

Fiscal anticipation and inequality: the role of the monetary-fiscal mix^{*}

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Abstract

Fiscal policy is often anticipated before implementation, yet little is known about how fiscal foresight shapes inequality. We study the distributional effects of government spending shocks, distinguishing between anticipated (*news*) and unanticipated (*surprise*) components. We show that positive surprise shocks reduce U.S. consumption inequality, whereas positive news shocks increase it. A two-agent New Keynesian (TANK) model rationalises these findings and highlights the role of monetary-fiscal regimes: in a monetary-led regime, news and surprise shocks have opposite distributional effects similar to the empirical findings, while in a fiscally-led regime both reduce consumption inequality. Our results demonstrate that the distributional impact of fiscal policy depends critically on fiscal foresight and the prevailing policy regime.

Keywords: consumption inequality, fiscal policy, news shocks, monetary-fiscal interaction, TANK model

JEL Codes: C32, E21, E61, E62, E63

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1 Introduction

Anticipation is a central feature of fiscal policy. Changes in government spending and taxation are subject to legislative and implementation lags; they are typically announced well before they take effect, so agents adjust their behaviour ahead of the actual policy change (see Leeper et al., 2012, 2013, among others). These anticipation effects are quantitatively important and can even dominate implementation dynamics. Anticipated tax cuts generate contractions prior to implementation and expansions once enacted (Mertens and Ravn, 2011), and anticipated spending increases are contractionary or expansionary at announcement depending on the monetary-fiscal regime (Ascari et al., 2023). Fiscal shocks are thus inherently multi-dimensional, comprising *surprise* and *news* components that propagate through distinct channels.

The distributional implications of fiscal anticipation, however, remain underexplored. The existing evidence concerns surprise shocks, which reduce consumption inequality (e.g., Anderson et al., 2016a), a finding rationalised in two-agent New Keynesian (TANK) models in which hand-to-mouth households spend out of higher labour income while Ricardian households smooth consumption (e.g., Galí et al., 2007). Work on fiscal foresight is conducted in representative agent settings where distributional questions cannot be posed, and previous work on fiscal policy with household heterogeneity considers almost exclusively unanticipated shocks under a single, implicitly monetary-led regime.

These distributional effects are worth understanding. Consumption inequality is a first-order concern for welfare and policy, and spending is among the largest levers governments hold. Even government spending with no redistributive intent reshapes the distribution in general equilibrium, through labour income and real interest rates rather than by design, and therefore through how monetary policy interacts with fiscal expansion. We take up precisely this question and examine the intersection of three elements - household heterogeneity, fiscal foresight, and the monetary-fiscal mix - which, to the best of our knowledge, has not yet been analysed.

In this paper, we examine the effects of government spending shocks on U.S. consumption inequality, constructed from Consumer Expenditure Survey (CEX) microdata following Coibion et al. (2017a). We identify shocks with the strategy of Forni and Gambetti (2016), which combines a recursive scheme à la Blanchard and Perotti (2002) with revisions in Survey of Professional Forecasters expectations to recover mutually orthogonal surprise and news components. We show that the two components move inequality in opposite directions: a positive surprise shock reduces consumption inequality, while a positive news shock increases it. We rationalise these findings in the TANK framework of Bilbiie (2008, 2020) under two policy mixes: a monetary-led regime, in which the central bank satisfies the Taylor principle, and the government adheres to fiscal discipline, and a fiscally-led regime, in which fiscal policy is exogenous, and the central bank accommodates it (Leeper, 1991).

The model delivers a transparent analytical characterisation. When hand-to-mouth income

is more cyclical than that of savers, the equilibrium inequality response to either shock is determined by the response of aggregate consumption: whenever it rises, inequality falls. News and surprise shocks move consumption through different channels. Announced spending has not yet entered any household’s budget, so a news shock affects consumption today only through the expected path of real interest rates over the entire spending episode, and this path is precisely what the policy regime determines.¹ Implemented spending, by contrast, bids up labour income immediately, benefiting hand-to-mouth households directly. This mechanism is common to both monetary and fiscal regimes and implies that a surprise shock compresses inequality whenever the output multiplier exceeds a threshold below unity (i.e., even under moderate crowding-out of private consumption). Under our calibration, both regimes clear this threshold, so surprise shocks reduce inequality in both, whereas the sign of the news effect is entirely regime contingent.²

The novelty of our contribution is thus threefold. While forecast-revision measures of fiscal foresight have been applied to the consumption distribution before (De Giorgi and Gambetti, 2012), we provide the first empirical evidence of the separate effects of mutually orthogonal surprise and news shocks on consumption inequality. Theoretically, we characterise which distributional effects of fiscal foresight depend on the monetary-fiscal mix and which do not. News shocks affect inequality only through the expected real rate path, so the sign of the news effect is governed by the policy regime. On the contrary, the direct labour income channel of implemented spending is regime invariant in our framework. Finally, our results yield an additional testable implication of the policy regime. The signature that Ascari et al. (2023) identify in aggregate output during the anticipation period carries over to the cross-section, so that distributional data through consumption inequality provide an additional source of corroborating evidence on the prevailing policy mix.

Our work relates to two strands. The first is the empirical literature on the distributional effects of government spending. Anderson et al. (2016a) use CEX data and the forecast-error measure of Ramey (2011) and show that surprise spending increases reduce consumption inequality. Ma (2019) finds that consumption rises for poor and falls for rich households, and Dhital et al. (2023) document declines in income, consumption and expenditure inequality. Evidence on anticipated shocks is limited to De Giorgi and Gambetti (2012), who do not jointly identify orthogonal surprise and news components and focus on non-durable consumption.

¹The analytical model establishes that the announcement effect is governed entirely by the cumulative expected real rate; the quantitative model with government debt maps the two regimes into the sign of that object. Under active monetary policy, the anticipated expansion implies persistently higher real rates once spending is elevated; the cumulative expected tightening depresses consumption already at announcement, raising inequality. Under an accommodative stance, expected real rates instead fall, so the same announcement reduces inequality.

²Our empirical results are obtained over a sample that the literature identifies with a monetary-led regime (Ascari et al., 2023), and match the model’s predictions for that regime.

We condition the distributional estimates on the shock’s anticipation status within a unified identification and interpret them through the policy mix, the dimension which, at the aggregate level, Ascari et al. (2023) show is required to reconcile otherwise conflicting VAR evidence.

The second strand is the analytical TANK literature following Bilbiie (2008, 2020) and its application to anticipated spending under alternative regimes (Beck-Friis and Willems, 2017; Ascari et al., 2023). A related body of work studies the redistributive effects of fiscal policy in two-agent settings. Bilbiie et al. (2013) show how public debt redistributes in the presence of borrowing constraints, and Cantore and Freund (2021) examine how the tax-versus-debt financing mix shapes the consumption path when hand-to-mouth agents are only partially constrained, though both consider unanticipated spending within a single monetary-led regime. Our work is closest to Bilbiie et al. (2024), who study the optimal monetary-fiscal mix in a TANK model with an inequality objective. We use their framework but characterise the positive distributional effects of anticipated versus unanticipated spending. The channel through which anticipation operates in our model - the effect of the expected real rate path on households with different marginal propensities to consume - is the fiscal-foresight counterpart of the interest rate exposure channel that Auclert (2019) identifies for monetary policy.³

The paper proceeds as follows. Section 2 presents the empirical evidence, and Section 3 develops the model. Section 4 examines the response to anticipated and unanticipated government spending shocks, first analytically in Section 4.1 and then numerically in Section 4.2. Finally, Section 5 concludes.

2 Empirical analysis

2.1 Data

2.1.1 Macroeconomic variables

Our empirical analysis is based on U.S. quarterly data. We employ a medium-scale model which includes eight macroeconomic and financial variables: (i) real federal government consumption expenditures and gross investment; (ii) real GDP; (iii) the federal budget surplus as a share of nominal GDP; (iv) 10-year Treasury constant maturity rate; (v) real exchange rate; (vi) federal funds rate; (vii) corporate profits; (viii) consumer confidence. Data sources are detailed

³Our result is consistent with the neutrality benchmark of Auclert et al. (2024), under which the multiplier is one, and heterogeneity is irrelevant given constant real rates and proportional taxation; it operates through non-proportional income exposure and the real rate response of active policy, precisely the channels that the benchmark shuts down. We work in TANK rather than HANK (e.g., Hagedorn et al., 2019) because its tractability yields the closed-form sufficient statistic. The regime-uncertainty literature (e.g., Bianchi and Ilut, 2017; Bianchi and Melosi, 2017) studies aggregate propagation under expected regime change rather than distributional incidence.

in Appendix A. Real variables are obtained by deflating nominal values with the GDP deflator. In Appendix B.1, we validate our model specification with the test proposed by Forni and Gambetti (2014), which evaluates whether the recursively identified government spending shock can be predicted by principal components derived from a large macroeconomic dataset. The outcome confirms that our baseline specification is informationally sufficient. In Appendix B.6, we show that the results from our baseline model is consistent with those obtained by estimating a factor-augmented VAR (FAVAR).

2.1.2 Household-level data

Consumption inequality is measured using the indexes in Coibion et al. (2017b), recently extended by Mangiante and Meichtry (2025) until December 2019. They are obtained from the CEX, which is the most granular source of information on U.S. household consumption. The CEX is a monthly rotating panel in which households are interviewed once per quarter, for up to five consecutive quarters. In each round, respondents report expenditure for the three months preceding the interview. Consumption is defined as the sum of non-durables, services, and selected durable goods, such as household appliances, televisions, and furniture. Expenditure on large durables, such as house and car purchases, is excluded, as it resembles a form of investment rather than consumption. Our main measure of consumption inequality is the cross-sectional standard deviation of household-level real consumption, denoted by c_t^{sd} . Alternative indicators are considered in the Appendix.

2.1.3 Fiscal news

To identify news shocks to government spending, we follow the identification strategy of Forni and Gambetti (2016), which hinges on data from the Survey of Professional Forecasters (SPF). This is a quarterly survey conducted by the Federal Reserve Bank of Philadelphia, which collects expectations from professional economists about key U.S. macroeconomic series, such as GDP growth, inflation, unemployment, and government spending. Forni and Gambetti (2016) exploit SPF forecasts for government spending growth to derive a series that is affected contemporaneously by the fiscal news shock. This variable is later included into a VAR, ordered second after government spending. The surprise and news shocks are then identified as the first and second shock of the Cholesky decomposition, respectively.

We rely on two alternative news series. The first is defined as

$$F_t(1, H) = \sum_{h=1}^H \hat{E}_t^I \Delta g_{t+h}, \quad (2.1)$$

where $\hat{E}_t^I \Delta g_{t+h}$ is the h -quarter-ahead median SPF forecast for government spending growth. The first index of F_t denotes the starting horizon of the summation, and the second is the

terminal horizon H . The second measure captures forecast revisions:

$$n_t(1, H) = F_t(1, H) - F_{t-1}(2, H + 1). \quad (2.2)$$

Here $F_{t-1}(2, H + 1)$ sums forecasts from horizon 2 to $H + 1$ as of $t - 1$, so the two terms cover the same calendar quarters $t + 1$ through $t + H$. The difference $n_t(1, H)$ therefore isolates the revision in expected cumulative spending growth over that window between consecutive survey rounds. Following Forni and Gambetti (2016), we employ $F_t(1, H)$ in our baseline model, with $H = 4$. Our findings are robust to using the measure $n_t(1, H)$, as detailed in Appendix B.4.

