant evidence of catchup among a group of advanced countries. Using a panel of 21 such countries, we find that there is a relatively tight relationship between GDP per capita in 1950 and subsequent growth rates in the period to 2019, with countries behind the frontier growing more quickly. Our estimates imply that such catchup is, however, a slow process with countries behind the frontier converging at a rate of just 1.5 per cent each year. But although countries catch up to the frontier on average, this happens in fits and starts – the UK, for example, closed the GDP per capita gap with the US prior to the financial crisis, but since then it has widened again to around 27 per cent in 2019.

We draw four conclusions:

- First, we see little reason why we should treat the stagnation of the past 15 years as destiny for growth in the next decade. Even if the pessimists are right, and the UK rate of innovation has slowed, there is still plenty of scope to close the gap between the UK and the frontier.

- Second, while the near-term priority for policy makers should be dealing with the cost of living crisis, the high likelihood that low growth will reassert itself thereafter (the IMF is forecasting growth in GDP per capita of just 1.1 per cent in 2027, less than half its long-run average of 2.3 per cent) means that policy makers should not lose sight of the need to put a return to broad-based growth at the centre of their renewed approach to the economy.
- Third, there are reasons for thinking faster growth in and of itself could catalyse a more long-lasting improvement on the supply side by boosting business investment and allowing the UK to make the most of the opportunities for catch-up growth.
- And fourth, the post-financial-crisis experience tells us that we should be careful to avoid past mistakes in terms of under-supporting the economy during the recovery from future recessions; weak stabilisation policy is an unnecessary self-inflicted wound.

Overall, governments of the future should not be constrained by the stagnation of the past. But passively waiting for the problem to fix itself risks a continuation of the dire economic performance of the past 15 years. Ensuring that we break free from the post-financial crisis slump means putting growth at the centre of our strategy for the economy in the decade ahead.

## The impact of the cost of living crisis makes the importance of returning to growth clear

The seeds for the devastating impact of the cost of living crisis were sown by a growth slump that is unprecedented in the post-war period. The highest inflation in 40 years means that the UK is in the midst of a huge hit to incomes. But, as shown in Figure 1, average growth in GDP per capita in the 15 years to 2019 was the lowest for any such period since the 1930s.<sup>1</sup> The scale of this problem is enormous: the level of GDP per capita is around 20 per cent below the pre-financial crisis trend, equivalent to around £10,000 per person in the UK by the end of 2021 (Figure 2). Household incomes have

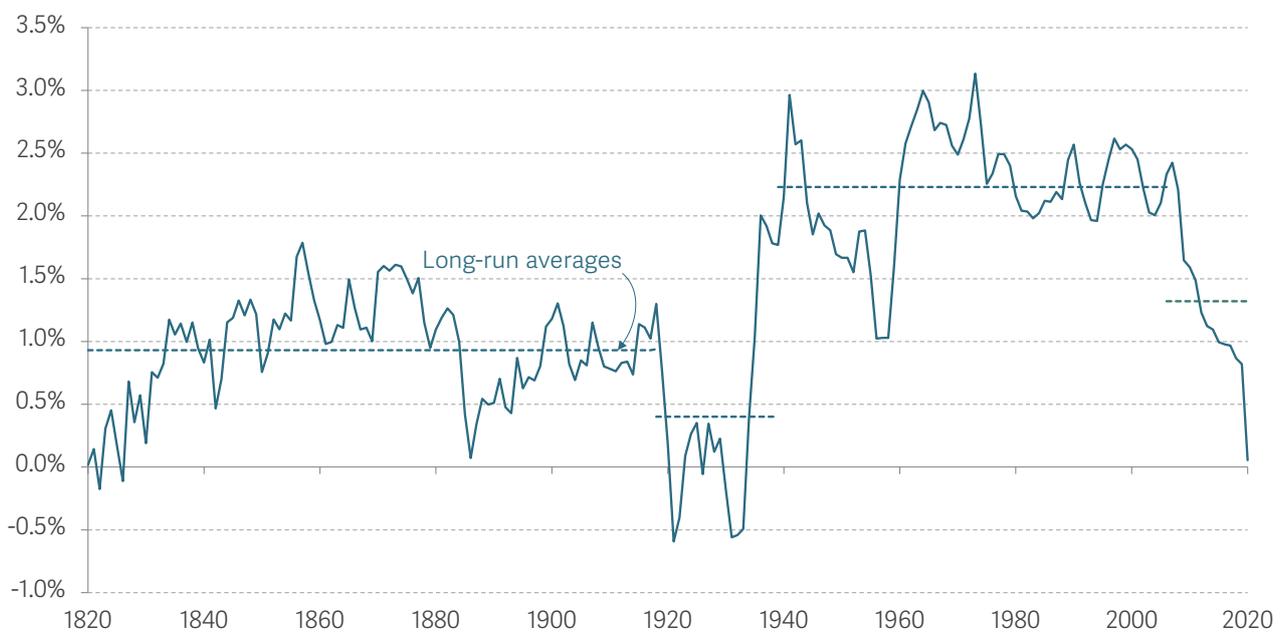
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<sup>1</sup> This begs the question: what led to the end of the similarly crisis-filled period of low growth in the 1930s? Studies of the end of the Great Depression focus on changes in the regime for fiscal and monetary policy with much looser policy appearing to play a decisive role in driving a significant recovery. Indeed, significant reflationary monetary policy, including through the end of the gold standard, has been found to play an important role in the recovery. In addition, there is clear evidence that for the US, an abrupt change in fiscal policy played a key role with President Roosevelt's 'New Deal' prompting an aggressive spending campaign, nearly doubling government consumption and investment in one year. For more on this, see: B S Bernanke, *Essays on the Great Depression*, Princeton University Press, 2004; G B Eggertsson & S K Egeiv, 'A unified theory of the Great Depression and the Great Recession', working paper, January 2020; and C D Romer, 'What Ended the Great Depression?' *The Journal of Economic History*, volume 52, pages 757-784, December 1992.

reflected this weakness.<sup>2</sup> Median non-pensioner income grew by an average of 40 per cent every 15 years (2.3 per cent a year) since 1961, but has grown by just 12 per cent (0.7 per cent a year) between 2004-05 and 2019-20. Anaemic income meant the households were ill-prepared for the current high levels of inflation with just one-in-four (26 per cent) of all adults (or just under two-in-five of those in the bottom two income deciles) saying that they would not be able to manage for a month if their main source of income stopped.<sup>3</sup> In large part reflecting a bigger hit from the cost of living crisis, many now expect the UK to underperform relative to other countries – for example, the OECD forecasts that the UK economy will not grow at all in 2023 – the worst performance of any G20 country bar Russia.<sup>4</sup>

**FIGURE 1: Growth since the financial crisis has fallen to its lowest level in nearly a century**

Real GDP per capita growth, 15-year average: UK



NOTES: For the UK, from 1949 to 2020 the data are official ONS data, prior to that they are taken from Bank of England, A Millennium of UK Data.

SOURCE: Analysis of ONS, National Accounts; Bank of England, A Millennium of UK Data.

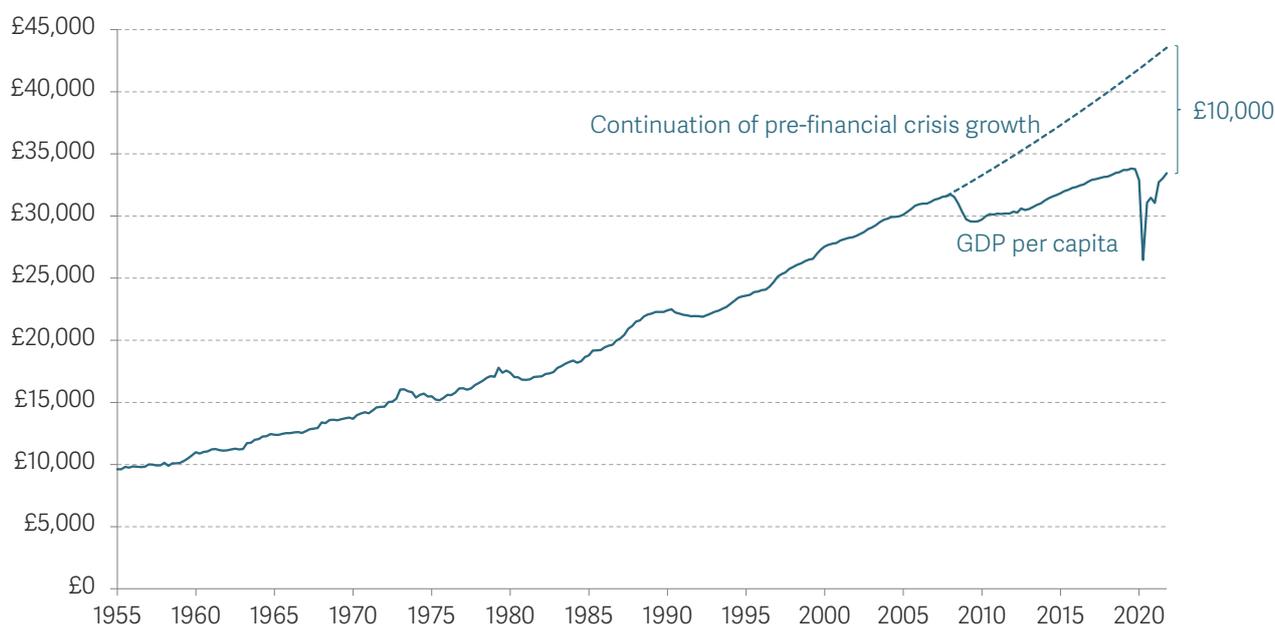
<sup>2</sup> For a discussion of this link, see: A Corlett, F Odamtten & L Try, *The Living Standards Audit 2022*, Resolution Foundation, July 2022. For a decomposition of median income growth, see: N Oulton, *The Productivity-Welfare Linkage: A Decomposition*, ESCoE Discussion Paper 2022-07, March 2022.

<sup>3</sup> Source: Analysis of ONS, Wealth and Assets Survey.

<sup>4</sup> OECD, *Economic Outlook*, June 2022.

**FIGURE 2: The level of GDP per capita is around 20 per cent below the pre-financial crisis trend in 2021**

Real GDP per capita, outturn and pre-financial crisis trend: UK



NOTES: Pre-financial crisis trend is taken to be average growth between Q1 1955 and Q4 2006.

SOURCE: Analysis of ONS, National Accounts.

The big question for policy makers, then, as they grapple with the problems created by this unprecedented post-war stagnation is whether the growth experience of the past 15 years is 'as good as it gets'? That is, should policy be set within the envelope implied by on-going weak growth, or should policy makers be more optimistic and push for higher growth in future? Either way, a clear strategy is needed to address the implications of such dire growth performance. This is a key issue for the Economy 2030 Inquiry, a collaboration between the Resolution Foundation and the Centre for Economic Performance at the LSE, to which this briefing note contributes.<sup>5</sup> Below we take a fresh look at the data on the causes of the growth slump before providing an assessment of what policy makers should take from them.

## The post-financial-crisis debate on the causes of the slump has left many concluding that it is a structural phenomenon

The implications of this slump for future growth depend on its underlying cause. If, at one extreme, the slowing represents a permanent hit to the supply side of the economy, then it is at least difficult for policy makers to shift the dial, particularly in the short term.<sup>6</sup>

<sup>5</sup> T Bell et al., *The UK's decisive decade: The launch report for The Economy 2030 Inquiry*, Resolution Foundation & Centre for Economic Performance, May 2021.

<sup>6</sup> In this briefing note we use the terms 'structural' and 'supply-side' to refer to the technological component of growth which policy makers can do little to influence, particularly in the short term, because it relates to the underlying speed of technological innovation and advancement.

