LATVIJAS BANKA
EIROSISTĒMA

ISBN 978-9934-578-71-7

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THE RETURN OF INFLATION: LOOK-THROUGH POLICY UNDER INCOMPLETE INFORMATION

WORKING PAPER
2 / 2025

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The Return of Inflation: Look-Through Policy Under Incomplete Information

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March 4, 2025

Abstract

This paper studies monetary policy in a New Keynesian model with incomplete information regarding the persistence of cost-push shocks. The central bank and the private sector gradually learn about the persistence of the shock as it propagates through the economy. The central bank adopts a look-through policy in response to temporary cost-push shocks; otherwise, it follows a Taylor rule. If agents initially believe the cost-push shock to be temporary, while the true shock is persistent, it takes some time for the central bank, acting initially under an incorrect assumption, to realise its mistake and switch to monetary tightening. As a result, the actual inflation is higher than in a complete information case. Data-dependent discretionary early liftoff strategies can partially mitigate the effects of the initial policy misjudgment. Contrary to the full-information conditions, the findings cast doubt on the effectiveness of look-through policies in environments of incomplete information, irrespective of the actual persistence of the cost-push shock.

Keywords: Monetary policy, imperfect information, cost-push shock, high inflation

JEL: D83, E17, E31, E47, E52

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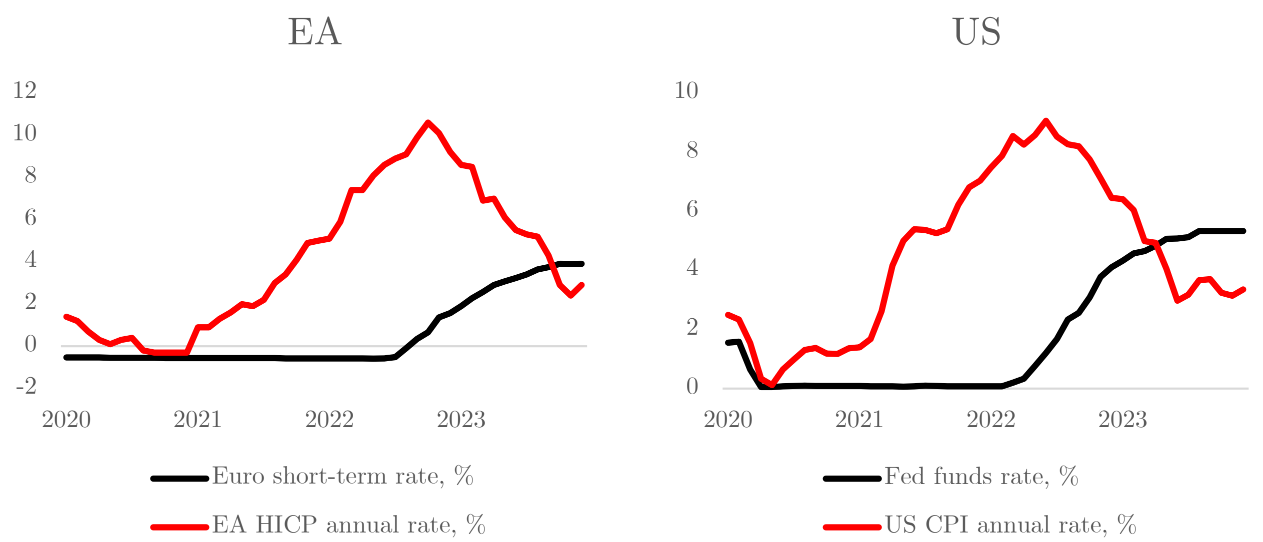
We would like to thank Mārtiņš Bitāns, Jacopo Bonchi, Mathias Trabandt, Kārlis Vilerts, an anonymous referee, and the seminar participants at Latvijas Banka for their helpful comments and constructive suggestions. The views expressed herein are solely those of the authors and do not necessarily reflect the views of Latvijas Banka, or the Eurosystem.

1 Introduction

After a prolonged period of low and stable inflation, the sudden and persistent increase in inflation following the COVID-19 pandemic surprised policymakers, economists, and commentators alike. As noted in Caldara *et al.* (2022), Di Giovanni *et al.* (2022) and Ascari *et al.* (2024), supply chain disruptions and geopolitical tensions have intensified inflationary pressures. Moreover, the simultaneous occurrence of high inflation and robust economic growth challenged the existence of a flat Phillips curve, a defining characteristic of recent decades (Del Negro *et al.*, 2020; Hazell *et al.*, 2022). The presence of a flat Phillips curve implies that inflation reacts minimally to changes in economic activity.

This paper is motivated by the observation that central banks on both sides of the Atlantic pursued a no-change policy for roughly six quarters while inflation was surging before acting quickly (Figure 1). We argue that this policy inaction stemmed from uncertainty about the persistence of supply shocks and their implications for monetary policy. Our model economy is hit by supply shocks that vary with respect to their persistence, but the central bank and the private sector do not observe in real time how persistent the supply shock is. Due to the higher volatility of temporary shocks, it is optimal, under uncertainty, to attribute a higher probability to the shock being transitory. The true nature of the shock is gradually learned over time through the Kalman filter, but we assume that, as long as the transient shock initially is perceived to be largely more likely, the central bank commits to a no action policy, according to a *look-through* strategy. Policy inaction is a key element of our analysis, as it helps to explain the observed post-COVID-19 rise in inflation and aggregate demand.

Figure 1: **A look-through policy?**



Notes: Inflation and policy rates in the Euro Area and the United States from 2020 to 2023. Sources: ECB, St. Louis Fed, authors' calculation.

The high level of uncertainty complicates policymakers' real-time responses. The ECB's 2021 monetary policy strategy aimed to respond flexibly to economic shocks, confirming a medium-term orientation and stressing a prominent role for forward guidance as an effective instrument within its toolbox (European Central Bank, 2021). In a world dominated by shocks that either move inflation and economic activity in the same direction (e.g., demand shocks) or generate temporary trade-offs (e.g., supply shocks), in July 2022, the ECB chose to maintain enough flexibility to assess the origin of shocks and look through temporary shocks that could subside naturally., thereby preventing undesired fluctuations in economic activity. Once the ECB comprehended that deviations in actual inflation from its forecasts had persisted, in 2022 it raised rates forcefully and switched to a data-dependent and meeting-by-meeting approach (Lagarde and de Guindos, 2022), marking a departure from its recently adopted strategy.

The look-through approach to inflationary shocks has also been discussed by other central bankers. In his speech at the 2021 Jackson Hole Conference, Powell (2021) stated that the inflationary pressures faced after COVID had been considered transitory, driven by supply chain disruptions, reopening effects, and other factors related to the pandemic. This justified the Fed's patient approach to monetary policy, aimed at avoiding the risk of tightening prematurely and potentially stifling the recovery. Therefore, even if the adverse supply shocks in the US differed from those observed in the euro area, the Fed similarly committed to flexibility and data-dependence in policy decisions. Similarly, at the 2024 Jackson Hole meeting, Powell (2024) reiterated the importance of a data-dependent approach.[1]

Moreover, as emphasized by Clarida (2024), central banks adopted look-through strategies because they observed a sharp rise in the relative price of goods, which could equivalently be interpreted as an expected transitory increase in inflation. Carstens (2022) highlights that central banks may also need to reassess how they respond to inflationary pressures, initially examining movements in relative prices. In this context, looking through shocks may be a good option, as offsetting their inflationary impact would be costly provided that overshoots are temporary and moderate. However, the recent increase in inflation shows that a purely transient shock may become persistent, making it hard to establish a threshold with respect to how long to wait before responding. The importance of a look through approach in policy debates had been emphasized even before the recent global adverse supply shocks. In his speech, Lane (2015) argues that a look-through policy allows central banks to overlook temporary deviations from inflation targets caused by specific, transient shocks, such as fluctuations in energy prices. This approach avoids overreacting to short-term events, ensuring monetary policy remains focused on long-term stability and maintaining inflation expectations. Lane highlights the importance of distinguishing between persistent and temporary shocks to effectively implement this strategy.

Our work contributes to the literature focusing on the determinants of inflation after COVID-19 and the re-emergence of the Phillips curve, following a long period during which there was a consensus that it was flat. The closest paper to ours is Erceg *et al.* (2024), who investigate the factors driving concurrent high inflation and vigorous economic growth. In their analysis, there is an underestimation of inflation persistence, which fosters economic growth. However, there are risks when central banks disregard significant supply shocks, particularly when the economy is already robust. Using a nonlinear model with sticky wages, endogenous inflation indexation, and unobserved components of cost-push shocks, Erceg *et al.* (2024) demonstrate that disregarding short-term supply shocks could be risky, particularly in a strong economy where inflation is above target. Their model suggests that if central banks follow an inflation forecast-based rule — waiting for inflation to persist before raising rates — they might prolong inflation rather than mitigate it. With inflation significantly overshooting its target, nonlinearities such as intensified indexation in inflation expectations amplify the impact of inflation shocks, potentially necessitating aggressive measures to "go the last mile", i.e. to drive inflation back to target.

[1]Similar conclusions are present in Blanchard and Bernanke (2023).

