The Distributional Effects of Bailouts

Yu-Ting Chiang, Mikayel Sukiasyan, and Piotr Zoch

Abstract

This article examines the distributional effects of government bailouts using a heterogeneous agent New Keynesian model with financial intermediation frictions. We analyze government equity injections to financial institutions financed by debt issuance, capturing essential features of bailout policies during financial crises. When calibrated to match key features of the U.S. economy, bailout policies are expansionary and reduce inequality through general equilibrium effects operating primarily via aggregate demand stimulation and increased labor income rather than direct wealth effects. Equity injections increase the financial sector's capacity to intermediate capital, leading to higher capital prices, increased investment, and substantial aggregate demand increases. This improves labor market conditions that benefit lower-income households more than wealth effects benefit the wealthy. The result is reduced wealth and consumption inequality, demonstrating that bailouts can simultaneously achieve macroeconomic stabilization and inequality reduction.

JEL codes: E2, E6, H3, H6

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1. INTRODUCTION

The Global Financial Crisis of 2007–2008 prompted the U.S. government to purchase several hundred billion dollars in distressed assets from financial institutions. This intervention was authorized by the Emergency Economic Stabilization Act of 2008, which created the $700 billion Troubled Asset Relief Program to purchase toxic assets from banks. The idea of this massive intervention was controversial and faced backlash from the public and academia. Back-of-the-envelope calculations suggest that the cost per capita was more than $2,000. Discontent with the sluggish recovery and increasing wealth and income inequality, as documented by Perri and Steinberg (2012), gave rise to the advent of social movements such as Occupy Wall Street. Strong opposition to bank bailouts and calls for more redistribution indicate that the disgruntled public perceived these issues as important, most likely because of their redistributive nature.

This article aims to shed light on the interaction of the contended bank bailout and inequality. We study this interaction using the framework developed in Chiang and Zoch (2023) and Chiang and Zoch (2025), which integrates a canonical heterogeneous agent New Keynesian (HANK) model with a frictional financial sector

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described by its asset supply system. The framework builds on HANK models (Kaplan, Moll, and Violante, 2018; Auclert, Rognlie, and Straub, 2024; Auclert et al., 2021), where rich household heterogeneity is a feature necessary to study the distributional effects of bailouts. The New Keynesian component contains the aggregate demand channel, which is crucial for aggregate outcomes. To appropriately capture the effect of bailing out the financial sector, it is important to pin down key features of the financial sector. We achieve this by calibrating the model to match the sufficient statistics in Chiang and Zoch (2023), which nests a large class of canonical models of financial frictions, such as Gertler and Karadi (2011), Bernanke, Gertler, and Gilchrist (1999), and Cúrdia and Woodford (2011). With key features of the financial frictions pinned down and the household and production sectors featuring a state-of-the-art HANK model, the framework is well-suited for quantitative policy experiments.

The policy experiment we consider involves government equity injections to the financial sector, financed by debt issuance, capturing the essential features of bailout policies implemented during financial crises. We find that the policy is not only expansionary but also reduces inequality under various measures. This seemingly counterintuitive result emerges through general equilibrium effects that operate primarily through labor market channels rather than direct wealth effects. The mechanism driving these results operates as follows: Equity injections directly increase the financial sector's capacity to intermediate capital, leading to higher capital prices and increased investment. This expansion in economic activity generates substantial increases in aggregate demand, which translates into improved labor market conditions with higher employment and wages. While the direct wealth effects of asset price appreciation tend to benefit wealthy households disproportionately, the indirect effects through labor income prove quantitatively more important and benefit lower-income households more substantially. The net result is a reduction in both wealth and consumption inequality.

Our article contributes to the literature examining the distributional effects of macroeconomic policies, incorporating the role of financial frictions (Lee, Luetticke, and Ravn, 2020; Cui and Sterk, 2021; Mendicino, Nord, and Peruffo, 2021). Our results highlight the importance of general equilibrium channels that may not be immediately apparent from partial equilibrium analysis. By accounting for the effects on aggregate demand through which bailout policies operate, we show that such interventions can simultaneously achieve macroeconomic stabilization and inequality reduction objectives.

2. MODEL

To study the distributional effects of the policy, we use a model with heterogeneous agents. There are several sources of heterogeneity. First, households' labor income is risky, which generates income and wealth inequality. Second, we allow for permanent differences between risk aversion and patience between households: Some households are more patient and risk averse, while others are more focused on immediate consumption, which further amplifies the effects of income risk. This heterogeneity means that economic policies will affect different households differently, making it essential to track these distributional effects rather than assuming all households respond identically.

