MONETARY POLICY RULES: THE MARKET'S VIEW*

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Abstract

We study how financial markets perceive the Bank of England's monetary policy rule by exploiting high-frequency gilt yield movements around inflation and industrial production announcements. Using market surprises as a source of exogenous variation, we show that the flexible inflation-targeting regime is internalized: positive inflation news raise both inflation expectations and short-maturity yields. Perceived policy responsiveness is state-dependent: short-term yields react more when policy is unconstrained, while medium-term yields react more during periods of unconventional policy. Markets also anticipate a stronger response to demand surprises—months in which inflation and industrial production surprises share the same sign—consistent with the view that the BoE "look-through" supply disturbances. Using surprises to identify demand and supply shocks, we show that the BoE adjusts policy rates only after demand shocks, indicating that markets hold a realistic understanding of its reaction function.

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1 Introduction

The effectiveness of monetary policy transmission depends crucially on how financial markets interpret and respond to policy decisions (Woodford 2005). As monetary policy has become more systematic over time (Ramey 2016), understanding how markets anticipate policy responses to inflation and real activity has become increasingly important.

In this paper, we assess the markets' perception of the systematic component of monetary policy and the extent to which this reflects developments in monetary policy design. Nakamura, Riblier, and Steinsson (2025), Bandera et al. (2023) and Reichlin and Zettelmeyer (2024), among others, have recently reignited interest in whether central banks should respond differently to demand and supply shocks. They argue that it can be advisable for central banks to "look through" supply shocks and not overly react to inflation fluctuations driven by temporary supply-side disturbances. This potentially contrasts with the conventional view according to which monetary authorities must respond decisively to supply-driven inflation to prevent stagflation and de-anchoring of inflation expectations (Orphanides and Williams 2005). Nakamura, Riblier, and Steinsson (2025) reconcile these two alternative perspectives. They argue that a central bank can afford to partially look through supply shocks insofar as it is sufficiently credible. If so, a weaker and more delayed response to supply-driven inflation will not cause a de-anchoring of long-run inflation expectations. Exploiting surveys of market participants and asset prices, we characterize the market participants' view of monetary policy and put these theories to the test.

We focus on the United Kingdom, where the Bank of England (BoE) has operated under a well-defined flexible inflation-targeting framework for more than three decades. As Nakamura, Riblier, and Steinsson (2025) note, it is perhaps the only major advanced economy—besides the United States—whose monetary policy can be reasonably described by a Taylor (1993) rule. At the same time, Chief Economist Hugh Pill has characterized the BoE's approach as "rule-based but not rule-bound" (Pill 2024), a description that captures the central challenge the Bank faces: maintaining credibility through systematic policy while retaining the flexibility needed to respond to shocks.

To assess whether market participants perceive this balance, we exploit market surprises in consumer price inflation (CPI) and industrial production (IP) resulting from data releases by the Office for National Statistics (ONS). As a measure of the market participants' expectations, we use data from Reuters Economic Poll, a snapshot survey which provides predictions for inflation and industrial production ahead of their official releases. Surprises are computed as the difference between the variables' realized and expected values. We then quantify the response of nominal interest rates at different maturities to inflation and IP surprises.

We make two main contributions. First, building on the recent macroeconomic literature (Hamilton, Pruitt, and Borger 2011; Bauer, Pflueger, and Sunderam 2024a; Bauer, Pflueger, and Sunderam 2024b; Cuciniello 2024; Bocola et al. 2024), we assess whether U.K. financial markets expect the BoE to respond systematically to inflation and output variations; i.e., to follow a rule. We break this into four testable implications and establish that: (i) markets anticipate nominal interest rates to respond systematically to inflation and IP surprises; (ii) their expectations align with theory, predicting a rate hike in response to positive inflation and output surprises; (iii) they distinguish between conventional and unconventional monetary policy regimes;[1] (iv) real interest rates rise in response to positive inflation surprises, suggesting that markets expect the Taylor principle to apply. Overall, markets display a clear understanding of how monetary policy works and how the BoE adjusts policy to inflation and output fluctuations, both under normal conditions and at the Effective Lower Bound (ELB).

Our second contribution is to examine whether markets expect the BoE to respond differently to demand and supply surprises. The months in which inflation and real activity (industrial production) surprises have the same sign are characterized by a pair of demand surprises pair — or "demand news" for short. Conversely, when inflation and industrial production move in opposite directions (opposite signs), we classify the month as a supply surprise pair. Financial market participants in the U.K. expect the BoE to respond less forcefully to inflation deviations from target when these are driven by supply surprises, consistent with a partial "look-through". This could potentially result in a risk of de-anchored inflation expectations (Orphanides and Williams 2005). However, we find no evidence of de-anchoring of medium-term expectations.

We validate and complement our analysis of market expectations by examining the response of actual macroeconomic outcomes. Overall, the Bank of England's policy behavior closely mirrors market expectations. Using a structural VAR identified with survey-based surprises to distinguish demand and supply shocks, we find that the Bank systematically raises the policy rate in response to demand shocks but remains largely unresponsive to supply shocks. This occurs even though our identified demand and supply shocks have similar effects on inflation and opposite, but comparatively modest, effects on unemployment.

Our findings indicate that markets accurately anticipate the Bank's differential response: a stronger reaction of Bank rates to demand-driven surprises, where policy trade-offs are limited, and a muted response to supply-driven shocks. Crucially, this asymmetric stance does not appear to undermine the anchoring of medium-term infla-

[1] In the U.K., unconventional monetary policy primarily means Quantitative Easing (QE). Forward guidance (announced in August 2013) has had a less prominent role, and negative rates were never implemented. QE, on the other hand, has gone through several phases, starting in 2009.

tion expectations. Overall, the close alignment between market expectations and the BoE's actual policy actions highlights the credibility of its flexible, state-contingent approach to policy, which balances systematic behavior with discretion across different types of economic shocks. In this sense, our empirical findings validate and extend the thesis of Nakamura, Riblier, and Steinsson (2025): the Bank of England does, to some extent, look through supply shocks. This response has no discernible impact on long-term inflation expectations. Moreover, it does not appear to come as a surprise to financial markets. On the contrary, they seem to anticipate it fully, and their confidence in the conduct of monetary policy remains unaffected.

Literature review. The U.K. provides a valuable setting for studying adaptive but systematic monetary policy (Woodford 2005; Ramey 2016), a framework that can potentially harness many of the benefits of commitment. The U.K. also offers rich market data—such as inflation swaps and forecast surprises from Reuters surveys — which reveal how financial market participants form expectations. Bahaj et al. (2023) show that inflation surprises are rapidly incorporated into swap-implied expectations, highlighting the important role of yield responses in the transmission of macroeconomic news in the U.K. Using intraday yield curve responses to macroeconomic news, Rudebusch (2006) finds little evidence of monetary policy inertia in the US, showing that financial markets view central bank rate adjustments as largely immediate rather than gradual.

Investor attention further amplifies these dynamics. Kroner (2025) documents that during 2021–2023, markets reacted more strongly to CPI releases as attention to inflation rose—suggesting that the intensity of market responses can vary with perceived macroeconomic relevance. Our finding also suggests a state-contingent sensitivity of yields to underlying surprises, with stronger responses of short-term yields when policy rates are away from the Zero Lower Bound.

Our results build on and complement evidence from the U.S.: Bocola et al. (2024) find that the post-2020 bond market began pricing in a reduced Fed focus on inflation stabilization. Their structural model attributes a substantial portion of U.S. inflation to this shift in perceived policy stance. Our results for the U.K. suggest that the differential focus on inflation control is primarily state-dependent.

Ramey (2016) and Bauer and Swanson (2023a) have documented that monetary policy has become more and more systematic.[2] We strive to estimate the systematic component of U.K. monetary policy by exploiting the ONS release schedule to identify exogenous macro surprises (Barnichon and Mesters 2020). In constructing

[2]This poses a challenge to the estimation of the effects of monetary policy using high-frequency shocks—originally developed for the U.S. (Kuttner 2001; Gertler and Karadi 2015; Miranda-Agrippino and Ricco 2021) and extended to the U.K. (Gerko and Rey 2017; Braun, Miranda-Agrippino, and Saha 2024).

sign-identified orthogonal shocks from survey surprises for our VAR, we carry out a similar exercise to Weale and Wieladek (2025).

Importantly, our empirical strategy allows us to capture the evolution in monetary policy rules – financial markets engage in continual learning (Orphanides and Williams 2005) –, and is robust to the possibility that policy announcements are in part a reflection of the outlook of the central bank (Nakamura and Steinsson 2018), pure shocks, and learning about the central bank response function (Bauer and Swanson 2023b).

We examine two patterns in the perceived BoE rule. First, short-term rates in the U.K. became more sensitive to inflation news during 2022–2024 compared to the Effective Lower Bound period—consistent with findings for the U.S. and Euro Area (Bauer, Pflueger, and Sunderam 2024a; Cuciniello 2024). In contrast to Swanson and Williams (2014), who find persistent U.S. yield sensitivity at the ZLB, we show U.K. short-term yields were largely unresponsive, while long-term yields retained sensitivity—consistent with the working of unconventional monetary policy.

Second, we test whether the BoE is perceived to respond differently to supply and demand news. Markets expect a stronger yield response to demand-driven inflation surprises, which does not involve output–inflation trade-offs. Consistent with this perception, our VAR results show that policy rates rise significantly following demand shocks but remain essentially unchanged after supply shocks. Importantly, however, this does not appear to undermine central bank credibility (Orphanides and Williams 2005): medium-term inflation expectations remain well anchored.

The rest of the paper is organized as follows. In Section 2 we present the data used in our analysis. Section 3 describes the empirical specification and reports the main results. Section 4 evaluates whether the markets expect the BoE to respond differently to demand and supply shocks. In Section 5, we perform a battery of robustness checks. Section 6 concludes.

2 Data

In order to characterize the monetary policy rule perceived by financial market participants, we combine two sets of high-frequency (daily) data. First, we use data on government bond yields and swap-based inflation expectations. To that, we add official data releases by the ONS and financial-market participant surprises or news, which exploits the Reuters Economic Poll survey of financial operators to assess the extent to which data releases surprise markets.

Our daily sample covers the period from April 2005 to September 2024, a time of significant uncertainty arising from both global and country-specific developments. It

comprises major events such as the global financial crisis, the COVID-19 pandemic, and the Russian invasion of Ukraine. It includes an extended phase of low and stable inflation, as well as a dramatic shift to double-digit price inflation. The latter part of the sample is also characterized by major changes in the trading relationship with the European Union, encapsulating developments that are more specific to the U.K.. The bank rate has experienced large fluctuations throughout our sample, including a prolonged phase in which the policy rate remained near or at its Effective Lower Bound (ELB), and monetary policy relied mainly on unconventional tools such as QE (Busetto et al. 2022). It also covers the subsequent shift back to conventional policy and the move toward policy normalization later in the period.

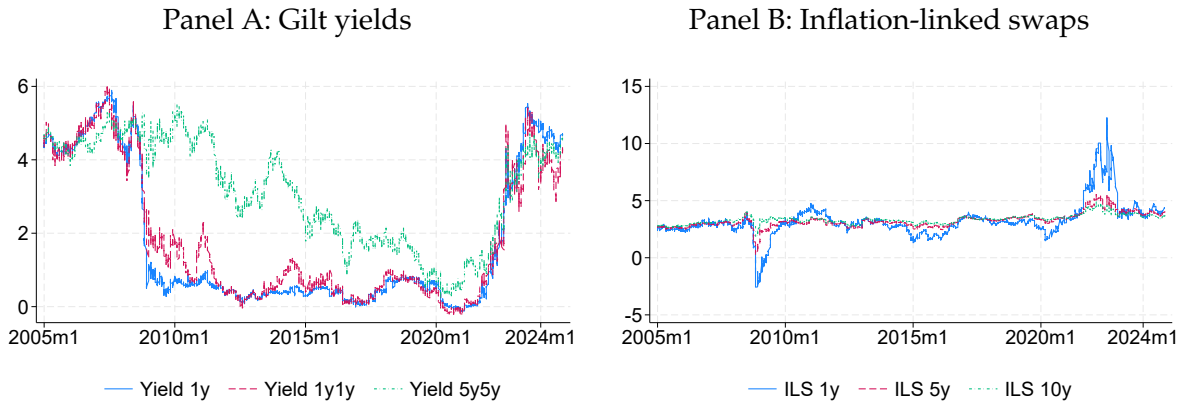
Prices and yields. We measure U.K. nominal interest rates with gilt yields at different horizons. Panel A of Figure 1 plots daily observations for the one-year (1y), the one-year, one-year-ahead (1y1y) and the five-year, five-year-ahead (5y5y) gilt yields. It is worth noting that while rates have been low for long spells in the aftermath of the Great Recession, they never quite hit the Zero Lower Bound. Rather, we could consider the policy rate to have been at an Effective Lower Bound; i.e., at a level which allowed limited but non-zero scope for further rate cuts (Masolo and Winant 2019). This is important because short-term rates retained a degree of variability even in the 2010s. Moreover, our empirical analysis will show that during the ELB period, financial markets expected monetary policy to primarily influence medium-term rates, mainly through the implementation of QE.