Similar conclusions are drawn by Harding *et al.* (2023), who demonstrate that the inflationary impact of large shocks, especially when interacting with high demand, is amplified in the post-pandemic context. Recent inflationary pressures can be interpreted by considering the resilience of consumer demand alongside supply-side shocks. Cavallo *et al.* (2023) and Karadi *et al.* (2023) illustrate how substantial and rapid price increases have been observed in both the U.S. and European grocery retail industries. Both regions experienced swift inflationary transmission across different sectors, with some significant variations in price-setting behaviour. European prices adjust more quickly to cost-push shocks than in the United States, where lagged adjustments have led to prolonged inflation persistence. Looking at the US, Ball *et al.* (2022) and Shapiro *et al.* (2022) provide a sectoral breakdown, emphasizing the dual role of supply constraints and demand surges. Both studies attribute the inflation surge to the combined effects of bottlenecks in key industries and pandemic-era fiscal support that boosted household spending, showing that inflation has been sustained by both supply and demand factors simultaneously.

Regarding the relationship between output and inflation, Del Negro *et al.* (2020) highlight shifts in Phillips curve dynamics, with recent data indicating that inflation's sensitivity to economic activity may intensify under certain conditions. These nonlinearities, further explored by Bunn *et al.* (2022), suggest that when inflation expectations exceed the target, firms are more likely raise prices, thereby reinforcing inflationary pressures. L'Huillier and Phelan (2023) explore how even modest supply disruptions can exacerbate inflation when the Phillips curve is relatively flat. Their mechanism relies on the assumption that prices are sticky with respect to demand shocks, albeit flexible in response to supply shocks. Thus, firms raise prices in response to higher costs, whereas it is more difficult to do so when demand increases. For this reason, inflation resulting from supply shocks is efficient and does not warrant a monetary policy response.

Together, these studies provide a multifaceted view of post-COVID inflation, challenging previous assumptions of price stability and offering insights into the roles of demand, supply, and monetary policy responses. They collectively underscore that the resurgence of inflation is not only a byproduct of supply-demand imbalances but also a consequence of complex interactions within an evolving macroeconomic landscape. The implications for central banks are profound, suggesting that successful inflation management in the future may require a more nuanced and adaptive approach to both policy timing and intensity. Beaudry *et al.* (2023) examine how central banks should respond to supply shocks, such as those experienced globally in the wake of the COVID-19 pandemic. Their paper focuses on the central bank's dilemma of whether to "look through" supply shocks or tighten monetary policy to prevent inflation expectations from de-anchoring. Central banks may choose to tolerate short-term inflation deviations caused by supply shocks if inflation expectations remain anchored. This approach mitigates the risk of imposing additional economic slack that could exacerbate unemployment and widen the output gap. The alternative to looking through supply shocks is immediate monetary tightening to control inflation expectations, potentially jeopardising economic recovery. Moreover, the authors consider a framework in which agents exhibit level-k thinking: under this assumption, central banks initially tend to look through supply shocks unless inflation pressures persist or accumulate. When inflation overshoots surpass a critical threshold, central banks shift to a more hawkish stance, tightening aggressively to re-anchor expectations. Therefore, the decision to pivot toward tighter monetary policy depends on the persistence and magnitude of inflation shocks and the risk of de-anchoring private-sector expectations. Beckworth and Horan (2024) advocate for the adoption of nominal GDP targeting instead of inflation targeting to mitigate the adverse effects of economic shocks, particularly those stemming from supply-side disruptions. This approach allows central banks to look through short-term inflation fluctuations caused by temporary supply shocks while maintaining anchored medium-term inflation expectations. The rationale behind this policy is that, in real time, it is challenging to distinguish between inflationary effects of supply shocks that do not permanently impact potential output.

As discussed above, the closest paper to ours is Erceg *et al.* (2024). We extend their analysis by incorporating changes in monetary policy that arise due to the inability to determine in real time the persistence of supply shocks. Since firms and the central bank observe only the aggregate effect of the transitory and persistent components of the cost-push shock, they must solve a signal extraction problem to determine which component is driving the observed shock. The look-through policy that emerges in the presence of incomplete information effectively replicates the persistent post-COVID inflation surge and the associated strong output dynamics, without the need to introduce nonlinearities in firms' price-setting mechanisms or price and wage indexation. Our paper complements the analysis in Erceg *et al.* (2024) considering a data-dependent policy in which the central bank revises its look-through approach when it determines that the likelihood of a persistent adverse shock is sufficiently high to necessitate an increase in the policy rate. Within our framework, in which the central bank abandons its prior commitment to a look-through policy, we evaluate alternative policy responses (in terms of impulse responses and loss functions) based on their strength in responding to inflationary pressures (standard vs. hawkish) and their timing (contemporaneous vs. backward-looking Taylor rules), as well as their combination. Finally, we compare look-through strategies with a policy that follows a Taylor rule.

First, under full information, we confirm the findings in the literature, such as those by Gordon (1975, 1984), which suggest that, in the case of a temporary cost-push shock, a look-through policy is preferable to a standard Taylor rule. This result holds for a broad range of realistic calibrations of the Phillips curve slope[2] and the weights assigned to the output gap in the loss function. There is extensive literature on the trade-offs between inflation and output gap stabilization policies, notably the works of Phelps (1978) , Taylor (1993), Clarida *et al.* (1999), Erceg *et al.* (2000), and Blanchard and Gali (2007), among others. Yet, to the best of our knowledge, our paper is the first to quantitatively demonstrate the benefits of a look-through policy over a standard Taylor rule in the context of a temporary cost-push shock across realistic calibrations of the loss function.

Second, in contrast to the full-information case, where a supply shock is both inflationary and recessionary, under incomplete information, agents initially expect the shock to be temporary, therefore leading the central bank to pursue a look-through policy. It takes time for economic agents to identify the true nature of shock. Meanwhile, inflation rises while the central bank maintains a no-change policy, which, when coupled with forward guidance, leads to a decline in the real interest rate — a key factor behind the simultaneous increase in inflation and output in the presence of a persistent cost-push shock.

Third, we consider both a commitment strategy, in which the central bank maintains a previously set no-change policy for a specified period based on its initial assessment of the type of the shock, and the possibility of policy revision if new information suggests a different approach is warranted. In the latter case, the central bank updates its assessment each period, estimating the probability that the

[2]Additionally, the finding is robust to setups where the wage Phillips curve is not abnormally steep.

cost-push shock is persistent. Once that probability exceeds a certain threshold - which we assume to be 50% - the central bank recognizes its initial misjudgment, credibly communicates this to the public, and abandons its previously set look-through policy, switching to a Taylor rule ahead of the planned timeline.

We explore several alternatives to this data-driven early liftoff policy. Beyond simply reverting to the default policy rule, we also consider a scenario where the central bank transitions to a previously unannounced backward-looking rule. Evaluating this case is motivated by the ECB's 2022 policy shift, which emphasized data dependence. Given that most key macroeconomic data releases are subject to publication lags, this strategy can be interpreted as a partial shift toward a backward-looking policy rule. Additionally, we analyze scenarios in which the central bank adopts a more hawkish stance to compensate for its previous policy error, as well as a hybrid approach combining a backward-looking and hawkish rule. Our results indicate that a backward-looking rule results in a stronger interest rate response, as in the middle of a diminishing shock, past inflation remains higher than either the nowcasted or projected inflation. The interest rate response is particularly strong when a backward-looking rule is combined with a hawkish approach, as the weight on inflation in the policy rule is increased. We also consider a scenario in which the central bank adopts a hawkish rule without a backward-looking component. In this case, economic agents fully internalize the newly announced hawkish rule and adjust their inflation expectations accordingly. More anchored inflation expectations help drive inflation down without requiring a substantial increase in interest rates.

Fourth, our quantitative analysis of alternative policies under incomplete information, using a simple quadratic loss function, reveals that the most effective policy response during an ongoing persistent cost-push shock depends crucially on the slope of the Phillips curve. The steeper the curve, the stronger the inflationary pressures, which increase the desirability of abandoning a commitment strategy in favour of a more flexible approach. For a benchmark calibration of the Phillips curve, a data-driven early liftoff strategy is preferable when the weight assigned to the output gap in the loss function falls within the interval $[0, 0.25)$, a range frequently used in the literature.[3] Having a flatter Phillips curve in the presence of a cost-push shock exerts greater downward pressure on the real economy, making an early interest rate liftoff less desirable.

Fifth, our results indicate that the most effective policy rule following a discretionary early liftoff is a hawkish approach without a backward-looking component, as it helps anchor inflation expectations, thereby reducing the need for a substantial increase in policy rates. However, the success of this policy depends on the central bank's credibility and the forward-looking behavior of economic agents. If either of these conditions is compromised, the next-best alternative is a standard Taylor rule or a backward-looking rule. Our findings suggest that a combination of a backward-looking and hawkish rule, while effective in reducing inflation, may have detrimental effects on the real economy.

A look-through policy prolongs the time required to alleviate inflationary pressures stemming from adverse supply shocks, particularly when they persist. In other words, a look-through policy represents a monetary stance that, in hindsight, proved excessively accommodative, making disinflation more challenging. Moreover, none of the compensatory policies implemented by the monetary authority can fully undo the economic distortions already caused. The assumption of a transitory supply shock is not a sufficient justification for adopting a "wait and see" approach, in line with the principle of "leaning

[3]Debortoli *et al.* (2019) demonstrate the optimality of a *dual mandate* for any weight on the output gap within the $[0, 2]$ interval.

against the wind" (Clarida *et al.*, 1999), especially when the economy is already in an expansionary phase.

