Landlords as Lenders of Last Resort:
Late Housing Payments and Unemployment

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Motivation

- Households facing income shocks can postpone housing payments
    - Roughly 18% of renters and 10% of owners are late (Feb 2021)

- Active policy area
    - Eviction reforms
    - Covid-19 eviction moratoria
    - Proposed bankruptcy reform

- **This paper:** Late housing payments and safety net
    - Job loss
    - Pre-pandemic period

Housing and Income Shocks

- Households cut expenditure in response to shocks

- Housing payments are households' largest expenditure
    - 35% of household income
    - Share is increasing

- Housing is difficult to adjust Chetty and Szeidl 2007
    - Moving is costly
    - Only adjust flexible, non-housing goods
    - Magnifies welfare costs

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- Housing expenditure is easier to adjust
    - Late housing payments provide informal credit

What I Do

- **Part 1:** Document late housing payments around job loss

- **Part 2:** Use model to quantify value of late payments

# Institutional Background

- Eviction and foreclosure take time and money
    - Eviction: 2+ months
    - Foreclosure: 9 months to 3 years

- Delinquencies are often resolved
    - 92% of late renters did not report an eviction (SIPP)
    - 70% of 120+dpd mortgages cure/modify within 2 years

- Late payments as a source of credit
    - Landlords and lenders often "work with them" Balzarini and Boyd 2020
    - Households accrue back rent

Data

- RAND American Life Panel Financial Crisis Surveys (2008-2016)
    - Monthly panel of 2,500 to 6,000 respondents
    - Expenditure across 25 categories
    - Late payments, employment, moves, evictions

- Survey of Income and Program Participation (1991-2008)
    - Repeated cross-sections of up to 40,000 households
    - Missed rent/mortgage in last 12 months?

- Survey data vs. financial/bank account data
    - 80% of renters pay rent in cash, check, or money order Zhang 2016
    - 35% of late unemp. households report no assets in financial accounts

Frequency: RAND ALP (2008-2015)

How did you adjust to the loss of income from unemployment?
(ALP respondents with recent job loss, N = 1,833 household-months)
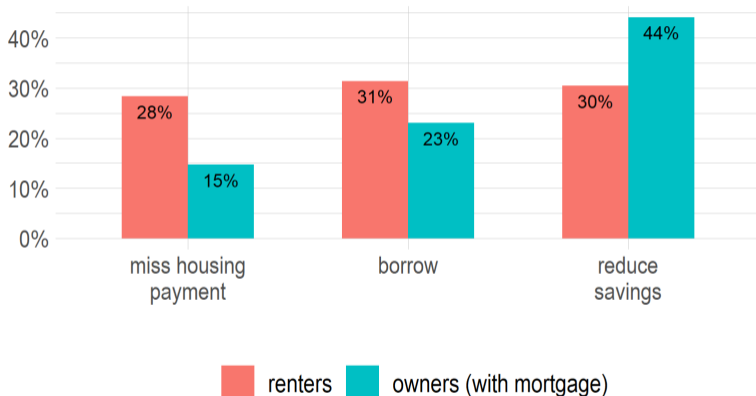
Outline

Empirical Strategy and Results

Value of Late Payments
    Simple Model
    Quantitative Model

Empirical Strategy

- How much does housing expenditure fall upon job loss?
    - Conditional on remaining in the same residence

- Changes in months around job loss Cochrane 1991, Gruber 1997

$$\Delta y_{it} = \beta_0 + \beta_1 \, Unemp_{it} + X_{it}\gamma + \tau_t + \epsilon_{it}$$

- changes in spending, normalized by pre-unemp. income
- indicator for unemployment
- cubic in age and indicator for ownership

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Sample

- Sample: ALP respondent i in month t, restricted to
    - Employed in prior six months
    - No moves in $t = t - 6, \ldots, t + 2$
    - 28,043 hh-month observations, 260 job losses

- Outcome is spending change, conditional on not moving

- Outcome is only observed for non-movers
    - Selection issue if moving is non-random
    - Robustness: Assume movers would have paid full rent ($\Delta y_{it} = 0$) link

