The courage *not* to act – remarks by Huw Pill

Remarks on the monetary policy outlook at a briefing hosted by Barclays

20 May 2025

Remarks

Good morning.

It is a great pleasure to discuss recent monetary policy decisions with you this morning. Thanks to our hosts here at Barclays for organising the event.

The May 2025 MPC decision

At its meeting on 8 May, the Monetary Policy Committee (MPC) decided to reduce Bank Rate by 25bp to 4¼%. This represents a further step in the Committee's *"gradual and careful"* withdrawal of monetary policy restriction, as the substantial pandemic- and invasion-induced inflationary shocks faced in recent years unwind.

The Committee's decision was enabled by evidence of continued progress in disinflation towards a lasting and sustainable achievement of the 2% inflation target.

To illustrate, over the past few months: underlying services price inflation has eased; forward-looking indicators of pay growth have moderated; and – despite continuing challenges with the quality of the data – we are seeing more signs that slack is emerging in the UK labour market.

Layered on top of these developments is the impact of recent announcements about the global trading system (and the uncertainties surrounding them) on the UK economy. On balance, the Committee judged that these announcements would have a modest disinflationary effect on the outlook for UK price developments at the policy-relevant horizon, albeit more marginal than appears to have been the prior expectation of others.

The path of headline CPI inflation promises to be bumpy over the next few months. Owing in large part to the gyrations of European wholesale natural gas prices in the past (and their subsequent impact on UK energy utility bills in the CPI basket), the MPC expects inflation to rise to around 3½% through the summer. But behind this volatility, the underlying disinflation continues.

This narrative and the evidence supporting it were marshalled in the MPC's May *Monetary Policy Report* (MPR), which presents the data, analysis, forecasts and scenarios discussed by the Committee in coming to its Bank Rate decision. Committee members (including myself) have been active over the past couple of weeks in describing these data and analyses, so I will not repeat that again this morning.

Of course, the world does not stand still. Since the MPC's policy decision, we have seen significant further developments. There has been more news on the trade side, not least the US-UK trade agreement announced in Washington DC shortly after the publication of the Bank Rate decision. And that news together with the MPC's policy announcement have led to substantial asset price movements, including a close-to-complete reversal of the post-'Liberation Day' decline in the price of risk assets and market expectations of Bank Rate to year-end.

The implications of such news for the inflation outlook will need to be assessed by the MPC at its upcoming meetings. And the Committee will need to remain alert to the possibility that changes in circumstances demand changes in the monetary policy stance. As the MPC emphasised in its most recent statement: *"monetary policy is not* [and cannot be] *on a pre-set path"*. The Committee's assessment, decision and communication on 8 May were all *conditional* on the information it had at that point: necessarily and inevitably so.

But my objective this morning is not to describe the rationale for the Committee's Bank Rate cut. That has already been done, by the Governor and others.

Rather I seek to stake out my own position. As I am sure most of you know, I dissented from the MPC majority in May in favour of leaving Bank Rate unchanged at 4½%. And that places me under an obligation to explain my dissent.

Inverting the title of Ben Bernanke's celebrated memoir of his experiences during the global financial crisis, my aim in today's remarks is to justify my *'courage not to act'* with Bank Rate at the May MPC.

That argument has three elements: *first,* I will clarify my May dissenting vote (perhaps revealing that it was not so 'courageous' after all); *second,* I will explain the argumentation behind that vote (drawing on analytical material that was influential in my own thinking); and *third,* I will explore how the latest policy round illustrates the potential of scenario analysis (thereby proving a link back to Prof. Bernanke, given his recommendation of this approach in his recent review of the Bank of England's forecasting process).

How courageous? – A 'skip' not a 'halt'

Crucially, I would characterise my May vote as favouring a 'skip' within a continuing withdrawal of monetary policy restriction, rather than a halt to the process of withdrawal.

I still view the underlying disinflation process (towards lasting achievement of the 2% inflation target) as intact. It is the quarterly pace of 25bp Bank Rate cuts delivered since last summer that I question on this occasion – in line with my revealed preference for a *"cautious and gradual"* withdrawal of restriction over the past year.[1]

As I have argued consistently since last spring, I am concerned about the potential inflationary impact of structural changes in price and wage setting behaviour, following the experience of prolonged, well above-target inflation in recent years. Greater 'real income resistance' among entrepreneurs and wage earners may have sustained momentum in nominal dynamics even as resource pressures and the labour market have eased.

The resulting increased *intrinsic* inflation persistence[2] has not only slowed the process of disinflation relative to inflation target era norms, it has also changed the character of the disinflation itself.

The former observation would imply a need for a slower-than-average withdrawal of monetary policy restriction, simply to match the slower-than-average disinflation. But the latter observation brings out that structural changes in the nature of the disinflation process may require a more prolonged maintenance of policy restriction to 'squeeze out' the inflation arising from intrinsic persistence.

Or to put it another way, while progress with disinflation is a signal that monetary policy restriction can be removed over time, progress with disinflation is also a signal that monetary policy restriction is working – and as long as disinflation back to target is not complete, maintenance of some restriction will still be required. On my reading, that is a view that is held across a broad swathe of MPC members.

The disinflation process should not be seen simply as reflecting the dissipation of external shocks. It is also the result of the monetary policy response to those shocks.

For sure we should be forward-looking and internalise the lags in monetary policy transmission to the inflation rate in making our policy choices. But this simply further highlights the need to manage the (potentially complex) inter-related dynamics between the parallel processes of disinflation and withdrawal of policy restriction.