Beyond standard economic models, our framework incorporates a financial sector. Financial intermediaries matter for channeling household savings into productive investments. They cannot freely expand their lending—their ability to intermediate assets depends on their net worth and the spread between lending and borrowing rates. By injecting equity, the government can directly increase the intermediary's net worth and channel savings into productive investment. This boosts the productive capacity of the economy, increases labor income, and affects asset prices.

2.1 Households

Time is discrete, $t \in \{0, \ldots, \infty\}$. Households are indexed by $i \in [0, 1]$, have time-separable preferences, and derive utility from final goods consumption $c_{i,t}$ and disutility from labor $h_{i,t}$. Illiquid and liquid assets pay real returns r_t^A and r_t^B, and trading illiquid assets incurs portfolio adjustment costs. Preferences can be type dependent and indexed by i. Each household solves the following maximization problem:

$$\max_{c_{i,t},a_{i,t},b_{i,t}} \mathbb{E} \sum_{t=0}^{\infty} \beta_i^t \left[u_i\left(c_{i,t}\right) - \nu_i(h_{i,t}) \right],$$

subject to budget constraints

$$a_{i,t} + b_{i,t} + c_{i,t} + \Phi(a_{i,t}, a_{i,t-1}, r_t^A) = (1 + r_t^A) a_{i,t-1} + (1 + r_t^B) b_{i,t-1} + y_{i,t} - \mathcal{T}_t(y_{i,t}),$$

with borrowing constraints $a_{i,t} \geq \underline{a}$, $b_{i,t} \geq \underline{b}$ and real labor income $y_{i,t} = z_{i,t} \frac{W_t}{P_t} h_{i,t}$. The real income of households depends on idiosyncratic earnings shocks $z_{i,t}$, nominal wage per efficiency unit of labor W_t, and

the price of the final good P_t. Households form expectations over idiosyncratic shocks $z_{i,t}$. Labor $h_{i,t}$ is taken as exogenous by each household and is determined by monopolistically competitive labor unions to be described shortly. Income tax is given by the tax function $\mathcal{T}_t(\gamma_{i,t})$. For ease of exposition, we assume there are no aggregate shocks. However, up to first-order approximation, all results apply with the presence of aggregate shocks.

2.2 Production

Final goods production. A representative firm produces final goods γ_t with capital k_{t-1} and differentiated types of labor, $h_{\ell,t}$, supplied by unions indexed by $\ell \in [0,1]$:

$$\gamma_t = k_{t-1}^{\alpha} h_t^{1-\alpha}, \quad h_t = \left(\int h_{\ell,t}^{\frac{\varepsilon_W - 1}{\varepsilon_W}} d\ell \right)^{\frac{\varepsilon_W}{\varepsilon_W - 1}},$$

where $\varepsilon_W > 1$ is the elasticity of substitution between labor types. Given nominal wages $\{W_{\ell,t}\}$ and capital rental rate R_t, the firm chooses capital and labor to maximize profit:

$$\max_{k_{t-1}, \{h_{\ell,t}\}} P_t \gamma_t - R_t k_{t-1} - \int W_{\ell,t} h_{\ell,t} d\ell.$$

Labor supply. There is a continuum of monopolistically competitive unions.[1] To supply labor $h_{\ell,t}$, each union combines labor from households: $h_{\ell,t} = \int z_{i,t} h_{i,\ell,t} di$, following an exogenous allocation rule, $h_{i,\ell,t} = l(z_{i,t}, \gamma_t) h_{\ell,t}$ such that $\int z_{i,t} l(z_{i,t}, \gamma_t) di = 1$. Given labor demand, unions set nominal wage growth $\pi_{W,\ell,t} := \frac{W_{\ell,t}}{W_{\ell,t-1}} - 1$ to maximize the utilitarian welfare of households, subject to a wage adjustment cost:

$$\sum_{t=0}^{\infty} \int \beta_i^t \left[u_i\left(c_{i,t}, a_{i,t}, b_{i,t}\right) - \nu_i(h_{i,t}) - \frac{\kappa_W}{2} \pi_{W,\ell,t}^2 d\ell \right] di,$$

where $h_{i,t} = \int h_{i,\ell,t} d\ell$. Wage adjustment cost is borne as disutility by unions and does not affect the resource constraint; $\kappa_W > 0$ parameterizes the level of nominal wage rigidity. The symmetry between unions implies that each household's nominal wages sum to $z_{i,t} W_t h_{i,t}$, where W_t is the ideal wage index.