Income around Unemployment
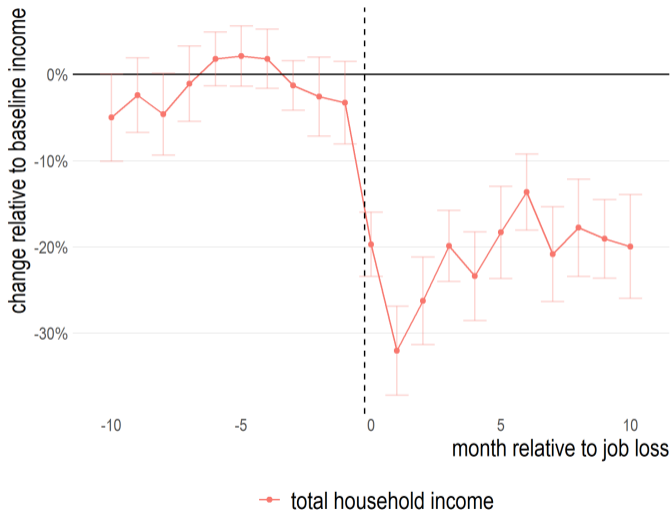
ALP renters and mortgagors with no reported moves in $t = t - 6, \ldots, t + 2$

Change in Spending around Unemployment

goods

Change in Spending around Unemployment
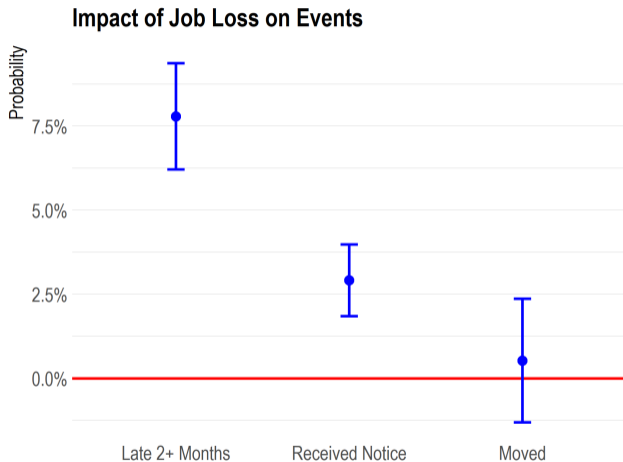

Decline in Spending Upon Job Loss
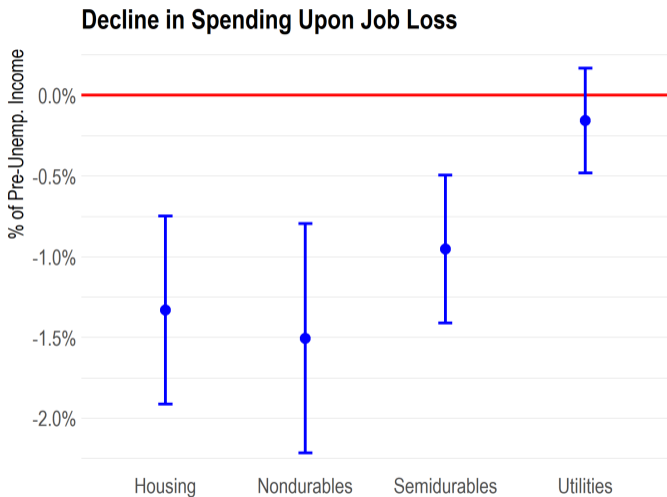
ALP renters and mortgagors with no reported moves in $t = -6, \ldots, 2$. Table

Late Payments and Moving

Impact of Job Loss on Events

ALP renters and mortgagors with no reported moves in $t = -6, \ldots, 2$. Includes indicator for pre-unemp. late payments.

