An Updated Model-based View on the Stance of Monetary Policy

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18 March 2025

1. Introduction

The previous note of 16 February 2025 provided a model-based view on the appropriate path for the RBA policy interest rate. Under the preferred path, the policy interest rate was unchanged at 4.35 per cent in the first half of 2025, before there are a small number of staggered rate reductions towards a neutral cash rate of 3.7 per cent. The February note included sensitivity analysis which showed that, at present, the appropriate stance of monetary policy depends particularly on the stance of Australian fiscal policy and of US monetary policy.

Since the February note, there have been some important developments that are taken into account in this March note. First, the policy interest rate was reduced to 4.10 per cent on 19 February, earlier than under the preferred path of the February note. Second, the national accounts for the December quarter 2024 were released on 5 March and showed higher wage and price inflation during 2024 than estimated in February. Third, the national accounts showed that growth in real public final demand during 2024 was 5.7 per cent, which was even higher than expected. All three of these developments raise the model's inflation forecasts. Higher inflation leads to a higher projected path for the policy interest rate.

The model has had some success in forecasting inflation. Using the model, in 2021 Murphy (2021), unlike other forecasters, was able to largely forecast the major inflation outbreak that occurred in 2022. The inflation outbreak followed the lifting of COVID restrictions and the over-prolonged expansion of fiscal and monetary policy, the effects of which are modelled in greater depth in this model than in other models, let alone in the less integrated frameworks that are used by some forecasters.

Similar to the February note, this note provides scenarios under both backward-looking and forward-looking approaches to monetary policy. However, while the previous note included two versions of a backward-looking approach and three versions of a forward-looking approach, this note provides a single version of each approach in the interests of brevity.

Under both approaches to monetary policy, the policy interest rate is adjusted to control inflation and unemployment, but in different ways. Under a backward-looking approach to monetary policy, the policy interest rate responds to observed inflation and unemployment in so-called Taylor rules. This is used in the *baseline* scenario. Under a more sophisticated forward-looking approach to monetary policy, the model and its forecasts for inflation and unemployment are used to optimally control the policy interest rate. This is used in the *optimal monetary policy* scenario.

Like the previous note, this note includes sensitivity analysis, but with less detail. Again, the sensitivity analysis focusses on how the stance of Australian monetary policy is affected by the stance of US monetary policy and the stance of Australian fiscal policy.

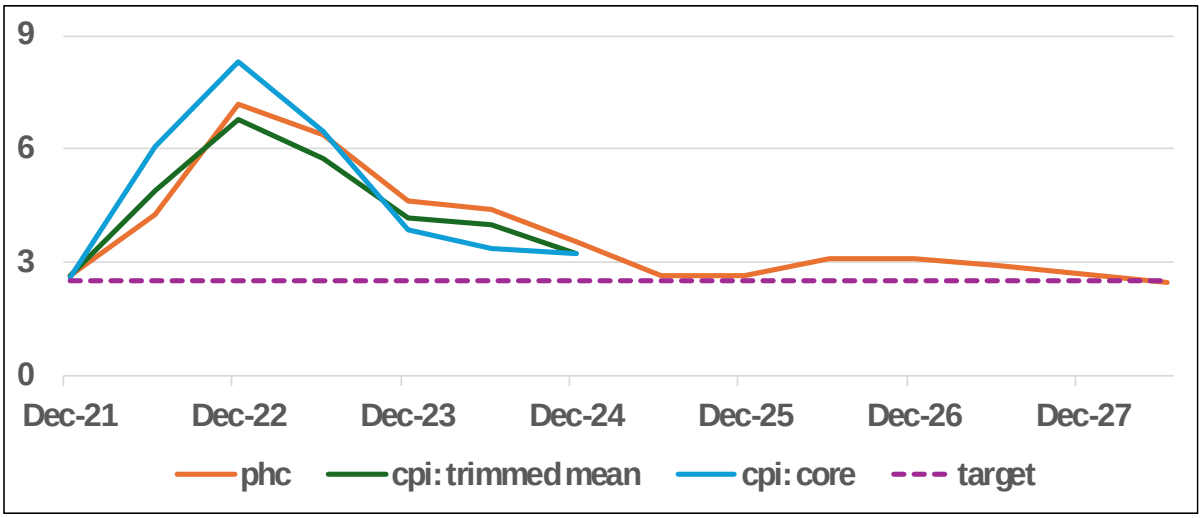
2. Baseline scenario

The *baseline* scenario, which uses the backward-looking approach to monetary policy, is summarised in Table 1 (attached). The forecasts are presented in a similar format to the customary format in the RBA Statement on Monetary Policy for ease of comparison. This includes half-yearly reporting of percentage growth rates over 4 quarters. At the same time, there are some relatively minor differences in the detail of the format, including in the exact choice of variables, definitions of some variables and the timing of their measurement.

The appropriate stance of monetary policy depends importantly on whether underlying inflation is above or below the inflation target. Chart 1 shows three alternative measures of underlying inflation. The first measure is the implicit price deflator for household consumption (PHC) published in the

national accounts. The PHC index is similar in concept to the PCE index that is used by the US Federal Reserve as its inflation target. It is also used as the Australian inflation target in our model. PHC inflation was 3.5 per cent in the four quarters to the December quarter 2024 (Chart 1), well above the inflation target of 2.5 per cent. Thus, in the model, the gap of inflation from its target is 1.0 percentage points.

Chart 1: Three measures of underlying consumer price inflation



The CPI is a narrower but more well-known measure of consumer price inflation than the PHC. The RBA uses the trimmed mean CPI to measure underlying inflation. Trimmed mean CPI inflation was 3.2 per cent during 2024 (Chart 1). The monthly version was a little lower at 2.8 per cent in the 12 months to January 2025. The trimmed mean takes a statistical approach to identifying underlying inflation.