And in my view, that withdrawal of policy restriction has been running a little too fast of late, given the progress achieved thus far with returning inflation to target on a lasting basis.

As reflected in the voting record, my sense is that Bank Rate plateaued at slightly too low a level in 2023, and the MPC started cutting Bank Rate slightly too early in 2024. To compensate, my starting point is that the pace of Bank Rate reduction should be *"cautious"*, running slower than the 25bp per quarter we have implemented since last August.

That requires a 'skip' in that quarterly pattern at some point. And I decided that the May meeting was an appropriate moment for that 'skip'.

Why courageous? – 'Resistance' in theory and practice

Evidence favouring a 'skip' to slow the pace of withdrawal of monetary policy restriction relative to what the MPC has implemented since last August comes from the signal extracted from many noisy nominal indicators. This signal has remained elevated even in an environment of stubbornly weak real activity. While disinflation towards the 2% inflation target continues, disinflationary momentum has shown signs of stuttering.

To illustrate: the pace of decline in the underlying pay growth measure constructed by Bank staff and presented in the MPR has slowed. Core services inflation has remained obstinately robust. Nominal indicators from business surveys show renewed strength – both input and output price measures in the PMI survey, as well as goods inflation expectations in the Bank's own Decision Maker Panel (DMP) survey. And household inflation expectations have picked up, rising to levels above their long-term averages consistent with the achievement of the inflation target. All this comes against a background of (almost) four years of above target CPI inflation, with a peak above 11%. And we expect April headline CPI inflation to show an increase as the prospective bumpiness in that time series I already mentioned becomes apparent.

In short, I remain concerned about upside risks to the achievement of the inflation target.

My concerns are captured in part by the 'upside' inflation scenario presented in Box A of the May MPR. This scenario associates a stronger-than-embodied-in-the-baseline-forecast outlook for CPI inflation with a combination of: (a) second-round effects stemming from the energy price induced 'blip' of headline inflation to 3½% over the summer; and (b) weaker labour productivity growth, which weighs on potential aggregate supply and increases unit labour costs.

I have sympathy with both elements of the scenario. Bank research has demonstrated the potential for non-linear 'threshold effects' to kick into the price formation process once inflation reaches 3½ - 4%.[3] This can be seen as a statistical warning of another bout of potential second-round effects, especially as households may be more attentive to inflation given recent experience and more sensitive to developments in especially salient items of the CPI basket (such as food and utility bills) that are driving the anticipated rise in inflation. And stagnant labour productivity is consistent with the reservations I have expressed for some time about the dynamism of the UK supply-side.

But my concerns go beyond these risks. The scenarios published in the MPR are useful not just because they help to illustrate some of my concerns, but also because they serve to delineate where I have additional concerns that run beyond what is presented in the MPR.

First, a brief empirical motivation.

As shown in **Chart 1** – which will be familiar to many of you from MPR press conferences over the past few quarters – since mid-2023 pay growth has exceeded the rates that would have been expected on the basis of developments in its usual determinants, such as labour market slack, inflation expectations and productivity. In parallel, the MPC's wage growth forecasts – which, though judgemental, draw on models of these standard relationships estimated on data from the generally benign inflation targeting era – have systematically under-predicted the strength of pay growth, as shown in **Chart 2**.

Chart 1 Pay growth has proved surprisingly strong since mid-2023

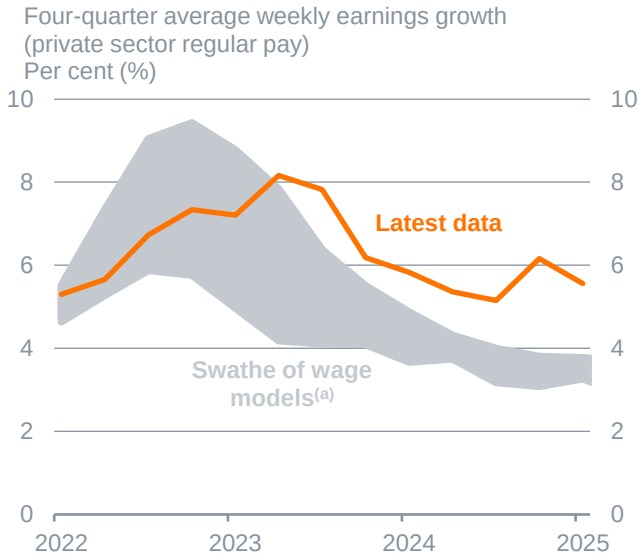
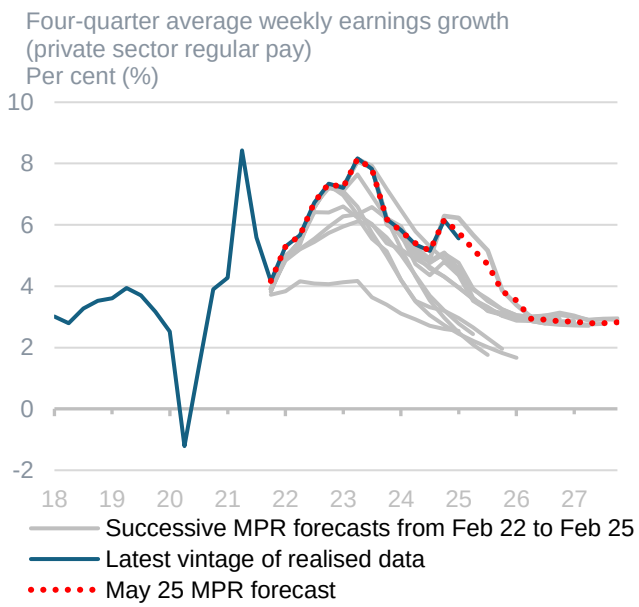


