

DO AUTOMATIC STABILIZERS REALLY STABILIZE? EVIDENCE FROM UNEMPLOYMENT INSURANCE POLICIES AND HOUSING MARKET¹

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¹The views expressed here are ours, and do not reflect those of the BIS and FED Board.

- ▶ **More common view: Generous UI stabilizes macro economic fluctuations**
 - as it smooths income,
 - and transfers resources to higher MPC consumers.
 - But, it may increase reservation wages and may cause jobless recoveries.
- ▶ **This paper's view: There are previously unexplored mechanisms through which UI can destabilize as it**
 - weakens household and bank balance sheets,
 - increases elasticity of demand to shocks.
- ▶ **“Automatic stabilizers” matter for other policies: Across AEs safety nets reduced the need for budgetary measures during Covid-19.**

- ▶ A calibrated GE model to identify/quantify mechanisms. Higher unemployment insurance
 - lowers household wealth, liquid assets, and down payments, increase mortgage borrowing,
 - lowers bank deposit funding and raises mortgage share in bank loans.
 - Weak balance sheets amplify the bust.
 - The boom is also bigger, mainly because of higher demand elasticity.
 - General equilibrium effects matter.

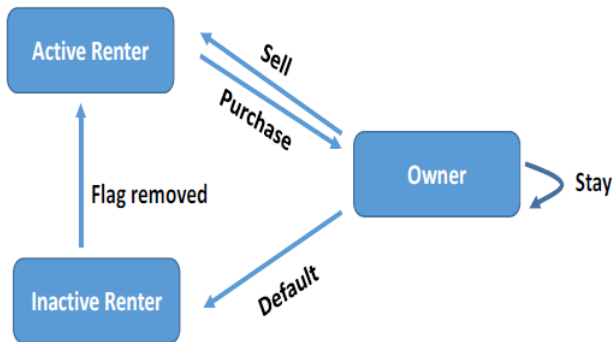
- ▶ Empirical evidence (US data): High UI counties have
 - higher volatility, of mortgage loans and house prices
 - higher elasticity of mortgage loans and house prices to changes in interest rates.

ENVIRONMENT: HOUSEHOLDS-I

- ▶ Economy is populated by **many households with deterministic time horizon** (OLG),
- ▶ who like **consumption and housing**,
- ▶ and are subject to **idiosyncratic income and employment shocks**.
 - If unemployed → receive UI benefits
 - Inelastic labour supply, no search and matching
- ▶ can either **rent or own**
- ▶ Two types of households: **capitalists** and **depositors**
 - **Capitalists** own the capital stock and rental companies.
 - **Depositors** save through bank deposits.

- ▶ House purchase can be done through a **defaultable fixed rate mortgage**
- ▶ Terms of mortgage contracts (down payment and mortgage interest rate) are **endogenous**
- ▶ Homeowners can **resize their house and/or refinance their mortgage**
- ▶ Buying/Selling a house involves **transaction costs**.
- ▶ No unsecured borrowing.

HOUSEHOLD'S DECISIONS



▶ Producers

- combine workers N_t at wage w_t and capital K_t at rate \tilde{r}_t
- finance a fraction of the wage payment in advance from banks and pay interest on that portion.

▶ Real estate companies

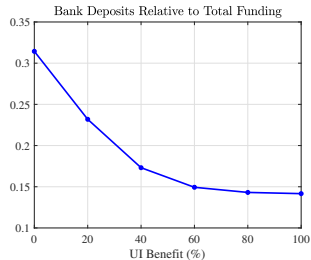
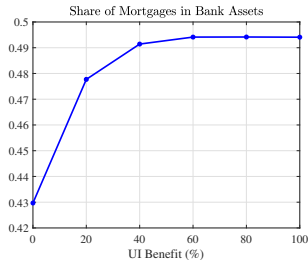
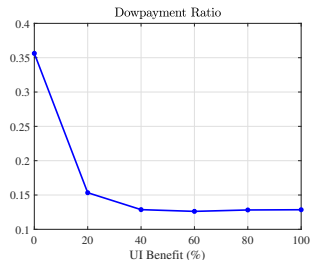
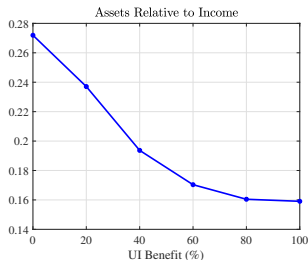
- Owned by capitalists, rented to households
- Enter the period with some housing stock and chooses how much to adjust, subject to a quadratic adjustment cost
- Receives rent payments pays the maintenance cost, pays dividend

- ▶ Competitive and identical bankers
 - Accept deposits at rate r_t (exogenous)
 - Complement the deposits with funds from international investors
 - Lend to the firms at r_t^* (endogenous)
 - Issue mortgages and hold existing mortgages.

