Uneven Frictions, Uneven Households: The Inequality Trade-off of Monetary Policy*

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Abstract

Does the location of financial frictions significantly change the distributional consequences of monetary policy? Using a HANK model, I compare transmission under firm-side and household-side financial accelerators. I document a state-dependent trade-off: while firm-side frictions amplify wealth inequality by depressing labor income, household-side frictions generate a significantly larger spike in consumption inequality. This divergence is driven by the behavior of the household borrowing spread and its impact on agents near the zero-wealth threshold. Under firm frictions, households use credit to smooth indirect income shocks; under household frictions, rising spreads directly choke off liquidity, trapping a larger share of agents in hand-to-mouth status. These findings highlight that the "inequality cost" of monetary policy depends critically on the specific origin of credit market stress

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1 Introduction

The distributional consequences of monetary policy have become a central theme in macroeconomic research. The development of Heterogeneous Agent New Keynesian (HANK) models has established that the transmission of aggregate shocks depends critically on the distribution of wealth and the marginal propensities to consume (MPC) of different households (Auclert, 2019; Kaplan et al., 2018). However, while this literature has successfully moved beyond the Representative Agent framework, it often retains a simplified view of credit markets, typically assuming exogenous borrowing limits or frictionless financial intermediation for households.

This abstraction is at odds with empirical reality. Financial frictions, manifesting as endogenous interest rate spreads, are a defining feature of business cycles and policy transmission. Crucially, these frictions are not uniform: for instance, they can originate in the corporate sector or the household sector. This paper addresses a specific, policy-relevant question: does the location of the financial friction, whether it burdens firms or households, matter for the distributional footprint of monetary policy?

To answer this, I develop a quantitative HANK model incorporating two distinct sources of financial acceleration: (i) a friction on productive firms' ability to raise external capital, modeled via the costly state verification framework of Bernanke et al. (1999), and (ii) a friction on household borrowing, where spreads rise with aggregate household leverage, following Cúrdia and Woodford (2016). By activating these channels separately, I conduct a comparative analysis of how monetary tightening propagates through income and wealth distributions. The comparison reveals the differentiated transmission mechanisms that policymakers must consider in light of the financial conditions in place. My analysis yields three main contributions.

First, I document a divergence in inequality outcomes depending on the active friction. When financial frictions originate in the firm sector, monetary tightening generates a sharp rise in wealth inequality but a more muted response in consumption inequality. Conversely, when frictions constrain household borrowing, the result is a steep rise in consumption inequality with a smaller impact on wealth dispersion. This suggests that the "inequality cost" of monetary tightening is state-dependent: in a corporate credit crunch, the cost is concentrated in wealth concentration; in a consumer credit crunch, it manifests as consumption disparities.

Second, I uncover the mechanism driving this divergence: the behavior of households near the zero-wealth threshold. Under firm-side frictions, the primary channel is, using the terminology of Kaplan et al. (2018), "indirect." The financial accelerator depresses investment and labor demand, lowering wages for the working poor. However, because household credit markets remain more liquid, these agents can borrow to smooth consumption, mitigating the immediate utility loss. In contrast, when frictions affect households directly, the transmission is "direct." The rising spread on unsecured debt acts as a deterrent to smoothing. This traps a larger share of households in Hand-to-Mouth (HtM) status, forcing them to cut consumption aggressively in response to income shocks.

Third, this paper bridges the gap between the HANK literature and the broader literature on financial frictions. Whereas prior studies tend to examine household or corporate spreads in isolation, this study explicitly disentangles the trade-offs between frictions at the corporate and household levels. This approach yields findings consistent with empirical evidence: in line with Nakajima and Ríos-Rull (2019), the model reproduces the countercyclical behavior of unsecured credit spreads, providing a structural explanation for the surge in consumption inequality when household credit conditions tighten. Furthermore, the results replicate recent empirical evidence showing a positive correlation between spreads and inequality measures (e.g., Ciganovic et al., 2025; Faccini et al., 2024; Ferlaino, 2025), particularly for consumption dispersion.[1]

Related Literature — This paper connects three strands of macroeconomic literature: heterogeneous agent modeling, monetary policy transmission mechanisms, and financial frictions.

First, the model builds upon the foundational literature on household heterogeneity and incomplete markets (Imrohoroğlu, 1989; Huggett, 1993; Aiyagari, 1994). Recent advances in this field have focused on computational methods to handle aggregate shocks within complex distributions. My framework relies on the linearization techniques developed by Reiter (2009) and further refined by Bayer and Luetticke (2020) and Auclert et al. (2021), which allow for a tractable analysis of transition dynamics in environments with rich heterogeneity.

Second, this study contributes to the analysis of monetary policy transmission in

[1] Empirical studies frequently use consumption inequality as a preferred measure, given the relative scarcity and lower reliability of wealth data, especially in the US.

HANK models. Kaplan et al. (2018) established the decomposition of monetary impulses into "direct" effects (intertemporal substitution) and "indirect" effects (general equilibrium income changes). While standard HANK models emphasize the dominance of indirect effects via labor income (e.g., Auclert, 2019; Luetticke, 2021), this paper demonstrates how the location of financial frictions alters the balance between these two channels. Specifically, I show that household-side frictions reinvigorate the direct channel by manipulating the cost of consumption smoothing for constrained agents.

Third, and most significantly, this work expands the literature integrating HANK models with financial frictions. Building on the literature on asymmetric information and moral hazard between lenders and borrowers (e.g., Bernanke et al., 1999; Gertler and Karadi, 2011), recent work has increasingly examined how these frictions intersect with wealth and consumption inequality. On the firm side, Fernández-Villaverde et al. (2023), Chiang and Żoch (2022) and Ferlaino (2025) examine how corporate financial constraints affect aggregate demand and the wealth distribution. My analysis adds to this line of research by disentangling the inequality effects attributable to firm-level deleveraging from those produced by constraints on household borrowing capacity. On the household side, a growing body of work incorporates endogenous household spreads into HANK frameworks. Ferrante and Gornemann (2025) and Nord et al. (2024) analyze how banking sector losses and deposit constraints impact redistribution. Closest to this paper is Faccini et al. (2024), who explore the interaction of endogenous borrowing spreads and consumption dynamics. However, while they focus on volatility and the role of risk premia, my analysis centers on the distributional trade-off between consumption and wealth inequality triggered by monetary tightening. Lee (2020) and Lee (2024) highlight the role of profit dynamics and quantitative easing in shaping consumption and wealth inequality. In contrast, I provide a structural explanation for why different credit environments generate divergent inequality profiles, a distinction that clarifies the specific mechanisms driving the results in this broader literature.

The remainder of this paper is organized as follows. Section 2 outlines the model. Section 3 explains the calibration strategy. Section 4 displays results. Section 5 gives summary conclusions.

2 The model

To rigorously isolate the distributional impact of each transmission channel, I employ a unified framework rather than comparing distinct models. I construct a single HANK economy featuring both corporate and household financial frictions, ensuring a common steady-state baseline. I then conduct counterfactual analyses by activating the endogenous spread mechanism for one sector at a time while holding the other fixed at its steady-state level.[2]

The model economy comprises households, financial intermediaries, a production sector, a central bank, and a fiscal authority. Households consume, supply labor, and manage a single liquid asset, earning income from wages and profits. Crucially, this asset market allows for borrowing, subject to an interest rate spread that represents the penalty on unsecured debt. Financial intermediation is split into two specialized sectors: commercial banks, which intermediate household credit, and investment banks, which finance corporate capital accumulation. The production sector generates final goods and investment capital. The central bank conducts monetary policy via a nominal interest rate rule, while the government acts as the fiscal authority, determining the financing of public expenditure. The optimization problem for each agent is detailed below.

2.1 Households

There is a continuum of ex-ante identical households of measure one indexed by $i \in [0, 1]$. They are infinitely lived, have time-separable preferences with a time discount factor β.

Following Bayer et al. (2019) and Bayer et al. (2024), I assume households have Greenwood–Hercowitz–Huffman (GHH) preferences (Greenwood et al., 1988),[3] and maximize the discounted sum of utility:

$$V = E_0 \max_{\{c_{it}, l_{it}\}} \sum_{t=0}^{\infty} \beta^t u \left(c_{it} - G(h_{it}, l_{it})\right) \ . \tag{1}$$

[2]Because both frictions rely on an interest rate spread, the active' friction is defined as the one for which the spread fluctuates endogenously in response to aggregate conditions. The inactive' friction maintains a constant spread.

[3]As discussed in Bayer et al. (2024), the motivation for employing GHH preferences lies in the finding that many DSGE models of business cycles exhibit limited aggregate wealth effects on labor supply. However, as pointed out by Auclert et al. (2023), introducing GHH preferences in heterogeneous-agent frameworks could result in amplified fiscal and monetary multipliers. This issue is unlikely to affect the validity of our comparison, since both scenarios experience the same distortion.

where c_{it} is consumption for household i and $G(h_{it}, l_{it})$ is a function of productivity, h_{it}, and labor supplied, l_{it}, representing household leisure.

The felicity function features Constant Relative Risk Aversion (CRRA):

$$u(x_{it}) = \frac{x_{it}^{1-\xi}}{1-\xi} , \tag{2}$$

where $\xi \geq 0$ is the risk-aversion parameter, and $x_{it} = (c_{it} - G(h_{it}, l_{it}))$ is household i's composite demand for goods consumption and leisure. The function G measures the disutility from work.

Goods consumption bundles differentiated goods j according to a Dixit–Stiglitz aggregator:

$$c_{it} = \left(\int c_{ijt}^{\frac{\eta-1}{\eta}} \, dj \right)^{\frac{\eta}{\eta-1}} . \tag{3}$$

Each of these differentiated goods is offered at price p_{jt}, so that for the aggregate price level, $P_t = \left(\int p_{jt}^{1-\eta} dj \right)^{\frac{1}{1-\eta}}$, the demand for each of the varieties is given by:

$$c_{ijt} = \left(\frac{p_{jt}}{P_t} \right)^{-\eta} c_{it} . \tag{4}$$

The disutility of work, $G(h_{it}, l_{it})$, determines a household's labor supply given the aggregate wage rate, W_t , and a labor income tax, τ, through the first-order condition:

$$\frac{\partial G(h_{it}, l_{it})}{\partial l_{it}} = (1-\tau) W_t h_{it} . \tag{5}$$

Assuming that G has a constant elasticity with respect to labor, I can write:

$$\frac{\partial G(h_{it}, l_{it})}{\partial l_{it}} = (1+\gamma) \frac{G(h_{it}, l_{it})}{l_{it}} , \tag{6}$$

with $\gamma > 0$ being the Frisch elasticity of labor supply. The expression of the composite good can be simplified, making use of (5) and (6):

$$x_{it} = c_{it} - G(h_{it}, l_{it}) = c_{it} - \frac{(1-\tau) W_t h_{it} l_{it}}{1+\gamma} . \tag{7}$$

Since the Frisch elasticity of labor supply is a constant parameter, the disutility of labor is always a constant fraction of labor income. Therefore, in both the household budget constraint and its felicity function, only after-tax income enters, and neither hours worked nor productivity appears separately. This implies that, as suggested by Bayer et al. (2019), it can be assumed that $G(h_{it}, l_{it}) = h_{it}\frac{l_{it}^{1+\gamma}}{1+\gamma}$ without further loss of generality, as long as we treat the empirical distribution of income as a calibration target. This functional form simplifies the household problem, as h_{it} drops out from the first-order condition, and all households supply the same number of hours $l_{it} = L(W_t)$. Total effective labor input, $\int l_{it}h_{it}di$, is therefore equal to $L(W_t)$ since $\int h_{it}di = 1$. [4]

There are two types of household: workers and rentiers. Workers supply labor, L_t, in the production sector and have positive idiosyncratic labor productivity, $h_{it} > 0$. Their income is $W_t h_{it} L_t$. Rentiers have zero labor productivity, $h_{it} = 0$, but collect a proportional share of total profits generated from the production sector, Π_t. Idiosyncratic labor productivity h_{it} follows an exogenous Markov chain according to the following first-order autoregressive process and a fixed probability of transition between the worker and rentier state:

$$h_{it} = \begin{cases} \exp(\rho_h \log(h_{it-1}) + \epsilon_{it}^h) & \text{with probability } 1-\zeta \text{ if } h_{it-1} \neq 0 \\ 1 & \text{with probability } \iota \text{ if } h_{it-1} = 0 \\ 0 & \text{else} \end{cases} \tag{8}$$

with $\epsilon_{it}^h \sim N(0, \sigma_h)$. The parameter $\zeta \in (0,1)$ is the probability that a worker becomes a rentier and $\iota \in (0,1)$ is the probability that a rentier becomes a worker. As stated above, workers that become rentiers leave the labor market ($h_{it} = 0$), while rentiers that become workers are endowed with median productivity ($h_{it} = 1$).[5] Workers and rentiers pay the same level of taxation, τ, on their income.

The asset market is incomplete: there are no Arrow-Debreu state-contingent securities; households self-insure themselves only through savings in a non-state contingent risk-free liquid asset, a_{it}, and they can borrow up to an exogenous borrowing limit. The household i budget constraint is:

$$c_{it} + a_{it+1} = \left(\frac{R_t^I}{\pi_t}\right) a_{it} + (1-\tau)(W_t h_{it} L_t + \mathbf{I}_{h_{it}=0}\Pi_t) \ , \qquad a_{it} \geq \underline{a} \ , \tag{9}$$

[4] More specifically, deriving the FOC with respect to labor of the households' optimization problem, making use of the new assumed $G(h_{it}, l_{it})$, and combining it with (5), we obtain $l_{it} = [(1-\tau)W_t]^{\frac{1}{\gamma}} = L_t$, since l_{it} depends only on aggregate variables.

[5] Section A contains details on the transition matrix for household productivity.

where $\mathbf{I}_{h_{it}=0}$ takes value 1 if household i is a rentier, or 0 otherwise. On the left-hand side, we have households' expenditure, that is, consumption, c_{it} and 1-year-maturity savings/borrowings, a_{it+1}. The right-hand side corresponds to households' total earnings, that is, the work/rent income net of taxes, $(1-\tau)(W_t h_{it} L_t + \mathbf{I}_{h_{it}=0}\Pi_t)$, plus earnings (expenses) from savings (borrowings) in the liquid asset, $\left(\frac{R_t^I}{\pi_t}\right) a_{it}$. π_t is the gross inflation rate, while R_t^I is the gross nominal return on liquid assets. Borrowing households pay a "penalty", ω_t^H, on the interest rate when they ask for a loan. The debt in question is unsecured, lacking any collateral, and can be thought of as analogous to credit card debt. Therefore, R_t^I has two definitions based on household i's wealth:

$$R_t^I = \begin{cases} R_t & \text{if } a_{it} \geq 0 \\ R_t(1+\omega_t^H) & \text{if } a_{it} < 0 \end{cases} \tag{10}$$

According to (7), total goods consumption can be expressed as $c_{it} = x_{it} + \frac{(1-\tau)W_t h_{it} l_{it}}{1+\gamma}$. By substituting this equation into (9), I can rewrite the household budget constraint in terms of composite consumption, x_{it}:

$$x_{it} + a_{it+1} = \left(\frac{R_t^I}{\pi_t}\right) a_{it} + (1-\tau)\left(\frac{\gamma}{1+\gamma} W_t h_{it} L_t + \mathbf{I}_{h_{it}=0}\Pi_t\right) , \qquad a_{it} \geq \underline{a} \ . \tag{11}$$

Equation (11) states that, in this model, what matters for households is the intertemporal allocation of composite consumption, x_{it}, rather than total goods consumption, c_{it}.

The model tracks only net household financial positions. Aggregate liquidity, $A_t = \int a_{it} di$, comprises household savings, and borrowings, B_t. In turn, households can save in three types of deposits that yield the same interest rate: deposits directed to commercial banks and used for household loans, D_t^H, deposits directed to investment banks and used for firm loans, D_t^F, and government bonds, D_t^G. Therefore, I can write the aggregate level of liquidity in the hands of households as:

$$A_t = D_t^H + D_t^F + D_t^G - B_t \ . \tag{12}$$

Since these three saving instruments yield the same interest rate, households are completely indifferent to their portfolio composition.[6]

2.2 Financial intermediaries

Financial intermediaries collect deposits from households and promise returns equal to the risk-free interest rate. There are two types of intermediaries: commercial banks, which specialize in intermediations among households, and investment banks, which specialize in intermediation between households and the production sector.[7] These two types of financial intermediaries define the different types of financial frictions introduced in the model. First, I explain how commercial banks act before moving to investment banks.