Chart 2 Wage growth has proven to be more persistent than envisioned in the MPC forecast



(a) The shaded swathe represents a range of projections from three statistical models of nominal private sector regular average weekly earnings growth, including two wage equations and a simple error-correction model based on productivity, inflation expectations and slack. The slack measure for these models is based on the MPC's estimate of the unemployment gap. The projections are dynamic, multi-step ahead forecasts beginning at a point within the models' estimation periods and are sensitive to data revisions, which can lead to changes in the swathe over the past as well as over the forecast period.

To explore the monetary policy implications of these empirical developments, my collaborators at the Bank have estimated a small empirical model of the UK economy. Building on the work of my former colleagues at the ECB and their co-authors,[4] this model explicitly incorporates unemployment and captures fluctuations in the natural rate of unemployment (see **Annex**).

In this model, the natural rate of unemployment does not vary according to the degree of skills mismatch or the degree of churn in the labour market (as is the case in other models used at the Bank). Rather, the natural rate of unemployment is a function of the wage bargaining power of workers, which captures how much those workers seek to resist any fall in their real take-home incomes as the economy is subject to real shocks.[5]

Not only does this model get closer to embracing the underlying inflation-propagating mechanism that I am most concerned about, but it does so in an internally consistent way. The approach permits exploration of not just the implications for the inflation outlook of changes in price and wage setting behaviour, but also how those changes in behaviour influence the transmission mechanism and thus the design of the appropriate monetary policy response.

Charts 3 and **4** show how inflation and Bank Rate respond to a 'cost-push shock' in this model as the degree of 'real income resistance' in the wage bargaining process (ψ) strengthens.[6] As intuition would suggest, greater resistance to declines in real income implies a stronger inflation reaction to the cost-push shock (i.e. amplification of the inflation impact) and requires a stronger monetary policy response in Bank Rate.[7][8]

Chart 3 Inflation response to shock strengthens as 'real income resistance' rises …

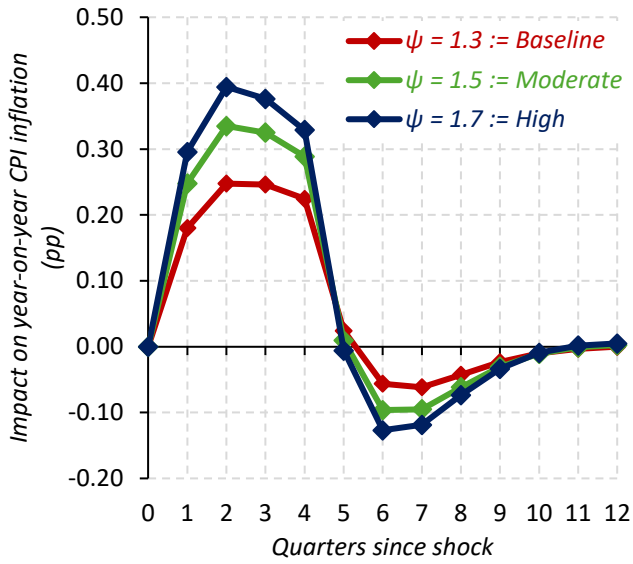
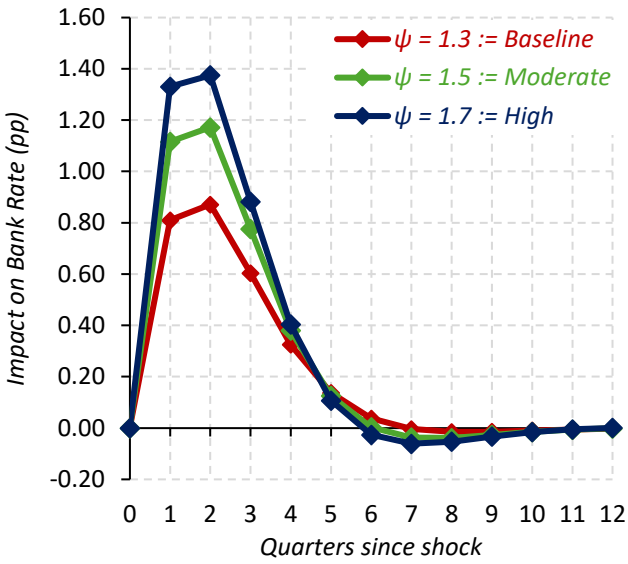


Chart 4 … requiring a stronger monetary policy response as reflected in higher Bank Rate



What's more, because the mechanism producing this stronger response is a reflection of changes in the structure of the economy rather than the specific economic shock – in other words, it is a consequence of greater intrinsic persistence in inflation, rather than extrinsic persistence – then further inflationary shocks would produce similar upside deviations from whatever disinflationary path the economy was on.

Charts 3 and 4 have been produced under the assumption that monetary policy follows a common rule independent of the degree of real income persistence. But the policy response itself should reflect how changes in the structure economy influence the propagation of inflation and the transmission mechanism of monetary policy. What was the optimal monetary policy response under one view of the transmission mechanism will become sub-optimal should that view of the transmission mechanism change.