If not, then there is the possibility that the outlook can improve, or policy makers can reverse it. At the outset it is important to recognise the inherent uncertainty surrounding any conclusion about the underlying causes of the slump – much work has been devoted to this issue, yet debate continues.<sup>7</sup> That said, policy makers must be prepared to act without complete certainty. So in this briefing note we discuss how we should think about this stagnation, and how policy makers should weigh the evidence on its causes and respond in the face of uncertainty.

The debate since the financial crisis has left many concluding that the growth slump is a structural, supply-side phenomenon. Here, the sheer length of time for which growth has been weak is taken to imply that the UK has become inherently unable to sustain pre-financial-crisis growth rates. The key reason for this is that, in the longer-term, the size of the economy is normally thought to be driven by structural – or ‘supply side’ factors – such as underlying rate of new ideas and innovation. Changes in aggregate demand and macroeconomic policy knock the economy off that course, but only temporarily.<sup>8</sup> Such pessimism is particularly clear for official forecasters which have tended to assume that essentially all of the growth slump is reflected in weaker supply-side potential. This is shown for the Office for Budget Responsibility in Figure 3. Here, the assumed path of the supply-side potential for the economy (green dotted lines) ‘bends’ towards actual output. And other policy forecasters – such as the US Congressional Budget Office – have made similar judgements.<sup>9</sup>

For policy makers, such assumptions are incredibly important because the assumed level of sustainable supply is effectively an economic ‘speed limit’. The Bank of England will, for example, set interest rates to keep the economy growing in line with it. But such a speed limit is fundamentally unobservable and so inherently uncertain, particularly so in the current context given the slump of the past 15 years. This is unfortunate because the cost of getting it wrong is high: err on the upside and inflation can take off requiring policy to be held tight for a long period;<sup>10</sup> but, assume it is too low, and there’s a risk that policy makers can fall into a self-fulfilling cycle of weak growth leading to insufficient

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<sup>7</sup> For example, R Baldwin & C Teulings Eds, *Secular Stagnation: Facts, Causes and Cures*, VoxEU book, CEPR Press, 2014; or T Cowen, *The Great Stagnation*, Dutton Adult, 2011, for some sense of the amount that has been written by the post-financial-crisis slump.

<sup>8</sup> Fiscal and monetary policy specifically are also assumed to leave the longer term, structural path of the economy unaffected. Such policy ‘neutrality’ assumptions have deep conceptual roots, becoming core ideas in macroeconomics following the stagflation of the 1970s when inflation rose without any improvement in output and employment. See: M Friedman, ‘The Role of Monetary Policy’, Presidential address delivered at the 80th Annual Meeting of the American Economic Association, *American Economic Review*, volume 58, pages 1-17; and E S Phelps, ‘Phillips Curves, Expectations of Inflation and Optimal Unemployment over Time’, *Economica*, volume 34, pages 254-281, 1967.

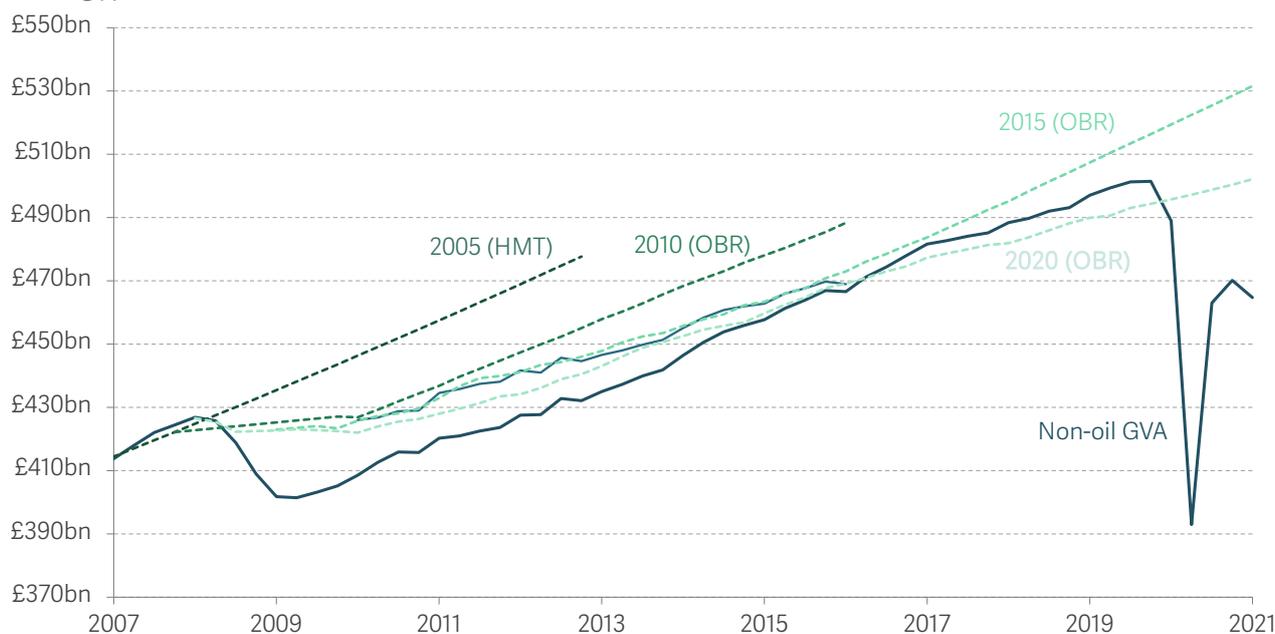
<sup>9</sup> The chart for the US CBO is almost identical, see: C Sahm, [A Big Fiscal Push is Urgent, The Risk of Overheating Is Small](#), March 2021.

<sup>10</sup> For evidence on the extent to which interest rates need to be kept higher in order to bring down endemic inflation, see: R Clarida, J Galí & M Gertler, ‘Monetary Policy Rules and Macroeconomic Stability: Evidence and Some Theory’, *The Quarterly Journal of Economics*, volume 115, pages 147-180, 2000.

policy support. Indeed, research has shown that, at least in theory, it is possible for policy makers to unwittingly set policy in a way that contributes to weaker growth by incorrectly assuming weak growth is structural.<sup>11</sup>

### FIGURE 3: Official forecasters have assumed that the growth slump is a weakening in supply-side potential

Selected fiscal forecasts of potential output, by vintage, and non-oil GVA, 2019 prices:  
UK



NOTES: OBR potential supply forecasts are on a 'non-North Sea' basis and so are comparable to non-oil GVA. Potential output estimates have been derived using vintages of output gap estimates and the corresponding vintage of non-oil GVA and then re-referenced to 2019 prices to make them comparable to the latest vintage.

SOURCE: Analysis of OBR, Economic and Fiscal Outlook, various & historical official forecasts database.

The idea that the growth slump is structural is sometimes mistakenly seen as following from 'growth accounting'

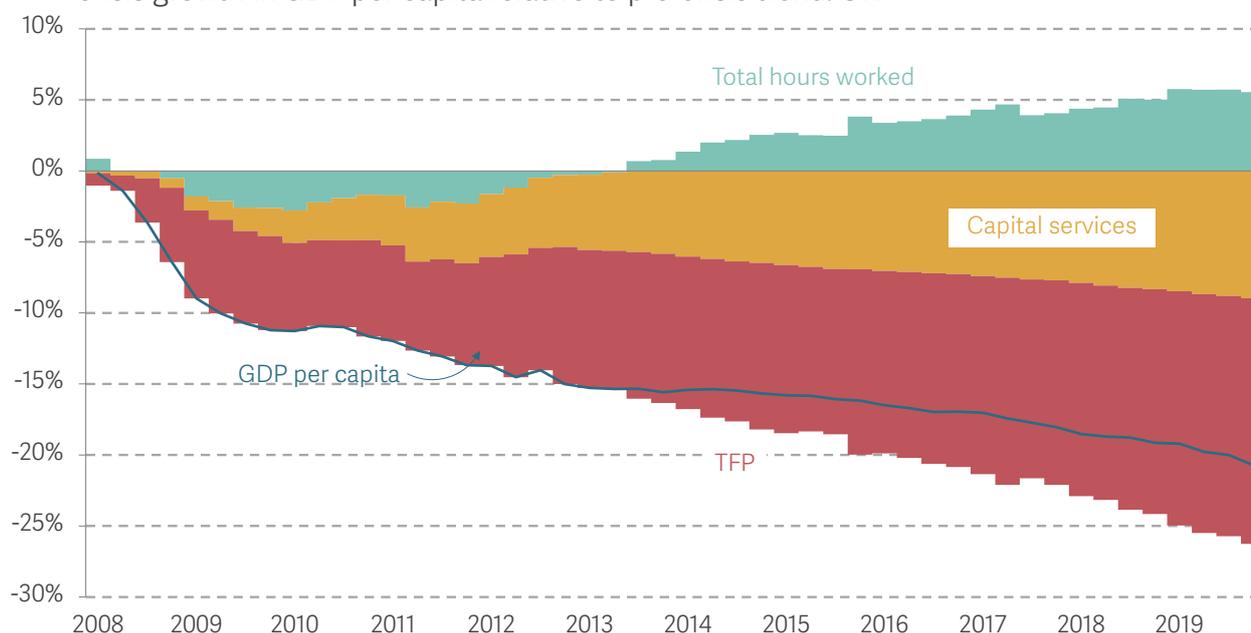
A key piece of evidence contributing to the conclusion that the growth slump is structural come from 'growth accounting'. The aim of this approach is to decompose actual GDP growth into its supply-side drivers. A growth accounting decomposition of the slowing in per capita GDP growth is shown in Figure 4. This chart decomposes the roughly 20 per cent fall in GDP per capita relative to its pre-financial crisis trend into the contributions from changes in the quality and quantity of factor inputs (i.e. physical capital and labour) and the efficiency with which those outputs are combined (i.e. total factor productivity, or TFP).

<sup>11</sup> A Fatás & S R Singh, *Supply or Demand? Policy Makers' Confusion in the Presence of Hysteresis*, Working Papers 347, University of California, Davis.

Based on this approach more than 80 per cent of the fall in GDP per capita growth relative to its pre-financial-crisis trend is accounted for by a slowing in TFP.<sup>12</sup> If the ultimate behavioural reason for the slump is structural, then this could be consistent. But, crucially, a range of factors, including changes in demand driven by changes in fiscal and monetary policy, will affect measured TFP.<sup>13</sup> Indeed, TFP is known as a ‘measure of our ignorance’.<sup>14</sup>

#### FIGURE 4: The slowdown in TFP accounts for most of the slowing in GDP per capita

Growth accounting decomposition of growth in real GDP, deviation of post financial crisis growth in GDP per capita relative to pre-crisis trend: UK



NOTES: TFP is estimated as a Törnqvist index using factor-share-weighted input growth. Pre-financial crisis trend is taken to be the average growth rate from 1956 to 2006 (as in Figure 2) with long-run average growth rates adjusted for the average labour quality growth between 1994 and 2006 (the length of the available time series).

SOURCE: Analysis of ONS, National Accounts; ONS, Capital services estimates; Bank of England, A Millennium of UK Data.

Strikingly the total quantity of labour supplied has been higher since the financial crisis than before. The contribution of total hours worked was stronger following the financial crisis than before. This is consistent with the argument that we have made previously that workers have responded to the post-financial-crisis slump by supplying more labour,

<sup>12</sup> Qualitatively similar results are found in: P Goodridge, J Haskel & G Wallis, ‘Accounting for the UK Productivity Puzzle: A Decomposition and Predictions’, *Economica*, volume 85, pages 581-605, July 2018.

<sup>13</sup> For a discussion, see J Larsen, K Neiss & F Shortall, ‘Factor Utilization and Adjusted Productivity Estimates for the UK’, *Oxford Bulletin of Economics and Statistics*, volume 69, pages 245-269, April 2007.

