How Do Interest Rates Affect Consumption? Household Debt and the Role of Asset Prices

San Francisco Federal Reserve—Monetary Policy Conference

Angus Foulis[1] Jonathon Hazell[2] Atif Mian[3] Belinda Tracey[1]

March 2026

[1]Bank of England [2]London School of Economics [3]Princeton

How do Interest Rate Cuts Affect Consumption?

Household debt channel:

- Rate cuts raise consumption by lowering debt service + encouraging borrowing

How do Interest Rate Cuts Affect Consumption?

Household debt channel:

- Rate cuts raise consumption by lowering debt service + encouraging borrowing

Many alternative reasons why rates could affect consumption, e.g. HANK

- Rate cuts raise consumption via higher income [e.g. Kaplan et al '18; Auclert '19]

How do Interest Rate Cuts Affect Consumption?

Household debt channel:

- Rate cuts raise consumption by lowering debt service + encouraging borrowing

Many alternative reasons why rates could affect consumption, e.g. HANK

- Rate cuts raise consumption via higher income [e.g. Kaplan et al '18; Auclert '19]

Us: natural experiments + consumption/mortgage microdata to isolate household debt channel

- Find an important role for asset prices

A Natural Experiment for Changing Interest Rates

Natural experiment: UK mortgage market [Cloyne et al '19, '20]

- Households choose mortgage "deal" for 2, 3 or 5 years
- Interest rate determined at start, fixed over deal [floating rate during deal uncommon]
- When deal expires, strong incentives to start new deal
- No cost of mortgage borrowing at deal start, large costs otherwise

$\rightarrow$ Δinterest rate + refinancing at pre-determined, staggered + anticipated times

A Natural Experiment for Changing Interest Rates

Natural experiment: UK mortgage market [Cloyne et al '19, '20]

Data: linked monthly mortgage + consumption data for 2015-2024

A Natural Experiment for Changing Interest Rates

Natural experiment: UK mortgage market [Cloyne et al '19, '20]

Data: linked monthly mortgage + consumption data for 2015-2024

Approach: estimate household debt channel of interest rates holding fixed income [vs. HANK]

A Natural Experiment for Changing Interest Rates

Natural experiment: UK mortgage market [Cloyne et al '19, '20]

Data: linked monthly mortgage + consumption data for 2015-2024

Approach: estimate household debt channel of interest rates holding fixed income [vs. HANK]

Results:

1. Household debt channel powerful—1pp rate cut raises consumption by 3%
2. Majority of consumption response due to borrowing enabled by higher house prices

A Natural Experiment for Changing Interest Rates

Natural experiment: UK mortgage market [Cloyne et al '19, '20]

Data: linked monthly mortgage + consumption data for 2015-2024

Approach: estimate household debt channel of interest rates holding fixed income [vs. HANK]

Results:

1. Household debt channel powerful—1pp rate cut raises consumption by 3%
2. Majority of consumption response due to borrowing enabled by higher house prices

Literature: estimates of the household debt channel. [e.g. Di Maggio et al '17, Holm et al '21 ...]

- **Previous:** "cashflow effects" / debt service. **Us:** asset prices + borrowing

Merged Mortgage & Consumption Data

Data

1. Mortgage dataset (Product Sales Database)
   - Administrative data collected by UK Financial Conduct Authority
   - Universe of outstanding mortgages in UK, for 2015-2024

Data

1. Mortgage dataset (Product Sales Database)
   - Administrative data collected by UK Financial Conduct Authority
   - Universe of outstanding mortgages in UK, for 2015-2024

2. Consumption dataset
   - Two personal finance apps: Money Dashboard (2015-2021), ClearScore (2018-2024)
   - Transaction-level data from bank accounts, 1 700 000 individuals total
   - Classify transactions with machine learning $\rightarrow$ aggregate to durables + non-durables
   - Data on credit card debt + personal loan repayment, liquid assets
   - Limited selection on observables, expenditure similar to official sources Details

Data

1. Mortgage dataset (Product Sales Database)
   - Administrative data collected by UK Financial Conduct Authority
   - Universe of outstanding mortgages in UK, for 2015-2024

2. Consumption dataset
   - Two personal finance apps: Money Dashboard (2015-2021), ClearScore (2018-2024)
   - Transaction-level data from bank accounts, 1 700 000 individuals total
   - Classify transactions with machine learning $\rightarrow$ aggregate to durables + non-durables
   - Data on credit card debt + personal loan repayment, liquid assets
   - Limited selection on observables, expenditure similar to official sources Details

Study both: mortgage dataset, merged mortgage + consumption dataset

- Where possible: show similar outcomes in both datasets
- Reweight merged mortgage + consumption dataset on observables

Both datasets available at monthly frequency

Setting: Mortgage Deals in the UK

Mortgage Deals + Refinancing in the United Kingdom

Households choose mortgage deals for 2, 3 or 5 years: [Cloyne, Huber, Ilzetzki & Kleven '19]

- Interest rate typically fixed over deal at low teaser rate [floating rates uncommon]
- Rate determined by conditions at start of deal

Mortgage Deals + Refinancing in the United Kingdom

Households choose mortgage deals for 2, 3 or 5 years: [Cloyne, Huber, Ilzetzki & Kleven '19]

- Interest rate typically fixed over deal at low teaser rate [floating rates uncommon]
- Rate determined by conditions at start of deal

