Re-appointment questionnaire for Professor Silvana Tenreyro

Submitted on June 9 2020.

Personal and professional background

1. Do you have any business or financial connections or other commitments which might give rise to a conflict of interest in continuing to carry out your duties as a member of the MPC?

No.

2. Do you intend to serve out the full term for which you have been re-appointed?

Yes.

3. Do you intend to take on or continue with any other work commitments in addition to your membership of the MPC. If so, what impact, if any, have they or will they have on your work on the MPC?

I will continue my work as Professor at the London School of Economics. In 2021 I will be President of the European Economic Association (I am currently Vice-President). The time commitment should not change materially (President Elect, Vice President, President and Former President work in collaboration over the four-year span), but, if needed, I will reduce my editorial work load as referee for peer-reviewed journals, a task that is done on a voluntary basis.

Accountability

4. Is the accountability process delivering better public understanding of decisions made by the MPC? Based on your experience, are there ways in which either the accountability process or the MPC's public communications could be improved?

As MPC members are unelected officials, it is essential for democratic legitimacy that we are held accountable to the public, directly and through parliament. The MPC is given an explicit inflation targeting remit and operational independence to achieve it. A clear understanding of our framework and decisions allows the public to judge our success in meeting the objectives in our remit. Accountability to the public therefore requires us to transparently explain our policy decisions. And transparency includes communicating accessibly to as wide an audience as possible.

The MPC communicates its decisions to the public in a variety of ways. We do so collectively in our Monetary Policy Reports and in the minutes of our MPC meetings. Because we are individually accountable for our voting records, we also give speeches and answer media and public questions on our individual policy decisions. And as discussed below, we are accountable to parliament through written and oral evidence submitted to the Treasury

Committee. One challenge to accountability and understanding, highlighted in the past by some of my colleagues, is that many of the issues and policies we discuss are relatively technical, which may limit public understanding.

The MPC, supported by Bank staff, has made a substantial effort to improve the accessibility of its collective communications. Since 2017, we have introduced layered content in our reports for readers with different levels of background knowledge. We include accessible visual summaries of our forecasts and decisions that can be easily understood and circulated on social media. Recently we have made the report more thematic and ensured our policy decision and the judgements underlying it were more prominent in the report. All of the internal briefing we see is written clearly and concisely, and we aim to avoid technical jargon where we can in our minutes and, personally, in my individual speeches and remarks.

I discussed the evidence on public understanding of the inflation targeting framework in a speech in 2019.[1] Although the data suggest that, on average, households have a good understanding of inflation, there is a large fraction for whom that understanding is more limited. Tracking the impact of the steps the MPC has been making to improve its communications will be important. While any gaps in public understanding are a challenge for accountability, a silver lining is that they are most likely to arise when the framework is successfully delivering low and stable inflation. In countries or periods with significantly higher and more volatile inflation rates, inflation is a much larger concern for all households, such that by necessity, they develop a good understanding.

5. Given your experience, how important is it for MPC members to be subject to parliamentary accountability and what do you now think are the strongest and weakest parts of accountability structures for the MPC?

The accountability process works very well in my view. As well as being accountable to the public at large, we are also accountable via their representatives in parliament. The Governor is required to write an open letter to the Chancellor should inflation depart from the inflation target by more than one percentage point. And we are individually accountable to parliament via evidence given to the Treasury Committee.

I think written and oral evidence given to the Treasury Committee is a crucial aspect of the accountability process, and one of the strengths of the structure. It allows detailed probing of our views to further understand the reasoning behind MPC decisions and, when needed, to question our judgment or logic. As all of us are called regularly to testify, it also makes sure that we are individually accountable for our policy votes.

The main weakness (or limit to accountability) I would highlight is one that arises occasionally, and would be difficult to avoid. Rightly, given our independence, MPC members do not give public speeches in periods around elections, or other politically sensitive periods. We also do not attend Treasury Committee when parliament has been dissolved. This can sometimes lead to periods in which we are unable to explain our decisions to the public and to parliament as extensively as usual, as occurred in the period before the general election in 2019.

[1] S Tenreyro (2019) 'Understanding inflation: expectations and reality', Ronald Tress Memorial Lecture, Birkbeck University of London.