2.2 Results

Figures 1 and 2 report the results from the medium-scale VAR model for the main variables. The complete set of IRFs is reported in Appendix B.1.⁴ The sample goes from 1981Q4 to 2019Q4; the start date is dictated by the availability of SPF forecasts and the sample ends before the Covid-19 outbreak. The model is estimated using Bayesian techniques, specifically using uninformative Normal-Inverse-Wishart priors, four lags and an intercept. Surprise and news shocks to government spending are identified as the first two shocks in the Cholesky decomposition (Forni and Gambetti, 2016).

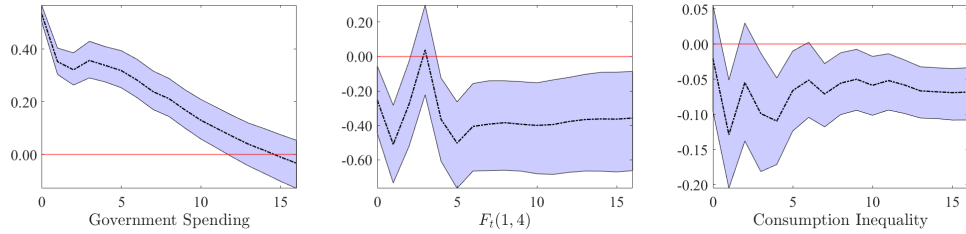


Figure 1: IRFs to a government spending surprise shock.

Notes: IRFs for selected variables. Black line is the median response. Shaded bands are 68% confidence intervals.

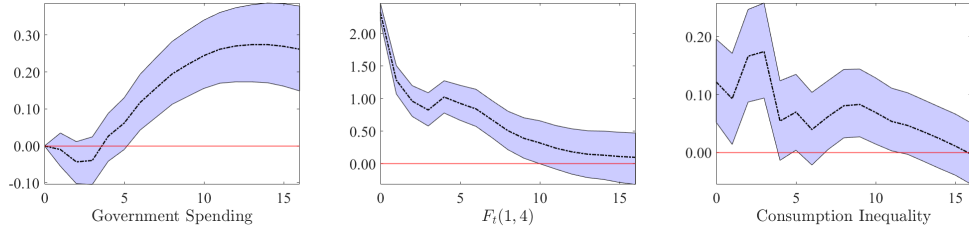


Figure 2: IRFs to a government spending news shock.

Notes: IRFs for selected variables. Black line is the median response. Shaded bands are 68% confidence intervals.

⁴The medium-scale VAR model consists of the variables described in 2.1.1, along with $F_t(1, 4)$, ordered second after government spending, and c_t^{sd} .

There is a stark difference in the transmission of the two shocks to government spending and consumption inequality. After a surprise shock, spending increases on impact but then gradually decreases. On the contrary, government spending rises progressively after a news shock, peaking after about two years. As already well-documented in the empirical literature (e.g., Anderson et al., 2016b; Ma, 2019), a surprise shock reduces consumption inequality. A news shock, on the other hand, increases consumption inequality. This is a novel finding in the empirical literature on government spending, and suggests that fiscal anticipation plays a key role in shaping the response of the consumption distribution.

In Appendix B, we discuss various departures from our baseline model, which confirm the results presented in this section. In particular, the results are robust to (i) replacing $F_t(1, 4)$ with $n_t(1, 4)$; (ii) replacing c_t^{sd} with the Gini coefficient and the difference between the 90th and 10th percentile of the consumption distribution; (iii) estimating a FAVAR.

3 Model

The model is based on the canonical TANK framework pioneered by Galí et al. (2007) and Bilbiie (2008). Given our focus on government spending shocks, we abstract from physical capital and include a fiscal sector as in the former. The model consists of a household block with two types of households differing in their access to asset markets, a production block facing nominal frictions, government, and the central bank. We analyse the impact of government spending shocks under two regimes: the monetary-led regime, wherein the government adheres to fiscal discipline and the central bank follows the Taylor Principle, and the fiscally-led regime, in which fiscal policy is exogenous, while the central bank accommodates it by passively setting interest rates (Leeper, 1991). We show that the regimes yield contrasting distributional effects of government spending surprise and news shocks.

3.1 Households

There is a continuum of households of measure one, comprising a share λ of hand-to-mouth households, who hold no assets, and a share $1 - \lambda$ of savers, who have unconstrained access to asset markets. Savers are forward-looking and smooth consumption, as they can trade in a complete set of state-contingent securities. Both types derive utility from consumption C and disutility from supplying labour L , and choose labour supply optimally, earning wage income. Only savers own shares in firms and therefore receive (a share of) profits. Government bonds are also held exclusively by savers.

Savers (S): Savers are Ricardian agents who discount the future at rate β^S and maximise

$$E_0 \sum_{t=0}^{\infty} (\beta^S)^t \left(\frac{(C_t^S)^{1-1/\sigma} - 1}{1 - 1/\sigma} - \frac{(L_t^S)^{1+\eta}}{1 + \eta} \right), \quad (3.1)$$

where σ is the elasticity of intertemporal substitution and η is the inverse Frisch elasticity of labour supply, subject to the real budget constraint

$$C_t^S + \frac{B_t^G}{1 - \lambda} = \frac{R_{t-1}^N}{\pi_t} \frac{B_{t-1}^G}{1 - \lambda} + W_t L_t^S + \frac{1 - \tau^D}{1 - \lambda} D_t - \frac{1 - \alpha}{1 - \lambda} T_t. \quad (3.2)$$

They earn a real wage W_t and receive a share $(1 - \tau^D)/(1 - \lambda)$ of aggregate real profits D_t from monopolistically competitive firms, where $\tau^D \in [0, 1]$ is the parameter governing the redistribution of profits towards hand-to-mouth households. T_t denotes aggregate lump-sum taxes, of which savers pay a share $(1 - \alpha)/(1 - \lambda)$, B_t^G denotes government bonds, R_t^N is the gross nominal interest rate, and $\pi_t \equiv P_t/P_{t-1}$ is gross inflation. The savers' optimality conditions are

$$\frac{1}{(C_t^S)^{1/\sigma}} = \beta^S E_t \left[\frac{R_t^N}{\pi_{t+1} (C_{t+1}^S)^{1/\sigma}} \right], \quad (3.3)$$

and

$$W_t = (L_t^S)^\eta (C_t^S)^{1/\sigma}. \quad (3.4)$$

Hand-to-mouth households (H): The preferences of these households are identical to those of savers. Since they do not participate in asset markets, they consume their labour income net of taxes each period. Their behaviour is therefore fully characterised by the budget constraint and the labour supply condition

$$C_t^H = W_t L_t^H + \frac{\tau^D}{\lambda} D_t - \frac{\alpha}{\lambda} T_t, \quad (3.5)$$

$$W_t = (L_t^H)^\eta (C_t^H)^{1/\sigma}, \quad (3.6)$$

where α/λ is the H households' share of lump-sum taxes.

3.2 Firms

The production block of the model is relatively standard. The model incorporates two types of firms, monopolistically competitive producers of differentiated intermediate goods and perfectly competitive final goods producers. The final goods sector aggregates intermediate varieties with

a CES technology with elasticity of substitution $\varepsilon > 1$. Intermediate producer z operates the constant-returns technology $Y_t(z) = L_t(z)$, where labour is supplied by both household types, so real marginal cost equals the real wage, $MC_t = W_t$.

Intermediate producers face price rigidity as in Calvo (1983), where each period a firm resets its price with probability $1 - \theta$. Firms receive an employment subsidy at rate τ^s , financed by a lump-sum tax on firms equal to the subsidy received, such that this alters marginal incentives without affecting distributed profits. A resetting firm chooses $P_t^*(z)$ to maximise the expected present discounted value of profits, discounted by the savers' stochastic discount factor $\Lambda_{t,t+k} \equiv (\beta^S)^k (C_{t+k}^S/C_t^S)^{-1/\sigma}$. The optimality condition for price setting is

$$\sum_{k=0}^{\infty} \theta^k E_t \left[\Lambda_{t,t+k} \left(\frac{P_t^*(z)}{P_{t+k}} - \frac{\varepsilon}{\varepsilon - 1} (1 - \tau^s) MC_{t+k} \right) Y_{t+k}^*(z) \right] = 0, \quad (3.7)$$

where $\varepsilon/(\varepsilon - 1)$ is the desired gross markup. We set $1 - \tau^s = (\varepsilon - 1)/\varepsilon$ which eliminates the steady-state markup distortion. Defining the average realised markup as $X_t \equiv 1/MC_t$, aggregate real profits paid to households are

$$D_t = \left(1 - \frac{1}{X_t} \right) Y_t. \quad (3.8)$$

3.3 Fiscal policy

The government spends G_t , levies lump-sum taxes on households T_t , and issues one-period bonds B_t^G , which are held by Ricardian households only. The fiscal block comprises the intertemporal budget constraint, a tax rule, and an AR(1) process for government spending, given by

$$B_t^G = \frac{R_{t-1}^N}{\pi_t} B_{t-1}^G + G_t - T_t, \quad (3.9)$$

$$\log \left(\frac{T_t}{T} \right) = \log \left(\frac{T_{t-1}}{T} \right)^{\rho_T} + \log \left(\frac{B_{t-1}^G}{B^G} \right)^{(1-\rho_T)\phi_{TB}} + \log \left(\frac{G_t}{G} \right)^{(1-\rho_T)\phi_{TG}} + \epsilon_T, \quad (3.10)$$

$$\log \left(\frac{G_t}{G} \right) = \log \left(\frac{G_{t-1}}{G} \right)^{\rho_G} + \epsilon_{G,t-j} \quad (3.11)$$

where variables without time subscripts denote steady-state values, $\epsilon_{G,t-j}$ is an iid government spending shock with $j \geq 0$, where $j = 0$ denotes an unanticipated (surprise) shock and $j > 0$ denotes an anticipated (news) shock to government spending, and ϵ_T is the iid tax shock.

3.4 Monetary policy

The central bank follows a Taylor-type rule setting nominal interest rates in response to inflation and output as follows

$$\log \left(\frac{R_t^N}{R^N} \right) = \log \left(\frac{R_{t-1}^N}{R^N} \right)^{\rho_R} + \log \left(\frac{\pi_t}{\pi} \right)^{(1-\rho_R)\phi_\pi} + \log \left(\frac{y_t}{y} \right)^{(1-\rho_R)\phi_y} + \epsilon_{R,t}, \quad (3.12)$$

where ρ_R is the interest rate smoothing parameter, ϕ_π and ϕ_y are the responsiveness coefficients with $\rho_R, \phi_\pi, \phi_y \geq 0$, and ϵ_R is an iid monetary policy shock. The monetary-led regime corresponds to $\phi_\pi > 1$ combined with a tax rule that stabilises debt (ϕ_{TB} sufficiently large); the fiscally-led regime corresponds to $\phi_\pi < 1$ with fiscal policy that does not stabilise debt.

3.5 Market clearing and equilibrium

In equilibrium, all agents except the monopolistic price setters take prices and the evolution of exogenous processes as given. A rational expectations equilibrium is a sequence of prices and quantities such that all optimality conditions hold and all markets clear at every date t . Goods market clearing requires $(1 - \lambda)C_t^S + \lambda C_t^H + G_t = Y_t$, labour market clearing requires $(1 - \lambda)L_t^S + \lambda L_t^H = L_t$, and bond market clearing requires that savers hold the entire stock of government debt, which is imposed directly in the savers' budget constraint (3.2).