Table

Housing Expenditure: Owners vs. Renters
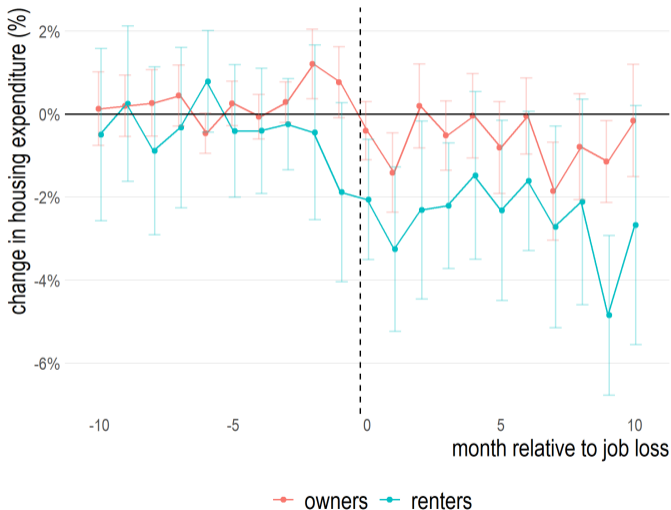
Empirical Results

- Late housing payments are a common response to job loss

- More than 20% of renters, 10% owners make late payments

- Housing expenditure reduction similar to nondurable reduction

- Larger than estimates for formal borrowing Sullivan 2008; Keys, Tobacman, & Wang 2018; Hundtofte, Olafsson, & Pagel 2019; Braxton, Phillips, & Herkenhoff 2019

Outline

Theory: Overview

- Goal: Quantify households' WTP for the option of late payments
  - Why? The amount of credit available is influenced by policy
  - Caveat: Only examining benefits of tenant protection

- Assume late payments are a loan repaid with interest
  - May understate benefit if rent is forgiven
  - May overstate benefits if late penalties are large

- Most applicable to renters
  - More likely to be liquidity constrained
  - Fewer options available

Outline

Simple Model: One-Period Income Shock

- Consumption commitments model of Chetty and Szeidl (2007)
  - Household lives for T periods maximizing

$$E_0 \sum_{t=0}^{T-1} \beta^t u(c_t, x_{t+1})$$

  - Consumes an adjustable good (c) and a housing (x) with flow utility

$$u(c_t, x_t) = \frac{c^{1-\gamma_c}}{1-\gamma_c} + \mu \frac{x^{1-\gamma_x}}{1-\gamma_x}$$

  - If $x_{t+1} \neq x_t$, pay adjustment cost $k \cdot x_t$
    - security deposits, moving expenses, lease penalties

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Income shocks

- Income loss in period 0
    - Income of y in periods $t = 0, \ldots, T-1$
    - Income shock in period 0 of size Z
    - Exogenous initial housing x_0

- Benchmark: Perfect Liquidity from Chetty and Szeidl (2007)

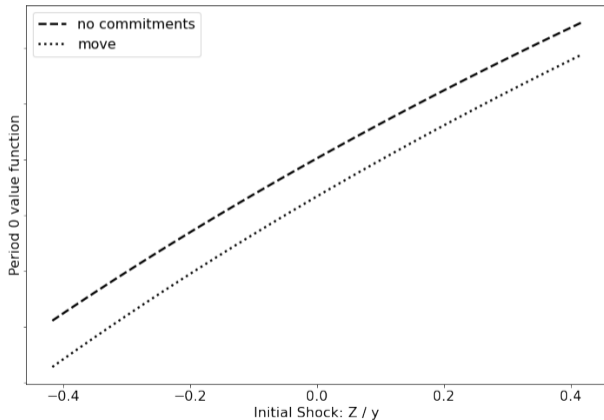- Add credit constraints to show value of late payments
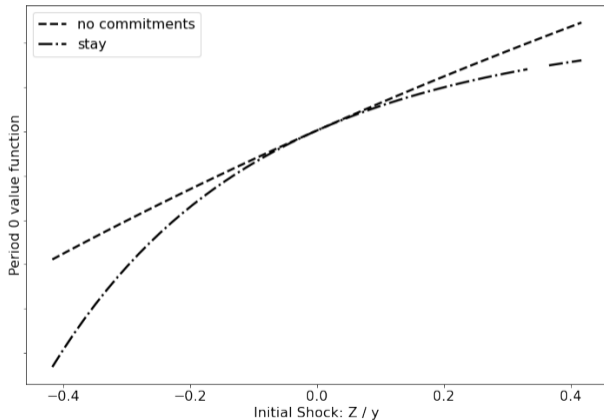
Benchmark: Perfect Liquidity