To illustrate this, we have constructed optimised ‘Taylor rules’ linking the level of Bank Rate to deviations of inflation from target and the output gap. Because we have an internally consistent model of the economy, we can use a measure of welfare to construct these optimised rules that itself reflects how the economy and transmission mechanism has been changed by the changes in ‘real income resistance’.

While adopting a framework with novel structural features challenges the consistency of this exercise with the baseline forecasts and scenarios shown in the May MPR, it has the benefit of maintaining in fact, deepening) the internal consistency within this novel framework.

Chart 5 shows how the parameter governing the optimised responsiveness of Bank Rate to the deviation of inflation from target in this set-up varies with the degree of ‘real income resistance’ shown by wage bargainers. Again in line with intuition, the greater the degree of intrinsic inflation persistence coming from higher ‘real income resistance’, the more strongly monetary policy needs to respond to above target inflation (other things equal).

Taken together, these results imply that, if intrinsic inflation persistence were to rise as a result of wage bargainers exhibiting lastingly stronger real wage resistance, then:

- Inflation would be higher than otherwise following a cost-push shock;
- Since the drivers of that higher inflation are a change in the structure of the economy and the behaviour of firms and households within it, this greater sensitivity of inflation to a cost-push shock is not a ‘one-off’ but a lasting feature of the economy;
- As a result, were there to be a series of inflationary cost-push shocks, the upside deviations of inflation from target would prove more persistent than historical estimates of the inflation response to those shocks would imply;
- And the optimised response of monetary policy given greater intrinsic inflation persistence requires a stronger response of Bank Rate to upside deviations of inflation from target, in turn implying that Bank Rate should stay ‘higher-for-longer’ even as the disinflation process proceeds.

This set of implications is consistent with our recent experience of under-estimating the persistence of above-target inflation following the pandemic- and invasion-induced inflationary cost-push shocks. It also offers support for a slower pace of withdrawal of monetary policy restriction during the subsequent disinflation phase.

In other words, it is one persuasive argument behind my decision to support a May ‘skip’ in the ongoing process of Bank Rate reduction.

Whither courageous? – Exploring 'robustness'

Of course, this is all conjecture. The model-based results follow from different calibrations of 'real income persistence', not estimates based in the latest data. While the results of the exercises are consistent with the surprising strength of UK pay growth since 2023, we do not yet have sufficient data to assess whether there has indeed been a structural break in intrinsic inflation persistence in recent years.

Econometricians enjoy the luxury of being able to wait for longer time series to become available to explore that possibility. Policy makers must take decisions in real time.

That is one reason why scenarios based on calibrations can be valuable in monetary policy preparation – they allow various "what if" exercises to be conducted and published, which expose how policy makers maybe thinking about innovations in the data and the structure of the economy, and their implications for Bank Rate decisions.

One illustration of how such scenarios can support monetary policy making comes from an exercise exploring the robustness of policy decisions in the face of uncertainty about where the true extent of 'real income resistance' among wage bargainers lies.[9] The relatively simple yet empirically relevant model framework developed above is a helpful testbed.

Chart 6 illustrates the following exercise. We assume that the parameter capturing intrinsic inflation persistence (ψ) has shifted to a higher value.[10] We then assess how Taylor rules optimised under different assumptions for the real income resistance parameter made by the central bank (denoted ψ')[11] perform, both in model-consistent welfare terms and in terms of inflation volatility.

By construction, the welfare loss in this exercise is minimised for the true value of the intrinsic inflation persistence parameter (i.e. when $\psi' = \psi$).

Inflation volatility (as shown by the orange bars in Chart 6) declines as the sensitivity of Bank Rate to inflation deviations from target rises (with the central banks assuming real income resistance is stronger than is actually the case, $\psi' > \psi$). But this comes at a cost in terms of overall welfare (captured in the orange line) as the distortions to activity and employment rise. This simple model set-up therefore captures a central feature of the Bank's flexible inflation targeting framework: it warns against adopting what is often called an "inflation nutter" approach that focuses solely on minimising inflation volatility even in the face of trade-off inducing shocks.

Chart 5 More intrinsic inflation persistence should make monetary policy more sensitive to above-target inflation outturns