Panel B of Figure 1 reports our preferred measure of market-based inflation expectations: RPI zero-coupon inflation swaps. RPI is short for Retail Price Index, which has long been a popular measure of inflation in the U.K. - the Bank of England's inflation target was defined in terms of RPI excluding mortgage payments from 1997 to 2003. To this day, inflation swaps are based on RPI inflation (Bahaj et al. 2023). RPI inflation is generally higher than CPI inflation by a factor of about .8 percent (Hurd and Relleen 2006). Break-even inflation expectations are more volatile at shorter horizons (ILS 1y), and much more stable at longer horizons (ILS 10y), consistent with the view that long-term expectations remain well anchored. The swap-based inflation expectations measure is generally higher than the two-per-cent inflation target, which is defined in terms of CPI inflation.[3] Importantly, though, it exhibits a strong co-movement with CPI inflation at high frequency.

Survey-based news. Reuters Economic Polls regularly surveys financial market forecasters. The Reuters Poll consensus forecasts for the upcoming release of CPI inflation and Industrial Output/Production capture market-participant expectations in the run-

[3]It is well known that CPI inflation is on average lower than RPI.

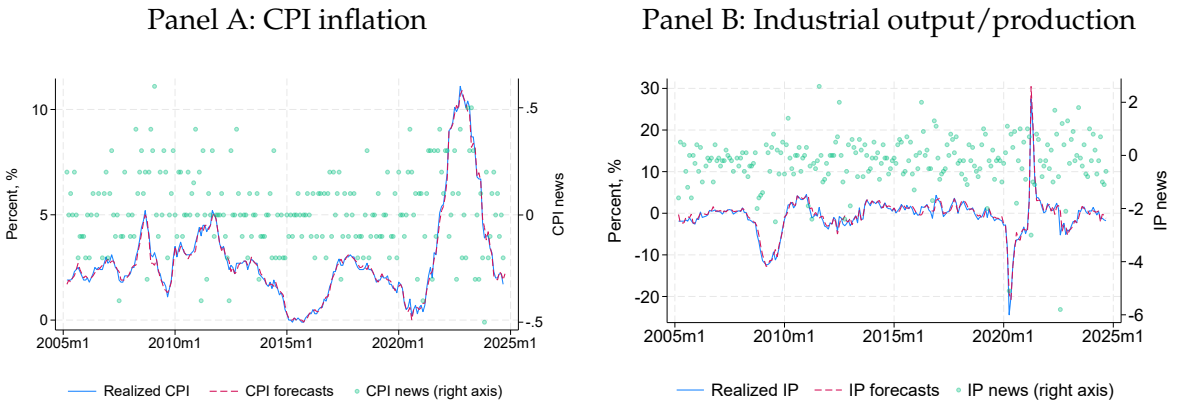
Figure 1: Time series of the financial variables



Notes: Panel A plots the gilt yields at different horizons over time. Panel B reports the inflation-linked swaps across different horizons. The vertical axis is in annual percentage points.

up to the data release by a statistical agency. Up to around the outset of the COVID pandemic, actual CPI inflation hovered around the 2% inflation target. The U.K. economy then witnessed an inflation surge that started in the second half of 2021.

Figure 2: Time series of the Reuters Poll consensus forecasts for CPI inflation and IP, their realized values and the news surprises



Notes: Panel A plots the Reuters Poll consensus forecasts for CPI inflation (red dashed line) and the realized values (blue solid line). The green dots (right axis) are the news surprises defined as the difference between the actual and forecasted CPI inflation. Panel B reports the same variables for industrial production. The data are downloaded from LSEG Refinitiv.

Figure 2 reports the actual (year-on-year) CPI inflation in panel A and IP in panel B (blue lines) alongside the corresponding Reuters Poll consensus forecast (red dashed lines).[4] As measures of exogenous changes in CPI inflation and IP, we define the sur-

[4]We use industrial production (IP) as our monthly indicator of real activity in the U.K. because, although unemployment statistic is released monthly, it reports the three-month average (e.g., the October release covers June–August) and is rounded to one decimal place. This makes it highly predictable

prises (or news); i.e., the forecast errors. The difference between the blue and red lines captures the extent to which the release of official inflation (and IP) figures surprised markets. The surprises (displayed by green dots) are plotted on the right axis of Figure 2.[5] The forecasts are, on average, extremely accurate and timely. The sample contains a mix of both negative and positive surprises, indicating that analysts do not consistently overestimate or underestimate forecasts. Moreover, survey participants appear to be extremely accurate at forecasting turning points and possible regime shifts such as COVID.[6] Overall, the forecast errors can be considered as exogenous and unpredictable surprises about the state of the economy.

Macroeconomic data. For the estimation of our VAR, we use monthly data on the Bank Rate, the one-year U.K. government bond yield, year-on-year CPI inflation, and the one-year index-linked swap rate as a measure of inflation expectations, along with the three-month average unemployment rate published by the Office for National Statistics. We augment these macroeconomic variables with our survey-based measures of demand and supply shocks, which are linear transformations of the Reuters Economic Poll surprises described above (see Section 4.2 for details).

3 Empirical analysis

3.1 Policy rule specification

We now describe our approach to estimating the market-perceived monetary policy rules. The main identification strategy exploits the monthly release of CPI inflation and industrial production (IP) data by the ONS. Because these releases do not coincide with Bank of England policy announcements, changes in gilt yields around the release dates are not driven by contemporaneous monetary policy decisions. Instead, they reflect market expectations of how the Bank would respond to the newly observed macroeconomic outcomes.

We start from the following simple monetary policy rule:

$$i_t = r_t^* + \pi_t^* + \phi_t^x x_t + \phi_t^\pi \left(\pi_t - \pi_t^*\right) + \epsilon_t, \tag{1}$$

where i_t is the nominal interest rate set by the central bank, x_t is a measure of the real economy, i.e., the output gap, and π_t the inflation rate. The coefficients ϕ_t^x and ϕ_t^π

for professional forecasters, leaving little informational content or variation. Accordingly, we include unemployment only as a robustness check.

[5]The effects of macroeconomic data releases on financial variables have been studied by, among others, Hamilton, Pruitt, and Borger (2011), Boehm and Kroner (2025), Bauer and Swanson (2023b) and Cuciniello (2024).

[6]We do not observe any particular outlier in forecast errors during COVID.

capture the monetary policy response to the inflation gap and the output gap. r_t^* and π_t^* represent the expected long-run values for the real interest rate and inflation. ϵ_t is an exogenous monetary policy shock. This policy rule specification has been standard in the macroeconomic literature since Taylor (1993) and Taylor (1999).

Our focus is the estimation of the coefficients ϕ_t^x and ϕ_t^π, which we allow to vary over time. Estimating these coefficients has remained a longstanding challenge in the empirical literature.[7] Simple time series regressions would lead to biased estimates due to endogeneity. The variables i_t, x_t and π_t are simultaneously determined as the central bank sets its policy rate in response to the state of the economy and, at the same time, the economy adjusts in response to the policy rate level.

To recover the market perceptions about the policy rule, we estimate the *perceived* coefficients $\hat{\phi}_t^x$ and $\hat{\phi}_t^\pi$ by regressing the gilt yields at different horizons on the CPI inflation and IP surprises in a few days' window around data releases.[8] The surprises allow us to overcome the endogeneity problem as (i) they do not coincide with monetary policy announcements from the BoE, so any change in the yields around these releases is unrelated to monetary policy decisions; (ii) analysts' forecast errors are exogenous and unpredictable surprises regarding the state of the economy, to which financial markets respond. We explicitly test this second assumption in the next section.

The empirical counterpart of equation (1) is then:

$$i_{t+h,t+k|t} = \alpha + m_t + \gamma D_t^\pi + \omega D_t^{IP} + \hat{\phi}_t^\pi D_t^\pi Surprise_t^\pi + \hat{\phi}_t^x D_t^{IP} Surprise_t^{IP} + \epsilon_{t+h,t+k|t}, \quad (2)$$

where $i_{t+h,t+k|t}$ is the gilt yield at time t at horizon h to k. Our baseline estimation considers $h = 1$ and $k = 2$ years, so on the left-hand side we have the one-year, one-year-one-year forward (1y1y) gilt yield. D_t^π is a dummy variable that takes the value 1 in the days after the CPI inflation release and 0 otherwise, whereas D_t^{IP} takes the value 1 after the IP release and 0 otherwise. We refer to these variables as $Dummy\ ONS$. As in Di Pace, Mangiante, and Masolo (2025), we consider a symmetric window of 5 days, but, as we show in Section 3.3, our results are robust to alternative window selections. The variables $Surprise_t^\pi$ and $Surprise_t^{IP}$ correspond to CPI inflation and industrial production surprises from the Reuters Economic Poll. m_t are the time-fixed effects, which absorb any variable that is constant within each time window, such as the long-run real interest rate or the inflation target. The coefficients of interest are $\hat{\phi}_t^x$ and $\hat{\phi}_t^\pi$, which capture how the gilt yields adjust in response to exogenous changes in CPI inflation and IP, thus reflecting how financial markets perceive the Bank of

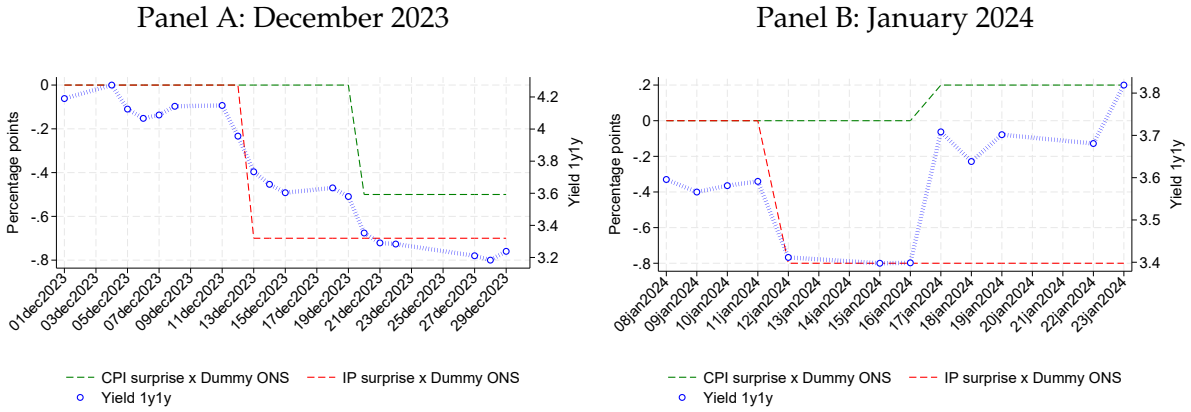
[7] See, among others, Clarida, Galí, and Gertler (1998) and Clarida, Galí, and Gertler (2000), Kim and Nelson (2006), Orphanides (2001) and Orphanides (2003).

[8] Nunes, Ozdagli, and Tang (2023) adopts a similar approach to disentangle pure monetary policy shocks and information shocks for the US.

England's policy rule.

This specification is close to that in Cuciniello (2024), who estimates the market-perceived European Central Bank's policy rule. Empirical policy rule specifications typically include the lag of the policy rate as a measure of policy gradualism and as a way to capture the high persistence of nominal rates. In our specification, i_{t-1} is absorbed by the time fixed effect. As our left-hand side variable is an expected rate at a horizon of one year or more, though, it is possible that the gradual adjustment of rates is not fully captured by past interest rates. Rather, it could depend on expected nominal rates at horizons below one year, which could very well respond to our surprises, above and beyond our month fixed effect. To assess the sensitivity of our results, we follow Cuciniello (2024) and also estimate a specification which includes the 1-year horizon gilt yield as a control variable.

Figure 3: Daily time series of the surprises and 1-year 1-year-ahead horizon gilt yields



Notes: Panel A plots the day-by-day series of the CPI inflation and IP surprises alongside (left axis) the 1-year 1-year-ahead horizon gilt yields for December 2023 (right axis). Panel B reports the same series for January 2024.