When deal expires, strong incentive to start new deal:

- If no new deal: households pay significantly higher penalty rate [200-300 bps increase]
- Or pay fixed cost to start new deal [$\approx$1000 pounds]

Mortgage Deals + Refinancing in the United Kingdom

Households choose mortgage deals for 2, 3 or 5 years: [Cloyne, Huber, Ilzetzki & Kleven '19]

- Interest rate typically fixed over deal at low teaser rate [floating rates uncommon]
- Rate determined by conditions at start of deal

When deal expires, strong incentive to start new deal:

- If no new deal: households pay significantly higher penalty rate [200-300 bps increase]
- Or pay fixed cost to start new deal [$\approx$1000 pounds]

+ Households typically reminded by bank to refinance $\approx$ 3 months before deal expiry
+ No additional cost to mortgage borrowing when new deal starts

Mortgage Deals + Refinancing in the United Kingdom

Households choose mortgage deals for 2, 3 or 5 years: [Cloyne, Huber, Ilzetzki & Kleven '19]

- Interest rate typically fixed over deal at low teaser rate [floating rates uncommon]
- Rate determined by conditions at start of deal

When deal expires, strong incentive to start new deal:

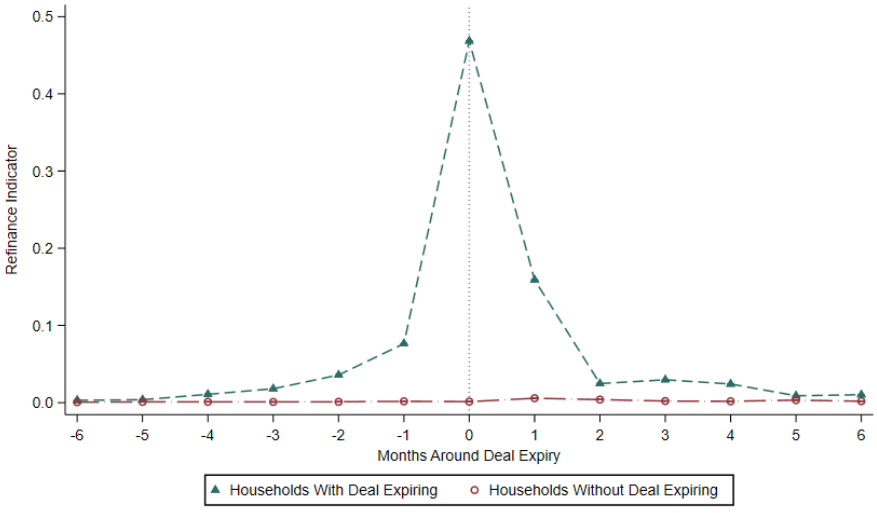
- If no new deal: households pay significantly higher penalty rate [200-300 bps increase]
- Or pay fixed cost to start new deal [$\approx$1000 pounds]

\+ Households typically reminded by bank to refinance $\approx$ 3 months before deal expiry

\+ No additional cost to mortgage borrowing when new deal starts

Δinterest rate + refinancing opportunity at pre-determined, staggered, and anticipated times

Deal Expiration: Behavior of Refinancing



Cumulatively $\approx 90\%$ of households refinance when deal expires

Household Debt Channel—Simple Framework

Simple Framework: Incomplete Markets + Collateral

Standard model with mortgages [e.g. Maxted et al '24] + collateral [e.g. Bernanke et al '95; Auclert '19]

Aims:

- Define household debt channel, importance of borrowing + asset prices
- Map into natural experiment

Simple Framework: Incomplete Markets + Collateral

Household problem: old mortgage deal from $-n$ to 0, new deal from 0 to N [ignore moving]

$$\max_{\{c_t,a_t,d_t\}_{t=0}^{N}} E_0\left[\sum_{t=0}^{N}\beta^t u(c_t)+\beta^{N+1}v(a_{N+1},d_{N+1})\right]$$

$$c_t+a_t-d_t=y_t+\left(1+r_t^a\right)a_{t-1}-\left(1+r_t^d\right)d_{t-1}$$

$$d_t-d_{t-1}=-\xi \quad t\neq 0 \qquad a_t\geq \underline{a}$$

Simple Framework: Incomplete Markets + Collateral

Household problem: old mortgage deal from $-n$ to 0, new deal from 0 to N [ignore moving]

$$\max_{\{c_t,a_t,d_t\}_{t=0}^{N}} E_0\left[\sum_{t=0}^{N}\beta^t u(c_t)+\beta^{N+1}v(a_{N+1},d_{N+1})\right]$$

$$c_t+a_t-d_t=y_t+(1+r_t^a)\,a_{t-1}-\left(1+r_t^d\right)d_{t-1}$$

$$d_t-d_{t-1}=-\xi \quad t\neq 0 \qquad\qquad a_t\geq \underline{a}$$

Mortgage rate increasing in loan-to-value at start of deal

$$r_t^d=\begin{cases} r_0+\omega_0 & t\geq 0 \\ r_{-n}+\omega_{-n} & t<0 \end{cases} \qquad\qquad \omega_t=\omega\left(\frac{d_t}{p(r_t)\,h}\right)$$

"Soft" collateral constraint, nests "hard" constraint ($\omega'\to\infty$ at max. LTV)