Monetary policy

6. How effective is the co-ordination of monetary and macroprudential policymaking between the MPC and the FPC?

We are regularly briefed on the thinking of the FPC and the evidence underlying their decisions. We are also kept well informed by virtue of having several MPC members who sit on both committees. For issues that concern both committees, including aspects of Brexit or of the Covid-19 crisis, we attend joint MPC-FPC meetings where we can exchange knowledge and discuss policies. More generally, there are also wide-ranging discussions and sharing of research between MPC and FPC members and their staff. In my view, the arrangement works very well.

Over the past few months, for example, we participated in joint meetings with the FPC on the effect of the MPC's illustrative scenario on the corporate sector, where we were able to share information on a crucial issue for both committees' thinking. Our decision-making was also joined up: during MPC meetings, we were kept informed on the FPC's decision to release the countercyclical capital buffer, while the MPC's scenario was used as the basis for the FPC's stress test.

7. What are the dangers of monetary financing and can they be managed?

Monetary financing can be defined in different ways, but typically as a permanent expansion of central bank money, used to fund government spending. There have been examples in the past in other countries when monetary financing has led to high inflation or hyperinflation. These dangers of monetary financing arise not because there is a joint monetary-fiscal expansion – indeed, this is the usual correlation during economic downturns, as both monetary and fiscal policies tend to move counter-cyclically. The dangers arise when financing the government becomes the outright aim of monetary policy.

I do not see dangers in the context of the Bank of England or recent policy actions of the MPC. The MPC has a clear monetary remit, with an inflation target and operational independence to implement it. The main tools – quantitative easing (QE) and interest rate policies, (including guidance about future interest rates) – transmit to the economy in fairly similar ways. For all policies, a key part of the transmission is to influence the cost of financing to borrowers. We normally think about private-sector borrowers, but monetary policy tools also affect the cost of government financing. There is nothing different in the current situation, other than the scale of current government expenditures. More QE and lower interest rates were needed to help support the economy and therefore meet our remit, in a context in which inflation is set to fall well below its target.

But that does not imply that decisions on monetary policy are being made to achieve fiscal goals and hence there are no dangers or threats to price stability: monetary policy actions are framed within the remit, and can be reversed if and when an improved economic outlook requires it. If fiscal policy was being loosened when the economy was growing strongly and price pressures were increasing, monetary policy would be tightened, which would be more likely to increase the cost of financing government debt.

8. To what extent do you see forward guidance as a useful tool in monetary policy?

Forward guidance is a useful tool for monetary policy. It involves communicating what we expect to happen to the economy, and how we might change our monetary policy in response. It is important to note that although the MPC has been more explicit about future monetary policy in recent years, there has always been some element of forward guidance in its communications. Producing a forecast for the economy that suggests inflation is going to rise above target has always been a strong signal that monetary policy would need to be tightened, for example.

Forward guidance is important for households, firms and financial markets to understand how monetary policy would react as the economy evolves. For households and firms, especially those currently borrowing or saving at rates tied to Bank Rate, some indication of how policy is likely to change in different scenarios allows them to plan and make better-informed decisions. In practice, even more households and firms borrow and save at fixed interest rates, which depend not just on current monetary policy, but also on how financial markets think future policy will be set. By giving clear guidance to households, firms and financial markets, the MPC can therefore affect spending and saving today.

It is not easy to measure the impact of forward guidance, understandably, as it is difficult to codify words, and words are often accompanied by actions, making identification difficult. However, there has been significant progress. Recent research by Hansen, McMahon and Tong (2019) translates the guidance and fan charts contained in the MPC's policy reports into narrative and quantitative signals, and measures how its publication affects financial markets; their research suggests that forward guidance indeed affects long-term interest rates.[2]

One challenge in implementing forward guidance is that individually and collectively, the MPC has always given *conditional* guidance. We indicate how policy would be set if the economy evolved in one particular way or another. In my view it would be unwise to give *unconditional* guidance that promised a given path for interest rates, irrespective of what happened to the economy. While having the advantage of being simpler and easier to communicate, it may subsequently prove to be the wrong action once we get more information; the economy would not always evolve as we set out, and as a result, policy might also have to be set differently. The challenge is that conditional guidance is sometimes misinterpreted or misunderstood as unconditional. For this reason I have tried to communicate clearly the conditional nature of any statements I make about future policy, to avoid them being misinterpreted as a promise.[3]