Figure 3 illustrates our empirical strategy through a graphical representation. The plots depict the daily time series of CPI inflation and IP surprises alongside the one-year, one-year-ahead horizon gilt yields for December 2023 (Panel A) and January 2024 (Panel B). In December, the 1y1y yield remained stable throughout the early part of the month until the release of the IP data on December 13th. Analysts had underestimated IP growth, resulting in a substantial negative forecast error of 0.7 percentage points. Financial markets reacted swiftly to this information, with the yield dropping immediately and stabilizing at the new level until the release of CPI inflation data on December 20th. The CPI surprise also presented a negative forecast error of 0.5 percentage points, triggering a further decline in yields.

A similar pattern is observed in January 2024, with a negative IP surprise followed by a positive CPI inflation surprise. Markets responded as expected, with yields de-

clining after the negative IP forecast error and rising sharply following the positive CPI surprise.

Our empirical strategy exploits yield movements around macroeconomic data releases. By comparing yields a few days before and after each release, we estimate how yields respond to unexpected changes in inflation and economic growth — that is, the effect of these surprises on financial market expectations.

3.2 Surprises and financial variables

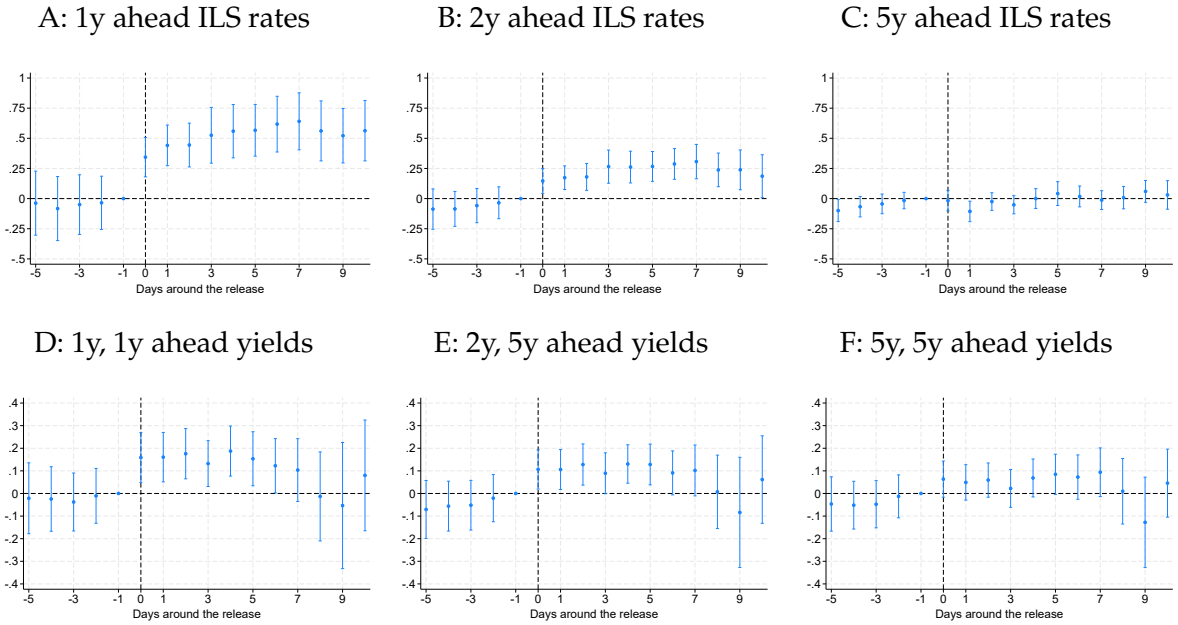
Before estimating the market-perceived policy rule, we evaluate whether financial markets respond to the surprises. We do so by slightly modifying the baseline equation (2). Instead of the dummy D_t, which equals 1 on the days following the release and 0 otherwise, we interact the surprises with a series of day-specific dummies that take the value 1 for each day from five days before to ten days after the release, and 0 otherwise. The day immediately preceding the release is used as the baseline. Moreover, we estimate the effects of CPI inflation and IP releases separately, since the ONS typically publishes these two statistics on different days. In our sample, the release dates differ by 0 to 9 days, with an average gap of 3.8 days between them. As dependent variables, we use the inflation-linked swaps (ILS) at different horizons as measures of the market's inflation expectations and the gilt yields at different maturities.[9]

The top row of Figure 4 reports the responses of the inflation-linked swaps to the CPI surprises on a day-to-day basis around the CPI releases. The effect on the 1-year ahead ILS (Panel A) is strong and immediate: following a 1 percentage point CPI surprises, the swap increases by 0.5 percentage points. The effect is persistent throughout the window considered. The fact that markets adjust immediately is entirely reasonable given that the ONS publishes these data at 7am. Therefore, markets are able to incorporate this information on the very day of the release. Importantly, given the timing of the announcement, the use of intraday data would not provide any additional information.

Importantly, the plot also illustrates that prior to the release, there is no detectable pre-trend; i.e., the Reuters Poll surprises are not predicted by markets. Panel B of Figure 4 shows that the response of the two-year ahead inflation expectations is significant but about half the size of the response of the one-year expectation. Finally, Panel C shows that inflation expectations at the five-to-ten year horizon do not respond. Taken together, this set of regressions tells us that: (i) Reuters Poll surprises are indeed a good proxy for market-participant surprises as they are not systematically predictable; (ii) they cause a revision in short- and medium-term inflation expectations; (iii) they re-

[9]The timing of the surprises requires adjustments due to reporting lags. CPI inflation is reported with a one-month lag, IP with a two-month lag.

Figure 4: Event study of the effects of CPI surprises on financial variables



Notes: The figure reports the estimated effects of a CPI surprise on financial variables. The coefficients are obtained by interacting the surprises with a series of dummies equal 1 for each day before/after the CPI inflation release from 5 days before to 10 days after and 0 otherwise. The day before the release is used as baseline. The dependent variables are the inflation-linked swap (top rows) and the gilt yields (bottom rows) at different maturities.

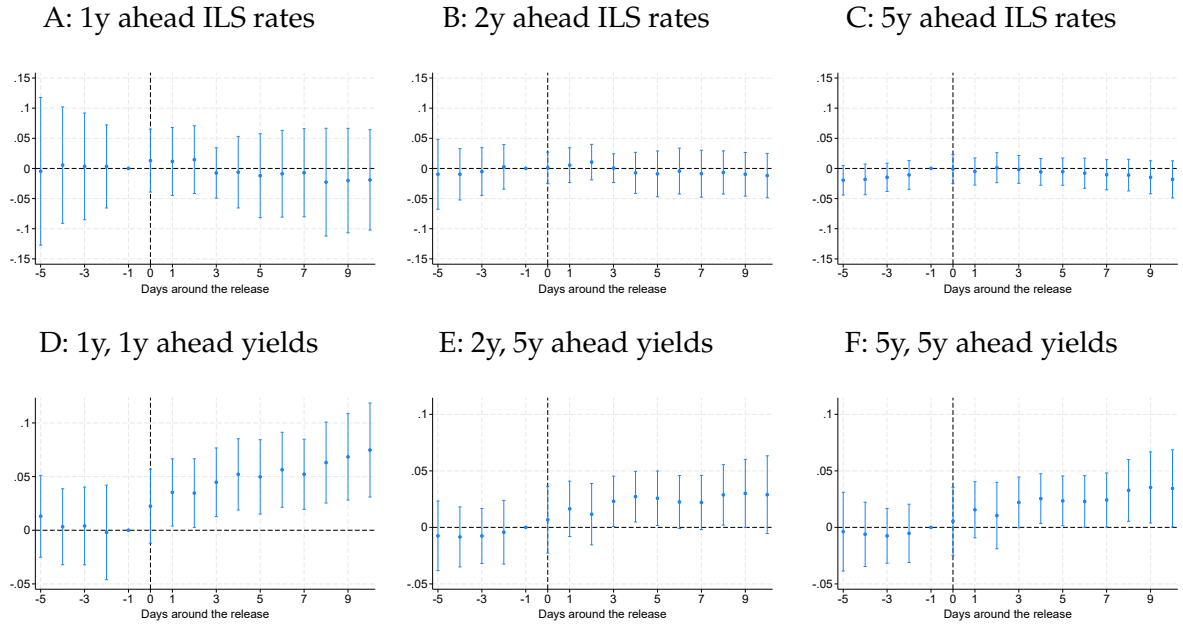
veal that markets expect any inflation variations to be reined in, consistent with the idea that long-term expectations are well anchored.

The bottom row of Figure 4 displays the estimated responses of gilt yields at different maturities. Short-term rates react significantly to inflation surprises. That is not the case for medium to long-term rates – below we show how this changes when we focus on the lower-bound period, during which monetary policy relied primarily on unconventional tools, such as Quantitative Easing. These findings confirm that financial markets strongly respond to CPI releases. Moreover, the positive response of the short-term yields, despite the fact that no monetary policy decision is taken on the days of the releases, suggests that the markets expect the central bank to respond to a positive surprise to inflation by raising rates.

The day-by-day estimation highlights an important difference between the response of inflation expectations and yields. The latter remains significant for about a week, that is to say, for a shorter period than inflation expectations. This suggests that inflation expectations are driven primarily by inflation news, whereas gilt yields also respond to other sources, such as real-economy developments and monetary policy announcements.

In Figure 5, we replicate the analysis, focusing on the effects of IP surprises on finan-

Figure 5: Event study of the effects of IP surprises on financial variables



Notes: The figure reports the estimated effects of an IP surprise on financial variables. The coefficients are obtained by interacting the surprises with a series of dummies equal to 1 for each day before/after the IP inflation release from 5 days before to 10 days after, and 0 otherwise. The day before the release is used as baseline. The dependent variables are the inflation-linked swap (top rows) and the gilt yields (bottom rows) at different maturities.

cial variables. Inflation expectations do not respond to IP news, whereas short-term rates do, confirming that markets expect the BoE to tighten its policy stance following a positive economic shock. The magnitude of this response is smaller than that observed after a CPI surprise.

Overall, the empirical findings presented so far support the validity of these surprises as exogenous measures of changes in inflation and industrial production. Financial markets respond strongly to such economic news, and gilt yield reactions—both in size and relative magnitude—are consistent with theoretical predictions

3.3 Perceived monetary policy rule

Having established the validity of the surprises, we now turn to estimating the market-perceived monetary policy rule. We compute the financial markets' responses to CPI inflation and IP surprises around the CPI releases by estimating equation (2).

The first column of Table 1 reports the effect of a one percentage point inflation surprise on the one-year ahead inflation-linked swap. The surprise causes an increase in the one-year inflation expectations of about half a percent, with month fixed-effects capturing any underlying changes in the macroeconomic landscape. This is in line with the findings from Figure 4. The result is consistent with the evidence provided by

Table 1: Market-perceived Taylor rules in the U.K.

	(1) ILS 1y	(2) Yield 1y1y	(3) Yield 1y1y	(4) Yield 1y1y	(5) Yield 1y1y	(6) Yield 1y1y	(7) Yield 1y1y
CPI surprise x Dummy ONS	0.520***	0.182***		0.187***	0.109***	0.226***	0.149***
	(0.0486)	(0.0257)		(0.0262)	(0.0197)	(0.0375)	(0.0272)
IP surprise x Dummy ONS			0.0349***	0.0343***	0.0238***	0.0538***	0.0266***
			(0.00614)	(0.00951)	(0.00740)	(0.00799)	(0.00473)
Yield 1y					0.837***		0.912***
					(0.0554)		(0.0441)
Constant	3.218***	1.749***	1.729***	1.722***	0.358***	1.722***	0.242***
	(0.00509)	(0.00304)	(0.00323)	(0.00750)	(0.0911)	(0.00411)	(0.0714)
Observations	2506	2506	2377	2451	2451	2571	2571
Month FE	YES	YES	YES	YES	YES	YES	YES

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Notes: The Table reports regression results for the 1-year inflation-linked swap and the 1-year, 1-year-ahead horizon yields on the CPI inflation and IP news surprises within a 5-day window around the CPI inflation release. The CPI inflation surprises and IP surprises, obtained from LSEG Refinitiv, are measured as the difference between the Reuters Poll professional forecasters' expectations and the actual release. Further controls included (discussed in the main text, not shown). The analysis is performed using data for the period 2005M4:2024M9. Robust standard errors are displayed in parentheses.

Bauer and Swanson (2023b), who find that forecasters revise their expectations upon the release of headline macroeconomic series.