No commitments (k=0)
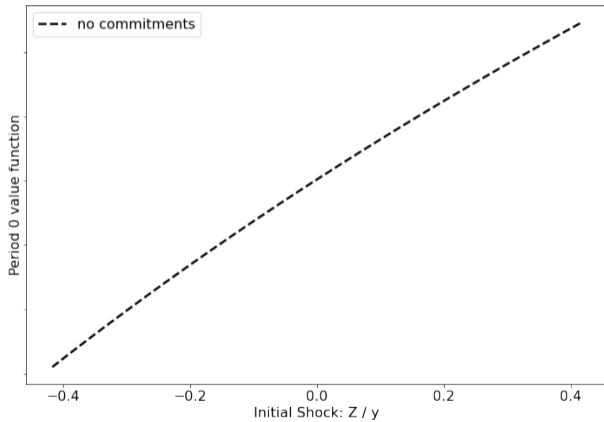
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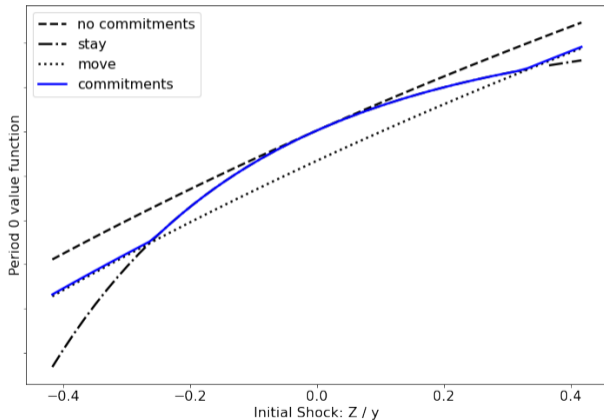
Commitments, move

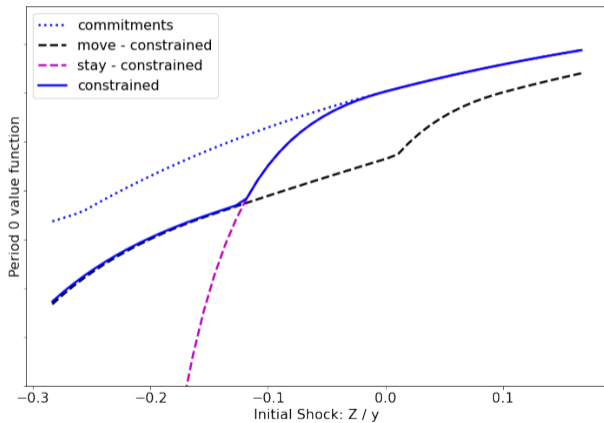# Benchmark: Perfect Liquidity - commitments, stay

Commitments, stay

Benchmark: Perfect Liquidity - commitments

Commitments

Liquidity Constraints

Commitments

Outline

Quantitative Model

- Extend model to quantify value of late payments for job losers
    - Same utility function, adjustment costs

- Add uncertainty about unemp. spell duration Lentz 2009; Chetty 2008; Kroft and Notowidigdo 2016

- Compare expected utility across two options
    - Move - no late payments, but cut both c and x
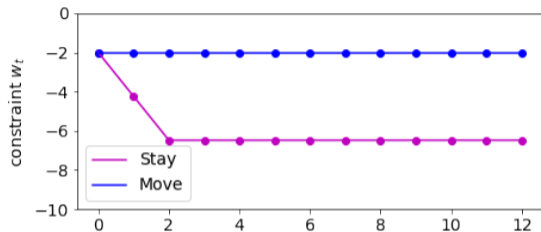   - Stay - up to 2 months late payments, repaid with interest

    link

Parameter Values

| Parameter	Definition	Value
(γ_c, γ_x)	CES utility (CES 0.5)	$(2, 2)$
β	monthly discount factor	$0.94^{1/12}$
μ	housing weight	0.44
(y^e, y^u, y^w)	emp. and unemp. income	$(5.6, 3.9, 3.9)$
T	number of periods	60
T_u	maximum duration of job search	12
$(p_0, \ldots, p_{T-1})$	monthly job-finding probabilities	estimates from ALP
x_0	initial housing allocation	2.24 (40% of inc.)
k	adjustment cost	1 month's rent
	traditional credit limit	$2,000
w_{stay}	maximum late payments	2 months