Forward guidance is used in other areas of public policy. Away from monetary policy, a tangible example of conditional forward guidance is the public health advice that many governments have put in place during the current crisis. This has spelled out when and under which conditions different lockdown measures would be lifted. It gives people and companies some basis to assess their situations and take steps, where possible. However it also makes clear that if the spread of Covid-19 worsened, then lockdown measures would be lifted later

[2] Hansen, S, McMahon, M and M Tong (2019) 'The Long-run information effect of central bank communication', *Journal of Monetary Economics* 108, 105-202.

[3] The academic literature has discussed the pros and cons of using 'Odyssean' or unconditional guidance versus 'Delphic' or conditional guidance.

than otherwise. Although, again, effectiveness is not easy to quantify, most people and companies would find the guidance helpful for their planning.

9. Given changes in consumer spending habits during lockdown, there are reported difficulties in measuring inflation. What challenges does this present for the MPC in maintaining price stability and what other indicators are you monitoring?

There are several issues affecting the measurement and interpretation of CPI inflation at present, which I highlighted during my April 2020 speech on inflation.[4] The CPI measures the cost of a basket of goods and services. The basket includes over 700 items, weighted by the "typical" spending shares in previous years.

During the lockdown there have been a number of large changes affecting the CPI basket and price measurement. The ONS has published helpful articles explaining them, and has also briefed the MPC extensively on its approach to dealing with the issues. In particular:

a) Price collection has been more difficult, since, typically, around 45 percent of the (CPIH-weighted) sample of prices are collected physically in store. There are also other practical considerations, as consumers might switch to different outlets or there are changes in multi-buy discounts (typically, measurement of prices entering the CPI holds product, brand, size, and outlet fixed to facilitate comparability over time).

b) There have been large changes in the consumption basket since the closure of many businesses during lockdown meant that one-fifth of the items in the CPI basket were no longer on sale (e.g., package holidays, or many recreational services). To some extent, many of these changes will persist for some time even after the economy opens up. Many consumers may be reluctant to return immediately to their pre-Covid lifestyles given worries about the virus, and others may be unable or unwilling to, given reduced income or higher uncertainty about future income.

c) There are likely to be large changes in relative prices (e.g., prices of some essential food and pharmaceutical products in high demand increased relative to non-essential items).

For the <u>practical measurement difficulties</u>, the ONS has switched to price collection by telephone, email and online. They have also adopted a sensible approach, in line with international recommendations, for minimising the effect of missing items on the CPI. Even for those products still on sale, however, a lower number of available price quotes could mean that the sample is less representative. Fewer price quotes together with large changes in relative prices are also likely to lead to some greater volatility in the data.

To further help guide us in light of these difficulties, we are keeping track of signals from the additional ONS web-scraped price indicators. To help monitor consumption patterns, we are

[4] S Tenreyro (2020), 'Monetary policy during pandemics: inflation before, during and after Covid-19', speech/online webinar.

also paying close attention to real-time consumption indicators derived from payments data, travel and retail footfall measures.

As well as the measurement issues, there are also conceptual difficulties with the interpretation of the CPI data. These would arise even if it were possible to measure perfectly every price during the lockdown, since most shifts in the consumption basket and changes in relative prices will be largely temporary. In order to work out what policy will be needed to achieve the inflation target in one, two and three years' time, we need to know how quickly the changes will reverse, and to predict how prices will evolve in sectors that are currently closed down.

To achieve the inflation target once these basket changes unwind, I have argued that the MPC should pay close attention to the underlying drivers of inflation. It will be important to look at the balance of supply and demand in different sectors of the economy as well as aggregate and sectoral measures of cost growth. It will also be vital to monitor how household and financial market measures of inflation expectations are evolving. Given the likely volatility in the headline data, the MPC will need to dissect and explain the changes in CPI inflation in more detail than usual. This will help the public and the MPC itself to gauge the sources of changes and their likely persistence. We will also need to assess the influence that changes in the composition of the basket might have for measured inflation in the months and years ahead.