Finally, even if the actual shock is transitory, and in contrast to a full-information environment, we show that a look-through strategy under incomplete information remains risky and may be inferior to a policy that follows a Taylor rule. This result occurs because a significant portion of the public may anticipate the shock to be persistent, thereby forming inflation expectations that amplify inflationary pressures. Thus, our results indicate that a look-through strategy is a potentially hazardous path under incomplete information, regardless of the actual nature of the cost-push shock. To the best of our knowledge, this result has not been established in the literature. For instance, Erceg *et al.* (2024) conclude that looking through supply shocks is a sound policy for minor shocks. However, our findings reveal that beliefs held by economic agents play a crucial role in shaping inflation dynamics under incomplete information.

The remainder of this study is structured as follows. Section 2 describes the model and presents the full-information results. Section 3 outlines the incomplete information framework, the signal-extraction problem, and the results obtained under incomplete information conditions. Section 4 concludes the paper, summarizing our key findings and policy implications.

2 The Model

Apart from the incomplete information regarding the cost-push shock, which is developed in the next section, we consider a standard New Keynesian model with wage and price rigidity, as in Erceg *et al.* (2000) and Erceg *et al.* (2024).

2.1 Households

A representative, infinitely-lived household $j \in [0,1]$ maximises the expected discounted utility from consumption C_t net of the disutility from labour supply $N_{j,t}$:

$$\max_{C_t, N_{j,t}, B_t} E_0 \sum_{t=0}^{\infty} \beta^t \left(\ln(C_t) - N_{j,t} \right), \tag{1}$$

where $0 \leq \beta < 1$ represents the discount factor.

The time-t budget constraint is

$$P_t C_t + B_t = R_{t-1} B_{t-1} + W_{j,t} N_{j,t} + \Gamma_t - T_t + \mathcal{I}_{j,t}, \tag{2}$$

where B_t denotes holdings of risk-free bonds, P_t is the aggregate price level, and $W_{j,t}$ is the wage rate of household j. The gross nominal interest rate on bonds purchased in period $t-1$, which mature in period t, is given by R_t. Γ_t represents profits received from firms, T_t are lump-sum taxes net of transfers, and $\mathcal{I}_{j,t}$ denotes payments and receipts from insurance markets, ensuring uniform consumption across households in each period.

2.2 Labour Contractors

Competitive labour contractors aggregate specialised labour inputs $N_{j,t}$ supplied by households into homogeneous labour, N_t,

$$N_t = \left[\int_0^1 N_{j,t}^{\frac{1}{1+\theta_w}} dj \right]^{1+\theta_w}, \tag{3}$$

which is then hired by intermediate goods producers. Here, $\theta_w \geq 0$ represents the net wage markup.

The labour contractor minimises the cost of producing the aggregate labour index, taking each household's wage rate $W_{j,t}$ as given, and sells units of the labour index to the production sector at a unit cost W_t. The cost minimisation problem yields the labour demand function for household j:

$$N_{j,t} = \left(\frac{W_{j,t}}{W_t} \right)^{-\theta_w} N_t, \tag{4}$$

where

$$W_t = \left[\int_0^1 W_{j,t}^{-\frac{1}{\theta_w}} dj \right]^{-\theta_w}. \tag{5}$$

Households set nominal wages following a Calvo-style staggered contract mechanism, where a fraction $1 - \xi_w$ of households can renegotiate their wage each period, while the remaining households retain their previous period's wage. The first-order condition for a household that is able to reset its wage contract is[4]

$$E_t \sum_{k=0}^{\infty} (\beta \xi_w)^k \left(\frac{W_{j,t}}{(1+\theta_w) P_{t+k} C_{t+k}} - (1 - N_{j,t+k}) \right) N_{j,t+k} = 0. \tag{6}$$

In the limiting case of perfectly flexible wages ($\xi_w = 0$) and no wage markup ($\theta_w = 0$), equation (6) implies that the real wage equates to the marginal rate of substitution between consumption and leisure.

2.3 Production Side

There is a continuum of monopolistically competitive firms, each producing a differentiated intermediate good $Y_{t,i}$:

$$Y_{t,i} = N_{t,i}. \tag{7}$$

The final good is produced using a constant returns to scale technology, as in Dixit and Stiglitz (1977):

$$Y_t = \left[\int_0^1 Y_{t,i}^{\frac{1}{1+\theta_p}} di \right]^{1+\theta_p}, \tag{8}$$

[4]The constraints of this problem are given by equations (2) and (4).

where $\theta_p \geq 0$ represents the net price markup. The aggregate price level is given by

$$P_t = \left[\int_0^1 P_{t,i}^{\frac{-1}{\theta_p}} di \right]^{-\theta_p}. \tag{9}$$

Profit maximisation results in the household's demand for intermediate goods:

$$Y_{t,i} = \left[\frac{P_{t,i}}{P_t} \right]^{\frac{-(1+\theta_p)}{\theta_p}} Y_t. \tag{10}$$

Each firm chooses $N_{t,i}$ while taking wages as given, minimising costs subject to the production constraint:

$$\min_{N_{t,i}} W_t N_{t,i} + MC_{t,i} \left(Y_{t,i} - N_{t,i} \right), \tag{11}$$

where $MC_{t,i}$ represents the firm's marginal cost. The first-order condition for cost minimisation implies that all firms have an identical marginal cost per unit of output:

$$MC_{t,i} = MC_t = W_t. \tag{12}$$

Firms set prices in staggered contracts, with a fraction $1 - \xi_p$ allowed to reset their contract prices each period, while the remaining firms retain their previous-period price. The first-order condition for a price-setting firm is

$$E_t \sum_{k=0}^{\infty} (\xi_p)^k \psi_{t,t+k} \left(\frac{P_{t,i}}{1+\theta_p} - MC_{t+k} \right) Y_{t+k,i} = 0, \tag{13}$$

where $\psi_{t,t+k}$ represents the stochastic discount factor.

In the absence of price markups and when firms can optimally adjust prices in each period, prices equate to marginal cost. This, in turn, implies that wages correspond to the marginal product of labour.

2.4 Log-linearized Equilibrium

The model is log-linearized around a steady state characterised by flexible prices and wages. As usual, lower-case variables represent logarithms. The model can be summarised by the following equations. The equilibrium dynamics of aggregate output, obtained after imposing the market-clearing condition, is given by

$$y_t = E_t y_{t+1} - \left(i_t - E_t \pi_{t+1} \right), \tag{14}$$

where $i_t = R_t - 1$ is the net nominal interest rate.

On the supply side, Calvo price-setting leads to a Phillips curve for prices:

$$\pi_t = \beta E_t \pi_{t+1} + \lambda_p mc_t + a_t, \tag{15}$$

where $\lambda_p \equiv \frac{(1-\beta\xi_p)(1-\xi_p)}{\xi_p}$ represents its slope, a_t is an AR(1) cost-push shock (discussed later), and the real marginal cost equates to the real wage, $mc_t = w_t$.

Defining the marginal rate of substitution as $mrs_t = y_t$, the Phillips curve for wages is given by

$$\pi_t^w = \beta \pi_{t+1}^w + \lambda_w \left(mrs_t - w_t \right), \tag{16}$$

where $\lambda_w \equiv \frac{(1-\beta\xi_w)(1-\xi_w)}{\xi_w}$ is its slope. The model is closed with the wage inflation identity equation:

$$\pi_t^w = \pi_t + w_t - w_{t-1}, \tag{17}$$

along with the monetary policy rule discussed in the next subsection.

Regarding model calibration, we set the household discount factor β to 0.99, which implies a steady-state annual interest rate of 4 percent. Both price and wage Calvo parameters, $\xi_{p;w}$, are set to standard values of 0.75, meaning that prices and wages are optimised on average once per year. This calibration is consistent with that used by Erceg *et al.* (2000) and implies that the slopes of the price and wage Phillips curves are both 0.0858.

When reporting results, we also consider alternative Phillips curve slopes: a steep case (0.192, corresponding to Calvo parameters of 0.65) and a flat case (0.028, corresponding to Calvo parameters of 0.85).

2.5 Monetary Policy

Under full information, the monetary policy rule is specified as follows:

$$i_t = \begin{cases} 0, \quad t = 0, 1, \ldots, 7, & \text{for a temporary cost-push shock,} \\ \rho_i i_{t-1} + (1-\rho_i)\left(\phi_\pi \pi_t + \phi_y y_t\right) + \epsilon_{i,t}, & \text{otherwise.} \end{cases} \tag{18}$$

where $0 < \rho_i < 1$, $\phi_\pi > 1$, $\phi_y > 0$, and $\epsilon_{i,t}$ represents a monetary policy shock. This means that, except for a temporary cost-push shock, the central bank follows a Taylor rule. Our benchmark calibration sets the response coefficients to inflation and the output gap at $\phi_\pi = 1.5$ and $\phi_y = 0.1$, respectively, while the interest rate persistence coefficient is $\rho_i = 0.85$. For temporary cost-push shocks, we assume the central bank deviates from the Taylor rule, implementing a no-change policy with forward guidance for eight quarters. This look-through approach aligns with the ECB's medium-term policy framework, as outlined in its 2021 strategy review.