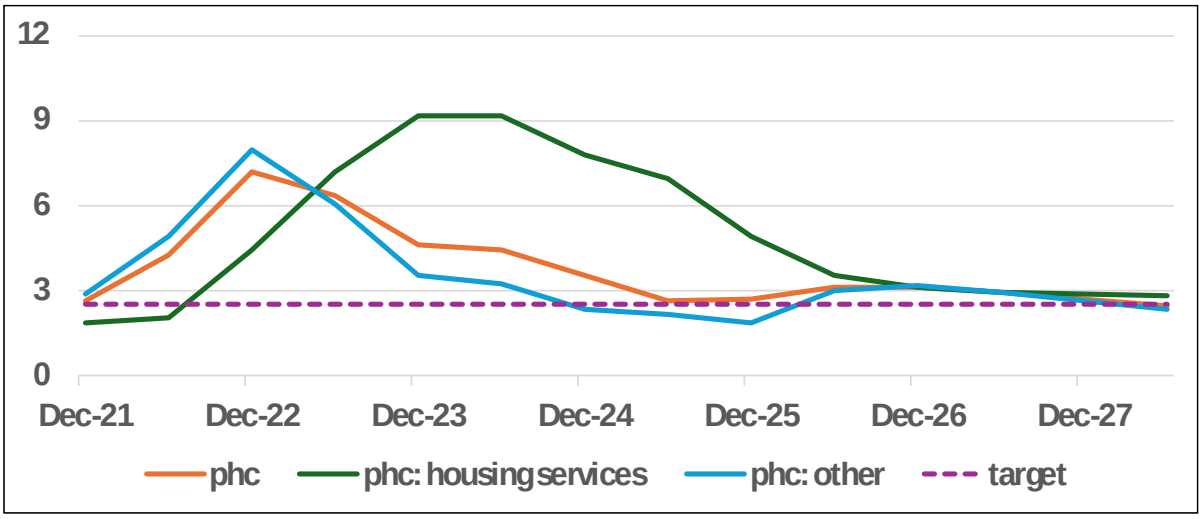
In contrast, core inflation, as defined here, takes an economic approach to identifying underlying inflation. Core inflation adjusts the CPI by only including market goods and services and by excluding volatile items. Core inflation was 3.2 per cent during 2024 (Chart 1), the same as trimmed mean inflation. Both of these measures are published by the ABS alongside the CPI.

Taking into account all three measures, underlying inflation during 2024 was between 3.2 per cent and 3.5 per cent. This is well below the peak rates experienced during 2022, which ranged from 6.8 per cent to 8.3 per cent. However, on all three measures underlying inflation is still above the target rate of 2.5 per cent and its rate of decline appears to have slowed (Chart 1).

While at the aggregate level underlying inflation is somewhat above the target rate, inflation is far from uniform. While total PHC inflation is 3.5 per cent, inflation for the housing services component is much higher at 7.8 per cent, whereas inflation for the rest of household consumption is lower at only 2.3 per cent (Chart 2). The high rate of inflation for housing services partly reflects well-known shortcomings in state government housing policies. However, sound macro policy requires that the RBA does not ignore inflation for housing services. Rather, it should continue to focus on inflation measures that include housing services, and those measures remain somewhat above the target rate.

Following the latest release of the national accounts, the jumping off point for inflation in the model forecast is higher. This is due to a combination of ABS revisions to the national accounts inflation data up to the September quarter 2024 and higher than expected inflation in the December quarter 2024. The jumping off point is higher for both price and wage inflation.

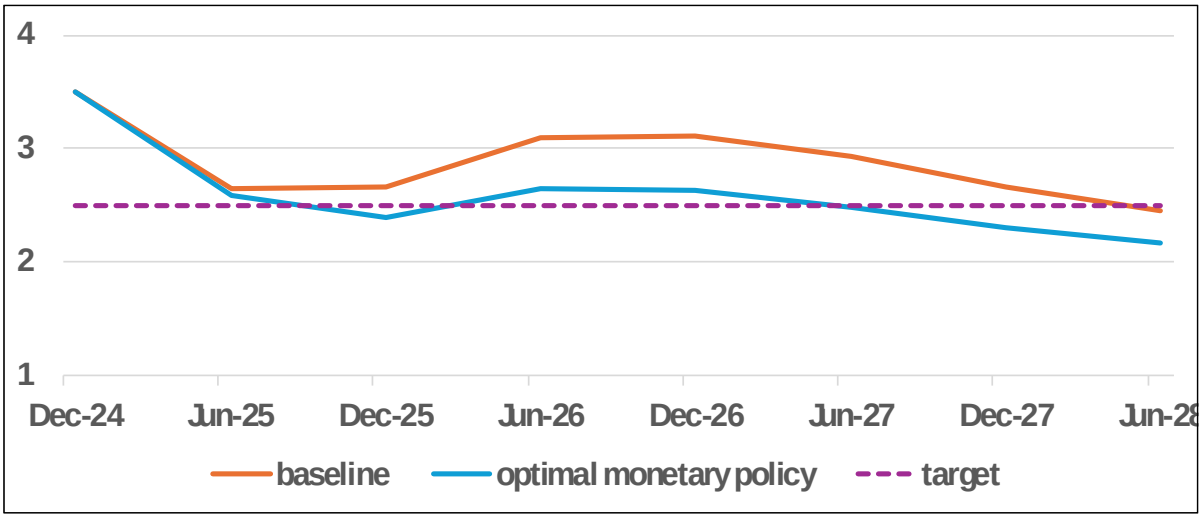
Chart 2: Housing services and other inflation



The outcome for PHC inflation during 2024 was 3.5 per cent, as discussed above. This is above the estimate of 3.0 per cent in the February note. Wage inflation, as measured by average compensation of employees in the national accounts, was 3.2 per cent, significantly above the estimate of 2.2 per cent in the February note[1]. This higher estimate for wage inflation during 2024 feeds through into higher forecasts for price inflation.