<sup>14</sup> M Abramovitz, ‘Resource and Output Trends in the United States since 1870’, *American*

*Economic Review*, volume 46, pages 5-23, 1956.

pushing down real wages.<sup>15</sup> If this is right, it makes comparing productivity and growth over time very difficult because of a structural shift in the supply of labour. As discussed in Box 1, this is a key reason why we focus on per capita GDP rather than productivity in this briefing note.

### BOX 1: Measures of aggregate changes in living standards across countries

In this briefing note we focus on GDP per capita growth rather than GDP itself or productivity, so this Box discusses the slightly different message these other measures provide about how the UK has fared relative to other countries. Figure 5 shows how the UK has performed relative to some key comparator countries across aggregate measures of economic performance since 2007. The top segment shows the extent of underperformance in labour productivity per hour. Here it is clear that the UK stands out – falling behind a range of key comparator countries. This conclusion is not as clear cut when looking at per capita GDP, however (i.e. the same measure as in Figure 3 above). Here underperformance versus the US is smaller, and, in the case of France, the UK has actually performed slightly better over this period. This difference reflects a larger rise in the total number of hours worked in the UK. Since the financial crisis, hours worked have increased by 11 per cent in the UK, more than two-and-a-half times the rise in France (4.3 per cent) and significantly

more than the OECD as a whole (8.1 per cent). Past research links this rise in employment to households supplying more labour in response to the financial crisis making them worse off. Germany is something of an exception here with the gap back to the UK larger in terms of GDP per capita.

In the long run, relative productivity is what drives differences in living standards but, because we are focussed on performance since the financial crisis, we focus on GDP per capita. Making comparisons of labour productivity per hour over relatively short periods can be misleading given fluctuations in the number of hours worked over the course of the economic cycle.

For this reason, GDP per capita is helpful in abstracting from such changes and so that is used in most of the charts in this briefing note. Nonetheless, in the longer term, a country's ability to improve its standard of living depends almost entirely on the extent of increases in productivity.

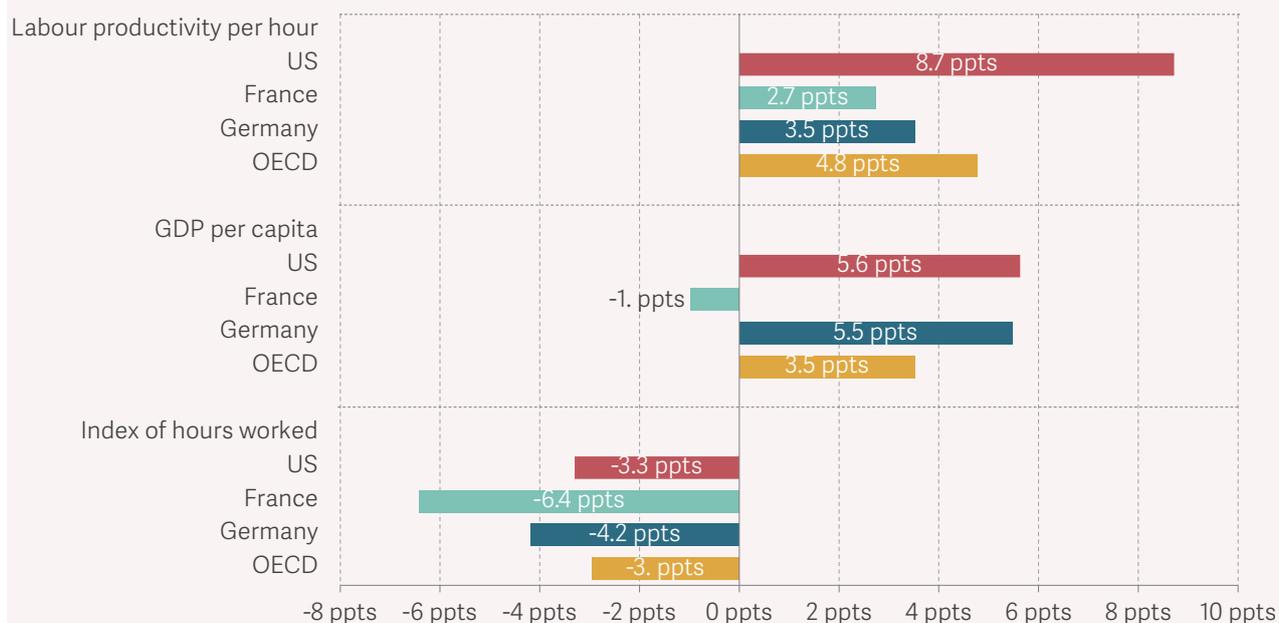
<sup>15</sup> T Bell & L Gardiner, *Feel poor, work more: Explaining the UK's record employment*, Resolution Foundation, November 2019; and J P Pessoa & J Van Reenen, 'The UK Productivity and Jobs Puzzle: Does the Answer Lie in Wage Flexibility?', *Economic Journal*, volume 124, pages 433-452, 2014.

Indeed, recent work has linked falls in productivity directly to the prolonged

period of living standards stagnation since the financial crisis.

### FIGURE 5: The UK's relative decline since the financial crisis looks smaller on a GDP per capita basis

Change in the gap in labour productivity per hour, GDP per capita and hours worked between the UK and selected advanced economies between 2007 and 2019



NOTES: Total hours are expressed as an index = 100 in 2006.

SOURCE: Analysis of OECD, Level of GDP per capita and productivity dataset.

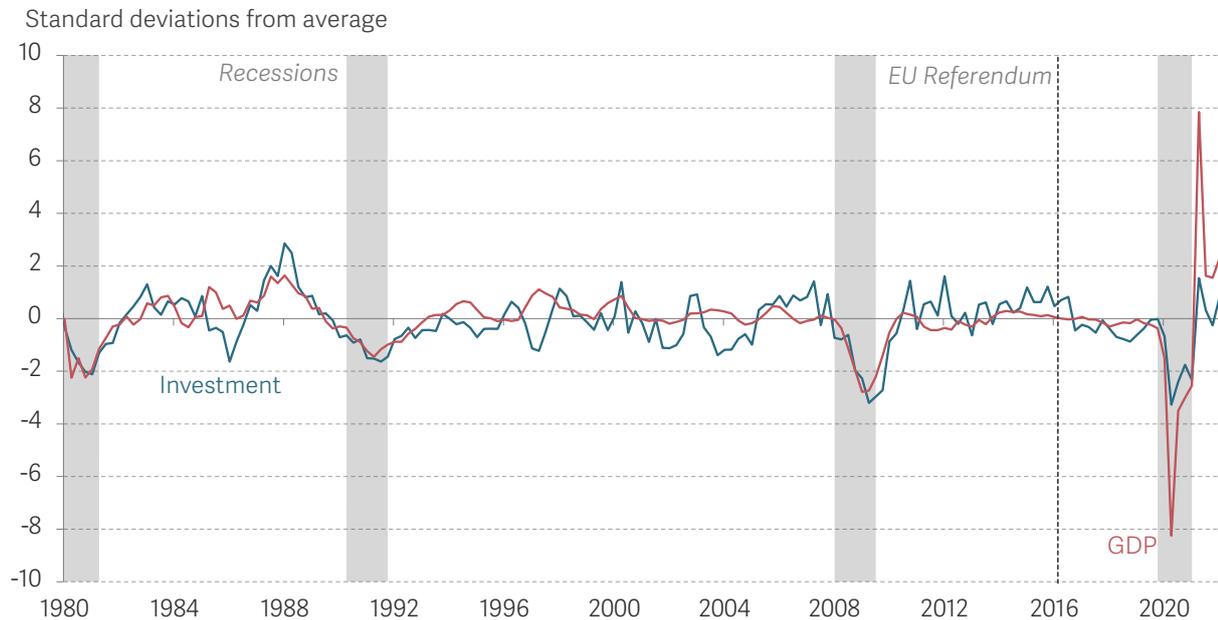
Lack of investment also makes a chunky contribution to weaker growth. The impact of weaker business investment in terms of a slow accumulation of quality-adjust physical capital contributes around 9 percentage points to the roughly 20 per cent deviation of GDP per capita from its long run trend. But it is not clear to what extent this is a distinct driver of the weakness in GDP. In theory, investment should respond to the same developments that affect TFP.<sup>16</sup> That said, it is certainly possible to think of ways in which causation could run in the other direction – for example, an optimistic period in which investment is growing could lead to faster growth overall by improving the way firms adopt new technologies. Either way, both supply and demand factors should drive investment. As a result, there is a tight relationship between overall GDP and investment (Figure 6).<sup>17</sup> This suggests that if policy makers can find a way to boost growth, this should come with higher investment.

<sup>16</sup> This is a feature, for example, of the Solow growth model, see: R M Solow, 'A Contribution to the Theory of Economic Growth', Quarterly Journal of Economics, volume 70, pages 65–94, 1956.

<sup>17</sup> This is consistent with so-called 'accelerator' models of investment in which financial frictions mean that faster GDP (and profit growth) drive faster growth in business investment. For more on such models, see: B S Bernanke, M Gertler & S Gilchrist, 'The financial accelerator in a quantitative business cycle framework', Handbook of Macroeconomics, first edition, volume 1, chapter 21, pages 1341-1393, 1999.

## FIGURE 6: Above target inflation since the financial crisis is a challenge to the role of demand

Four-quarter growth in GDP and investment, chained volume measures: UK



NOTES: Investment refers to business investment after 1998, whole-economy investment prior to that. Business investment data are adjusted for the transfer of nuclear reactors from the public corporation sector to the central government in 2005 Q2.

SOURCE: Analysis of ONS, National Accounts.

That isn't to say, persistent weakness in investment isn't important, however. If rather than focussing on the growth slump, we look at the levels difference between countries, the level of capital plays a key role in accounting for cross-country differences.<sup>18</sup>

Overall, then, the debate since the financial crisis has led many to conclude that it reflects a supply-side driver. That idea is consistent with the evidence from growth accounting, but so are other explanations. What is clear is that investment weakness is a problem, although it's not obvious that it is distinct from other drivers of weak growth. We turn next to what those might be, starting with the possible underlying drivers of a deterioration on the supply side.

## Looking at the data on the supply side it is far from obvious what justifies the view that the slump reflects a structural slowing

We can see only a small number of possible drivers of a long-run, supply-driven slowing in growth, including:<sup>19</sup> a fall in the extent to which firms are investing in new ideas or processes, for example through spending on Research and Development (R&D); a

<sup>18</sup> See: J Oliveira-Cunha et al., *Business time: How ready are UK firms for the decisive decade?*, The Resolution Foundation, November 2021.

<sup>19</sup> For a comprehensive discussion of growth theory, see: R J Barro & X I Sala-i-Martin, *Economic Growth*, second edition, MIT Press, 2003; for an in-depth treatment of endogenous growth theory, see: P Aghion & P W Howitt, *The Economics of Growth*, MIT Press, 2008.

fall in the rate at which such spending is translating into new products, processes or innovation; and, a fall in the rate at which companies become more efficient through ‘learning by doing’, for example, because a fall in competition, dynamism or trade intensity. Looking across these drivers, it is striking that R&D spending has continued to grow at similar rates to those prior to the financial crisis;<sup>20</sup> patent production has remained at broadly constant levels since the turn of the century;<sup>21</sup> and there is little to suggest that either competition or firm dynamism have weakened materially.<sup>22</sup> So below we discuss two possible candidate explanations: a slowdown in productivity in the ICT sector; and the post financial crisis fragmentation of global trading links. Note that, as discussed in Box 2, to be consistent with the pattern in the cross-country data we are looking for drivers that have slowed appreciably across countries since the financial crisis. Below we briefly review the data on these key drivers of long-run growth.