- ▶ Banks are subject to **funding constraints**: the amount of funds from international investors cannot exceed a multiple of their net worth
 - Exogenous
 - Deposits are not subject to the constraint

- ▶ Government runs a **balanced budget** in every period
- ▶ Finances unemployment and social security benefits via **proportional income tax** on **employed**

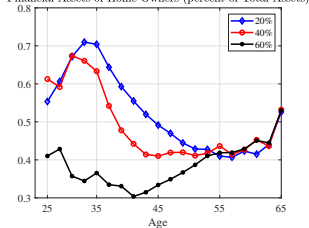
STEADY-STATE COMPARISONS-AVERAGES



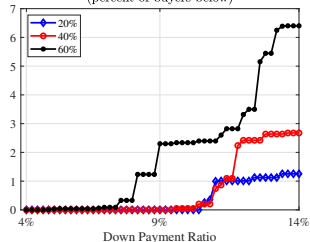
Generous UI weakens balance sheets.

STEADY-STATE COMPARISONS-DISTRIBUTIONS

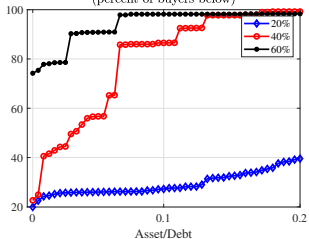
Financial Assets of Home Owners (percent of Total Assets)



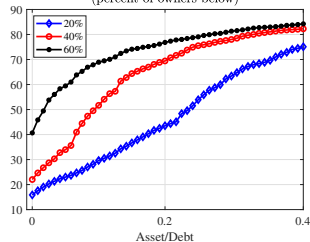
Mortgage Downpayment Distribution (percent of buyers below)



Financial Assets Relative to Debt (percent of buyers below)

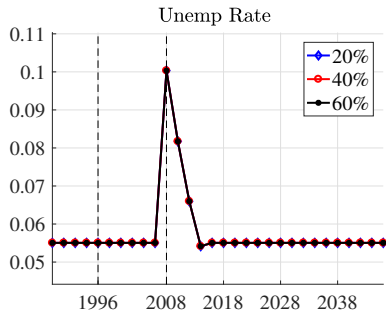
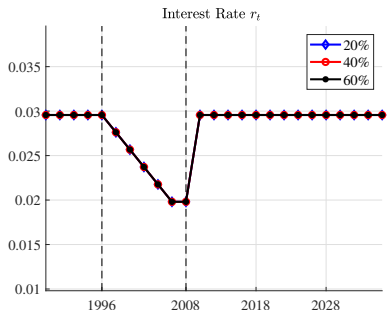


Financial Assets Relative to Debt (percent of owners below)



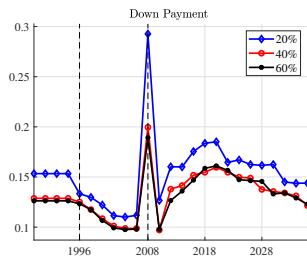
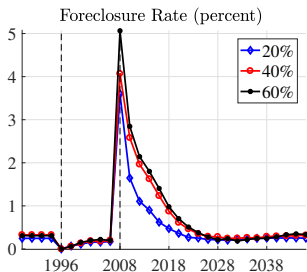
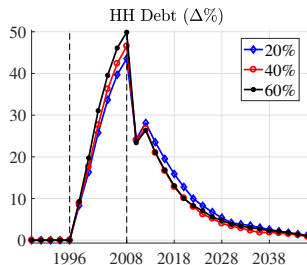
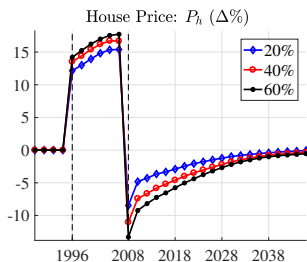
Generous UI lowers liquid asset holdings.