Solution Method

Value of Late Payments

Borrowing constraints of "Stayers" and "Movers":

Value of Late Payments
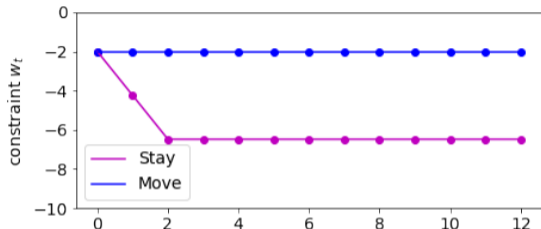
Borrowing constraints of "Stayers" and "Movers":

- Compare expected utility for initial assets w_0

$$WG(w_0) = \frac{V_0^{stay}(w_0, x_0) - V_0^{move}(w_0, x_0)}{\frac{1-\beta^T}{1-\beta} u_c(c^e(w_0, x_0), x^e(w_0, x_0))}.$$

- Difference in EV between staying and moving
- Normalized by value of \$1 additional monthly income

Value of Late Payments
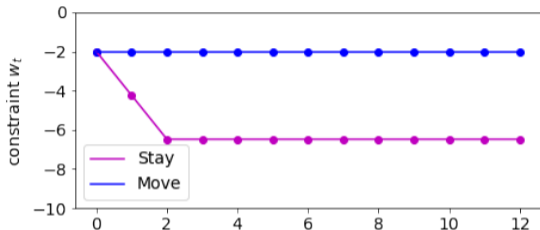
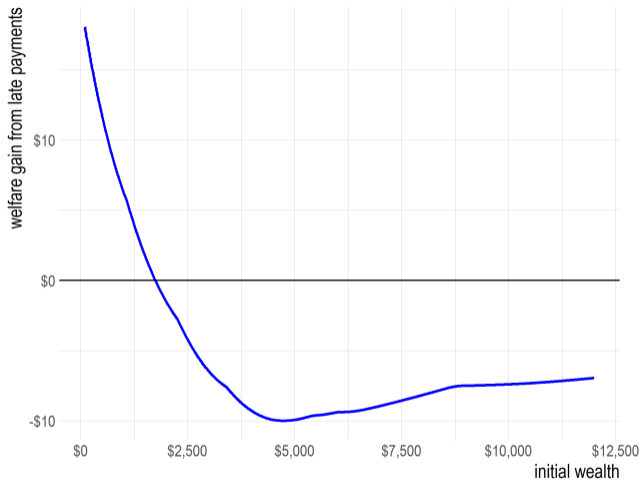Borrowing constraints of "Stayers" and "Movers":

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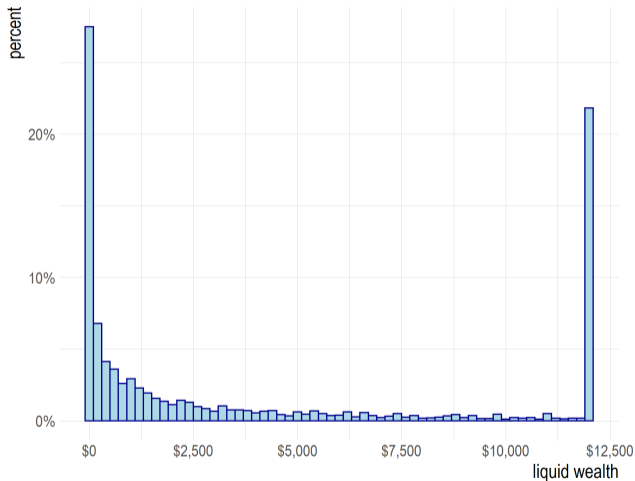
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Value of Late Housing Payments

Link to Sensitivity Analysis Link

Liquid Wealth of Unemployed Households (SIPP)

All households with wealth $> \$12,500$ are binned at $12,500.