PHC inflation is now forecast to fall only slightly to 2.7 per cent during 2025, before picking up to 3.1 per cent during 2026 (Chart 3, orange line). Similar to 2024, in 2025 PHC inflation is above the target rate of 2.5 per cent only because of high inflation for housing services. However, in 2026 inflation is more broad-based, being over 3 per cent for both housing services and the rest of household consumption (Chart 2).

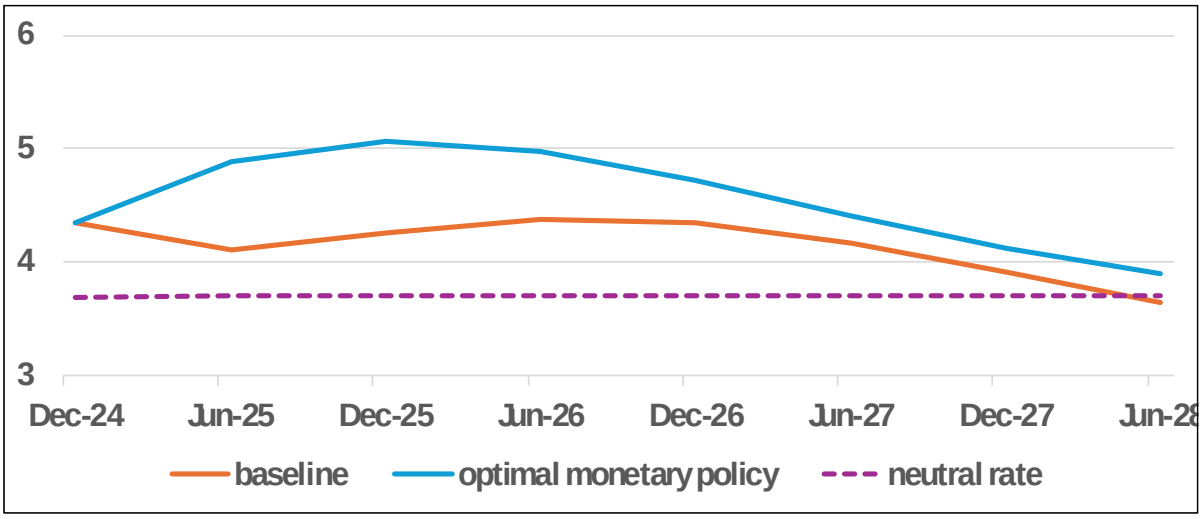
Chart 3: PHC inflation rate



Under this path for inflation, the February cut in the cash rate from 4.35 to 4.1 per cent was inappropriate according to the Taylor rule. However, a sudden reversal of this cut seems unlikely, so in the forecast we hold the cash rate fixed at 4.1 per cent through to June 2025. The Taylor rule then restores the cash rate to 4.35 per cent by the end of 2025 (Chart 4, orange line).

[1] In the February 2025 Statement on Monetary Policy, the RBA (2025) had similarly estimated wage inflation on a national accounts basis of only 2.2 per cent. Its estimate for WPI inflation was higher at 3.2 per cent.

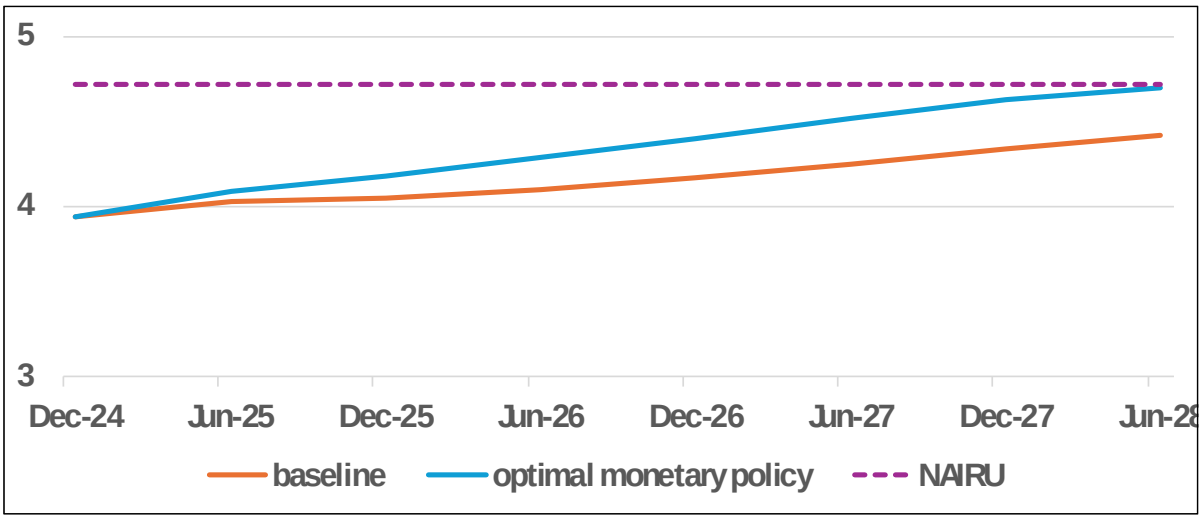
Chart 4: Cash rate



During 2026, the cash rate remains steady at 4.35 per cent in response to above target underlying inflation of over 3 per cent. This leads to downward pressure on inflation, allowing reductions in the cash rate to restart in 2027. By mid-2028 macro balance is largely restored: inflation is at its target rate of 2.5 per cent (Chart 3, orange line) and the cash rate is neutral at 3.7 per cent[2] (Chart 4, orange line).

