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Abstract

Bounded rationality reshapes monetary policy trade-offs in response to supply shocks in a New Keynesian model with endogenous growth. Unlike in a standard New Keynesian model with exogenous productivity, a temporary supply disturbance can leave long-lasting scars when productivity growth is endogenous. We illustrate the mechanism for an adverse realization of the shock, which depresses innovation and future productivity, giving rise to long-run scarring and persistent inflationary pressures. Under rational expectations, an inflation-focused monetary policy stance eases the initial rise in inflation but amplifies the fall in demand, innovation, and productivity. Under bounded rationality, households underreact to future income losses. This weakens the negative wealth effect and mitigates the decline in demand and growth. Consequently, the persistent inflationary effects disappear.

JEL Codes: E22, E32, E52, E71, O40.
Keywords: Growth, imperfect rationality, monetary policy, myopia, supply shocks.

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1. Introduction

There has been growing interest in understanding how business-cycle shocks affect economic activity in the long run through their impact on innovation and productivity growth (see, e.g., Comin and Gertler, 2006; Benigno and Fornaro, 2018; Bianchi et al., 2019; Anzoategui et al., 2019). Fornaro and Wolf (2023) develop a New Keynesian model with endogenous growth in which adverse supply shocks generate permanent output losses by depressing innovation and productivity growth.[1] By reducing households' permanent income, these shocks also weaken aggregate demand through a negative wealth effect. Monetary policy, therefore, faces a trade-off between containing inflation and limiting long-run scarring effects.

Our paper studies how bounded rationality affects this trade-off. We embed cognitive discounting (Gabaix, 2020) into Fornaro and Wolf (2023)'s framework. Cognitive discounting belongs to a broader literature on departures from full-information rational expectations and limited forward-looking behaviour (Angeletos and Huo, 2021; Angeletos et al., 2025). Related approaches include adaptive learning, whereby agents form expectations using estimated forecasting models that are updated as new data arrive. In this regard, Orphanides and Williams (2007) and Molnár and Santoro (2014) study how learning affects monetary-policy stabilisation in otherwise standard New Keynesian environments. We instead focus on how cognitive discounting interacts with endogenous productivity growth and the resulting long-run scarring effects.

Cognitive discounting provides a parsimonious way to capture the systematic underreaction of expectations to aggregate news documented in survey data (Coibion and Gorodnichenko, 2015). It is also consistent with recent estimates of Gabaix-type cognitive discounting parameters that point to departures from rational expectations (e.g., Ilabaca et al., 2020; Pfäuti and Seyrich, 2026; Benchimol et al., 2025).

We show that monetary policy prescriptions differ markedly from the rational-expectations benchmark. Under rational expectations, an employment-stabilizing monetary policy stance mitigates the decline in innovation and future productivity. By contrast, an inflation-focused stance, which allows employment to adjust in order to limit inflationary pressures, reduces short-run inflation at the cost of stronger scarring effects. Moreover, the resulting fall in future productivity implies higher future inflation. Under bounded rationality, households attach less weight to future income. This weakens the negative wealth effect associated with lower future productivity, so aggregate demand falls by less, the decline in innovation and growth is mitigated, and medium-term inflation remains lower.

This result hinges on endogenous growth. In a standard New Keynesian model with exogenous productivity, cognitive discounting mainly dampens the quantitative response of the economy to shocks and monetary policy. In contrast, when productivity growth is endogenous, cognitive discounting generates qualitatively different policy implications.

2. The Behavioural New Keynesian Growth Model

The model follows Fornaro and Wolf (2023). It is a general-equilibrium framework with endogenous productivity growth driven by vertical innovation. Nominal wage rigidities allow monetary policy to affect real activity. We depart from the original model by introducing cognitive

[1] We focus on supply disruptions because of their growing relevance in the international context, such as Covid-19-related bottlenecks and geopolitical disruptions to trade routes.

discounting in household expectations (Gabaix, 2020). Below, we describe the production and innovation blocks, which are the defining features of the endogenous growth mechanism. The remaining components of the model retain the standard New Keynesian structure and are presented directly in terms of their log-linearised equilibrium conditions. The full model is provided in Section A in the appendix.

Production and innovation sectors. Production consists of final-good and intermediate-good firms. Final output is produced by competitive firms using labour L_t and differentiated intermediate inputs $x_{j,t}$, each with productivity $A_{j,t}$, as follows:

$$Y_t = (Z_t L_t)^{1-\alpha} \int_0^1 A_{j,t}^{1-\alpha} x_{j,t}^{\alpha} \, dj. \tag{1}$$

Here, $0 < \alpha < 1$, and Z_t is an exogenous productivity (supply) shock. Each intermediate good j is produced by a monopolist that charges a constant markup $1/\alpha$ over marginal cost. The demand for intermediate input j is given by:

$$x_{j,t} = \alpha^{\frac{2}{1-\alpha}} A_{j,t} Z_t L_t. \tag{2}$$

Importantly, demand is increasing in firm productivity $A_{j,t}$ and aggregate market size $Z_t L_t$. Firm j can improve its productivity through innovation investment, denoted by $I_{j,t}$. Firm-level productivity evolves according to:

$$A_{j,t+1} = A_{j,t} + \chi I_{j,t}, \tag{3}$$

where $\chi > 0$ measures the productivity of innovation investment. Aggregate productivity growth is defined by:

$$g_{t+1} \equiv \frac{A_{t+1}}{A_t} = 1 + \chi \frac{I_t}{A_t}, \tag{4}$$

where $A_t \equiv \int_0^1 A_{j,t} \, dj$, and $I_t \equiv \int_0^1 I_{j,t} \, dj$. Profit maximisation implies the following equilibrium condition for innovation investment:

$$g_{t+1} = \beta E_t \left[\frac{c_t}{c_{t+1}} \left(\chi \varpi Z_{t+1} L_{t+1} + 1 - \eta \right) \right], \tag{5}$$

where $c_t \equiv C_t / A_t$ denotes stationary consumption, $\varpi \equiv (1/\alpha - 1)\, \alpha^{\frac{2}{(1-\alpha)}}$, and η is a wedge between the firms' and households' discount factors. Long-run growth is driven by firms' innovation investment. Since the profitability of innovation depends on expected future market size, shocks that reduce future activity lower innovation investment, slowing productivity growth and generating persistent output losses.