## BOX 2: What we can learn from the pattern of the slowdown across countries

There are two key conclusions we can draw about the slump which helps us diagnose what might be going on. First, we find evidence that the financial crisis is the key starting point for the UK’s growth slump. Figure 2 gives the clear impression that GDP growth was pretty consistent prior to the financial crisis. And if we extrapolate from any point prior to the financial

crisis (going back 50 years) we arrive at substantively the same answer for the extent to which GDP is currently below the long-term trend. So there appears to be something different about the post-crisis period. In Annex 1 we report formal tests for structural breaks in the growth of GDP per capita. Those tests point to a statistically significant break in the series for GDP per capita

<sup>20</sup> R&D spending fell somewhat during the financial crisis, but has since grown strongly and much faster than business investment. Source: Analysis of ONS, Research and development expenditure & National Accounts. For more on the impact of R&D spending on productivity, see: J Haskel et al., ‘The contribution of public and private R&D to UK productivity growth’, Imperial College, London Working Paper No. 21171, 2015.

<sup>21</sup> There was a rise in the number of patents issued during the 1990s in the UK (and in the US). Since then, however, patent production has plateaued (as shown by OECD data on patents registered at at least two of the world’s five largest patent offices). But the broad pattern here is one of consistent increases in the number of productive ideas – at least as measured by patent production. And to the extent that patent production has slowed, that slowing precedes the financial crisis significantly and so is hard to link with the timing of the broader growth slowdown. For a more detailed analysis of patenting activity in the UK, see: J De Lyon et al., *Enduring strengths: Analysing the UK’s current and potential economic strengths, and what they mean for its economic strategy at the start of the decisive decade*, The Resolution Foundation, April 2022.

<sup>22</sup> While measures of UK corporate profits have increased somewhat in recent years they do not suggest a marked reduction in competition. For more on this, see: see: J Leslie, *Bouncebackability: The UK corporate sector’s recovery from Covid-19*, The Resolution Foundation, June 2022. And UK business dynamism does not seem to have seen a fall in the aftermath of the financial crisis with measures of firm turnover stable over the past 20 years or so (Source: Inter-Departmental Business Register: summary statistics, 1999-2019, UK). And – if anything – the UK job reallocation rate had been more stable than in the US or France (Source: J Oliveira-Cunha et al., *Business time: How ready are UK firms for the decisive decade?*, The Resolution Foundation, November 2021).

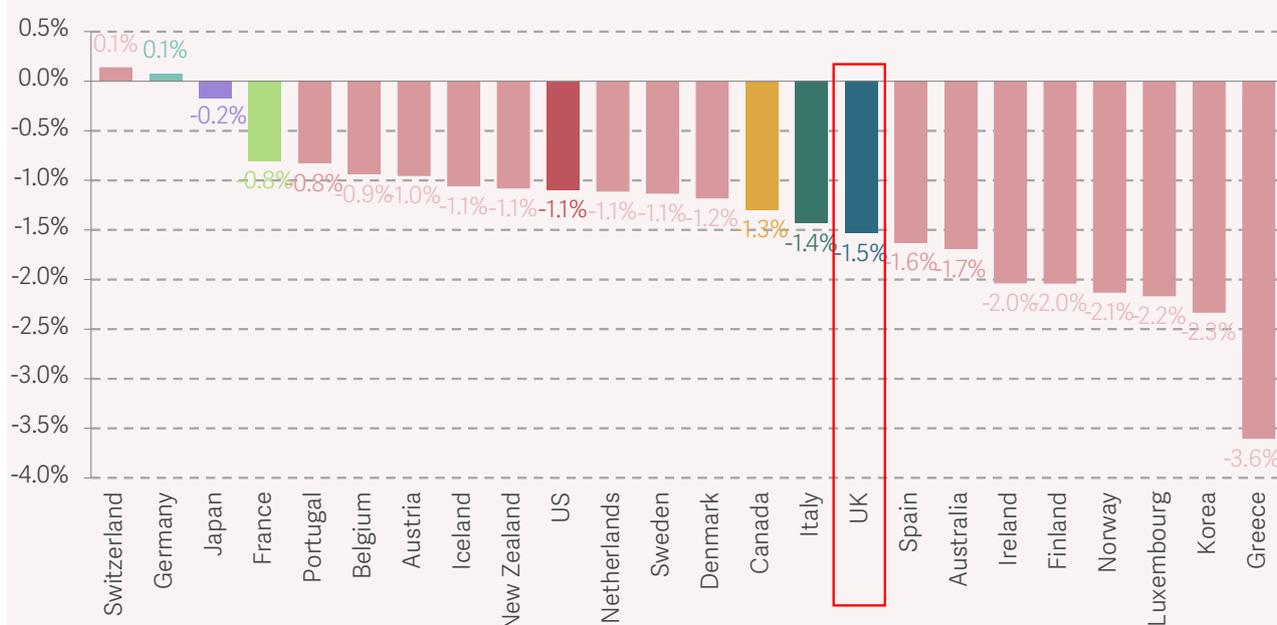
growth in Q1 2007.<sup>23,24</sup> Others have argued that the slowing started earlier and originated in the US, transmitting to the UK through the process of growth convergence. Below we discuss evidence of convergence across countries and we do not find evidence consistent such a rapid transmission

of slowing from the frontier to other countries behind the frontier.

Second, although the UK's post financial crisis growth slump is large by international standards, it is not exceptional, suggesting a common cause across countries.

**FIGURE 7: The UK growth slump is at the larger end of the experience of rich countries but is not exceptional**

Change in 15-year average growth of GDP per capita growth between 2007 and 2019: selected advanced economies



NOTES: Chart shows the change in the 15-year average growth rate of GDP per capita between 2007 and 2019.

SOURCE: Analysis of OECD, GDP per capita.

<sup>23</sup> Research has found that the structural slowing in productivity growth occurred in the US prior to the financial crisis – see: J G Fernald et al., *The disappointing recovery of output after 2009*, Brookings Papers on Economic Activity, volume 48, pages 1-81, 2017. But for the UK, others have reached a similar conclusion that the key point of slowdown for the UK was indeed the financial crisis, see: N Oulton & M Sebastiá-Barriel, 'Effects of Financial Crises on Productivity, Capital and Employment', *Review of Income and Wealth*, International Association for Research in Income and Wealth, volume 63, pages 90-112, February 2017. And, J G Fernald & R Inklaar, *The UK Productivity "Puzzle" in an International Comparative Perspective*, Working Paper No. 020, The Productivity Institute, 2022, find that there is a break in 2007 in annual data for UK market-sector total factor productivity, although it is only significant at the 80 per cent level.

<sup>24</sup> A recent study has argued that growth is linear rather than exponential, suggesting growth rates should decline over time. See: T Philippon, *Additive Growth*, NBER Working Papers No. 29950, 2022. Our statistical testing (see Annex 1) suggests that the fall in growth since the financial crisis is better characterised as an exponential process with a structural break around the time of the financial crisis, rather than a linear process. More generally, our view (discussed in more detail below) is that the class of studies which conclude that weak growth is structural based solely on the persistence of weak growth as the identifying factor are vulnerable to omitting the influence of more persistent demand-side factors.

The UK has experienced the largest slowdown among G7 countries and its experience is towards the larger end of a broader range of advanced economies (Figure 7). But the UK experience is not clearly more extreme than that of other

advanced countries. Overall, then, all this suggests we are looking for a cause that is common across advanced economies as well as one precipitated by the financial crisis.

There is some evidence that the rate of innovation in the technology sector has slowed since the turn of the century

One area where innovation has slowed noticeably is in the information and communication technology (ICT) sector. This is important because ICT can be thought of as a general-purpose technology, that is, one that leads to fundamental changes in the production process across the economy, allowing firms to deploy their other inputs more productively.<sup>25</sup> The benefits of such technologies should flow from sectors producing ICT to those using the technology, showing up as faster TFP growth. In this context, Figure 8 shows changes in the prices of computers and software compared to those for output in the US economy as a whole. We use US data on these prices both because they are generally taken to be well measured, and because computer prices are generally thought to be consistent across countries.<sup>26</sup> As shown in Figure 8, the pace of price falls relative to overall output have slowed since before the financial crisis: from 1970 to 2007 the relative price of computer equipment was falling at an annual rate of 5 per cent, since 2008 this has fallen to an average of just 1 per cent. As previous rapid falls in the price of computers and software reflected rapid innovation in those sectors – for example, increases in microchip processing speeds – the slowing suggests a decline in the rate at which such gains are being realised.

On the face of it at least this appears to be a candidate explanation for some of the slowing in UK growth. There have been significant falls in the rate of innovation, particularly for computers, since the start of the financial crisis, and this is certainly something that should affect a number of countries at the same time. That said, for the UK, the contribution of ICT to growth prior to the financial crisis was found to be small, unlike in the US. This makes harder to link UK slowing to fall in the rate of innovation in the ICT sector.<sup>27</sup>

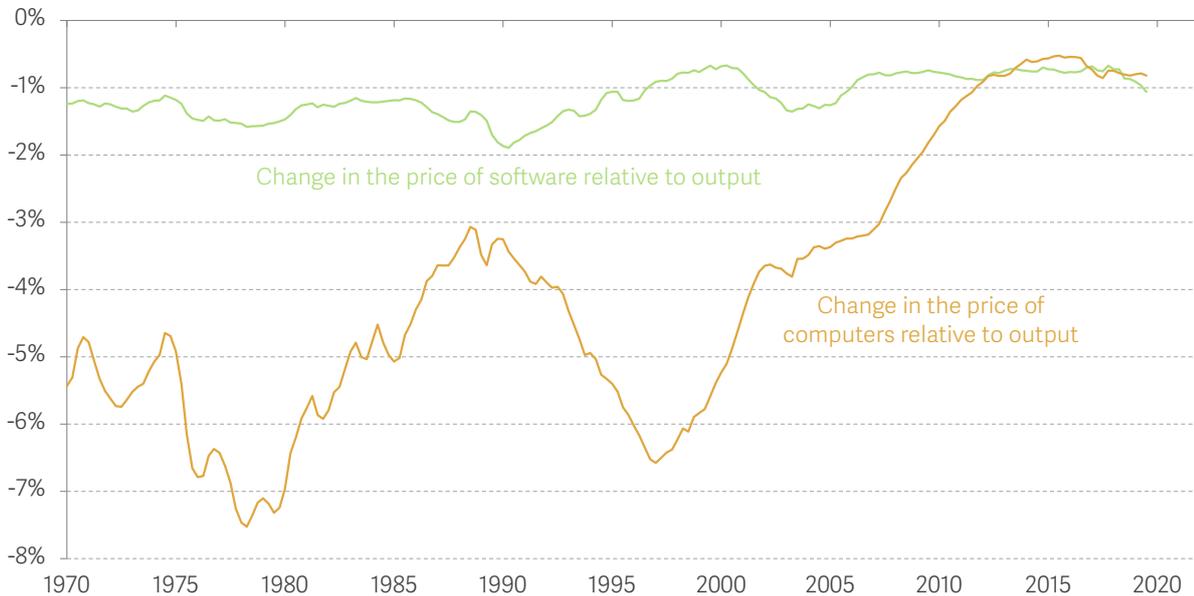
<sup>25</sup> For historical examples, see: P A David & G Wright. 'General Purpose Technologies and Surges in Productivity: Historical Reflections on the Future of the ICT Revolution', in *The Economic Future in Historical Perspective*, eds. P.A. David & M. Thomas, Oxford University Press, 2003.

<sup>26</sup> For a discussion of the measurement issues relating to computers and software, see: B T Grimm et al, 'Information processing equipment and software in the national accounts', Paper prepared for the NBER/CRIW Conference on Measuring Capital in the New Economy, 2002.

<sup>27</sup> The chart shows the US computer and software deflators relative to US output – this is because the prices of ICT equipment are generally taken to be better measured in the US. For a discussion, see: S Basu, J G Fernald, N Oulton & S Srinivasan, 'The case of the missing productivity growth: or, does information technology explain why productivity accelerated in the United States but not in the United Kingdom?', NBER Macroeconomics Annual, 2003.