To establish the context for the subsequent analysis within the common structural framework, we consider the following simulation exercise. We assume a one-off, unanticipated, transitory positive cost-push shock, with a magnitude equal to one standard deviation. We then evaluate two monetary policy options: (i) adherence to the Taylor rule, or (ii) a no-change policy with forward guidance for eight quarters, followed by a return to the Taylor rule.

To evaluate the performance of different policy scenarios, we assume that the central bank's loss function is given by:

$$L = \frac{1}{2} \sum_{t=0}^{\infty} \beta^t \left(\pi_t^2 + \lambda_x x_t^2 \right). \tag{19}$$

In Table 1, we present the value of the loss function under a look-through policy relative to that under the Taylor rule, varying the weight λ_x assigned to output gap stabilisation, the persistence of the temporary cost-push shock, the slope of the Phillips curve, interest rate persistence ρ_i, and the weight on inflation ϕ_π in the policy rule.

Table 1: **Quadratic loss function for a temporary cost-push shock under the look-through policy relative to the Taylor rule across alternative scenario calibrations (full information)**

	$\lambda_x = 1/2$	$\lambda_x = 1/4$	$\lambda_x = 1/8$	$\lambda_x = 1/16$
$\rho_a = 0.00$				
Steep PC (0.19, $\xi_{p;w} = 0.65$)	0.983	0.975	0.970	0.967
Benchmark PC (0.09, $\xi_{p;w} = 0.75$)	0.761	0.860	0.932	0.977
Flat PC (0.03, $\xi_{p;w} = 0.85$)	0.620	0.761	0.868	0.938
Benchmark PC (0.09, $\xi_{p;w} = 0.75$), $\rho_i = 0$	0.628	0.735	0.817	0.869
Benchmark PC (0.09, $\xi_{p;w} = 0.75$), $\phi_\pi = 2.5$	0.594	0.743	0.868	0.954
$\rho_a = 0.10$				
Steep PC (0.19, $\xi_{p;w} = 0.65$)	0.961	0.962	0.963	0.963
Benchmark PC (0.09, $\xi_{p;w} = 0.75$)	0.722	0.837	0.924	0.979
Flat PC (0.03, $\xi_{p;w} = 0.85$)	0.576	0.727	0.849	0.930
Benchmark PC (0.09, $\xi_{p;w} = 0.75$), $\rho_i = 0$	0.608	0.719	0.803	0.858
Benchmark PC (0.09, $\xi_{p;w} = 0.75$), $\phi_\pi = 2.5$	0.548	0.709	0.852	0.954
$\rho_a = 0.25$				
Steep PC (0.19, $\xi_{p;w} = 0.65$)	0.878	0.921	0.954	0.974
Benchmark PC (0.09, $\xi_{p;w} = 0.75$)	0.652	0.799	0.917	0.995
Flat PC (0.03, $\xi_{p;w} = 0.85$)	0.507	0.673	0.817	0.919
Benchmark PC (0.09, $\xi_{p;w} = 0.75$), $\rho_i = 0$	0.564	0.688	0.784	0.847
Benchmark PC (0.09, $\xi_{p;w} = 0.75$), $\phi_\pi = 2.5$	0.475	0.658	0.834	0.970

Notes: A number below unity indicates that a look-through policy results in a lower quadratic loss function compared to the Taylor rule, suggesting that the former is the preferred strategy.

Several results emerge. First, the results indicate that a look-through policy yields a lower loss, suggesting that it is the preferred strategy across a wide range of realistic scenario calibrations. Second, the less persistent the interest rate or the more hawkish the policy rule, the less preferable the Taylor rule strategy becomes. Third, the preference for a look-through policy increases as the Phillips curve flattens, as the pass-through of a cost-push shock to inflation weakens while its impact on the real economy strengthens, making output-stabilising policies more desirable.[5]

Thus, if a central bank values output stability in addition to inflation stability, our analysis suggests that it is preferable to adopt a dovish stance or pursue a look-through policy in response to a temporary cost-push shock in a full-information environment. This result aligns with the conventional wisdom

[5]The parity point is reached, depending on other parameters, at an especially steep wage Phillips curve above approximately 0.25 (or a wage Calvo parameter below about 0.6), which is less commonly used in the literature.

discussed in Section 1: when wage rigidity is significant and expectations are well-anchored, a strong policy response is not necessary to manage temporary adverse supply shocks, thereby justifying a look-through approach.

3 Incomplete Information and the Signal Extraction Problem

In this section, we relax the assumption that economic agents – households, firms, and the central bank – perfectly observe the persistence of the cost-push shock. Instead, we allow agents at time t to observe a signal, given by $a_t = a_t^T + a_t^P$, without directly identifying the actual type of the shock (temporary T or persistent P) affecting the economy. Consequently, the best that agents can do is to formulate a signal extraction problem and filter out the individual components, as in Erceg and Levin (2003) and, more recently, Erceg *et al.* (2024).

The state-space representation of the problem is given by:

$$a_t = \underbrace{\begin{bmatrix} 1 & 1 \end{bmatrix}}_{H'} \begin{bmatrix} a_t^P \\ a_t^T \end{bmatrix}, \tag{20}$$

where

$$\begin{bmatrix} a_{t+1}^P \\ a_{t+1}^T \end{bmatrix} = \underbrace{\begin{bmatrix} \rho_P & 0 \\ 0 & \rho_T \end{bmatrix}}_{F} \begin{bmatrix} a_t^P \\ a_t^T \end{bmatrix} + \underbrace{\begin{bmatrix} \sigma_P & 0 \\ 0 & \sigma_T \end{bmatrix}}_{Q} \begin{bmatrix} \epsilon_{t+1}^P \\ \epsilon_{t+1}^T \end{bmatrix}. \tag{21}$$

The optimal one-period-ahead forecast of the state variable using the Kalman filter is given by:

$$\begin{bmatrix} E_t a_{t+1}^P \\ E_t a_{t+1}^T \end{bmatrix} = F \begin{bmatrix} E_{t-1} a_t^P \\ E_{t-1} a_t^T \end{bmatrix} + K_t \left(a_t - H' \begin{bmatrix} E_{t-1} a_t^P \\ E_{t-1} a_t^T \end{bmatrix} \right), \tag{22}$$

where

$$\begin{aligned} K_t &= F P_{t|t-1} H \left(H' P_{t|t-1} H \right)^{-1}, \\ P_{t+1|t} &= \left(F - K_t H' \right) P_{t|t-1} \left(F' - H K_t' \right) + Q Q'. \end{aligned} \tag{23}$$

The nowcast of a shock component is given by:

$$\begin{bmatrix} E_t a_t^P \\ E_t a_t^T \end{bmatrix} = \begin{bmatrix} E_{t-1} a_t^P \\ E_{t-1} a_t^T \end{bmatrix} + L_t \left(a_t - H' \begin{bmatrix} E_{t-1} a_t^P \\ E_{t-1} a_t^T \end{bmatrix} \right), \tag{24}$$

where

$$\begin{aligned} L_t &= P_{t|t-1} H \left(H' P_{t|t-1} H \right)^{-1}, \\ P_{t|t} &= P_{t|t-1} - L_t H' P_{t|t-1}. \end{aligned} \tag{25}$$

Agents iterate the recursions for K_t and $P_{t+1|t}$ until the fixed point $P = P_{t+1|t} = P_{t|t-1}$ is reached.

3.1 Monetary Policy Under Commitment

As before, the monetary authority follows the Taylor rule, except in the case of a temporary cost-push shock, where it implements a no-change policy with forward guidance for eight quarters before reverting to the Taylor rule. However, since the central bank does not observe the true nature of the cost-push shock, its policy commitment is based on its initial assessment of whether the shock is more likely to be temporary or persistent.

In particular, the central bank commits to a look-through policy if, at time $t = 0$, the estimated share of the persistent component in the total shock—referred to as the probability of the persistent component—is below 50%. Otherwise, policy follows the Taylor rule (18):

$$Prob_t\left(a_t^P\right) := \frac{E_t a_t^P}{a_t} = \begin{cases} < 1/2, & \text{then a look-through strategy;} \\ \geq 1/2, & \text{then the Taylor rule.} \end{cases} \tag{26}$$