UK rate schedule

[Bernanke et al '95; Kiyotaki & Moore '97; Iacoviello '05; Auclert '19]

Defining the Household Debt Channel

Household debt channel of interest rates on consumption:

$$\Delta c_0 \approx \overbrace{\text{MPC}\left(\frac{\partial \text{cash on hand}_0}{\partial r}\right)(r_0 - r_{-n})}^{\text{household debt channel}} + \underbrace{\mathscr{Y}\Delta y}_{\text{income}}$$

$$\frac{\partial \text{cash on hand}_0}{\partial r} = \frac{\partial \text{borrowing}_0}{\partial r} - \frac{\partial \text{debt service}_0}{\partial r}$$

MPC out of cash on hand

- Cf. HANK: household debt channel vs. indirect effect of income [Kaplan et al '18; Auclert '19]
- Previous: debt service / "cashflow effects". But: borrowing also important
- Role of asset prices—∂borrowing$/\partial r$ depends on:
  - Intertemporal substitution
  - Response of house prices to rates ($p'(r)$)

Main Regression Specification—Estimating Household Debt Channel (1/2)

Now: estimate household debt channel with natural experiment

Later: importance of borrowing + asset prices

Main Regression Specification—Estimating Household Debt Channel (1/2)

Consumption response

$$\Delta c_{it} = \left(\frac{\partial \text{cash on hand}}{\partial r} \right) (r_t - r_{t-N_i}) + \mathscr{Y} \Delta y_{it}$$

Main Regression Specification—Estimating Household Debt Channel (1/2)

Consumption response as a regression

$$\Delta c_{it} = \text{MPC} \left(\frac{\partial \text{cash on hand}}{\partial r} \right) (r_t - r_{t-N_i}) + \alpha_t + \varepsilon_{it}$$

- α_t = time fixed effect, ε_{it} = idiosyncratic income [+ other GE shocks]

Main Regression Specification—Estimating Household Debt Channel (1/2)

Consumption response as a regression

$$\Delta c_{it} = \text{MPC} \left(\frac{\partial \text{cash on hand}}{\partial r} \right) (r_t - r_{t-N_i}) + \alpha_t + \varepsilon_{it}$$

- α_t = time fixed effect, ε_{it} = idiosyncratic income [+ other GE shocks]

Identification assumption: (Δinterest rate over past deal) $\perp$ (future idiosyncratic income)

- Natural experiment "differences out" general equilibrium movements in income Wealth effects
  [cf. Liu '22]

Main Regression Specification—Estimating Household Debt Channel (1/2)

Consumption response as a regression

$$\Delta c_{it} = \text{MPC} \left(\frac{\partial \text{cash on hand}}{\partial r} \right) (r_t - r_{t-N_i}) + \alpha_t + \varepsilon_{it}$$

- α_t = time fixed effect, ε_{it} = idiosyncratic income [+ other GE shocks]

Identification assumption: (Δinterest rate over past deal) $\perp$ (future idiosyncratic income)

- Natural experiment "differences out" general equilibrium movements in income Wealth effects
  [cf. Liu '22]

Comparison to US: regression always biased because refinancing is endogenous

Regression Specification—Estimating Direct Effect (2/2)

Main specification for household i and month t

$$\sum_{j=-4}^{h} \left[Y_{i,t+j} - Y_{i,t_0} \right] = \alpha_{th} + \beta^h \left(r_t - r_{t-N_i} \right) + \varepsilon_{ith}$$

Key outcomes Y_{it}: cash-on-hand + consumption expenditure
$\rightarrow$ Response of consumption relative to cash-on-hand identifies MPC

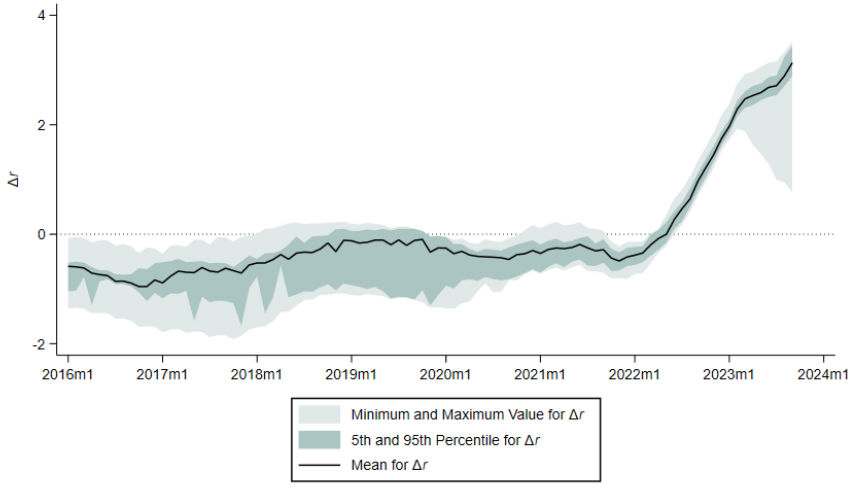
$r_t - r_{t-N_i}$ is the change in aggregate mortgage rate over deal length

Pre-period measures anticipation effects

Sample: households with expiring deals

$\approx$ 3.5 million households shocked at least twice $\rightarrow$ can add household fixed effects