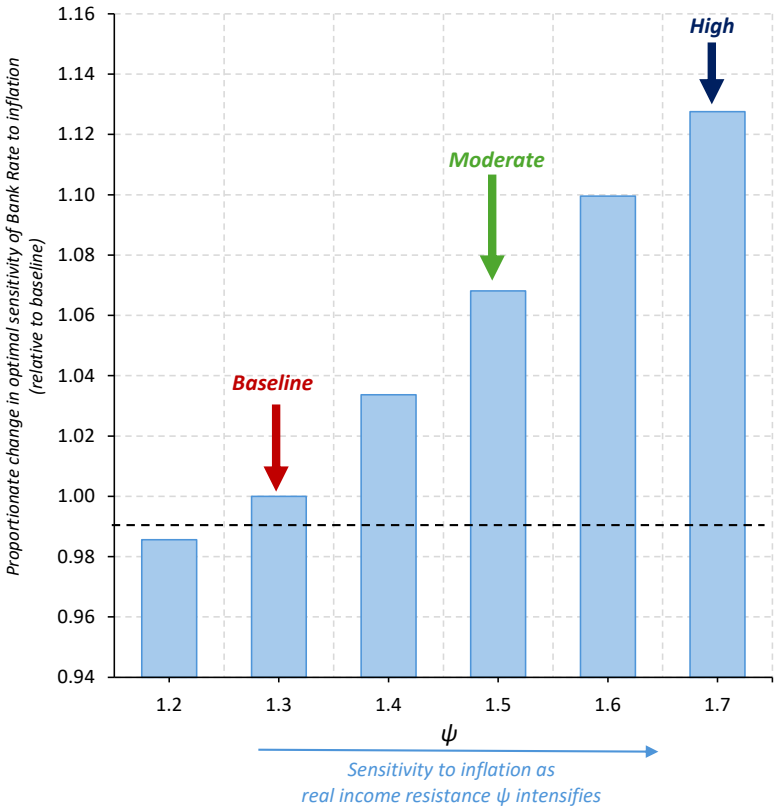
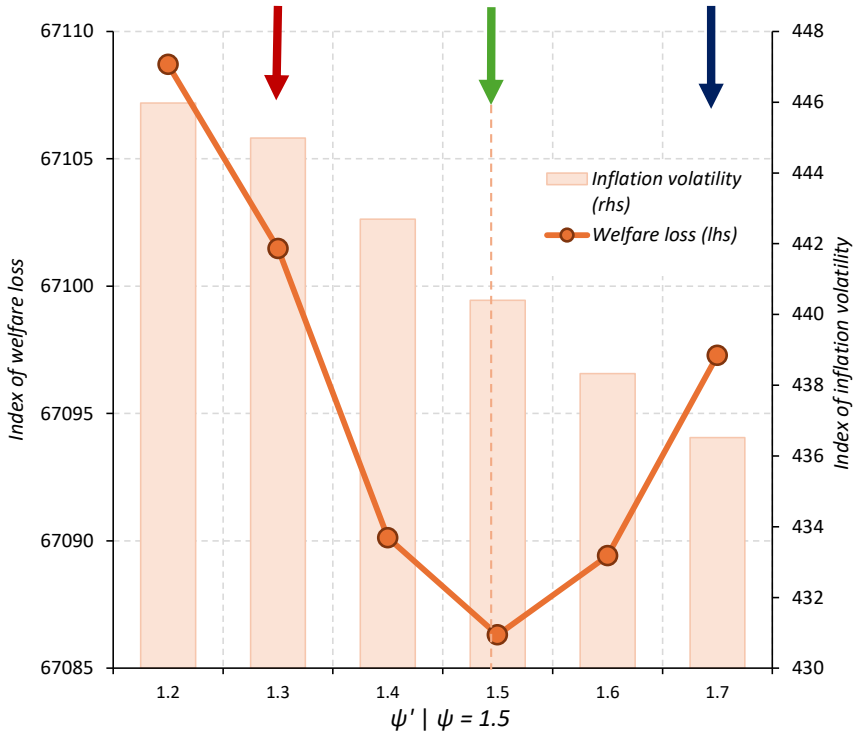


Chart 6 For some values of intrinsic inflation persistence, it is better to err on the side of assuming more persistence rather than less



The key feature of Chart 6 is the asymmetry in welfare losses around this specific true value of inflation persistence. For the calibration chosen, a policy maker creates smaller losses if she errs on the side of assuming a higher-than-true value of intrinsic inflation persistence than is she errs by a similar margin on the side of assuming a lower-than-true value of that parameter.

If this were to be a general result across all plausible value of intrinsic inflation persistence, it would have immediate policy-relevant conclusions: other things equal, it is preferable to worry about intrinsic inflation rather than neglect it.

We explore this conjecture in **Chart 7**. This matrix illustrates how welfare losses vary for different true parameter values as policy makers assume different degrees of intrinsic inflation persistence in constructing their optimised Taylor rules.[12]

Chart 7 Welfare losses when using Taylor Rule with mistaken beliefs (ψ') about true degree of real income resistance (ψ) – No general rule

Proportionate welfare loss when acting as if ψ = ψ', for various ψ (bps)

		True ψ				
		1.3	1.4	1.5	1.6	1.7
Policymaker's belief ψ'	1.3	0.0	0.6	2.3	4.7	7.5
	1.4	0.6	0.0	0.6	2.0	4.0
	1.5	2.4	0.6	0.0	0.5	1.6
	1.6	5.0	2.1	0.5	0.0	0.3
	1.7	8.1	4.2	1.6	0.4	0.0

It is immediately apparent that the result drawn from Chart 6 is not generalisable across all the parameter values deemed plausible. To take the extremes shown here: assuming that intrinsic inflation persistence in low when it is in fact high results in a lower welfare loss than assuming intrinsic inflation is high when it is in fact low.

Nonetheless, Chart 7 is a helpful summary of how uncertainties surrounding the degree of real income resistance (and thus intrinsic inflation persistence) may influence inflation and welfare outcomes. This summary can both help to organise the internal discussion of policy choices within the MPC and present key elements of the rationale for both individual decisions and the final collective outcome of an MPC meeting.

Consideration of a satellite model of real income resistance is useful not just because it delineates where I have additional concerns that run beyond what is presented in the MPR. It is also useful because it reveals that no model (or set of models) is a complete substitute for the importance of my own subjective judgement in forming a view on the appropriate path for Bank Rate. The exercise in Chart 7 forces Committee members to disagree within a common framework and explore the welfare consequences of incorrect beliefs within a model in which macroeconomic mechanisms map directly to optimal policy paths.

Concluding remarks

Progress with underlying disinflation towards lasting and sustainable achievement of the 2% inflation target in the UK continues. This justifies some further withdrawal of monetary policy restriction by the Bank of England's Monetary Policy Committee. In that light, the Committee lowered Bank Rate by 25bp to 4¼% at its May meeting.