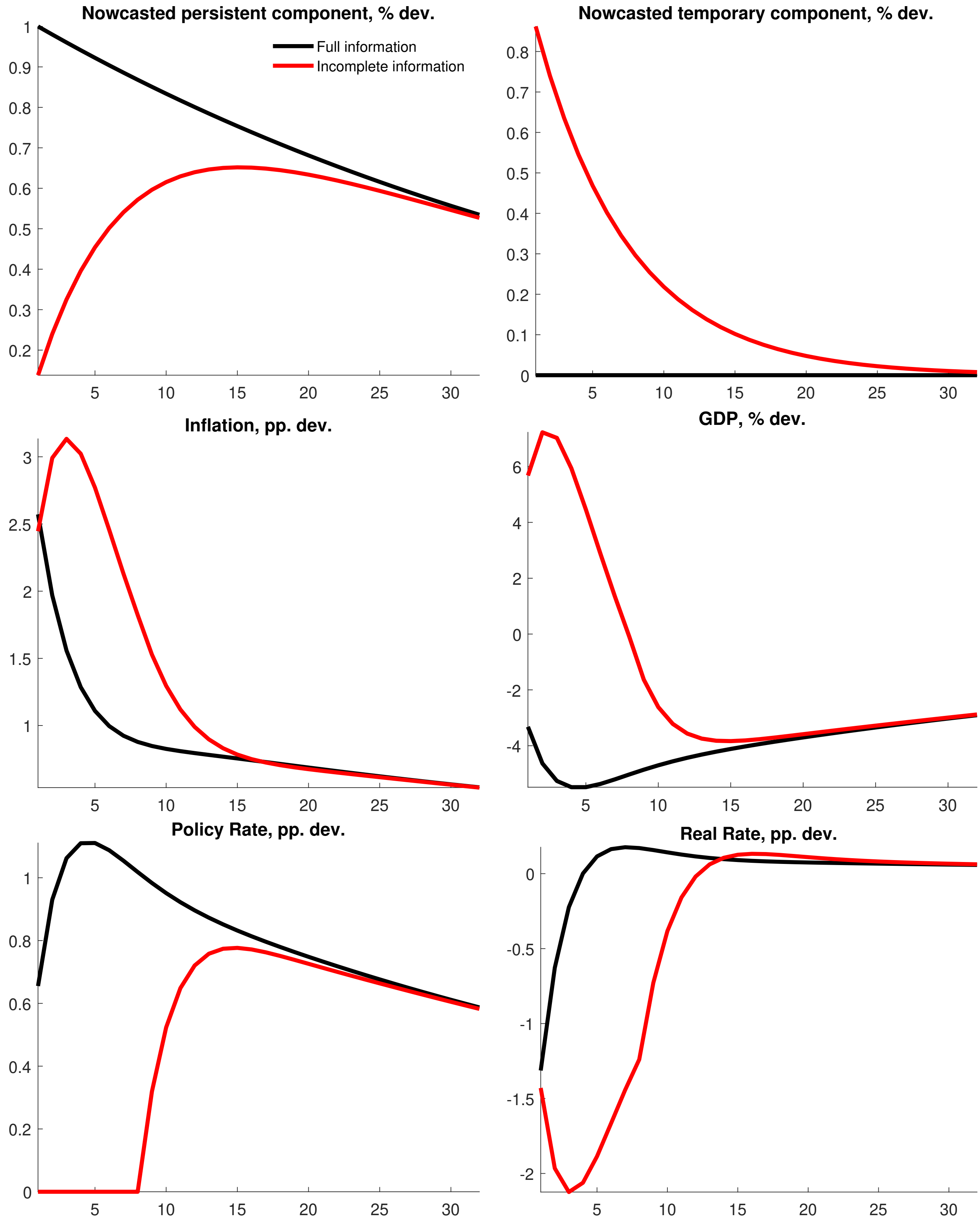
As shown in equations (20) - (25), at $t = 0$, this probability is influenced by the persistence of the shock components and their relative standard deviations. Specifically, the higher the relative volatility of the temporary component, the more agents initially perceive the cost-push shock as temporary. As a benchmark, we set the autoregressive coefficient of the persistent component to $\rho_P = 0.98$ and that of the temporary component to $\rho_T = 0.10$, while calibrating the standard deviation of the latter to be six times higher than that of the former.[6] With these parameters, at time $t = 0$, the probability is given by $Prob_0(a_0^P) = 0.14$, implying that a look-through strategy prevails regardless of the true nature of the cost-push shock. Finally, the information set of the private sector is assumed to be identical to that of the central bank. As a result, the central bank's policy commitment is considered fully credible.

Next, we examine the dynamic response of the economy to a positive persistent cost-push shock under two states: (i) full information and (ii) incomplete information. Under full information (Figure 2, black line), the shock generates inflationary pressures, prompting an immediate increase in the policy rate. Due to the persistence of the shock and the autoregressive component in the Taylor rule, the monetary policy tightening follows a hump-shaped trajectory. The strong monetary policy response gradually reduces inflation, although output declines on impact and remains negative throughout the period shown in the figure. The time required for disinflation depends on the real interest rate path, which does not increase immediately on impact. This occurs because the monetary policy response is not sufficiently aggressive due to the interest rate persistence embedded in the Taylor rule.

In comparison, under incomplete information (red line), both the private sector and the central bank observe only a signal of the shock and do not have full real-time information on whether it is temporary or persistent. Since the transitory component is more volatile than the persistent one, agents initially perceive the shock as temporary. Consequently, the central bank commits to a look-through strategy, maintaining a no-change policy for eight quarters. Due to this commitment to the previously announced strategy, combined with inflationary pressures, the real interest rate remains persistently below its equilibrium level. As a result, aggregate demand rises, further intensifying inflationary pressures until the conclusion of the no-change policy, after which inflation begins to decline under the Taylor rule.

[6] This calibration is consistent with previous analyses in Erceg *et al.* (2024).

Figure 2: **Impulse response function to a persistent one percent adverse supply shock.**



Notes: The black line represents the full-information case with the Taylor rule, while the red line represents the incomplete information case with a look-through policy.

3.2 Data-Dependent Discretionary Early Liftoff

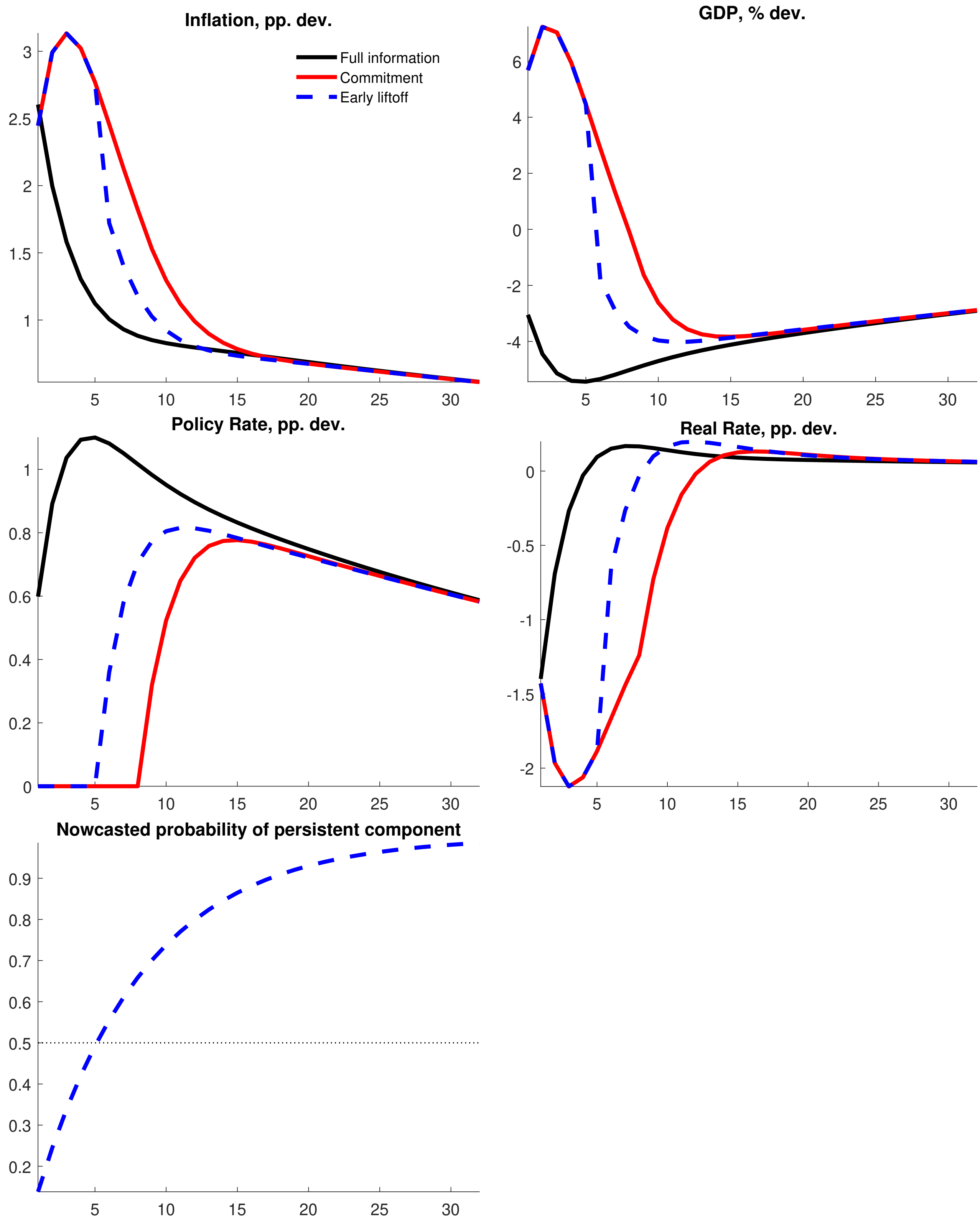
Up to this point, we have shown that, under incomplete information, the central bank's prior assumption is that the shock is temporary. However, if the shock is actually persistent, the initially committed policy may prove to be erroneous. In this subsection, we allow the central bank to learn the nature of the shock by updating, in each period, the probability that the shock is persistent, $Prob_t\left(a_t^P\right)$, as defined in equation (26). Once this probability exceeds a certain threshold – in this case, 50% – the central bank recognises its policy misjudgment, abandons its previous commitment, and raises interest rates earlier than originally planned. Since this discretionary decision rule is unknown to the public, economic agents continue to expect the previously committed path of interest rates to hold until the central bank credibly communicates its policy revision and announces the new course of action.