Capital. The aggregate capital stock has the following law of motion:

$$k_t = \left(1 - \delta + \Gamma\left(\iota_t\right)\right) k_{t-1}, \quad \iota_t := \frac{x_t}{k_{t-1}},$$

where x_t, ι_t denote the investment level and investment rate, δ is the depreciation rate, and $\Gamma(\cdot)$ captures the capital adjustment cost. Let q_t denote the price of capital. Holding capital from periods t to $t+1$ earns a return on capital:

$$1 + r_{t+1}^K = \max_{\iota_{t+1}} \frac{R_{t+1}/P_{t+1} + q_{t+1}\left(1 + \Gamma\left(\iota_{t+1}\right) - \delta\right) - \iota_{t+1}}{q_t}. \tag{1}$$

2.3 The Financial Sector

Capital is held by a passive mutual fund and an intermediary:

$$k_t = k_t^F + k_t^B.$$

Mutual fund. The mutual fund holds capital k_t^F and intermediary net worth n_t^F. It constitutes households' total illiquid asset holdings with value $a_t = q_t k_t^F + n_t^F$. As a result, the return on illiquid assets is given by the value-weighted average of returns on capital r_t^K and returns on intermediary net worth r_t^N:

$$r_{t+1}^A = \frac{1}{a_t}(r_{t+1}^K q_t k_t^F + r_{t+1}^N n_t^F). \tag{2}$$

We assume that the law of motion for net worth follows

$$n_t^F = (1-f)(1 + r_t^N) n_{t-1}^F + m. \tag{3}$$

1. We introduce wage-setting unions as a standard way to allow for nominal wage rigidities, following Erceg, Henderson, and Levin (2000).

Net worth evolves as a fraction of past net worth plus an exogenous net worth inflow m, describing the net allocation of resources from the mutual fund.

Intermediary. The intermediary can transform illiquid capital into liquid assets, thereby supplying liquidity to the economy. In each period, the intermediary issues liquid assets $\tilde{d}_t$ and holds capital and government debt, k_t^B and b_t^B. We assume government debts are perfect substitutes for liquid assets, and the net liquidity supply is given by $d_t := \tilde{d}_t - b_t^B$. The intermediary's ability to transform assets can, for example, represent its superior capability to manage loans. Without the intermediary, households would need to perform the task themselves and incur the cost $\Phi(\cdot)$.

The total net worth of the intermediary is denoted by n_t. It consists of net worth held by the fund, n_t^F, and the government, n_t^G. Given net worth, the intermediary can hold capital and supply liquidity with leverage Θ_t:

$$q_t k_t^B = \Theta_t n_t, \quad d_t = (\Theta_t - 1) n_t,$$

where the expression for d_t is implied by the intermediary's balance sheet, $q_t k_t^B = n_t + d_t$. The level of leverage is governed by a function $\Theta(\cdot)$, representing the intermediation frictions:

$$\Theta_t = \Theta(\{r_{s+1}^K, r_{s+1}^B\}_{s \geq t}). \tag{4}$$

Function $\Theta(\cdot)$ depends on the entire path of future returns $\{r_{s+1}^K, r_{s+1}^B\}_{s \geq t}$, which stand for the intermediary's future investment opportunity and funding cost, respectively. As shown in Chiang and Zoch (2023), this formulation of the frictions nests a large class of financial intermediation models as special cases.

Given leverage Θ_t, the intermediary's balance sheet implies that the return on net worth satisfies

$$r_{t+1}^N = \Theta_t (r_{t+1}^K - r_{t+1}^B) + r_{t+1}^B.$$

2.4 Government

The government sets a sequence of government purchases g_t, government debt b_t^G, the liquid rate target r_t^B, total tax revenue T_t, and holdings of financial sector net worth n_t^G (bailout). The government debt is real debt, and monetary policy adjusts the nominal interest rate to keep the real liquid rate at its target for all $t > 0$. The liquid rate r_0^B in period 0 is predetermined. The government collects tax revenue through the tax system $\mathcal{T}_t(y_{i,t}) = y_{i,t} - (1 - \tau_t) y_{i,t}^{1-\lambda}$. Given $\{y_{i,t}\}$, tax rate τ_t is set such that $T_t = \int \mathcal{T}_t(y_{i,t}) di$. The government faces budget constraints:

$$b_t^G - (1 + r_t^B) b_{t-1}^G = n_t^G - (1 + r_t^N) n_{t-1}^G + g_t - T_t. \tag{5}$$