We solve the model around a symmetric zero-inflation steady state. The employment subsidy τ^s introduced above eliminates the markup distortion, so that $W = MC = 1$ and steady-state profits are zero. Steady state taxes then satisfy $T = G + (1/\beta^S - 1)B^G$, and the two household types have identical steady state consumption, $C^H = C^S = C$, if and only if the tax shares satisfy

$$\alpha = \lambda \frac{G}{T} \leq \lambda, \quad (3.13)$$

where the strict equality holds if and only if $B^G = 0$. Lowercase letters denote log deviations from steady state, except for $d_t \equiv (D_t - D)/Y$ which is expressed as deviations relative to steady-state output. We impose (3.13) throughout, which also ensures that the log-linear aggregators $c_t = (1 - \lambda)c_t^S + \lambda c_t^H$ and $l_t = (1 - \lambda)l_t^S + \lambda l_t^H$ hold with population weights. The real interest rate is $r_t \equiv r_t^N - E_t \pi_{t+1}$, where r_t^N denotes the log deviation of the nominal rate. The log-linearised model is summarised in Table 1.

4 Anticipated and unanticipated government spending shocks

4.1 An analytical illustration

In this section, we provide a simple analytical characterisation of the impact of government spending surprise and news shocks on consumption inequality. To keep the algebra transparent,

Table 1: Summary of the log-linearised model

Description	Equation
Budget constraint, H	$\frac{C^H}{Y} c_t^H = \frac{WL^H}{Y} (w_t + l_t^H) + \frac{\tau^D}{\lambda} d_t - \frac{\alpha}{\lambda} \frac{T}{Y} t_t$
Euler equation, S	$c_t^S = E_t c_{t+1}^S - \sigma r_t$
Labour supply ($i \in \{S, H\}$)	$\eta l_t^i = w_t - \frac{1}{\sigma} c_t^i$
Aggregate consumption	$c_t = (1 - \lambda) c_t^S + \lambda c_t^H$
Aggregate labour	$l_t = (1 - \lambda) l_t^S + \lambda l_t^H$
Fisher equation	$r_t = r_t^N - E_t \pi_{t+1}$
Aggregate output	$y_t = \frac{C}{Y} c_t + \frac{G}{Y} g_t$
Production function	$y_t = l_t$
Real marginal cost	$mc_t = w_t$
Profits	$d_t = -w_t$
Phillips curve	$\pi_t = \beta^S E_t \pi_{t+1} + \kappa mc_t, \quad \kappa \equiv \frac{(1-\theta)(1-\beta^S \theta)}{\theta}$
Government budget constraint	$b_t^G = \frac{1}{\beta^S} (b_{t-1}^G + r_{t-1}^N - \pi_t) + \frac{G}{B^G} g_t - \frac{T}{B^G} t_t$
Tax rule	$t_t = \rho_T t_{t-1} + (1 - \rho_T) (\phi_{TB} b_{t-1}^G + \phi_{TG} g_t) + \varepsilon_{T,t}$
Government spending	$g_t = \rho_G g_{t-1} + \varepsilon_{G,t-j}, \quad j \geq 0$
Taylor rule	$r_t^N = \rho_R r_{t-1}^N + (1 - \rho_R) (\phi_\pi \pi_t + \phi_y y_t) + \varepsilon_{R,t}$

we abstract from steady-state government spending and debt, so that the consumption share is unity, $C/Y = 1$, and we redefine $\tilde{g}_t \equiv (G_t - G)/Y$ and $\tilde{t}_t \equiv (T_t - T)/Y$ as deviations scaled by steady-state output. Goods market clearing is then $y_t = c_t + \tilde{g}_t$.

Define consumption inequality between savers and hand-to-mouth households as $\gamma_t^{SH} \equiv c_t^S - c_t^H$. Combining the hand-to-mouth budget constraint and labour supply condition with goods and labour market clearing yields

$$\gamma_t^{SH} = \frac{1 - \chi}{1 - \lambda} c_t - z \chi q \tilde{g}_t + \frac{\alpha}{\lambda} z q \tilde{t}_t, \quad (4.1)$$

where

$$\chi \equiv \left(1 - \frac{\tau^D}{\lambda}\right) \eta + 1, \quad q \equiv \frac{1}{1 - \lambda}, \quad z \equiv \frac{\eta \sigma}{1 + \eta \sigma}, \quad \bar{m} \equiv 1 - z = \frac{1}{1 + \eta \sigma}.$$

The composite parameter χ represents the cyclicity of H income through the extent of profit redistribution τ^D , as in Bilbiie (2020). Hand-to-mouth consumption is more cyclical than aggregate consumption ($\chi > 1$) when profits are redistributed less than proportionately ($\tau^D < \lambda$), generating countercyclical inequality. This is the empirically relevant case that

generates aggregate demand amplification relative to RANK and raises multipliers (Bilbiie, 2025) and we maintain the following Assumption A.1 throughout.

Assumption A.1 *Inequality is countercyclical, $\chi > 1$, and the economy satisfies the standard aggregate demand condition $\lambda\chi < 1$, which rules out the inverted aggregate demand logic (IADL) (Bilbiie, 2008, 2020).*

Combining the savers' Euler equation and labour supply condition with market clearing yields the aggregate (log-linearised) IS equation

$$c_t = E_t c_{t+1} + \frac{\lambda\chi z}{1 - \lambda\chi} (\tilde{g}_t - E_t \tilde{g}_{t+1}) - \frac{\lambda z}{1 - \lambda\chi} \frac{\alpha}{\lambda} (\tilde{t}_t - E_t \tilde{t}_{t+1}) - \sigma \frac{1 - \lambda}{1 - \lambda\chi} r_t. \quad (4.2)$$

Assume the government runs a balanced budget, such that $\tilde{g}_t = \tilde{t}_t$.⁵ Since $B^G = 0$ here, (3.13) implies uniform taxation, $\alpha = \lambda$. Iterating (4.2) forward, under these restrictions, to a finite horizon N gives

$$c_t = E_t c_{t+N} - \frac{\lambda z(\chi - 1)}{1 - \lambda\chi} \sum_{j=0}^{N-1} E_t (\tilde{g}_{t+j+1} - \tilde{g}_{t+j}) - \sigma \frac{1 - \lambda}{1 - \lambda\chi} \sum_{j=0}^{N-1} E_t r_{t+j}, \quad (4.3)$$

where the spending terms telescope: $\sum_{j=0}^{N-1} E_t (\tilde{g}_{t+j+1} - \tilde{g}_{t+j}) = E_t \tilde{g}_{t+N} - \tilde{g}_t$. Substituting (4.3) into (4.1) under the balanced budget yields

$$\gamma_t^{SH} = \frac{1 - \chi}{1 - \lambda} \left(E_t c_{t+N} - \frac{\lambda z(\chi - 1)}{1 - \lambda\chi} (E_t \tilde{g}_{t+N} - \tilde{g}_t) - \sigma \frac{1 - \lambda}{1 - \lambda\chi} \sum_{j=0}^{N-1} E_t r_{t+j} \right) - z(\chi - 1)q \tilde{g}_t. \quad (4.4)$$

Equation (4.4) delivers a first, partial equilibrium response of consumption inequality to government spending surprise and news shocks. Before proceeding, we fix the experiment to which all derivatives below refer. News and surprise shocks correspond to the innovation $\varepsilon_{G,t}$ in (3.11), with anticipation lag $j = N$ for news and $j = 0$ for a surprise. The innovation moves the relevant spending term one-for-one, $dE_0 \tilde{g}_N / d\varepsilon_{G,0} = 1$ for news and $d\tilde{g}_0 / d\varepsilon_{G,0} = 1$ for a surprise, so we express all derivatives with respect to $E_0 \tilde{g}_N$ and $\tilde{g}_0$, respectively.⁶ Holding expected

⁵Equation (4.2) is the aggregate IS curve with fiscal policy; under a balanced budget it is same as the one in Bilbiie (2020). We retain the general form because the quantitative model below features debt-financed spending and a tax rule, so that $\tilde{t}_t \neq \tilde{g}_t$.

⁶This preserves the conventional multiplier interpretation of $dy_0 / d\tilde{g}_0$, and every statement below is equivalent to the corresponding derivative with respect to the innovation. With $\rho_G > 0$ the perturbation moves the entire expected spending path $\{E_0 \tilde{g}_{N+k}\}_{k \geq 0}$; the results below are unaffected, since they condition only on the induced consumption response.

future consumption and the real rate path fixed, the ceteris paribus impact effects are:

$$\frac{\partial \gamma_0^{SH}}{\partial \tilde{g}_N} = \frac{(\chi - 1)^2}{1 - \lambda} \frac{\lambda z}{1 - \lambda \chi} > 0 \quad \text{and} \quad \frac{\partial \gamma_0^{SH}}{\partial \tilde{g}_0} = -\frac{(\chi - 1)^2}{1 - \lambda} \frac{\lambda z}{1 - \lambda \chi} - z(\chi - 1)q < 0. \quad (4.5)$$

This suggests that, when Assumption A.1 holds, anticipated spending increases inequality on announcement while realised spending compresses it. The following propositions characterise the general equilibrium responses, and show that they are fully summarised by the response of aggregate consumption.

Proposition 1 (News shocks) *Consider a pure government spending news shock at $t = 0$: a marginal increase in expected future spending $E_0 \tilde{g}_N$, with no contemporaneous change in $\tilde{g}_0$ (and, by the balanced budget, $\tilde{t}_0$). The equilibrium announcement effect on inequality satisfies*

$$\frac{d\gamma_0^{SH}}{d\tilde{g}_N} = -\frac{\chi - 1}{1 - \lambda} \frac{dc_0}{d\tilde{g}_N}. \quad (4.6)$$

Under Assumption A.1, inequality rises on announcement if and only if aggregate consumption falls on announcement.

Proof. With $\tilde{g}_0 = \tilde{t}_0 = 0$, equation (4.1) reduces to $\gamma_0^{SH} = \frac{1-\chi}{1-\lambda} c_0$. Differentiating with respect to $\tilde{g}_N$ gives the first equality, and the sign follows from $\chi > 1$.

Proposition 2 (Surprise shocks) *Consider a government spending surprise shock at $t = 0$: a realised marginal increase in $\tilde{g}_0$, financed contemporaneously by $\tilde{t}_0 = \tilde{g}_0$. The equilibrium impact effect on inequality satisfies*

$$\frac{d\gamma_0^{SH}}{d\tilde{g}_0} = -\frac{\chi - 1}{1 - \lambda} \left(\frac{dc_0}{d\tilde{g}_0} + z \right) = -\frac{\chi - 1}{1 - \lambda} \left(\frac{dy_0}{d\tilde{g}_0} - \bar{m} \right). \quad (4.7)$$

Under assumption A.1, inequality falls on impact if and only if the impact output multiplier exceeds $\bar{m}$; a positive consumption multiplier is sufficient but not necessary.

Proof. With $\tilde{t}_0 = \tilde{g}_0$ and $\alpha = \lambda$, equation (4.1) gives $\gamma_0^{SH} = \frac{1-\chi}{1-\lambda} c_0 - z(\chi - 1)q \tilde{g}_0$. Differentiating and using $q = 1/(1 - \lambda)$ delivers the first equality, and goods market clearing, $y_0 = c_0 + \tilde{g}_0$, the second.