### FIGURE 8: Productivity growth continues to be more rapid in the ICT sector, although it has slowed recently

Quarterly changes in the price of ICT equipment relative to overall output, five-year centred average: US



NOTES: The prices of computer equipment and software are those produced by the Bureau of Economic Analysis and refer to whole-economy averages.

SOURCE: Analysis of Bureau of Economic Analysis, Price Indexes for Gross Domestic Product.

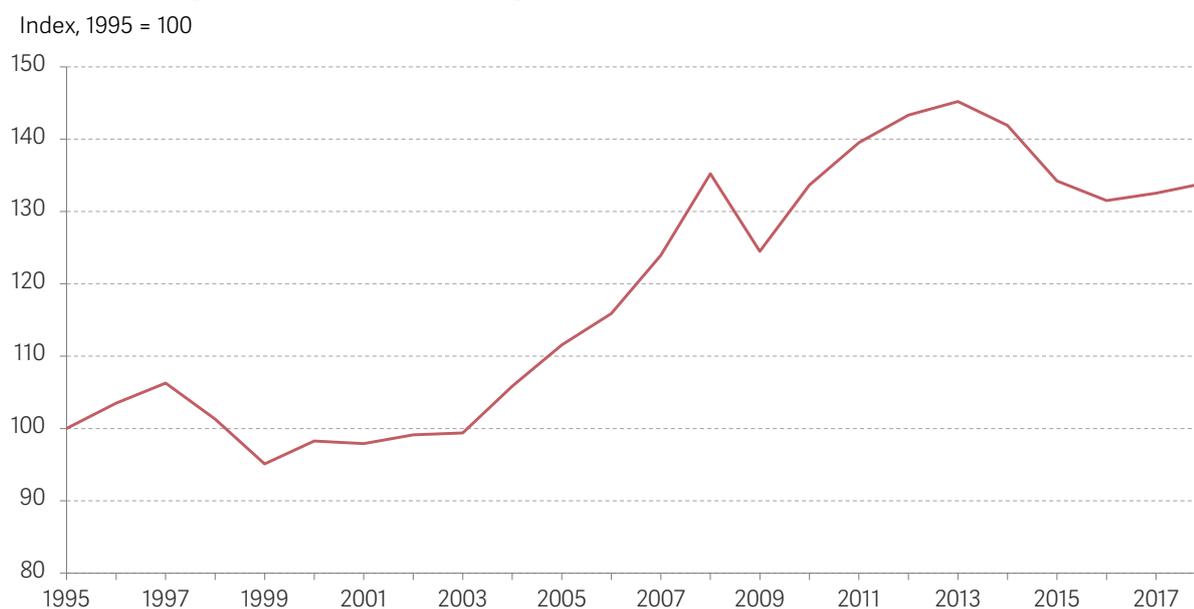
Trade links have not been deepened as quickly since the financial crisis, but the post-crisis recovery in trade is hard to reconcile with the pattern of weak UK growth

The fragmentation of global value chains is a plausible driver of slowing growth across countries. The ability of firms to deliver rapid growth by exploiting gains from trade can play an important role in driving overall improvements in efficiency and productivity and therefore growth.<sup>28</sup> But as shown in Figure 9 global supply chains across major economies (here shown for the G20) have stopped lengthening and even started to fragment. This is shown by a fall in gross exports relative to economic output following the financial crisis and then slower growth thereafter. The impact of this change will be to provide a headwind to growth in the post financial crisis period across a number of countries. Again, however, while this fits the broad type of driver of slowing growth we are looking for, the pattern of rapid growth in the aftermath of the financial crisis followed by a sharp fall thereafter does not match the pattern of UK growth which did not recover in the same sort of way in the aftermath of the financial crisis.

<sup>28</sup> For a discussion of some of the mechanisms through which trade can improve efficiency, see: M Melitz, 'The impact of trade on intra-industry reallocations and aggregate industry productivity', *Econometrica*, volume 71, pages 1695-1725, 2003; and: M Melitz & G Ottaviano, 'Market size, trade, and productivity', *Review of Economic Studies*, volume 75, pages 295-316, 2008.

### FIGURE 9: Global value chain growth has stalled in recent years and there has been evidence of fragmentation

Index of gross exports relative to gross output: G20 countries



SOURCE: Analysis of OECD Trade in Value Added (TiVA), 2021.

Overall, then, it's hard to find a clear-cut 'smoking gun' factor on the supply-side which can explain why growth has slowed so sharply since the financial crisis. The slowdown in ICT productivity and the fragmentation of global value chains fit the bill as cross-country headwinds to growth that started around the time of the financial crisis. But they do not fit particularly well with the pattern of slowing in the UK. More broadly, a big challenge for the growth pessimists is to explain the coincident timing of a slowing in the fundamental rate innovation and the arrival of the financial crisis.

### There seems to be evidence that weak demand was a key factor in the growth slump for much of the previous decade

The view that the longer-term growth is solely driven by technological factors which do not depend on the strength of demand is, however, increasingly being challenged. A growing number of recent studies have linked the strength of demand generally – and changes in the stance of macroeconomic policy in particular – to longer-term changes in the size of the economy.<sup>29</sup> These papers find that unexpected changes in demand don't just have a short-run impact on output, but are also associated with lasting effects. There are a number of mechanisms through which this might happen. For example, changes in the pace at which workers acquire human capital through training, or because strong

<sup>29</sup> See, for example: A Fatás & L H Summers, 'The permanent effects of fiscal consolidations', *Journal of International Economics*, volume 112, pages 238-250, 2018; E Ilzetzki, 'Learning by necessity: government demand, capacity constraints, and productivity growth', LSE working paper, March 2022; and Ò Jordà, S R Singh & A M Taylor, 'The Long-Run Effects of Monetary Policy', NBER Working Papers No. 26666, 2021.

growth expectations increase investment intentions leading to productivity gains through higher levels of economic activity.<sup>30</sup>

A well-known behavioural explanation for the lasting effects of weak demand that has received much attention is the ‘secular stagnation’ hypothesis.<sup>31</sup> Simply put, secular stagnation embodies the idea that desired saving has risen relative to desired investment, depressing both the rate of growth and the level of interest rates. Such forces would likely result in weak expansions and long recessions.

For demand factors to plausibly explain the slump in growth since the financial crisis the source of weak demand has to have had a lasting impact. In this context we discuss two plausible drivers of lasting weakness in demand: demographic headwinds and weak macroeconomic stabilisation policy.<sup>32</sup> We discuss the evidence for each below.

### Demographic forces seem likely to have provided a substantial headwind to growth in recent years

Ageing and increased longevity tend to put downward pressure on household spending. As workers age, they save for retirement. Immediately prior to retirement, financial assets (the stock of saving) peak before being drawn down during retirement. As society ages and the share of the population that is approaching retirement increases, there is downward pressure on overall spending.<sup>33</sup> In turn, this increased stock of saving also tends to push down on longer-term interest rates.<sup>34</sup> As shown in Figure 10, many countries reached an inflexion point in terms of the share of the population that is above retirement age (or old-age dependency ratio) around the time of the financial crisis, thus fits with the broad pattern of slowing growth across countries around the time of the financial crisis.<sup>35</sup>

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<sup>30</sup> V Garga & S R Singh, ‘Output hysteresis and optimal monetary policy’, *Journal of Monetary Economics*, volume 117, pages 871-886, 2021 and S B Carpenter et al., [Some benefits and risks of a hot economy](#), working paper, February 2022.

<sup>31</sup> Originally credited to US economist, Alvin Hansen (A Hansen, ‘Economic Progress and Declining Population Growth’, *American Economic Review*, volume 29, pages 1-15, 1939), with its revival credited to Larry Summers (see, for example: L H Summers, ‘US Economic Prospects: Secular Stagnation, Hysteresis and the Zero Lower Bound’, speech delivered to the National Association for Business Economics’ Economic Policy Conference, 24 February 2014).

<sup>32</sup> A number of studies have linked inequality to weak growth. See, for example: A Mian, L Straub & A Sufi, ‘Indebted Demand’, *The Quarterly Journal of Economics*, volume 136, pages 2243-2307, 2021. But the rise in income inequality in the UK took place during the 1980s making it hard to link to the post-financial-crisis slump in UK growth. For a discussion of trends inequality, see: A Corlett, F Odamtten & L Try, [The Living Standards Audit 2022](#), Resolution Foundation, July 2022.

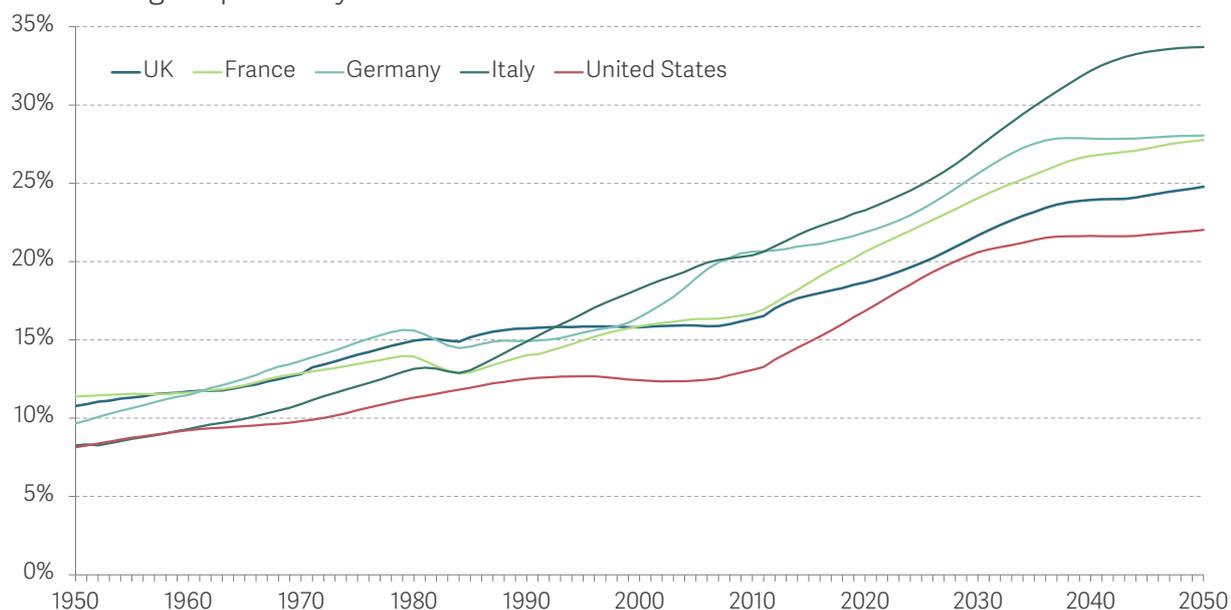
<sup>33</sup> Some studies have emphasised the impact of ageing on the supply side too – see, for example, V Skirbekk, [Age and Individual Productivity: a literature survey](#), MPIDR Working Paper, 2003 – but in this briefing note we focus on its role on the demand side.

<sup>34</sup> For a discussion of the conceptual drivers of low long-term interest rates, see: G Vlieghe, [Running out of room: revisiting the 3D perspective on low interest rates](#), speech given at the London School of Economics, 26 July 2021. To the extent such interest rates are determined globally (as would be suggest by the high degree of comovement in interest rates across countries) it is not an individual country’s demographics that matter but global ones.

<sup>35</sup> For a discussion of UK demographics, see M Broome, [Big welcomes and long goodbyes: The impact of demographic change in the 2020s](#), The Resolution Foundation, May 2022.

FIGURE 10: Population ageing has intensified in past 15 years

Old-age dependency ratios: selected advanced economies



SOURCE: Analysis of ONS, Estimates of the population for the UK, England and Wales, Scotland and Northern Ireland: Mid-2020 edition, June 2021; ONS, National population projections: 2020-based, January 2022; OECD, Historical Population & Population Projections.