10. Given your experience on the MPC, how would you characterise the public's understanding of the role and decisions of the MPC, and where do you think improvements in communications could be made?

There is some mixed evidence on the public's understanding of the role and decisions of the MPC. In the most recent Bank of England/TNS Inflation Attitudes survey, two thirds of respondents correctly named the Bank of England as responsible for setting interest rates (one-third unprompted); while over half were supportive of the current 2% inflation target. Both numbers have changed little over a period of many years.

As discussed above, the MPC has made a substantial effort to improve the accessibility of its collective communications. This has included introducing layered content, accessible visual summaries and a thematic policy report. There is experimental evidence that the changes have improved understanding of readers.[5]

On the inflation framework, however, in a speech I gave in 2019, I highlighted that there is a fraction of households who have a limited understanding of inflation.[6] I examined survey evidence suggesting that many households, including younger and lower-income households, are unable to make accurate predictions about inflation, or even any predictions at all. For younger households this may partly be because they have had little experience of living through periods of high inflation. (Not being aware of the inflation rate in periods in which it is high can be particularly costly.) I showed evidence that in part, the cause appeared to be differences in financial literacy between different groups in society.

[5] Haldane, A and M McMahon (2018) 'Central Bank Communications and the General Public', *AEA Papers and Proceedings* 108, 578-83.

[6] S Tenreyro (2019) 'Understanding inflation: expectations and reality', Ronald Tress Memorial Lecture, Birkbeck University of London.

I do not think that these gaps are likely to have large macroeconomic effects, or pose any issues for monetary policy effectiveness. The proportion of households for whom they are relevant make up only a small share of aggregate consumption. And most households have a relatively limited role in wage and price-setting decisions that matter for aggregate inflation.

However, a lack of financial literacy could lead some households to make decisions that may be against their own individual interests. It is therefore an issue that requires attention from schools, universities, as well as perhaps employers. The Bank of England and the MPC can certainly assist in the effort. To address similar concerns, the Bank has been taking steps to improve its educational outreach, including launching econoME, an educational programme designed for young people aged from 11 to 16 that aims to improve economic and financial literacy.

11. Given your experience on the MPC, where would you like to see improvements in how external members on the MPC are supported?

The support provided by Bank staff is consistently outstanding. The relatively small group of economists in Monetary Analysis is responsible for an enormous amount of high-quality analysis that is most directly relevant for the MPC. I also have access to a wide range of briefing produced by other areas of the Bank. There has also been a phenomenal effort to adjust to the difficulties of the lockdown, with no reduction in quality despite staff working remotely. All in, there are few margins for improvement given the resources available. With more resources, of course, it would be possible to do even more – especially given the high demands on the Bank (first from Brexit, and now Covid-19) during my time on the committee.

The economy

12. What are the main operational challenges now facing the MPC? How much further can monetary policy effectively go in stimulating the economy?

Looking ahead, the main operational challenges facing the MPC relate to our policy tools. We have gone from a position where Bank Rate was our standard policy instrument, to a (health) crisis where we have had to use a wide array of conventional and unconventional policy instruments at speed. If the economy evolves in a way that requires further policy stimulus, we will need to weigh up which tool is best able to provide the right support. On the other hand, if a more positive scenario were to transpire and the economy were to recover rapidly, we would need to think about the best way to unwind some of the policy stimulus.

As we have previously stated, the MPC always keeps its set of tools under review. In my view, one important reason for doing so in the current situation is that there are plausible scenarios that could involve weaker medium-term growth and inflation than the illustrative scenario we published in the May MPR. Given the possibility that more stimulus might be needed, it is right for the MPC to keep its thinking open on the type of policy support required, consistent with its remit and role.

For new tools, there are two related conditions that need to be satisfied before they can be used in pursuit of the MPC's objectives. First, the MPC and Bank need to ensure that any potential policies can be implemented operationally and without side effects that might make them counterproductive. This condition determines the amount of policy space available for any given tool. Second, given policy space, the MPC needs to choose the optimal mix of tools, which may depend on the nature of the underlying shock or state of the economy.

In the near term, the MPC has some policy space available, with the precise amount depending in part on prevailing market conditions. For example, the vast majority of the MPC's QE programme to date has consisted of purchases of government debt, which work by lowering long-term gilt yields. The amount of QE policy space at a particular point in time therefore depends, all else equal, on the level of yields.