2.2.1 Commercial Banks - Financial frictions on households

Commercial banks act similarly to the financial intermediaries in Cúrdia and Woodford (2016). I assume that banks can lend at most an amount that suffices to allow them to repay what they own to their depositors, considering the higher loan rate that households must pay when borrowing. This implies:

$$R_t(1 + \omega_t^H)B_t = R_t D_t^H \ . \tag{13}$$

Furthermore, when originating loans, commercial banks burn resources according to a non-decreasing, weakly convex function of the aggregate level of household debt, $\Xi_t(B_t)$.[8] Therefore, end-of-the-period profits for commercial banks are:

$$\Pi_t^{com} = D_t^H - B_t - \Xi_t(B_t) \ . \tag{14}$$

Using (13), (14) can be rewritten as:

$$\Pi_t^{com} = \omega_t^H B_t - \Xi_t(B_t) \ . \tag{15}$$

Since commercial banks are in perfect competition, a bank chooses B_t that maximizes

[6] For sake of simplicity, I assume that the portfolio composition of any saver household is the same, and equal to the aggregate level of the three saving instruments.

[7] While this terminology does not align precisely with the formal definitions of commercial and investment banks, it serves to intuitively distinguish the roles of the two types of intermediaries under consideration.

[8] Strict convexity of $\Xi_t(B_t)$ would indicate increasing costs owing to a capacity constraint, e.g. the scarcity of available managerial time (see Cúrdia and Woodford, 2016).

profits, leading to the F.O.C.:

$$\omega_t^H = \Xi_t'(B_t) \ , \tag{16}$$

with the function $\Xi_t(B_t) = \tilde{\Xi} B_t^{\eta^{FF}}$, with $\tilde{\Xi}$ and η^{FF} being calibrated parameters.

Result (16) directly links the penalty on household borrowings, ω_t^H, to the aggregate level of household debt. An increase in household indebtedness economy-wide results in a higher borrowing penalty, causing further depression in economic activities.

2.2.2 Investment Banks - Financial frictions on firms

Investment banks collect deposits from households and promise returns equal to the real risk-free interest rate, R/π. For ease of display, I assume that the production sector is run by entrepreneurs, who are a mass-zero group of managers who are entitled to all the profits generated in the production sector and rebate them to rentier households. Investment banks and entrepreneurs are responsible for the other financial friction considered in this model. Following Bernanke et al. (1999), I assume a continuum of entrepreneurs, indexed by j. Entrepreneur j acquires capital, K_j, from capital producers at the end of period t which is used at time $t+1$. To buy capital for production, entrepreneurs rely on two type of financing: internal financing (equity), N_j, and external financing (debt), D_j^F, borrowed from investment banks.

Entrepreneur j's balance sheet at period $t+1$ is:

$$q_t K_{jt+1} = N_{jt+1} + D_{jt+1}^F \ , \tag{17}$$

where q is the price of capital during the purchasing period.

One prerequisite for the financial accelerator to work is that entrepreneurs are not indifferent to the composition of their balance sheets; that is, external financing is more expensive than internal financing. To do so, I introduce a "Costly State Verification" (CSV) problem à la Townsend (1979) in which lenders (investment banks) must pay an auditing cost in order to observe the realized returns of borrowers (entrepreneurs). A relatively higher demand for debt increases auditing costs, resulting in a lower level of aggregate capital obtained for production.

Entrepreneurs repay investment banks with a portion of their realized returns on capital. In this framework, entrepreneurs are risk-neutral, whereas households are risk-averse. This implies a loan contract in which entrepreneurs absorb any aggregate risk on the realization of their profits. I also assume the existence of an idiosyncratic shock to entrepreneur j, ω_j^F,[9] on the gross return on aggregate capital, R^K. The idiosyncratic shock ω^F has a log normal distribution of mean $E(\omega^F) = 1$ that is i.i.d. across time and entrepreneurs, with a continuous and once differentiable c.d.f., $F(\omega^F)$.[10]

The optimal contract for investment banks is:

$$\bar{\omega}_{jt+1}^F R_{t+1}^K q_t K_{jt+1} = Z_{jt+1} D_{jt+1}^F \ , \tag{18}$$

where Z_j is the gross non-default loan rate and $\bar{\omega}_j^F$ is the threshold value for entrepreneur j such that, for $\omega_{jt+1}^F \geq \bar{\omega}_{jt+1}^F$, entrepreneur j repays $Z_{jt+1}D_{jt+1}$ to banks and retains $\omega_{jt+1}^F R_{t+1}^K q_t K_{jt+1} - Z_{jt+1}D_{jt+1}$. In the case of $\omega_{jt+1}^F < \bar{\omega}_{jt+1}^F$, instead, she cannot repay and defaults on her debt, obtaining nothing. Since entrepreneurs' future realizations of capital returns are only known by entrepreneurs ex-post, investment banks must pay an auditing cost, μ, to recover what is left of entrepreneur j's activity after default, obtaining $(1-\mu)\omega_{jt+1}^F R_{t+1}^K q_t K_{jt+1}$.

Because of the optimal contract, investment banks should receive an expected return equal to the opportunity cost of their funds. By assumption, they hold a perfectly safe portfolio (i.e., they are able to perfectly diversify the idiosyncratic risk involved in lending), and the opportunity cost for investment banks is the real gross risk-free rate, R/π. It follows that the participation constraint for investment banks that must be satisfied in each period $t+1$ is:

$$[1 - F(\bar{\omega}_{jt+1}^F)] Z_{jt+1} D_{jt+1} + (1-\mu) \int_0^{\bar{\omega}_{jt+1}^F} \omega_j^F dF(\omega_j^F) R_{t+1}^K q_t K_{jt+1} \geq \frac{R_{t+1}}{\pi_{t+1}} D_{jt+1} \ , \tag{19}$$

where $F(\bar{\omega}_j^F)$ is entrepreneur j default probability. Since financial markets are in perfect competition, (19) must hold with equality. The first term on the left-hand side of (19) represents the revenues received by investment banks from the fraction of entrepreneurs

[9]As noted by Christiano et al. (2014), ω^F could be thought of as the idiosyncratic risk in actual business ventures: in the hands of some entrepreneurs, a given amount of raw capital is a great success, while in other cases may be not.

[10]Section B.1 provides analytical expressions for $F(\omega^F)$ and other functions used in the following equations.

that do not default, whereas the second term is what investment banks can collect from defaulting entrepreneurs after paying monitoring costs.

Following the notation proposed in Christiano et al. (2014), I combine (17), (18), and (19) to write the following relationship:

$$EFP_{jt+1} = f\left(\bar{\omega}^F_{jt+1}, LEV_{jt+1}\right) \ , \ \text{with} \ f'(LEV_{jt+1}) > 0 \ . \tag{20}$$

where EFP is the "External Finance Premium" that Bernanke et al. (1999) define as the ratio between the return on capital and the real risk-free rate, $R^K / (R/\pi)$, and $LEV = qK/N$ is entrepreneur j's leverage. The EFP can be considered a measure of the cost of external funds for the entrepreneur and, therefore, as a proxy for the strength of financial frictions. The $\left(\bar{\omega}^F_{jt+1}, LEV_{jt+1}\right)$ combinations that satisfy (20) define a menu of state $(t+1)$-contingent standard debt contracts offered to entrepreneur j, who chooses the contract that maximizes its objective.

In Section B.2, I illustrate the entrepreneur j's optimization problem, which provides three important outcomes. First, the EFP increases monotonically with LEV. This means that entrepreneurs with a higher level of leverage pay a higher EFP. Second, the threshold value for entrepreneur j's default, $\bar{\omega}^F_j$, is endogenously defined by the EFP. Third, the fact that $\bar{\omega}^F_j$ depends only on the aggregate variables (R, R^K and π) implies that every entrepreneur will choose the same firm structure, that is, $\bar{\omega}^F$ and LEV. Therefore, it is possible to drop superscript j in the notation and consider a representative entrepreneur.

The other fundamental equation for the functioning of this financial accelerator is the law of motion for entrepreneurs' equity, which is expressed as follows:

$$N_{t+1} = \gamma^F \left[q_{t-1} R^K_t K_t - \frac{R_t}{\pi_t} D_t - \mu G(\bar{\omega}^F_t) q_{t-1} R^K_t K_t \right] \ . \tag{21}$$

Equation (21) states that entrepreneurs' equity after the production process at time t is equal to the gross return on capital net of the loan repayment and auditing costs (which are borne by entrepreneurs because they are risk-neutral). Parameter γ^F represents the share of surviving entrepreneurs who bring their equity to the production process from one period to the next. Conversely, the share of entrepreneurs $1-\gamma^F$ dies and consumes equity at time t (we can think of this as entrepreneurial consumption). As explained by Carlstrom et al. (2016), this assumption avoids excessive entrepreneurs' self-financing in the long run.

Alternatively, (21) can be written in a more compact form as:

$$N_{t+1} = \gamma^F \left[1 - \Gamma(\bar{\omega}_t^F)\right] R_t^K q_{t-1} K_t \ , \tag{22}$$

where $\left[1 - \Gamma(\bar{\omega}_t^F)\right]$ is the share of capital returns to which the non-defaulting entrepreneurs are entitled.[11] Equation (22), together with (20), explain this financial accelerator mechanism. Equation (20) states that an increase in entrepreneurs' leverage increases also the EFP. At the same time, (22) tells that an increase in the EFP increases $\bar{\omega}^F$ as well, negatively affecting entrepreneurs' equity level for the next period and, therefore, impacting the aggregate leverage.

2.3 Intermediate-goods producers

Intermediate-goods producers adopt a standard Cobb-Douglas production function with constant returns to scale, employing aggregate capital, K, supplied by entrepreneurs and labor, L, from workers:

$$Y_t = z_t L_t^{\alpha} K_t^{1-\alpha} \ , \tag{23}$$

where z is the Total Factor Productivity (TFP).

TFP follows a first-order autoregressive process of type:

$$\log(z_t) = \rho_z \log(z_{t-1}) + \epsilon_t^z \ , \tag{24}$$

with ϵ_t^z following a normal distribution with mean 0 and variance σ^z.

Intermediate goods producers sell their production to resellers at a relative price MC_t. Therefore, their profit optimization is given by:

$$\Pi_t^{IG} = MC_t z_t L_t^{\alpha} K_t^{1-\alpha} - w_t L_t - r_t^K K_t \ . \tag{25}$$

Since they are in perfect competition, their profit optimization problem returns the wage paid per unit of labor and the rent paid per unit of capital:

[11] See Section B.2

$$W_t = \alpha MC_t z_t \left(\frac{K_t}{L_t}\right)^{(1-\alpha)} , \tag{26}$$

$$r_t^K = (1-\alpha)\, MC_t z_t \left(\frac{L_t}{K_t}\right)^{\alpha} . \tag{27}$$

2.4 Resellers

Resellers are agents assigned to differentiate intermediate goods and set prices. Price adjustment costs follow a Rotemberg (1982) setup, and resellers preserve entrepreneurial characteristics.[12] The demand for the differentiated good g is:

$$y_{gt} = \left(\frac{p_{gt}}{P_t}\right)^{-\eta} Y_t , \tag{28}$$

where $\eta > 1$ is the elasticity of substitution and p_g is the price at which good g is purchased.

Given (28) and the quadratic costs of price adjustment, the resellers maximize:

$$E_0 \sum_{t=0}^{\infty} \beta^t Y_t \left\{ \left(\frac{p_{gt}}{P_t} - MC_t\right)\left(\frac{p_{gt}}{P_t}\right)^{-\eta} - \frac{\eta}{2\kappa}\left(\log \frac{p_{gt}}{p_{gt-1}}\right)^2 \right\} , \tag{29}$$

with a time-constant discount factor.[13]

The New Keynesian Phillips Curve (NKPC) derived from the F.O.C. for price setting is as follows:

$$log(\pi_t) = \beta E_t \left[\log(\pi_{t+1})\frac{Y_{t+1}}{Y_t}\right] + \kappa \left(MC_t - \frac{\eta - 1}{\eta}\right) , \tag{30}$$

where π_t is the gross inflation rate defined as $\frac{P_t}{P_{t-1}}$.

[12] Bayer et al. (2019) make the further assumption that price setting is delegated to a mass-zero group of households (managers) that are risk neutral and compensated by a share in profits. Since in my model the whole production sector is run by entrepreneurs that, by assumption, are risk neutral and entitled to all the profits generated in this sector, I do no need to make this further assumption.

[13] As explained by Bayer et al. (2019), only the steady-state value of the discount factor matters in the resellers' problem, due to the fact that I calibrate to a zero inflation steady-state, the same value for the discount factor of managers and households and approximate the aggregate dynamics linearly. This assumption simplifies the notation, since fluctuations in stochastic discount factors are virtually irrelevant.

2.5 Capital producers

After production at time t, entrepreneurs sell depreciated capital to capital producers at a price q_t. They refurbish depreciated capital at no cost,[14] and uses goods as investment inputs, I_t, to produce new capital, $\Delta K_{t+1} = K_{t+1} - K_t$, subject to quadratic adjustment costs. Finally, they resell the newly produced capital to entrepreneurs before entering the next period (therefore still at price q_t). The law of motion for capital producers is:

$$I_t = \Delta K_{t+1} + \frac{\phi}{2} \left(\frac{\Delta K_{t+1}}{K_t} \right)^2 K_t + \delta K_t \ . \tag{31}$$

where δ is the depreciation rate for capital.

Then, they maximize their profits, $q_t \Delta K_{t+1} - I_t$, w.r.t. newly produced capital, ΔK_{t+1}. This optimization problem delivers the optimal capital price:

$$q_t = 1 + \phi \frac{\Delta K_{t+1}}{K_t} \ . \tag{32}$$

Equation (32) ensures that if the level of aggregate capital increases over time, so does its price.

It follows that entrepreneurs' return on capital does not depend only on goods production, but also on fluctuations in capital price; since entrepreneurs buy capital at the end of the period, with the price of that period, they see their capital at the beginning of the next period appreciated (depreciated) if q increases (decreases). The gross return on capital employed at time t can be written as:

$$R_t^K q_{t-1} K_t = r_t^K K_t + q_t K_t (1 - \delta) \ , \tag{33}$$

where the first term on the right-hand side is the marginal productivity of capital derived in (27), and the second term represents eventual capital gains (or losses) net of depreciation. I can rearrange and finally derive the gross interest rate of capital as:

$$R_t^K = \frac{r_t^K + q_t (1 - \delta)}{q_{t-1}} \ . \tag{34}$$

[14] The "no cost" assumption does not mean that δK is refurbished for free. Capital producers still need to buy the exact amount of I necessary to refurbish depreciated capital, but do not waste any further resources in this process. In fact, the law of motion for capital producers in the steady-state (when $\Delta K = 0$) is $I = \delta K$.

2.6 Final-goods producers

Final-goods producers are perfectly competitive, buy differentiated goods from resellers at a given price, and produce a single homogeneous final good that is used for consumption, government spending, and investment. The optimization problem of final-goods producers is:

$$\max_{\{Y_t, y_{gt} \in [0,1]\}} P_t Y_t - \int_0^1 p_{gt} y_{gt} dg \ , \tag{35}$$

subject to the following Constant Elasticity of Substitution (CES) function:

$$Y_t = \left(\int_0^1 (y_{gt})^{\left(\frac{\eta-1}{\eta}\right)} dg \right)^{\left(\frac{\eta}{\eta-1}\right)} \ . \tag{36}$$

From the zero-profit condition, the price index of the final good is:

$$P_t = \left(\int_0^1 (p_{gt})^{(1-\eta)} \right)^{\left(\frac{1}{1-\eta}\right)} \ . \tag{37}$$

2.7 Central bank

The central bank is responsible for the monetary policy. It sets the gross nominal risk-free interest rate, R_t, reacting to the deviation from steady-state inflation, and engages interest rate smoothing. The Taylor-type rule employed by the central bank is as follows:

$$\frac{R_{t+1}}{\bar{R}} = \left(\frac{R_t}{\bar{R}} \right)^{\rho_R} \left(\frac{\pi_t}{\bar{\pi}} \right)^{(1-\rho_R)\rho_\pi} \epsilon_t^R \ , \tag{38}$$

where ϵ_t^R is the monetary policy shock defined as $\log(\epsilon_t^R) \sim N(0, \sigma_R)$. The parameter $\rho_R \geq 0$ rules the interest rate smoothing (if $\rho_R = 0$, the next-period interest rate depends only on inflation), whereas ρ_π captures the magnitude of the central bank's response to inflation fluctuations: the larger ρ_π, the stronger the central bank reaction (for the case limit $\rho_\pi \to \infty$, the inflation is perfectly stabilized at its steady-state level).

2.8 Government

The government acts as fiscal authority. It determines the level of public expenditure, G_t, tax revenues, T_t and issuance of new bonds, D^G_{t+1}. Its budget constraint is given by:

$$D^G_{t+1} = \left(\frac{R_t}{\pi_t}\right) D^G_t + G_t - T_t \ , \tag{39}$$

where T_t are the taxes collected from both workers and rentier households:

$$T_t = \tau \left[\int W_t L_t d\Theta_t(a,h) + \Pi_t\right] \ , \tag{40}$$

and $\Theta_t(a,h)$the joint distribution of liquid assets and productivity across households on date t.