To illustrate the extent to which demographics are likely to put downward pressure on spending, we use a simple thought experiment. Figure 11 (left-hand chart) shows the average asset holdings of individuals, by age. Assets accumulate as people save for retirement with those in their 50s, for example, holding far more assets than those in their 40s. The right panel shows the results of a simple scenario in which we hold fixed age-specific asset holdings but allow demographics to evolve in line with national population projections. Such an approach does not account for cohort effects, but does provide a sense of the influence demographics may have on savings in the coming decades.<sup>36</sup> The clear takeaway from this ageing effect is that it is likely to push up on aggregate asset holdings, and so would put downward pressure on spending. In principle, as more people reach retirement age you might expect spending to rise. But, in practice a growing share of the population has a higher desired stock of assets to finance their retirement and many older people do not run down assets completely through retirement, presumably with bequests in mind, reducing the extent to which a growing cohort of retirees leads to increases in spending.<sup>37</sup> Taken together, then, our view is that it is plausible that demographics have been a significant headwind to growth since the financial crisis.

<sup>36</sup> An important cohort effect in this context is the large capital gains enjoyed by older generations. In this simple thought experiment such gains are extrapolated into the future. The key point here, however, is that the right-hand panel of Figure 11 shows the relative impact of ageing rather than attempting to provide a projection for the path of overall wealth.

<sup>37</sup> For more on the evidence for this, see: L Gardiner, *The million dollar be-question: Inheritances, gifts, and their implications for generational living standards*, Resolution Foundation, December 2017.

**FIGURE 11: Demographics are set to put further upward pressure on the savings**

Household wealth by five-year age cohorts 2016-18 (left chart) and projected wealth per capita assuming wealth-age profile in 2016-18 is unchanged (right chart): GB



NOTES: Total stock of wealth is calculated by holding the current wealth-age profile (from round 6 of the WAS) constant and multiplying by the respective age profile of the latest ONS population projections. To control for overall population growth, the aggregate is then divided by total population.

SOURCE: Analysis of ONS, National population projections: 2020-based; UK Wealth and Asset Survey (round 6).

Weak macroeconomic stabilisation policy is also a plausible driver of weak growth

Monetary policy has been constrained in the aftermath of the financial crisis. A common misconception is that the economy will recover on its own and that policy simply speeds that process up.<sup>38</sup> But model-based evidence shows that when policy is unable to perform its stabilisation role – most obviously because of the lower bound constraint on interest rates – then an economy will fail to return to its previous growth path.<sup>39</sup> Closely related to this is the idea of a ‘liquidity trap’. Here the idea is that monetary policy becomes ineffective as nominal interest rates fall to zero and money and bonds become near perfect substitutes.<sup>40</sup> Such traps are a widely acknowledged risk but identifying them in real time is extremely difficult.<sup>41</sup> This is a relevant concern because, since the Bank of England cut interest rates as far as it could during the financial crisis in 2008 and 2009, it was essentially mired there up to the current rate tightening cycle which started

<sup>38</sup> For an early discussion, see: D Patinkin, ‘Relative prices, Say’s law, and the demand for money’, *Econometrica*, volume 16, pages 135–154, 1948.

<sup>39</sup> 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.

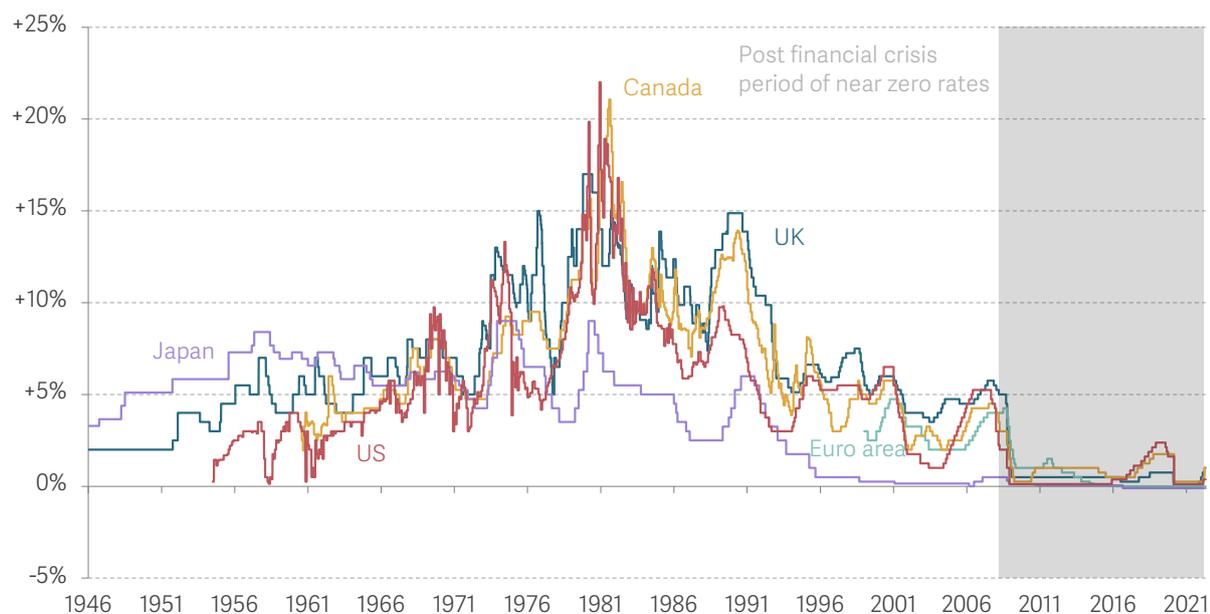
<sup>40</sup> For more on liquidity traps, see P R Krugman, ‘It’s Baaack: Japan’s Slump and the Return of the Liquidity Trap’, *Brookings Papers on Economic Activity*, volume 29(2), pages 137-206.

<sup>41</sup> For example, Bank of England Deputy Governor, Ben Broadbent noted, “These [liquidity] traps are potentially very costly as they can lead to protracted periods of unnecessarily weak economic activity”. B Broadbent, *Reliable partners*, Speech given at Gresham College, Bank of England, 30 March 2022.

in December last year.<sup>42</sup> Much the same was true for all major central banks, as shown in Figure 12. All this raises the concern that weak monetary policy stabilisation may have had a role to play in the post-financial crisis growth slump.

**FIGURE 12: All major central banks hit the lower bound following the financial crisis**

Official policy rates: selected advanced economies



SOURCE: Analysis of Bank of England, Official Bank Rate history data; BIS, Central bank policy rates.

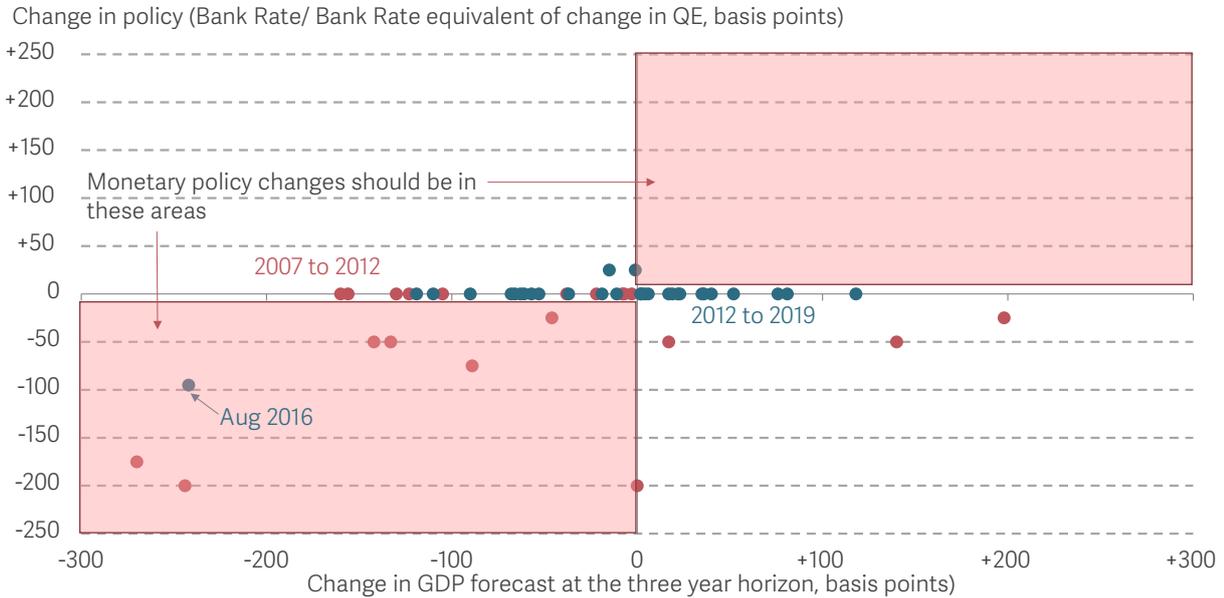
There is evidence that the constraint from lower bound during the recovery to the financial crisis seriously reduced monetary policy activism. In Figure 13 we compare changes in the forecasts for GDP made by the Bank of England's Monetary Policy Committee (MPC) to decisions on interest rates and asset purchases. Monetary policy makers would be expected to cut interest rates when the growth (and inflation) outlook weakens and raise rates in response to a stronger outlook for GDP (and inflation).<sup>43</sup> Between 2007 and 2012 that is what happened: policy loosening equivalent to a cut of around 0.34 percentage points in Bank Rate (and asset purchase equivalent) was delivered for each 1 per cent of GDP markdown to the three-year growth forecast. But after 2012 there was a clear change in behaviour with each 1 per cent of GDP weakening accompanied by just 0.07 percentage points of loosening on average.

<sup>42</sup> It is not possible for interest rates to fall far below zero, if at all, a phenomenon known as the effective lower bound.

<sup>43</sup> This is known as the Taylor principle. For a discussion, see: M Gertler, J Galí & R Clarida, 'The Science of Monetary Policy: A New Keynesian Perspective', *Journal of Economic Literature*, volume 37, pages 1661-1707, December 1999.

**FIGURE 13: In the aftermath of the financial crisis, monetary policy became significantly less active in response to a weaker outlook**

Changes in monetary policy compared with changes to MPC forecasts for the level of GDP at the three-years horizon: UK, 2007 to 2019



NOTES: Changes in MPC forecasts at the three-year horizon are calculated by adding changes in annual growth forecasts each year for the three years of the projection. Changes in policy are calculated by summing changes in Bank Rate with changes in the stock of asset purchases at a conversion rate of £1 billion in QE is approximately equal to 1 basis point change in Bank Rate. For more on how to make such conversions, see: J Gagnon et al., *Quantitative (displ) easing?: Does QE work and how should it be used next time?*, Resolution Foundation, September 2019.