We examine the impulse response functions following an adverse cost-push shock for three scenarios: the full information case (black line), commitment to a look-through policy (red line), and a case in which the central bank, in quarter 6, recognises that the nowcasted probability of the persistent component has exceeded 50%. At this point, the central bank announces a break in its commitment to the look-through policy and decides to switch to the standard Taylor rule after five, rather than eight, no-change quarters (dashed blue line in Figure 3). An earlier liftoff of the policy rate leads to a faster disinflation by anchoring inflation expectations sooner and weakening demand through a more timely increase in the real interest rate.[7]

Next, we examine alternative policy rules following an early liftoff decision. In addition to returning to the standard Taylor rule, which targets contemporaneous inflation and the output gap (dashed blue line, already studied in Figure 3), we also consider switching to i) a backward-looking Taylor rule, which targets a one-quarter lag of inflation and the output gap (dashed green line in Figure 4). As discussed in Section 1, the ECB's announced switch to a data-dependent approach in 2022 can be interpreted as a shift towards a more backward-looking policy rule due to data publication lags. We also consider switching to ii) a more hawkish rule, in which the coefficient on inflation ϕ_π in the policy rule is increased from the standard 1.5 to 2.5 (dotted cyan line). This adjustment represents an attempt by the central bank to compensate for an overly accommodative policy stance and to reinforce inflation re-anchoring. Finally, we consider iii) a combination of a backward-looking and hawkish rule (dash-dotted magenta line), integrating both delayed inflation targeting and a stronger policy response. For comparison, we also include a scenario where the central bank follows a standard Taylor rule from the onset of the shock (solid gray line in Figure 4).

[7]The peak response of the nominal interest rate under incomplete information does not exceed that under full information due to the anticipated liftoff in the former case and the resulting lower inflation at the time of liftoff.

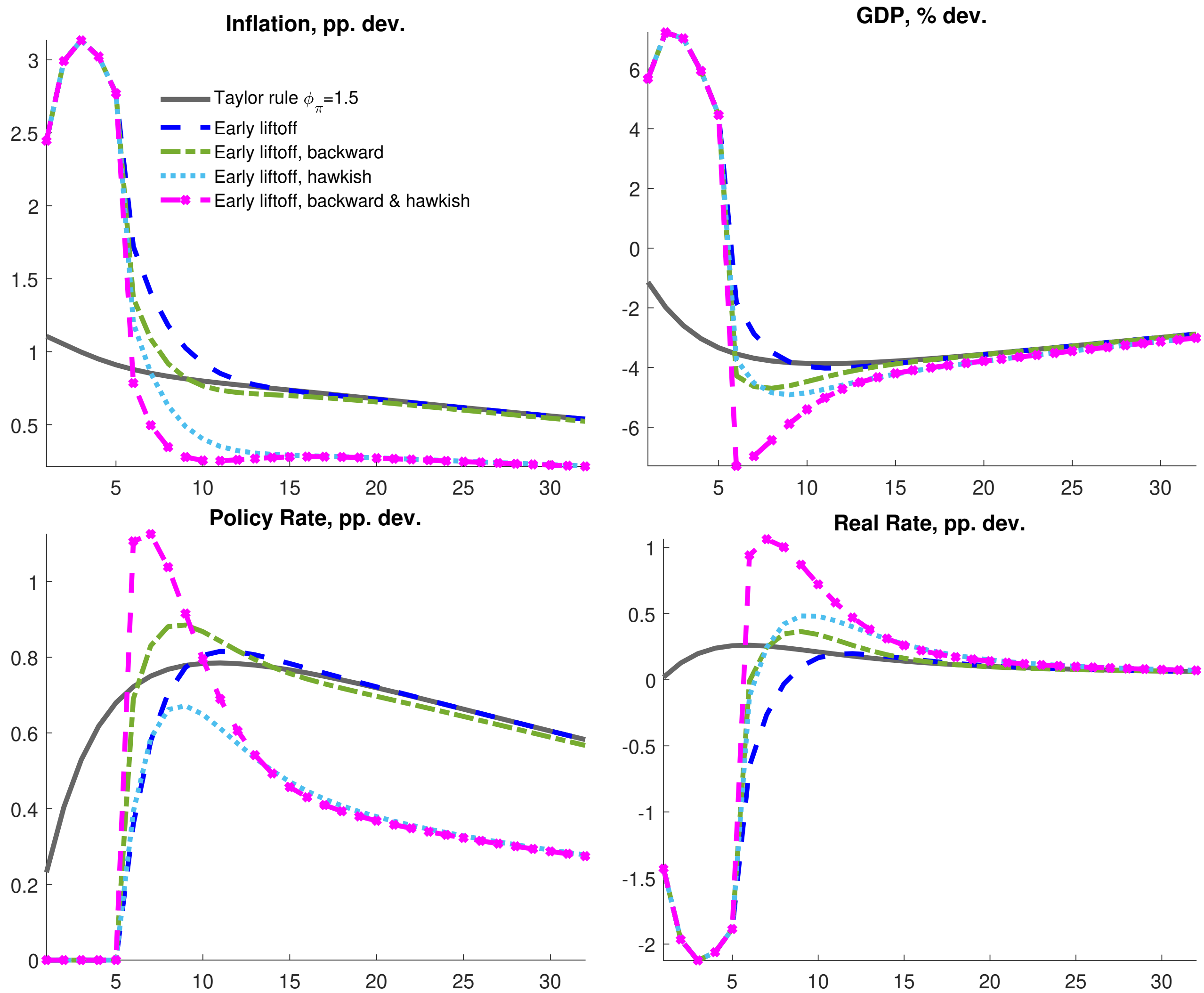
Figure 3: **Look-through policy under early liftoff - the true cost-push shock is persistent**



Notes: The black line represents the full-information case with the Taylor rule, while the red line represents the incomplete information case with a look-through policy. Dashed blue line corresponds to alternative policy response under early liftoff.

Figure 4 examines alternative policy rules that are unexpectedly introduced but credibly implemented during an early liftoff period. First, a backward-looking policy rule implies an initially stronger increase in the interest rate, since, in the middle of an ongoing persistent shock and with the policy rule activated, past inflation is higher than the nowcast or projected inflation. This drives inflation down more quickly by raising the real rate and weakening demand. The policy rate increases even more in the case of a more hawkish backward-looking rule, which reduces inflation swiftly but at the cost of a sharp slowdown in output. These results are in line with a rationale for a data-dependent approach in monetary policy, as recently emphasised by the ECB.

Figure 4: **Alternative policy rules under incomplete information - the true cost-push shock is persistent**



Notes: The figure compares the impact of different policy rules under incomplete information. The gray solid line represents the standard Taylor rule, while other lines correspond to alternative early liftoff strategies.

According to this approach, the level and duration of policy restriction are determined based on incoming economic data rather than a preset path. This approach enables policymakers to adjust monetary policy dynamically in response to evolving economic conditions, ensuring that their actions align with their goal of price stability. With a backward-looking policy rule, a central bank monitors released data, avoiding possible policy mistakes due to inaccurate data projections and commitment to preset timelines. Such a policy can be considered when a central bank has experienced a series of inflation projections that are strongly biased towards the target. Yet, faster disinflation goes hand in hand with a weaker real economy, and this is a dichotomy on which a central bank should take a stance based on its preferences.

Second, having a more hawkish policy rule without a backward-looking element provides a path for real interest rates similar to that of a backward-looking rule, yet an actual increase in nominal rates is markedly smaller under the former rule. The early liftoff case represents a hawkish policy stance not only through an increase in the actual policy rate but also through expectations of tighter monetary policy in the future. While all policies eventually lead to inflation convergence, hawkish strategies accelerate the process. This is because a more hawkish rule provides a heavier anchor for inflation expectations without the need to raise nominal rates much higher ex post. Such a rule is effective if, as in our case, the credibility of the central bank is not impaired and economic agents are not myopic.

Finally, Figure 4 also shows the dynamics when the central bank follows a Taylor rule in all states, not only after a look-through period. We observe that, if the standard Taylor rule had been implemented right from the beginning of the shock, inflation and output would have been markedly lower on impact, thereby allowing the central bank to avoid excessive volatility in inflation, output, and the real interest rate throughout the entire simulation period.

As regards the mentioned central bank's preferences, we next turn to the study of a simple quadratic loss function under incomplete information and alternative policy rules. By comparing these policies relative to a commitment strategy, several results emerge (Table 2).