Linearised model. The log-linearised stationary equilibrium is summarised by four equations. Tildes denote deviations from steady state, and bars denote steady-state values. All variables are in log deviations, except $\tilde{i}_t$ (the nominal interest rate) and $\tilde{\pi}_t$ (inflation), which are in absolute deviations. The first equation is the IS curve:

$$\tilde{c}_t + \tilde{i}_t = \tilde{g}_{t+1} + E_t^{BR}\tilde{c}_{t+1} + E_t\tilde{\pi}_{t+1}, \tag{6}$$

where E_t^{BR} is the expectation operator under bounded rationality. Here, productivity growth $\tilde{g}_{t+1}$ is predetermined. The second equation is the log-linearised version of Equation (5):

$$\tilde{g}_{t+1} = (\tilde{c}_t - E_t\tilde{c}_{t+1}) + \gamma E_t\left(\tilde{z}_{t+1} + \tilde{l}_{t+1}\right), \tag{7}$$

with $\gamma \equiv \frac{\beta\chi\varpi}{\bar{g}}$. The third equation is the resource constraint:

$$\tilde{z}_t + \tilde{l}_t = \frac{\bar{c}}{\Psi}\tilde{c}_t + \frac{\bar{g}}{\chi\Psi}\tilde{g}_{t+1}, \tag{8}$$

which states output equals consumption plus investment in innovation, the latter mapping directly into productivity growth.[2] The final equation is a Phillips curve with wage indexation:

$$\tilde{\pi}_t = \lambda\tilde{\pi}_{t-1} + \xi\tilde{l}_t - \tilde{g}_t + \tilde{z}_{t-1} - \tilde{z}_t. \tag{9}$$

Bounded rationality. Following Gabaix (2020), households cognitively discount future consumption deviations from steady state, such that:

$$E_t^{BR}(\tilde{c}_{t+k}) = \bar{m}^k E_t(\tilde{c}_{t+k}), \tag{10}$$

where $\bar{m} \in [0,1]$ is the cognitive discounting parameter. Lower values of $\bar{m}$ imply stronger myopia, i.e. households place less weight on future consumption in intertemporal decisions. We apply this wedge only to the expected-consumption term in the IS equation, which governs households' intertemporal demand decisions. This keeps the departure from rational expectations disciplined by the standard slope-of-attention parameter.

3. Supply Shocks and Monetary Policy: The Role of Expectations

Next, we study the transmission of supply shocks analytically, in a simplified three-period setting (Section 3.1), and numerically (Section 3.2), to show how behavioural expectations affect the monetary policy implications. As in Fornaro and Wolf (2023), we compare two monetary policy stances: one that stabilises employment and one that places greater weight on containing inflation.

An employment-stabilizing monetary policy stance sets the nominal interest rate so as to stabilise employment, i.e.:

$$\tilde{l}_t = 0. \tag{11}$$

An inflation-focused monetary policy stance instead sets the nominal interest rate in response to both inflation expectations and fluctuations in employment:

$$\tilde{i}_t = \phi\,\tilde{l}_t + E_t\tilde{\pi}_{t+1}. \tag{12}$$

[2] Here, $\Psi \equiv \alpha^{\frac{2\alpha}{1-\alpha}}(1-\alpha^2)$.

3.1 Analytical Insights from a Three-Period Model

To highlight the main transmission mechanisms, we derive analytical results in a three-period version of the model. Following Fornaro and Wolf (2023), we impose two simplifying assumptions:

$$\widetilde{c}_t \approx \widetilde{z}_t + \widetilde{l}_t; \tag{13}$$

$$\lambda = 0. \tag{14}$$

Similarly to Eggertsson and Garga (2019), we assume the economy is hit by an unanticipated supply shock in Period 0, $\tilde{z}_0 < 0$, and by a fully anticipated shock in Period 1, $\tilde{z}_1 < 0$. This can be interpreted as a supply shock in Period 0 that partially persists into Period 1. Further, we have:

$$\tilde{g}_0 = 0; \tag{15}$$

$$\tilde{z}_2 = 0; \tag{16}$$

$$\tilde{c}_3 = \tilde{g}_3 = \tilde{\pi}_3 = 0. \tag{17}$$

This version of the model is solved by backward induction, assuming perfect foresight, retaining the cognitive discounting parameter. Under the two policies in Equations (11) and (12), the following results arise.

Proposition 1. *Under an employment-stabilizing monetary policy, the cognitive discounting parameter $\bar{m}$ does not affect consumption, growth, or inflation. The Period-0 allocation is given by:*

$$\tilde{i}_0 = -(1-\bar{m})\tilde{z}_1, \tag{18}$$

$$\tilde{g}_1 = \tilde{z}_0 - (1-\gamma)\tilde{z}_1, \tag{19}$$

$$\tilde{\pi}_0 = -\tilde{z}_0, \tag{20}$$

$$\tilde{c}_0 = \tilde{z}_0. \tag{21}$$

Proposition 2. *Under an inflation-focused monetary policy, the cognitive discounting parameter $\bar{m}$ mitigates the decline in aggregate demand and future growth. The Period-0 allocation is given by:*