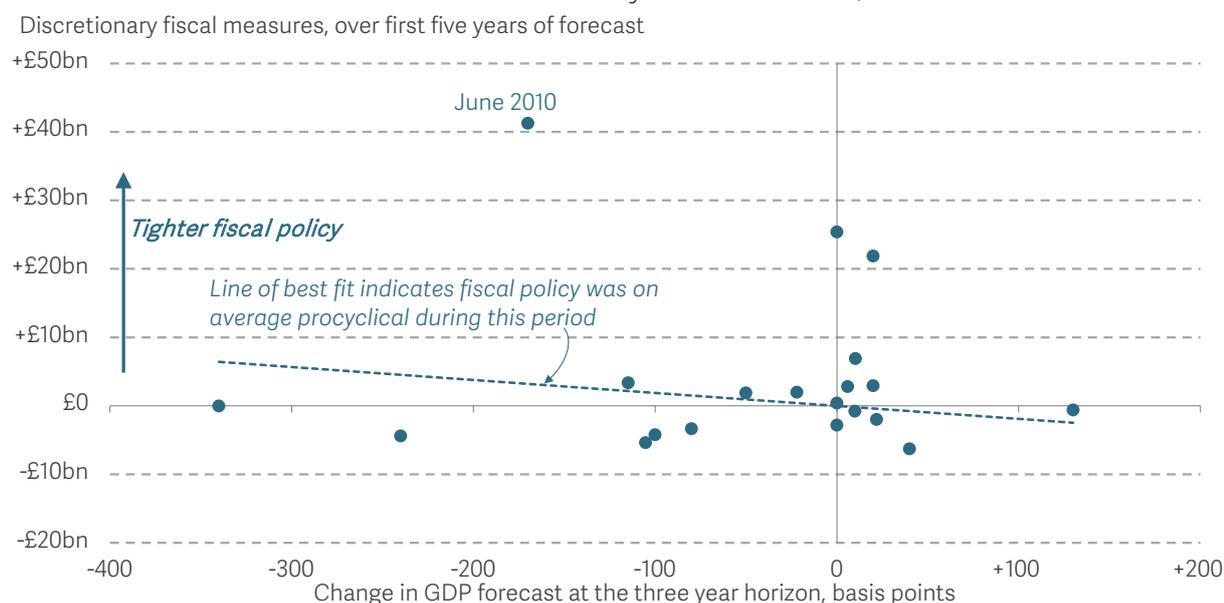
SOURCE: Analysis of Bank of England, Inflation Report various and Bank of England, Historical MPC voting.

The constraint on monetary policy is much less of an issue if fiscal policy is able to do more of the work in stabilising the economy. So Figure 14 provides a similar analysis of fiscal policy. It compares changes in the level of GDP over the first three years of the OBR forecast to discretionary changes in spending and tax over the five years of the forecast (where here again a positive number indicates a policy tightening). The key point to take away here is that, on average, fiscal policy was tightening in response to a weaker GDP outlook – around £2.5 billion of discretionary measures was delivered for each 1 per cent of GDP weakness on average. This analysis does not take into account the ‘automatic stabilisers’ which will have provided additional support, but, as we have argued previously, these stabilisers provided little macroeconomic stabilisation.<sup>44</sup>

<sup>44</sup> M. Brewer et al., *Social Insecurity: Assessing trends in social security to prepare for the decade of change ahead*, The Resolution Foundation, January 2022.

### FIGURE 14: Fiscal policy was generally tightening during this period

Changes in discretionary tax and spending measures compared with changes to OBR forecasts for the level of GDP at the three-years horizon: UK, 2010-2019



NOTES: Changes in OBR forecasts at the three-year horizon are calculated by adding changes in annual growth forecasts each year for the three years of the projection. Changes in policy are calculated by summing the discretionary measures taken at the fiscal even over the five years of the forecast.

SOURCE: Analysis of OBR, Historical official forecast database & Policy measures database.

## But the recovery from the pandemic has made it clear that the country is bumping up against supply constraints

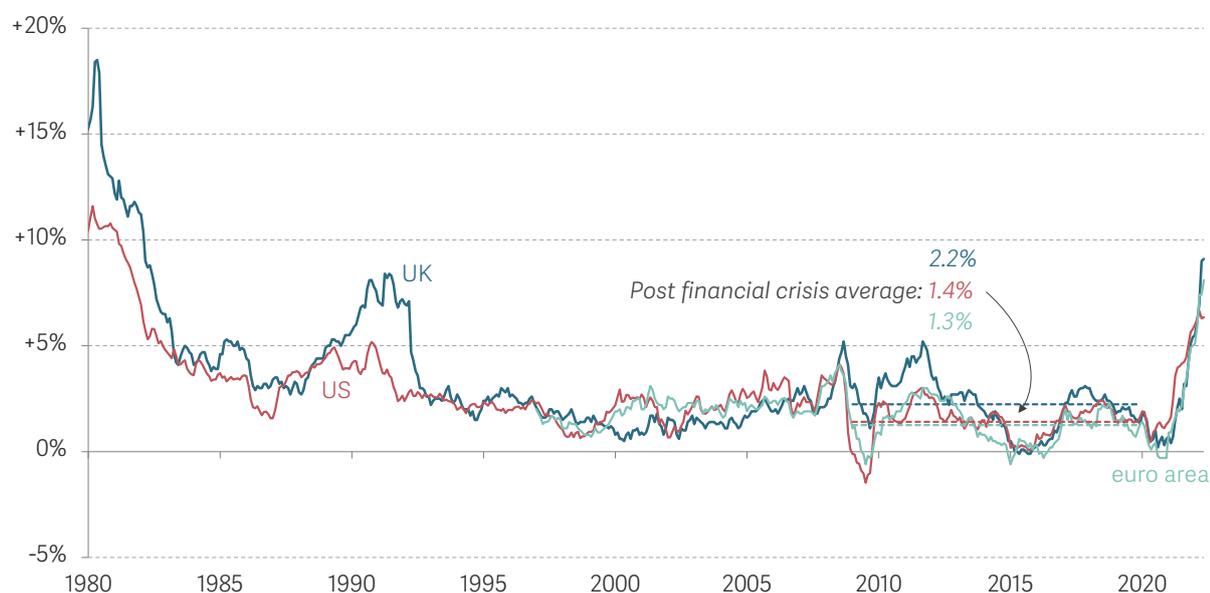
A challenge to demand explanations for weak growth comes from the performance of inflation. Since the financial crisis, UK CPI inflation has averaged almost exactly the Bank of England's target at 2.2 per cent.<sup>45</sup> Over the same period, inflation in the US and euro area has averaged 1.4 per cent and 1.3 per cent respectively – well below their respective 2 per cent targets. On the face of it, then, there is not a strong case that UK demand has been particularly weak during this period, or else we would have expected inflation to be below target during this period. It is, however, important to take into account the impact of two large falls in the exchange rate during this period: sterling fell around 25 per cent following the financial crisis; and then fell by around 12 per cent following the EU referendum in 2016. If we do so, UK CPI inflation has been a lot closer to levels seen in the US and euro area.<sup>46</sup>

<sup>45</sup> Source: ONS, Consumer price inflation.

<sup>46</sup> The Bank of England estimated that the fall in sterling following the financial crisis raised the UK price level by around 6 per cent (for a discussion, see: M A King, *Speech given by Mervyn King, Governor of the Bank of England, At the Civic Centre, Newcastle, 25 January 2011*), based on this estimate, an upper bound of the effect on price level of these two falls in sterling on the UK price level would be around 9 per cent (this is an upper bound because higher import prices would be offset by lower prices elsewhere in the economy as consumers pay more for goods from abroad). That would equate to roughly 0.8 percentage point contribution to average inflation. So, a lower bound for average inflation excluding the impact of the sterling's falls would be around 1.4 per cent.

FIGURE 15: Above target inflation since the financial crisis is a challenge to the idea that demand is causing weak growth

Consumer prices index inflation: UK



NOTES: For the UK, from 1989 the data are official CPI estimates from the ONS, prior to that it is the historical modelled series compiled by the ONS. Post financial crisis average is 2010 to 2019.

SOURCE: Analysis of ONS, Consumer price inflation and ONS, Consumer price inflation, historical estimates, UK, 1950 to 1988; US Bureau of Economic Analysis, Personal Consumption Expenditures: Chain-type Price Index, retrieved from FRED, Federal Reserve Bank of St. Louis; Eurostat, euro area (changing composition), HICP inflation, overall index

Nonetheless, the huge rise in inflation following the pandemic has intensified concerns that growth may be structurally weak – with few now calling for policies to boost demand. Inflation is set to rise to more than 10 per cent in the UK later this year.<sup>47</sup> This suggests that the UK economy is supply constrained – that is, more demand just mean even higher inflation – and as a result there are few voices calling for measures to boost demand. Once again, the current bout of inflation owes much to forces external to the UK economy with global mismatches between demand and supply in the goods sector, exacerbated by energy price shocks coming from Ukraine the key drivers.<sup>48</sup> Nonetheless, the tightness of the labour market and faster wage growth rate do not suggest an economy with ample spare capacity but rather one that is bumping up against supply constraints.<sup>49</sup> Overall, then, it is clear that insufficient demand is not our only challenge right now.

<sup>47</sup> Source: Bank of England Monetary Policy Report, May 2022.

<sup>48</sup> J Leslie, [Cap off: Understanding the April 2022 inflation release](#), Resolution Foundation, May 2022.

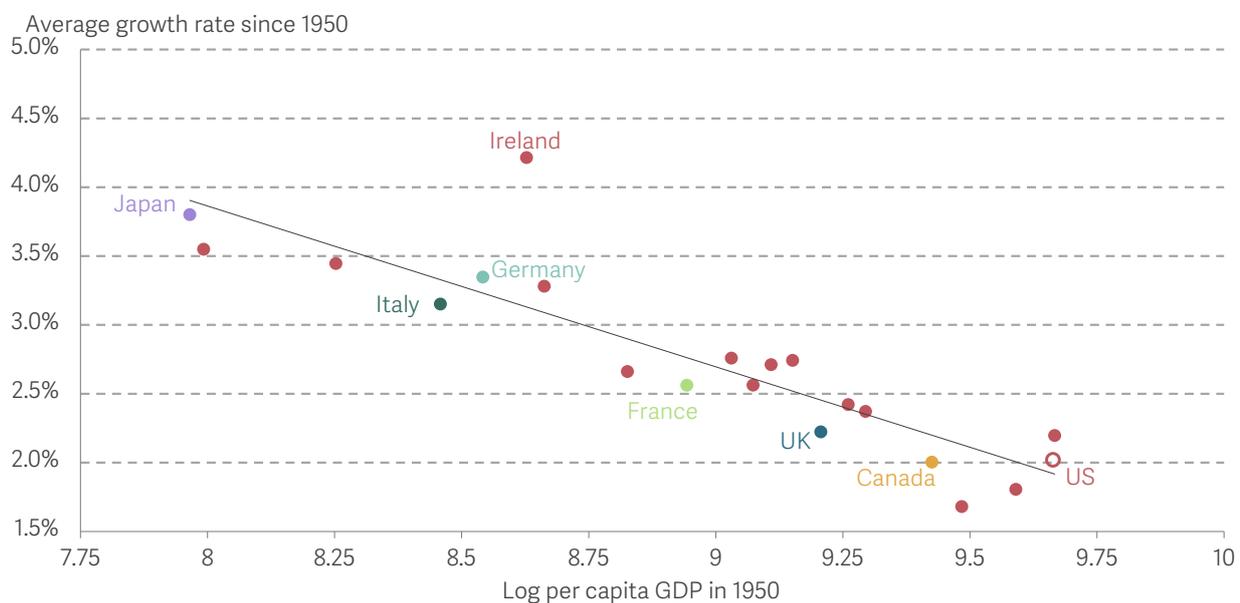
<sup>49</sup> Nye Cominetti et al., [The Resolution Foundation Labour Market Outlook, Q1 2022](#), April 2022.

## While big debates about relative roles of supply and demand aren't conclusive, something else is: the UK has lots of catch-up potential

For an open economy like the UK growth at home is not dependent solely on domestic innovation.<sup>50</sup> Indeed, given the UK is not at the technological frontier, we should be able to catch up (or 'converge') by learning from the how things are done at the frontier.<sup>51</sup> This suggests there is scope for faster growth even if the rate of innovation has slowed at home and abroad since the financial crisis.

**FIGURE 16: Strong evidence of convergence among rich countries**

Growth rates since 1950 compared versus startling level of per capita GDP: selected advanced economies, 1950 to 2019



NOTES: Countries included in this regression are: Australia, Austria, Belgium, Canada, Switzerland, Denmark, Spain, France, UK, Germany, Ireland, Iceland, Israel, Italy, Japan, Netherlands, Norway, New Zealand, Portugal, Sweden and US. Dataset covers 1950 to 2019 in all cases.