Besides the inflation gap, the unemployment gap i.e. the difference between the unemployment rate and its sustainable rate or NAIRU, also influences the policy interest rate under the model's Taylor rule. In the model's wage equation estimated using piecewise linear regression, the NAIRU is estimated to have been 4.7 per cent since 2015. In August 2024, the RBA (2024) estimated the same value for the current NAIRU of 4.7 per cent, even though it used a different method. Either way, the January 2025 unemployment rate of 4.1 implies a negative unemployment gap of –0.6 percentage points (Chart 5).

Chart 5: Unemployment rate



[2] The neutral policy interest rate in the United States is estimated to be 3.45 per cent in nominal terms. This estimate is based on an analysis of the behaviour of the US policy rate and 10-year bond rate since 2001. The CBO (2025) forecasts an effective federal funds rate of 3.2 per cent at the end of this decade, suggesting it believes the neutral rate is about 0.25 percentage points below our estimate. In any case, under the model assumption of uncovered interest parity, the Australian neutral rate will match the US neutral rate in *real* terms. In *nominal* terms the neutral rate will be higher in Australia than in the US because of our higher inflation target, leading in the model to an Australian neutral rate of 3.7 per cent.

Like the positive inflation gap in the December quarter 2024 of 1.0 percentage points, this negative unemployment gap of –0.6 percentage points pushes the policy interest rate above neutral in the Taylor rule. Although the two gaps have equal weights in the rule, at present the inflation gap is wider and hence has a larger influence on the policy interest rate. During the forecast, the unemployment gap gradually closes (Chart 5, orange line vs dashed line), but does not fully close until beyond the forecast period shown here.

Finally, it is acknowledged that financial markets expect the policy interest rate to follow a lower path than under our *baseline* scenario. For example, as of today's date, the ASX RBA rate indicator predicts an average cash rate of 3.4 per cent in the first half of 2026 (ASX, 2025), whereas our forecast is a full percentage point higher at 4.4 per cent.

While the futures market could be right, it does not always out-forecast macro models. For example, in October 2021, using the same model as here, I made the following prediction about the cash rate, when it was still at its assessed effective lower bound of 0.1 per cent.

> This developing environment of low unemployment and (high) inflation leads the Reserve Bank to start lifting the cash rate in the first half of 2022. In parallel, the 90-day bill interest rate rises, and reaches a peak of *4 per cent* in the first half of 2024 (Chart 3.16). (Murphy, 2021, p. 26)

In contrast, in November 2021, the RBA (2021) reported in Graph 3.10 of its Statement on Monetary Policy that the futures market expected the cash rate to be only *1.6 per cent* during the first half of 2024. In reality, in the first half of 2024 the cash rate was steady at *4.35 per cent* and the 90-day bill rate averaged 4.36 per cent. So, the model-based forecast was far more accurate than the futures market on that occasion.

3. Optimal monetary policy

We now consider how using a more sophisticated forward-looking approach to monetary policy affects the cash rate forecast. Under optimal control, the model and its forecasts for the inflation and unemployment gaps are used to optimally control the policy interest rate. For full details on how optimal control is implemented in the model, see Murphy (2023, 2024).

The key forecasts under optimal control were shown in Charts 3-5, where they appear as the blue lines labelled *optimal monetary policy*, alongside the orange lines showing the *baseline* scenario. Under optimal control, the cash rate follows a significantly higher path during 2025 and 2026 than under the *baseline* scenario (Chart 4, blue vs orange lines). During this period, the cash rate is higher by an average of 0.6 percentage points. However, the cash rate eventually declines to the neutral rate by 2028 under both approaches to monetary policy.

By design, optimal control will always do better in an overall sense in controlling inflation and unemployment gaps. In this case, this is reflected in inflation tracking closer to its target of 2.5 per cent (Chart 3, blue and orange lines vs the dashed line) and unemployment approaching the NAIRU more quickly (Chart 5, blue and orange lines vs the dashed line).

Perhaps the most important result from the optimal control is that it agrees with the Taylor rule that the February reduction in the policy interest rate to 4.1 per cent should be reversed in the interests of better controlling inflation and unemployment (Chart 4, blue and orange lines).

We use the open-loop version of optimal control. This can be subject to the problem of time inconsistency whereby a central bank misleads markets about its intentions for the future path of monetary policy to induce behavioural responses that make it less costly to achieve policy targets. Here, monetary policy holds to its announced path, so there is no problem of time inconsistency. Brayton, Laubach and Reifschneider (2014) of the US Federal Reserve use optimal control in the same way.

In using optimal control to determine the policy interest rate, we have to make an assumption about the weight to place on closing the unemployment gap relative to the weight to place on closing the inflation

gap. Our standard optimal control places equal weights on controlling inflation and unemployment. This matches the approach used at the US Federal Reserve (Brayton, Laubach and Reifschneider, 2014) and in the author's view strikes a reasonable balance between the two objectives of controlling inflation and unemployment. See Murphy (2024) for more explanation and discussion.

The February note investigated the sensitivity of the optimal control monetary policy to alternative relative weights on controlling inflation and unemployment. It found that, in current circumstances, placing a higher relative weight on controlling unemployment leads to a higher path for the policy interest during 2025 and 2026 than under our standard optimal control. This is because tighter monetary policy helps close the current negative unemployment gap more quickly. The same result was found in the modelling for this note, but it is not shown again here in the interests of brevity.

Whether it is more appropriate to make recommendations on monetary policy using the model's Taylor rule, as in the *baseline* scenario, or open-loop optimal control, as in the *optimal monetary policy* scenario, depends on the circumstances. On the one hand, by design optimal control provides better control over inflation and unemployment. This will be especially true when there are more unusual economic shocks that have either briefer or more persistent effects on inflation and unemployment than a common demand shock. On the other hand, for common demand shocks, the generally milder policy responses of the model's Taylor rule can result in less variability in household consumption and the real exchange than seen under optimal control, which can be seen as beneficial.