Columns (2) to (7) of Table 1 report the results using the 1y1y yield as a dependent variable. Column (2) is our baseline specification, which features CPI surprises only. The coefficient of the interaction between the CPI surprise and the $Dummy\ ONS$ provides an estimate of the market-perceived responsiveness of the Bank of England to an inflationary surprise, i.e., $\hat{\phi}^{\pi}$. Financial markets expect the monetary authority to respond strongly to an increase in inflation by raising the policy rate. Column (3) considers a 5-day window around the IP releases, providing an estimate of the market-perceived responsiveness to an economic shock; i.e., $\hat{\phi}^{x}$.

In Column (4) we jointly control for the CPI inflation and IP surprises. This specification provides an estimate of both $\hat{\phi}^{\pi}$ and $\hat{\phi}^{x}$. In line with economic theory, both coefficients are positive and significant. At the same time, the first coefficient is much larger than the second, suggesting that markets correctly understand that the mandate of the Bank of England aims, first of all, at achieving price stability and, secondly, at supporting economic growth and employment. Importantly, the inclusion of the IP surprise does not alter our estimate of $\hat{\phi}^{\pi}$.

Column (5) presents the estimates of equation (2), controlling for daily fluctuations in the one-year yield, which accounts for potential inertia in the policy rule. While the coefficients are slightly smaller in magnitude, their signs and estimation precision remain unaffected.

As previously noted, the CPI inflation and IP releases are not published on the same

Table 2: Market-perceived Taylor rules, different window sizes

	(1) Window: 9 days	(2) Window: 7 days	(3) Window: 5 days	(4) Window: 3 days	(5) Window: 1 day
CPI surprise x Dummy ONS	0.164***	0.185***	0.187***	0.182***	0.163***
	(0.0289)	(0.0269)	(0.0262)	(0.0262)	(0.0361)
IP surprise x Dummy ONS	0.0557***	0.0554***	0.0343***	0.0334***	-0.411*
	(0.00856)	(0.0126)	(0.00951)	(0.0112)	(0.236)
Constant	1.742***	1.738***	1.722***	1.727***	1.285***
	(0.00499)	(0.00618)	(0.00750)	(0.00970)	(0.214)
Observations	4013	3315	2451	1566	678
Month FE	YES	YES	YES	YES	YES

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Notes: The Table reports regression results for the 1-year, 1-year-ahead horizon yields on the CPI inflation and IP news surprises. The size of the window considered around the CPI inflation release ranges from 1 to 9 days. The CPI inflation surprises and IP surprises, obtained from LSEG Refinitiv, are measured as the difference between the Reuters Poll professional forecasters' expectations and the actual release. Further controls included (discussed in the main text, not shown). The analysis is performed using data for the period 2005M4:2024M9. Robust standard errors are displayed in parentheses.

day, with a lag ranging from 0 to 9 days. This raises a potential concern in the baseline specification: more days may be "treated" by the release that occurs first compared to the second. To address this, Columns (6) and (7) of Table 1 present coefficients estimated after excluding the days between the two releases, both with and without the one-year yield (1y) as a control. In this specification, the $Dummy\ ONS$ variable is set to 0 for the 5 days preceding the first release and to 1 for the 5 days following the second release. This specification confirms that our main results are robust to this.

A potentially important driver of our findings is the "estimation window", i.e., how many days we consider before and after the surprises. A shorter window limits the possibility that other concurring news may muddle our findings. At the same time, it reduces the number of observations. Figures 4 and 5 suggest that our findings are robust to varying the window size. Table 2 shows this more formally. We consider window sizes ranging from 1 to 9 days. The estimated coefficients are remarkably similar, validating that the size of the window considered has very little effect on the results. For CPI, we hardly observe any change. For IP, the primary effect is on the precision of the estimate: the standard deviation of our coefficient of interest when we consider a one-day window is some 25 times larger than in our five-day baseline.

The results thus far, showing greater sensitivity of the one-year-one-year forward yield to CPI surprises, markets likely perceive the BoE as primarily focused on its inflation mandate. Following an exogenous CPI surprise, short-term yields respond immediately with effects lasting for several days after the release. The strong reaction to CPI surprises indicates that short-term inflation deviations have a significant impact on expectations about the BoE's policy rate trajectory, consistent with its mandate. The reaction to IP surprises is smaller, but its statistical significance highlights that markets

recognize the BoE's dual mandate.

We aim to isolate exogenous surprises in order to estimate our coefficients of interest, yet three potential sources of bias remain. First, as Clarida, Galí, and Gertler (2000) note, estimating policy rules during periods of limited inflation variability can be problematic. Since our approach relies on daily market reactions rather than lower-frequency time-series surprises, it should be less affected by this issue, although the early part of our sample may still be less informative. Second, nearly half of our sample covers a period when short-term interest rate movements were constrained by the effective lower bound. Third, our baseline specification does not allow for heterogeneous responses to different types of shocks.

We address the first two concerns by splitting the sample into three subperiods, as discussed below. In Section 4, we then explicitly allow for the possibility that markets anticipate different policy responses by the BoE to demand versus supply disturbances. In doing so, we also test whether market expectations are consistent with the Taylor principle, i.e., whether the Bank of England responds to inflation in a way that induces a positive comovement between inflation and real interest rates.

3.4 Conventional and unconventional policy

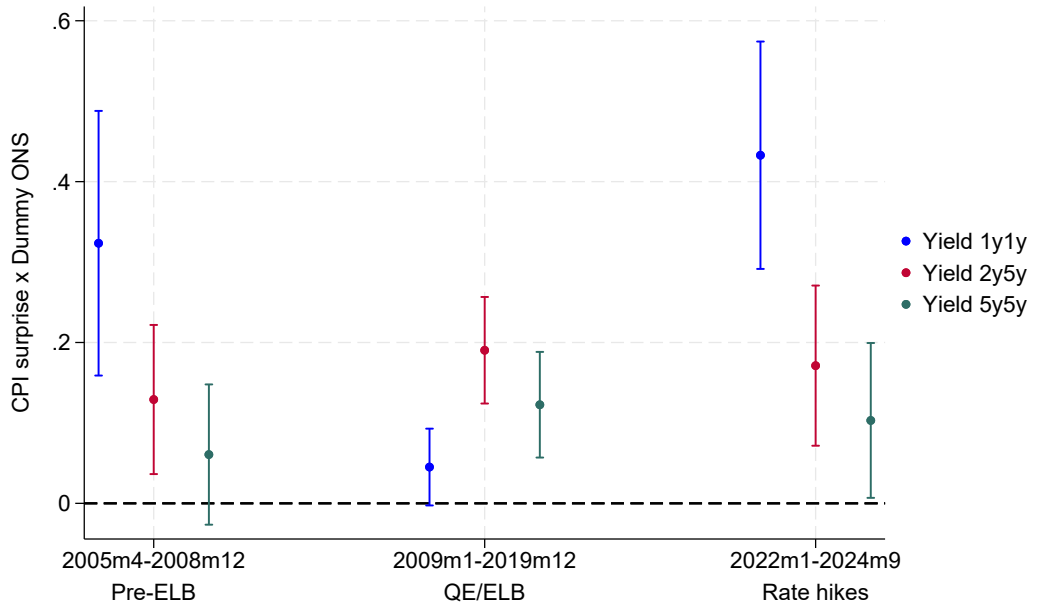
Monetary policy rates were at, or near, their effective lower bound (ELB) between 2009 and 2019. This implies that our full-sample estimate of the short-term rate response to inflation surprises is likely to exhibit a downward bias. Moreover, our estimation does not isolate the effects of the unconventional monetary policy measures implemented by the Bank of England in the aftermath of the Great Recession.

Figure 6 shows our estimation results when the sample is split into a pre-2009 period, the 2009–2019 period (when the policy rate was close to the ELB), and 2022 onwards. We omit the COVID period to ensure that our results are not driven by this highly unusual set of observations. We estimate our baseline specification with the one-year-one-year, two-year-five-year and the five-year-five-year ahead yields as dependent variables. The full set of results is detailed in Table A1 of the Appendix.

Yield responses to inflation surprises are estimated precisely, despite the reduced number of observations in each subsample. Away from ELB, markets expect the BoE to strongly respond to an unexpected increase in inflation by raising short-term rates. The magnitude of the coefficient during the ELB period is approximately one-tenth of that over the recent period. The marked increase in responsiveness in recent years aligns with the findings of Cuciniello (2024) for the Euro Area and Bauer, Pflueger, and Sunderam (2024a) for the U.S.

Medium-to-long term rates are largely unresponsive pre-2009 and after 2022. However, during the ELB period, markets anticipated yields at the five-to-ten-year horizon

Figure 6: Time-varying market-perceived Taylor rules



Notes: The figure shows the regression results for the 1-year, 1-year-ahead horizon, the 2-year, 5-year-ahead horizon and the 5-year, 5-year-ahead horizon yields on the CPI inflation within a 5-day window around the CPI inflation release, considering different time periods. The CPI inflation surprises, obtained from LSEG Refinitiv, are measured as the difference between the Reuters Poll professional forecasters' expectations and the actual release. Further controls included (discussed in the main text, not shown). The analysis is performed using data for the period 2005M4:2024M9. Robust standard errors are displayed in parentheses.

to be steered by the BoE in response to inflation developments. This is in line with the way the QE programme was expected to work. One of the intended goals of QE was to lower medium-term rates by boosting prices, as the Bank of England purchased medium-term bonds in exchange for short-term government debt.

After COVID, the estimated policy response function is in line with its pre-2008 counterpart. Point estimates are somewhat larger but there are no statistically significant differences, which suggests that our estimation procedure is robust to estimating the policy rule in periods of limited inflation variability, i.e., the Great Moderation, which is a concern for Clarida, Galí, and Gertler (2000), using traditional time-series models. Also, our findings suggest that the BoE managed to pursue its goal without inducing excessive volatility in yields, even at times of high inflation.

3.5 The Taylor principle and the response of real rates

According to the Taylor principle, the long-term response of nominal interest rates to deviations of inflation from target must exceed unity, thereby ensuring a positive comovement between inflation and real rates. Estimating this long-run response typi-

Table 3: Market-perceived Taylor rules in the U.K., the Taylor principle

	(1) Real rate 1y1y	(2) Real rate 1y1y	(3) Real rate 1y1y	(4) Yield 1y1y
CPI surprise x Dummy ONS	0.161***		0.168***	0.145***
	(0.0563)		(0.0576)	(0.0308)
IP surprise x Dummy ONS		0.0255***	0.0142	
		(0.00885)	(0.0115)	
Unemp surprise x Dummy ONS				-0.131***
				(0.0269)
Constant	-1.424***	-1.455***	-1.461***	1.722***
	(0.00497)	(0.00494)	(0.0132)	(0.00318)
Observations	2506	2377	2451	2477
Month FE	YES	YES	YES	YES

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Notes: The Table reports regression results for the 1-year, 1-year-ahead horizon real rate and yields on the CPI inflation, IP and unemployment surprises within a 5-day window around the CPI inflation release. The surprises, obtained from LSEG Refinitiv, are measured as the difference between the Reuters Poll professional forecasters' expectations and the actual release. Further controls included (discussed in the main text, not shown). The analysis is performed using data for the period 2005M4:2024M9. Robust standard errors are displayed in parentheses.

cally requires identifying the interest-rate smoothing parameter and specifying the full monetary policy rule, which would introduce additional assumptions in our context.

We therefore take a more direct route to testing whether markets expect the Bank of England to "abide" by the Taylor principle. We follow the approach pioneered by Clarida, Galí, and Gertler (2000). Specifically, we estimate the response of real rates to inflation surprises by replacing real rates on the left-hand side of our baseline specification.[10]

The results, reported in Columns (1)–(3) of Table 3, show that markets expect real rates to rise significantly following positive inflation and industrial production news, indicating that investors expect a policy response consistent with the Taylor principle.