Note that the thresholds in Propositions 1 and 2 differ: a news shock compresses inequality only if it raises aggregate consumption, whereas a surprise shock does so even under moderate consumption crowding out ($dc_0/d\tilde{g}_0 > -z$). The wedge, of size $z(\chi - 1)q$ per unit of spending, reflects the labour income channel of implemented spending. A realised fiscal expansion bids up labour income, which under A.1 accrues disproportionately to H households. Spending that is announced but not yet implemented only affects inequality through general equilibrium effects in this economy. Under procyclical inequality ($\chi < 1$), all signs in Propositions 1 and 2 reverse.

4.1.1 Evaluating the consumption response: the role of the policy regime

Propositions 1 and 2 reduce the distributional question to the behaviour of aggregate consumption at $t = 0$, which we now evaluate. For the news shock, we iterate (4.3) to the implementation date, that is, we set the truncation horizon equal to the anticipation lag N . The identity holds for any truncation horizon; this choice places the boundary at the implementation date, so that Ψ_G below isolates the effect of spending announced but not yet in place. The impact response then decomposes into three effects:

$$\frac{dc_0}{d\tilde{g}_N} = \underbrace{\frac{dE_0c_N}{d\tilde{g}_N}}_{\Psi_C} - \underbrace{\frac{\lambda z(\chi - 1)}{1 - \lambda\chi}}_{\Psi_G} - \underbrace{\sigma \frac{1 - \lambda}{1 - \lambda\chi} \frac{d\sum_{j=0}^{N-1} E_0 r_j}{d\tilde{g}_N}}_{\Psi_R}, \quad (4.8)$$

where Ψ_C captures the effect of expected consumption at the implementation date N on consumption at the announcement date, Ψ_G is the direct marginal effect of spending announced today but implemented N periods ahead, and Ψ_R is the effect of the revision in expected real rates over the interim, which alters the relative price of consumption today versus the future. Relative to a representative agent benchmark ($\lambda = 0$), the intertemporal substitution channel is amplified by the factor $\frac{1-\lambda}{1-\lambda\chi} > 1$ under A.1, while the direct channel $\Psi_G = \frac{\lambda z(\chi-1)}{1-\lambda\chi}$ has no counterpart; the latter is purely redistributive and vanishes when $\lambda = 0$ or $\chi = 1$.

The first two channels largely offset. Iterating the balanced-budget IS equation from the implementation date N onwards implies, for a transitory shock (with $\lim_{T \rightarrow \infty} E_0 c_T = 0$), that $\Psi_C = \Psi_G - \sigma \frac{1-\lambda}{1-\lambda\chi} \frac{d\sum_{j=N}^{\infty} E_0 r_j}{d\tilde{g}_N}$, since the spending terms beyond N telescope to $E_0 \tilde{g}_{\infty} - E_0 \tilde{g}_N = -E_0 \tilde{g}_N$. Substituting into (4.8), the direct terms cancel and

$$\frac{dc_0}{d\tilde{g}_N} = -\sigma \frac{1 - \lambda}{1 - \lambda\chi} \frac{d\sum_{j=0}^{\infty} E_0 r_j}{d\tilde{g}_N}. \quad (4.9)$$

Note that (4.9) does not require $\rho_G = 0$: the telescoping depends only on the endpoints of the expected spending path, so the result holds for any $\rho_G \in [0, 1)$.

The impact effect of a news shock on aggregate consumption is thus governed entirely by the cumulative expected real rate response. Two features of equation (4.9) merit emphasis. First, the summation now runs over the entire horizon rather than the N periods preceding implementation. Iterating beyond the implementation date makes explicit the post-implementation rate responses previously embedded in the expected consumption term Ψ_C , and it is precisely this merging of the two partial sums that eliminates the direct spending terms. Second, the distinction is economically substantive, not merely notational. The post-implementation segment of the rate path is typically the dominant one; under a Taylor rule, real rates respond most strongly once spending is actually elevated, from date N onwards, whereas the anticipatory response over the interim is comparatively modest, and may be overpowered. A truncated version

of (4.9) summing only to $N - 1$ would therefore attribute the announcement effect solely to the anticipatory rate response and miss the larger part of the intertemporal substitution channel. The expected rate path *during* the spending episode reaches back to consumption, and hence, by Proposition 1, to inequality, at the announcement date. Since the policy regime principally governs monetary policy while spending is elevated, it is the regime that determines the distributional effect of news. Combining this observation with Proposition 1 delivers our main result, described as follows:

Corollary 1 (Policy regimes and news shocks) *For a transitory news shock, combining Proposition 1 with equation (4.9) yields*

$$\frac{d\gamma_0^{SH}}{d\tilde{g}_N} = \frac{\sigma(\chi - 1)}{1 - \lambda\chi} \frac{d\sum_{j=0}^{\infty} E_0 r_j}{d\tilde{g}_N}. \quad (4.10)$$

The announcement effect on inequality is governed entirely by the cumulative expected real rate response. A news shock raises inequality if and only if it raises the cumulative expected real rate. The policy regime therefore determines the sign: in the monetary-led regime, the anticipated fiscal expansion raises expected real rates, so a news shock raises inequality; in the fiscally-led regime, the accommodative path lowers rates, so a news shock reduces inequality.⁷

For the surprise shock, iterating (4.3) to the infinite horizon rather than to N delivers the analogous decomposition

$$\frac{dc_0}{d\tilde{g}_0} = \underbrace{\frac{\lambda z(\chi - 1)}{1 - \lambda\chi}}_{\Psi_{GG}} - \sigma \underbrace{\frac{1 - \lambda}{1 - \lambda\chi} \frac{d\sum_{j=0}^{\infty} E_0 r_j}{d\tilde{g}_0}}_{\Psi_{RR}}, \quad (4.11)$$

where Ψ_{GG} is the direct demand effect of government spending on consumption and Ψ_{RR} the associated cumulative real rate response. As in (4.9), the expected consumption term vanishes for a transitory shock and the spending terms telescope, here to $-(E_0\tilde{g}_\infty - \tilde{g}_0) = \tilde{g}_0$, so (4.11) holds for any $\rho_G \in [0, 1)$. Under assumption A.1, $\Psi_{GG} > 0$ and the consumption multiplier is the direct effect net of the induced real rate response.⁸

⁷The transitory shock conditions ($\lim_{T \rightarrow \infty} E_0 c_T = 0$) and the absence of endogenous state variables hold exactly in the balanced-budget economy of this section, which is silent on how the two regimes are implemented. With zero steady state debt, there is no fiscal backing, so the regime distinction is meaningful only in the full model with debt, where $\phi_\pi < 1$ is paired with non-stabilising taxes. Equation (4.10) then holds approximately, and the quantitative analysis in the next section confirms that the cumulative real rate response remains the dominant determinant of the announcement effect. Here the regimes should be read as shorthand for the sign of $d\sum_{j \geq 0} E_0 r_j / d\tilde{g}_N$, which the full model delivers.

⁸A close analogue of this result exists in the monetary domain. Equation (4.10) is the fiscal counterpart of the inequality expression in Mangiante and Meichtry (2025). The common structure is not coincidental; in a TANK economy, any shock reaches H households, and therefore inequality, at the announcement date only through the savers' intertemporal margin. What differs is what moves that margin. In their setting it is a transfer rule responding to debt service, so anticipation matters because interest payments rise only at implementation. Here it is the policy regime, which determines the sign of the expected rate path while spending is elevated.

The policy regime again determines which force prevails, now through the threshold of Proposition 2. In the fiscally-led regime, the passive interest rate response mutes Ψ_{RR} , so the multiplier approaches its fixed-rate value $1 + \Psi_{GG}$, the spending multiplier of Bilbiie (2020) under uniform taxation, which, under A.1, exceeds unity and hence $\bar{m}$ such that a surprise expansion compresses inequality. In the monetary-led regime, the active Taylor rule raises real rates in response to the fiscal expansion, shrinking the multiplier towards, and, for a sufficiently aggressive stance, below the threshold $\bar{m}$, at which point a surprise expansion raises inequality despite the direct labour income channel.⁹ The two regimes thus generate contrasting distributional effects for both types of shocks, which we illustrate through our numerical results in the next subsection.

4.2 Numerical Results

We now examine the general equilibrium responses to government spending surprise and news shocks under the two policy regimes in the full model with government debt, and assess how the analytical results of Section 4.1 carry over once the balanced-budget assumption is relaxed. Table 2 reports the calibration set at the quarterly frequency. We assume log utility ($\sigma = 1$) and a unitary Frisch elasticity of labour supply ($\eta = 1$). The steady-state share of government spending in output (20%) and the debt-to-annual-GDP ratio (57%) match U.S. averages over 1984–2018. The share of hand-to-mouth households is $\lambda = 0.3$, and profits are not redistributed to hand-to-mouth households ($\tau^D = 0$), so that the composite governing the cyclicity of inequality is $\chi = 1 + \eta = 2$ and $\lambda\chi = 0.6$, such that assumption A.1 ($\chi > 1$, $\lambda\chi < 1$) is satisfied, and the propositions of Section 4.1 apply. News shocks are announced $N = 4$ quarters before implementation. In the monetary-led regime (regime M), the Taylor rule coefficient on inflation is $\phi_\pi = 1.5$ and taxes respond to debt and spending with $\phi_{TB} = 0.33$ and $\phi_{TG} = 0.1$, as in Galí et al. (2007). In the fiscally-led regime (regime F), monetary policy is passive, $\phi_\pi = 0.9$, and taxes are unresponsive, $\phi_{TB} = \phi_{TG} = 0$.

The two regimes are defined as in Section 3. In regime M , the central bank satisfies the Taylor principle, and the fiscal authority stabilises debt, so that government spending is backed by future surpluses. In regime F , fiscal policy is active, and the central bank accommodates it, so that spending expansions are unbacked. Propositions 1 and 2 imply that the distributional effects of the two shocks are fully summarised by the responses of aggregate consumption and output, and Corollary 1 implies that, for news shocks, the sign of the inequality response is governed by the cumulative expected real rate response. The numerical results confirm the same. In regime M , surprise and news shocks have contrasting distributional effects; surprise shocks reduce consumption inequality while news shocks raise it upon announcement, whereas

⁹The threshold is the share of a unit of spending that is not absorbed by the labour supply-induced income gain, so it tightens as labour supply becomes less elastic or intertemporal substitution weaker.

Table 2: Calibration

Parameter	Interpretation	Value
β^S	Saver discount factor	0.99
λ	Population share of hand-to-mouth households	0.3
σ	Elasticity of intertemporal substitution	1
η	Inverse Frisch elasticity of labour supply	1
τ^D	Profit redistribution to hand-to-mouth households	0
X	Steady-state markup	1.05
θ	Calvo parameter	0.75
G/Y	Steady-state government spending-to-GDP ratio	0.2
$B/4Y$	Steady-state debt-to-annual-GDP ratio	0.57
N	Anticipation horizon of news shocks (quarters)	4
ρ_R	Interest-rate smoothing	0.8
ρ_T	Tax rule persistence	0
ρ_G	Government spending persistence	0.9
σ_G	Government spending shock standard deviation	0.01
Implied: $\chi = 2$, $\lambda\chi = 0.6$ (Assumption A.1 satisfied).		

in regime F both shocks compress inequality. These are described in detail below.