Overall, both the backward and forward-looking approaches to monetary policy provide useful insights. However, in current circumstances, where fiscal demand shocks are still playing a significant role, the author prefers the path of monetary policy under the Taylor rule (Chart 4, orange line). It also seems more realistic.

4. Sensitivity Analysis

This note now examines to what extent its preferred path for the policy interest rate is sensitive to alternative assumptions for the NAIRU, the future stance of fiscal policy and the future stance of US monetary policy.

For this purpose, we use the *baseline* scenario as the starting point for the sensitivity analysis, rather than the scenario based on optimal control. As a general rule, optimal control is better suited to sensitivity analysis because it better tailors the monetary policy response to each shock, but we use the baseline scenario in this note because it is our preferred scenario for the reasons given above.

NAIRU

The NAIRU plays a significant role in setting monetary policy, but its value is only an estimate. For example, in the model, the estimated value for the NAIRU for the period since 2015 is 4.7 per cent, but this estimate has a standard error of 0.4 percentage points. To take into account this uncertainty, we check the sensitivity of the *baseline* scenario to an alternative value of the NAIRU. Specifically, we reduce the NAIRU by one standard error, from 4.7 to 4.3 per cent.

The lower NAIRU substantially reduces the existing unemployment gap, leading to a lower path for the cash rate (Chart 6, green vs orange lines). Under a lower NAIRU, it is no longer clear that the recent cut in the cash rate to 4.1 per cent should be reversed. However, it remains the case that reductions in the cash rate should not restart until 2027.

As would be expected, under a lower NAIRU of 4.3 per cent, the actual unemployment rate follows a lower path (Chart 7, green vs orange lines). The path for the inflation rate previously shown (Chart 3, orange line) is largely unaffected. This is because the lower NAIRU and the lower policy interest rate have broadly offsetting effects on inflation.

Chart 6: Cash rate and the NAIRU

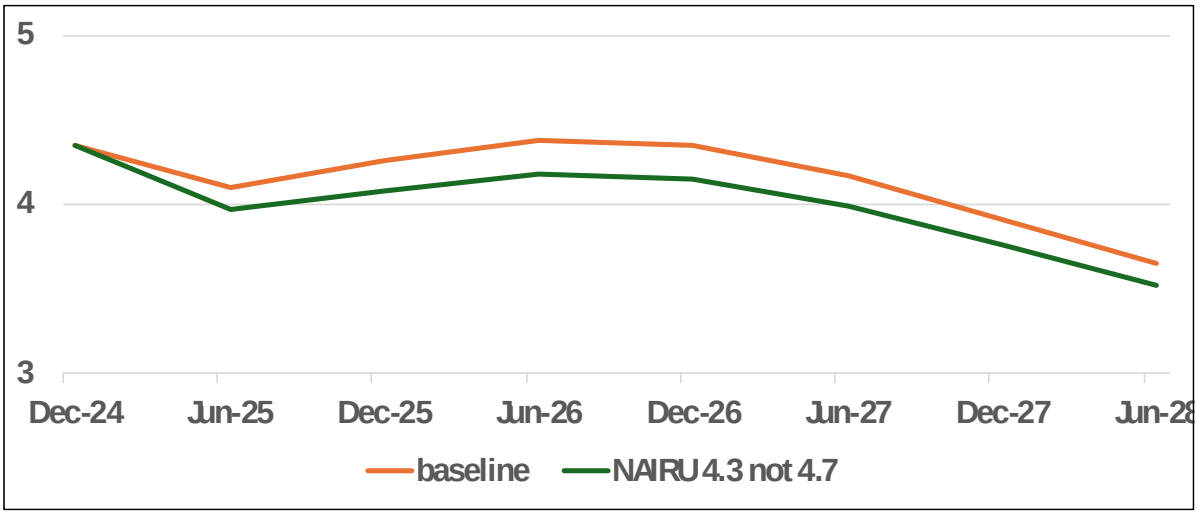
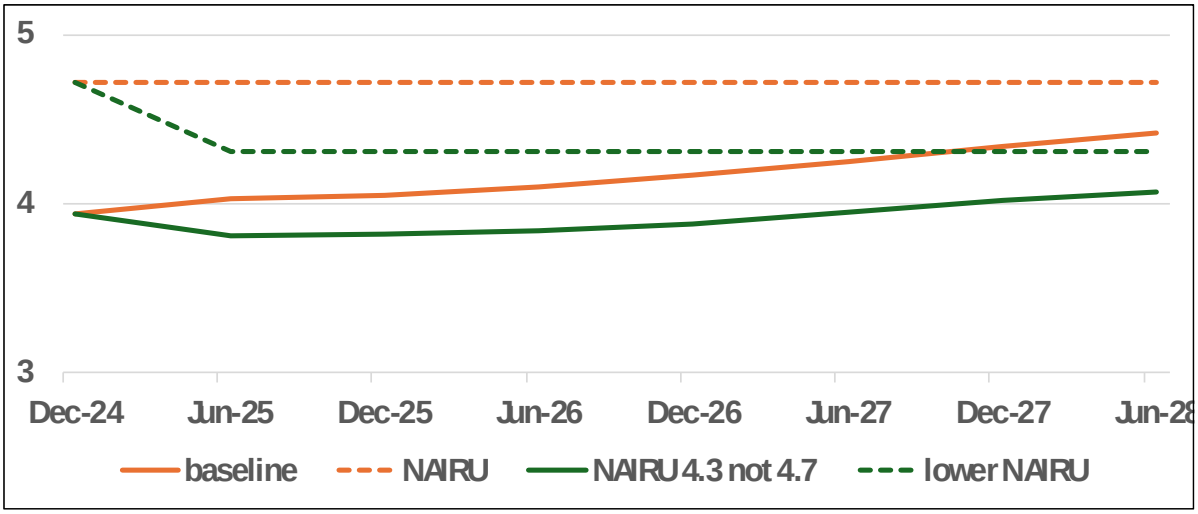


Chart 7: Unemployment rate and the NAIRU



GOVERNMENT SPENDING

Murphy (2023, 2024) shows that an over-prolonged fiscal stimulus in response to COVID was a major contributor to the post-COVID outbreak of inflation and the subsequent tight monetary policy. Thus, we now investigate the sensitivity of the *baseline* scenario to the stance of fiscal policy.