$$\tilde{c}_0 = \underbrace{\tilde{z}_0}_{\text{same as employment-stabilizing}} + \underbrace{\frac{1}{\phi}\gamma\tilde{z}_1}_{\text{same as inflation-focused \& RE}} - \underbrace{\frac{1}{\phi}(1-\bar{m})\tilde{z}_1}_{\text{bounded rationality}}, \tag{22}$$

$$\tilde{g}_1 = \underbrace{\tilde{z}_0 - (1-\gamma)\tilde{z}_1}_{\text{same as employment-stabilizing}} + \underbrace{\frac{1}{\phi}\gamma\tilde{z}_1}_{\text{same as inflation-focused \& RE}} - \underbrace{\frac{1}{\phi}(1-\bar{m})\tilde{z}_1}_{\text{bounded rationality}}, \tag{23}$$

$$\tilde{\pi}_0 = \underbrace{-\tilde{z}_0}_{\text{same as employment-stabilizing}} + \underbrace{\frac{\xi}{\phi}\gamma\tilde{z}_1}_{\text{same as inflation-focused \& RE}} - \underbrace{\frac{\xi}{\phi}(1-\bar{m})\tilde{z}_1}_{\text{bounded rationality}}, \tag{24}$$

$$\tilde{i}_0 = \underbrace{-(1-\bar{m})\tilde{z}_1}_{\text{same as employment-stabilizing}} - \underbrace{\frac{1}{\phi}\gamma\tilde{z}_1}_{\text{same as inflation-focused \& RE}} + \underbrace{\frac{1}{\phi}(1-\bar{m})\tilde{z}_1}_{\text{bounded rationality}}. \tag{25}$$

Relative to the employment-stabilizing policy, the inflation-focused policy amplifies the decline in $\tilde{c}_0$ and $\tilde{g}_1$ through the anticipated shock $\tilde{z}_1$, while easing the rise in $\tilde{\pi}_0$. Cognitive discounting, i.e. a smaller $\bar{m}$, weakens this channel by reducing households' sensitivity to future income losses, moving demand, growth, and inflation closer to the allocation under the employment-stabilizing policy. If $\tilde{z}_1 = 0$, the two policies deliver identical allocations, independently of $\bar{m}$. Proposition 2 implies the following threshold for $\bar{m}$:

$$\bar{m}^{\star} = 1 - \gamma. \tag{26}$$

When $\bar{m} < \bar{m}^{\star}$, the inflation-focused monetary policy is more effective than the employment-stabilizing policy at limiting the decline in consumption and growth. If $\bar{m} = \bar{m}^{\star}$, both policies deliver identical allocations.

3.2 Numerical Simulations

We now quantify the transmission mechanism using the baseline infinite-horizon model. The economy is hit by an adverse supply shock following an AR(1) process, with an initial realization of $\tilde{z}_0 = -0.03$ and persistence $\rho = 0.5$, following Fornaro and Wolf (2023).[3] The model is calibrated at annual frequency (see Table 1). The cognitive discounting parameter is set to $\bar{m} = 0.66$, corresponding to a quarterly value of 0.9, which is intentionally conservative relative to existing empirical estimates (see, e.g., Afsar et al., 2024; Pfäuti and Seyrich, 2026; Benchimol et al., 2025; Ilabaca et al., 2020).[4]

Table 1: Calibration

Parameter	Definition	Value / Target	Source
Households			
β	Discount factor	$^*r = 2.5\%$	Literature
$\bar{m}$	Cognitive discounting	$(0.9)^4 \approx 0.66$	Pfäuti and Seyrich (2026)
Firms			
α	Capital share	$^*I/Y = 2\%$	Fornaro and Wolf (2023)
χ	Innovation productivity	$^*\bar{g} = 2\%$	Fornaro and Wolf (2023)
λ	Wage indexation	0.50	Fornaro and Wolf (2023)
ξ	Phillips curve slope	0.19	Fornaro and Wolf (2023)
Central Bank			
ϕ	Employment feedback	0.17	Fornaro and Wolf (2023)
Shocks			
ρ_z	Supply shock persistence	0.50	Fornaro and Wolf (2023)
$\tilde{z}_0$	Supply shock (impact)	-3%	Fornaro and Wolf (2023)

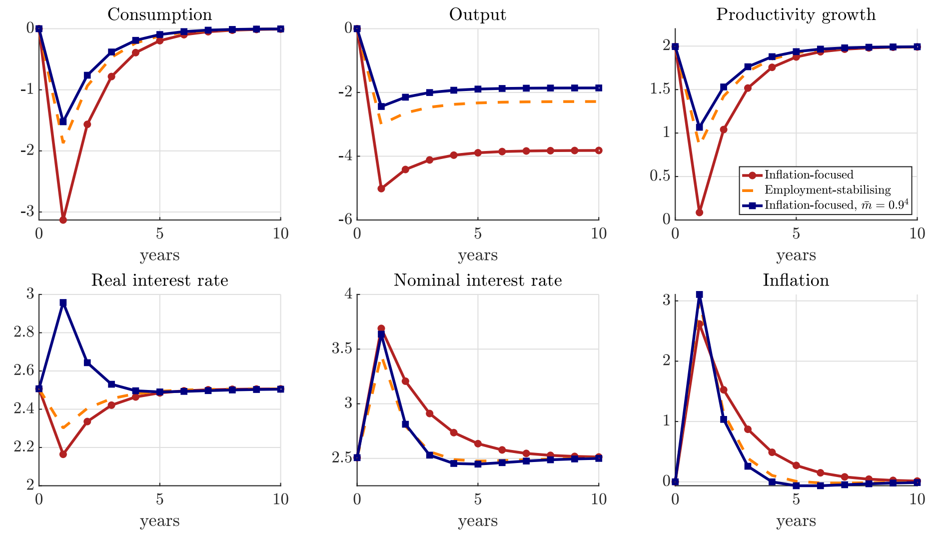
Note: An asterisk in the value column denotes that the parameter is calibrated to match the indicated target. The calibration is at annual frequency.