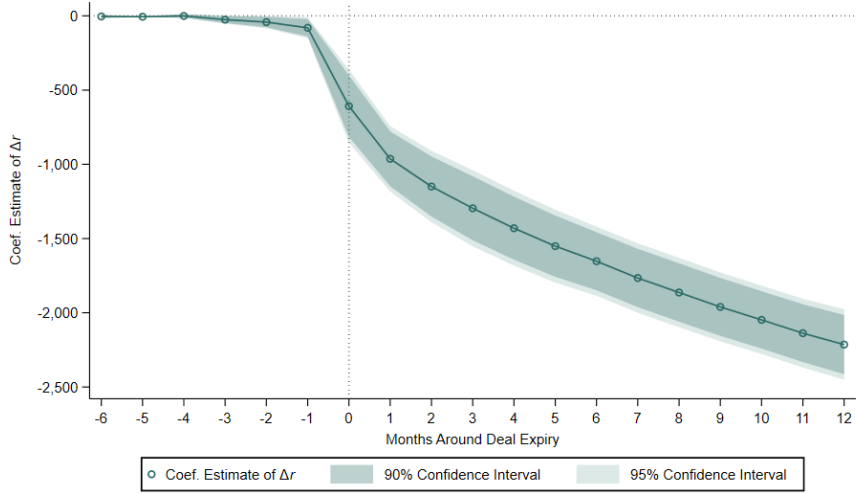
Interest Rate Variation Corresponding to Main Regression



From 6 million natural experiments

Estimates:
Household Debt Channel

Impulse Response of Cash on Hand



Impulse Response of Cash on Hand—Sources of Variation

	6-month response of cash on hand
Coefficient	-1 766***
	(98)
Observations	6 788 665
Year FE	✓
Age FE	✓

Impulse Response of Cash on Hand—Sources of Variation

	6-month response of cash on hand	
Coefficient	-1 766***	-1 706***
	(98)	(134)
Observations	6 788 665	6 788 665
Year FE	✓	✓
Age FE	✓	✓
Deal length × year FE		✓

Sources of variation:

- Deal length × year FE: deals of same length expiring at different times within year

Impulse Response of Cash on Hand—Sources of Variation

	6-month response of cash on hand		
Coefficient	-1 766***	-1 706***	-2 243***
	(98)	(134)	(213)
Observations	6 788 665	6 788 665	6 788 665
Year FE	✓	✓	✓
Age FE	✓	✓	✓
Deal length × year FE		✓	
Household FE			✓

Sources of variation:

- Deal length × year FE: deals of same length expiring at different times within year
- Household FE: same household experiencing rate changes at different points in time

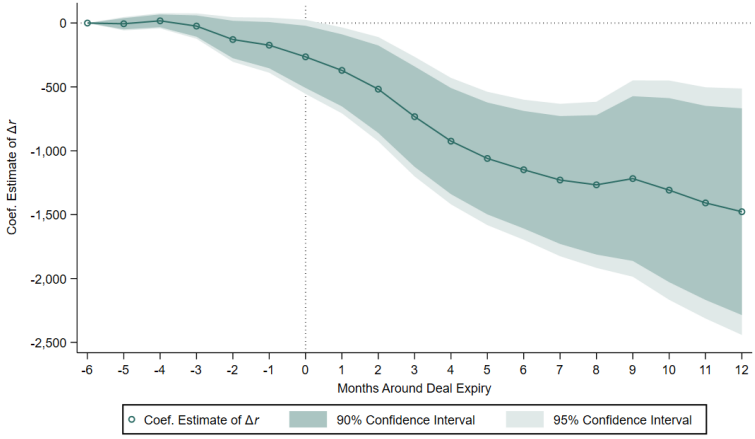
Impulse Response of Cash on Hand—Sources of Variation

	6-month response of cash on hand			
Coefficient	-1 766***	-1 706***	-2 243***	-1 791***
	(98)	(134)	(213)	(115)
Observations	6 788 665	6 788 665	6 788 665	3 675 859
Year FE	✓	✓	✓	✓
Age FE	✓	✓	✓	✓
Deal length × year FE		✓		
Household FE			✓	
Month FE				✓

Sources of variation:

- Deal length × year FE: deals of same length expiring at different times within year
- Household FE: same household experiencing rate changes at different points in time
- Month FE: deals of different length expiring in same month

Impulse Response of Consumption

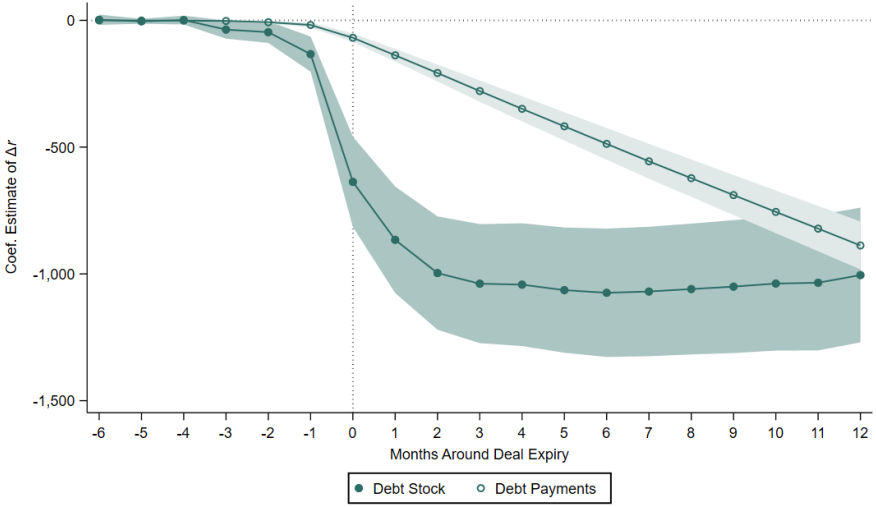


- MPC out of cash on hand ≈ 0.7
- 1 pp rate cut raises spending by 3% of annual consumption = 0.3% of GDP
- Comparable to effect of rate cuts on aggregate consumption [cf. Cloyne et al '17]