2.5 Definition of Equilibrium

Given $\left\{g_t, b_t^G, r_t^B, T_t\right\}$, an equilibrium consists of prices $\left\{P_t, R_t, W_{\ell,t}, q_t, r_t^A, r_t^K\right\}$ and allocations $\{y_t, c_{i,t}, x_t, h_t, h_{i,\ell,t}, k_t, k_t^F, k_t^B, a_t, a_{i,t}, b_{i,t}, n_t, n_t^F, n_t^G, d_t\}$ such that (1) households maximize utility subject to constraints; (2) firms maximize profit, and the investment rate maximizes the return on capital; (3) nominal wages maximize the payoff of the labor unions; (4) the intermediary's capital holdings and liquidity supply are given by the intermediation frictions and the net worth process; (5) the illiquid return r^A is consistent with the mutual fund's balance sheet; (6) the government budget constraint holds given the tax system, and (7) markets clear:

$$\int (c_{i,t} + \Phi_{i,t})\, di + x_t + g_t = y_t, \quad \int b_{i,t} di = d_t + b_t^G, \quad \int a_{i,t} di = n_t + q_t k_t^F, \quad n_t = n_t^F + n_t^G,$$

where (i) in the goods market, output equals the total of consumption, investment, and government purchases; (ii) in the liquid asset market, households' liquid asset holdings equal the total supplied by the intermediary and the government; (iii) in the illiquid asset market, the total of households' holdings of illiquid assets equals the value of assets held by the fund; and (iv) the financial sector's net worth consists of holdings by the mutual fund and the government. The capital market clears when the total capital held by the intermediary and the fund equals the aggregate capital stock.

3. CALIBRATION

We now take the model to the data to prepare for a quantitative assessment of how the financial sector affects aggregate responses to policies.

The Financial Sector

We focus on the first-order approximation with respect to the government policy. We assume that up to first-order approximation, the financial intermediation frictions take the form of those in Chiang and Zoch (2023):

$$d\Theta_t = \sum_{h=1}^{\infty} \gamma^{h-1} \left(\bar{\Theta}_{r^K} dr^K_{t+h} - \bar{\Theta}_{r^B} dr^B_{t+h} \right), \tag{6}$$

where the three key parameters are estimated to be of the following values:

$$\bar{\Theta}_{r^K} = 23.73, \quad \bar{\Theta}_{r^B} = 25.78, \quad \gamma = 0.94.$$

Steady-state returns and leverage: We set the liquid rate r^B equal to 0 percent, consistent with the average one-year Treasury real yield in our sample. We target r^K at 3.5 percent per annum, which corresponds to the average real yield on BAA bonds. The average effective leverage $\bar{\Theta}$ is 4.

Net worth process. We assume that the net worth process features a payout rate $f = 0.06$ from the leveraged return. We calibrate m to match the banking sector's net worth's steady-state level, which is 10 percent of annual GDP.

Production

The elasticity of output with respect to capital α is set to 0.35. Depreciation rate δ is 5.58 percent yearly. The capital production function is $\Gamma(\iota_t) = \bar{\iota}_1 \iota_t^{1-\kappa_I} + \bar{\iota}_2$, where $\bar{\iota}_1$ and $\bar{\iota}_2$ generate a steady-state investment-to-capital ratio equal to δ and the price of capital equal to 1. We set $\kappa_I = 0.5$ so that the elasticity of investment to capital price is 2. Following Auclert and Rognlie (2018), we assume that unions allocate labor according to an incidence function of the form

$$l(z_{i,t}, \gamma_t) = \frac{z_{i,t}^{\zeta \log \gamma_t}}{\int z_{i,t}^{\zeta \log \gamma_t} di}$$

with $\zeta = -0.5$, implying countercyclical income risk.

Since monetary policy targets real liquid rates, the slope of the wage Phillips curve does not matter for output responses. Therefore, the exact values of the elasticity of substitution between labor varieties ε_W and nominal wage rigidity κ_W are inconsequential.

Government

We set steady-state net tax revenue to 15 percent of output and the tax system's progressivity parameter λ to 0.18. Net liquid assets supplied by the government (and held by the private sector) are 21 percent of steady-state output, consistent with the net liquid asset positions in the data. We assume that the government holds no illiquid assets in the steady state. The level of government purchases implied by the government budget constraint is 15 percent of output.

Households

Preferences. There are two types of households, indexed by s with population share μ_s. Period utility functions have the following form:

$$u_s(c) - \nu_s(h) = \frac{c^{1-\sigma_s} - 1}{1 - \sigma_s} - \sigma \frac{h^{1+\frac{1}{\varphi}}}{1 + \frac{1}{\varphi}}, \quad \sigma_s \geq 0, \ \varphi \geq 0.$$

We set the intertemporal elasticity of substitution $1/\sigma_s$ to $\{1/2, 2\}$ for $s \in \{1, 2\}$, following a simplified version of Aguiar, Bils, and Boar (2020). The Frisch labor supply elasticity φ is set to 1. The parameter σ is set so that steady-state average hours worked equal one-third of total time endowment.

Income process. We use a discrete-time version of the income process described in Kaplan, Moll, and Violante (2018), which targets eight moments of the male-earnings distribution from Guvenen et al. (2015). The income process is the same for both household types.