4.2.1 Monetary-led regime

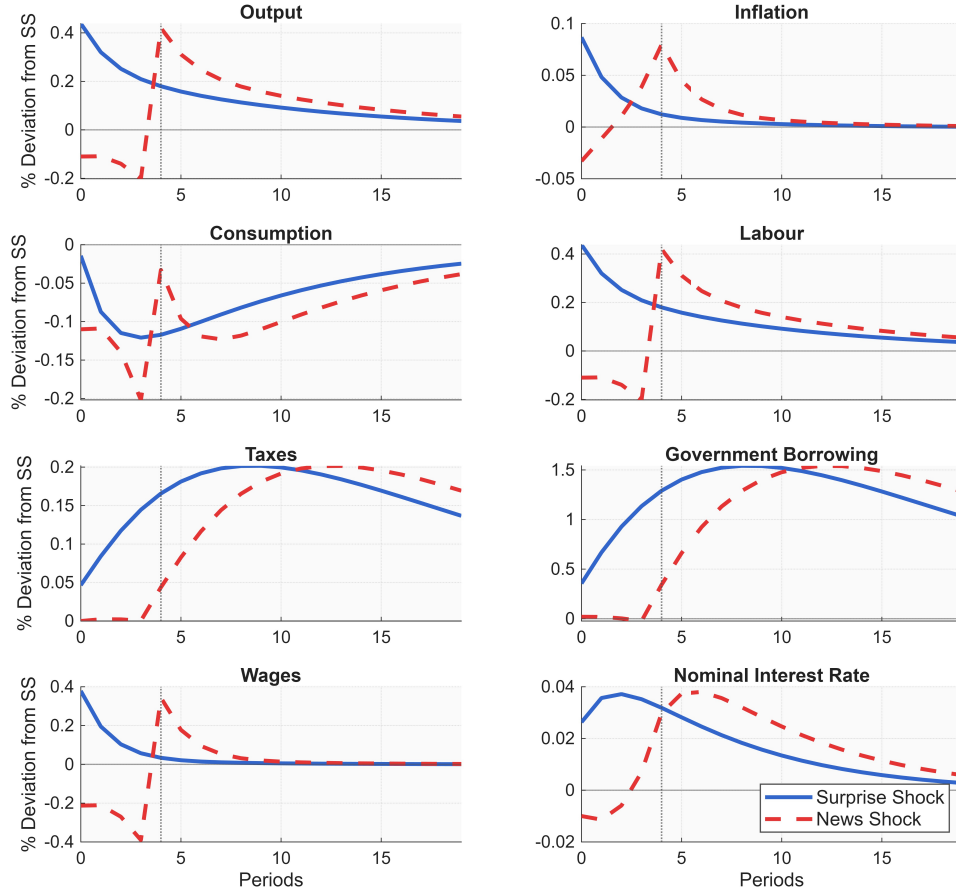
Figure 3 displays the responses to surprise and news shocks in regime M , and Figure 4 the corresponding responses of consumption inequality, $\gamma_t^{SH} = c_t^S - c_t^H$.

A surprise government spending shock raises aggregate demand and, due to sticky prices, inflation, wages, and hours worked increase. Taxes and government debt increase, and the central bank raises the policy rate. Savers, who internalise the higher present value of government borrowing, reduce consumption and absorb the new debt issuance. Hand-to-mouth households instead consume out of the higher labour income generated by the expansion. This is the direct labour-income channel of implemented spending identified in Proposition 2. Because H income is more cyclical than that of savers ($\chi > 1$), the wage expansion compresses the consumption gap between the two groups, and inequality falls on impact (Figure 4). Aggregate private consumption is mildly crowded in on impact before turning negative as the fiscal expansion is absorbed. In either phase, the output response comfortably satisfies the sign condition of Proposition 2.¹⁰

A news shock in regime M is contractionary during the anticipation period as consumption,

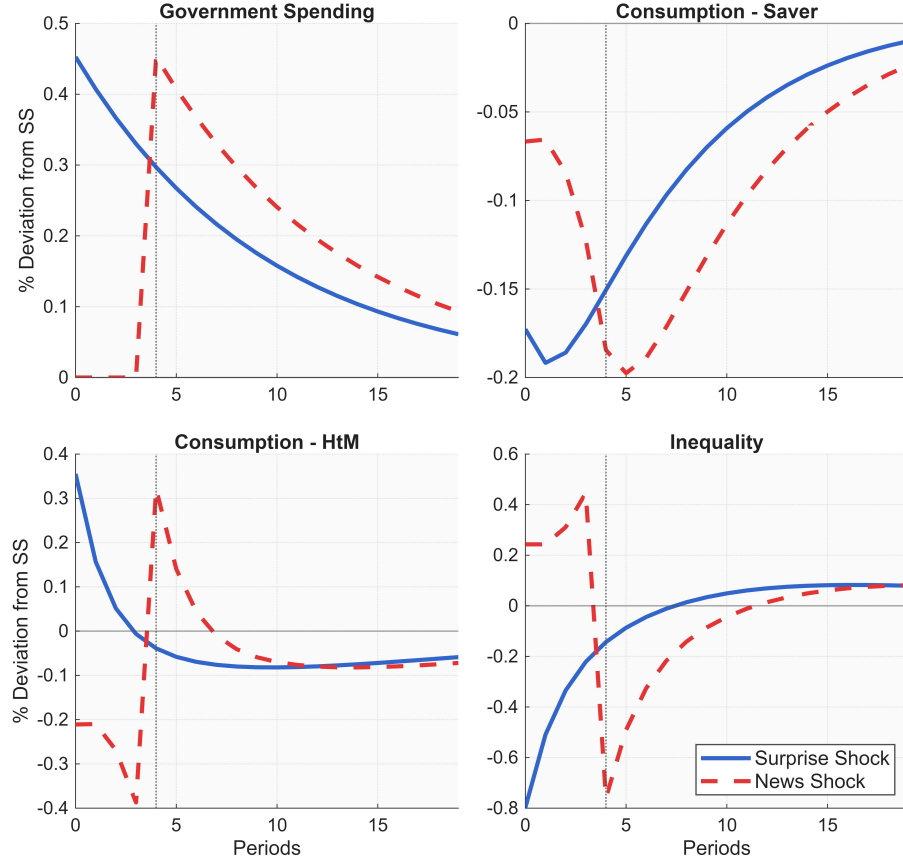
¹⁰In the full model, the relevant output response threshold differs from the balanced-budget value $1/(1 + \eta)$ of Proposition 2, since contemporaneous taxes no longer fall on H households one-for-one with spending. The sign of the inequality response, rather than the threshold formula, is therefore the object of interest in the full model.

Figure 3: Regime M: responses to surprise and news government spending shocks



Notes: Impulse responses to an anticipated (news, announced $N = 4$ quarters ahead) and an unanticipated (surprise) government spending shock in the monetary-led regime. All series are in per cent deviations from steady state, except the interest rate, which is in absolute deviations. The vertical line marks the implementation date of the news shock.

Figure 4: Regime M: response of consumption inequality



Notes: Impulse response of consumption inequality between savers and hand-to-mouth households, $\gamma_t^{SH} = c_t^S - c_t^H$, to an anticipated (news, announced $N = 4$ quarters ahead) and an unanticipated (surprise) government spending shock in the monetary-led regime. The vertical line marks the implementation date of the news shock.

output, hours, and wages all fall ahead of implementation, echoing the aggregate findings of Ascari et al. (2023). The mechanism is the one identified in Corollary 1. Announced spending has not yet entered the households' budget, so it moves current consumption only through the expected path of real interest rates. Under the active rule, households anticipate higher real rates once spending is elevated, and the present value of this expected tightening depresses savers' demand already at announcement. The induced contraction lowers wages, which hurts hand-to-mouth households disproportionately, while savers are partially insulated by the countercyclical increase in profits. Consumption inequality therefore rises upon announcement (Figure 4). Once spending is implemented, the direct labour-income channel switches on and inequality falls, tracing a trajectory similar to that of the surprise shock. This reversal at the implementation date is exactly the asymmetry highlighted in the previous subsection, which attributes the wedge between news and surprise shocks to a channel that exists only for implemented spending.

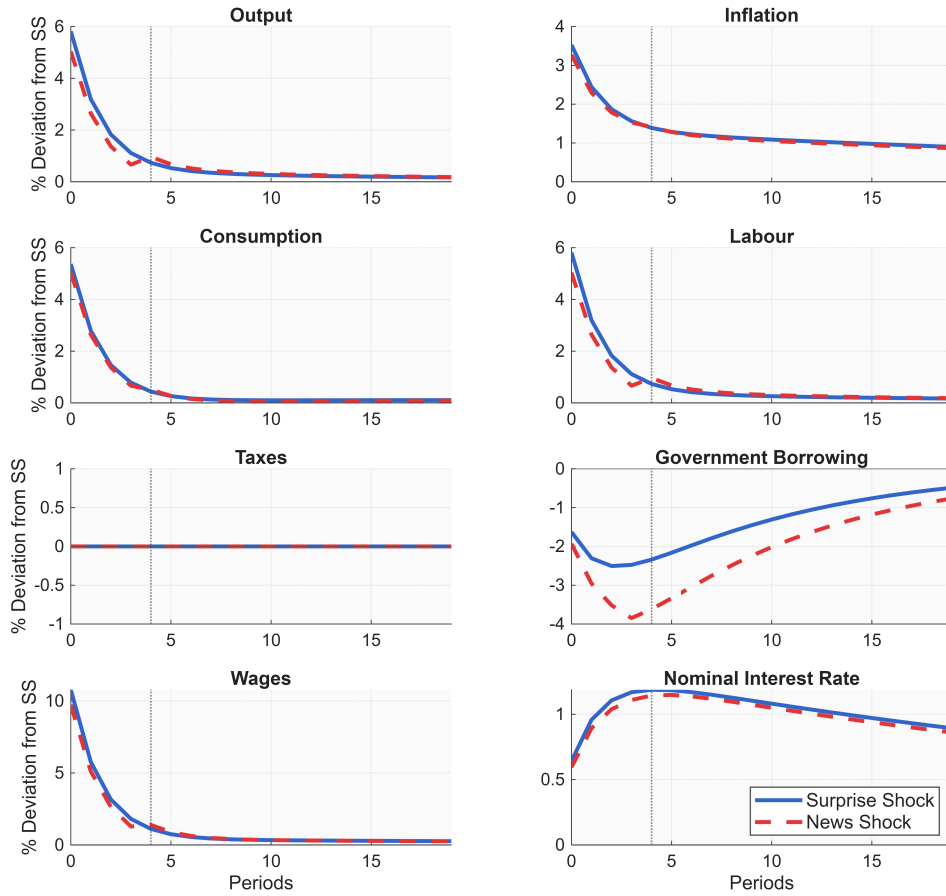
Two features of the interest rate responses illustrate how Corollary 1 operates in general equilibrium. First, the nominal policy rate falls on announcement of the news shock. This is not monetary accommodation. The anticipation period contraction lowers inflation and output, and the Taylor rule prescribes a lower nominal rate in response. The cumulative expected real rate, by contrast, rises, dominated by the implementation phase in which spending is elevated, inflation is positive, and the active rule keeps real rates persistently high. It is this cumulative object, not the impact nominal response, that Corollary 1 identifies as the sufficient statistic. The announcement-date fall in consumption reflects the present value of the entire expected tightening, while the impact rate cut merely cushions it. Second, this decomposition cautions against inferring the policy regime from the impact response of the policy rate, which is an endogenous outcome of the contraction rather than a measure of the policy stance.