Table 2: **Quadratic loss function for a persistent cost-push shock for alternative policies under imperfect information relative to a commitment strategy**

	$\lambda_x = 1/2$	$\lambda_x = 1/4$	$\lambda_x = 1/8$	$\lambda_x = 1/16$
Steep Phillips curve slope (0.19, $\xi_{p;w} = 0.65$)				
Early liftoff	**0.985**	0.969	0.953	0.940
Early liftoff, backward	1.025	0.992	0.961	0.937
Early liftoff, hawkish	0.996	**0.969**	**0.943**	**0.923**
Early liftoff, backward and hawkish	1.073	1.023	0.975	0.937
Taylor rule $\phi_\pi = 1.5$	[0.148]	[0.119]	[0.091]	[0.069]
Benchmark Phillips curve slope (0.09, $\xi_{p;w} = 0.75$)				
Early liftoff	1.031	1.000	0.963	0.926
Early liftoff, backward	1.096	1.044	0.981	0.920
Early liftoff, hawkish	1.127	1.043	**0.939**	**0.838**
Early liftoff, backward and hawkish	1.268	1.155	1.016	0.879
Taylor rule $\phi_\pi = 1.5$	[0.697]	[0.625]	[0.538]	[0.452]
Flat Phillips curve slope (0.03, $\xi_{p;w} = 0.85$)				
Early liftoff	1.082	1.063	1.035	1.002
Early liftoff, backward	1.143	1.111	1.064	1.008
Early liftoff, hawkish	1.454	1.338	1.170	**0.967**
Early liftoff, backward and hawkish	1.600	1.466	1.270	1.035
Taylor rule $\phi_\pi = 1.5$	1.048	1.010	[0.954]	[0.887]

Notes: A number below unity means that a policy yields a lower quadratic loss function relative to a commitment scenario. Bold numbers denote the least-loss-inflicting liftoff scenario that is preferable to the commitment policy. Framed numbers denote the least-loss-inflicting policy relative to the commitment to an eight-period fixed interest rate policy.

First, the steeper the Phillips curve, the stronger the inflationary pressures from a cost-push shock. As a result, a loss function allocating a high weight to inflation dictates that the benefit of discretionary early liftoff policies becomes more evident. For a benchmark Phillips curve calibration, breaking the commitment is preferable for $0 \leq \lambda_x < 1/4$; hence, a central bank that is more inclined to be an *inflation nutter* (Orphanides and Wieland, 2000) would opt for an early liftoff because it helps bring inflation back to its target.

Second, the persistent nature of the cost-push shock drives output down for a prolonged period. In addition, sticky nominal prices and wages inflict a sizable dent in the real economy in such a case. Flat Phillips curves also mean a relatively high output loss is required for additional control over inflation. Thus, the flatter the Phillips curve, the less favourable discretionary early liftoff strategies become.

Third, in neither of the environments considered is an earlier liftoff policy with backward-looking elements the most preferable option. This is because it inflicts a relatively large loss in output for greater control of inflation, as can also be seen in Figure 4. In other words, the sacrifice ratio (Okun, 1978; Gordon and King, 1982) is relatively high under a backward-looking rule due to the limited role of expectations formation.

Fourth, among discretionary policies, the hawkish approach – in which greater weight is assigned to inflation in the policy rule – proves most effective. By anchoring inflation expectations, it reduces the necessity for aggressive rate hikes, thereby limiting potential output losses.

To sum up, a discretionary policy that anticipates an early liftoff of the policy rate performs better than a commitment strategy in environments with steeper Phillips curves and a lower weight on output in a central bank's preferences. The best discretionary early liftoff policy among those considered is the one in which a central bank sets a higher coefficient on inflation in its reaction function, bringing inflation down substantially via inflation expectations. However, if the credibility of the policymaker is impaired or the forward-looking behaviour of agents is limited, the next-best options are switching to the standard or backward-looking policy rule. Lastly, in a flat Phillips curve environment where a cost-push shock inflicts heavy losses on output, a standard quadratic loss function suggests that a central bank should be cautious about raising rates forcefully unless the weight assigned to output in the loss function is small enough.

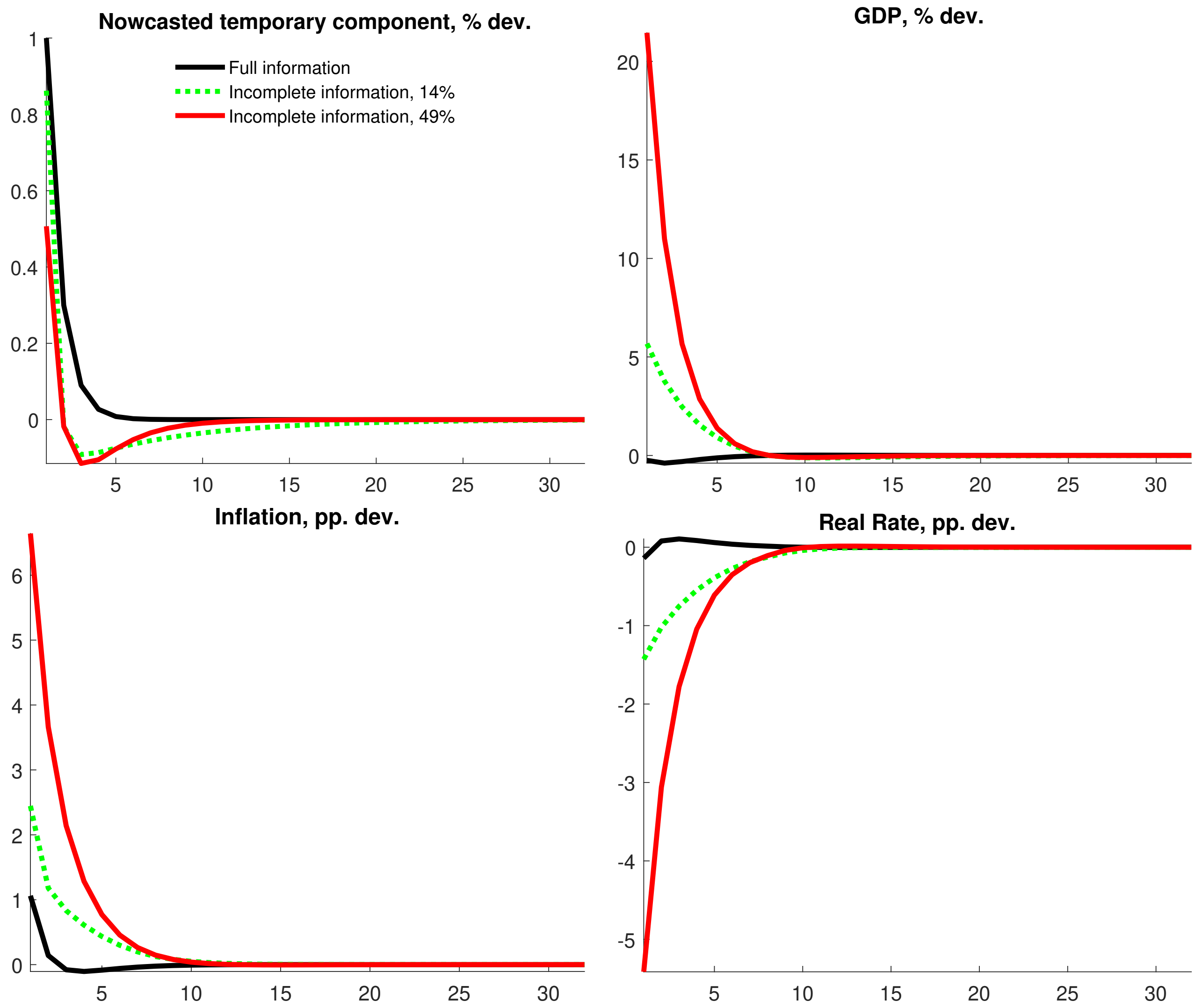
However, none of the compensation strategies discussed earlier performs better than a policy like the Taylor rule, which responds to inflationary pressures from the outset. A central bank that responds to current inflation in each period by following a standard Taylor rule yields a considerably lower loss compared to a *wait-and-see* approach. Table 2 shows that only in the case of a flat Phillips curve and a balanced targeting of inflation and output is it preferable to commit to a fixed interest policy before switching to a Taylor rule. The presence of a flat Phillips curve implies that a sizable contraction in output is necessary to reduce inflation, which is therefore costly unless the central bank has a loss function that is more heavily weighted toward price stability.

3.3 Reassessment of the Optimality of a Look-Through Policy in an Incomplete Information Environment

In Section 2.5, we established a preference for a look-through policy in the case of a temporary cost-push shock within a full-information environment. The results in Section 3.1, however, showed that pursuing a look-through strategy is risky under incomplete information because the monetary authority might misjudge the actual persistence of a cost-push shock affecting the economy. We now turn to the case in which the agents' presumption was true – namely, that the actual shock was temporary.

In Figure 5, we present the impulse response function following an adverse temporary supply shock, comparing the full-information case (solid black line), incomplete information with $Prob_0\left(a_0^P\right) = 0.14$ (dotted green line), and incomplete information with $Prob_0\left(a_0^P\right) = 0.49$ (solid red line). When the central bank perfectly observes the temporary cost-push shock and pursues a look-through policy, inflation persists for only a quarter, given the transient nature of the shock. However, under incomplete information, the private sector and the central bank do not observe the true nature of the shock. Our benchmark calibration implies that 14% of agents assign a probability to the actual shock being of a persistent nature, and thus their inflation expectations under a forward guidance policy translate into a lower expected real rate, boosting demand and raising inflation even higher: the same look-through policy now generates a larger and more persistent inflation response.