Mortgage vs. consumption sample | Table | Scatters

The Role of Asset Prices

Borrowing Accounts for Majority of Cash-on-Hand Response



Borrowing accounts for 60-80% of response of cash-on-hand → asset prices could matter

Asset Prices Important for Response of Borrowing

Regression—how does borrowing response depend on regional house price response η_j?

$$\Delta \text{borrowing}_{ijt} = \alpha_t + \gamma_j + \beta_0 \left(r_t - r_{t-n_i}\right) + \beta_{AP} \times \eta_j \left(r_t - r_{t-n_i}\right) + \varepsilon_{it} \qquad \eta_j \equiv \frac{d \log P_j}{dr}$$

β_{AP} corresponds to importance of asset prices for borrowing

Asset Prices Important for Response of Borrowing

Regression—how does borrowing response depend on regional house price response η_j?

$$\Delta \text{borrowing}_{ijt} = \alpha_t + \gamma_j + \beta_0 \left(r_t - r_{t-n_i}\right) + \beta_{AP} \times \eta_j \left(r_t - r_{t-n_i}\right) + \varepsilon_{it} \qquad \eta_j \equiv \frac{d \log P_j}{dr}$$

β_{AP} corresponds to importance of asset prices for borrowing

Intuition for identification:

- After aggregate interest rate cut, house prices rise in London relative to York
- Is household debt channel of rates on borrowing larger in London than York?

Asset Prices Important for Response of Borrowing

Regression—how does borrowing response depend on regional house price response η_j?

$$\Delta \text{borrowing}_{ijt} = \alpha_t + \gamma_j + \beta_0 \left(r_t - r_{t-n_i}\right) + \beta_{AP} \times \eta_j \left(r_t - r_{t-n_i}\right) + \varepsilon_{it} \qquad \eta_j \equiv \frac{d \log P_j}{dr}$$

β_{AP} corresponds to importance of asset prices for borrowing

Intuition for identification:

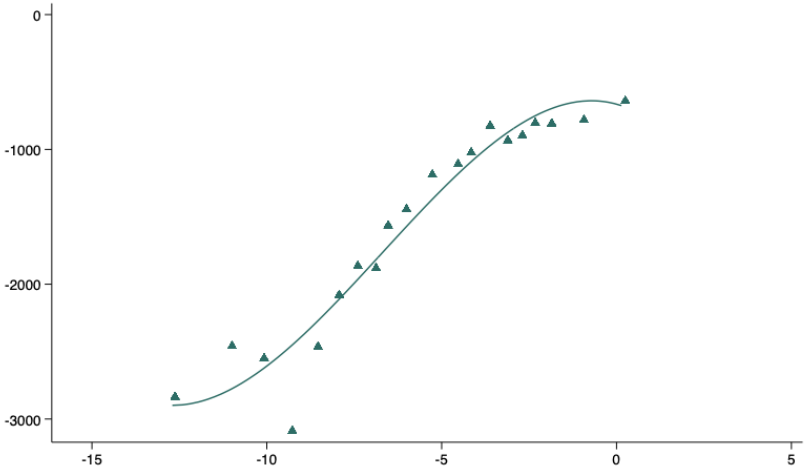
- After aggregate interest rate cut, house prices rise in London relative to York
- Is household debt channel of rates on borrowing larger in London than York?

In paper: instruments for η_j

- Land supply elasticity [cf. Guren et al '21]
- Duration of housing stock [cf. Giglio et al '13; Backer-Peral et al '26]

Asset Prices Important for Response of Borrowing

Regional house price response (x axis) vs. household debt channel for borrowing (y axis)



Asset price mvt accounts for $\approx 60\%$ of household debt channel, MPC housing wealth ≈ 0.03

Conclusion

Conclusion

This paper estimates how rate cuts affect consumption via the household debt channel

Exploits:

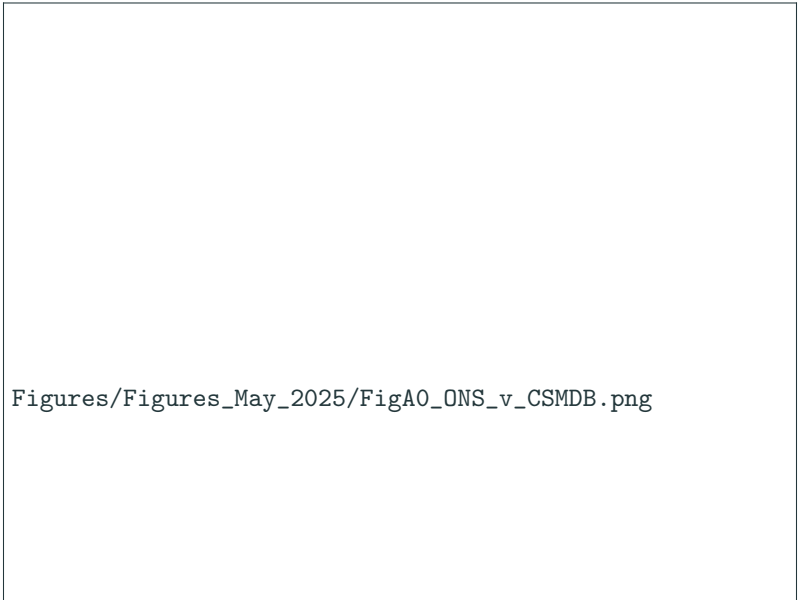
- Merged mortgage + consumption dataset
- Natural experiments from mortgage deal expiry