4.2.2 Fiscally-led regime

Figure 5 displays the responses in regime F , and Figure 6 the corresponding inequality responses. The two shocks now produce responses that are not just qualitatively similar but nearly identical, with no distinct anticipation phase for the news shock. The reason is that the operative channel is a revaluation that occurs at the announcement itself. Spending expansions are unbacked as taxes never adjust, so the announcement raises the present value of deficits, and equilibrium requires an immediate rise in the price level that devalues outstanding nominal debt. Real government debt falls on impact (Figure 5), while the bonds households hold constitute net wealth. Because the revaluation is triggered by the change in the expected fiscal path rather than by spending itself, it occurs when the news arrives, and the subsequent implementation date carries almost no additional information. The passive central bank lets inflation rise by more than the nominal rate, so the real rate falls; consumption, output, hours, and wages

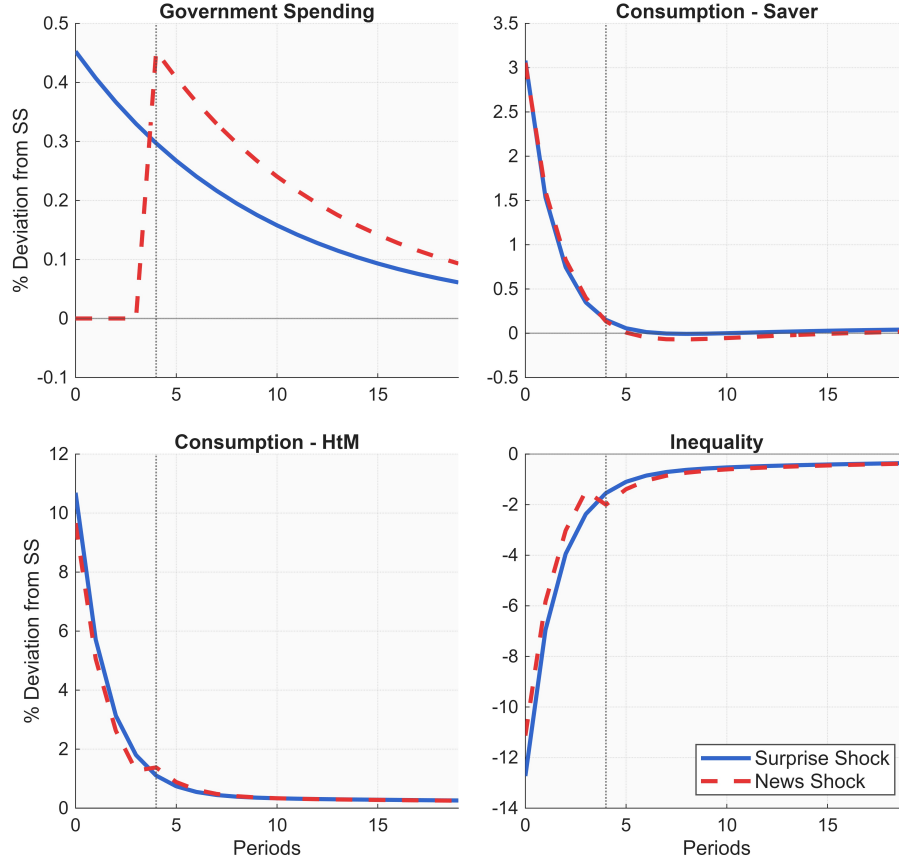
increase already at announcement. With aggregate consumption rising, Proposition 1 implies that inequality falls on announcement of a news shock, and the direct labour-income channel reinforces the compression once spending is implemented. Consumption inequality accordingly declines in response to both shocks (Figure 6), such that in regime F , the distributional effects of fiscal policy are essentially independent of its anticipation structure.

Figure 5: Regime F: responses to surprise and news government spending shocks



Notes: Impulse responses to an anticipated (news, announced $N = 4$ quarters ahead) and an unanticipated (surprise) government spending shock in the fiscally-led regime. All series are in per cent deviations from steady state, except the interest rate, which is in absolute deviations. The vertical line marks the implementation date of the news shock.

Figure 6: Regime F: response of consumption inequality

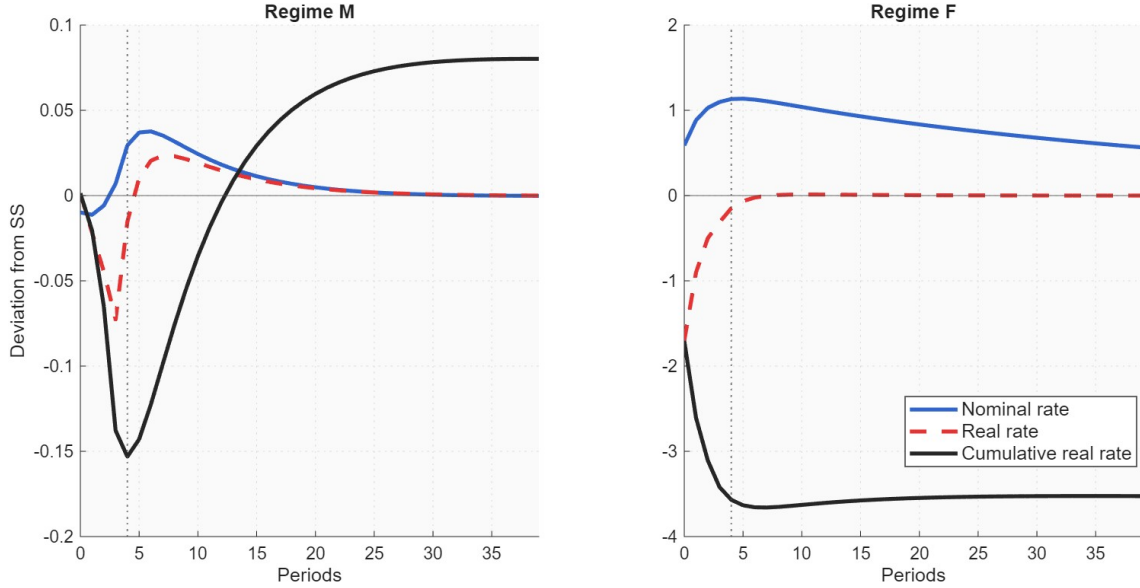


Notes: Impulse response of consumption inequality between savers and hand-to-mouth households, $\gamma_t^{SH} = c_t^S - c_t^H$, to an anticipated (news, announced $N = 4$ quarters ahead) and an unanticipated (surprise) government spending shock in the fiscally-led regime. The vertical line marks the implementation date of the news shock.

4.2.3 Validating the sufficient statistic

Corollary 1 states that the announcement effect of a news shock on inequality is governed by the cumulative expected real rate response, $\frac{d\gamma_0^{SH}}{dg_N} = \frac{\sigma(\chi-1)}{1-\lambda\chi} \frac{d\sum_j E_0 r_j}{dg_N}$.¹¹ Figure 7 assesses the same, where for each regime, we cumulate the impulse response of the real rate to the news shock, scale it by $\sigma(\chi-1)/(1-\lambda\chi)$ from equation (4.10), and compare the resulting prediction with the model's actual impact response of inequality.

Figure 7: Validating Corollary 1: the cumulative real-rate response to a news shock



Notes: Response of the nominal interest rate (solid), the ex-ante real interest rate $r_t = r_t^N - E_t \pi_{t+1}$ (dashed), and the (running) cumulative real rate $\sum_{j=0}^t E_0 r_j$ (solid, in bold) to a government spending news shock announced $N = 4$ quarters ahead, in the monetary-led (left) and fiscally-led (right) regimes. The vertical line marks the implementation date. In both regimes the impact nominal rate falls, yet the cumulative real rate settles at a plateau that is positive in the monetary-led regime and negative in the fiscally-led regime; scaled by $\sigma(\chi-1)/(1-\lambda\chi)$, this plateau reproduces roughly 93% of the model's impact inequality response in each regime. Series are in absolute deviations from steady state.

The cumulative real rate response is positive in the monetary-led regime and negative in the fiscally-led regime, correctly signing the announcement effect on inequality in both cases. Quantitatively, the prediction accounts for approximately 93% of the actual impact response in each regime; the residual reflects the deficit-financing terms - savers' response to expected

¹¹This relation is exact in the balanced-budget economy of Section 4.1 but only approximate in the full model. In this case, the effect of higher government borrowing operates on savers' consumption alongside the rate channel, and debt introduces an endogenous state.

government borrowing and the endogenous debt state - which are absent from the analytical benchmark. The cumulative expected real rate response thus remains the dominant determinant of the announcement effect in the full model, and does so symmetrically across the policy mix. In Appendix B.7, we show that this channel finds empirical support when the real rate is included in the VAR.

In sum, the quantitative model confirms the analytical characterisation. The labour-income channel of implemented spending compresses inequality in both regimes, while the announcement effect of news shocks inherits its sign from the cumulative expected real rate response and is therefore regime-contingent. Figure 7 makes the mechanism transparent. In both regimes the nominal policy rate falls on announcement, which might suggest monetary accommodation. But this impact response is transient; in the monetary-led regime, this masks a cumulative real-rate path that is positive, dominated by the implementation phase in which the active rule keeps real rates elevated. It is this cumulative object, not the impact nominal rate, that determines the distributional response. In that sense, this result is a caution against reading the policy stance, or its distributional consequences, from the sign of the impact interest rate response. These are the predictions against which we read the empirical evidence of Section 2, where the sample corresponds to a monetary-led regime.

5 Conclusion

This paper examines the distributional effects of government spending shocks, distinguishing between their unanticipated (surprise) and anticipated (news) components. We apply the identification strategy of Forni and Gambetti (2016) and study their transmission to CEX-based inequality measures. Our novel empirical finding consists in showing that the two components move consumption inequality in opposite directions. While surprise shocks reduce it, news shocks widen it.

A TANK model with a fiscal block rationalises both results and clarifies the role of the monetary-fiscal regime. The inequality response to either shock is summarised by the response of aggregate consumption. Implemented spending raises labour income immediately, benefiting hand-to-mouth households disproportionately. This channel is regime-invariant and explains why surprise shocks compress inequality under standard calibrations. Announced spending, by contrast, operates only through the expected path of real interest rates, precisely the object the policy regime governs. In the monetary-led regime, households anticipate persistently higher real rates over the spending episode, and the cumulative expected tightening depresses consumption at announcement, raising inequality until implementation. In the fiscally-led regime, the unbacked expansion is perceived as a wealth gain, and the accommodative central bank lets real rates fall, so consumption rises already at announcement, and news and surprise

shocks alike compress inequality.

Our empirical results pertain to a sample that the literature identifies with a monetary-led regime, and match the model’s predictions for that regime. The fiscally-led predictions constitute a testable implication for historically fiscal-dominant episodes.

Two lessons follow. First, distributional evaluations of fiscal policy that pool anticipated and unanticipated components, or pool across policy regimes, average over responses of opposite sign. Second, fiscal forward guidance is not distributionally neutral; announcing spending in advance redistributes toward or away from constrained households depending on the monetary-fiscal mix, so the distributional consequences of fiscal communication cannot be assessed separately from the stance of monetary policy.

