

Breaking the Commitment Device:

The Effect of Home Equity Withdrawal on
Consumption, Saving, and Welfare

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Motivation

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- **Concern:** may lead to over-borrowing and over-consumption

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Many countries have prohibited equity withdrawal

- Germany, Singapore, and Japan (IMF, 2008)

This Paper

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Key mechanism:

- Difficult to save in liquid assets due to problems of self-control
- Housing helps “lock away” wealth due to its illiquidity

“One nice thing about investing in a house is that you’re committed to a mortgage payment...”

– Robert Shiller

*“One nice thing about investing in a house is that you’re committed to a mortgage payment...
so if you don’t take out a home equity line of credit [...], you will accumulate wealth.”*

– Robert Shiller

Contribution

- **Model:** Capture both the positive and negative effects of greater access to home equity
 - **Consumption smoothing** – easier to self-insure against risk
 - **Weakened commitment** – temptation to extract & consume home equity

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- **Model** → **Data:** Disentangle the relative importance of these two channels
 - Estimate preference parameters, using data on consumption growth to pin down temptation
 - Validate model estimates using a policy change in Texas that legalized equity withdrawal in 1998

Contribution

- **Model:** Capture both the positive and negative effects of greater access to home equity
 - **Consumption smoothing** – easier to self-insure against risk
 - **Weakened commitment** – temptation to extract & consume home equity

- **Model** → **Data:** Disentangle the relative importance of these two channels
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 - Validate model estimates using a policy change in Texas that legalized equity withdrawal in 1998

- **Welfare & Policy:** To what extent is greater liquidity beneficial?
 - Evaluate welfare trade-off to legalizing home equity withdrawal
 - Consider alternative policy that may better balance this trade-off

Results

- Home equity withdrawal weakens the **commitment benefit of housing**
 - In both the model and the data, access to home equity reduces the saving rate by 2.5pp
 - Weakened commitment explains half, consumption smoothing explains half

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 - Equity withdrawal makes it more difficult to save for retirement and precautionary purposes
 - Substantial heterogeneity: two thirds of households harmed, one third of households benefit

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 - Equity withdrawal makes it more difficult to save for retirement and precautionary purposes
 - Substantial heterogeneity: two thirds of households harmed, one third of households benefit
- Policy should better balance the trade-off between commitment and flexibility
 - Welfare improving to force repayment during good times, but provide flexibility during bad times
 - Lends support to mortgage forbearance policies during the covid-19 crisis

Model

Estimation

Model Fit

Model Validation

Welfare

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Life-cycle model of consumption, housing, and mortgages

- Utility from consumption and housing
- Save in liquid assets or illiquid housing
- Borrow using long-term, fixed-rate mortgages
- Home equity withdrawal permitted with a fee

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Novel features

- Temptation preferences may make it costly to hold assets
- Housing may act as a commitment device that can reduce temptation

Preferences

Temptation preferences (Gul and Pesendorfer, 2001, 2004):

- Tempting, feasible alternative that is not chosen
- This tempting alternative impacts your utility
- Commitment: reduce temptation by locking away wealth

▶ Alternative: Hyperbolic discounting

Preferences

$$\max_{\{c_t, h_t\}_{t=0, \dots, T}} \mathbb{E}_0 \sum_{t=0}^T \beta^t U(c_t, h_t, \tilde{c}_t, \tilde{h}_t)$$

- c_t : nondurable consumption
- h_t : housing status

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Most tempting alternative: maximize current period felicity

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Most tempting alternative: maximize current period felicity

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Utility function:

$$U(c_t, h_t, \tilde{c}_t, \tilde{h}_t) = u(c_t, h_t) - \underbrace{\lambda \left[u(\tilde{c}_t, \tilde{h}_t) - u(c_t, h_t) \right]}_{\text{utility cost of self-control}}$$

- λ : degree of temptation

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Calibration

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- Calibrate institutional parameters (income risk, asset returns, refi costs, etc.)
- Estimate preference parameters using the Method of Simulated Moments:
 - Temptation (λ)
 - Time Preference (β)
 - Risk Aversion (γ)
 - Utility Cost of Moving (κ)
 - Housing Utility Additive (μ)
 - Housing Utility Multiplicative (θ)
 - Disutility of Renting (ζ)
- Main challenge: differentiate between temptation (λ) and impatience (β)

Calibration

Literature

Targeted Moments

Life-cycle profiles:

- Nondurable Consumption
- Liquid Assets
- Net Housing Wealth

Aggregate moments:

- Share of Homeowners, Movers, Equity Extractors
- Loan-to-Value Ratio
- Relationship between Δc and a

Consumption Growth

Key Insight: Temptation alters the relationship between consumption growth and assets

Consumption Growth

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- Consumption dynamics governed by the following Euler equation:

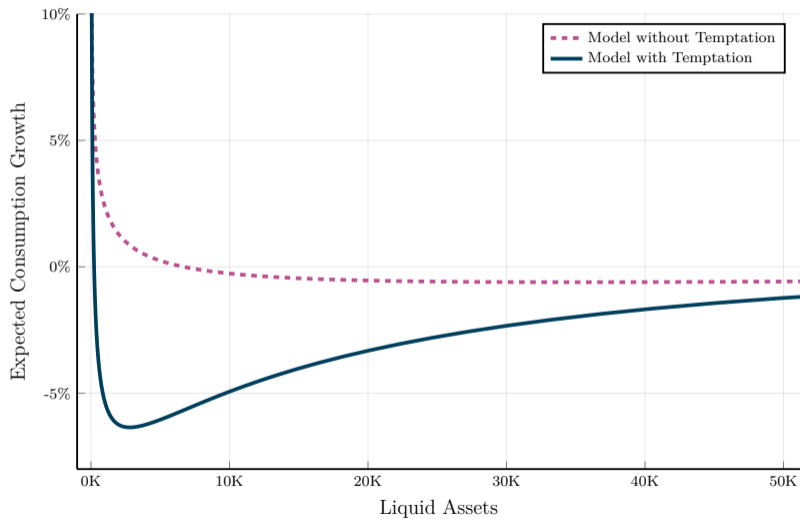
$$c_t^{-\gamma} = \beta R \mathbb{E}_t \left[c_{t+1}^{-\gamma} - \frac{\lambda}{1 + \lambda} \tilde{c}_{t+1}^{-\gamma} \right] \quad \text{if } a_{t+1} > 0$$

where \tilde{c}_{t+1} is the most tempting consumption alternative

Analytical

Monte Carlo

Consumption Growth



Model

Estimation

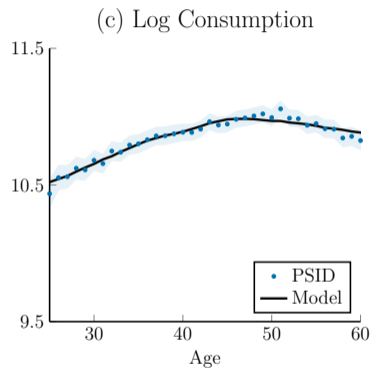
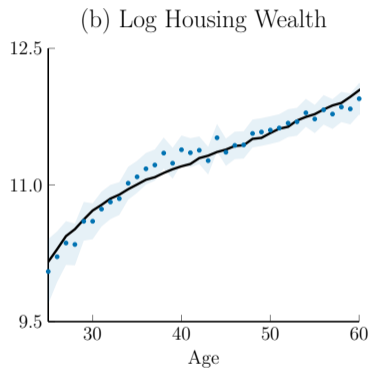
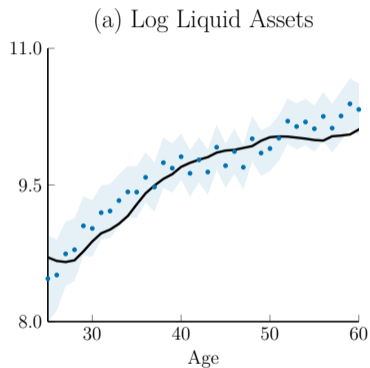
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Model Fit: Life-Cycle Moments



Model Fit: Consumption Growth Dynamics

Consumption Growth Dynamics

Moment	PSID	Baseline Model	Restricted Model
Relationship between Δc and a ($\hat{\psi}$)	0.0039***		

Note: PSID waves 1999-2015. We restrict our sample to married households with $a > \$500$ aged 25 to 60.

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Note: PSID waves 1999-2015. We restrict our sample to married households with $a > \$500$ aged 25 to 60.

- In the data, $\hat{\psi} > 0$ robust to HH FEs, year FEs, family size, habits, returns, inheritances

Model Fit: Consumption Growth Dynamics

Consumption Growth Dynamics

Moment	PSID	Baseline Model	Restricted Model
Relationship between Δc and a ($\hat{\psi}$)	0.0039***	0.0039	

Note: PSID waves 1999-2015. We restrict our sample to married households with $a > \$500$ aged 25 to 60.

- Baseline model with temptation obtains a good fit of the data

Model Fit: Consumption Growth Dynamics

Consumption Growth Dynamics

Moment	PSID	Baseline Model	Restricted Model
Relationship between Δc and a ($\hat{\psi}$)	0.0039***	0.0039	-0.0017

Note: PSID waves 1999-2015. We restrict our sample to married households with $a > \$500$ aged 25 to 60.