Bond issuance is regulated by the following rules:

$$\frac{D^G_{t+1}}{\bar{D}^G} = \left(\frac{D^G_t \frac{R_t}{\pi_t}}{\bar{D}^G \frac{\bar{R}}{\bar{\pi}}}\right)^{\rho_{gov}} \left(\frac{T_t}{\bar{T}}\right)^{\rho_T} \ . \tag{41}$$

Coefficient ρ_{gov} captures how fast the government wants to balance its budget. When $\rho_{gov} \to 0$, the government aims to balance its budget by adjusting spending. Instead, when $\rho_{gov} \to 1$, the government is willing to roll over most of the outstanding debt. The parameter ρ_T denotes the degree to which the government adjusts its fiscal stance in response to fluctuations in tax revenues relative to their steady-state value.

2.9 Market clearing

The liquid asset market clears when:

$$\int a^*(a,h)\Theta_t(a,h)dadh = A_t \ , \tag{42}$$

where $a^*(a,h)$ is the optimal saving policy function of the household.

The market for capital clears for (31) and (32), while the labor market clears for (26).

Finally, good market clearing, which holds by Walras' law when other markets are clear, is defined as:

$$Y_t \left(1 - \frac{\eta}{2\kappa} \left(\log(\pi_t)\right)^2\right) = C_t + G_t + I_t + C_t^E + \mu G(\bar{\omega}_t^F) R_t^K q_{t-1} K_t + \Upsilon_t \ , \tag{43}$$

where on the left-hand side we have total output net of quadratic costs of price adjustment. On the right-hand side, apart from household good consumption, public expenditure and investments, we also find entrepreneurial consumption, C^E (due to dying entrepreneurs), auditing costs for investment banks, and resources used for household loans, $\Upsilon_t = \Xi_t(B_t) + \omega_t^H B_t$.[15]

2.10 Numerical implementation

To solve the model, I follow the solution proposed in Bayer and Luetticke (2020). Since the joint distribution, Θ_t, is an infinite-dimensional object (and therefore not computable), it is discretized and represented by its histogram, a finite-dimensional object. I solve the household's policy function using the Endogenous Grid-point Method (EGM) developed by Carroll (2006), iterating over the first-order condition and approximating the idiosyncratic productivity process using a discrete Markov chain with four states using the Tauchen (1986) method. The log grid for liquid assets comprises of 100 points. I solve for aggregate dynamics by first-order perturbation around the steady-state, as in Reiter (2009). The joint distribution is represented by a bi-dimensional matrix (there is no heterogeneity in the distribution of capital K) with a total of 400 grid points, maintaining a sufficiently low computational time.

3 Calibration

The model is calibrated on the US economy. Periods in the model represent quarters; consequently, the following values for the calibrated parameters are intended quarterly, unless otherwise specified. Table 1 provides a list of calibrated parameters for the model.

3.1 Households

For the households' utility function, I assume the coefficient of relative risk aversion $\xi = 4$, as in Bayer et al. (2019). I set the Frisch elasticity of labor supply $\gamma = 1$, in line with the

[15] Similarly to Kaplan et al. (2018), the last two terms in (43) can be considered as expenses for "financial services".

Table 1: Calibrated parameters

Description	Param.	Value	Source/target
Discount factor	β	0.985	$LEV = 2$
Relative risk aversion	ξ	4	Bayer et al. (2019)
Frisch elasticity of labor	γ	1	Chetty et al. (2011)
Borrowing constraint	$\underline{a}$	-10	HHs with $a \leq 0 \approx 11\%$
Prob. of leaving entr. state	ι	0.0625	Guvenen et al. (2014)
Prob. become rentier	ζ	0.001	Gini wealth $= 78\%$
Persistence of idio. prod. shock	ρ_h	0.98	Bayer et al. (2019)
SD of idio. prod. shock	σ_h	0.06	Bayer et al. (2019)
Labor share of production	α	0.7	standard value
Depreciation rate	δ	1.35%	standard value
Elasticity of substitution	η	20	mark-up $= 5\%$
Price stickiness	κ	0.09	average price duration $= 4$ quarters
Adjustment cost of capital	ϕ	5	I/Y volatility $=3$
Entr. surviving rate	γ^F	0.985	internally calibrated
TFP shock persistence	ρ_z	0.95	standard value
TFP shock SD	σ_z	1%	standard value
Nominal int. rate	R	1.005	2.5% p.a.
Int. rate smoothing	ρ^R	0.8	Clarida et al. (2000)
Reaction to inflation	ρ^π	1.5	standard value
Monetary shock SD for FFs on HHs	σ_R	0.25%	1% p.a.
Monetary shock SD for FFs on firms	σ_R	0.14%	Y response on impact
Tax rate	τ	0.3	$G/Y \approx 20\%$
Reaction to debt	ρ_{gov}	0.86	Bayer et al. (2019)
Reaction to tax rev.	ρ_T	0.01	I/Y volatility $=3$
Convex technology for HHs loans	η^{FF}	11.62	$\omega^H = 10\%$ p.a.
Comm. bank loans parameter	$\tilde{\Xi}$	$3.52e^4$	$\omega^H = 10\%$ p.a.
Auditing costs	μ	0.12	Bernanke et al. (1999)
SD of the id. shock on entr.	σ_ω	0.27	$EFP = 2\%$ p.a.

results of Chetty et al. (2011). The intertemporal discount factor, β, is equal to 0.985, so that deposits in investment banks are sufficient to have a leverage for entrepreneurs of 2, the same value used by Bernanke et al. (1999) in their model. The borrowing limit, $\underline{a}$, is calibrated to ensure that approximately 11% of households hold a net negative asset position, matching empirical estimates from Nakajima and Ríos-Rull (2019) based on 1998–2016 Survey of Consumer Finances (SCF) data.

The calibration of the productivity transition matrix, which determines how households move between the worker and rentier states, aims to provide a distribution of wealth consistent with empirical data. As in Luetticke (2021), I assume that the probability of becoming a rentier is the same for workers independent of their labor productivity, and that once they become workers again, they start with median productivity. The probability of leaving the rentier state is $\iota = 0.0625$, following the findings of Guvenen et al. (2014) on the probability of dropping out of the top 1% income group in the US. The probability of moving from the worker to the rentier state is set to $\zeta = 0.001$, a value calibrated to obtain a Gini coefficient for wealth of 78% (in line with data from the SCF). Regarding idiosyncratic income risk for labor productivity, I set autocorrelation $\rho_h = 0.98$ and standard deviation $\sigma_h = 0.06$, as estimated by Bayer et al. (2019). The resulting calibration also implies that the richest 10% of households hold 66% of total wealth, consistent with the 67% estimate provided by Lee et al. (2020) based on data from the World Inequality Database.

3.2 Financial intermediaries

Regarding commercial banks, I calibrate the household borrowing spread to 10% p.a., consistent with empirical estimates of credit card interest rate wedges reported in Maxted et al. (2025). This calibration is justified by the assumption, outlined in Section 2.1, that household debt in the model represents unsecured borrowing, such as credit card debt. For the borrowing cost function $\Xi_t(B_t)$, I follow Cúrdia and Woodford (2016), assuming that a one-percent increase in the volume of credit increases the borrowing spread by one percentage point annually. Given the targeted value $\omega^H = 10\%$ p.a., the above baseline calibration yields $\eta^{FF} = 11.62$ and $\tilde{\Xi} = 3.52e^4$.

The parameters governing financial frictions for firms are consistent with the calibration proposed by Bernanke et al. (1999). Specifically, the auditing cost is set to $\mu = 0.12$, the standard deviation of the idiosyncratic shock to entrepreneurial returns is $\sigma_\omega = 0.27$, and the survival rate of entrepreneurs is $\gamma^F = 0.985$. These values are calibrated to produce $EFP_t = 1.005$ (corresponding to a 2% annual corporate spread) when corporate leverage equals 2.

3.3 Production Sector

The labor share of production (accounting for profits) and capital depreciation rate follow standard values in the literature and are set respectively to $\alpha = 0.7$ and $\delta = 1.35\%$. The mark-up is also standard, at 5%, which implies elasticity of substitution between goods varieties $\eta = 20$. The price stickiness parameter in the NKPC, $\kappa = 0.09$, is calibrated to generate a slope of the curve similar to the one that would arise in a model with sticky prices à la Calvo, with an average price duration of four quarters. The adjustment cost of capital parameter is calibrated to $\phi = 5$ to obtain investment-to-output volatility of 3 after a TFP shock in a scenario where none of the frictions are active, a standard value for U.S. data.[16]

3.4 Central Bank and Government

Inflation at the steady-state is set to 0, and the nominal (therefore real) interest rate on government bonds is 2.5%. I impose the same interest rate on all types of liquid savings (i.e., bonds and bank deposits); otherwise, households would choose to invest only in one asset or the other. Regarding the Taylor rule adopted by the Central Bank, the parameter for interest rate smoothing is $\rho_R = 0.8$, according to findings by Clarida et al. (2000), whereas the reaction to inflation fluctuations from the steady-state is $\rho_\pi = 1.5$, which is a common value in the macroeconomic literature.

For comparison purposes, I apply two different magnitudes for the monetary policy shock in the two scenarios. The standard deviation of the monetary policy shock for the case with financial frictions on household borrowing ability is $\sigma_R = 0.25\%$. I then calibrate the shock for the other scenario to have a similar fluctuations in output between the two cases, delivering a parameter $\sigma_R = 0.14\%$ quarterly. The persistence of the shock is zero, implying that it is a one-time innovation.

[16]The TFP considered for this calibration has a standard deviation of $\sigma_z = 0.01$ and a persistence parameter of $\rho_z = 0.95$.

The taxes set by the government are proportional to labor income and profits, with a tax rate $\tau = 0.3$ that targets the ratio of government spending to GDP to a standard value in the New Keynesian literature, approximately $G/Y = 20\%$. Regarding the fiscal policy rule, I adopt the parametrization proposed by Bayer et al. (2019), setting $\rho_B = 0.86$.[17] This implies that most of the fiscal dynamics goes through government debt, with public spending adjusting to re-stabilize debt to its steady-state level. I set $\rho_T = 0.01$; while such a low value has a negligible effect on the main results, it facilitates achieving the target investment-to-output volatility, in conjunction with the calibration of ϕ.

4 Results

I begin by examining aggregate fluctuations following the monetary contraction. Analyzing these dynamics is essential not only to validate the model against standard theoretical benchmarks but also to identify the distinct transmission channels operative in each scenario. While the output response is normalized across cases, the composition of the downturn differs, foreshadowing the divergent distributional outcomes discussed in the subsequent sections.

4.1 Aggregate fluctuations

As detailed in Section 3.4, I calibrate the monetary shocks to generate equivalent peak output contractions across scenarios. Because the corporate financial accelerator generates significantly stronger aggregate amplification than the household friction, applying identical nominal shocks would conflate differences in transmission channels with differences in the sheer scale of the recession. By normalizing the aggregate output response, I isolate the distributional dynamics driven specifically by the location of the friction, independent of the recession's severity. Crucially, Section E demonstrates that these qualitative results hold even when identical nominal shocks are applied, confirming that the mechanism, not the calibration strategy, drives the findings

Figure 1 displays the responses for output, Y, and investment, I.[18] By construction, the drop in output is nearly identical in the first year across both scenarios. However,

[17] This parameter value is based on empirical estimates of the autocorrelation of government debt in the United States.

[18] More aggregate impulse responses can be found in Section D.1.

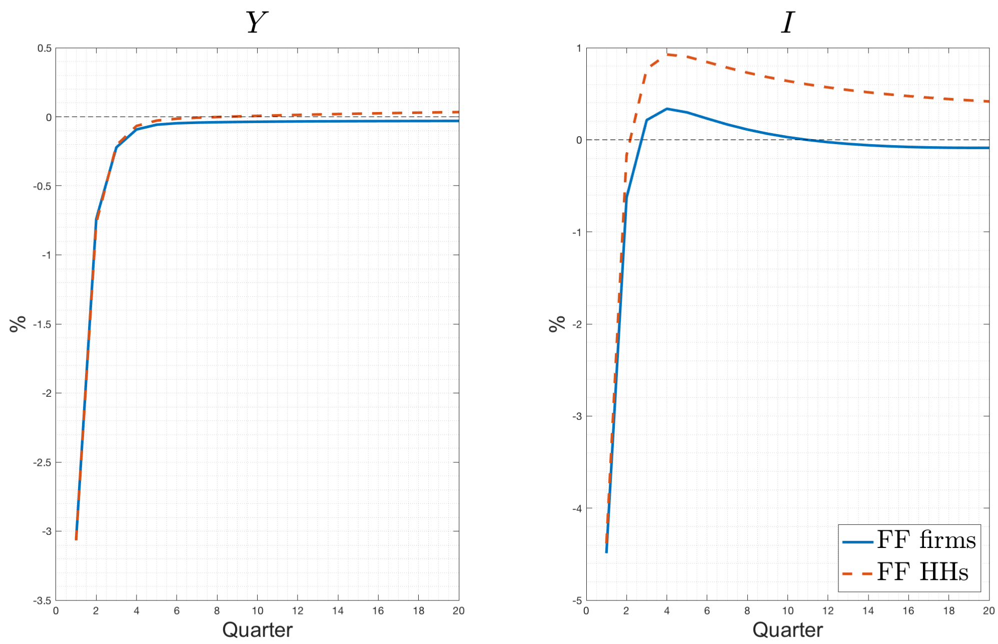

Figure 1: Impulse response to a monetary contraction for aggregate variables.
Note: monetary shock $\epsilon^R = 0.0025$ for active financial frictions on household borrowing, $\epsilon^R = 0.0014$ otherwise. The blue line refers to an economy with financial frictions on firms, the red dashed one when frictions are on households.

the recovery paths diverge: under household borrowing frictions (red dashed line), the recovery is rapid and slightly overshoots the steady state. In contrast, under firm frictions (blue solid line), output remains persistently below the steady state. Investment falls more sharply under firm frictions, and its recovery lacks the strong overshooting observed in the alternative scenario. This confirms that financial frictions in the production sector generate more persistent scarring effects on capital accumulation.

Consumption and labor dynamics are displayed in Figure 2. Goods consumption, C, falls more sharply on impact when frictions are active on households. While the initial decline is deeper, it eventually overshoots, overtaking the firm-friction scenario after approximately nine quarters. Labor dynamics, L, are virtually identical in both models. Consequently, the divergence in consumption patterns is driven almost entirely by the behavior of composite consumption, X. Under firm frictions, X rises immediately; under household frictions, it falls. Given that household utility depends on X, as shown in eq. (11), I focus the remainder of the analysis on composite consumption dynamics to better capture welfare implications.[19] In Section F, I extend the analysis to goods

[19]Note that the visual difference in terms of "curve behavior" between responses for X and C is mostly due to the magnitude of the fluctuations. For instance, if we focus on the on-impact difference between the two models, we observe a similar differential in both composite and goods consumption, but the order of magnitude of the Y-axis in Figure 2 is different for these two variables.

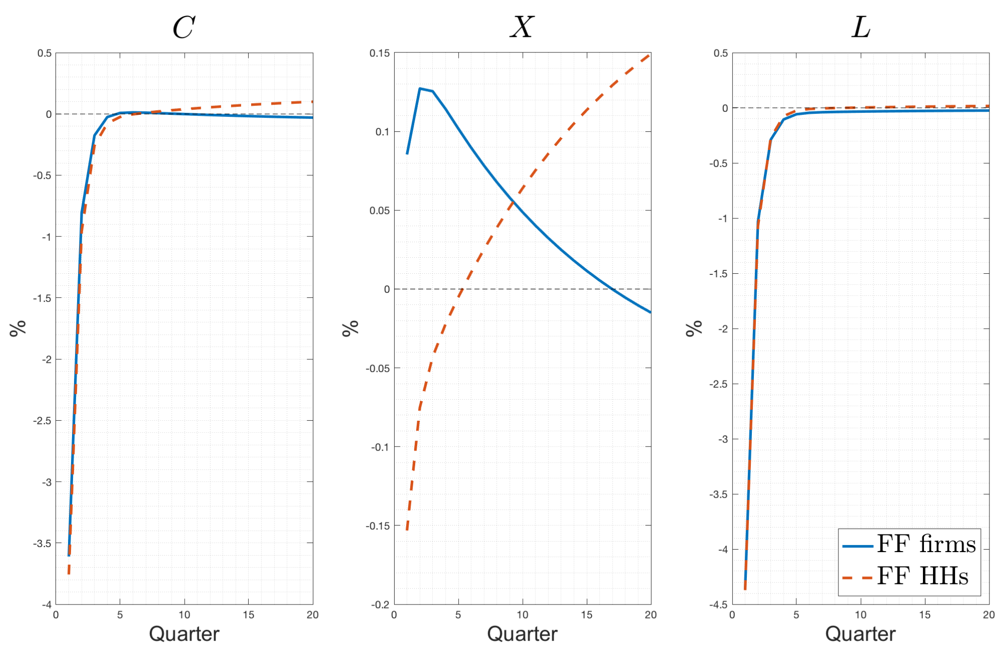

Figure 2: Impulse response to a monetary contraction for aggregate variables.