References

- ANDERSON, E., A. INOUE, AND B. ROSSI (2016a): “Heterogeneous Consumers and Fiscal Policy Shocks,” *Journal of Money, Credit and Banking*, 48, 1877–1888.
- (2016b): “Heterogeneous Consumers and Fiscal Policy Shocks,” *Journal of Money, Credit and Banking*, 48, 1877–1888.
- ASCARI, G., P. BECK-FRIIS, A. FLORIO, AND A. GOBBI (2023): “Fiscal foresight and the effects of government spending: It’s all in the monetary-fiscal mix,” *Journal of Monetary Economics*, 134, 1–15.
- AUCLERT, A. (2019): “Monetary policy and the redistribution channel,” *American Economic Review*, 109, 2333–2367.
- AUCLERT, A., M. ROGNLIE, AND L. STRAUB (2024): “The intertemporal keynesian cross,” *Journal of Political Economy*, 132, 4068–4121.
- BECK-FRIIS, P. AND T. WILLEMS (2017): “Dissecting fiscal multipliers under the fiscal theory of the price level,” *European Economic Review*, 95, 62–83.
- BIANCHI, F. AND C. ILUT (2017): “Monetary/fiscal policy mix and agents’ beliefs,” *Review of economic Dynamics*, 26, 113–139.
- BIANCHI, F. AND L. MELOSI (2017): “Escaping the great recession,” *American Economic Review*, 107, 1030–1058.
- BILBIE, F. O. (2008): “Limited asset markets participation, monetary policy and (inverted) aggregate demand logic,” *Journal of economic theory*, 140, 162–196.
- (2020): “The new keynesian cross,” *Journal of Monetary Economics*, 114, 90–108.

- (2025): “Monetary policy and heterogeneity: An analytical framework,” *Review of Economic Studies*, 92, 2398–2436.
- BILBIE, F. O., T. MONACELLI, AND R. PEROTTI (2013): “Public debt and redistribution with borrowing constraints,” *The Economic Journal*, 123, F64–F98.
- (2024): “Stabilization vs. Redistribution: The optimal monetary–fiscal mix,” *Journal of Monetary Economics*, 147, 103623.
- BLANCHARD, O. AND R. PEROTTI (2002): “An Empirical Characterization of the Dynamic Effects of Changes in Government Spending and Taxes on Output,” *The Quarterly Journal of Economics*, 117, 1329–1368.
- CANTORE, C. AND L. B. FREUND (2021): “Workers, capitalists, and the government: fiscal policy and income (re) distribution,” *Journal of monetary economics*, 119, 58–74.
- COIBION, O., Y. GORODNICHENKO, L. KUENG, AND J. SILVIA (2017a): “Innocent Bystanders? Monetary policy and inequality,” *Journal of Monetary Economics*, 88, 70–89.
- (2017b): “Innocent Bystanders? Monetary policy and inequality,” *Journal of Monetary Economics*, 88, 70–89.
- DE GIORGI, G. AND L. GAMBETTI (2012): “The Effects of Government Spending on the Distribution of Consumption,” *Barcelona School of Economics Working Papers*, 645.
- DHITAL, S., S. JIANG, AND J. REESE (2023): “Effects of monetary and government spending policy on economic inequality,” *Journal of Macroeconomics*, 77, 103547.
- FORNI, M. AND L. GAMBETTI (2014): “Sufficient information in structural VARs,” *Journal of Monetary Economics*, 66, 124–136.
- (2016): “Government spending shocks in open economy VARs,” *Journal of International Economics*, 99, 68–84.
- GALÍ, J., J. D. LÓPEZ-SALIDO, AND J. VALLÉS (2007): “Understanding the Effects of Government Spending on Consumption,” *Journal of the European Economic Association*, 5, 227–270.
- HAGEDORN, M., I. MANOVSKII, AND K. MITMAN (2019): “The fiscal multiplier,” Tech. rep., National Bureau of Economic Research.
- LEEPER, E. M. (1991): “Equilibria under ‘active’ and ‘passive’ monetary and fiscal policies,” *Journal of monetary Economics*, 27, 129–147.

- LEEPER, E. M., A. W. RICHTER, AND T. B. WALKER (2012): “Quantitative effects of fiscal foresight,” *American Economic Journal: Economic Policy*, 4, 115–144.
- LEEPER, E. M., T. B. WALKER, AND S. S. YANG (2013): “Fiscal Foresight and Information Flows,” *Econometrica*, 81, 1115–1145.
- MA, E. (2019): “The Heterogeneous Responses of Consumption between Poor and Rich to Government Spending Shocks,” *Journal of Money, Credit and Banking*, 51, 1999–2028.
- MANGIANTE, G. AND P. MEICHTRY (2025): “On the Distributional Effects of Conventional Monetary Policy and Forward Guidance,” Working Paper 996, Banque de France.
- MCCRACKEN, M. W. AND S. NG (2021): “FRED-QD: A Quarterly Database for Macroeconomic Research,” *Federal Reserve Bank of St. Louis*, 103, 1–44.
- MERTENS, K. AND M. O. RAVN (2011): “Understanding the aggregate effects of anticipated and unanticipated tax policy shocks,” *Review of Economic dynamics*, 14, 27–54.
- RAMEY, V. A. (2011): “Can Government Purchases Stimulate the Economy?” *Journal of Economic Literature*, 49, 673–85.

A Data appendix

- Federal government consumption expenditures and gross investment (BEA: B823RG)
- Gross domestic product (BEA: A191RC)
- Federal budget surplus: receipts (BEA: W018RC1) minus spending (BEA: W019RC1)
- 10-year Treasury constant maturity rate (FRED: DGS10)
- Federal funds rate (FRED: DFF).
- Real exchange rate (FRED: TWEXM)
- Corporate profits (after tax) (FRED: CP)
- Consumer confidence (FRED: CSCICP03USM665S)
- GDP deflator (BEA: A191RI)

B Empirical appendix

B.1 Informational sufficiency

We follow Forni and Gambetti (2014) and test the informational sufficiency of our baseline VAR model by regressing the government spending surprise shock on principal components extracted from the FRED-QD (McCracken and Ng, 2021). Table B.3 shows the p -value of F-tests on the joint significance of various lag combinations (up to 4) of each principal component.

PC	Lag 1	Lag 1:2	Lag 1:3	Lag 1:4
1	0.59	0.66	0.83	0.92
2	0.18	0.35	0.48	0.65
3	0.86	0.90	0.89	0.96
4	0.67	0.25	0.28	0.37
5	0.50	0.76	0.44	0.17
6	0.40	0.70	0.11	0.19
7	0.79	0.63	0.79	0.83

Table B.3: Testing for informational sufficiency (medium-scale VAR).

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

B.2 Full IRFs

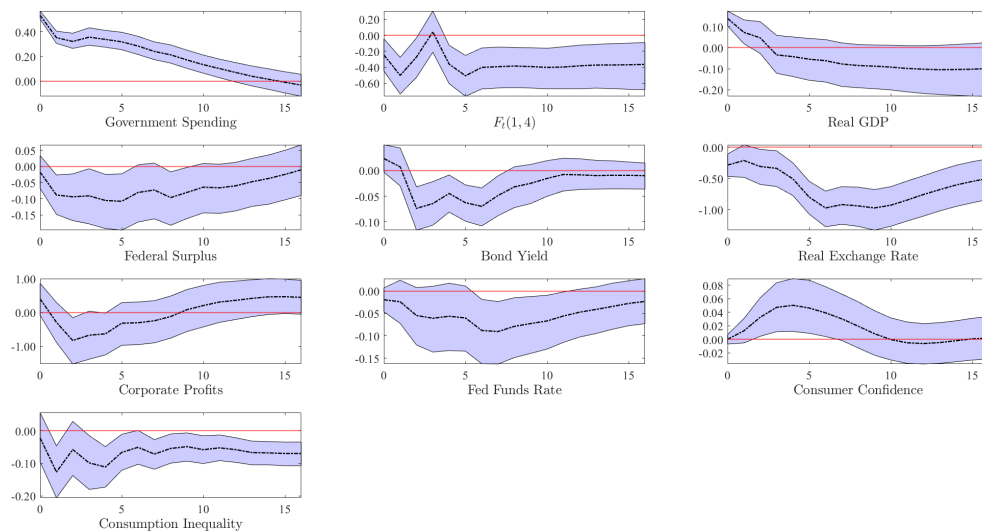


Figure B.8: IRFs to a government spending surprise shock.

Notes: Black line is the point-wise posterior median response. Shaded bands are 68% equal-tailed credibility intervals.

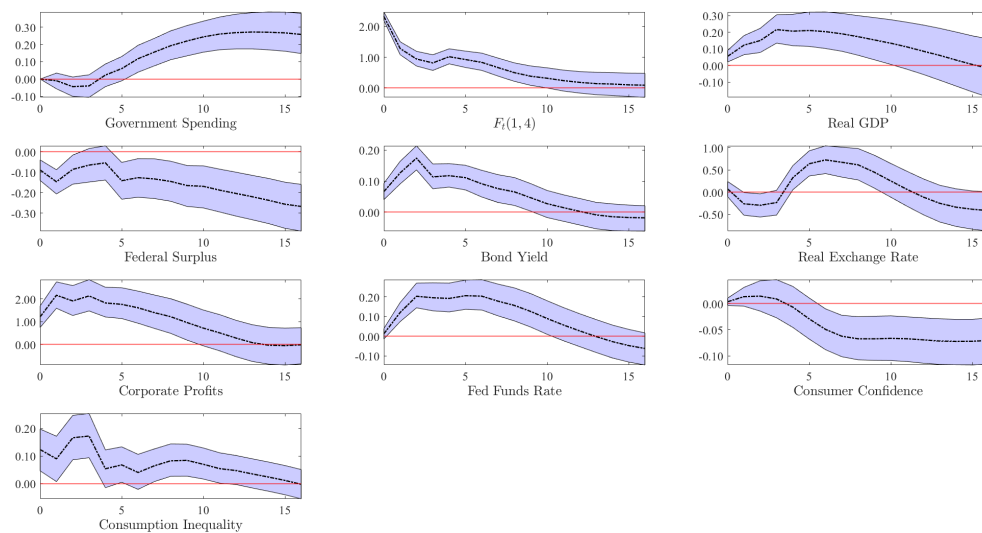


Figure B.9: IRFs to a government spending news shock.

Notes: Black line is the point-wise posterior median response. Shaded bands are 68% equal-tailed credibility intervals.

B.3 Shocks series

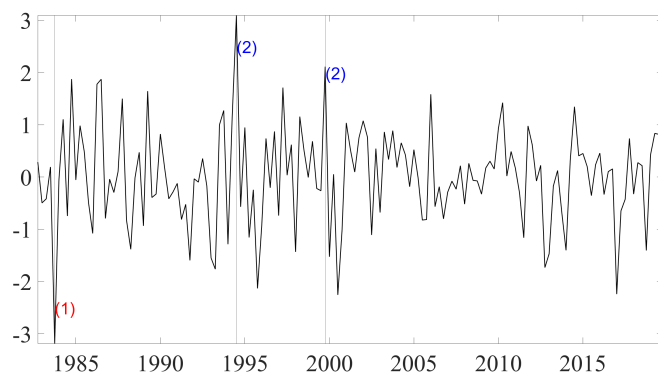


Figure B.10: Median surprise shock.