Results:

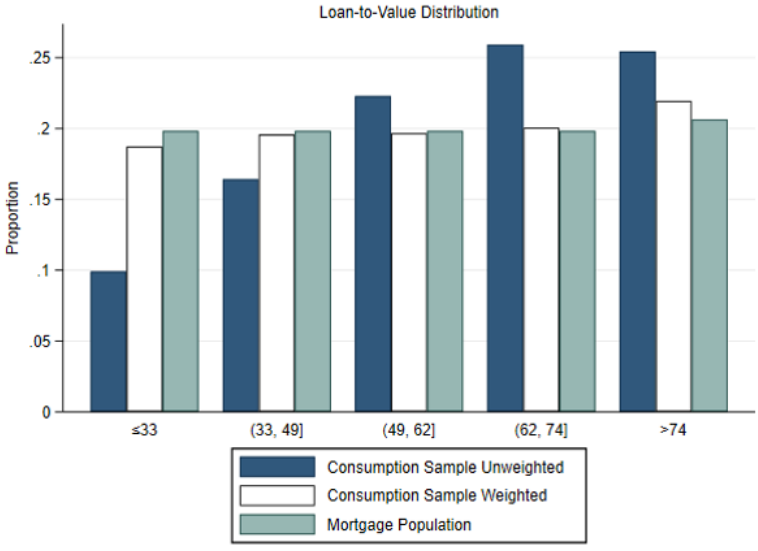
1. Household debt channel is sizeable
2. Borrowing + collateral accounts for most of household debt channel

Consumption Data Validation (1/6)

Return

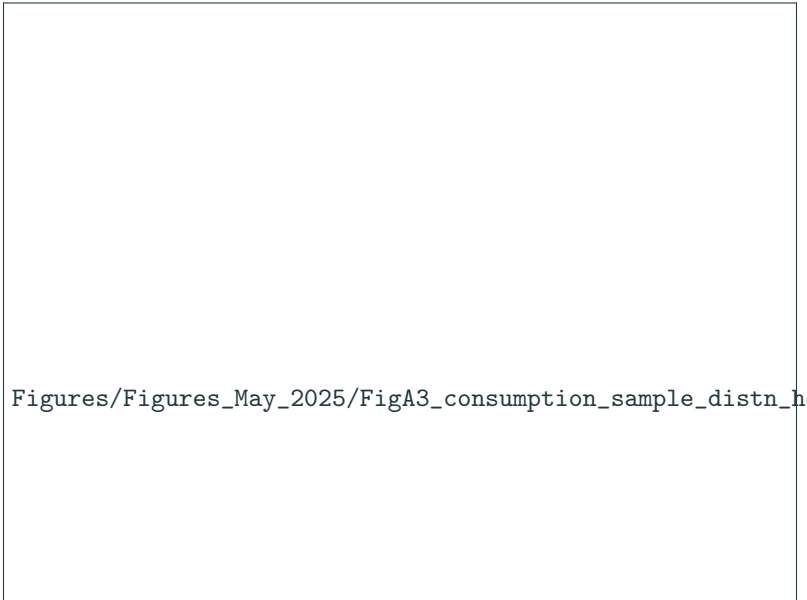


Consumption Data Validation (2/6)



Consumption Data Validation (3/6)

Consumption Data Validation (4/6)



Consumption Data Validation (5/6)

Consumption Data Validation (6/6)

Summary Statistics

Return

XX Belinda to add

UK Rate Schedule

Return

Model Details on Response of Consumption

Return

Model Details on Labor Supply

Return

Model Details on Wealth Effects

Return

Dropping Pandemic

Return

Effect Omitting Pandemic

	Full Sample				Omit Pandemic (2020-2021)			
	Δ Cash on Hand	Δ Principal	−ΔPayments	Δ Consumption	Δ Cash on Hand	Δ Principal	−ΔPayments	Δ Consumption
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
ΔMortgage Rate	-1818.206***	-1100.080***	-718.125***	-937.840***	-1749.650***	-1033.995***	-715.655***	-953.621***
	(104.530)	(119.383)	(38.187)	(277.453)	(115.184)	(131.344)	(40.593)	(290.716)
Observations	6796488	6796488	6796488	68735	4876119	4876119	4876119	39805
Adjusted R^2	0.011	0.007	0.111	0.003	0.013	0.008	0.124	0.003
Trigger Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Age FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

$^{*}p < 0.10, ^{**}p < 0.05, ^{***}p < 0.01$.