Note: monetary shock $\epsilon^R = 0.0025$ for active financial frictions on household borrowing, $\epsilon^R = 0.0014$ otherwise. The blue line refers to an economy with financial frictions on firms, the red dashed one when frictions are on households.

consumption and demonstrate that the core findings remain robust.

4.2 Wealth and consumption inequality

Using the Gini index for wealth and composite consumption, I now address the paper's core question: do financial frictions exert distinct effects on the distribution of household wealth and consumption after a contractionary monetary policy shock? The evolution of these indices for the two cases, represented by the blue solid and red dashed lines, is shown in Figure 3. To further clarify the role of distinct financial frictions in shaping household distributions, the comparison also includes impulse responses for a scenario with no active frictions, depicted by the green dotted line. In this benchmark case, the monetary shock is calibrated to yield an output response comparable to the other scenarios, resulting in a shock size very similar to that used when only household frictions are active.

Across all scenarios considered, the Gini indices for both wealth and consumption increase following a contractionary monetary policy shock, consistent with findings in the existing literature. Wealth inequality exhibits a hump-shaped response, whereas consumption inequality begins reverting immediately toward its steady state. Nonetheless, the reversion process is persistent for both measures. From these dynamics, several con-

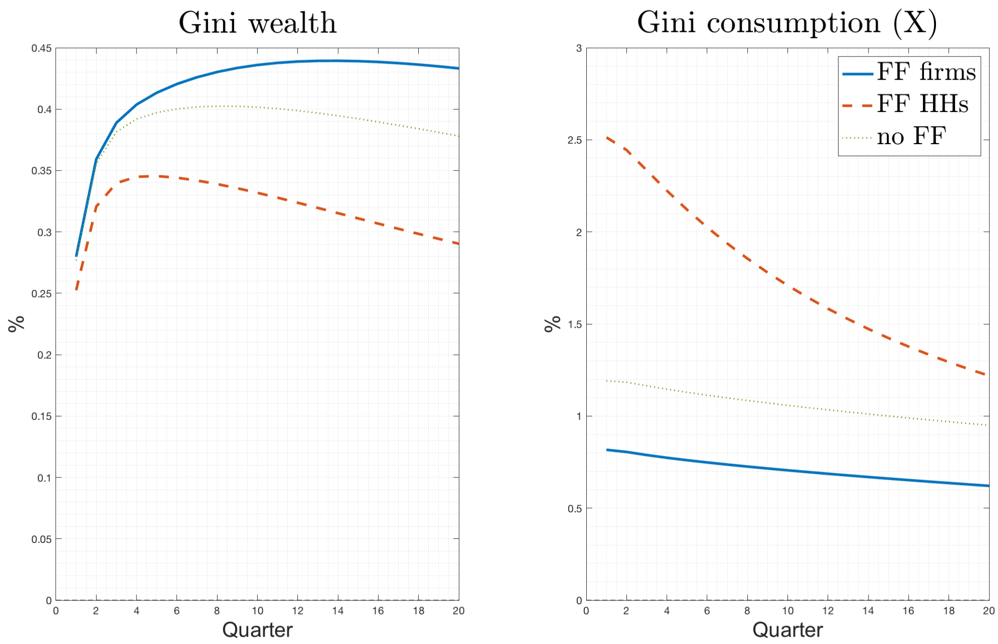

Figure 3: Impulse responses to a monetary contraction
for wealth and consumption inequality.

Note: monetary shock set to $\epsilon^R = 0.0025$ in cases where financial frictions on household borrowing are active, as well as in the frictionless scenario. For active frictions on firms, it is set to $\epsilon^R = 0.0014$. The blue solid line represents an economy with financial frictions on firms; the red dashed line corresponds to frictions on households; and the green dotted line depicts the case with no active financial frictions.

clusions emerge: (i) wealth inequality is more sensitive to frictions in the production sector; (ii) consumption inequality is more strongly influenced by frictions that limit households' access to credit; and (iii) each type of friction tends to amplify one dimension of inequality while dampening the other, as highlighted by the comparison with the frictionless scenario.

Despite its usefulness, the Gini index provides limited insight into how wealth and consumption are distributed across individual households. To better understand the dynamics driving the differing responses in these indices, I first examine the distribution of households according to specific shares of wealth held. I then extend the analysis to explore patterns of consumption.

4.3 Wealth dynamics

I analyze three indicators that capture different aspects of household composition. These indicators encompass the share of households with borrowing obligations (i.e., those experiencing negative liquidity), the share of HtM households, and the percentage of wealth concentrated among the top 10% richest households in the distribution. The definition

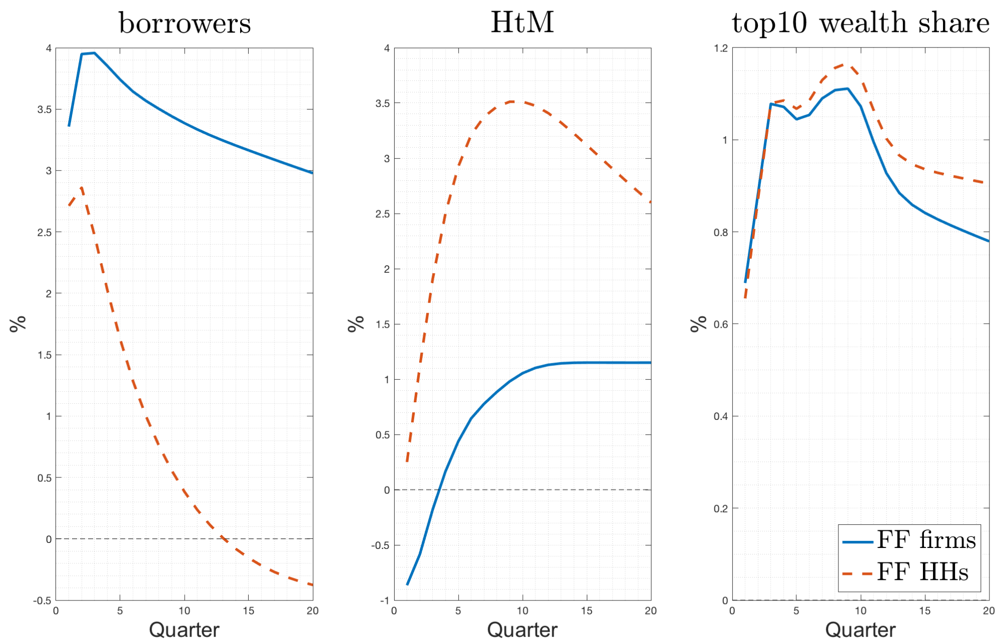

Figure 4: IRFs for the share of borrowing households, HtM households and wealth held by the top 10%

Note: monetary shock $\epsilon^R = 0.0025$ for active financial frictions on household borrowing, $\epsilon^R = 0.0014$ otherwise. The blue line refers to an economy with financial frictions on firms, the red one when frictions are on households.

and calibration of HtM households in this model is addressed in Section C.

The impulse responses for these three measures are displayed in Figure 4. On impact, the wealth share of the top 10% rises slightly more under firm-side frictions. However, under household borrowing frictions (red dashed line), this share surpasses the comparison scenario after a few quarters and remains persistently higher for the remainder of the period.

This dynamic is consistent with credit supply and demand fundamentals. In this model, all household wealth is fully liquid, and the top 10% of households hold roughly two-thirds of the total stock. Consequently, these wealthy agents are the primary suppliers of credit and benefit disproportionately from increases in the real interest rate. As shown in Figure D.1 (see Section D.1), the real interest rate response is higher by construction under household frictions. Wealthier households in this scenario are therefore incentivized to save more to capture these higher yields. Furthermore, because firm-side frictions are inactive in this scenario, productive firms face a relatively lower cost of borrowing. Indeed, Figure D.1 confirms that corporate debt demand, D^F, is generally more robust when financial frictions are concentrated on households (except on impact).

Crucially, while the top 10% wealth share is higher under household frictions, the overall wealth Gini coefficient displayed in Figure 3 is actually lower. This implies that the decisive distributional shifts are occurring at the bottom of the distribution. As illustrated in Figure 4, the share of borrowers increases in both scenarios, but the rise is significantly sharper when frictions affect the firm sector. In contrast, the share of HtM households spikes much more aggressively under household borrowing frictions; notably, during the first year of the firm-friction scenario, the HtM share actually declines.

These divergent outcomes are driven by household behavior near the zero-wealth threshold. Following a monetary contraction, deteriorating labor conditions disproportionately affect poorer households, who rely heavily on labor income. As they slide down the wealth distribution, they face a choice: deplete savings to zero (becoming HtM) or go into debt (becoming borrowers) to smooth consumption. Under firm-side frictions, the household borrowing spread, ω^H, remains fixed. This relative affordability of credit allows households to borrow to smooth the income shock, effectively moving them from the HtM category into the 'borrower' category. This swells the ranks of borrowers, increasing wealth inequality as net positions turn negative, but preserves consumption smoothing.

Conversely, when frictions apply directly to households, ω^H rises counter-cyclically, a pattern consistent with empirical evidence on unsecured credit spreads (e.g., Nakajima and Ríos-Rull, 2019). This rising premium acts as a deterrent to borrowing. Facing high interest rates, households effectively choose to remain HtM rather than take on expensive debt. Consequently, a larger mass of agents bunches at zero wealth rather than entering negative territory, leading to lower measured wealth inequality but, as I show next, significantly worse consumption outcomes.

4.4 Consumption dynamics

The decomposition of the impulse response of aggregate consumption provides valuable insights into the diverse consumption patterns triggered by a monetary contraction. To facilitate comparison, I analyze the average consumption response for specific segments of the wealth distribution.[20] The decomposition for the firm-friction scenario is depicted in the left panel of Figure 5, while the right panel illustrates the counterfactual scenario of household borrowing frictions

[20] I focus on average consumption rather than absolute aggregate fluctuations to ensure comparability across scenarios and wealth groups. Note that aggregate consumption represents the limiting case where the average is calculated over the entire population.

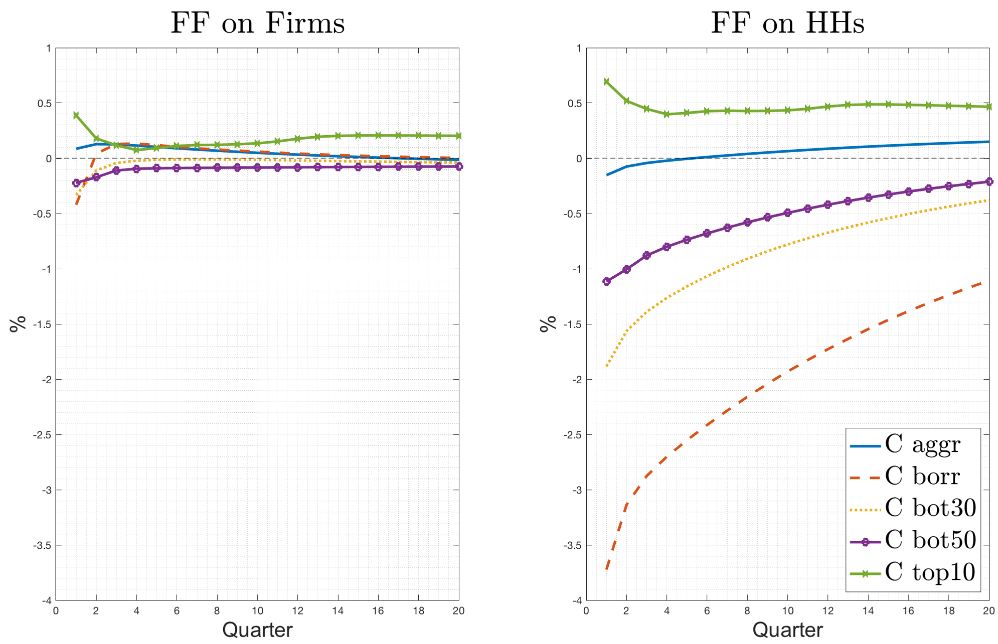

Figure 5: Average consumption fluctuation f1or different shares of households.
Note: monetary shock $\epsilon^R = 0.0025$ for active financial frictions on household borrowing, $\epsilon^R = 0.0014$ otherwise.

The Wealthy households at the top of the wealth distribution exhibit a more robust consumption path under household borrowing frictions. This resilience contributes to the steeper rise in the consumption Gini index observed in this scenario. The driver is the income effect: as shown previously, this scenario generates a sharper rise in the real interest rate. Since the wealthiest households hold the bulk of interest-bearing assets, their income streams benefit disproportionately from higher returns, buffering the negative substitution effect of the policy shock.

While the behavior of the top 10% is qualitatively similar across scenarios, the bottom half of the distribution reveals stark heterogeneity. On Impact, the divergence is substantial. Under firm-side frictions, consumption for borrowers (red dashed line) declines by a mere 0.4%. In contrast, under household frictions, it collapses by 3.7%. This gap remains significant even when broadening the scope to the entire bottom half of the distribution, where the decline is nearly five times larger in the presence of household frictions.[21]

The recovery speeds differ dramatically as well. Under firm frictions, borrower consumption rebounds rapidly, overshooting the steady state almost immediately. Conversely, under household frictions, consumption remains depressed for the entire five-year

[21]Note that these groups are cumulative: the bottom 50% includes the bottom 30%, which in turn includes the borrowers.

horizon depicted in Figure 5.[22]

These dynamics are mechanically tied to the household borrowing spread, ω^H. Under firm-side frictions, ω^H is fixed. Consequently, households facing labor income shocks can affordably borrow to smooth consumption, facilitating the rapid recovery observed in the left panel. Conversely, under household-side frictions, ω^H spikes countercyclically. This rising cost of credit effectively shuts down the smoothing channel. As illustrated in Figure D.1, the spread returns to steady state slowly; the consumption recovery tracks this slow normalization, as households are forced to deleverage rather than smooth.

4.5 Consumption decomposition

To determine whether the rise in the household loan rate is the primary driver of the consumption divergence near the zero-wealth threshold, I employ the decomposition approach outlined by Luetticke (2021). This method breaks down the total response of composite consumption into partial equilibrium effects driven by changes in specific household prices.

Using the budget constraint (11), aggregate composite consumption can be expressed as a function of the sequence of prices $\{\Omega_t\}_{t\geq 0}$, with $\Omega_t = \left\{\frac{R_t^I}{\pi_t}, W_t, \Pi_t\right\}$:

$$X_t\left(\{\Omega_t\}_{t\geq 0}\right) = \int x_t\left(a, h; \{\Omega_t\}_{t\geq 0}\right) d\Theta_t, \tag{44}$$

where $\Theta_t\left(da, dh; \{\Omega_t\}_{t\geq 0}\right)$ is the joint distribution of liquid assets and idiosyncratic productivity. By totally differentiating (44), I isolate the contribution of each price variable to the aggregate response.[23]

Table 2 reports the results. The row "IRF (%)" displays the percentage deviation of each component on impact, while "% imp." quantifies the relative importance of each factor in shaping the total consumption response.[24]

The first two scenarios reveal a distinct shift in the drivers of consumption. While profits contribute positively in both cases (0.15%), the role of labor income differs. Under firm-side frictions, the decline in wages is the dominant negative force, accounting for over

[22] Extending the simulation horizon reveals that convergence in this scenario is exceptionally slow, with overshooting occurring only after approximately 88 quarters.

[23] Similar decompositions are found in Kaplan et al. (2018) and Auclert (2019).

[24] The percentage contribution is calculated as the absolute impact of variable j divided by the sum of absolute impacts of all variables: $contr_j(\%) = |contr_j| / \sum_i |contr_i|$. These sum to 1 by construction.

Table 2: Decomposition of on-impact IRF for composite consumption X

Scenario	Measure	**Aggr.**	**Liquid returns**	**Wage**	**Profit**	**HHs spread**
FFs on firms	IRF (%)	0.08	0.14	-0.21	0.15	-
	% imp.	-	28.80	41.44	29.76	-
FFs on HHs	IRF (%)	-0.15	-0.14	-0.15	0.15	-
	% imp.	-	32.91	33.64	33.45	-
FFs on HHs isolated spread	IRF (%)	-0.15	0.14	-0.15	0.15	-0.28
	% imp.	-	19.11	20.79	20.66	39.43

Note: monetary shock $\epsilon^R = 0.0025$ for active financial frictions on household borrowing, $\epsilon^R = 0.0014$ otherwise. The row "IRF (%)" reports the absolute percentage deviations from the steady-state. The row "% imp." indicates the relative importance of each variable, expressed as a percentage of the total on-impact response of aggregate consumption.