13. How would you characterise the supply and demand shocks arising from coronavirus and their relative importance? How will this evolve as and when lockdown begins to be lifted and the economy recovers, and what are the implications for growth and inflation?

In my speech in April I discussed whether the effects of Covid-19 were mainly affecting demand or supply.[7] At that stage, when many businesses had temporarily closed down, it was best described as both. The closures represented a fall in supply, since employment had stopped in many industries and production would not have taken place, even if demand had remained unchanged. But it was also the case that demand would have fallen sharply even if businesses had stayed open, as was evident in data in the run up to the lockdown for many sectors.

Importantly, whether the effects of the lockdown itself were classed as demand or supply was not a key indicator for my votes on monetary policy. The fall in Q1 and Q2 GDP resulting from the lockdown are very different from a typical recession, since they are largely a mechanical effect of required public health interventions. Looser monetary policy would not have been able to prevent those direct reductions in output, and nor would we have wanted to, given government social distancing guidance in place. As a result, neither the likely scale of the fall in Q2 output, nor the extent to which it represents lower demand or lower supply, were key determinants of my recent policy votes. The motivations instead, were aimed at achieving the objectives on our remit by lowering the cost of borrowing in order to support households and businesses through the crisis while helping prevent damaging defaults and business failures; to avoid market dysfunction and an associated tightening in financial conditions; and to support activity in sectors still operating.

In contrast, the balance of demand and supply will again become the critical indicator as the lockdown is lifted. There are likely to be negative effects on both. Fear and caution about the health risks of the virus may weigh persistently on demand in sectors with high social contact. Higher uncertainty over future employment prospects and the macroeconomic environment is also likely to lead to a fall in consumption and business investment. Over time, weaker investment will feed through into weaker productivity and supply. Social distancing requirements could also lower productivity in some sectors that have to operate at lower densities than before.

[7] S Tenreyro (2020), 'Monetary policy during pandemics: inflation before, during and after Covid-19', speech/online webinar.

An important aspect of the implications for growth and inflation is that the persistent effects will affect different businesses (and workers) asymmetrically. These sectoral effects matter for forecasting how the economy evolves. Even if supply falls far more than demand in some badly affected sectors, the resulting lower income and employment is likely to feed through into lower demand for others. The relation between the output gap and inflation in each sector may also have been altered differently by the crisis. As a result, historical relations between the aggregate output gap and inflation are unlikely to still hold. The transmission of monetary policy will also now be different for some sectors – lower interest rates are unlikely to lead to sharply higher spending on some goods and services that are still perceived as risky, for example. These spillover effects mean that it will be even more important to monitor the evolution of demand and supply at a disaggregated level.

14. What historic precedents, if any, inform your thinking about the impact of coronavirus on the economy? For example, how does the current crisis compare to the recent financial crisis, a wartime economy or earlier pandemics?

It is helpful to look at comparable historical events, which can guide us, for example, on how persistent the economic effects of the virus will prove to be. But we should also bear in mind that no two episodes are the same as each other, and neither will this crisis neatly follow the pattern of any previous one.

Regarding earlier pandemics, there are a number of dimensions in which the health consequences of past pandemics themselves differ, as well as their effects on the economy. The likelihood of deaths attributed to Covid-19 increases markedly for older age-groups. In contrast, deaths from the 1918-1920 flu or the HIV epidemics were skewed more towards the working-age population, which caused larger direct impacts on labour supply.

The globalised nature and the likely duration of the current pandemic also differ from the more recent coronavirus pandemics, SARS and MERS. As these other examples were more localised, the diversified nature of global trade limited their effect on the global economy (and also mitigated the effect on the countries directly affected). In contrast, diversification is less helpful for a global shock such as the current one.

We can also draw lessons from the policy responses to past pandemics – particularly the 1918-1920 flu. Like the current crisis, lockdowns were pervasive in 1918. However again, these are not perfect comparators to today, since businesses were generally not shut down back then, the duration of lockdowns was much shorter, and because the 1918-1920 flu mortality had a much larger effect on the labour force.