UNEXPECTED BOOM-BUST EXPERIMENT



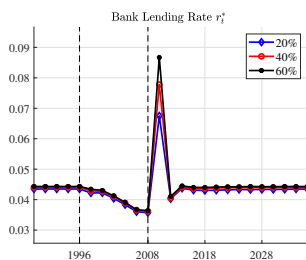
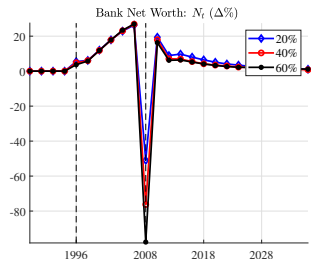
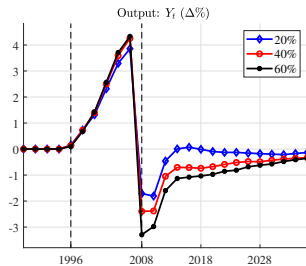
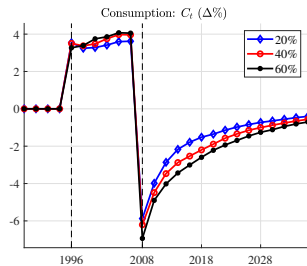
Boom-bust is generated by unexpected and permanent changes in interest rate and unemployment shocks.

BOOM-BUST RESULTS: HOUSING DYNAMICS



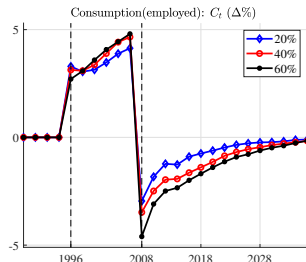
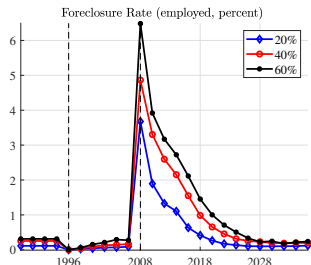
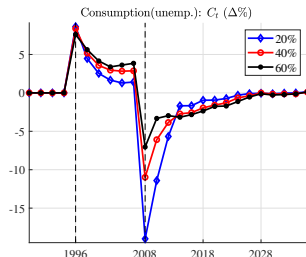
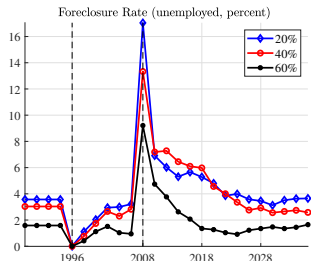
UI amplifies the boom-bust in the housing market.

MACROECONOMIC AND BANKING DYNAMICS



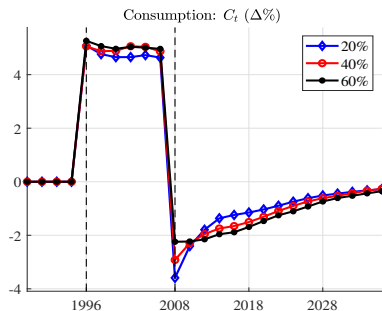
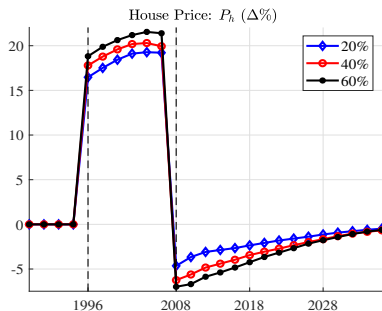
UI amplifies the boom-bust in the banking sector and the macro economy.

UNEMPLOYED VS EMPLOYED



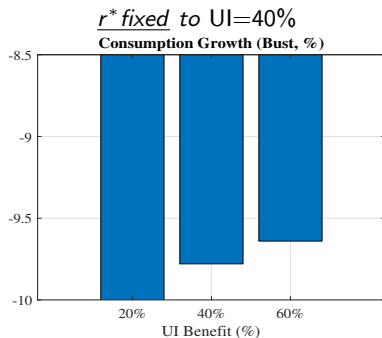
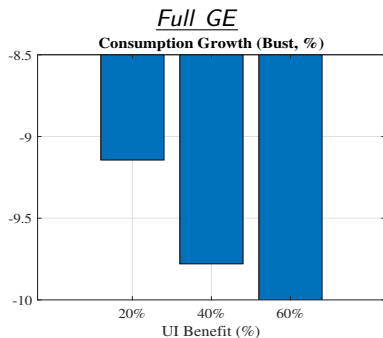
UI helps unemployed but hurts the employed