[3] Since we focus on the log-linearised stationary equilibrium, the responses are symmetric with respect to the sign of the shock. Following Fornaro and Wolf (2023), we restrict our analysis to adverse supply disturbances.
[4] The appendix reports results for alternative calibrations. In Figure C1, we show the IRFs for $\bar{m} = (0.85)^4$ and $\bar{m} = (0.75)^4$.

IRFs in the endogenous growth model. Figure 1 reports the impulse responses (IRFs), which confirm the analytical results. Under an employment-stabilizing monetary policy (orange dashed lines), employment is stabilised by construction. Therefore, the demand channel is muted, and the responses of consumption, output, and productivity growth are independent of the degree of cognitive discounting, in line with Proposition 1. Different values of $\bar{m}$ only require different nominal-interest-rate paths to support the same allocation.

Cognitive discounting becomes central under the inflation-focused monetary policy. Under rational expectations (red lines), the inflation-focused stance eases the rise in inflation in the short run but amplifies the contraction in consumption, output, and productivity growth relative to the employment-stabilizing stance. This reflects the scarring mechanism in Fornaro and Wolf (2023): the contraction in demand associated with the inflation-focused policy discourages innovation and lowers future productivity. The resulting permanent output losses further weaken demand through a negative wealth effect. At the same time, lower future productivity raises expected future inflation, pushing down the real interest rate.

Figure 1: The Transmission of Supply Shocks: Alternative Monetary Regimes

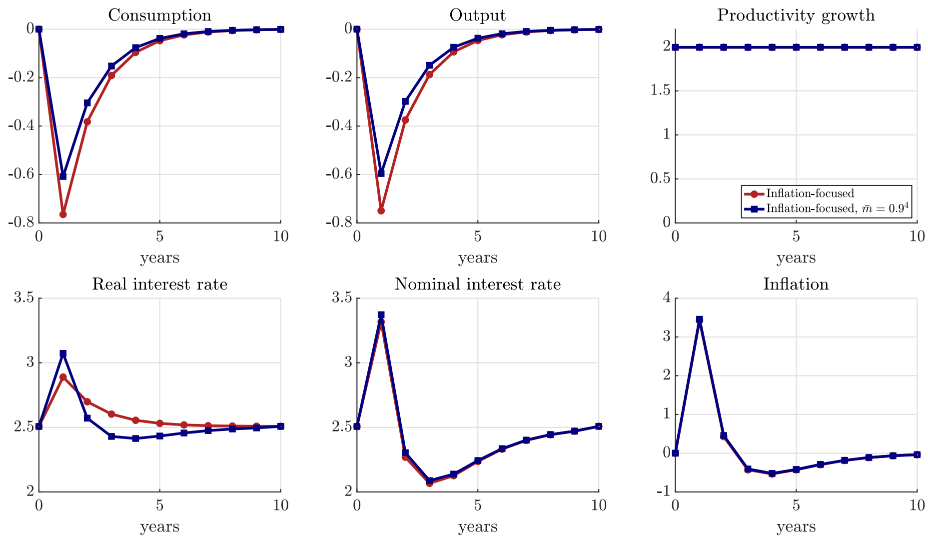


Note: IRFs of a supply shock under an employment-stabilizing monetary regime (orange), an inflation-focused monetary regime (red), and an inflation-focused monetary regime with myopic agents where $\bar{m} = (0.9)^4 \approx 0.66$ (dark blue). Consumption is shown as a percentage deviation from the steady state; output is shown relative to its pre-shock path; productivity growth, the real interest rate, and the nominal interest rate are shown in levels; inflation is shown as percentage-point deviations.

Cognitive discounting (dark blue lines) changes this transmission mechanism. Households attach less weight to future consumption losses, so the negative wealth effect induced by lower future productivity is weaker. Demand falls by less, mitigating the decline in innovation and productivity growth. As a result, the increase in expected future inflation is more muted and the real interest rate increases. The inflation-focused monetary policy can then contain medium-term inflation without generating the large scarring effects that arise under rational expectations.

IRFs in an exogenous growth model. For comparison, we also consider a standard version of the model in which productivity growth is purely exogenous. In this case, the IRFs reported in Figure 2 show that the difference between the inflation-focused monetary policy under rational expectations and under cognitive discounting is much smaller. Since productivity growth no longer responds endogenously, there is no amplification through future scarring. Cognitive discounting, therefore, mainly dampens the responses of consumption and output. In both cases, the real interest rate rises after the shock.

Figure 2: The Transmission of Supply Shocks: Exogenous Growth



Note: IRFs of a supply shock under an inflation-focused monetary regime, with rational (red) and myopic agents where $\bar{m} = (0.9)^4 \approx 0.66$ (dark blue). Consumption and output are shown as a percentage deviation from the steady state; productivity growth, the real interest rate, and the nominal interest rate are shown in levels; inflation is shown as a percentage-point deviation from the steady state.

4. Conclusions

We study how bounded rationality affects monetary policy trade-offs in response to supply shocks within a New Keynesian model with endogenous productivity growth. Under rational expectations, an inflation-focused monetary policy stabilises short-term inflation at the cost of larger declines in demand, innovation, and growth. Under bounded rationality, however, households internalise future income losses less strongly, weakening the associated negative wealth effect and mitigating the decline in economic activity. The smaller decline in future productivity also implies a more muted increase in expected future inflation, allowing the inflation-focused policy to contain medium-term inflation with substantially smaller scarring effects. Importantly, our results hinge on endogenous growth. Absent this channel, bounded rationality mainly dampens the quantitative effects of shocks and monetary policy without changing their qualitative implications.