Summary and Conclusions

- Late payments are common response to job loss
    - 1 in 5 household miss housing payments upon job loss
    - Spending response similar to nondurable expenditure

- Late payments provide large benefits for low-liquidity households
    - Benefits high across a reasonable range of parameters

- Caveats
    - Only quantify consumption smoothing benefits
    - Do not consider costs (e.g. applicant screening)
    - No external benefits (e.g. crime, reducing homelessness)

Thank You

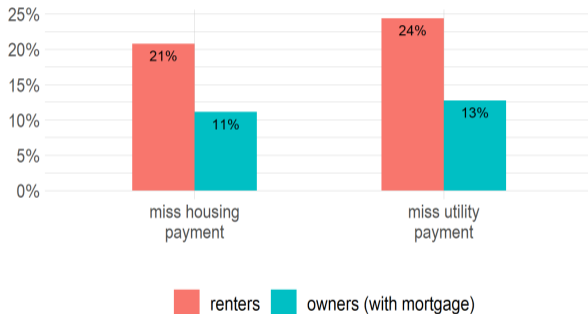Email: npattison@smu.edu
Website: pattison-nate.github.io
Twitter: NatePattison

Frequency: SIPP (1991-2010)

Share of households reporting event in the prior 12 months
(SIPP households with unemployment in last 12 months, N = 15,919 households

Characteristics: SIPP Households with Recent Job Loss

	Missed payments	No missed payments
	Median	Median
Lower income		
Monthly household income prior to unemp. ($1,000s)	3.2	5.0
High housing expenditure share		
Housing costs / monthly income (%)	24.3	18.3
Utility costs / monthly income (%)	8.9	5.4
Illiquid		
Liquid assets ($1,000s)	0.1	1.9
Most do not move		
Eviction in prior 12 months (%, mean)	4.8	0.0
Residence change within prior 12 months (%, mean)	19.4	15.5
Number of households	2,378	13,522

Households with unemployment in prior 12 months (1991-2008 SIPP)

Selection: Movers and Non-movers

	Change in housing expenditure (normalized by baseline income)		
	Non-movers only	Movers and non-movers	Movers pay full amount
	(1)	(2)	(3)
Unemployment	−0.013***	−0.014***	−0.011***
	(0.003)	(0.003)	(0.003)
Unemp. spells	260	303	303
Observations	28,038	30,031	30,032

Note: $^{*}p<0.1$; $^{**}p<0.05$; $^{***}p<0.01$

Samples exclude changes over 100%. All regressions include a cubic in age, an indicator for ownership, and month fixed effects.

Expenditure Shares of Average Household

Consumption category	Share of high-freq. expenditures	Share of total expenditures	Share of income	Std. dev. / mean
commitments (bills)	39%	34%	40%	0.13
housing	25%	22%	25%	0.12
utilities	9%	8%	10%	0.25
auto payment	5%	4%	5%	0.94
nondurable	22%	19%	22%	0.24
food	12%	11%	12%	0.30
gas & transportation	5%	5%	5%	0.34
housekeeping	1%	1%	1%	0.83
recreation	2%	1%	1%	1.18
personal & childcare	1%	1%	1%	1.76
semidurable	6%	5%	5%	0.68
apparel	3%	3%	3%	0.77
health	2%	2%	2%	1.25

ALP renters and mortgagors

Changes in Income and Spending around Unemployment

	Change relative to average income 3-6 months prior					
	Income	Housing	Utilities	Nondurables	Semidurables	Credit card
	(1)	(2)	(3)	(4)	(5)	(6)
Unemployment	−0.235***	−0.013***	−0.002	−0.015***	−0.010***	−0.002
	(0.018)	(0.003)	(0.002)	(0.004)	(0.002)	(0.021)
Share of inc. decline	100%	5.66%	0.67%	6.4%	4.05%	-0.8%
Unemp. spells	225	260	259	260	260	165
Observations	27,093	28,038	28,041	28,042	28,042	17,564