My dissent from that decision does not reflect a fundamental difference with the Committee majority regarding the inflation and policy outlook.

On the contrary, I also believe that the underlying disinflation process remains intact and – conditional, as always, on the information and analysis available today – that the prospective path of Bank Rate from here is downward.

My dissenting vote stems from a concern that the pace of withdrawal of monetary policy restriction since last summer – quarterly cuts of 25bp – is too rapid given the balance of risks to price stability we face. This is in line with my preference for *"cautious and gradual"* cuts in Bank Rate expressed over the past twelve months.

I would therefore characterise my dissenting vote as favouring a 'skip' in the quarterly pattern of Bank Rate cuts intended to slow the pace at which monetary restriction is withdrawn. It should not be seen as favouring a halt to (still less a reversal of) that withdrawal of restriction.

Why this preference for caution?

I remain concerned that structural changes in the price and wage setting behaviour have increased the intrinsic persistence of the UK inflation process. That not only makes inflation ‘higher-for-longer’ in the aftermath of pandemic- and invasion-induced inflationary shocks than would otherwise have been the case. It also influences the appropriate Bank Rate response in pursuit of lasting achievement of the inflation target.

In these remarks, I have flagged those indicators that give me cause for concern. I have emphasised that these indicators need to be seen in the round and interpreted as part of a broader economic narrative. Monetary policy decisions should be ‘outlook dependent’ not narrowly ‘data (outturn) dependent’.

But I also recognise the difficulty with concrete, real-time identification of the behavioural changes in price and wage setting that are cause for concern. This is where scenario analysis comes in.

In my remarks this morning, I have sought to give some insight into how economic scenarios can be used to conduct “what if” exercises that influence my approach to monetary policy decisions. These exercises need empirical grounding and internal consistency. They can be conducted in parallel with the baseline forecasts and scenarios published in the MPC *Monetary Policy Report*.

While these scenarios remain work-in-progress from an institutional point-of-view for both the Bank of England and its MPC, I hope my remarks have given some insight into how they influence my own thinking as I participate in the current monetary policy debate.

They illustrate a number of more general points: the MPC and its members routinely consider a wide range of inputs and explore economic mechanisms from different perspectives; by implication, all analysis and judgments cannot be funnelled through a single framework like the forecast; and as a result, a single forecast will not as a general rule be a sufficient statistic for communicating the MPC's policy stance.

And with that, I am happy to take your questions.

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Annex

This Annex outlines in greater detail the modelling framework employed in the main text, which itself is adapted from the model of Gali et al. (2012).[13]

The exercise seeks to consider empirically realistic scenarios for the UK economy that captured different degrees of intrinsic inflation persistence. More specifically, in moving from the “baseline” to the “moderate” to the “high” real income resistance scenarios, workers are endowed with greater wage bargaining power, which allows them to resist the erosion of their real incomes in the face of adverse real shocks to the economy. This in turn increases the steady-state rate of unemployment underpinning the model in that specific scenario.

Useful features of the model Unlike many other medium-scale DSGE models, the model described in Gali et al (2012) explicitly incorporates unemployment and formally captures fluctuations in the natural rate of unemployment. The natural rate of unemployment in this model is not determined by skills mismatch or churn in the labour market. Rather the natural rate of unemployment in this model is a function of the wage bargaining power of workers. This provides a link to more recent Bank research n the inflation process presented in van der Ploeg and Willems (2024).

In this context, a common, exogenous wage mark-up shock propagates through the economy differently depending on the structural parameters of the model. Distinguishing between different mechanisms becomes crucial for understanding the evolution of real and nominal dynamics beyond the point at which the original wage mark-up shock has dissipated. Mechanisms therefore matter crucially for the optimal response of monetary policy to what is essentially a transitory shock to the wage-setting process.

Conclusions rooted in empirical estimation There are two types of nominal rigidity in the model: price rigidities and wage rigidities. Because these nominal rigidities are not completely synchronous, their interaction creates a real rigidity. The presence of both nominal and real rigidities affords the model with rich, empirically realistic dynamics.

Gali et al. (2012) is estimated on US data. Smets et al. (2014) employ a similar framework estimated on euro area data. For the exercises discussed in the main text, a comparable model is estimated on UK data, spanning the period from 1990 to 2019. Other applications of Gali et al. (2012) have demonstrated that: (i) the impulse response functions generated by this model accord with empirical evidence in the US, especially with respect to fluctuations in unemployment and output; (ii) this model performs as well as a non-structural BVAR when it comes to forecasting key macroeconomic aggregates in the euro area.

Parameterising different degrees of real income resistance In each of the experiments shown in the main text, the starting point is a wage mark-up shock to the wage Phillips Curve. The time series properties of this wage mark-up shock are captured by parameters estimated on UK data over the period 1990 to 2019.

In the "baseline" scenario, the degree of real income resistance in the economy is calibrated using estimates from UK data over the period from 1990 to 2019. Formally, this estimation informs the "baseline" setting where $\psi = 1.3$, as featured in equation (3). In the "moderate" scenario, the degree of real income resistance in the economy is calibrated using estimates from euro area data over a similar period. Formally, this estimation informs the "moderate" real income resistance setting of $\psi = 1.5$. Finally, $\psi = 1.7$ in our third scenario, capturing "high" real income resistance.