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Appendix

Appendix A: The Model

A.1 Model Derivations

A.1.1 Households

A unit-mass continuum of households derives utility from consumption, is endowed with $\bar{L}$ units of labour, and experiences no disutility from supplying labour. Households maximise expected lifetime utility subject to their sequence of budget constraints:

$$\max_{\{C_t, B_{t+1}\}_{t=0}^{\infty}} E_0 \sum_{t=0}^{\infty} \beta^t \log C_t \quad \text{s.t.} \quad P_t C_t + \frac{B_{t+1}}{1+i_t} = W_t L_t + B_t + D_t \tag{A1}$$

where C_t represents consumption, B_t one-period bonds, W_t the nominal wage, L_t the labour supply, and D_t dividends. Optimality conditions yield the Euler equation:

$$C_t = \frac{E_t^{BR} C_{t+1}}{\beta \left(1+r_t\right)}, \tag{A2}$$

where we introduce the bounded rationality expectations operator of Gabaix (2020), under which households cognitively discount rational expectation deviations from the steady state.[5] The real interest rate r_t follows from the Fisher equation $\left(1+r_t = \frac{1+i_t}{E_t \pi_{t+1}}\right)$, and $\pi_t = P_t / P_{t-1}$ denotes the gross inflation rate. Nominal wage rigidities imply that the households' labour supply might deviate from their labour endowment ($L_t < \bar{L}$).

A.1.2 Final Good Firms

Competitive firms manufacture the final good according to the following production function:

$$Y_t = (Z_t L_t)^{1-\alpha} \int_0^1 A_{jt}^{1-\alpha} x_{jt}^{\alpha} \, dj, \tag{A3}$$

where $j \in [0,1]$ indexes the continuum of intermediate inputs $x_{j,t}$ employed in the manufacturing, A_{jt} denotes firm-level productivity, α the factor share, and Z_t an exogenous supply (productivity) shock. Profit maximisation yields the following optimal conditions for the demand of labour and intermediate goods:

$$P_t (1-\alpha) Z_t^{1-\alpha} L_t^{-\alpha} \int_0^1 A_{j,t}^{1-\alpha} x_{j,t}^{\alpha} dj = W_t, \tag{A4}$$

$$P_t \alpha (Z_t L_t)^{1-\alpha} A_{j,t}^{1-\alpha} x_{j,t}^{\alpha-1} = P_{j,t}. \tag{A5}$$

[5] In a nonlinear setting, boundedly rational expectations are related to rational expectations according to

$$E_t^{BR} X_{t+1} = \frac{E_t \left[X_{t+1}^m\right]}{\bar{X}^{m-1}}.$$

This nonlinear relationship is consistent with the discounting approach in de Groot and Haas (2023) and Bonciani and Oh (2026), and is equivalent, to a first-order approximation, to the formulation in Gabaix (2020).

A.1.3 Intermediate Good Firms

Each intermediate good j is manufactured by one monopolistic firm. Each firm sets the optimal price by imposing a constant markup $(1/\alpha > 1)$ above its marginal costs, i.e. $P_{j,t} = \frac{1}{\alpha}P_t$. Thus, from Equation (A5), it follows that the quantity produced by intermediate firm j is:

$$x_{jt} = \alpha^{\frac{2}{1-\alpha}} A_{jt} Z_t L_t. \tag{A6}$$

By aggregating, we obtain the production of the final good as:

$$Y_t = \alpha^{\frac{2\alpha}{1-\alpha}} A_t Z_t L_t. \tag{A7}$$

Therefore, final output positively depends on the average productivity level achieved $\left(A_t \equiv \int_0^1 A_{jt}\, dj\right)$ and its exogenous component (Z_t).

A.1.4 Innovation

Innovation is driven by intermediate producers, who invest to increase the quality of their produced goods. Firm-level productivity evolves according to:

$$A_{jt+1} = A_{jt} + \chi I_{jt}. \tag{A8}$$

Here, χ represents the productivity of the I_{jt} units of final good invested in the innovation process. The present value of firms' flow of real profits, net of investment costs, is given by:

$$E_0 \sum_{t=0}^{\infty} \frac{1}{\delta_t} \left(\varpi A_{j,t} Z_t L_t - I_{j,t}\right). \tag{A9}$$

Intermediate firms choose the optimal investment in innovation $I_{j,t}$ to maximise (A9) subject to (A8), given the initial condition $A_{j,0} > 0$.
The firms' discount factor δ_t is assumed to be given by:

$$\frac{\delta_t}{\delta_{t-1}} = 1 + r_{t-1} + \eta, \tag{A10}$$

where $\eta \geq 0$ captures a wedge between the households' discount factor, which in this framework corresponds to the real interest rate, and that of the firms.

Optimal investment satisfies:

$$\frac{1}{\chi} = E_t \left[\frac{1}{1 + r_t + \eta} \left(\varpi Z_{t+1} L_{t+1} + \frac{1}{\chi}\right)\right], \tag{A11}$$

and E_t denotes the rational expectations operator. Finally, the optimality condition can be written as:

$$\frac{1}{\chi} = E_t \left[\beta \frac{C_t}{C_{t+1}} \left(\varpi Z_{t+1} L_{t+1} + \frac{1-\eta}{\chi} \right) \right]. \tag{A12}$$

A.1.5 Frictions and Policies

The monetary authority controls the nominal interest rate i_t. Monetary impulses are transmitted to the real economy through nominal wage rigidities, which: *i)* generate involuntary unemployment when $L_t < \bar{L}$; *ii)* lead to price stickiness and hence enable the central bank to affect the real interest rate. Wage rigidities are defined as:

$$\frac{W_t}{W_{t-1}} = \bar{g} \left(\frac{L_t}{\bar{L}} \right)^{\varepsilon} \pi_{t-1}^{\lambda}, \tag{A13}$$

where $\varepsilon > 0$ and $0 \leq \lambda < 1$. Therefore, using the expression for wage rigidities (A13), as well as (A4) and (A6), the following definition emerges for price inflation:

$$\pi_t = \frac{\bar{g}}{g_t} \frac{Z_{t-1}}{Z_t} \left(\frac{L_t}{\bar{L}} \right)^{\varepsilon} \pi_{t-1}^{\lambda}. \tag{A14}$$