Different Rates Measures

Return

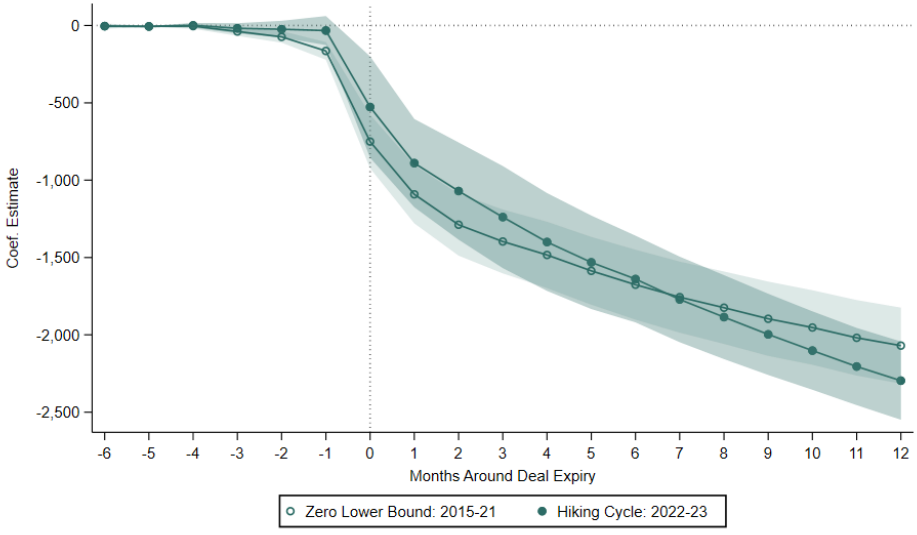
Alternative Mortgage Rates

	Δ Cash on Hand				
	OLS		IV: Agg. Rate Change	IV: Init. Deal Rate Change	IV: Init. LTV Rate Change
	(1)	(2)	(3)	(4)	(5)
ΔMortgage Rate	-1818.206***				
	(104.530)				
ΔIndividual Mortgage Rate		-1825.962***	-1664.483***	-1645.488***	-1494.208***
		(58.729)	(94.195)	(92.655)	(101.511)
Observations	6796488	6796488	6796488	6796488	6740237
Adjusted R^2	0.011	0.020	0.010	0.010	0.009
K-Papp F-Stat			444.975	238.655	280.483
Trigger Year FE	No	Yes	Yes	No	Yes
Age FE	No	No	Yes	Yes	Yes

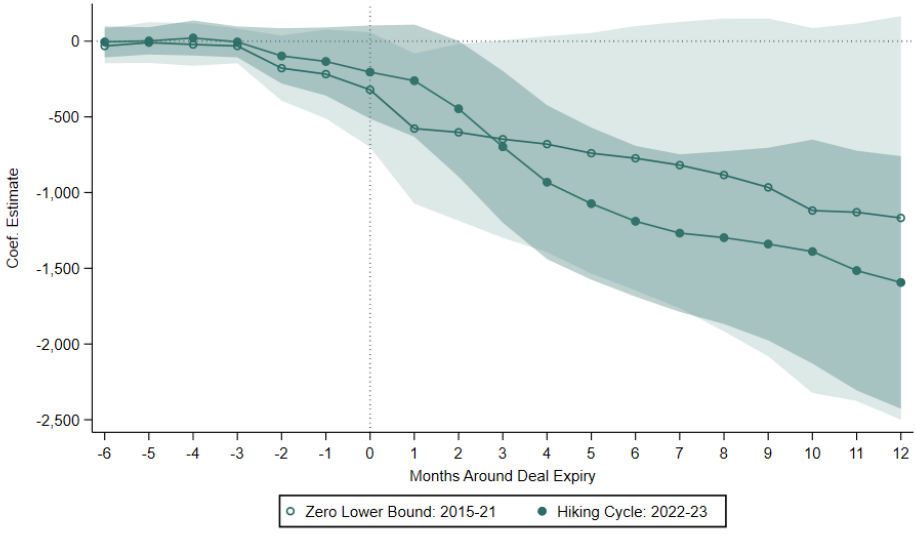
$^{*}p < 0.10, ^{**}p < 0.05, ^{***}p < 0.01$.

Asymmetry in Cash on Hand Response

Return



Asymmetry in Consumption Response



Mortgage vs. Consumption Sample

Return

Response of Cash on Hand in Consumption Sample

	Δ Cash on Hand						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
ΔMortgage Rate	-1316.663***	-1885.352***	-1918.610***	-1625.445***	-1574.126***	-1981.385***	-1580.123**
	(101.644)	(247.679)	(252.544)	(259.722)	(257.744)	(246.974)	(770.878)
Observations	68735	68735	68735	68735	68735	68734	17614
Adjusted R^2	0.005	0.006	0.009	0.009	0.010	0.019	0.112
Trigger Year FE	No	Yes	Yes	Yes	No	Yes	Yes
Age FE	No	No	Yes	Yes	Yes	Yes	No
Deal Length FE	No	No	No	Yes	No	No	No
Deal Length x Year FE	No	No	No	No	Yes	No	No
Household Controls	No	No	No	No	No	Yes	No
Household FE	No	No	No	No	No	No	Yes

$^{*}p < 0.10, ^{**}p < 0.05, ^{***}p < 0.01$.