41% of the total impulse. This confirms that frictions in the production sector transmit primarily through the labor market, depressing the earnings of the working poor.

However, the most striking divergence lies in the Liquid returns column. Under firm frictions, this contribution is positive (+0.14%), as wealthy households benefit from higher real rates. Conversely, under household frictions, this contribution turns sharply negative (-0.14%).

To understand this sign flip, the third scenario in Table 2 isolates the household borrowing spread, ω^H, from the risk-free rate. When, ω^H is treated as an independent price variable, the "pure" liquid return (the risk-free rate) reverts to being a positive contributor (+0.14%), matching the firm-friction scenario. The negative drag is entirely captured by the household spread, which exerts a massive downward pressure of -0.28%.

Notably, the spread is the single most important determinant in this scenario, accounting for nearly 40% of the total consumption response. By making borrowing more expensive, the rising spread prevents households near the zero-wealth threshold from smoothing the income shock, forcing a contraction in aggregate consumption.

Direct vs. Indirect Effects — Adopting the terminology of Kaplan et al. (2018), these results highlight a fundamental trade-off in transmission mechanisms: (i) firm-side frictions amplify indirect effects, specifically the general equilibrium decline in labor income (wages); (ii) household-side frictions reinvigorate direct effects. By manipulating the intertemporal price of credit for borrowers, the spread ω^H acts as a powerful direct tax on consumption smoothing. While significant indirect effects (via wages) persist in both scenarios, the activation of the household borrowing channel shifts the burden of adjustment from a general income loss to a targeted liquidity squeeze on the poor.

4.6 Robustness analysis

The robustness of the dynamics related to both Gini indices fluctuations and agents' behavior around the zero-wealth threshold appears to be unaffected by varying risk aversion levels among households. This is demonstrated in Figure G.7 in Section G, where a risk aversion value of $\xi = 2$ is considered in households' preferences. Similarly, in this particular case, the Gini index of wealth is relatively higher for active frictions on firms compared with the counterfactual scenario, whereas the opposite holds true for the Gini index of composite consumption, with higher values for financial frictions on households. The decomposition of aggregate consumption depicted in Figure G.8 confirms that indirect effects are magnified under financial frictions on firms, whereas financial frictions on households amplify the direct effect resulting from movements in ω^H.

Additionally, in Section G, I conduct robustness tests for various model specifications. I assess the robustness of the results under extreme calibrations, including: (i) the absence of quadratic adjustment costs for capital producers ($\phi = 0$), (ii) a government that holds bond issuance fixed at its steady-state level ($\rho_{gov} = 0$), and (iii) a setting in which government bond issuance fully responds to tax revenue fluctuations ($\rho_T = 1$). The key results appear to be robust across these alternative specifications.

Regarding the baseline calibration of the borrowing cost function $\Xi_t(B_t)$, it is important to note that Cúrdia and Woodford (2016) explicitly characterize their chosen calibration as "extreme," using it primarily to more clearly illustrate the effects of a convex borrowing-technology on their results. To address this concern, I conduct robustness exercises that adopt alternative specifications in which a one-percent increase in credit volume raises the borrowing spread by either 0.5 or 0.1 annual percentage points. The main results remain stable under these alternative calibrations, as shown in Section G.3.

5 Concluding remarks

This paper investigates whether the location of financial frictions, originating in the corporate sector versus the household sector, fundamentally alters the distributional footprint of monetary policy. By integrating two distinct financial accelerators into a unified HANK framework, I show that the origin of credit market stress dictates the specific form of inequality that arises following a monetary contraction.

My analysis documents a distinct state-dependent trade-off. While monetary tightening invariably raises inequality, the channel of transmission differs critically across regimes. When frictions constrain productive firms, the primary fallout is a surge in wealth inequality, driven by a deterioration in labor income that widens the gap between asset holders and workers. Conversely, when frictions constrain household borrowing, the result is a larger spike in consumption inequality.

I show that this divergence is driven by the behavior of the household borrowing spread near the zero-wealth threshold. Firm-side frictions operate primarily through the indirect channel of general equilibrium income effects. However, because credit remains affordable, households can borrow to smooth these shocks. In contrast, household-side frictions reinvigorate the direct channel of monetary transmission. The countercyclical rise in the borrowing spread chocks off consumption smoothing for the poor and traps a larger share of agents in HtM status.

These findings offer actionable insights for policymakers. They suggest that the "inequality cost" of disinflation is not uniform but depends on the prevailing financial environment. In a corporate credit crunch, inequality manifests in asset accumulation; in a consumer credit crunch, it manifests in immediate consumption disparities.

This analysis relies on a one-asset framework. While a two-asset model (distinguishing between liquid and illiquid wealth) would allow for the analysis of "wealthy" HtM households, the primary mechanism identified here, the interaction between borrowing spreads and the zero-wealth threshold, operates through the marginal cost of liquidity. As such, the core trade-off between smoothing and deleveraging is likely to persist even in a richer asset environment.

While this framework provides a structural explanation for these divergent outcomes, several avenues for future research remain. First, given the importance of the zero lower bound in recent history, extending this analysis to unconventional monetary policies could reveal how quantitative easing interacts with sector-specific frictions. Second, relaxing the assumption of representative firms to incorporate firm-level heterogeneity would allow for a deeper exploration of how capital misallocation feeds back into household income risk. Finally, exploring the optimal monetary policy response in the presence of these shifting friction regimes remains a key open question.

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Appendix

A Idiosyncratic productivity process and the joint distribution

Households can be workers, with productivity $h > 0$, or rentiers, , with $h = 0$, which means that they do not earn labor income but only profit income. Furthermore, I assume that there are three possible productivity realizations for workers: high productivity, h^H, median productivity, h^M, and low productivity, h^L. The Markov process generates the following transition matrix:

$$
\begin{array}{cc}
 & h_{t+1} \\
 & \begin{array}{cccc} h^L & h^M & h^H & 0 \end{array} \\
h_t \begin{array}{c} h^L \\ h^M \\ h^H \\ 0 \end{array} &
\begin{bmatrix}
p_{LL}(1-\zeta) & p_{LM}(1-\zeta) & p_{LH}(1-\zeta) & \zeta \\
p_{ML}(1-\zeta) & p_{MM}(1-\zeta) & p_{MH}(1-\zeta) & \zeta \\
p_{HL}(1-\zeta) & p_{HM}(1-\zeta) & p_{HH}(1-\zeta) & \zeta \\
0 & \iota & 0 & 1-\iota
\end{bmatrix}
\end{array}
$$

with probabilities, p, determined using the Tauchen method. I follow other studies using this household distribution framework, such as Bayer et al. (2019) and Luetticke (2021), and assume that rentiers who become workers are endowed with the median productivity level ($h = 1$).

At the steady-state, a joint distribution of households exists according to their wealth level, a, and their productivity, h. This joint distribution can be represented by the bi-dimensional matrix as follows:

$$
\text{prod. } h \quad
\begin{matrix} h_m \\ \cdots \\ h_2 \\ h_1 \end{matrix}
\begin{bmatrix}
H_{m,1} & H_{m,2} & \cdots & H_{m,n} \\
\cdots & \cdots & \cdots & \cdots \\
H_{2,1} & H_{2,2} & \cdots & H_{2,n} \\
H_{1,1} & H_{1,2} & \cdots & H_{1,n}
\end{bmatrix}
$$

$$
\begin{matrix} a_1 & a_2 & \cdots & a_n \end{matrix}
$$

$$
\text{wealth } a
$$

where $H_{1,1}$ is the share of households with the lowest level of wealth and labor productivity (except for the last state $h_m = 0$, since in this model they are rentiers), and $\int H dadh = 1$. As the vector indicating possible household wealth levels is composed of 100 entries, this joint distribution matrix comprises 400 grid points ($a_n = 100$ and $h_m = 4$).

B Investment banks optimal contract

B.1 Idiosyncratic shock on return on capital

Following Bernanke et al. (1999), I assume that the Idiosyncratic shock ω^F is distributed log-normally. i.e. $\omega^F \in [0, +\infty)$.[25] Using results from Appendix A.2 in Bernanke et al. (1999) I can write $F(\omega^F)$, $\Gamma(\omega^F)$ and $G(\omega^F)$ in the analytical expressions that I use to solve the model:

$$
F(\omega^F) = \Phi\left[\left(\log(\bar{\omega^F}) + \frac{1}{2}\sigma^2_{\omega^F}\right)/\sigma_{\omega^F}\right] , \tag{A1}
$$

$$
\Gamma(\omega^F) = \Phi\left[\left(\log(\bar{\omega}^F) - \frac{1}{2}\sigma^2_{\omega^F}\right)/\sigma_{\omega^F}\right] + \bar{\omega}^F\left\{1 - \Phi\left[\left(\log(\bar{\omega}^F) + \frac{1}{2}\sigma^2_{\omega^F}\right)/\sigma_{\omega^F}\right]\right\} , \tag{A2}
$$

$$
G(\omega^F) = \Phi\left[\left(\log(\bar{\omega}^F) + \frac{1}{2}\sigma^2_{\omega^F}\right)/\sigma_{\omega^F} - \sigma_{\omega^F}\right] , \tag{A3}
$$

with $\Phi(\cdot)$ being the normal cumulative distribution function and σ_{ω^F} the standard deviation of the idiosyncratic shock on entrepreneurs' return on capital.

[25] Note that other kinds of distribution with values greater or equal to 0 could be used as well. Here I choose to adapt the same distribution to give a sense of continuity between the two studies.

B.2 Investment banks' participation constraint and entrepreneur j's optimization problem

After substituting (18) and (17) into (19), I obtain:

$$[1-F(\bar{\omega}^F_{jt+1})]\bar{\omega}^F_{jt+1}R^K_{t+1}q_tK_{jt+1}+(1-\mu)\int_0^{\bar{\omega}^F_{jt+1}}\omega^F_j dF(\omega^F_j)R^K_{t+1}q_tK_{jt+1}=\frac{R_{t+1}}{\pi_{t+1}}(q_tK_{jt+1}-N_{jt+1}) . \tag{A4}$$

Divide everything by $R^R_{t+1}q_tK_{jt+1}$:

$$\frac{R^K_{t+1}}{\frac{R_{t+1}}{\pi_{t+1}}}\left([1-F(\bar{\omega}^F_{jt+1})]\bar{\omega}^F_{jt+1}+(1-\mu)\int_0^{\bar{\omega}^F_{jt+1}}\omega^F_j dF(\omega^F_j)\right)=\left(1-\frac{N_{jt+1}}{q_tK_{jt+1}}\right) . \tag{A5}$$

Following the notation used in Bernanke et al. (1999) and Christiano et al. (2014):

$$\Gamma(\bar{\omega}^F_j)\equiv\int_0^{\bar{\omega}^F_j}\omega^F_j dF(\omega^F_j)+\bar{\omega}^F_j\int_{\bar{\omega}^F_j}^{\infty}dF(\omega^F_j) , \qquad \mu G(\bar{\omega}^F_j)\equiv\mu\int_0^{\bar{\omega}^F_j}\omega^F_j dF(\omega^F_j) , \tag{A6}$$

where $\Gamma(\bar{\omega}^F_j)$ is the expected gross share of profits going to the lender and $\mu G(\bar{\omega}^F_j)$ is the expected monitoring cost paid by the lender. $\Gamma(\bar{\omega}^F_j)$ can be rewritten as:

$$\Gamma(\bar{\omega}^F_j)=G(\bar{\omega}^F_j)+\bar{\omega}^F_j\left[1-F(\bar{\omega}^F_j)\right] . \tag{A7}$$

I can now use (A6) and (A7) in (A5) and rearrange to finally obtain:

$$\frac{R^K_{t+1}}{\left(\frac{R_{t+1}}{\pi_{t+1}}\right)}=\frac{1}{\Gamma(\bar{\omega}^F_{jt+1})-\mu G(\bar{\omega}^F_{jt+1})}\left(1-\frac{N_{jt+1}}{q_tK_{jt+1}}\right) , \tag{A8}$$

where $\Gamma(\bar{\omega}^F_{jt+1})-\mu G(\bar{\omega}^F_{jt+1})$ is the share of entrepreneur j's profits going to the lender (as loan repayment), net of auditing costs.

Equation (A8) is the complete version of (20), which explain the function underlying $f\left(\bar{\omega}^F_{jt+1}, LEV_{jt+1}\right)$. For a higher level of entrepreneur leverage, the EFP increases, raising the return on capital. However, it also increases the probability of an entrepreneur's default, thereby increasing the net share of profit demanded by investment banks as loan repayment, resulting in higher financing costs for entrepreneurs. To see in detail how this mechanism works, I show the entrepreneur j's optimization problem below.

According to the optimal contract set by investment banks, entrepreneur j's expected return can be expressed as:

$$E_t \left\{ \int_{\bar{\omega}^F_{jt+1}}^{\infty} \omega^F_j dF(\omega^F_j) R^K_{t+1} q_t K_{jt+1} - (1 - F(\bar{\omega}^F_j)) R^K_{t+1} q_t K_{jt+1} \right\} , \tag{A9}$$

with expectations taken with respect to the realization of R^K_{t+1}. The first term of (A9) represents the entrepreneur's profit when she does not default on debt, while the second term is the amount of profits that she uses to repay the lender. Following the notation used above, and considering that the entrepreneur's return is subject to the participation constraint (19), I write entrepreneur j's optimal contracting problem as:

$$\max_{\{K_{jt+1}, \bar{\omega}^F_{jt+1}\}} E_t \left\{ \left[1 - \Gamma(\bar{\omega}^F_{jt+1})\right] R^K_{t+1} q_t K_{jt+1} \right\} ,$$
$$s.t. \quad \frac{R_{t+1}}{\pi_{t+1}} (q_t K_{jt+1} - N_{jt+1}) = \left[\Gamma(\bar{\omega}^F_{jt+1}) - \mu G(\bar{\omega}^F_{jt+1})\right] R^K_{t+1} q_t K_{jt+1} . \tag{A10}$$

Deriving F.O.C. I obtain:

$$w.r.t. \ \ \omega^F_{jt+1} : \quad -\Gamma'(\bar{\omega}^F_{jt+1}) + \lambda_{jt+1} \left[\Gamma'(\bar{\omega}^F_{jt+1}) - \mu G'(\bar{\omega}^F_{jt+1})\right] = 0 , \tag{A11}$$

$$w.r.t. \ \ K_{jt+1} : \quad E_t \left\{ \left[1 - \Gamma(\bar{\omega}^F_{jt+1})\right] R^K_{t+1} - \lambda_{jt+1} \left[\frac{R_{t+1}}{\pi_{t+1}} - \left(\Gamma(\bar{\omega}^F_{jt+1}) - \mu G(\bar{\omega}^F_{jt+1}) R^K_{t+1} \right) \right] \right\} = 0 , \tag{A12}$$

$$w.r.t. \ \ \lambda_{jt+1} : \quad E_t \left\{ \frac{R_{t+1}}{\pi_{t+1}} (q_t K_{jt+1} - N_{jt+1}) - \left[\Gamma(\bar{\omega}^F_{jt+1}) - \mu G(\bar{\omega}^F_{jt+1})\right] R^K_{t+1} q_t K_{jt+1} \right\} = 0 , \tag{A13}$$

where λ_j is the Lagrangian multiplier for entrepreneur j's problem. By rearranging (A11), it is possible to express λ_{jt+1} as a function of only $\bar{\omega}^F_{jt+1}$. Furthermore, rearranging (A12):

$$E_t \left\{ \frac{R^K_{t+1}}{\frac{R_{t+1}}{\pi_{t+1}}} \right\} = \frac{\lambda_{jt+1}}{\left[1 - \Gamma(\bar{\omega}^F_{jt+1}) + \lambda_{jt+1}\left(\Gamma(\bar{\omega}^F_{jt+1}) - \mu G(\bar{\omega}^F_{jt+1})\right)\right]} . \tag{A14}$$

It can be proven that there is a monotonically increasing relationship between the EFP and $\bar{\omega}^F_j$. According to (A8), we can extend this relationship between the EFP and the leverage level of j, assessing that a higher entrepreneur's leverage implies a higher EFP.[26]

Furthermore, it is clear from (A14) that $\bar{\omega}^F_j$ is determined only by aggregate variables. Thus, any entrepreneur chooses the same threshold $\bar{\omega}^F$ for the idiosyncratic shock on capital returns, below which they default, and the same leverage level.[27] This result allows to consider only the aggregate variables in the production sector part of the model, since every entrepreneur has the same firm structure.