A.1.6 Aggregation and Market Clearing

Aggregate market clearing is given by:

$$Y_t - \int_0^1 x_{jt} \, dj = C_t + I_t = \Psi A_t Z_t L_t, \tag{A15}$$

where the left-hand side represents GDP, while the centre and right-hand sides show its composition. $I_t \equiv \int_0^1 I_{j,t} dj$ denotes aggregate investment and $\Psi \equiv \alpha^{\frac{2\alpha}{1-\alpha}}(1-\alpha^2)$.

The labour market clears according to the assumption about the labour endowment.

Long-run growth is the outcome of the intermediate producers' innovation efforts, embodied by the advancements in productivity:

$$g_{t+1} = \frac{A_{t+1}}{A_t} = 1 + \chi \frac{I_t}{A_t}. \tag{A16}$$

Thus, higher innovation investments generate higher growth in the following period.

A.2 Model Solution and Calibration

Calibration is at an annual frequency, while parameter values used to discipline the model are reported in the main text. Analyses that follow assume restrictions on parameter values that ensure the economy is steady along its balanced growth path, and that this (full employment) equilibrium is unique. We solve the detrended model through a first-order perturbation around the stable balanced growth path.

A.3 Summary of the Equilibrium Conditions

It is now possible to describe the equilibrium, summarising the model into the following four conditions. The first one is an IS curve (IS), where consumption is expressed without its trend component, $(c_t = C_t/A_t)$, derived from the Euler equation (A2):

$$c_t = \frac{g_{t+1} E_t^{BR} c_{t+1}}{\beta(1+r_t)}. \tag{A17}$$

The second one is a growth equation (GG), representing the condition through which the economy grows along the intertemporal component, obtained by rewriting the optimality condition for investment (A12):

$$g_{t+1} = \beta E_t \left[\frac{c_t}{c_{t+1}} \left(\chi \varpi Z_{t+1} L_{t+1} + 1 - \eta \right) \right]. \tag{A18}$$

The third one summarises market-clearing conditions at the aggregate and sectoral levels (MK), combining (A15) and (A16):

$$\Psi Z_t L_t = c_t + \left[\frac{g_{t+1} - 1}{\chi} \right]. \tag{A19}$$

The fourth condition is the price Phillips curve (PC) from Equation (A14):

$$\pi_t = \frac{\bar{g}}{g_t} \frac{Z_{t-1}}{Z_t} \left(\frac{L_t}{\bar{L}} \right)^{\varepsilon} \pi_{t-1}^{\lambda}. \tag{A20}$$

As reported in the main text, behavioural expectations apply only to expected future consumption in the IS equation, $E_t^{BR} c_{t+1}$. All other expectations are rational. The equilibrium conditions above are the same as in Fornaro and Wolf (2023). Unlike Fornaro and Wolf (2023), who solve the model under perfect foresight, we include expectation operators in front of the $t+1$ variables and solve the model using first-order perturbation methods. The only exception is g_{t+1}, which is predetermined.

A.3.1 Log-linearised Equations

$$\tilde{c}_t + \tilde{i}_t = \tilde{g}_{t+1} + E_t^{BR} \tilde{c}_{t+1} + E_t \tilde{\pi}_{t+1}, \tag{A21}$$

$$\tilde{g}_{t+1} = (\tilde{c}_t - E_t \tilde{c}_{t+1}) + \gamma E_t \left(\tilde{z}_{t+1} + \tilde{l}_{t+1} \right), \tag{A22}$$

$$\tilde{z}_t + \tilde{l}_t = \frac{\bar{c}}{\Psi} \tilde{c}_t + \frac{\bar{g}}{\chi \Psi} \tilde{g}_{t+1}, \tag{A23}$$

$$\tilde{\pi}_t = \lambda \tilde{\pi}_{t-1} + \xi \tilde{l}_t - \tilde{g}_t + \tilde{z}_{t-1} - \tilde{z}_t. \tag{A24}$$

A.3.2 IS Equation with Cognitive Myopia

Following Gabaix (2020), cognitive discounting is defined as:

$$E_t^{BR} \tilde{c}_{t+k} = \bar{m}^k E_t \tilde{c}_{t+k}, \qquad k \geq 1, \tag{A25}$$

where $\bar{m} \in [0,1]$ is the cognitive-discounting parameter. Thus, the IS equation becomes:

$$\tilde{c}_t + \tilde{i}_t = \tilde{g}_{t+1} + \bar{m} E_t \tilde{c}_{t+1} + E_t \tilde{\pi}_{t+1}. \tag{A26}$$

Appendix B: Three-Period Model

For analytical tractability, we simplify the model by assuming:

$$\tilde{c}_t \approx \tilde{y}_t, \qquad \lambda = 0. \tag{B1}$$

Thus, the log-linearised model can be rewritten as follows. The consumption Euler equation is:

$$\tilde{c}_t + \tilde{i}_t = \tilde{g}_{t+1} + \bar{m}\tilde{c}_{t+1} + \tilde{\pi}_{t+1}. \tag{B2}$$

The growth equation is:

$$(\tilde{g}_{t+1} + \tilde{c}_{t+1}) - \tilde{c}_t = \gamma\left(\tilde{z}_{t+1} + \tilde{l}_{t+1}\right). \tag{B3}$$

The Phillips curve is:

$$\tilde{\pi}_t = -\tilde{g}_t + \xi\tilde{l}_t + \tilde{z}_{t-1} - \tilde{z}_t. \tag{B4}$$