Consumption Impulse Response

Return

6 Month Impulse Response of Consumption

	Δ Consumption						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
ΔMortgage Rate	-275.546*	-914.035***	-937.840***	-914.482***	-834.833**	-899.112***	-1814.119***
	(154.020)	(278.201)	(277.453)	(300.098)	(320.430)	(281.981)	(584.802)
Observations	68735	68735	68735	68735	68735	68734	17614
Adjusted R^2	0.000	0.002	0.003	0.003	0.003	0.007	0.040
Trigger Year FE	No	Yes	Yes	Yes	No	Yes	Yes
Age FE	No	No	Yes	Yes	Yes	Yes	No
Deal Length FE	No	No	No	Yes	No	No	No
Deal Length x Year FE	No	No	No	No	Yes	No	No
Household Controls	No	No	No	No	No	Yes	No
Household FE	No	No	No	No	No	No	Yes

$^{*}p < 0.10, ^{**}p < 0.05, ^{***}p < 0.01$.

High Frequency Monetary Shocks

Return

Response Instrumenting with High Frequency Shocks

	Δ Cash on Hand				Δ Consumption			
	OLS	IV	OLS	IV	OLS	IV	OLS	IV
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
ΔMortgage Rate	-1818.206***	-2102.758	-1816.882***	-2320.410***	-937.840***	-1011.706	-1363.772***	-1313.391**
	(104.530)	(1357.213)	(114.602)	(193.350)	(277.453)	(764.653)	(388.158)	(607.037)
Observations	6796488	6796488	6796488	6796488	68735	68735	68735	68735
Adjusted R^2	0.011	0.001	0.012	0.000	0.003	0.000	0.011	0.000
K-Papp F-Stat		0.231		290.056		4.192		194.098
Trigger Year FE	Yes	Yes	No	No	Yes	Yes	No	No
Trigger Month FE	No	No	Yes	Yes	No	No	Yes	Yes
Age FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

$^{*}p < 0.10, ^{**}p < 0.05, ^{***}p < 0.01$.

First Stage with High Frequency Shocks

First Stage with Shocks

	ΔMortgage Rate			
	Mortgage Sample		Consumption Sample	
	(1)	(2)	(3)	(4)
HF Mon Policy Shock	-0.258	1.970***	-1.187**	1.935***
	(0.536)	(0.116)	(0.580)	(0.139)
Observations	6796488	6796488	68735	68735
Adjusted R^2	0.879	0.981	0.868	0.984
F-Stat	0.231	290.056	4.192	194.098
Trigger Year FE	Yes	No	Yes	No
Trigger Month FE	No	Yes	No	Yes
Age FE	Yes	Yes	Yes	Yes

$^{*}p < 0.10, ^{**}p < 0.05, ^{***}p < 0.01$.

Marginal Propensity to Consume Estimates

Return

MPC Estimates

	Δ Consumption		
	Baseline	Household FE	Month FE
	(1)	(2)	(3)
Δ Cash on Hand	0.516***	0.798***	0.751***
	(0.153)	(0.257)	(0.214)
Second Stage Observations	68735	17614	68735
Adjusted R^2	0.003	0.040	0.011
K-Papp F-Stat	302.555	112.830	251.343
Trigger Year FE	Yes	Yes	No
Trigger Month FE	No	No	Yes
Age FE	Yes	No	Yes
Household FE	No	Yes	No

$^{*}p < 0.10, ^{**}p < 0.05, ^{***}p < 0.01$.

Response of Borrowing vs. Debt Service

Return

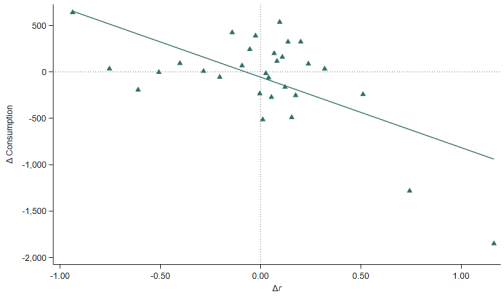
Response of Borrowing vs. Debt Service

	Δ Cash on Hand	Δ Principal	−ΔPayments	Δ Cash on Hand	Δ Principal	−ΔPayments
	(1)	(2)	(3)	(4)	(5)	(6)
ΔMortgage Rate	-1818.206***	-1100.080***	-718.125***	-2272.775***	-1566.959***	-705.816***
	(104.530)	(119.383)	(38.187)	(213.965)	(227.213)	(45.409)
Observations	6796488	6796488	6796488	3681291	3681291	3681291
Adjusted R^2	0.011	0.007	0.111	0.073	0.071	0.068
Trigger Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Age FE	Yes	Yes	Yes	No	No	No
Household FE	No	No	No	Yes	Yes	Yes

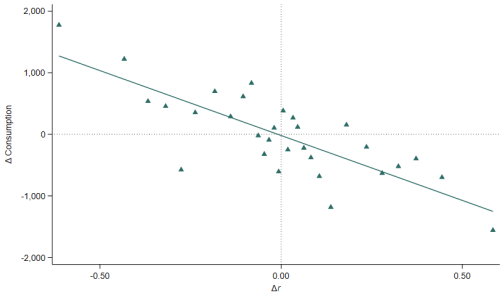
$^{*}p < 0.10, ^{**}p < 0.05, ^{***}p < 0.01$.

Consumption Scatterplots

Return



Without Household Fixed Effects



With Household Fixed Effects

Placebo Income Response

Return