The illustrative fiscal stimulus used for this sensitivity analysis is an increase in government consumption expenditure lasting for two years that is equivalent in size to 1 per cent of GDP. This is the same fiscal stimulus studied by Coenen et al. (2012). The key effects are shown in Charts 8 to 10. During this 2-year fiscal stimulus, inflation is higher than in the *baseline* scenario while unemployment is lower. We focus on the peak effects, which occur in the final quarter of the fiscal stimulus.

In the December quarter 2026, the fiscal stimulus lowers the unemployment rate from 4.2 to 3.7 per cent (Chart 10, green vs orange lines), a reduction of 0.5 percentage points. The fiscal stimulus also raises the inflation rate during 2026 from 3.1 to 3.5 per cent (Chart 9, green vs orange lines), an increase of 0.4 percentage points. Lower unemployment and higher inflation push up the cash rate. The cash rate is 4.9 percent, which is 0.6 percentage points above its level in the *baseline* scenario of 4.3 per cent (Chart 8, green vs orange lines). Thus, the future path for the cash rate is sensitive to the future stance of fiscal policy.

Chart 8: Cash rate and government spending

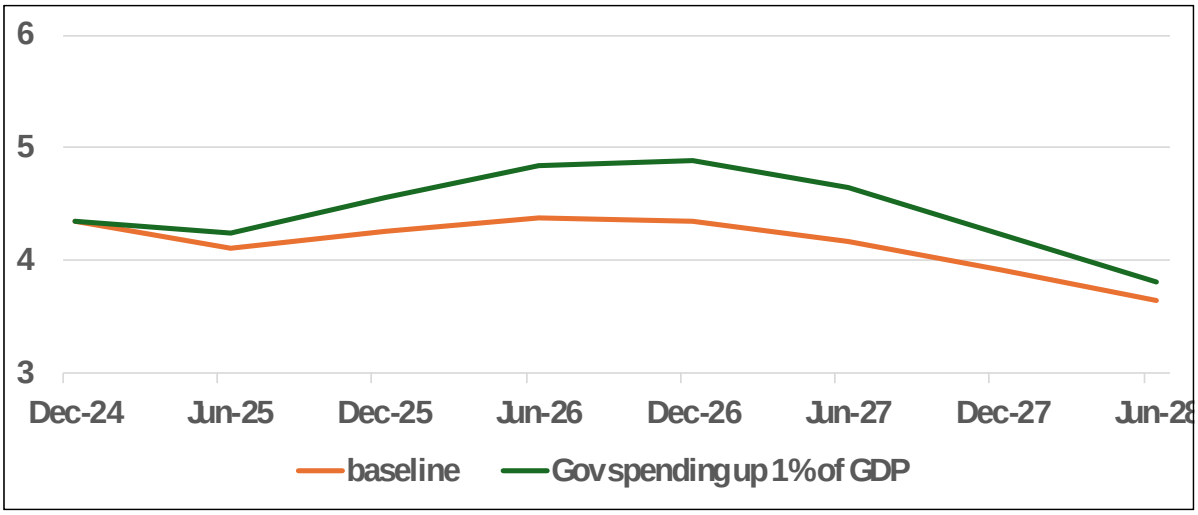


Chart 9: PHC inflation rate and government spending

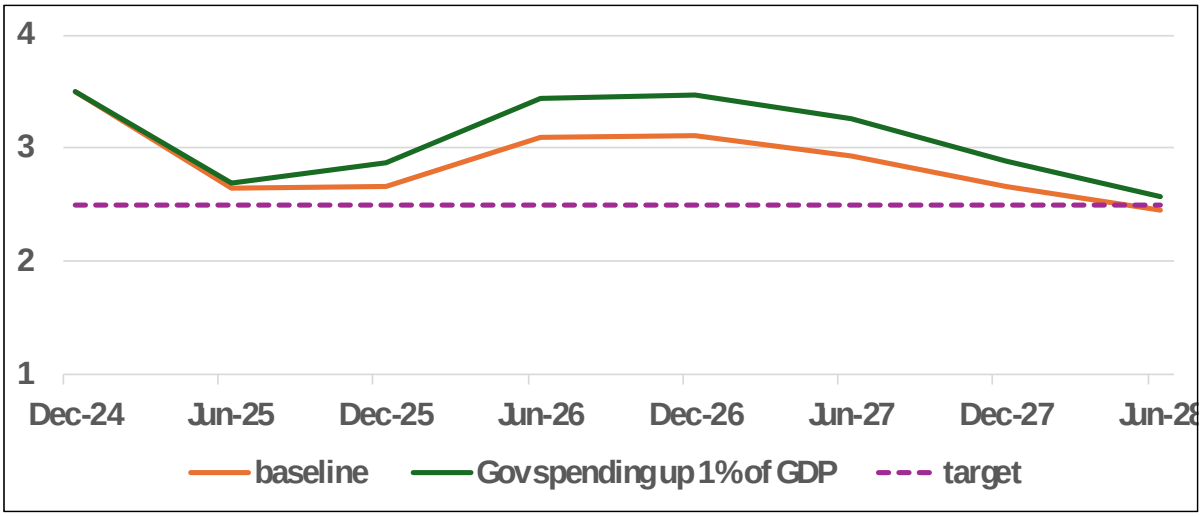
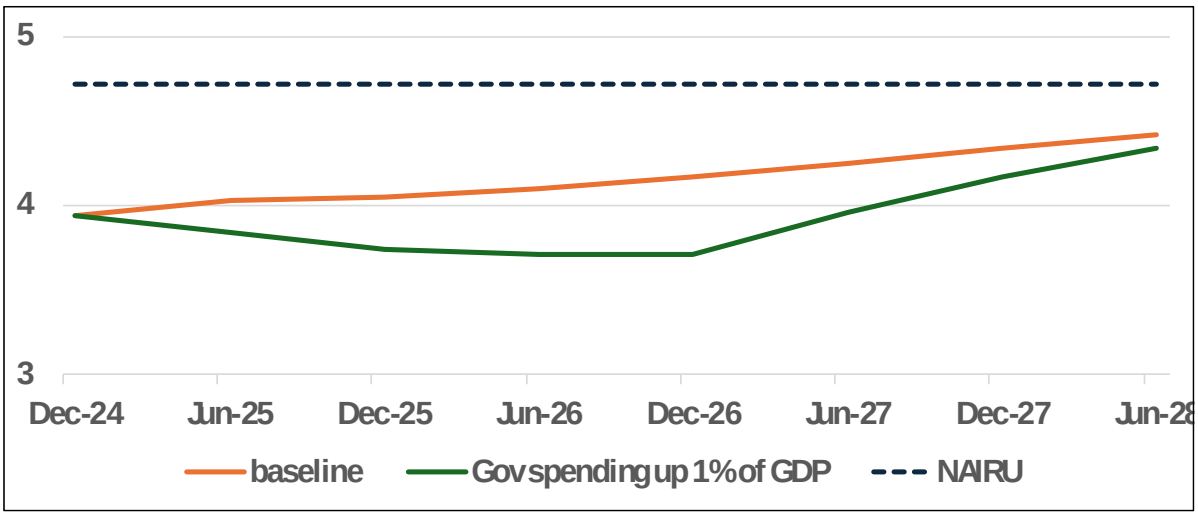


Chart 10: Unemployment rate and government spending