4 Demand and supply

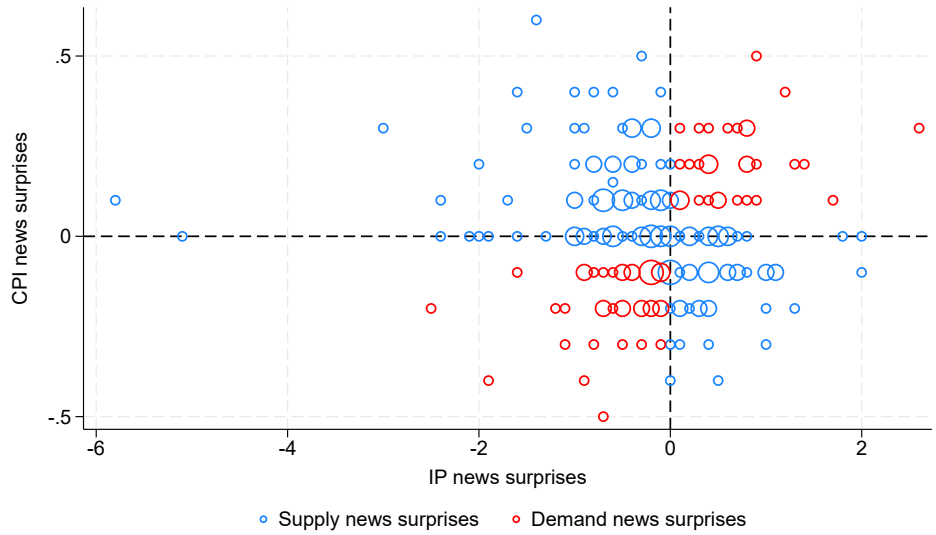
4.1 Demand and supply surprises

Demand shocks are comparatively easier for monetary policy to stabilize than supply shocks. A positive demand shock raises both output and inflation. By increasing interest rates, the central bank can effectively return both to their target or natural levels. Supply shocks, on the other hand, pose a trade-off to the policymaker: they drive inflation and real activity in opposite directions.

[10]Real rates are defined as the difference between gilt yields and inflation-linked swaps over the same horizons.

In Figure 7, we show the scatter plot of all the CPI and IP surprise pairs for each month in our sample: there is significant heterogeneity in the combined sign and size of the releases. Demand surprise pairs are reported in red and supply pairs in blue – the size of the circle captures the frequency of the surprise, as, due to rounding, some values recur. In Figure 3, we provide an example of a month characterized by a demand surprises (Panel A) and a month featuring a supply surprise (Panel B).

Figure 7: Scatter plots of the CPI inflation and IP surprises



Notes: The figure reports the scatter plot of IP (on the horizontal axis) and CPI inflation (on the vertical axis) surprises, with the circle size representing the frequency of the observations; supply news surprises are represented by blue circles, demand news surprises by red circles.

To evaluate whether financial markets understand and internalize the trade-off faced by the BoE, we modify our baseline specification. We define a dummy equal to 1 for a month in which the CPI inflation and IP surprises have the same sign, corresponding to red dots in Figure 7, and 0 otherwise. We call this dummy $Demand\,NS$ as short for demand news surprise. We then extend the baseline equation (2) by introducing a triple interaction between the CPI surprises, the dummy identifying the days after the ONS release and the dummy identifying demand surprises.

Column (1) of Table 4 reports our estimation results when we allow markets to hold different expectations regarding the response of the central bank to demand and supply shocks. As a robustness check, Column (3) repeats the analysis excluding the days between the CPI and IP releases and considers a five-day window before the first and after the second release.

The positive and significant coefficients on the triple interaction indicate that markets expect the Bank of England to respond more forcefully to demand disturbances. This pattern points to a high degree of sophistication among market participants, who

Table 4: Market-perceived responsiveness to demand and supply surprises

	(1) Yield 1y1y	(2) ILS 5-5y	(3) Yield 1y1y	(4) ILS 5-5y
Demand NS	0.00257	0.00903	0.0223**	-0.00215
	(0.00886)	(0.00665)	(0.0112)	(0.00711)
CPI surprise x Dummy ONS	0.0954***	0.0183	0.0526	0.0503*
	(0.0338)	(0.0321)	(0.0499)	(0.0302)
Demand NS × CPI surprise x Dummy ONS	0.193***	0.00484	0.396***	-0.0295
	(0.0518)	(0.0399)	(0.0753)	(0.0407)
Constant	1.749***	3.479***	1.722***	3.467***
	(0.00303)	(0.00237)	(0.00369)	(0.00244)
Observations	2506	2506	2571	2571
Month FE	YES	YES	YES	YES

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Notes: The table presents regression results for the 1-year, 1-year-ahead horizon gilt yields and the 5-year, 5-year-ahead ILS regressed on CPI inflation surprises within a 5-day window surrounding the CPI inflation release. The surprises are interacted with a dummy variable that differentiates between demand and supply surprises based on whether, within a given month, their sign aligns with that of the IP surprises. The CPI inflation surprises, sourced from LSEG Refinitiv, are measured as the difference between the Reuters Poll professional forecasters' expectations and the actual release. Additional control variables are included in the regression (discussed in the main text but not shown in the table). The analysis uses data spanning the period from April 2005 to September 2024. Robust standard errors are reported in parentheses.

recognize that supply shocks pose a policy trade-off for a flexible inflation targeter — one that is absent when surprises in real activity and inflation move in the same direction.

A relatively muted policy response to supply-shock pairs could, under certain conditions discussed by Orphanides and Williams (2005), heighten the risk of stagflation or de-anchoring of inflation expectations. To examine this possibility, we replicate the previous analysis using the five-year, five-year ahead inflation-linked swap rate as the dependent variable, capturing medium- to long-term inflation expectations.

The results, shown in Column (2) of Table 4, indicate that none of the interaction coefficients are statistically significant. More broadly, inflation expectations at the five-to ten-year horizon appear largely unresponsive to inflation news. Thus, while markets anticipate a differentiated BoE response to various combinations of surprises, the relatively weaker reaction to supply shocks does not translate into an upward drift in long-term inflation expectations. Markets remain confident in the Bank's capacity to maintain price stability even when confronted with policy trade-offs. Column (4), which repeats the exercise excluding the days between the CPI and IP releases and instead uses a five-day window before the first release and after the second, confirms these findings.

Taken together, these results suggest that markets expect the Bank of England to

partially look through the inflationary effects of supply shocks, while remaining confident that this will not lead to a persistent deviation of inflation from target. In other words, markets appear to believe that the Bank can leverage its inflation-targeting credibility without risking a de-anchoring of expectations (Nakamura, Riblier, and Steinsson 2025). We now turn to assessing whether these expectations are warranted.

4.2 Aggregates responses to demand and supply shocks

Up to this point, our estimates have characterized the monetary policy response function as perceived by financial market participants and reflected in their expectations. We now examine whether the realized behavior of the U.K. economy supports those perceptions. To this end, we estimate a monthly structural VAR that captures the dynamic propagation of demand and supply shocks to key macroeconomic aggregates. In this way, we can trace the responses of policy rates and yields—i.e., the actual monetary policy reaction. In this respect, the VAR complements our event-study analysis and provides a more comprehensive picture of the Bank of England's policy behavior.

In our event study exercise, the emphasis is on the exact timing of data releases. At a monthly frequency, we cannot exploit the exact dates in which data are released. We thus treat the inflation and real activity survey-based surprises as contemporaneous and derive orthogonal demand and supply shocks according to a standard sign restriction procedure (Uhlig 2005).[11] We use the resulting survey-based shocks as internal instruments in our VAR estimation.

Sign Restriction. We can define the vector of survey-based surprises for period t as:

$$v_t \equiv x_t - \mathbb{E}_{m,t} x_t, \tag{3}$$

where x_t is the vector containing CPI inflation and industrial production released in period t, and $\mathbb{E}_{m,t}$ is the consensus expectation of market participants on the eve of data releases. This definition parallels the definition of residuals from a standard VAR but improves on it insofar as market participants base their expectations on a larger and more timely information set.

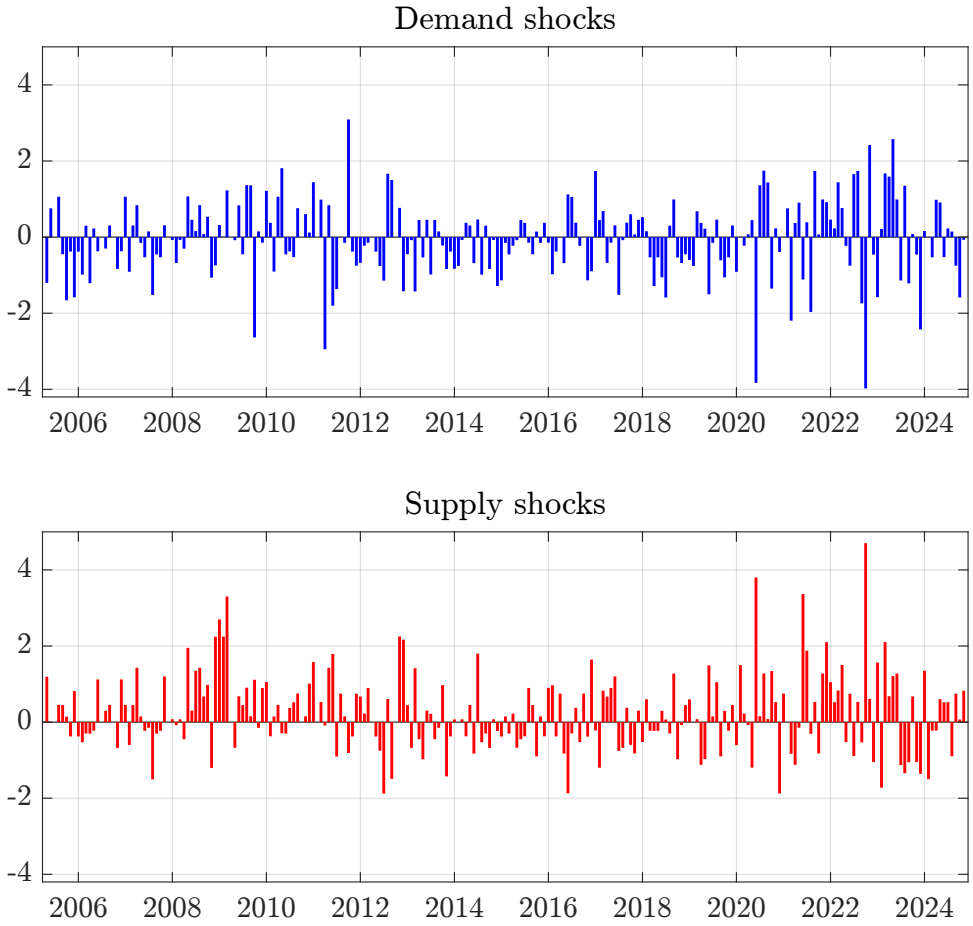
Given $\Sigma_v = \mathbb{E} v_t v_t'$, we derive structural demand and supply shocks by applying a sign restriction identification scheme (see Uhlig 2005 among others): $\nu_t = K v_t$, with $KK' = \Sigma_v$, $\mathbb{E}\nu_t\nu_t' = I$.

[11] A sign-identified demand (supply) shock is a linear combination of the surprises for inflation and industrial production for that particular month. The two surprises are typically released on different days. So we prefer not to use the sign-identified shocks in our baseline specification. Nevertheless, Table A5 shows that our key insight, i.e., that the market expects a stronger response to demand disturbances, is robust to using sign-identified shocks in our event-study regressions.

The sign restriction procedure (implemented by matrix K) identifies structural demand shocks as those moving on impact both inflation and industrial production in the same direction. Conversely, a supply shock will move them in the opposite direction.[12] Importantly, our identification scheme does not restrict the sign of the response beyond the period of the shock, nor does it restrict the sign of the response of interest rates.

Figure 8 reports our series of demand and supply shocks.[13] A noteworthy aspect of the series is the sequence of large positive supply shocks – where positive means that they push up inflation and down real activity – in the post-COVID period. Most important for our analysis is that over the ELB period we observe a balanced mix of both demand and supply shocks: our estimates of the differential policy rate response to demand and supply shocks will not depend on one of the two being more prevalent at the time when the policy rate move less.

Figure 8: Time series of identified demand and supply shocks



Notes: Notes: The figure reports the time series of demand and supply shocks for the United Kingdom, identified via a sign-restriction approach using Reuters Poll survey data collected around news releases.

[12] We have normalized the sign of the shocks so that they both drive up inflation.

[13] We use the median of the draws of the K matrix from the sign restriction routine.

Internal Instrument VAR. We estimate the dynamic effects of our survey-based demand and supply shocks using a standard internally identified VAR model with p lags:

$$y_t = B_0 + B_1 y_{t-1} + \ldots + B_p y_{t-p} + \varepsilon_t, \tag{4}$$

where y_t is an $n \times 1$ vector of endogenous variables, u_t is the vector of reduced-form innovations with covariance matrix $\mathbb{E}\varepsilon_t\varepsilon_t' = \Sigma$, B_0 is the vector of constant terms, and $B_1, \ldots, B_p$ are $n \times n$ coefficient matrices.