Figure 5: **Look-through policy under commitment – true cost-push shock is temporary**



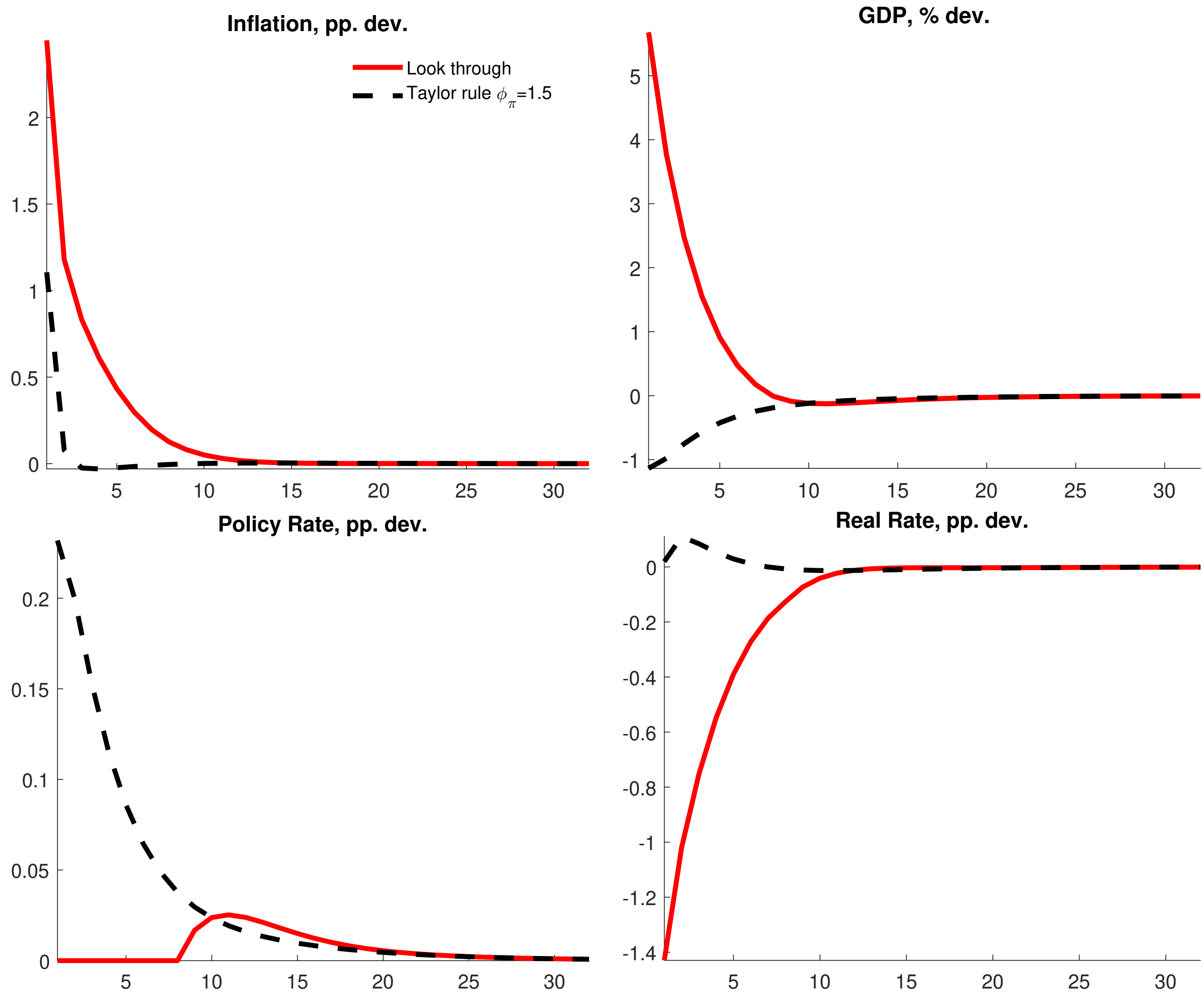
We also consider a scenario with high uncertainty in which 49% of the population anticipates the shock to be of a persistent nature.[8] Given its policy rule, monetary policy still commits to a

[8]For this scenario, we calibrate the standard deviation of the temporary component to be 1.5 times larger

look-through policy. Yet, a large portion of the population behaves as if the shock were persistent, generating a material increase in inflation. By pursuing a look-through policy, the central bank adds demand-driven pressure to inflation. These results show that in an incomplete information environment, expectations about future inflation, combined with forward guidance, play a key role in driving inflation. The significantly lower current and expected real rate acts as a positive demand shock, fostering aggregate demand. Consequently, a look-through policy generates high demand and inflation even for a temporary shock.

Figure 6 compares a look-through policy with a benchmark Taylor rule for a temporary cost-push shock with a benchmark persistence coefficient of 0.1 under imperfect information. The results show that a Taylor rule helps anchor inflation expectations, suppresses demand, and consequently, the resulting inflation is considerably smaller and short-lived.

Figure 6: **Look-through policy versus Taylor rule under incomplete information – true cost-push shock is temporary**



Next, by quantitatively comparing the loss, Table 3 shows that in an incomplete information environment, and in stark contrast to a full-information environment, pursuing a standard Taylor rule results in a loss that is multiple times smaller than under a look-through policy. The greater the

than that of the persistent one and increase the persistence parameter of the temporary component to 0.3.

share of the population assigning its belief that the shock is of a persistent nature, and the steeper the Phillips curve, the stronger the preference for a Taylor rule. The conclusion remains robust across alternative weights on output in the loss function.

Table 3: **Quadratic loss function for a temporary cost-push shock: Taylor rule relative to look-through policy (incomplete information)**

		$\lambda_x = 1/2$	$\lambda_x = 1/4$	$\lambda_x = 1/8$	$\lambda_x = 1/16$
$Prob_0\left(a_0^P\right) = 0.14$					
Steep PC	(0.19, $\xi_{p;w} = 0.65$)	0.010	0.012	0.014	0.015
Benchmark PC	(0.09, $\xi_{p;w} = 0.75$)	0.082	0.093	0.107	0.119
Flat PC	(0.03, $\xi_{p;w} = 0.85$)	0.283	0.303	0.331	0.360
$Prob_0\left(a_0^P\right) = 0.49$					
Steep PC	(0.19, $\xi_{p;w} = 0.65$)	0.002	0.003	0.003	0.003
Benchmark PC	(0.09, $\xi_{p;w} = 0.75$)	0.026	0.031	0.038	0.045
Flat PC	(0.03, $\xi_{p;w} = 0.85$)	0.125	0.147	0.179	0.219

Notes: A number below unity means that a Taylor rule yields a lower quadratic loss function relative to the look-through policy, implying that the former is preferred.

To sum up, a look-through policy can be risky under incomplete information, even if the true shock is temporary. This is because a non-negligible part of the population might have a prior belief that the true shock is persistent, leading to inflation expectations that cause greater inflationary pressures than in a full-information environment. In contrast to a full-information environment, under incomplete information, a look-through policy yields a larger loss than when the central bank follows a Taylor rule.

4 Conclusion

This study employs an unobserved components framework for cost-push shocks within a standard linear New Keynesian model, featuring nominal price and wage rigidity, to analyse post-COVID-19 inflation dynamics and monetary policy strategies. In our model, the cost-push shock is driven by both a transitory and a persistent component, but households, firms, and the central bank only observe their combined effect. Consequently, economic agents solve a signal extraction problem to infer the source of the observed shock.

Our analysis focuses on a scenario where the central bank commits to a "look-through" strategy in the case of temporary cost-push shocks, maintaining a fixed interest rate for eight quarters before switching to a Taylor rule. We show that in a full-information environment, such a look-through strategy is superior to a standard Taylor rule unless the wage Phillips curve is excessively steep. However, in an incomplete information environment, both economic agents and the central bank do not observe the true type of the cost-push shock and initially assign more weight to the probability that the shock is temporary. In such an environment, we show that, in the aftermath of a persistent adverse supply shock, a look-through strategy triggers additional demand-driven inflationary pressures due to a lower real rate.

In addition, in an incomplete information environment, we also consider the scenario in which the central bank updates the probability that the shock is persistent each period. When that probability exceeds a certain threshold, the policymaker realizes that its previously pursued no-change regime has been erroneous, credibly communicates its mistake to the public, and adopts a discretionary early liftoff policy. We show that early liftoff strategies bring about a more rapid disinflation compared to a commitment scenario. Such data-dependent discretionary early liftoff strategies become more favourable with the steepness of the price and wage Phillips curves.

Among these early liftoff strategies, switching to a hawkish policy rule is preferred as it helps anchor inflation expectations. However, if the central bank's credibility is impaired or if economic agents have limited forward-looking behaviour, the next-best strategies are to switch to the standard or the backward-looking policy rule. Yet, neither of the considered compensation strategies is superior to a policy that follows a standard Taylor rule from the beginning of a shock. Only in the case of a flat Phillips curve and a loss function that assigns at least 50% weight to output is a look-through policy preferable due to a high sacrifice ratio.

Finally, our findings reveal that under incomplete information, a look-through policy can exacerbate inflationary pressures, even when the shock is genuinely transitory. This can happen when a non-negligible share of economic agents believes the shock is persistent and forms their expectations accordingly. Our results show that in such an environment, a policy following a Taylor rule is preferable to a look-through strategy. Thus, our findings challenge the validity of a look-through policy under incomplete information, irrespective of the actual nature of the cost-push shock.

Our results regarding the decision of whether to commit or renege on a commitment do not take into account potential losses to a central bank's credibility, which may need to be carefully considered before acting. In addition, this paper does not address the question of the optimal policy path. These aspects warrant further exploration in future research.

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