Assets. The adjustment cost of illiquid assets is similar to that of Auclert et al. (2021):

$$\Phi_t(a_{i,t}, a_{i,t-1}, r_t^A) = \frac{\chi_1}{\chi_2} \left| \frac{a_{i,t} - (1 + r_t^A) a_{i,t-1}}{a_{i,t-1} + \chi_0} \right|^{\chi_2} \left[a_{i,t-1} + \chi_0 \right].$$

Table 1
Household Calibration

Target Moments	Model	Data	Parameter	Value
Liquid assets to GDP	0.60	0.55	β_1	0.983
Illiquid assets to GDP	3.36	3.43	β_2	0.943
Poor hand-to-mouth	15%	9%–17%	μ_2	0.176
Wealthy hand-to-mouth	25%	12%–33%	χ_1	23.34
First-quarter MPC	20%	15%–25%	χ_2	2.0154

SOURCE: See Chiang and Zoch (2023) for liquid assets and illiquid asset positions; Table 3 in Kaplan, Violante, and Weidner (2014) for data on shares of hand-to-mouth households, and Kaplan and Violante (2022) for MPC data.

We set χ_0 to 0.1 and assume that asset positions cannot be negative: $\underline{a} = \underline{b} = 0$.

The parameters of households that we calibrate internally include the discount rates β_s of both types, the share of agents with high intertemporal elasticity of substitution μ_2, and two parameters of the adjustment cost function χ_1 and χ_2. We target five moments: the steady-state ratios of liquid and illiquid assets to GDP, the shares of wealthy and poor hand-to-mouth agents (25 percent and 15 percent, respectively), and the first-quarter marginal propensity to consume (MPC) out of a $500 transfer (20 percent). Table 1 shows that the model replicates target moments and reports calibrated parameter values.

4. QUANTITATIVE RESULTS

4.1 Policy Experiment

We consider a government policy that consists of equity injections to the financial sector financed by government debt issuance: $dn_t^G = db_t^G$. The government keeps $dg_t = dr_t^B = 0$ and adjusts tax revenue dT_t to satisfy the budget constraint. This policy implies a path of net equity injections (bailouts):[2]

$$d\Delta_t := dn_t^G - (1 + r^N) dn_{t-1}^G.$$

To parameterize the policy path, we assume that

$$db_t^G = \rho_{bG}(db_{t-1}^G + s_t), \quad s_t = \eta^t s_0.$$

We set $\rho_{bG} = 0.95, \eta = 0.5$, and s_0 so that debt peaks at 1 percent of annual GDP in one year. This parameterization captures the typical pattern of financial sector bailouts, where initial injections are substantial but taper off over time as the financial system stabilizes. The gradual phase-out of support reflects the temporary nature of such interventions and the expectation that private capital will eventually replace government backing. Figure 1 shows the resulting paths.

4.2 Responses of Aggregate Variables

The bailout policy generates expansionary macroeconomic effects.[3] Figure 2 illustrates the dynamic responses of key aggregate variables to the equity injection policy. Real GDP increases by approximately 1.5 percent on impact, with two-thirds of the increase resulting from investment and the remaining from consumption response. This expansionary effect operates through both the capital market and the subsequent feedback through the goods market: The equity injections directly increase the financial sector's capacity to intermediate capital, which pushes up the price of capital by approximately 2 percent. The increase in capital price stimulates investment, which increases by nearly 1 percent at peak.

In addition to the effect on investment, increasing capital price stimulates aggregate demand through households' consumption response. Aggregate consumption rises by 0.6 percent at peak, with the response building gradually over the first year. The consumption increase reflects both direct wealth effects from higher asset prices and indirect effects from improved labor market conditions.

2. Since $n^G = 0$ in the steady state, and net equity injections are $\Delta_t = n_t^G - (1 + r_t^N) n_{t-1}^G$, the formula for $d\Delta_t$ follows from a first-order approximation with $dr_t^N n^G = 0$.

3. Recall that we assume monetary policy keeps the real liquid rate r_t^B constant at the target level. As the effects of bailout are expansionary, a standard Taylor rule would call for monetary tightening, thereby dampening the effects of bailout. This assumption may overstate the magnitude of our results if real-world central banks partially offset bailout stimulus through higher interest rates, reducing both the aggregate and distributional effects we document.