The corresponding structural form is:

$$A_0 y_t = C_0 + C_1 y_{t-1} + \ldots + C_p y_{t-p} + u_t, \quad u_t \sim \mathcal{N}(0, \Sigma_u), \tag{5}$$

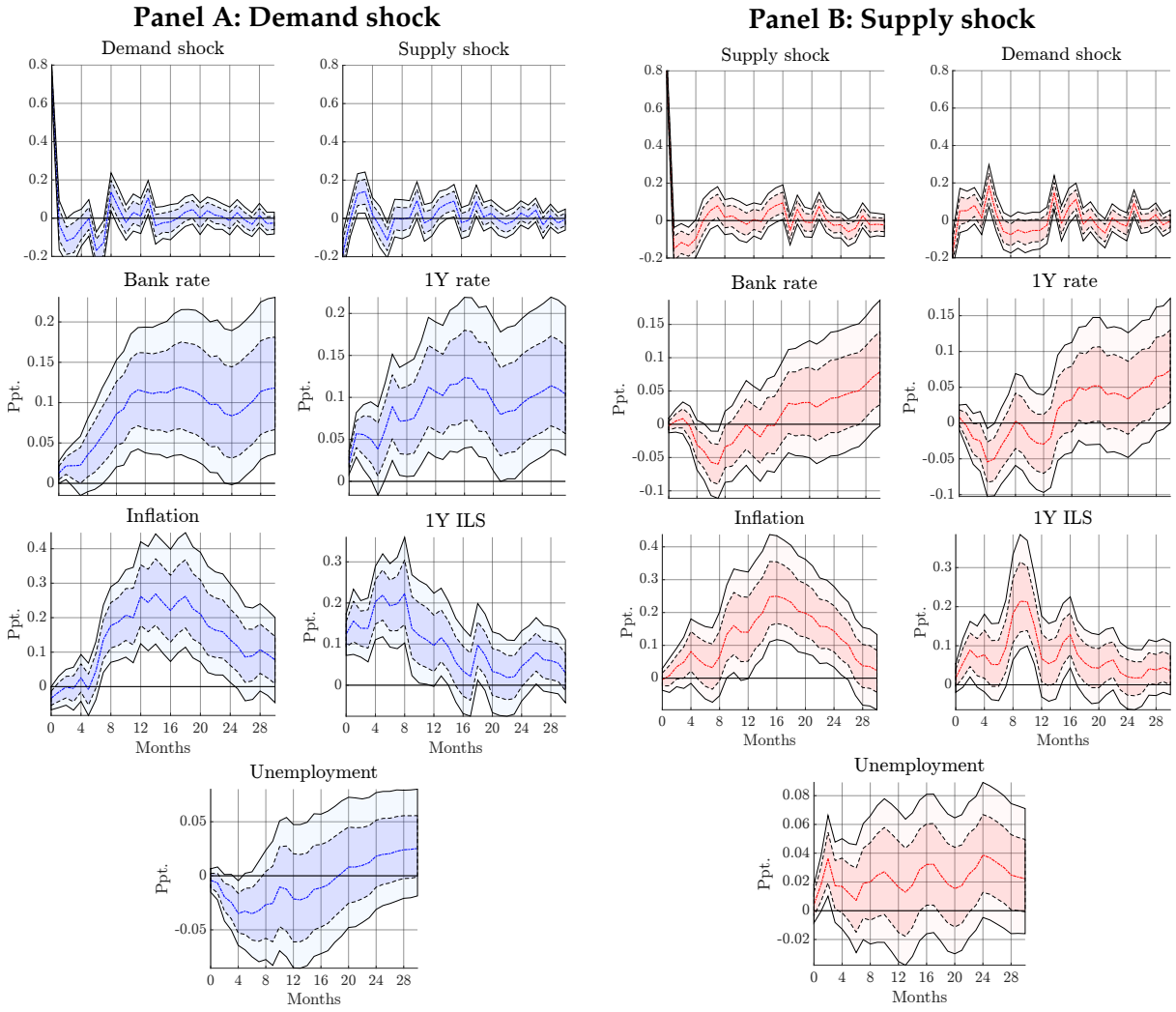
where $C_0 = A_0 B_0$ and $C_j = A_0 B_j$ for $j = 1, \ldots, p$. The reduced-form residuals are related to the structural shocks by $\varepsilon_t = A_0^{-1} u_t$, implying $\Sigma = A_0^{-1} \Sigma_u A_0^{-1'}$.

The identified demand and supply shocks are included directly in the VAR system and ordered first, allowing all other variables to respond contemporaneously. As shown in the robustness analysis, our results are not sensitive to including the shocks separately, as the two are orthogonal by construction. The remaining variables in the baseline specification include: (i) the Bank of England Bank Rate; (ii) the one-year government bond yield; (iii) the annual inflation rate; (iv) the one-year inflation-linked swap rate; and (v) the unemployment rate. Each equation includes twelve lags, although results are robust to alternative lag specifications. Standard errors are computed using a residual-based moving block bootstrap (Jentsch and Lunsford 2019).

The impulse responses to one-standard-deviation shocks are displayed in Figure 9. The left panel reports responses to a demand shock, while the right panel shows those to a supply shock. Dashed lines represent point estimates, and shaded areas indicate 68 and 90 percent confidence bands based on 10,000 bootstrap replications.

The first observation is that the two shocks are orthogonal and do not react to one another. Both shocks raise inflation significantly, peaking at about 0.25 percentage points before gradually reverting to zero. Unemployment falls after a demand shock but rises following a supply shock, consistent with theoretical predictions and supporting the identification of the shocks. Inflation expectations, measured by the one-year inflation-linked swap rate, increase in line with the rise in inflation but the response to demand shocks appears to be more precisely estimated.

Figure 9: Impulse responses to identified demand and supply shocks



Notes: Panel A reports the impulse responses of key macroeconomic variables to a one-standard-deviation demand shock. Panel B reports the responses to a one-standard-deviation supply shock. The variables included are the Bank of England Bank Rate, the one-year government bond yield, headline inflation, the one-year inflation-linked swap rate, and the unemployment rate. Dashed lines denote point estimates, and shaded areas represent 68 and 90 percent confidence intervals based on 10,000 residual-based moving block bootstrap replications. The sample covers 2005m4–2024m9. All variables are expressed in percentage points, except for inflation and unemployment, which are in annualized percentage changes.

Despite the similar magnitude of the inflation responses, the behavior of the policy rate (and the one-year rate) differs markedly across shocks. Following a demand shock, the policy rate rises sharply, whereas it remains essentially unchanged after a supply shock. This finding is consistent with Hofmann, Manea, and Mojon (2024), who show that the Federal Reserve reacts nearly four times more strongly to demand-driven than to supply-driven movements in inflation.

The market expectation that the BoE responds more forcefully to demand-driven inflation is borne out in the VAR evidence. In this sense, financial markets appear

rational in anticipating stronger yield adjustments when inflation originates from demand disturbances. The close alignment between market expectations and realized policy behavior further suggests that market participants possess a nuanced understanding of the BoE's reaction function and the trade-offs inherent in flexible inflation targeting.

From a policy perspective, this consistency between perceived and actual responses carries two important implications. First, it indicates that the BoE's communication has been effective in shaping realistic market expectations, thereby enhancing the credibility and the predictability of monetary policy. As markets correctly anticipate the central bank's reaction to different types of shocks, monetary transmission becomes smoother, and policy surprises are minimized. Second, the evidence that the BoE partially looks through supply shocks without triggering a de-anchoring of inflation expectations supports the view that credibility allows for short-term flexibility. A well-established flexible inflation targeting regime grants the central bank room to accommodate transitory supply disturbances without jeopardizing medium-term price stability. Maintaining this credibility through consistent communication and data-dependent policy actions remains crucial as the economy continues to face recurrent supply-side shocks and heightened uncertainty about the inflation process.

5 Robustness checks

In this section, we perform a series of robustness checks to strengthen the validity of our results.

First, we replace industrial production with unemployment surprises as an alternative measure of real economic activity. These surprises are computed as the difference between professional forecasters' expectations from the Reuters Poll and the actual figures released by the ONS.

The results, presented in Column (4) of Table 3, show that the coefficient on unemployment surprises is small and negative, whereas the coefficient on CPI inflation surprises remains strong and highly significant. This outcome is reassuring regarding the robustness of the response to inflation news and is largely expected in the case of unemployment. As discussed in Section 2, each month the ONS releases the three-month average unemployment rate with a two-month delay, rounded to the first decimal place. This reporting structure makes the unemployment release highly predictable, resulting in a large share of zeros in the unemployment surprise series.

Second, we check whether the responsiveness to demand and supply surprises depends on the choice of event-window size. Table A2 reports results for windows ranging from 1 to 9 days. The stronger reaction to demand surprises remains robust across

Table 5: Market-perceived Taylor rules in the U.K., 2SLS

	(1) Yield 1y1y	(2) Yield 1y1y	(3) Yield 1y1y	(4) Yield 1y1y
ILS 1y	0.351***	0.224***	0.376***	0.270***
	(0.0445)	(0.0393)	(0.0498)	(0.0441)
Yield 1y		0.755***		0.788***
		(0.0344)		(0.0390)
Observations	2506	2506	2621	2621
Month FE	YES	YES	YES	YES

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Notes: The Table reports regression results for the 1-year, 1-year-ahead horizon gilt yields on the 1-year inflation-linked swap, instrumented using CPI inflation surprises, within a 5-day window around the CPI inflation release. The CPI inflation surprises, obtained from LSEG Refinitiv, are measured as the difference between the Reuters Poll professional forecasters' expectations and the actual release. Further controls included (discussed in the main text, not shown). The analysis is performed using data for the period 2005M4:2024M9.

both smaller and larger windows.

Third, we employ a two-stage least squares (2SLS) approach, using CPI inflation surprises as instruments for inflation-linked swaps (ILS) instead of including them directly in the regressions. This approach isolates the response of yields to exogenous variation in ILS induced by CPI surprises. The results, shown in Table 5, are consistent in both magnitude and significance with our baseline estimates (Figure 4). CPI inflation surprises are a strong driver of movements in inflation-linked swap rates around the CPI release, as indicated by a first-stage F-statistic of about 202.

Fourth, we restrict the sample to the pre-COVID period. As shown in Table A3, truncating the sample in 2021M12 has virtually no effect on the estimated market-perceived Taylor rule.

Fifth, Table A4 reports results using yields of different maturities — one-year-one-year, one-year-three-year, three-year-five-year, five-year-seven-year, and seven-year-ten-year-ahead forward yields. CPI and IP surprises are positive and significant across all horizons, with coefficients gradually declining as maturity increases. This pattern indicates that short-term yields react more strongly to macroeconomic surprises, while longer-term yields are less sensitive, consistent with an anchoring of long-run inflation expectations.

Sixth, Table A5 presents estimates from the event-study specification using demand and supply shocks identified in our VAR. Column (1) shows the effect on the one-year inflation-linked swap, while Columns (2)–(3) report results for the one-year, one-year-ahead yields. Consistent with the VAR evidence, both shocks have similar effects on expected inflation, but yields respond only to demand shocks. This reinforces the view that financial markets perceive the Bank of England as reacting more forcefully to demand-driven inflationary pressures.

Finally, we assess the robustness of the VAR responses to demand and supply shocks under alternative specifications. (1) Following Miranda-Agrippino and Ricco (2021), we purge shocks of potential autocorrelation by regressing them on twelve lags and using the residuals as cleaned shocks. (2) We replace the unemployment rate with gross value added (GVA) as an alternative measure of real activity. (3) We estimate models including one structural shock at a time rather than identifying both jointly. (4) We re-estimate the model with six instead of twelve lags. The results, shown in Figures A1–A4, confirm the robustness of our main findings. Despite demand and supply shocks producing similar effects on inflation, the Bank of England reacts significantly only to demand shocks.

6 Conclusion

In this paper, we estimate the financial market's perception of the Bank of England's policy rule by analyzing changes in yields around ONS data releases of CPI inflation and industrial production. We capture exogenous changes in CPI inflation and industrial production using CPI and IP surprises, defined as the forecast errors of market analysts. We assess how the Bank's responsiveness to these surprises evolves over time and whether the response differs between demand-driven and supply-driven disturbances.