The simplified production condition is:

$$\tilde{c}_t = \tilde{z}_t + \tilde{l}_t. \tag{B5}$$

B.1 Supply Shock with Employment-Stabilizing Monetary Policy

Under employment-stabilizing monetary policy, employment is stabilised:

$$\tilde{l}_t = 0. \tag{B6}$$

Using equation (B6), the simplified model in equations (B2)–(B5) becomes:

$$\tilde{c}_t + \tilde{i}_t = \tilde{g}_{t+1} + \bar{m}\tilde{c}_{t+1} + \tilde{\pi}_{t+1}, \tag{B7}$$
$$\tilde{g}_{t+1} + \tilde{c}_{t+1} - \tilde{c}_t = \gamma\tilde{c}_{t+1}, \tag{B8}$$
$$\tilde{\pi}_t = -\tilde{g}_t + \xi\left(\tilde{c}_t - \tilde{z}_t\right) + \tilde{z}_{t-1} - \tilde{z}_t, \tag{B9}$$
$$\tilde{c}_t = \tilde{z}_t. \tag{B10}$$

Assume we have two i.i.d. supply shocks, $\tilde{z}_0$ and $\tilde{z}_1$, while in period 2 the shock reverts to zero, $\tilde{z}_2 = 0$. Moreover, assume that in period 3 variables are back to steady state, $\tilde{c}_3 = \tilde{g}_3 = \tilde{\pi}_3 = 0$. Since growth is predetermined, assume $\tilde{g}_0 = 0$.

Period 2

$$\tilde{c}_2 + \tilde{i}_2 = 0, \tag{B11}$$
$$\tilde{c}_2 = 0, \tag{B12}$$
$$\tilde{\pi}_2 = -\tilde{g}_2 + \tilde{z}_1. \tag{B13}$$

Period 1

$$\tilde{i}_1 = 0, \tag{B14}$$
$$\tilde{g}_2 = \tilde{z}_1, \tag{B15}$$
$$\tilde{\pi}_1 = -\tilde{g}_1 + \tilde{z}_0 - \tilde{z}_1, \tag{B16}$$
$$\tilde{c}_1 = \tilde{z}_1. \tag{B17}$$

Period 0

$$\tilde{i}_0 = -(1-\bar{m})\,\tilde{z}_1, \tag{B18}$$
$$\tilde{g}_1 = \tilde{z}_0 + (\gamma-1)\,\tilde{z}_1, \tag{B19}$$
$$\tilde{\pi}_0 = -\tilde{z}_0, \tag{B20}$$
$$\tilde{c}_0 = \tilde{z}_0. \tag{B21}$$

B.2 Supply Shock Under Inflation-Focused Monetary Policy

Under inflation-focused monetary policy, the interest rate responds to employment and expected inflation:

$$\tilde{i}_t = \phi \tilde{l}_t + E_t \tilde{\pi}_{t+1}. \tag{B22}$$

Using equation (B22), the simplified model in equations (B2)–(B5) becomes:

$$\tilde{c}_t + \tilde{i}_t = \tilde{g}_{t+1} + \bar{m}\tilde{c}_{t+1} + \tilde{\pi}_{t+1}, \tag{B23}$$
$$\tilde{g}_{t+1} + \tilde{c}_{t+1} - \tilde{c}_t = \gamma \tilde{c}_{t+1}, \tag{B24}$$
$$\tilde{\pi}_t = -\tilde{g}_t + \xi\,(\tilde{c}_t - \tilde{z}_t) + \tilde{z}_{t-1} - \tilde{z}_t, \tag{B25}$$
$$\tilde{i}_t = \phi\,(\tilde{c}_t - \tilde{z}_t) + \tilde{\pi}_{t+1}. \tag{B26}$$

As in the employment-stabilizing policy case, we can derive the allocations in periods 2, 1, and 0.

Period 2

$$\tilde{c}_2 = 0, \tag{B27}$$
$$\tilde{\pi}_2 = -\tilde{g}_2 + \tilde{z}_1, \tag{B28}$$
$$\tilde{i}_2 = 0. \tag{B29}$$

Period 1

$$\tilde{c}_1 = \tilde{z}_1, \tag{B30}$$
$$\tilde{g}_2 = \tilde{c}_1, \tag{B31}$$
$$\tilde{\pi}_1 = -\tilde{g}_1 + \tilde{z}_0 - \tilde{z}_1, \tag{B32}$$
$$\tilde{i}_1 = 0. \tag{B33}$$

Period 0

$$\tilde{c}_0 = \tilde{z}_0 - \frac{1}{\phi}(1-\bar{m}-\gamma)\tilde{z}_1, \tag{B34}$$

$$\tilde{g}_1 = \tilde{z}_0 - \frac{1}{\phi}(1-\bar{m}-\gamma)\tilde{z}_1 - (1-\gamma)\tilde{z}_1, \tag{B35}$$

$$= \tilde{z}_0 + \left[\frac{\bar{m}}{\phi} - \left(1+\frac{1}{\phi}\right)(1-\gamma)\right]\tilde{z}_1, \tag{B36}$$

$$\tilde{\pi}_0 = -\frac{\xi}{\phi}(1-\bar{m}-\gamma)\tilde{z}_1 - \tilde{z}_0, \tag{B37}$$

$$\tilde{i}_0 = -(1-\bar{m})\tilde{z}_1 + \frac{1}{\phi}(1-\bar{m}-\gamma)\tilde{z}_1, \tag{B38}$$

$$= \frac{1}{\phi}[(1-\bar{m})(1-\phi)-\gamma]\tilde{z}_1. \tag{B39}$$

Slightly rearranging terms, we obtain:

$$\tilde{c}_0 = \underbrace{\tilde{z}_0}_{\text{same as employment-stabilizing}} + \underbrace{\frac{1}{\phi}\gamma\tilde{z}_1}_{\text{same as inflation-focused \& RE}} - \underbrace{\frac{1}{\phi}(1-\bar{m})\tilde{z}_1}_{\text{bounded rationality}}, \tag{B40}$$