C Who are the Hand-to-Mouth?

In standard TANK models (e.g., Galí et al., 2007 or Bilbiie, 2008) the share of HtM (or *rule-of-thumb*) households is externally determined, usually implying by construction that those households have zero wealth and exclusively spend their current income. Within HANK economies, households choose their optimal level of wealth and consumption endogenously in each period. This dynamics decision-making process allows for variations in the proportions of HtM households following aggregate shocks. In the HANK model proposed by Kaplan and Violante (2014), households are defined as HtM whenever they choose to either have zero liquid wealth or to lie at the credit limit. Due to technicalities of my model constructions, I employ a slighlty different definition of HtM. First, because I am already studying the fluctuation of the share of borrower households, I will not include agents who have reached their borrowing limit when calculating the HtM share. Second, given that the grid used to compute the wealth distribution is not evenly spaced and contains several grid points in close proximity to the zero-wealth threshold, households are classified as HtM if they possess zero or near-zero wealth, that is, a positive

[26] See Appendix A.1 in Bernanke et al. (1999) for proofs.

[27] According to (A8), leverage is a function of the EFP (composed of only aggregate variables) and $\bar{\omega}^F_j$. If $\bar{\omega}^F_j$ depends only on aggregate variables (since it is a function of the EFP, according to (A14)), then the same can be said for the leverage.

amount of wealth that does not surpass the half of minimum possible quarterly labor income realization (a threshold in line with Kaplan and Violante, 2014). The results are fairly similar when exclusively considering zero-wealth households as HtM.

D Additional IRFs for the baseline model

D.1 Aggregate impulse responses of MP contractionary shock

Figure D.1 show several aggregate variables impulse responses for the monetary policy shock considered in the baseline model. This integrate Impulse Response Functions (IRFs) present in Figure 1 and Figure 2 in the main text.

D.2 Consumption decomposition for relevant prices

Figure D.2 presents the impulse responses corresponding to the consumption decomposition described in Section 4.5, complementing the on-impact analysis provided in Table 2.

Analyzing the shape of the liquidity return contribution (net of the borrowing premium) offers valuable insights, given the distinct response profiles observed across the two different cases. On impact, the contribution is marginally higher in the scenario in which there are frictions on firm borrowing. This can be observed by comparing the left-hand graph with the right-hand one in Figure D.2.

The two responses reach their peak around the same time, with the former peaking in the third quarter and the latter in the fourth quarter. However, the rate of reversion differs significantly between the two. Reversion is much faster under firm financial frictions, whereas it is much slower under household frictions.[28]

At first glance, this result may seem counter-intuitive. Financial frictions affecting household borrowing actually enhance the positive contribution of liquidity return in the long run, whereas the opposite happens when these frictions are shut off. Nevertheless, as explained in Section 4.3, this outcome is a logical consequence of the interplay between the demand and supply of borrowings in the production sector. First, most funds channeled to firms originate from the top 10% of households, who, as per the model's construction,

[28]Extending the duration of the IRFs reveals that consumption undershooting occurs approximately 24 quarters after the shock under financial frictions on firms. In the comparative scenario, even after 100 periods, the response value remains higher than the initial impact value.

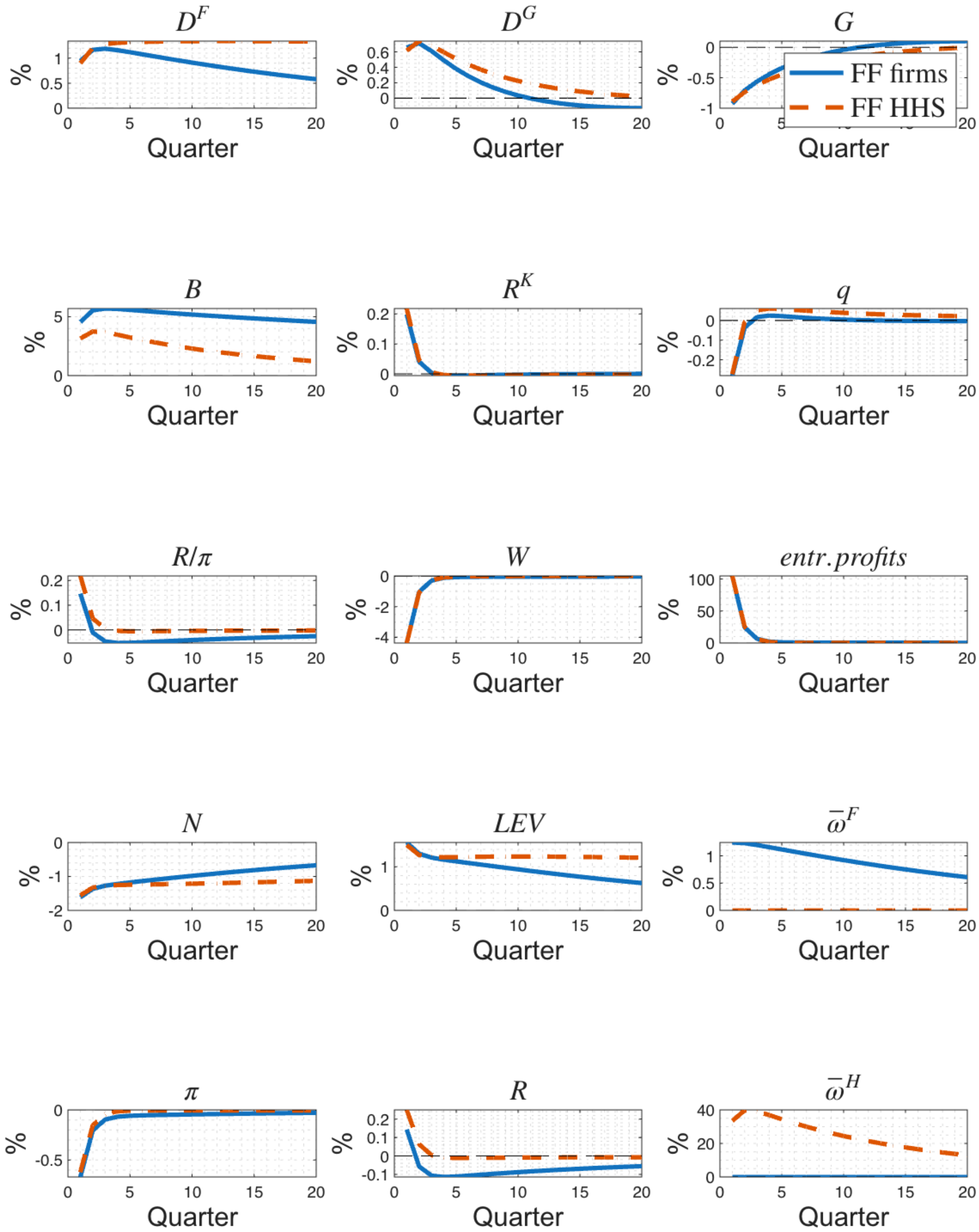

Figure D.1: Impulse response to a monetary contraction for aggregate variables

Note: monetary shock $\epsilon^R = 0.0025$ for active financial frictions on household borrowing, $\epsilon^R = 0.0014$ otherwise. The blue line refers to an economy with financial frictions on firms, the red one when frictions are on households.

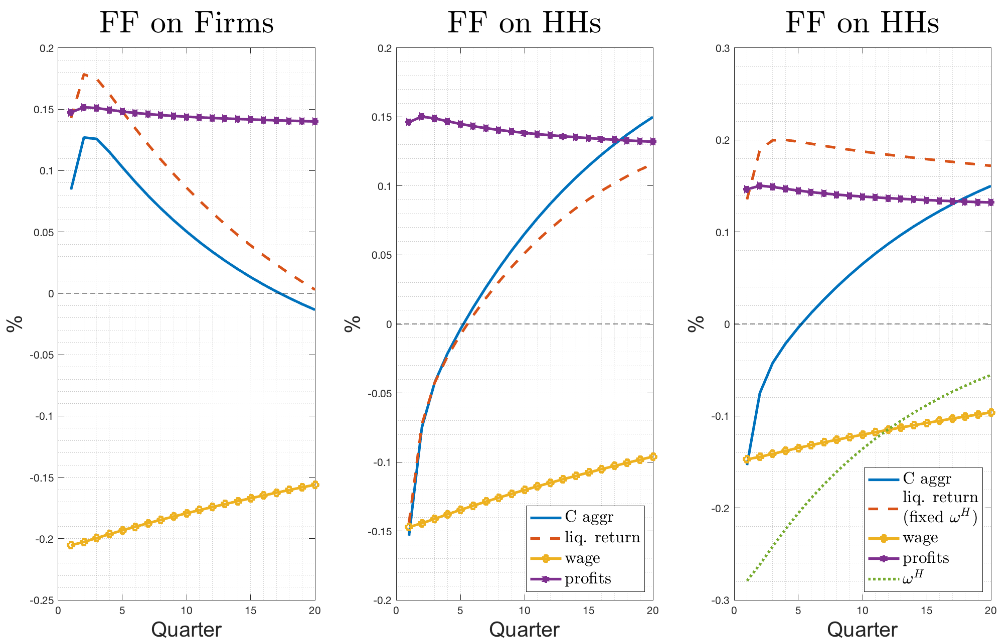

Figure D.2: Consumption decomposition for relevant prices

Note: monetary shock $\epsilon^R = 0.0025$ for active financial frictions on household borrowing, $\epsilon^R = 0.0014$ otherwise. The graph on the left-hand side represents the decomposition for the case of frictions on firms and the other two represent the case of frictions on household borrowing. In the graph on the right-hand side, I consider the borrowing penalty ω_t^H as an individual variable.

are not impacted by the increase in the loan rate.[29]

Second, under financial frictions on firms, entrepreneurs tend to resort to higher levels of debt initially, but subsequently aim to minimize their debt exposure due to higher costs associated with financial frictions. Therefore, in the last case, there is a faster decrease in firms' demand for borrowing. Conversely, under active frictions on households, entrepreneurs exhibit a relatively stronger inclination toward debt utilization, resulting in a slower reduction in their demand for funds. Therefore, this enduring dynamic also appears to have long-lasting effects on aggregate composite consumption, primarily through the contribution of liquidity returns on the latter.

E Impulse responses of MP contractionary shock - Same shock magnitude

Below, I show the main aggregate and inequality fluctuations when the monetary shock magnitude used to produce IRFs is the same in both scenarios. The main findings relative

[29]Note that this model only assumes net financial positions for household wealth.

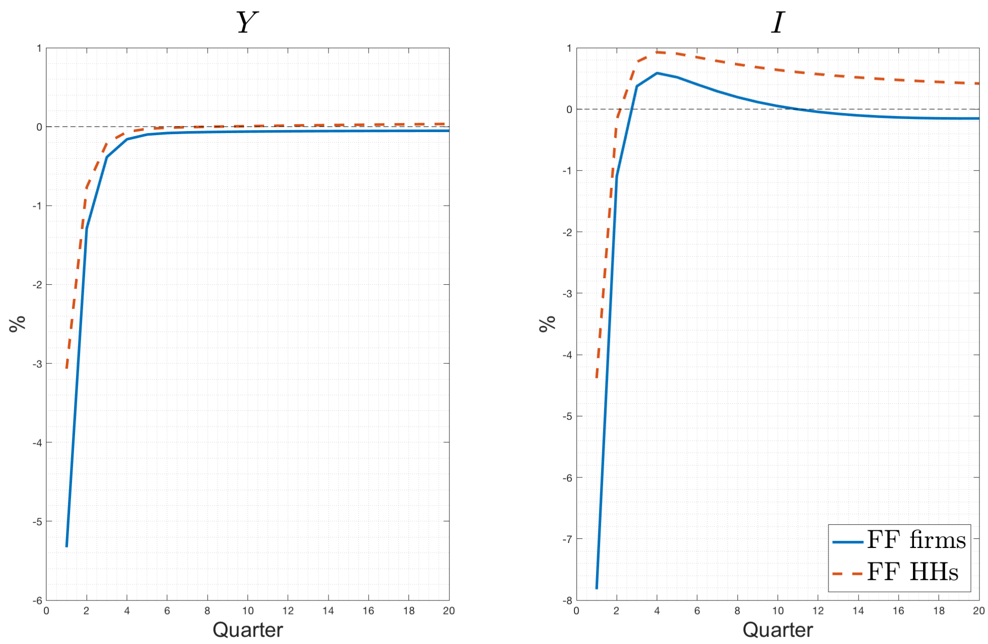

Figure E.1: Impulse response to a monetary contraction for aggregate variables

Note: monetary shock is $\epsilon^R = 0.0025$ in both the scenarios. The blue line refers to an economy with financial frictions on firms, the red one when frictions are on households.

to inequality fluctuations are qualitatively similar to that in the baseline model, where I consider two different shock magnitudes that have the same effect on output.

The only notable difference under this calibration is that the Gini index for composite consumption in the case of firm-side frictions exceeds that of the frictionless scenario. Nevertheless, it remains significantly lower than in the case of household borrowing frictions, thereby confirming the robustness of the baseline calibration.

F Consumption inequality analysis for goods consumption C

In this section, I show the fluctuations in the Gini index and share averages for total goods consumption, C, for the baseline model. Also in this case, when financial frictions on households are active, the changes in the Gini index are stronger, as show in Figure F.1. This can be explained by Figure F.2: while fluctuations of aggregate C are similar in the two scenarios, average consumption for top e bottom shares of households are more scattered in the case of financial frictions on households.

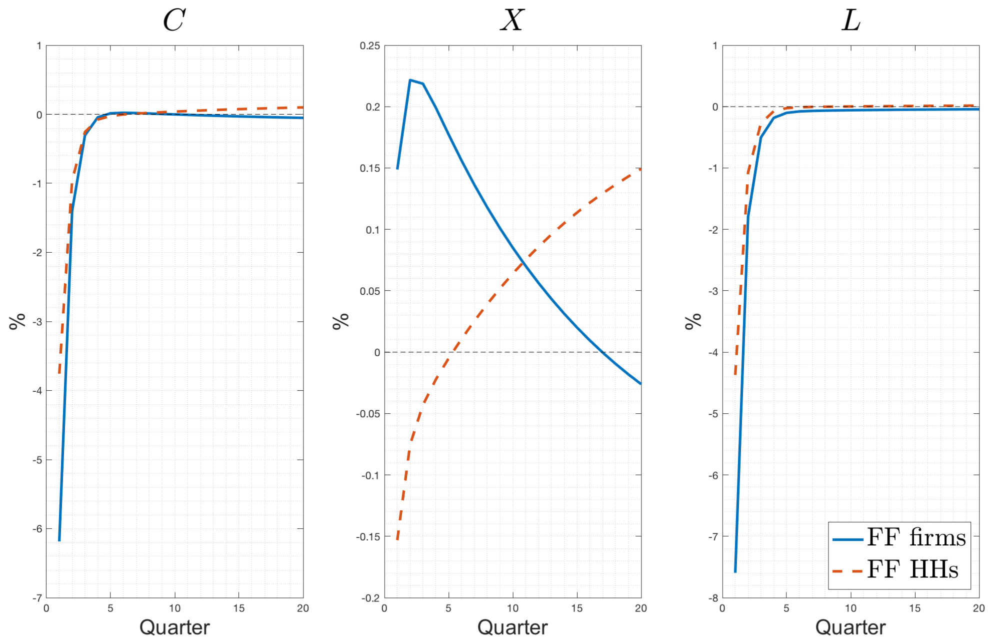

Figure E.2: Impulse response to a monetary contraction for aggregate variables

Note: monetary shock is $\epsilon^R = 0.0025$ in both the scenarios. The blue line refers to an economy with financial frictions on firms, the red one when frictions are on households.

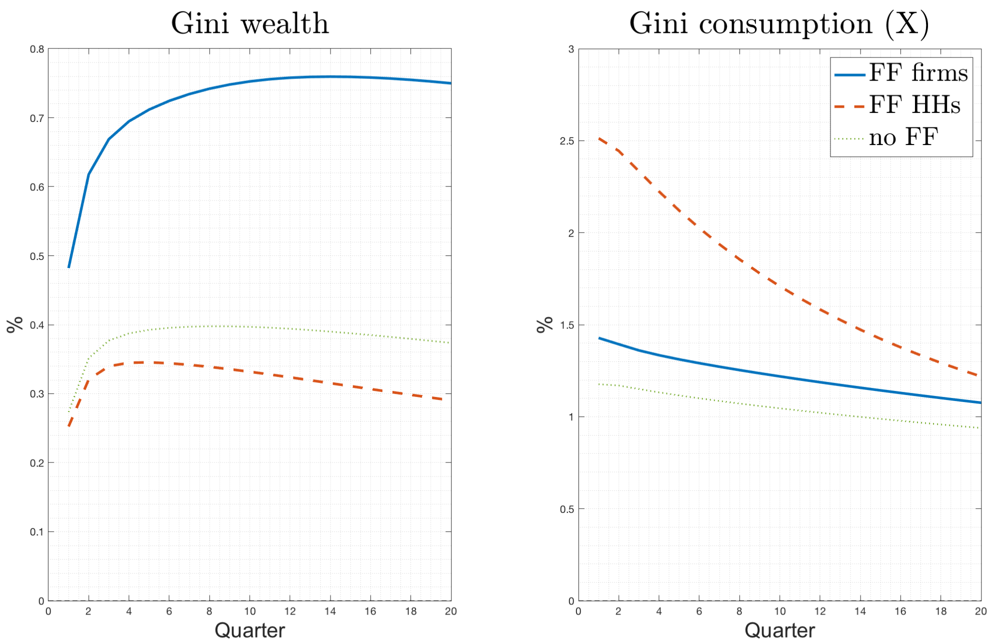

Figure E.3: Impulse responses to a monetary contraction for wealth and consumption inequality.