To distinguish from the analysis shown in the 'upside' inflation scenario presented in the May MPR, none of these experiments appeal to greater price or wage indexation to past inflation to generate intrinsic inflation persistence (although of course that mechanism could also be introduced here by considering alternative parameterisations of γ_p and γ_w in equations (1) and (9) below).

Characterising the central bank's behaviour In this model, a second-order approximation of the household's utility function yields the per-period central bank loss function specified in equation (15) below. This derivation, which implies that the central bank's preferences are both model-consistent and welfare-consistent, has two important implications.

First, the central bank's loss function is defined over deviations in price inflation, output and wage growth.[14] As wages are typically stickier than prices, any asynchronicity between the frequency at which wages adjust and the frequency at which prices adjust creates real rigidities that cause allocative inefficiencies that erode the welfare of the representative household. These are therefore reflected in the central bank's preferences, which derived from the welfare of that representative household.

Second, the relative weights placed by the central bank on deviations in price inflation, output and wage growth are uniquely determined by the structural parameters of the model. The preferences of the central bank are not ad hoc. As equation (15) shows, for example, the trade-off that the central bank faces between output and inflation stabilisation is pinned down by structural parameters capturing the stickiness of prices, the pricing power of firms and the elasticity of the labour supplied by workers.

Defining optimal monetary policy in the model In the results described in the main text, model-based optimal monetary policy is characterised as the result of the central bank minimising its per-period loss function (as specified in equation (15) below) by

choosing the appropriate response coefficients in a simple Taylor Rule defined over inflation and the output gap, along with a degree of interest-rate smoothing (as specified in (16)).

Determinants of the optimal policy response across scenarios The price Phillips Curve in this model set-up features two arguments which generate a trade-off between output and inflation stabilisation in the face of a wage mark-up shock. First, the presence of price and wage stickiness generates endogenous dynamics which affect price inflation via the real wage gap (see $\lambda_p \widetilde{w_t}$in (9)) in addition to the traditional role of the output gap (see $\kappa_p \tilde{y}_t$ in (9)). Second, the interaction between the wage mark-up shock and the desired (natural) wage mark-up generates exogenous dynamics which affect price inflation via the time-varying natural rate of unemployment (see $\delta_p \varepsilon_t^w$ in (9)).

Permanently increasing the bargaining power of workers ψ in (13) implies a higher desired wage mark-up in steady state μ_w^n given (13). This, in turn, implies a higher steady-state rate of unemployment u^n given (14). Because ϵ_w is correspondingly lower, λ_w is correspondingly higher (given (2) and (3)). Greater real income resistance therefore implies a steeper wage Phillips Curve in (1): wage inflation responds more strongly to a given unemployment gap. While the relative weight of wage growth in the central bank's loss function declines (as per (15)), the combined effect of the endogenous dynamics associated with a wider real wage gap and the exogenous dynamics associated with stronger transmission through the price Phillips Curve serves to aggravate the output-inflation trade-off induced by the original wage mark-up shock.

Selected model equations

The wage Phillips Curve in the model can be expressed as:

$$\pi_t^w - \gamma_w \pi_{t-1}^p = \beta\left(\mathbb{E}_t[\pi_{t+1}^w] - \gamma_w \pi_t^p\right) - \lambda_w\left(\mu_{w,t} - \mu_{w,t}^n\right) \quad (1)$$

where $\left(\mu_{w,t} - \mu_{w,t}^n\right)$ is the difference between the actual and desired wage mark-up, and:

$$\lambda_w \equiv \frac{(1-\beta\theta_w)(1-\theta_w)}{\theta_w(1+\epsilon_w\varphi)} \quad (2)$$

and, within that:

$$\epsilon_w \equiv \frac{\psi}{\psi-1} \quad (3)$$

Note that the final term of the wage Phillips Curve (1) can be re-written as:

$$\left(\mu_{w,t} - \mu_{w,t}^n\right) = \left(\varphi u_t - \mu_{w,t}^n\right) = (\varphi u_t - \varphi u_t^n) = \varphi(u_t - u_t^n) = \varphi u_t - \varepsilon_t^w \quad (4)$$

because

$$\mu_{w,t}^{n} = \varphi u_t^{n} = \varepsilon_t^{w} \tag{5}$$

where:

$$\varepsilon_t^{w} = \rho_w \varepsilon_{t-1}^{w} + \eta_t^{w} - \tau_w \eta_{t-1}^{w} \tag{6}$$

Alternatively, the final term of the wage Phillips Curve in (1) can be re-written as:

$$\left(\mu_{w,t} - \mu_{w,t}^{n}\right) = \varphi(u_t - u_t^{n}) = \mu_{w,t} - \varepsilon_t^{w}$$

$$= \widetilde{w_t} - \left(\sigma + \frac{\varphi}{1-\alpha}\right) \underbrace{(y_t - y_t^{*})}_{\equiv \widetilde{y_t}} - \underbrace{\left(\sigma + \frac{\varphi}{1-\alpha}\right)(y_t^{*} - y_t^{n})}_{\equiv \varepsilon_t^{w}} \tag{7}$$

where the real wage gap can be written as:

$$\widetilde{w_t} = \widetilde{w_{t-1}} + \pi_t^{w} - \pi_t^{p} - (w_t^{*} - w_{t-1}^{*}) \tag{8}$$