Bearing those differences (and others) in mind, the recovery from the 1918-1920 flu was slow – indeed, the influenza may have caused permanent effects, with GDP unable to catch up with its previous trend.[8] [9] In contrast, the recovery from SARS and MERS for the countries most

[8] See Barro, R, J F Ursúa and J Weng (2020), "The Coronavirus and the Great Influenza Pandemic. Lessons from the "Spanish Flu" for the Coronavirus's Potential Effects on Mortality and Economic Activity", NBER working paper 26866.

[9] Arguably, there were other factors at play, including the losses caused by the war and a sharp tightening in US monetary policy, so it is not clear what the exact profile of the recovery would have been, absent those other factors.

affected was quicker, drawing a V-shaped curve. The current pandemic should fall in between the two extremes, but naturally, there is still significant uncertainty within that wide range.

Wars are also natural precedents in some respects, as they are exogenous events that can have major impacts on macroeconomic activity. But they are difficult to compare as the effects can differ drastically depending on how the country in question was involved. One possible comparison is the large economic contractions suffered by countries occupied by Germany during the Second World War. These countries tended to show fairly rapid recoveries. A key difference is that the war had a clear end date; without a vaccine, the current pandemic might continue to affect us for some time, even if the worst is past. This could generate persistent uncertainty leading to a more protracted economic recovery.

Finally, the global financial crisis is an obvious precedent as the only comparable fall in global activity in recent times. But as discussed in the previous question, the nature of the current falls in output are so far very different. Another major difference is that the financial crisis in the UK was one that emanated from and was amplified by the banking sector. The resulting reductions in credit supply likely contributed to the persistence of the downturn and weakness in UK productivity growth. This time, partly reflecting actions taken by the FPC since then to enhance the resilience of the UK financial system, the banking system has so far been able to act as a shock absorber, rather than amplifier.

15. What are the material differences between your personal forecast for the UK economy, and the MPC's collective view?

As we discussed in our Monetary Policy Report, given the enormous uncertainties over so many key parts of the economic outlook, including the uncertainty intrinsic to epidemiological models and the non-pharmaceutical interventions taken by governments around the world in response to the evolution of the pandemic, the MPC opted to publish an illustrative scenario, rather than a collective forecast. This represented one possible way that the economy might evolve. But it was not intended to represent the MPC's collective best guess of what was going to happen. For many non-economic assumptions such as the evolution of the pandemic, and governments' health policies domestically and abroad, it would not have been possible for the MPC to judge the likely probability of different outcomes. Since these assumptions were critical for any scenario and the required monetary policy response, it would have been misleading to present any single scenario as a modal forecast.

Our most recent full forecast was the one presented in our January report, which predated the spread of Covid-19 around the globe. At the time, I had been stressing for many months the observed weakness in core inflation data (see also my last annual report to the Treasury Committee). I had explored different hypotheses and argued that there was likely to be greater spare capacity than was present in the collective forecast, which at the time led me to see and highlight downside risks to the inflation forecast. Since then, those earlier differences between my personal forecast and the MPC's collective one have been dwarfed by the magnitude of the effects of Covid-19 on the inflation outlook.

16. There has been discussion that after the coronavirus crisis, companies should operate with more reserves, so as to be better able to withstand a demand shock without having to rely on government support. What impact do you think such a change in business culture or business model would have on productivity growth?

The effect of such a change in business models can be split into the *ex-ante* or 'steady state' impact, and the *ex-post* impact, after a large negative shock has occurred.

Ex-post, there is evidence to suggest that firms that are cash-rich may be able to weather a shock more effectively. Following the financial crisis, firms with larger reserves were able to maintain investment closer to pre-crisis levels, and more generally had stronger performance. Of course, it is possible that this reflected inherent differences in the firms, causing them both to hold higher cash reserves and to invest more afterwards. The finding may also be specific to the financial crisis, and not apply to all types of shocks. If the banking system is still functioning well, then illiquid but solvent firms may still be able to borrow to invest, even without large cash reserves.

Ex-ante, holding higher cash reserves may come with an opportunity cost. It is possible that investment and therefore productivity growth will have to be lower than otherwise in order to maintain large levels of cash reserves.