Note: monetary shock $\epsilon^R = 0.0025$. The blue line refers to an economy with financial frictions on firms, the red one when frictions are on households.

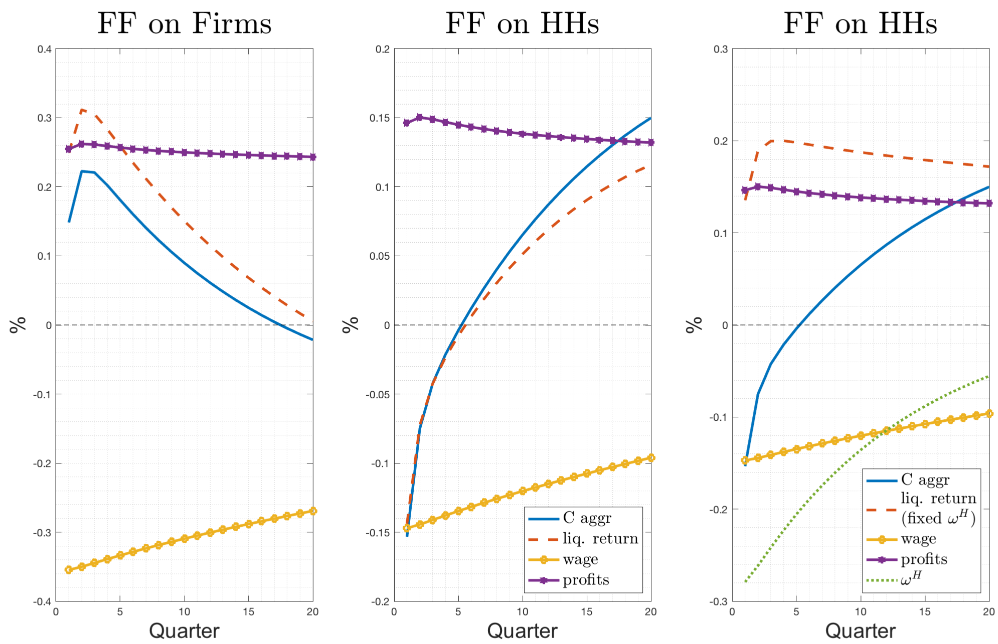

Figure E.4: Consumption decomposition for relevant prices

Note: monetary shock $\epsilon^R = 0.0025$. The graph on the left-hand side represents the decomposition for the case of frictions on firms and the other two represent the case of frictions on household borrowing. In the graph on the right-hand side, I consider the borrowing penalty ω_t^H as an individual variable.

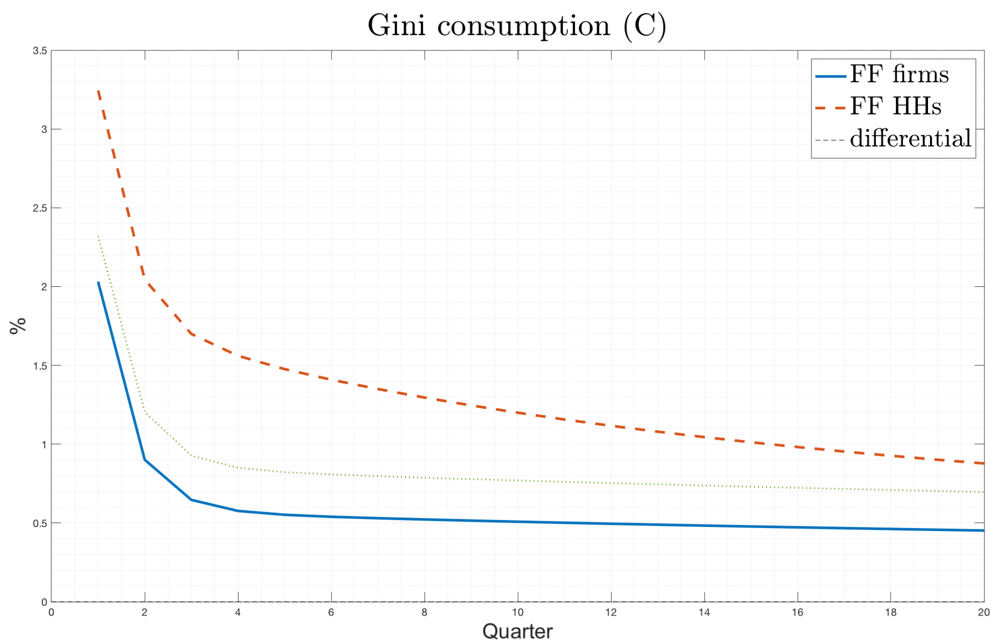

Figure F.1: Impulse responses to a monetary contraction for consumption inequality.

Note: monetary shock set to $\epsilon^R = 0.0025$ in cases where financial frictions on household borrowing are active, as well as in the frictionless scenario. For active frictions on firms, it is set to $\epsilon^R = 0.0014$. The blue solid line represents an economy with financial frictions on firms; the red dashed line corresponds to frictions on households; and the green dotted line depicts the case with no active financial frictions.

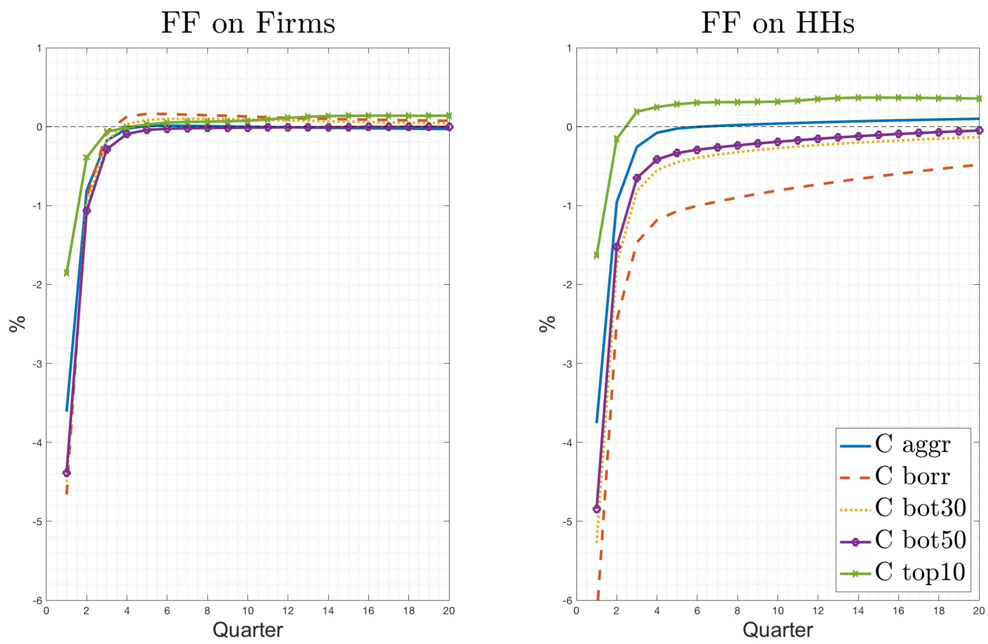

Figure F.2: Average consumption fluctuation for different shares of households.

Note: monetary shock $\epsilon^R = 0.0025$ for active financial frictions on household borrowing, $\epsilon^R = 0.0014$ otherwise.

G Robustness checks

G.1 Fiscal policy and capital adjustment costs

In this section, I show the Gini indices and consumption decomposition according to prices for different variants of the baseline model. Figure G.1 and Figure G.2 show results when the parameter regulating the fiscal policy, ρ_{gov}, is equal to zero. Figure G.3 and Figure G.4 display results for the case limit of no quadratic costs for capital producer, that is, $\phi = 0$.

The presence of household heterogeneity invalidates Ricardian equivalence, implying that fiscal policy interventions can have meaningful economic consequences. To account for that, I assume a value of $\rho_T = 1$, indicating that the government responds actively to fluctuations in tax revenues. For example, if an adverse aggregate shock leads to a decrease in tax revenues, the government responds by increasing debt issuance to sustain higher public spending. Results are shown in Figure G.5 and Figure G.6.

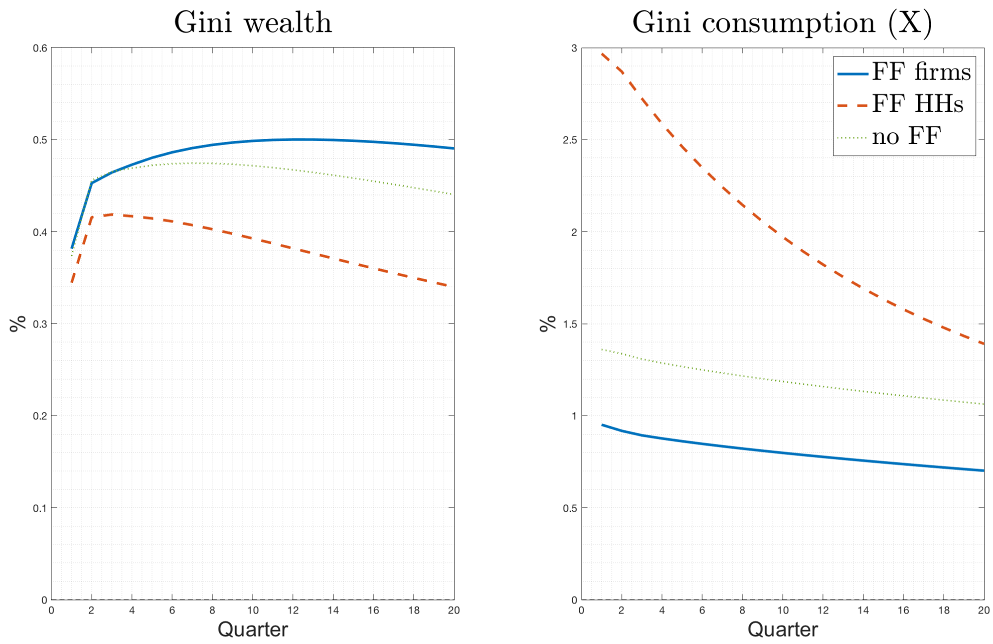

Figure G.1: Impulse responses to a monetary contraction for wealth and consumption inequality, $\rho_{gov} = 0$.

Note: monetary shock set to $\epsilon^R = 0.0025$ in cases where financial frictions on household borrowing are active, as well as in the frictionless scenario. For active frictions on firms, it is set to $\epsilon^R = 0.0013$. The blue solid line represents an economy with financial frictions on firms; the red dashed line corresponds to frictions on households; and the green dotted line depicts the case with no active financial frictions.

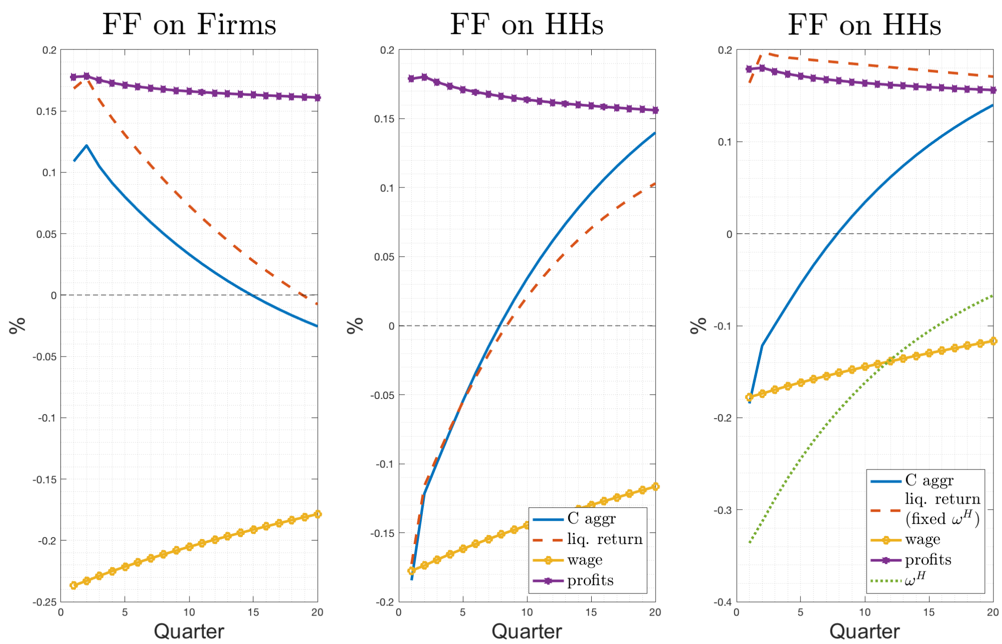

Figure G.2: Consumption decomposition for relevant prices, $\rho_{gov} = 0$

Note: monetary shock set to $\epsilon^R = 0.0025$ in cases where financial frictions on household borrowing are active. For active frictions on firms, it is set to $\epsilon^R = 0.0013$. The graph on the left-hand side represents the decomposition for the case of frictions on firms and the other two represent the case of frictions on household borrowing. In the graph on the right-hand side, I consider the borrowing penalty ω_t^H as an individual variable.

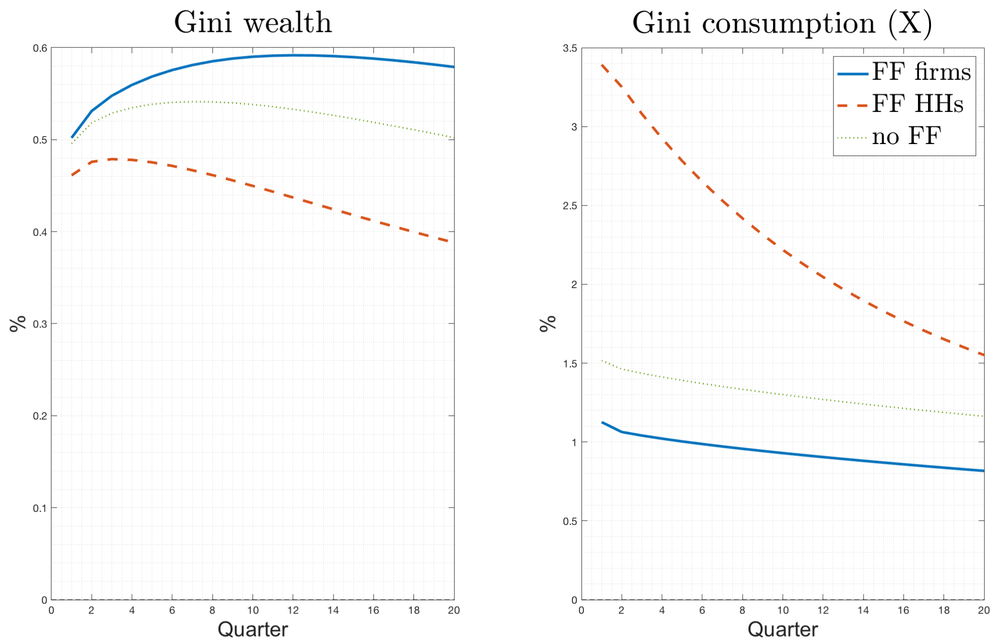

Figure G.3: Impulse responses to a monetary contraction for wealth and consumption inequality, $\phi = 0$.

Note: monetary shock set to $\epsilon^R = 0.0025$ in cases where financial frictions on household borrowing are active, as well as in the frictionless scenario. For active frictions on firms, it is set to $\epsilon^R = 0.0014$. The blue solid line represents an economy with financial frictions on firms; the red dashed line corresponds to frictions on households; and the green dotted line depicts the case with no active financial frictions.