- Restricted model without temptation ($\lambda = 0$) unable to generate $\psi > 0$

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Policy Change in Texas: home equity withdrawal legalized in 1998

- Prior to this reform, Texas prohibited most forms of home equity withdrawal

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Document the effect of this policy change on consumption and mortgage behavior

- Use data from the Consumer Expenditure Survey (1995 - 2003)
- Estimate treatment effect using difference in differences specification

[Details](#)

[▶ Placebo Test: Renters](#)

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Implement a similar policy change in our model to assess predictive power

[Go to Welfare](#)

Response to the Legalization of Home Equity Withdrawal

	Data	Model
Homeowners:		
Change in Log Consumption	0.030**	0.026
Change in Log Mortgage Balances	0.162*	0.134
Change in Share of Mortgagors	0.036*	0.012
Renters:		
Change in Consumption	-0.017	0.002

Note: Data comes from the Consumer Expenditure Survey (1995 - 2003). Consumption and mortgage response are measured between 1998 and 2003, relative to baseline between 1995 and 1997.

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Welfare Effect of Legalizing Home Equity Withdrawal

	Overall Effect	Consumption Smoothing Channel	Weakened Commitment Channel	Relative Cost of Weakened Commitment
Welfare Effect	-1.4			
Welfare Effect (no psychic cost)				

Note: All variables are relative to a counterfactual where home equity withdrawal is prohibited.

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Welfare Effect of Legalizing Home Equity Withdrawal

	Overall Effect	Consumption Smoothing Channel	Weakened Commitment Channel	Relative Cost of Weakened Commitment
Welfare Effect	-1.4	1.9	-3.3	1.7
Welfare Effect (no psychic cost)	-0.7	1.5	-2.2	1.5

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How should we design and regulate mortgage contracts?

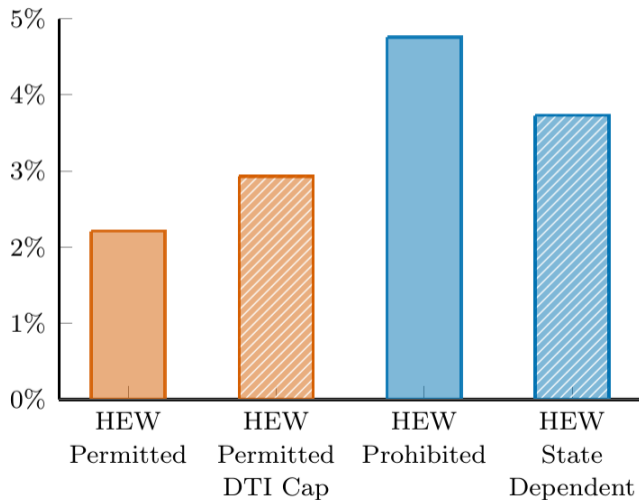
How should we design and regulate mortgage contracts?

We evaluate four potential policies:

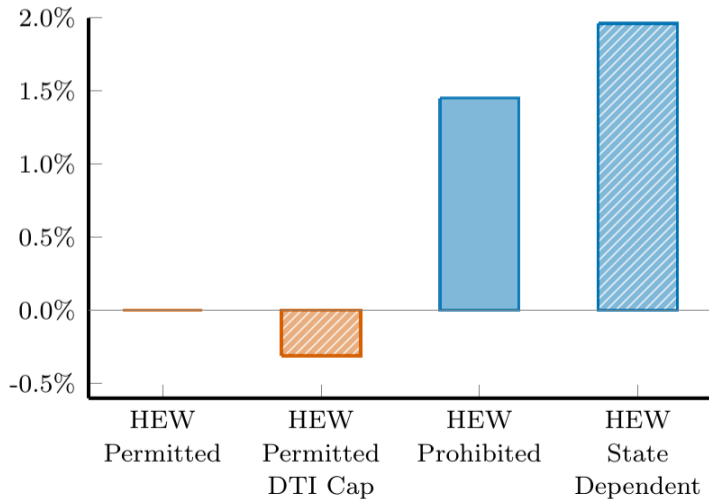
1. Equity withdrawal **permitted**
2. Equity withdrawal **permitted, with DTI cap**
3. Equity withdrawal **prohibited**
4. Equity withdrawal with **state-contingent prohibition**
(e.g. prohibited except during periods of financial distress)

Policy Results: Savings Rate

Panel A: Saving Rate



Panel D: Change in Welfare (CEV)



Policy Results: Summary

Welfare improving to provide commitment during good times, but flexibility during bad times

- Commitment during good times helps households accumulate wealth
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Multiple ways to design mortgage contracts to provide [state-contingent flexibility](#)

- Enable equity withdrawal when unemployed (Mortgage Assistance Programs in PA and CT)
- Provide forbearance when economy in recession (similar to Campbell, Clara and Cocco, 2020)

Conclusion

Main Findings:

- Greater liquidity has weakened the **commitment benefit** of housing
- Welfare cost of weakened commitment is large relative to consumption smoothing benefit
- Policy should better balance trade-off between flexibility and commitment

Thank you!

Thank You