Individual firms will always have to trade-off the opportunity cost of holding higher cash reserves ex-ante, with the benefits of being able to survive and invest if negative shocks occur. Different firms may have different time horizons or exit plans.

As an external MPC member, it would be of course outside the scope of my remit to judge how these costs and benefits should be traded off by firms or governments. One can draw analogies with the banking sector, where the FPC requires banks to hold sufficient capital to remain resilient in the face of losses. The normative argument for intervention in the banking sector is that there are large negative externalities on the economy and/or deposit insurance schemes if it is not resilient. The case appears less clear-cut for other sectors.

17. To what extent do you think there will be scarring to the UK economy, and how will you assess how much has occurred?

Scarring normally refers to some permanent or long-lasting reductions in the supply potential of the economy. There are different ways in which this might happen in the context of the Covid-19 crisis. Many of them can also occur following more ordinary downturns in the economy, but there are reasons to think that the scale and nature of the current situation might make some of them more or less likely than usual.

First, it is possible that the increase in unemployment could lead to scarring in the labour market – usually referred to as 'hysteresis'. This can arise because unemployed workers become discouraged, and leave the labour force; or because unemployed (or furloughed) workers' skills or health deteriorate during time not on the job or in training. Much of the empirical evidence on this channel comes from very long spells of unemployment (such as those seen in Europe in the 1980s). My view is that as long as the current period of high unemployment remains temporary, there should be only a limited loss in skills. The crisis may even have led some workers to upskill to adapt to new ways of working remotely.

Second, there is likely to be a reduction in supply due to a lower amount of capital investment, as well as the possibility that capital is scrapped or misallocated. All of these effects could lead to lower levels of capital services per worker, which would reduce labour productivity. The effect of lower investment will feed through gradually over time into capital shallowing, so the overall effect will depend on how quickly investment recovers. Whether capital is scrapped will depend on the degree to which there are business failures, especially if there is structural change in the economy that makes it harder to usefully reallocate capital to surviving firms.

Finally, it is possible that if the downturn persists, it causes a reduction in research and development, and innovation more generally. This could lead to a persistent reduction in technological progress, weighing on productivity and supply. These falls may be exacerbated by any persistent downturn in trade openness and supply chain disruptions.

The extent of all of these effects will depend crucially on how persistent the downturn is, and how much rises in unemployment and falls in investment are mitigated by fiscal and monetary policy actions. Indeed, in my view, preventing scarring was one of the key motivations underlying the immediate macroeconomic policy response to the effects of Covid-19.

I will be monitoring a range of data and more qualitative indicators, including intelligence from the Bank's Agency Network, to assess the degree of scarring. Since most of the processes I have outlined happen only gradually, we will get our first key indications from the usual aggregate data on investment and employment, as well as indicators of underemployment. Over time we will observe how investment feeds into data on capital services per hour to determine the extent of any capital shallowing. And indicators of human capital will tell us whether skills, education or health have suffered. Most difficult to gauge, as always, will be innovation, which is typically hard to measure – although the ONS now has more data that can inform us. A crucial aspect will be the degree of structural change that takes place – we will be able to observe effects using the sectoral expenditure, output and employment data.

18. How do you think the economy will evolve in the long-term following the coronavirus crisis?

Some commentators have framed Covid-19 as a potential 'hinge' in history, or a turning point.[10] A turning point and a major rethink of our way of life is certainly possible for such a massive event, but it is difficult to predict exactly what it will look like.

Rather than a radical change, I think this shock could accelerate pre-existing technological trends; for example, more remote working, a switch to online retail, distance learning and more investment in artificial intelligence. Added to pre-existing climate change concerns, there may be a permanent shift away from long-distance air travel.

These changes may have knock-on macroeconomic impacts. More remote work, e-commerce and distance learning could weight on the demand for and the rental price of commercial real estate. The switch to online retail and greater AI could have implications for aggregate

[10] L Summers (14 May 2020), 'Covid-19 looks like a hinge in history' *Financial* Times, available at https://www.ft.com/content/de643ae8-9527-11ea-899a-f62a20d54625.

productivity, as well as driving changes in the share of income accruing to workers versus capital.

Changes are also likely to depend on the success of policies put in place – countries have the opportunity to shape the nature of any turning point coming from the crisis.