Note: *p<0.1; **p<0.05; ***p<0.01

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Unemployment

- Agent begins period 0 unemployed with wealth w_0 and housing x_0

- Value function for $t = 0, \ldots, T-1$

$$W_t(w_t, x_t) = \max_{c_t, x_{t+1}} u(c_t, x_{t+1}) + \beta \left\{ p_t W^e(w_{t+1}, x_{t+1}) + (1 - p_t) W_{t+1}(w_{t+1}, x_{t+1}) \right\}$$

$$\text{s.t. } w_{t+1} = y^u + Rw_t - c_t - x_{t+1} - k \cdot \mathbb{I}_{x_{t+1} \neq x_t} \cdot x_t$$

$$w_{t+1} \geq \underline{w}_{t+1}$$

- exogenous job-finding probabilities
- adjustment costs
- borrowing constraint

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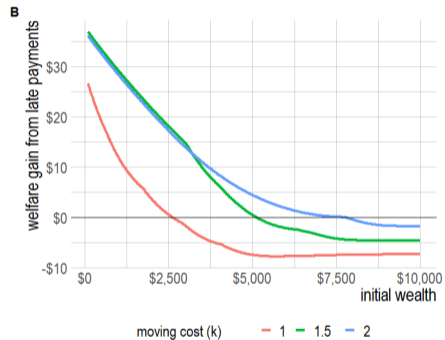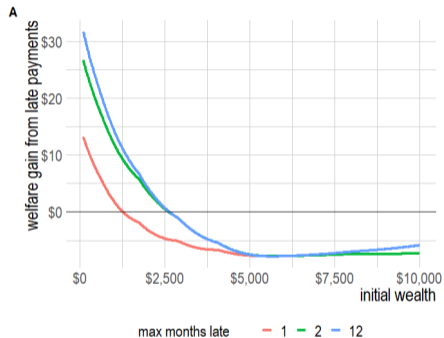
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- Terminal states - one unemployment spell
  - Terminal employment earning y^e
  - Terminal unemployment earning y^w if no job by period T
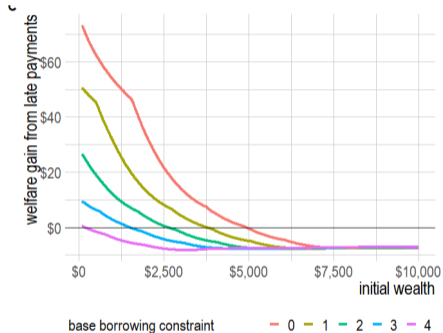
Solution Method

- Discretize housing choices while unemployed

- Kinks in the value function $\implies$ not concave

- With multiple time periods, kinks in value function propagate
    - Policy functions are discontinuous

- Use DC-EGM method Ishakov, Jørgensen, Rust, & Schjerning 2017
    - Euler equation still necessary, but not sufficient
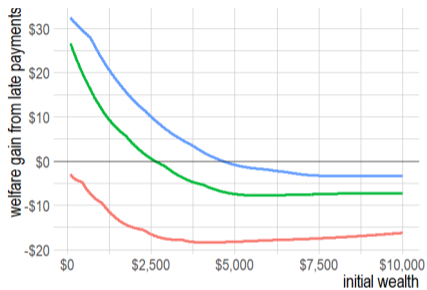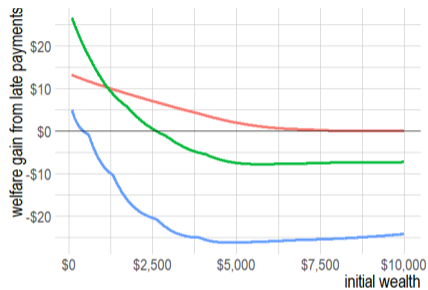   - Detect where not sufficient and take upper envelope

Model Variation

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