Figure 1
The Path of Government Debt, Net Equity Injections, and Taxes

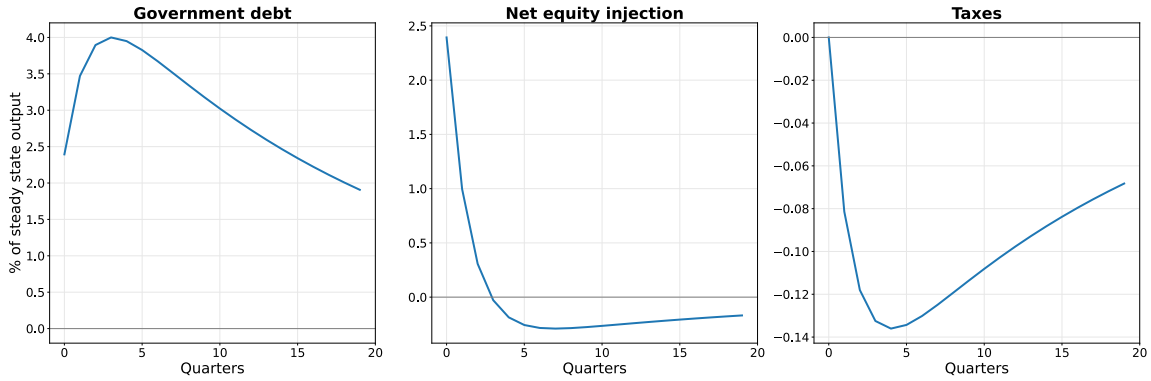
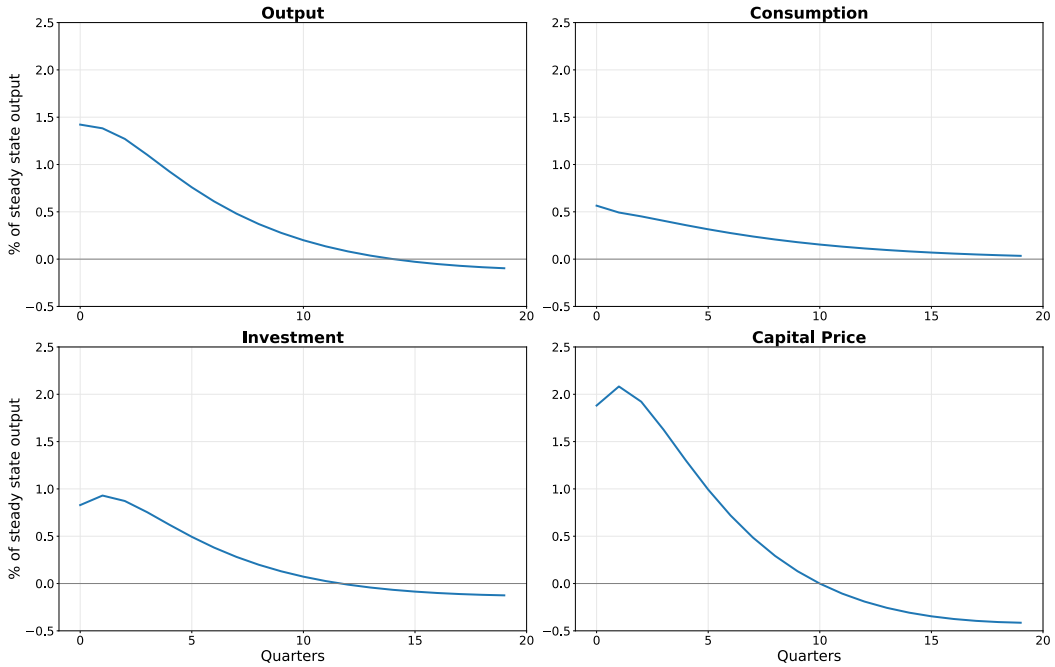


Figure 2
Responses of Output, Consumption, Investment, and Capital Prices to Equity Injections