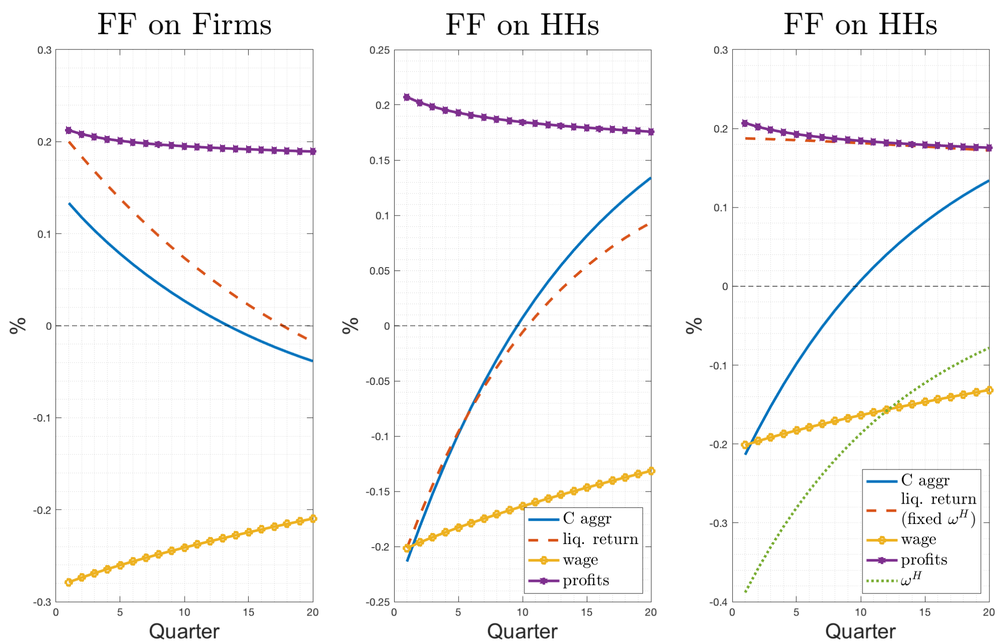

Figure G.4: Consumption decomposition for relevant prices, $\phi = 0$

Note: monetary shock set to $\epsilon^R = 0.0025$ in cases where financial frictions on household borrowing are active. For active frictions on firms, it is set to $\epsilon^R = 0.0014$. The graph on the left-hand side represents the decomposition for the case of frictions on firms and the other two represent the case of frictions on household borrowing. In the graph on the right-hand side, I consider the borrowing penalty ω_t^H as an individual variable.

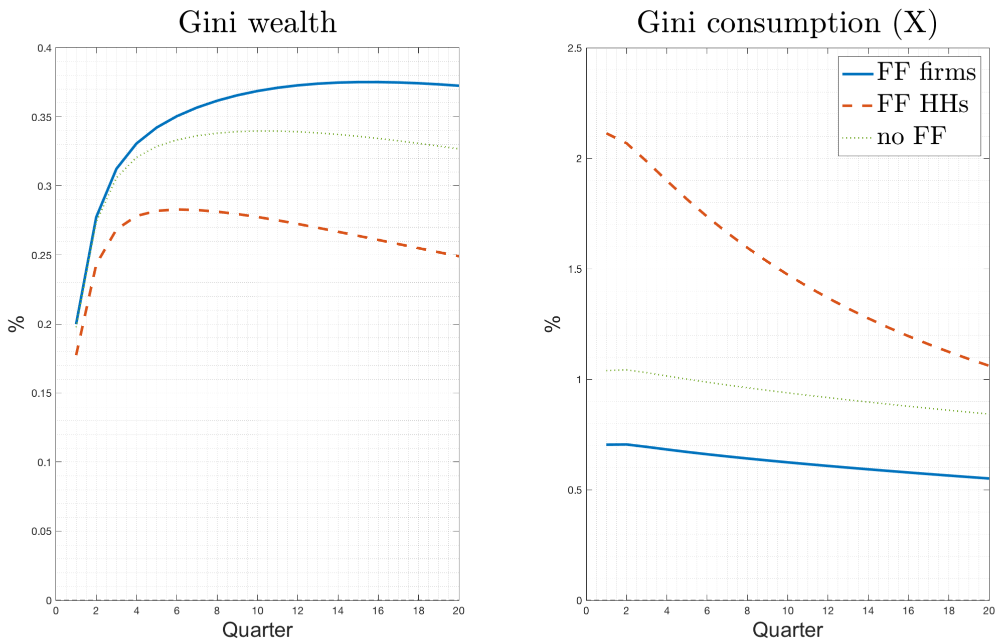

Figure G.5: Impulse responses to a monetary contraction
for wealth and consumption inequality, government reacts to tax revenues.

Note: monetary shock set to $\epsilon^R = 0.0025$ in cases where financial frictions on household borrowing are active, as well as in the frictionless scenario. For active frictions on firms, it is set to $\epsilon^R = 0.0015$. The blue solid line represents an economy with financial frictions on firms; the red dashed line corresponds to frictions on households; and the green dotted line depicts the case with no active financial frictions.

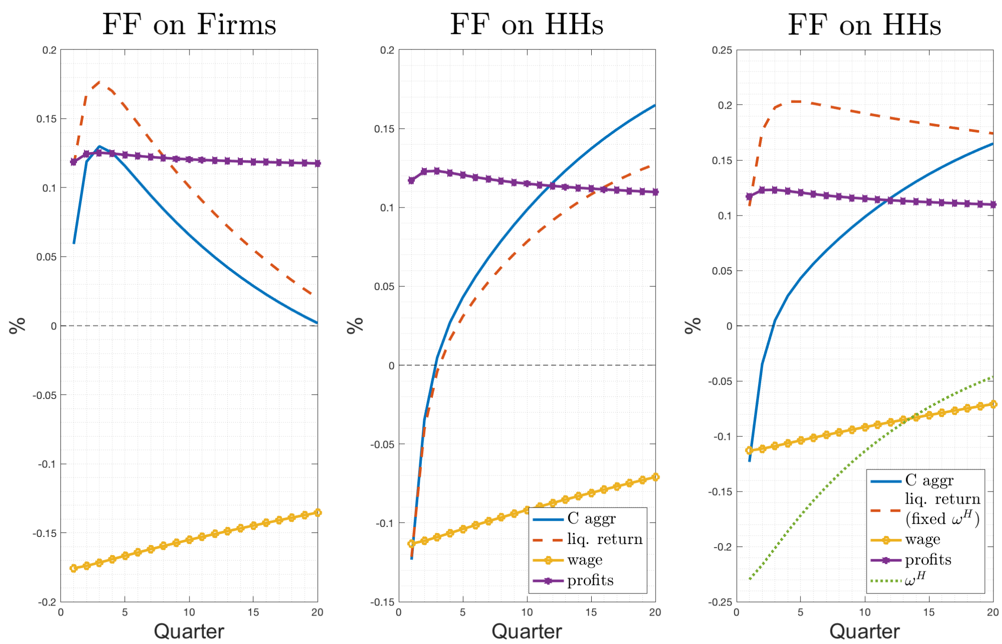

Figure G.6: Consumption decomposition for relevant prices, government reacts to tax revenues.

Note: monetary shock set to $\epsilon^R = 0.0025$ in cases where financial frictions on household borrowing are active. For active frictions on firms, it is set to $\epsilon^R = 0.0015$. The graph on the left-hand side represents the decomposition for the case of frictions on firms and the other two represent the case of frictions on household borrowing. In the graph on the right-hand side, I consider the borrowing penalty ω_t^H as an individual variable.

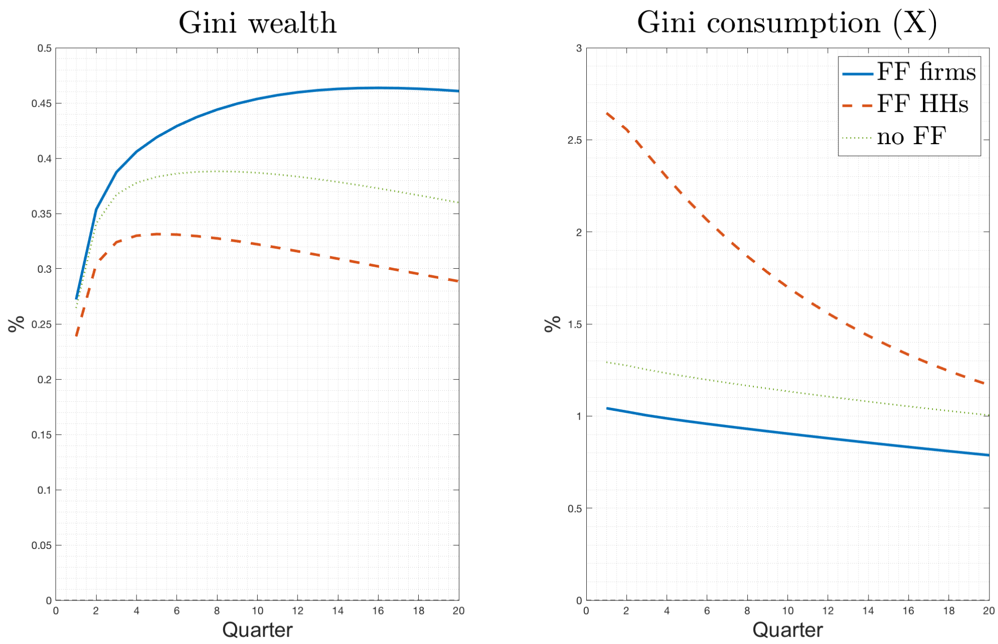

Figure G.7: Impulse responses to a monetary contraction
for wealth and consumption inequality, $\xi = 2$.

Note: monetary shock set to $\epsilon^R = 0.0025$ in cases where financial frictions on household borrowing are active, as well as in the frictionless scenario. For active frictions on firms, it is set to $\epsilon^R = 0.0015$. The blue solid line represents an economy with financial frictions on firms; the red dashed line corresponds to frictions on households; and the green dotted line depicts the case with no active financial frictions.

G.2 Households' risk aversion

I also consider a model in which I change the parameter for households' risk aversion, ξ. In the baseline calibrations, I assume $\xi = 4$ as in Bayer et al. (2019), but other models in the HANK literature(e.g., Auclert et al., 2021), assume a lower risk aversion for households. Therefore, in Figure G.7 and Figure G.8, I present the results when assuming a model with $\xi = 2$. However, this change in parametrization results in a slightly altered steady-state. To ensure consistency with empirical wealth distribution moments, it is necessary to adjust additional parameters, including β, ζ, and $\underline{a}$.

The main findings of the baseline model, that is, relatively higher wealth inequality for financial frictions on firms, relatively higher consumption inequality for financial frictions on households, and the relevance of the borrowing penalty ω^H for this dynamics, are robust to these changes in parametrization.

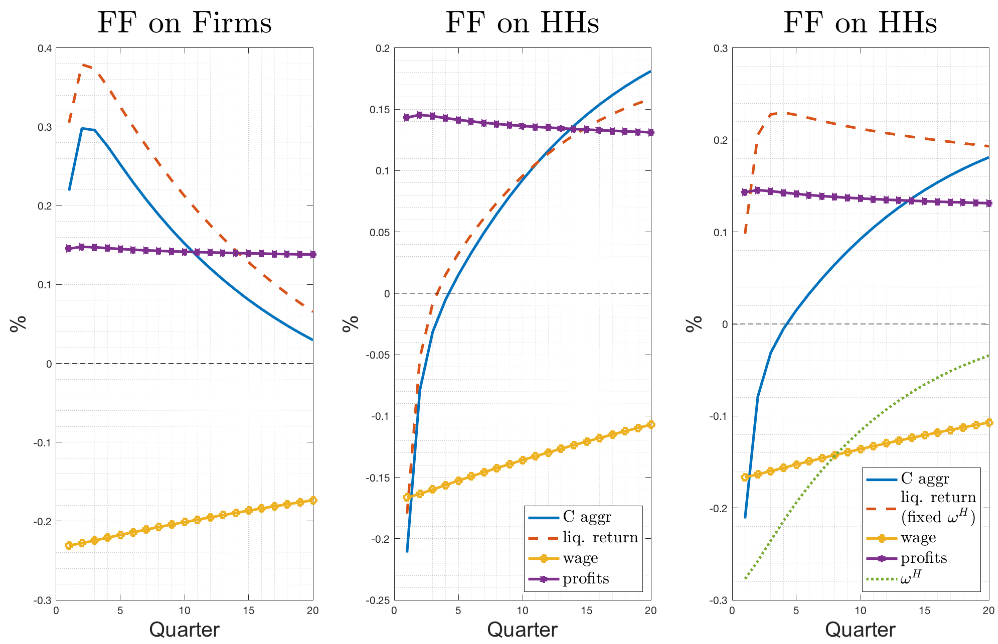

Figure G.8: Consumption decomposition for relevant prices, $\xi = 2$

Note: monetary shock set to $\epsilon^R = 0.0025$ in cases where financial frictions on household borrowing are active. For active frictions on firms, it is set to $\epsilon^R = 0.0015$. The graph on the left-hand side represents the decomposition for the case of frictions on firms and the other two represent the case of frictions on household borrowing. In the graph on the right-hand side, I consider the borrowing penalty ω_t^H as an individual variable.

G.3 Borrowing cost function $\Xi(B)$

The calibration of the borrowing cost function $\Xi_t(B_t)$ in the baseline model mirrors that of Cúrdia and Woodford (2016), wherein a one-percent rise in credit volume results in a one-percentage-point annual increase in the borrowing spread. However, the authors acknowledge that this calibration may be considered "extreme," and they adopt it primarily to more clearly illustrate the effects of a convex borrowing cost function on their results. To ensure the robustness of the main findings, I recalculate the Gini indices for wealth and consumption under alternative calibrations of the parameter η^{FF}, setting it to half and one-tenth of its baseline value. These correspond to scenarios in which a one-percent increase in credit volume raises the borrowing spread by 0.5% p.a. ($\eta^{FF} = 6.30$) and 0.1% p.a. ($\eta^{FF} = 2.06$), respectively.

The results, presented in Figure G.9, indicate that the main findings remain robust even under less extreme calibrations of η^{FF}. Consistent with the findings of Cúrdia and Woodford (2016), lower values of η^{FF} cause the outcomes under the convex borrowing technology to converge toward those obtained under a linear specification, eventually resembling results from an economy without financial frictions. Nevertheless, even un-

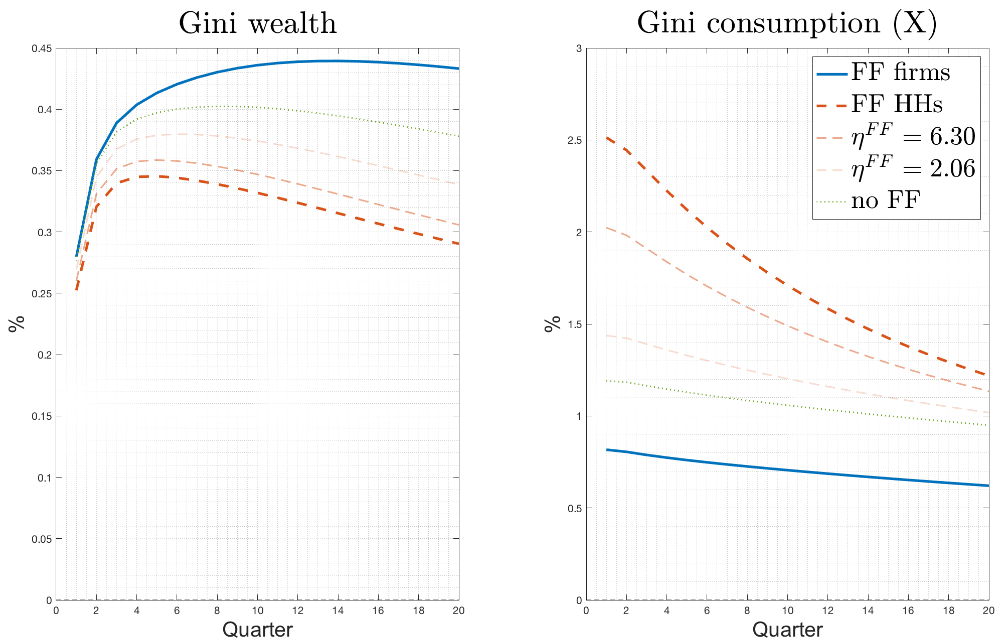

Figure G.9: Impulse responses to a monetary contraction for wealth and consumption inequality.

Note: monetary shock set to $\epsilon^R = 0.0025$ in cases where financial frictions on household borrowing are active, as well as in the frictionless scenario. For active frictions on firms, it is set to $\epsilon^R = 0.0014$. The blue solid line represents an economy with financial frictions on firms; the red dashed lines (with different degrees of transparency) correspond to frictions on households; and the green dotted line depicts the case with no active financial frictions.

der consistently lower values of η^{FF}, notable differences in inequality persist relative to the frictionless benchmark and, more prominently, relative to the counterfactual case of financial frictions on firms, as illustrated in Figure G.9, albeit to a reduced extent.