

Annex 1 of the November 2025 Monetary Policy Report: Model-based policy simulations

Endogenous policy simulations are model-based exercises that account for systematic feedback between monetary policy and economic outcomes, in both directions. As described in [Alati et al \(2025\)](#), Bank staff regularly analyse a range of endogenous policy simulations, drawing on simple illustrative policy rules and so-called optimal policy projections (OPPs). These exercises show how alternative policy approaches affect the economic outcomes that can be achieved within a macroeconomic model and can assess how a given approach performs in alternative scenarios.

While a useful input to the monetary policy process, there is no mechanical link between endogenous policy simulations and real-world monetary policy decisions. The tools are stylised and simplified, so do not reflect the full set of information and uncertainties with which policymakers are faced.

Alternative approaches to endogenous policy

Bank staff typically consider two approaches to endogenous policy. Under simple policy rules, policy is set mechanically according to a reaction function that includes a small number of macroeconomic factors. Under OPPs, policy paths are constructed to minimise a loss function intended to capture policymakers' preferences over macroeconomic outcomes. Both approaches recognise the remit of the Bank of England. The two approaches have different merits and limitations, discussed further in [Alati et al \(2025\)](#).

Table A1.A provides expressions for three simple policy rules, where i_t denotes the nominal Bank Rate for quarter t . The right-hand side variables in the rules include: (the deviation from steady state of) annual energy inflation in the current quarter, π_t^E ; (the deviation from steady state of) annual inflation of non-energy components in the current quarter, π_t^N ; the projection for annual CPI inflation three and five quarters ahead, $\pi_{t+3|t}$ and $\pi_{t+5|t}$; the output gap in the current quarter and five quarters ahead, y_t and $y_{t+5|t}$; and quarterly GDP growth three quarters ahead, $\Delta GDP_{t+3|t}$. For these simulations, i^* is constant and assumed to be 3% annually, consistent with a 2% annual CPI inflation objective (π^*) and an illustrative long-run trend equilibrium real rate of 1%.

Table A1.A: Specification and calibration of simple policy rules

Policy rule	Specification
Contemporaneous Taylor-type rule	$i_t = 0.85i_{t-1} + 0.15(i^* + 0.375\pi_t^E + 1.5\pi_t^N + 0.5y_t)$
Forward-looking Taylor-type rule	$i_t = 0.85i_{t-1} + 0.15(i^* + 1.5(\pi_{t+5 t} - \pi^*) + 0.5y_{t+5 t})$
Forward-looking first-difference rule	$\Delta i_t = 0.1(\pi_{t+3 t} - \pi^*) + 0.1\Delta GDP_{t+3 t}$

The first two rules in Table A1.A are variants of the ‘Taylor rule’ ([Taylor \(1993\)](#)). They relate the level of Bank Rate to the level of inflation (or its subcomponents) and the amount of excess supply or demand in the economy. The first rule considers energy and non-energy subcomponents of annual CPI inflation separately, as in [Albuquerque et al \(2025\)](#). The second rule is ‘forward-looking’, containing five-quarter-ahead projections of macroeconomic variables on the right-hand side, as in [Batini and Haldane \(1999\)](#). The third rule in the table is a variant of a ‘first-difference’ rule ([Orphanides \(2003\)](#)). It relates the change in Bank Rate to changes in demand and deviations of inflation from target.

OPPs are simulated using a loss function that weighs up deviations of inflation from target, variation in the output gap and changes in interest rates. In this Report, the OPPs are calibrated with a weight on output-gap stabilisation relative to inflation stabilisation, λ , of 0.25 and a weight on interest-rate smoothing, δ , of 60. As [Alati et al \(2025\)](#) describe, Bank staff carry out endogenous policy simulations using a variant of COMPASS, the Bank’s medium-scale DSGE model described in [Albuquerque et al \(2025\)](#).

Illustrative endogenous paths for alternative projections

Section 3 of the Report discusses a subset of illustrative endogenous paths salient to the current conjuncture. Table A1.B reports illustrative paths for Bank Rate in the central projection and scenarios for the full range of endogenous policy approaches discussed in this Annex, alongside the market-implied path that underpins the central projection. Table A1.C and Table A1.D report corresponding illustrative projections for annual CPI inflation and the output gap. The [Projections Databank](#) contains the quarterly profiles for these data.

Table A1.B: Illustrative paths for Bank Rate in the central projection and scenarios using different endogenous policy approaches

	Central projection			Inflation persistence scenario			Weaker demand scenario		
	2026 Q4	2027 Q4	2028 Q4	2026 Q4	2027 Q4	2028 Q4	2026 Q4	2027 Q4	2028 Q4
Contemporaneous Taylor-type rule	3.6	3.3	3.4	3.6	3.4	3.5	3.6	3.0	3.1
Forward-looking Taylor-type rule	3.3	3.4	3.5	3.4	3.6	3.7	3.1	3.1	3.2
Forward-looking first-difference rule	3.9	3.9	3.9	3.9	4.0	4.0	3.8	3.7	3.7
Optimal policy projection	3.8	3.7	3.7	3.9	3.8	3.9	3.7	3.4	3.3
Memo: under market path	3.5	3.5	3.6	3.5	3.5	3.6	3.5	3.5	3.6

Table A1.C: Illustrative projections for annual CPI inflation in the central projection and scenarios using different endogenous policy approaches

	Central projection			Inflation persistence scenario			Weaker demand scenario		
	2026 Q4	2027 Q4	2028 Q4	2026 Q4	2027 Q4	2028 Q4	2026 Q4	2027 Q4	2028 Q4
Contemporaneous Taylor-type rule	2.7	2.2	2.2	2.8	2.5	2.5	2.7	2.1	2.0
Forward-looking Taylor-type rule	2.7	2.2	2.2	2.8	2.4	2.5	2.7	2.0	2.0
Forward-looking first-difference rule	2.0	1.6	1.8	2.0	1.8	1.9	1.9	1.5	1.6
Optimal policy projection	2.4	2.0	2.1	2.4	2.1	2.3	2.5	1.9	2.0
Memo: under market path	2.5	2.0	2.1	2.8	2.4	2.5	2.2	1.7	1.8

Table A1.D: Illustrative projections for the output gap in the central projection and scenarios using different endogenous policy approaches

	Central projection			Inflation persistence scenario			Weaker demand scenario		
	2026 Q4	2027 Q4	2028 Q4	2026 Q4	2027 Q4	2028 Q4	2026 Q4	2027 Q4	2028 Q4
Contemporaneous Taylor-type rule	-0.6	-0.1	0.2	-0.7	-0.2	0.1	-0.7	-0.3	0.1
Forward-looking Taylor-type rule	-0.5	-0.2	0.1	-0.7	-0.3	0.1	-0.6	-0.3	0.0
Forward-looking first-difference rule	-1.3	-0.9	-0.4	-1.5	-1.1	-0.6	-1.4	-1.0	-0.5
Optimal policy projection	-0.9	-0.4	0.0	-1.1	-0.7	-0.2	-0.9	-0.5	0.0
Memo: under market path	-0.7	-0.4	0.0	-0.7	-0.4	0.0	-1.2	-0.8	-0.4