US MONETARY POLICY

US monetary policy is a significant driver of Australian monetary policy. When the US policy interest rate is increased, the RBA faces a trade-off between not responding and allowing the Australian dollar to depreciate, which would be stimulatory, or matching the rise in the US policy rate, which would be contractionary. To maintain macro stability, it charts a course in between, in which the increase in the US policy rate flows through partially to the Australian policy rate. In that context, we investigate the sensitivity of the *baseline* scenario to the stance of US monetary policy.

In the *baseline* scenario, the forecast path of the US Effective Federal Funds Rate (EFFR) is based on US futures markets as reported by the FedWatch service of CME Group (2025) on 8 March 2025. Over the next 12 months, three rate cuts are expected, taking the EFFR from 4.33 per cent to 3.58 per cent (Chart 11, orange line).

In the sensitivity analysis, we apply a so-called impulse shock to the EFFR from the June quarter 2025. Initially, this adds 0.46 percentage points to the EFFR, after which this effect gradually fades (Chart 11, green vs orange lines). This impulse shock to the EFFR could occur if underlying US inflation becomes stuck above the US target rate, perhaps due to a trade war.

Chart 11: US Effective Federal Funds Rate (EFFR)

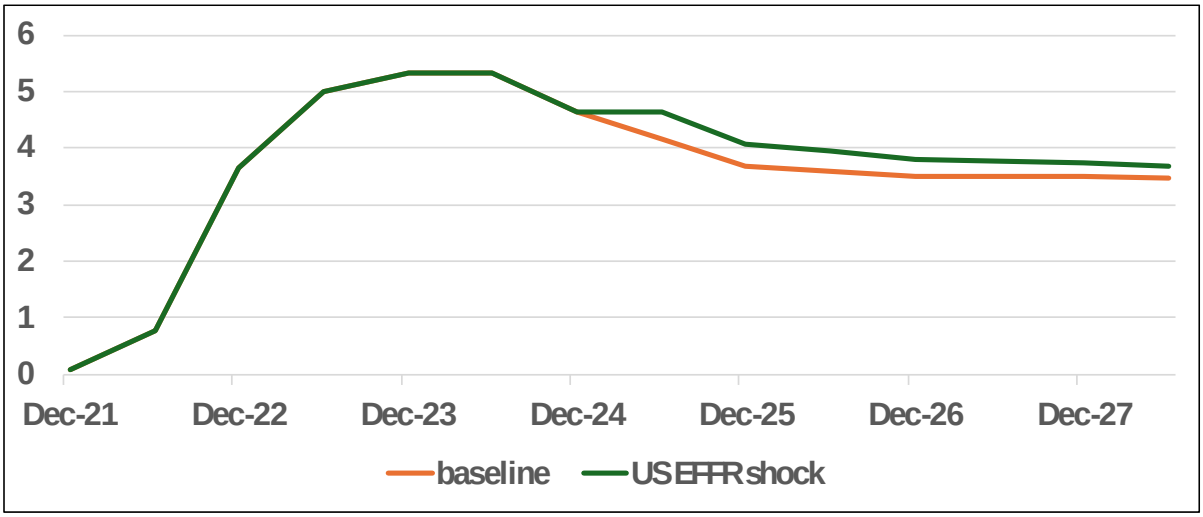
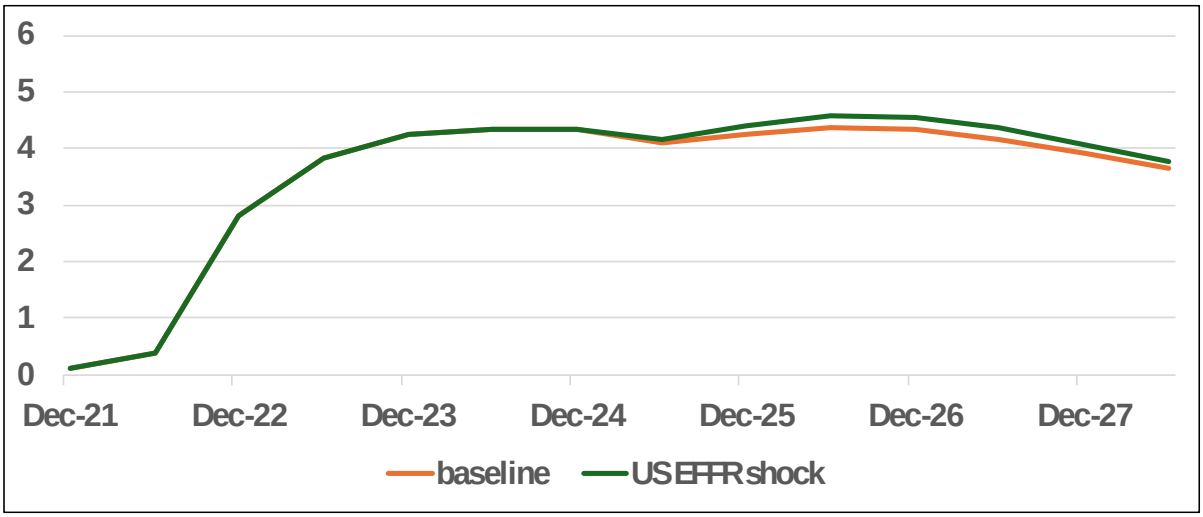