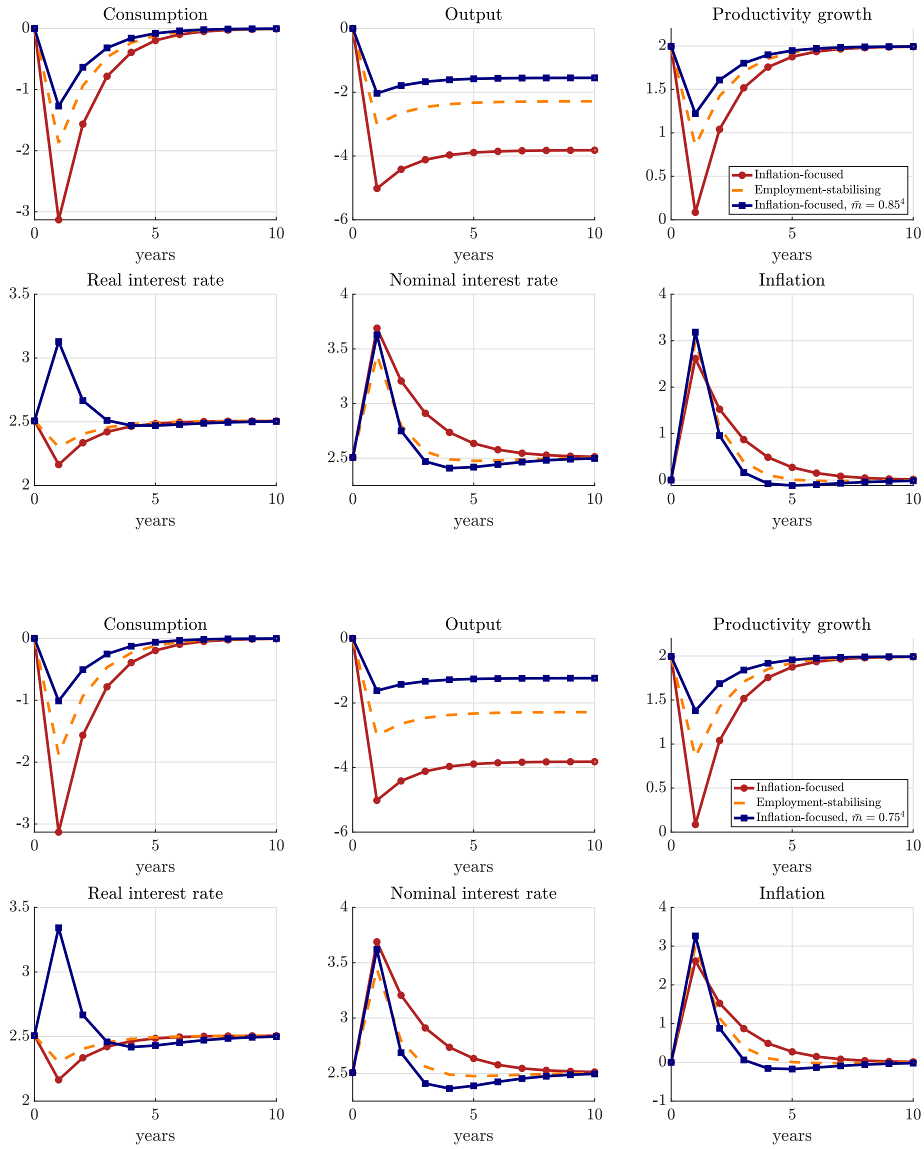
$$\tilde{g}_1 = \underbrace{\tilde{z}_0 - (1-\gamma)\tilde{z}_1}_{\text{same as employment-stabilizing}} + \underbrace{\frac{1}{\phi}\gamma\tilde{z}_1}_{\text{same as inflation-focused \& RE}} - \underbrace{\frac{1}{\phi}(1-\bar{m})\tilde{z}_1}_{\text{bounded rationality}}, \tag{B41}$$

$$\tilde{\pi}_0 = \underbrace{-\tilde{z}_0}_{\text{same as employment-stabilizing}} + \underbrace{\frac{\xi}{\phi}\gamma\tilde{z}_1}_{\text{same as inflation-focused \& RE}} - \underbrace{\frac{\xi}{\phi}(1-\bar{m})\tilde{z}_1}_{\text{bounded rationality}}, \tag{B42}$$

$$\tilde{i}_0 = \underbrace{-(1-\bar{m})\tilde{z}_1}_{\text{same as employment-stabilizing}} - \underbrace{\frac{1}{\phi}\gamma\tilde{z}_1}_{\text{same as inflation-focused \& RE}} + \underbrace{\frac{1}{\phi}(1-\bar{m})\tilde{z}_1}_{\text{bounded rationality}}. \tag{B43}$$

Appendix C: Alternative Cognitive Discounting Parameterisations

Figure C1: The Transmission of Supply Shocks: Robustness to Alternative Values of Cognitive Discounting



Note: IRFs of a supply shock under an employment-stabilizing monetary regime (orange), an inflation-focused monetary regime (red, dotted), and an inflation-focused monetary regime with myopic agents (dark blue). The upper panel shows the case with $\bar{m} = 0.85^4$, while the lower panel shows the case with $\bar{m} = 0.75^4$. Consumption is shown as a percentage deviation from the steady state; output is shown relative to its pre-shock path; productivity growth, the real interest rate, and the nominal interest rate are shown in levels; inflation is shown as percentage-point deviations.

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