SOURCE: Penn World Tables, version 10.0, see: R C Feenstra, R Inklaar & M P Timmer 'The Next Generation of the Penn World Table'. American Economic Review, vol. 105, pages 3150-3182, available at [www.ggdc.net/pwt](http://www.ggdc.net/pwt).

The case for this is supported by our finding of statistically significant evidence of catch up for a group of advanced countries. Indeed, there is strong evidence that countries that start behind the frontier grow more quickly. This is clear from the relatively tight relationship between GDP per capita in 1950 and subsequent growth rates in the period to 2019, as shown in Figure 16. This is consistent with the central prediction of convergence theory – that countries with access to similar technologies, as is surely the case with a group of advanced economies, should converge in levels of GDP per capita

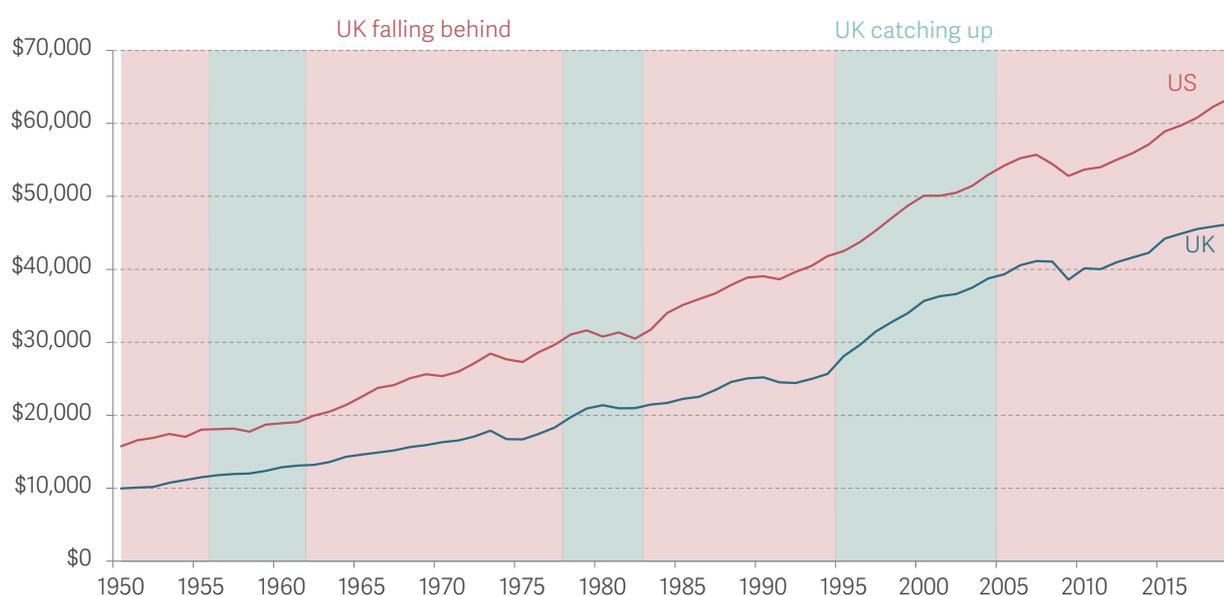
<sup>50</sup> For a discussion of the UK position relative to the global frontier, see: J Oliveira-Cunha et al., *Business time: How ready are UK firms for the decisive decade?*, The Resolution Foundation, November 2021.

<sup>51</sup> J De Lyon et al., *Enduring strengths: Analysing the UK's current and potential economic strengths, and what they mean for its economic strategy*, at the start of the decisive decade, The Resolution Foundation, April 2022.

over time. That is, those economies with a lower starting level of capital should have more scope to benefit accumulating capital and so grow more quickly on average. This can be tested more formally using a ‘-convergence’ regression which links growth in GDP per capita to initial levels.<sup>52</sup> Estimating such a regression yields an estimate for slope of the line in Figure 16 of -0.4 which is significant at the 1 per cent level. This estimate implies that catchup is, however, a slow process with countries behind the frontier converging at a rate of just 1.5 per cent or so per annum.

### FIGURE 17: The UK has only been able to catch up to the US during short periods

Expenditure-side real GDP at chained PPPs per capita: UK & US



SOURCE: Penn World Tables, version 10.0, R C Feenstra, R Inklaar & M P Timmer 'The Next Generation of the Penn World Table'. American Economic Review, vol. 105, pages 3150-3182, available at [www.ggdgc.net/pwt](http://www.ggdgc.net/pwt).

If we focus on the UK, we can see that catchup has happened in fits and starts with the country getting closer to the frontier prior to the financial crisis, but falling further behind afterwards. As shown in Figure 17, UK GDP per capita was around 37 per cent below the US in 1950. The UK grew faster in the 1950s and 1960s before falling further behind in the 1970s and 1980s with the gap between the two countries rising to 40 per cent in 1974. And despite the gap falling back to 25 per cent on the eve of the financial crisis, it has since widened once again, albeit slightly to 27 per cent in 2019. The UK is currently

<sup>52</sup> For an early study of convergence, see: R J Barro, 'Economic Growth in a Cross Section of Countries', The Quarterly Journal of Economics, volume 106, pages 407-443, 1991. Initial cross-country studies found little evidence to support the idea of catchup growth but more recent studies have overturned that result finding statistically significant evidence, particularly for groups of comparable economies. See, for example, S Roy, M Kessler & A Subramanian, 'Glimpsing the End of Economic History? Unconditional Convergence and the Missing Middle Income Trap', CGD Working Paper, 2016; and G Kindberg-Hanlon & C Okou, 'Productivity Convergence, Is Anyone Catching Up?', World Bank Policy Research Working Paper, No. 9378, September 2020.

roughly as far behind the US as Hungary or Poland are behind the UK. It is important to emphasise that our estimates imply that catchup is a slow process, and doesn't happen automatically. That said, as might be expected, the UK has tended to make most progress during periods of consistent growth. The key takeaway, then, is that the clear levels gap to the frontier means the UK is not constrained by the rate of innovation at the frontier, and so faster growth is feasible if policy makers can find a way to achieve it.

## Overall, we see little reason why continuing stagnation should be taken as a given – but policy makers must grasp the nettle

So what does all this mean for policy makers looking to renew their approach to growth following pandemic: should they try to work within the constraints of low growth, or to be more optimistic, and push for a higher growth rate going forward? In this briefing note we do not provide a complete policy prescription – that is left to future work as part of the Economy 2030 Inquiry. Instead our aim has been to provide a guide to how policy makers should read the data given high levels of uncertainty. With that in mind, we draw four conclusions:

First, we see little reason why we should treat the stagnation of the past 15 years as destiny for growth in the next decade. There is no obvious 'smoking gun' reason why long-term structural growth should have slowed so dramatically. But even if the UK economy is now constrained by supply following the pandemic, there still should be scope for the UK to take advantage of growth elsewhere by learning from how things are done at the frontier during the decade ahead.

Second, while the near-term priority is dealing with the cost of living crisis, policy makers should prioritise growth thereafter given the high likelihood that low growth will reassert itself. While inflation is forecast to return to normal levels towards the end of next year,<sup>53</sup> the IMF expects growth in GDP per capita to be just 1.1 per cent in 2027, still less than half its post-war, pre-financial crisis average of 2.3 per cent.<sup>54</sup> This suggests that a return to the post financial crisis slump in growth is seen as a plausible central case. So policy makers should not lose sight of the need to put a return to broad based growth at the centre of their renewed approach to the economy.

Third, once we are past the current inflation spike there are reasons for thinking that prioritising faster near-term growth could catalyse a more long-lasting revival of the UK economy. This is not least because the tight relationship between investment and overall growth suggests that a policy of driving faster growth will prompt faster investment by

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<sup>53</sup> According to the Bank of England's May forecast, CPI inflation is expected to fall to within 1 percentage point of the inflation target – i.e. below 3 per cent – in Q1 2024 (Source: [Monetary Policy Report](#), Bank of England, May 2022). For the OBR forecast, the corresponding date is Q4 2023 (Source: [Economic and fiscal outlook – March 2022](#), OBR).

<sup>54</sup> IMF, [World Economic Outlook](#), April 2022.

firms. And, in addition, our work shows that making the most of the opportunities for catch-up growth requires more rapid expansion in the size of the economy. In short, there is scope to exploit the evidence that there is positive hysteresis – that more rapid growth in the short term can have a lasting impact on the size of the economy.

And fourth, despite the recent inflation experience we should be careful to avoid past mistakes of under supporting the economy during recoveries from recessions. Weak stabilisation policy is an unnecessary self-inflicted wound. Looking ahead, we should consider how our macroeconomic policy framework can be adjusted to make sure that fiscal and monetary policy act in a complementary way to ensure that the recovery from future downturns is complete.

Overall, the Governments of the future should not view themselves as constrained by the stagnation of the past. But, given the scale and persistence of the problem, simply hoping for higher growth risks a continuation of the dire economic performance of the past 15 years. So policy makers looking to break free from living standards stagnation of the past 15 years must put generating growth at the centre of their approach to managing the economy.

## Annex 1: testing for structural breaks in GDP per capita

This annex reports the results of formal structural break tests for GDP per capita. The data for the testing is quarterly, running from Q1 1955 to Q4 2019, and are cyclically adjusted using a regression of GDP per capita growth on the aggregate employment rate.<sup>55</sup> Table 1 summarises the results of our tests which have a null hypothesis of no time variation in the mean growth rate of GDP per capita. For the purposes of these tests GDP per capita growth is modelled as a random walk – that is, a constant growth rate. We then use a sup-Wald test (with an autocorrelation-robust Quandt likelihood ratio) of a constant mean against the alternative of, one, two, or three breaks respectively.<sup>56</sup> Along with the test statistic, this test provides estimates of the break dates themselves.

As shown in Table 1, first row, in all cases we clearly reject the null hypothesis that growth in GDP per capita is constant in our sample. The three-break, full-sample test identifies break dates in 1973, 1984 and 2007. In narrowing down the number of breaks we use a sequential procedure that tests for  $k$  versus  $k - 1$  breaks. Here the test statistic for two versus one break, and for three versus two breaks, are both insignificant. This suggests in this case one break – estimated to be at Q1 2007 – is consistent with the properties of the data.

TABLE 1: Statistical tests for a break in the mean growth rate of GDP per capita

	Quandt-likelihood ratio (sup-Wald) test		
	1 break	2 breaks	3 breaks
<i>Data for GDP per capita, 1956-2019</i>			
Test statistic for $k$ (= 1, 2 and 3) breaks against versus 0	15.6***	9.8***	6.9**
Test statistic for $k$ versus $k - 1$ breaks		5.8	0.91
Estimated break dates:	Q1 2007	Q2 1973 Q1 2007	Q2 1973 Q2 1984 Q1 2007

<sup>55</sup> In doing so we follow closely the approach in J G Fernald et al., *The disappointing recovery of output after 2009*, Brookings Papers on Economic Activity, volume 48, pages 1-81, 2017.

<sup>56</sup> These tests follow the approach of J Bai & P Perron, 'Estimating and Testing Linear Models with Multiple Structural Changes', *Econometrica*, volume 66, pages 47-78, 1998; and J Bai & P Perron 'Computation and Analysis of Multiple Structural Change Models', *Journal of Applied Econometrics*, volume 18, pages 1-22, 2003. Professor Pierre Perron is thanked for making the code for running these tests freely available.

# THE ECONOMY 2030 INQUIRY

SHAPING A DECADE OF CHANGE

The UK is on the brink of a decade of huge economic change – from the Covid-19 recovery, to exiting the EU and transitioning towards a Net Zero future. The Economy 2030 Inquiry will examine this decisive decade for Britain, and set out a plan for how we can successfully navigate it.

The Inquiry is a collaboration between the Resolution Foundation and the Centre for Economic Performance at the London School of Economics. It is funded by the Nuffield Foundation.

**For more information on The Economy 2030 Inquiry, visit**  
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