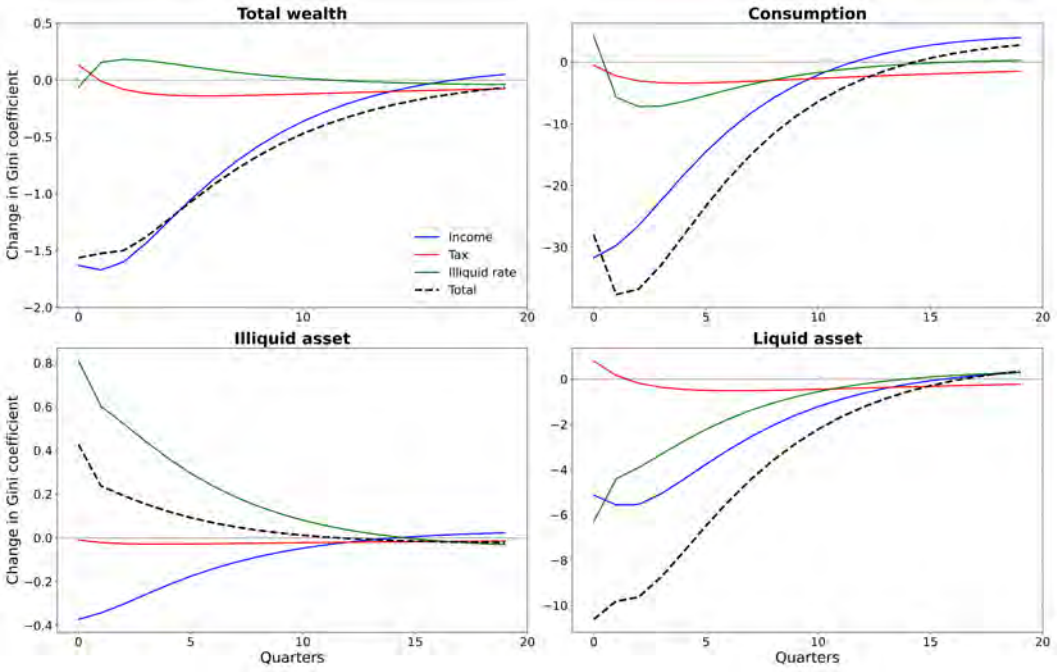
4.3 Distributional Effects

The distributional effects of the bailout policy turn out to be progressive rather than regressive, as both the Gini coefficient for total wealth and consumption decrease (Figure 3, top panels) following the equity injections.[4] This finding suggests that bailout policies may have unexpected equalizing effects across the wealth and consumption distributions. When we break down households' total wealth into different asset types (Figure 3, bottom panels), we observe heterogeneous effects across different forms of wealth. Holdings of illiquid assets become more unequal following the bailout, while those of liquid assets become more equally distributed across households. This divergence reflects the different channels through which the bailout policy affects various asset classes and household portfolio compositions.

To understand the underlying mechanisms driving these distributional outcomes, we decompose the effects into changes across different macroeconomic variables, including illiquid returns (changes in r_t^A), total income (changes in y_t), and taxes (changes in T_t). This decomposition allows us to identify which specific channels contribute most significantly to the observed changes in inequality. The effect operating through illiquid re-

4. The response of the Gini coefficient for consumption is particularly strong, driven by both a decline in consumption inequality between the two types of households and within each type. It is likely that the response would have been weaker in a model with a larger number of permanent types of households (i.e., with a continuous distribution of β_i).

Figure 3
Changes in Gini Coefficients (×100) for Total Wealth, Consumption, and the Two Types of Assets, Including Total Responses and Decomposition by Channel



turns increases total wealth inequality, which aligns with intuitive expectations given that the bailout increases the value of illiquid assets. Households with larger initial holdings of illiquid assets naturally benefit more from the appreciation in asset values, contributing to greater concentration of wealth among already-wealthy households. However, the dominant force driving the overall reduction in inequality operates through labor income as a result of general equilibrium effects. The bailout increases aggregate demand through improvements in the capital market, which translates into higher employment and wages that disproportionately benefit lower-income households. This indirect channel proves to be quantitatively more important than the direct wealth effects from asset price appreciation.

The mechanism behind these results operates through a straightforward economic sequence of events that shows the importance of general equilibrium effects. Government equity injections strengthen bank balance sheets, enabling increased lending that drives up investment and economic activity. This expansion creates demand for workers throughout the economy, leading to job creation and wage growth that benefit working households more than asset price appreciation benefits the wealthy. This finding highlights the importance of accounting for indirect general equilibrium channels when analyzing the distributional outcomes of macroeconomic policies. It also echoes similar conclusions in the literature, particularly the message emphasized in Kaplan, Moll, and Violante (2018), that the full economic effects of policy interventions often operate through complex feedback mechanisms that may not be immediately apparent from partial equilibrium analysis. Put simply, while bailouts do increase asset values for wealthy households, they create even larger benefits for working families through improved employment prospects and wages—a finding that challenges conventional wisdom about who really benefits from financial sector interventions.

5. CONCLUSION

This article examines the distributional consequences of government bailouts using a HANK model with financial intermediation frictions. Our analysis reveals that bailout policies can simultaneously achieve macroeconomic stabilization and inequality reduction—a finding that challenges conventional intuitions about the regressive nature of such interventions. We show that bailout policies are expansionary, increasing real GDP, while reducing inequality as measured by Gini coefficients for both total wealth and consumption. Equity injections operates by enhancing the financial sector's capacity to intermediate capital, leading to higher capital prices, increased investment, and substantial increases in aggregate demand. While direct wealth effects from asset price appreciation disproportionately benefit wealthy households, the indirect effects through im-

proved labor market conditions prove quantitatively more important and benefit lower-income households more substantially, resulting in net reductions in inequality.