Chart 12: Australian cash rate and the US EFFR



For the reasons explained above, under the Taylor rule, this impulse to the foreign policy rate flows through partially to the Australian cash rate Chart 12 (green vs orange lines). More specifically, over the period shown in the charts, the average increment to EFFR of 0.32 percentage points flows through to an average increment to the Australian cash rate of 0.15 percentage. Thus, when foreign monetary policy is tightened, Australian monetary policy is tightened by about half as much.

This partial flow on from the US policy rate to the Australian policy rate maintains macro stability because the contractionary effect of the higher policy rate is balanced by the stimulatory effect of an exchange rate depreciation. Hence, the effects on unemployment and inflation are broadly neutral.

5. Policy Conclusion

In this note on monetary policy, no mention has been made of cost of living measures such as the national energy bill relief. Whatever other merits they may have, these cost of living measures have little to no effect on the three measures of underlying inflation presented here and only a fleeting effect on the headline CPI. It is not optimal for monetary policy to respond to such measures, as demonstrated in the February note.

The main broad conclusion for monetary policy from this note is that, based on current information, the cash rate should remain somewhere 4 per cent and 4.5 per cent in 2025 and 2026, before moving down towards a neutral rate. The two main factors that could change that outlook in either direction are "shocks" to US monetary policy or Australian fiscal policy.

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Table 1: Baseline Forecasts

	Dec-24	Jun-25	Dec-25	Jun-26	Dec-26	Jun-27
Activity						
Gross domestic product	1.3	2.0	1.9	1.6	1.7	1.8
Household consumption	0.7	1.6	2.2	1.8	1.8	1.7
Dwelling investment	2.5	-0.2	-2.6	-2.8	-2.8	-2.6
Business investment	-0.1	0.0	0.2	0.1	0.3	0.6
Public demand	5.7	4.7	2.1	2.2	2.2	2.3
Gross national expenditure	2.3	2.1	1.7	1.4	1.5	1.5
World GDP	2.7	2.7	2.7	2.7	2.7	2.6
Trade						
Imports	5.8	2.7	5.3	4.3	3.6	3.1
Exports	1.7	3.5	5.2	4.6	4.0	3.5
Terms of trade	-4.8	2.1	2.7	0.0	0.1	0.1
Labour Market						
Employment	2.3	2.9	1.8	1.2	1.1	1.0
Unemployment rate	3.9	4.0	4.1	4.1	4.2	4.2
Participation rate	67.0	67.1	67.1	67.0	66.9	66.7
Working-age population	2.2	1.9	1.7	1.6	1.5	1.4
Population	1.9	1.6	1.5	1.3	1.3	1.2
Income						
Average compensation of employees	3.2	3.8	4.5	4.4	4.4	4.3
Real private disposable income	0.7	4.9	3.2	1.2	1.1	1.0
Inflation						
Household consumption, ipd	3.5	2.6	2.7	3.1	3.1	2.9
- housing services	7.8	6.9	4.9	3.5	3.1	2.9
- other goods and services	2.3	2.1	1.9	3.0	3.2	3.0
Financial Markets						
Australian cash rate	4.4	4.1	4.3	4.4	4.3	4.2
US effective federal funds rate	4.6	4.2	3.7	3.6	3.5	3.5
10-year government bond rate	4.3	4.4	4.3	4.1	4.0	3.9
Trade-weighted index	59.7	59.0	57.8	56.8	55.9	55.2
Real gross value added						
Agriculture, forestry and fishing	16.9	10.0	-2.6	0.4	0.9	1.5
Mining	-2.3	-1.2	0.0	-0.6	-0.2	0.0
Manufacturing	-1.7	-0.1	2.8	0.2	0.6	1.3
Government-type services	3.2	4.2	4.1	3.7	3.4	3.1
Other private services	0.7	1.5	1.8	1.9	2.0	1.9
Ownership of dwellings	1.4	1.5	1.8	2.0	2.0	1.9