As a result, the price Phillips Curve in the model can be expressed as:

$$\pi_t^{p} - \gamma_p \pi_{t-1}^{p} = \beta\left(\mathbb{E}_t\left[\pi_{t+1}^{p}\right] - \gamma_p \pi_t^{p}\right) + \kappa_p \widetilde{y_t} + \lambda_p \widetilde{w_t} + \delta_p \varepsilon_t^{w} \tag{9}$$

where:

$$\kappa_p = \frac{\alpha \lambda_p}{1-\alpha} \tag{10}$$

$$\lambda_p = \frac{(1-\beta\theta_p)(1-\theta_p)}{\theta_p((1-\alpha)/(1-\alpha+\alpha\epsilon_p))} \tag{11}$$

$$\delta_p = \frac{\kappa_p}{\left(\sigma + \frac{\varphi}{1-\alpha}\right)} \tag{12}$$

In steady state, note that:

$$\mu_w^{n} \equiv log(\psi) = log\left(\frac{\epsilon_w}{\epsilon_w - 1}\right) \tag{13}$$

and

$$u^{n} = \frac{\mu_w^{n}}{\varphi} \tag{14}$$

It can be shown that a second-order approximation of the household's utility function delivers the following per-period loss function for the central bank:

$$\mathcal{L}_t = \left(\sigma + \frac{\varphi+\alpha}{1-\alpha}\right) var(\widetilde{y_t}) + \left(\frac{\epsilon_p}{\lambda_p}\right) var(\pi_t^{p}) + \left(\frac{\epsilon_w(1-\alpha)}{\lambda_w}\right) var(\pi_t^{w}) \tag{15}$$

In our definition of optimal monetary policy, the central bank minimises $\mathcal{L}_t$ in (15) by choosing appropriate response coefficients in a simple Taylor Rule for Bank Rate i_t, as specified by:

$$i_t = \phi_i i_{t-1} + \phi_{\pi_p} \pi_t^{p} + \phi_y \widetilde{y_t} + \varepsilon_i \tag{16}$$

Notes

[1] See the concluding remarks to my speech at the Institute of Chartered Accountant of England and Wales last October (Pill, 2024).

[2] For a discussion of the distinction between intrinsic inflation persistence driven by the behaviour of firms and households in the economy and extrinsic inflation persistence associated with a series of external shocks all acting in the same direction, see my IMCB lecture (Pill, 2023).

[3] See Gaffney and Potjagailo (2025). Their analysis uses a Threshold VAR model that detects shifts in UK economic dynamics once CPI inflation rates exceed 3½ - 4%.

[4] See Gali et al. (2012) and Smets et al. (2014).

[5] For a richer discussion of these mechanisms, see the model presented in van der Ploeg and Willems (2024).

[6] The specifics of these exercises are described in more detail in the Annex. Responses in Charts 3 and 4 are to a 'wage mark-up' shock as defined in the model. An important assumption here is that the shift in real income resistance is unanticipated by both firms and households, as well as by the central bank. Crucially, this shift in real income resistance is also independent of current and future monetary policy implemented by the central bank (i.e. there is no signalling effect).

[7] As discussed in the Annex, the "baseline" shown in Charts 3 and 4 derives from an empirical estimate of the real income resistance parameter (ψ) in the model estimated using UK data drawn from the inflation targeting era. The "moderate" scenario is based on a value for this parameter drawn from estimates based on euro area data over the same period. On the basis of the posterior distribution of the UK estimate obtained using Bayesian techniques, the shift from "baseline" to "moderate" scenario amounts to a slightly more than one standard deviation rise in the real income resistance parameter. This assessment suggests that the shift is a plausible one, on both economic and statistical grounds – and therefore worthy of attention by policy makers.

[8] For clarity, I emphasise that the machinery used here to produce endogenous monetary paths is different from (and simpler than) the optimising algorithms used in a recent speech by Deputy Governor Clare Lombardelli (2025). The exercises shown in her speech and in the associated material in Box A of the May MPR are therefore not comparable with this analysis.

[9] There is a large economic literature on this issue, to which an important contribution is Söderström (2002). Given constraints of time and space, this is not the place to review that literature, which nonetheless deserves careful reading. Rather the analysis here is intended to represent efforts to use the thinking embodied in that literature in a practical way for monetary policy preparation and discussion.

[10] Specifically, the ψ parameter capturing real income resistance and defined precisely in the Annex rises from a value of 1.3 to 1.5. As already explained in footnote 7, this shift in this parameter can be understood as equivalent to UK labour market behaviour becoming closer to that seen in the euro area. As such, it represents an empirically plausible change, rather than an extreme tail event.

[11] We allow the real income resistance parameter assumed by policy makers (ψ') to range from 1.2 to 1.7. On our assessment, the extremes of this range are still plausible rather than tail events. As shown in Chart 5, the responsiveness of Bank Rate to deviations of inflation from target increases as the central bank's assumption on the real income resistance parameter rise.

[12] To help with the orientation of this chart: the curve shown in Chart 6 translates into the highlighted column in Chart 7, since this column captures the exercise when the central bank assumes different values of real income resistance (ψ' ranges between 1.2 and 1.7), whereas the true parameter value $\psi = 1.5$.

[13] The material presented in this Annex was prepared by my colleagues Tim Munday and Adrian Paul.

[14] In the model equations reported below, the superscript * denotes the efficient allocation. Because this model embodies shocks to the desired (natural) wage mark-up, the flexible-price (natural) allocation is no longer efficient. The relevant gaps for monetary policy are therefore the gaps defined with respect to each variable's efficient allocation – not with respect to its flexible-price (natural) allocation.