These findings contribute to the literature on distributional effects of macroeconomic policies by highlighting how general equilibrium channels can produce outcomes that differ markedly from partial equilibrium intuitions. The results suggest that concerns about the regressive nature of bailout policies may be overstated when their full economic effects are properly accounted for. By modeling household heterogeneity and financial frictions jointly for policy analysis, we show that policies commonly perceived as benefiting primarily the wealthy can, under certain conditions, contribute to reducing inequality.

REFERENCES

Aguiar, Mark A, Mark Bils, and Corina Boar. 2020. *Who are the hand-to-mouth?* Working Paper, Working Paper Series 26643. National Bureau of Economic Research, January. https://doi.org/10.3386/w26643. http://www.nber.org/papers/w26643.

Auclert, Adrien, Bence Bardóczy, Matthew Rognlie, and Ludwig Straub. 2021. Using the sequence-space jacobian to solve and estimate heterogeneous-agent models. *Econometrica* 89 (5): 2375–2408. https://doi.org/https://doi.org/10.3982/ECTA17434. eprint: https://onlinelibrary.wiley.com/doi/pdf/10.3982/ECTA17434. https://onlinelibrary.wiley.com/doi/abs/10.3982/ECTA17434.

Auclert, Adrien, and Matthew Rognlie. 2018. *Inequality and Aggregate Demand.* NBER Working Papers. National Bureau of Economic Research, Inc. https://ideas.repec.org/p/nbr/nberwo/24280.html.

Auclert, Adrien, Matthew Rognlie, and Ludwig Straub. 2024. The intertemporal keynesian cross. *Journal of Political Economy* 132 (12): 4068–4121. https://doi.org/10.1086/732531.

Bernanke, Ben S., Mark Gertler, and Simon Gilchrist. 1999. The financial accelerator in a quantitative business cycle framework. Chap. 21 in *Handbook of Macroeconomics,* vol. 1. Elsevier, December. https://ideas.repec.org/h/eee/macchp/1-21.html.

Chiang, Yu-Ting, and Piotr Zoch. 2023. *Financial intermediation and aggregate demand: a sufficient statistics approach.* Technical report.

———. 2025. *Optimal asset market operations.* Technical report.

Cui, Wei, and Vincent Sterk. 2021. Quantitative easing with heterogeneous agents. *Journal of Monetary Economics* 123.

Cúrdia, Vasco, and Michael Woodford. 2011. The central-bank balance sheet as an instrument of monetary-policy. Carnegie-Rochester Conference Series on Public Policy: The Future of Central Banking April 16-17, 2010, *Journal of Monetary Economics* 58 (1): 54–79. ISSN: 0304-3932. https://doi.org/https://doi.org/10.1016/j.jmoneco.2010.09.011. https://www.sciencedirect.com/science/article/pii/S0304393210001224.

Erceg, Christopher J., Dale W. Henderson, and Andrew T. Levin. 2000. Optimal monetary policy with staggered wage and price contracts. *Journal of Monetary Economics* 46 (2): 281–313. ISSN: 0304-3932. https://doi.org/https://doi.org/10.1016/S0304-3932(00)00028-3. https://www.sciencedirect.com/science/article/pii/S0304393200000283.

Gertler, Mark, and Peter Karadi. 2011. A model of unconventional monetary policy. *Journal of monetary Economics* 58 (1).

Guvenen, Fatih, Fatih Karahan, Serdar Ozkan, and Jae Song. 2015. *What do data on millions of us workers reveal about life-cycle earnings risk?* Technical report. National Bureau of Economic Research.

Kaplan, Greg, Benjamin Moll, and Giovanni L Violante. 2018. Monetary policy according to hank. *American Economic Review* 108 (3).

Kaplan, Greg, and Giovanni L. Violante. 2022. *The Marginal Propensity to Consume in Heterogeneous Agent Models.* NBER Working Papers 30013. National Bureau of Economic Research, Inc. https://ideas.repec.org/p/nbr/nberwo/30013.html.

Kaplan, Greg, Giovanni L. Violante, and Justin Weidner. 2014. The Wealthy Hand-to-Mouth. *Brookings Papers on Economic Activity* 45. https://ideas.repec.org/a/bin/bpeajo/v45y2014i2014-01p77-153.html.

Lee, Seungcheol, Ralph Luetticke, and Morten Ravn. 2020. *Financial frictions: macro vs micro volatility.* CEPR Discussion Papers 15133.

Mendicino, Caterina, Lukas Nord, and Marcel Peruffo. 2021. *Distributive Effects of Banking Sector Losses.* Technical report.

Perri, Fabrizio, and Joe Steinberg. 2012. Inequality and redistribution during the great recession. *Economic Policy Paper* 1.