Our analysis demonstrates that markets understand the Bank of England's flexible inflation-targeting framework and expect it to respond systematically to inflation and output surprises. This understanding is evident in the stronger anticipated BoE reaction to demand-driven inflation deviations, which lack the policy trade-offs typically associated with supply shocks. Furthermore, we show that the perceived responsiveness of the BoE varies over time, with markets correctly anticipating changes in the transmission mechanism when the interest rates are at their Effective Lower Bound.

Complementing this market-based evidence with macroeconomic analysis, we show that the BoE's actual policy behavior largely mirrors these expectations. Using a structural VAR, identified with survey-based demand and supply shocks, we find that the Bank systematically tightens its policy stance following demand shocks but remains largely unresponsive to supply shocks. Both types of shocks have comparable effects on inflation, yet the BoE reacts asymmetrically — consistent with a flexible inflation-targeting framework that can be interpreted as "looking through" supply shocks.

Markets clearly expect a stronger reaction to demand-driven surprises, where policy trade-offs are minimal, and a muted response to supply-driven shocks. Importantly, this asymmetric response does not appear to compromise the anchoring of medium-term inflation expectations. Overall, the alignment between market expec-

tations and the BoE's actual policy actions underscores the credibility of its flexible, state-contingent approach, which balances systematic behavior with discretion in response to different types of economic disturbances.

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Appendix

This Appendix presents additional analysis, including Tables and Figures referenced in the main text. The materials provide supplementary evidence and robustness checks that complement the main results discussed in the paper.

Table A1: Time-varying market-perceived Taylor rules

	(1) Yield 1y1y 2005m4-2008m12	(2) Yield 1y1y 2009m1-2019m12	(3) Yield 1y1y 2022m1-2024m9	(4) Yield 5y5y 2005m4-2008m12	(5) Yield 5y5y 2009m1-2019m12	(6) Yield 5y5y 2022m1-2024m9
CPI surprise x Dummy ONS	0.323***	0.0451*	0.433***	0.0607	0.123***	0.103**
	(0.0839)	(0.0243)	(0.0721)	(0.0445)	(0.0335)	(0.0491)
IP surprise x Dummy ONS	0.0501	0.0226***	0.0894***	0.0161	0.0311**	0.0283
	(0.0647)	(0.00806)	(0.0271)	(0.0419)	(0.0157)	(0.0212)
Constant	4.575***	0.745***	3.251***	4.576***	2.923***	3.449***
	(0.0260)	(0.00566)	(0.0235)	(0.0201)	(0.00412)	(0.0190)
Observations	434	1421	356	434	1421	356
Month FE	YES	YES	YES	YES	YES	YES

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Notes: The Table reports regression results for the 1-year, 1-year-ahead horizon and the 5-year, 5-year-ahead horizon yields on the CPI inflation and IP surprises within a 5-day window around the CPI inflation release considering different time periods. The CPI inflation surprises and IP surprises, obtained from LSEG Refinitiv, are measured as the difference between the Reuters Poll professional forecasters' expectations and the actual release. Further controls included (discussed in the main text, not shown). The analysis is performed using data for the period 2005M4:2024M9. Robust standard errors are displayed in parentheses.

Table A3: Market-perceived Taylor rules in the U.K., pre-COVID period

	(1) ILS 1y	(2) Yield 1y1y	(3) Yield 1y1y	(4) Yield 1y1y	(5) Yield 1y1y
CPI surprise x Dummy ONS	0.363***	0.109***		0.187***	0.109***
	(0.0377)	(0.0235)		(0.0262)	(0.0197)
IP surprise x Dummy ONS			0.0349***	0.0343***	0.0238***
			(0.00614)	(0.00951)	(0.00740)
Yield 1y					0.837***
					(0.0554)
Constant	2.864***	1.493***	1.729***	1.722***	0.358***
	(0.00326)	(0.00290)	(0.00323)	(0.00750)	(0.0911)
Observations	2150	2150	2377	2451	2451
Month FE	YES	YES	YES	YES	YES

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Notes: The Table reports regression results for the 1-year inflation-linked swap and the 1-year, 1-year-ahead horizon yields on the CPI inflation and IP news surprises within a 5-day window around the CPI inflation release. The CPI inflation surprises and IP surprises, obtained from LSEG Refinitiv, are measured as the difference between the Reuters Poll professional forecasters' expectations and the actual release. Further controls included (discussed in the main text, not shown). The analysis is performed using data for the period 2005M4:2021M12. Robust standard errors are displayed in parentheses.

Table A2: Responsiveness to demand and supply surprises: different window sizes

	(1) Window: 9 days	(2) Window: 7 days	(3) Window: 3 days	(4) Window: 1 day
Demand NS	0.0190**	0.00796	-0.00493	-0.00151
	(0.00929)	(0.00887)	(0.00840)	(0.0113)
CPI surprise x Dummy ONS	0.0595*	0.0773**	0.119***	0.112**
	(0.0333)	(0.0327)	(0.0352)	(0.0470)
Demand NS × CPI surprise x Dummy ONS	0.226***	0.226***	0.128**	0.110
	(0.0577)	(0.0535)	(0.0512)	(0.0691)
Constant	1.753***	1.752***	1.747***	1.752***
	(0.00283)	(0.00294)	(0.00294)	(0.00435)
Observations	4097	3388	1601	693
Month FE	YES	YES	YES	YES

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Notes: The table reports regression results for 1-year, 1-year-ahead gilt yields on CPI inflation surprises using different event-window sizes around the CPI release. Surprises are classified as demand- or supply-driven depending on whether their sign coincides with that of industrial production surprises in the same month. CPI surprises are obtained from LSEG Refinitiv, and measured as Reuters Poll consensus forecast errors. Additional control variables are included but not shown. The sample covers April 2005–September 2024. Robust standard errors in parentheses.

Table A4: Market-perceived Taylor rules in the U.K. across different horizons

	(1) Yield 1y1y	(2) Yield 1y3y	(3) Yield 3y5y	(4) Yield 5y7y	(5) Yield 7y10y
CPI surprise x Dummy ONS	0.187***	0.196***	0.172***	0.129***	0.0724***
	(0.0262)	(0.0228)	(0.0220)	(0.0261)	(0.0229)
IP surprise x Dummy ONS	0.0343***	0.0250***	0.0145*	0.0295***	0.0251***
	(0.00951)	(0.00766)	(0.00856)	(0.0112)	(0.00856)
Constant	1.722***	1.890***	2.514***	2.847***	3.246***
	(0.00750)	(0.00672)	(0.00738)	(0.00800)	(0.00884)
Observations	2451	2451	2451	2451	2451
Month FE	YES	YES	YES	YES	YES

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Notes: The Table reports regression results for different horizons of the yields on the CPI inflation and IP news surprises within a 5-day window around the CPI inflation release. The CPI inflation surprises and IP surprises, obtained from LSEG Refinitiv, are measured as the difference between the Reuters Poll professional forecasters' expectations and the actual release. Further controls included (discussed in the main text, not shown). The analysis is performed using data for the period 2005M4:2024M9. Robust standard errors are displayed in parentheses.

Table A5: Market-perceived Taylor rules in the U.K. using demand and supply shocks

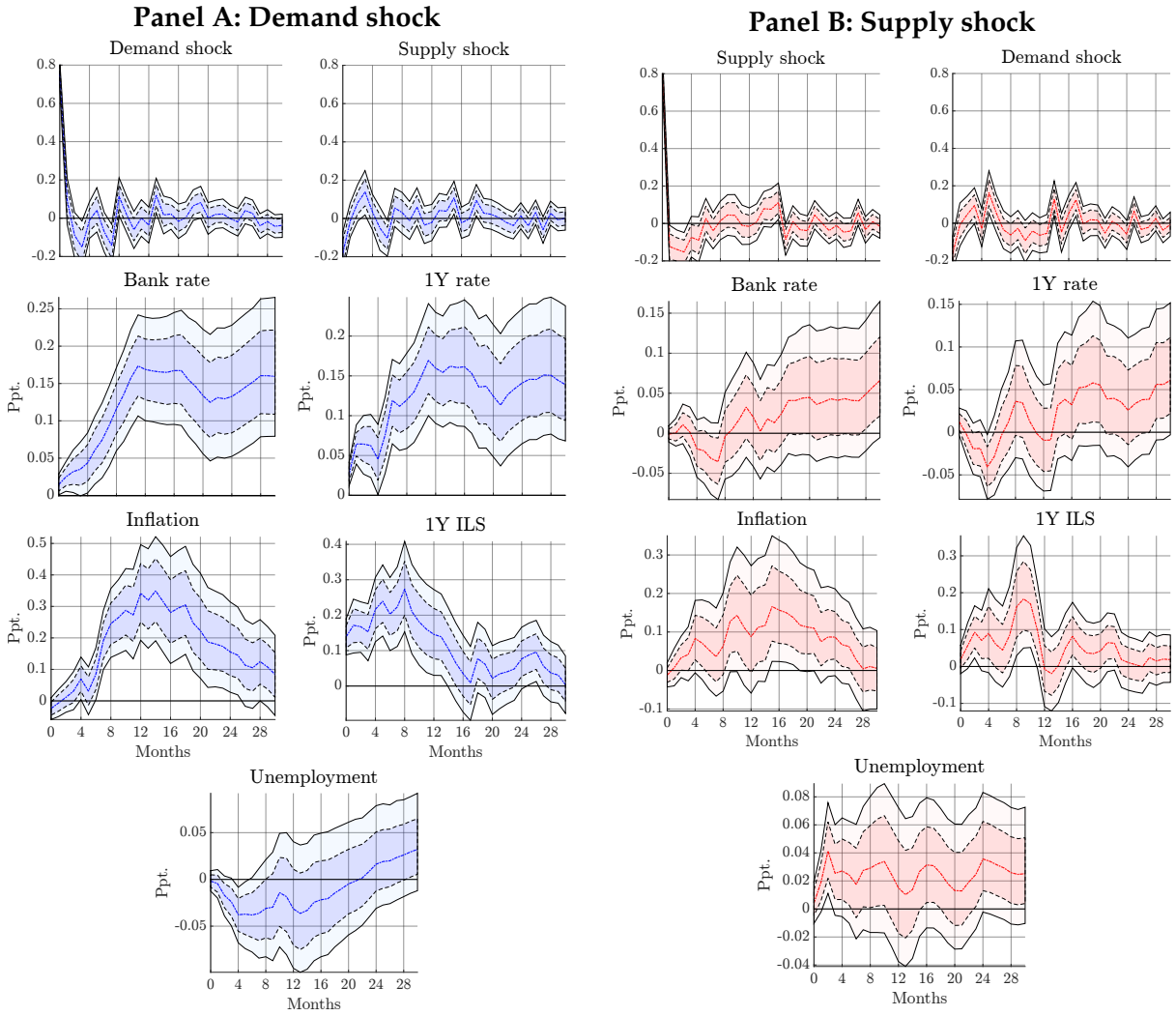
	(1) ILS 1y	(2) Yield 1y1y	(3) Yield 1y1y
Demand shock x Dummy ONS	0.0615***	0.0450***	0.0671***
	(0.0130)	(0.00527)	(0.00714)
Supply shock x Dummy ONS	0.0772***	0.00442	-0.00737
	(0.0115)	(0.00500)	(0.00687)
Constant	3.241***	1.734***	1.714***
	(0.00518)	(0.00305)	(0.00362)
Observations	2462	2462	2583
Month FE	YES	YES	YES