1. Reagan's nondefense spending cuts (1983Q4);
2. Military procurement upticks (1994Q3, 1999Q4).

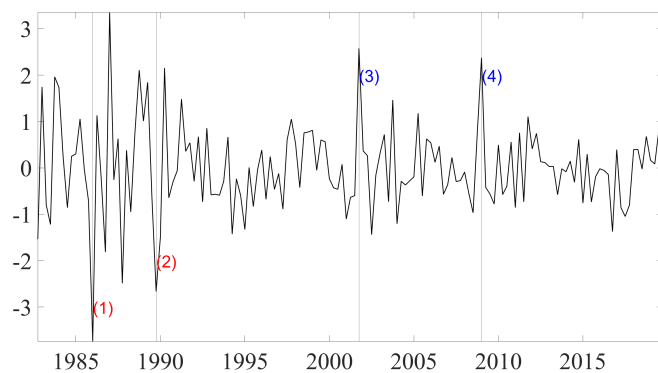


Figure B.11: Median news shock.

1. Emergency Deficit Control Act (1986Q1);
2. Berlin Wall fall (1989Q4);
3. Afghanistan War (2001Q4);
4. Obama Fiscal Stimulus (2009Q1).

B.4 $n_t(1, 4)$

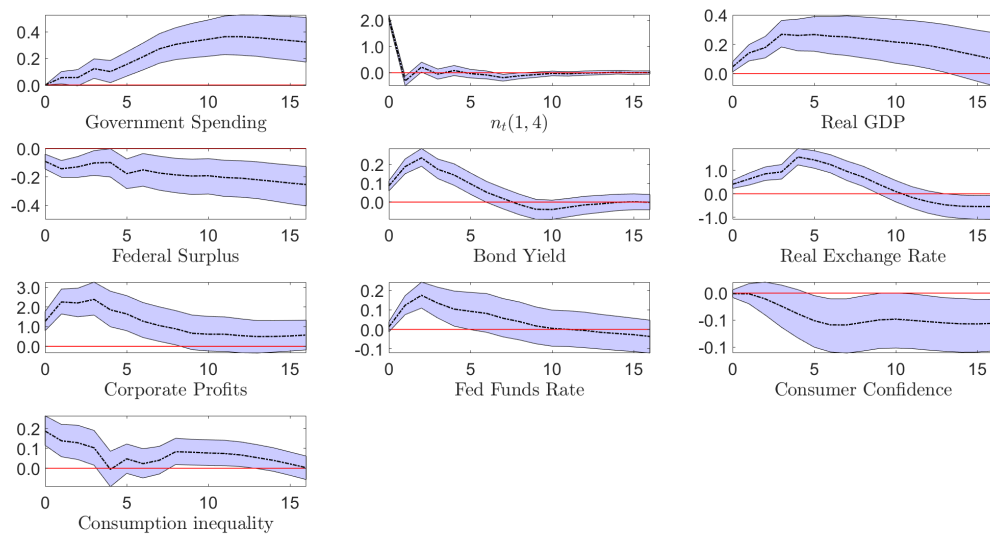


Figure B.12: IRFs to a news shock to government spending, $n_t(1, 4)$.

Notes: Black line is the point-wise posterior median response. Shaded bands are 68% equal-tailed credibility intervals.

B.5 Alternative inequality measures

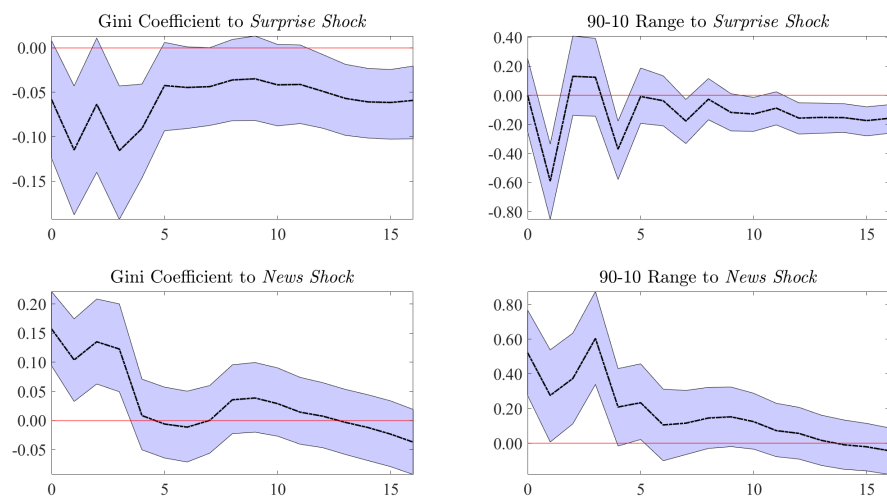


Figure B.13: IRFs to a government spending surprise shock.

Notes: Black line is the point-wise posterior median response. Shaded bands are 68% equal-tailed credibility intervals.

B.6 FAVAR

We show that a FAVAR delivers similar results to those obtained from our benchmark VAR. We start from a small-scale VAR containing: (i) real federal government consumption expenditures and gross investment; (ii) real GDP; (iii) federal budget surplus as share of nominal GDP; (iv) 10-year Treasury constant maturity rate. The model is informationally deficient, as the surprise shock is predicted by PC5 and PC6 (Table B.4). We ensure informational sufficiency by augmenting it with the first five factors from FRED-QD (Table B.5). IRFs from the FAVAR (Figure B.14 and B.15) confirm the results from the medium-scale VAR.

PC	Lag 1	Lag 1:2	Lag 1:3	Lag 1:4
1	0.62	0.69	0.87	0.94
2	0.13	0.20	0.31	0.43
3	0.95	0.79	0.93	0.97
4	0.55	0.21	0.19	0.28
5	0.72	0.92	0.22	0.10*
6	0.35	0.50	0.01**	0.02**
7	0.75	0.80	0.91	0.96

Table B.4: Testing for informational sufficiency (small-scale VAR),

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

PC	Lag 1	Lag 1:2	Lag 1:3	Lag 1:4
1	-	-	-	-
2	-	-	-	-
3	-	-	-	-
4	-	-	-	-
5	-	-	-	-
6	0.78	0.35	0.12	0.19
7	0.70	0.58	0.78	0.88

Table B.5: Testing for informational sufficiency (small-scale VAR + 5 PC),

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

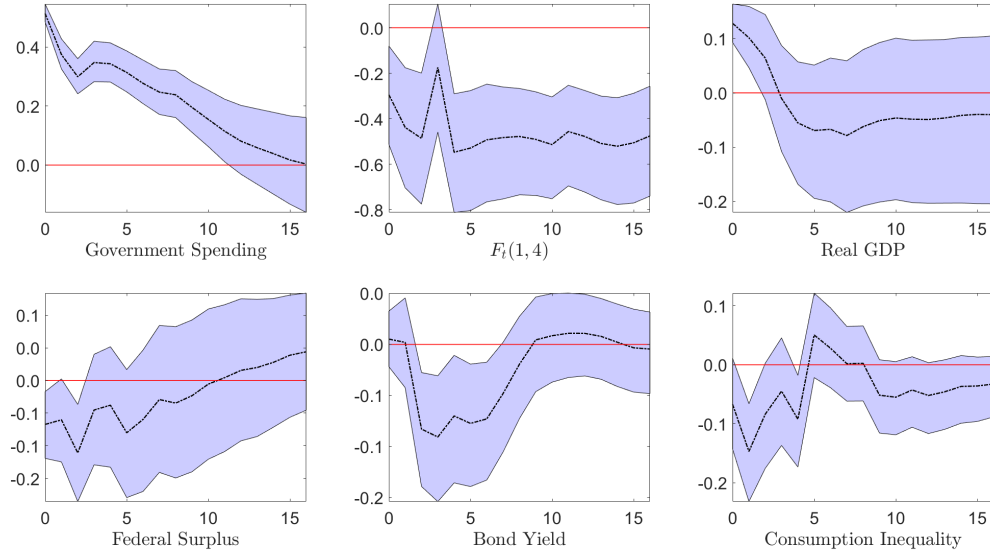


Figure B.14: IRFs to a surprise shock to government spending.

Notes: Black line is the point-wise posterior median response. Shaded bands are 68% equal-tailed credibility intervals.

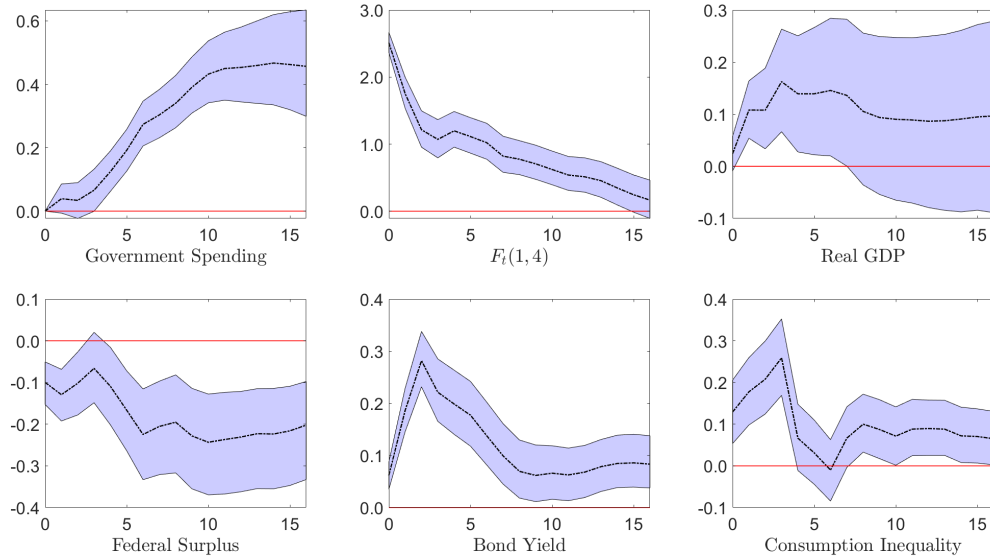


Figure B.15: IRFs to a news shock to government spending.

Notes: Black line is the point-wise posterior median response. Shaded bands are 68% equal-tailed credibility intervals.

B.7 Real rate response to a government spending news shock

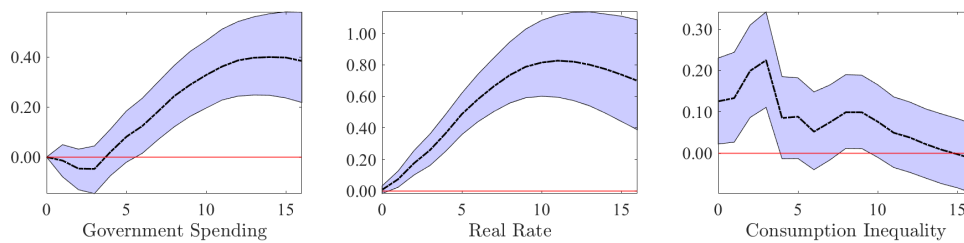


Figure B.16: Real-rate IRFs to a government spending news shock.

Notes: IRFs for selected variables. Black line is the median response. Shaded bands are 68% confidence intervals. The real rate is the 10-year real interest rate estimated by the Federal Reserve Bank of Cleveland, included in the VAR in place of the 10-year Treasury constant maturity rate.