THE ROLE OF BANKS



Bank balance sheet constraints limits the boom, amplifies the bust

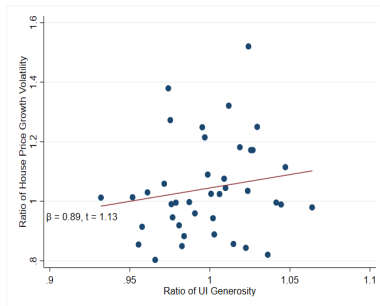
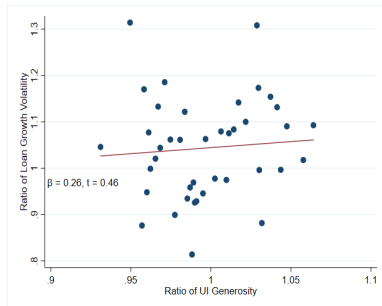
GENERAL EQUILIBRIUM EFFECTS



General equilibrium effects are strong enough to reverse the results for consumption

- ▶ The results are robust to
 - a higher increase in unemployment rate
 - smaller shocks
 - other types of shocks: expectations, productivity, and credit supply
- ▶ Discretionary increase in UI during the bust stabilizes.

EMPIRICAL ANALYSIS: COMPARING VOLATILITIES



Higher volatility in higher UI counties

- ▶ Focus on the effects of long-term interest rates on the housing markets at the county level and estimate

$$\Delta \log(Y_c^t) = \beta_1 \Delta IR_{10y}^{t-1} * UI_c^t + \beta_2 \Delta IR_{10y}^{t-1} + controls_{c/t} + \epsilon_{c,t}$$

- ▶ available mortgage and house prices data,
- ▶ and UI, and other policies are determined at the state level.
- ▶ Empirical strategy: Make the counties as similar as possible
 - PSM: match the counties on a rich set of observables
 - Use border discontinuity in UI at the state level
 - Add macro, county, and state level controls and their interactions

UI, INTEREST RATES AND HOUSE PRICES

	All		Pair(matching)	Pair(border)
	(1)	(2)	(3)	(4)
$Int.Rate_{q-1}^{10y}$ X UI Ben.	-0.002*** (0.000)	-0.002*** (0.000)	-0.002** (0.001)	-0.001* (0.001)
$Int.Rate_{q-1}^{10y}$	-0.017*** (0.005)			
County Controls	Y	Y	Y	Y
State Controls	Y	Y	Y	Y
Macro Controls	Y	Y	N	N
County FE	Y	Y	Y	Y
Seasonality FE	Y	N	N	N
Time FE	N	Y	N	N
Pair(matching)*Time FE	N	N	Y	N
Pair(border)*Time FE	N	N	N	Y
Obs.	280,903	280,903	175,826	124,384
R ²	0.180	0.297	0.705	0.722

Standard errors in parentheses

+ p<0.15, * p<0.10, ** p<0.05, *** p<0.01

UI amplifies the effect of interest rates on house prices

UI, INTEREST RATES, AND MORTGAGES

	All		Pair(matching)	Pair(border)
	(1)	(2)	(3)	(4)
$\Delta Int.Rate_{q-1}^{10y}$ X UI Ben.	-0.039*** (0.009)	-0.036*** (0.011)	-0.016* (0.009)	-0.017* (0.009)
$\Delta Int.Rate_{q-1}^{10y}$	-0.337*** (0.113)			
County Controls	Y	Y	Y	Y
State Controls	Y	Y	Y	Y
Macro Controls	Y	Y	Y	N
County FE	Y	Y	Y	Y
Month FE	Y	N	N	N
Time FE	N	Y	N	N
Pair(matching)*Time FE	N	N	Y	N
Pair(border)*Time FE	N	N	N	Y
Obs.	93,873	93,873	29,214	34,932
R ²	0.490	0.774	0.892	0.933

Standard errors in parentheses

+ p<0.15, * p<0.10, ** p<0.05, *** p<0.01

UI amplifies the effect of interest rates on mortgages

- ▶ Provide evidences that UI can amplify **macroeconomic** cycles and raise **financial instability risks**
- ▶ No formal welfare analysis yet, but generous UI policies could be coupled with **macroprudential policies**.
- ▶ On the positive side, lower income risk amplifies the MP transmission (the analysis to be done)
- ▶ The results extend to other policies that lowers income risk, eg progressive income taxation and minimum income.
- ▶ Next: What about inflation stability?