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

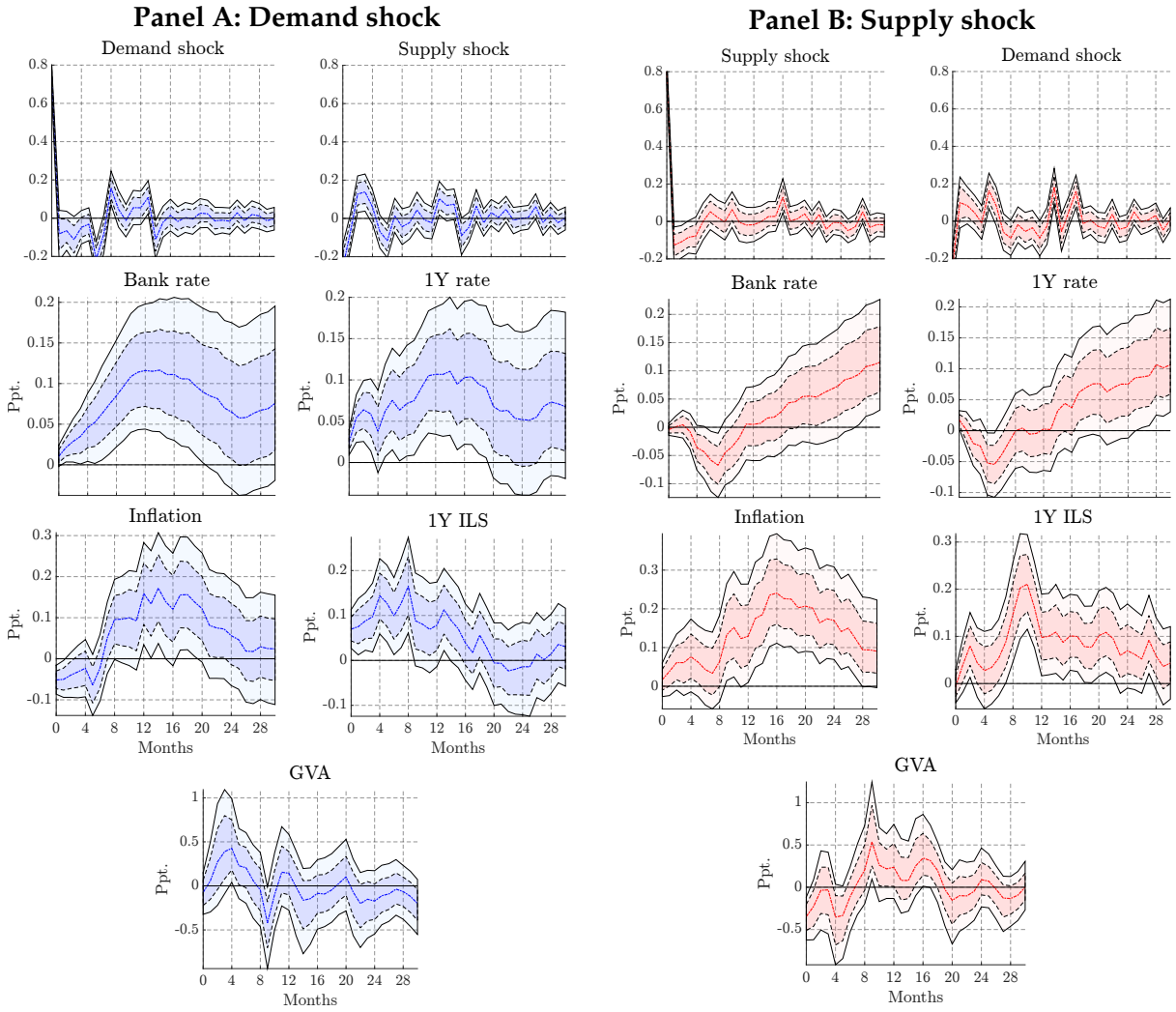
Notes: The Table reports regression results for the 1-year inflation-linked swap and the 1-year, 1-year-ahead horizon yields on the demand and supply shocks within a 5-day window around the CPI inflation release. Further controls included (discussed in the main text, not shown). The analysis is performed using data for the period 2005M4:2024M9. Robust standard errors are displayed in parentheses.

Figure A1: Impulse responses to identified demand and supply shocks, cleaned shocks



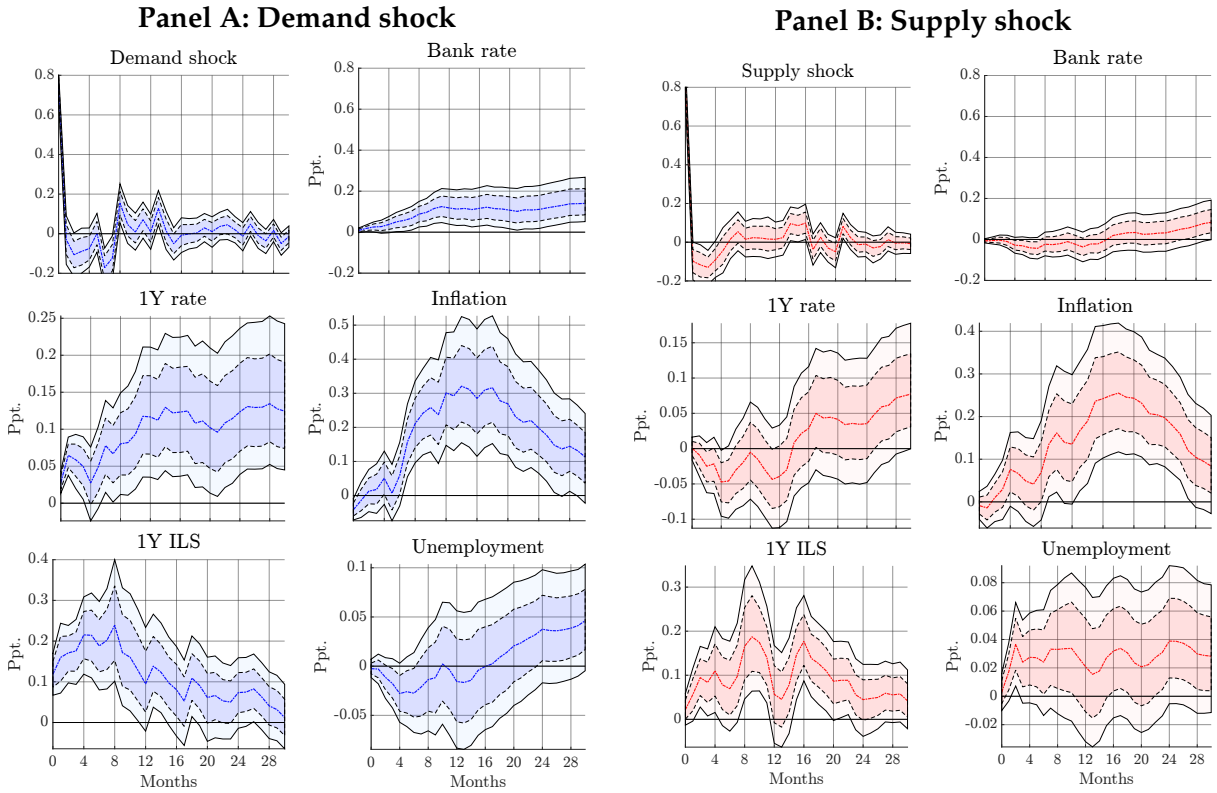
Notes: Panel A reports the impulse responses of key macroeconomic variables to a one-standard-deviation demand shock. Panel B reports the responses to a one-standard-deviation supply shock. The shocks are purged of autocorrelation by regressing them on their own twelve lags, and the resulting residuals are treated as shocks. The variables included are the Bank of England Bank Rate, the one-year government bond yield, headline inflation, one-year inflation-linked swap rate, and the unemployment rate. Dashed lines denote point estimates, and shaded areas represent 68 and 90 percent confidence intervals based on 10,000 residual-based moving block bootstrap replications. The sample covers 2005m4-2024m9. All variables are expressed in percentage points, except for inflation and unemployment, which are in annualized percentage changes.

Figure A2: Impulse responses to identified demand and supply shocks, including GVA



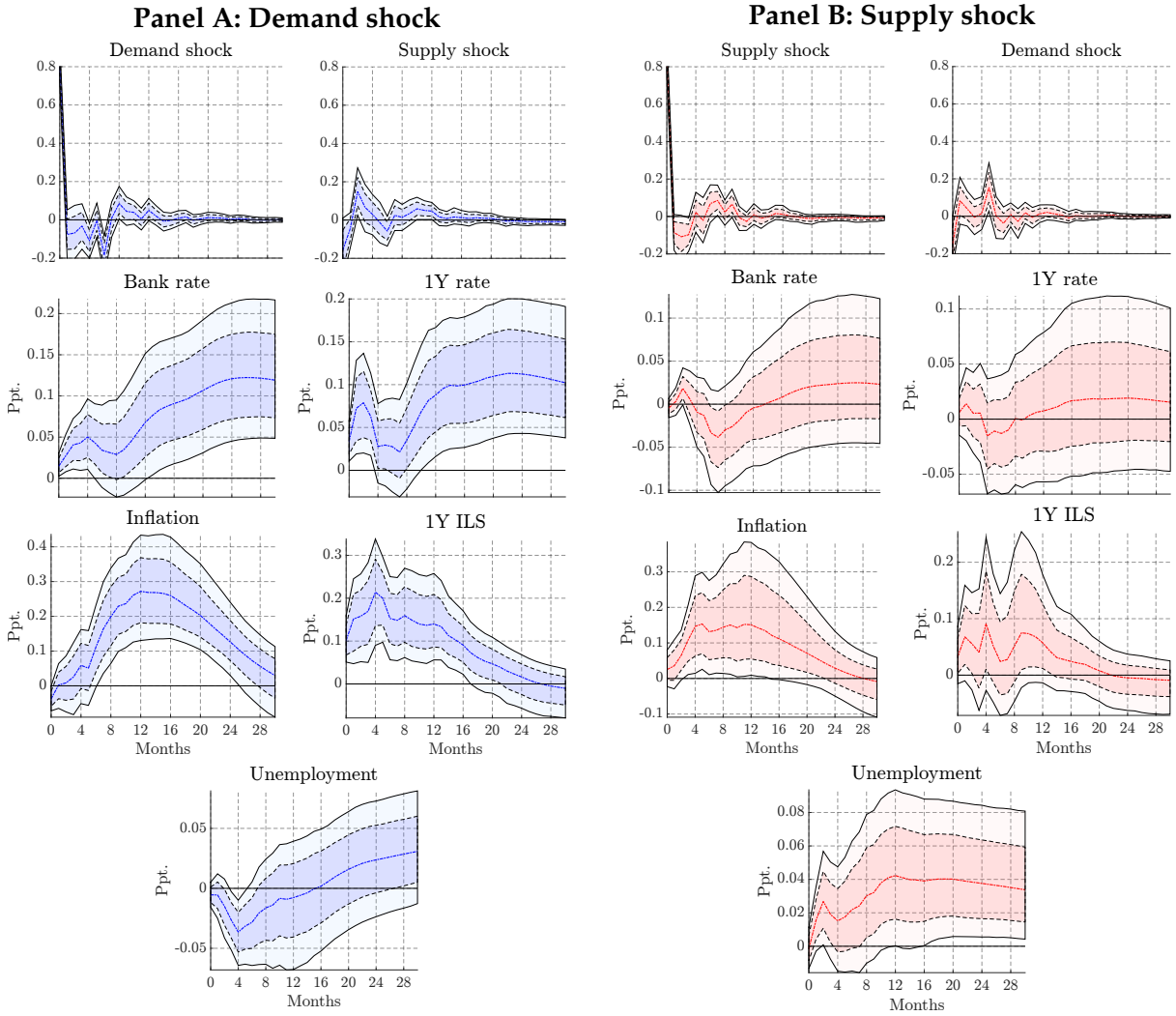
Notes: Panel A reports the impulse responses of key macroeconomic variables to a one-standard-deviation demand shock. Panel B reports the responses to a one-standard-deviation supply shock. The variables included are the Bank of England Bank Rate, the one-year government bond yield, headline inflation, one-year inflation-linked swap rate, and the unemployment rate. Dashed lines denote point estimates, and shaded areas represent 68 and 90 percent confidence intervals based on 10,000 residual-based moving block bootstrap replications. The sample covers 2005m4-2024m9. All variables are expressed in percentage points, except for inflation and unemployment, which are in annualized percentage changes.

Figure A3: Impulse responses to identified demand and supply shocks, one shock



Notes: Panel A reports the impulse responses of key macroeconomic variables to a one-standard-deviation demand shock. Panel B reports the responses to a one-standard-deviation supply shock. The variables included are the Bank of England Bank Rate, the one-year government bond yield, headline inflation, one-year inflation-linked swap rate, and the unemployment rate. Dashed lines denote point estimates, and shaded areas represent 68 and 90 percent confidence intervals based on 10,000 residual-based moving block bootstrap replications. The sample covers 2005m4-2024m9. All variables are expressed in percentage points, except for inflation and unemployment, which are in annualized percentage changes.

Figure A4: Impulse responses to identified demand and supply shocks, different lags



Notes: Panel A reports the impulse responses of key macroeconomic variables to a one-standard-deviation demand shock. Panel B reports the responses to a one-standard-deviation supply shock. The variables included are the Bank of England Bank Rate, the one-year government bond yield, headline inflation, one-year inflation-linked swap rate, and the unemployment rate. Dashed lines denote point estimates, and shaded areas represent 68 and 90 percent confidence intervals based on 10,000 residual-based moving block bootstrap replications. The sample covers 2005m4-2024m9. All variables are expressed in percentage points, except for inflation and unemployment, which are in annualized percentage changes.