

Partial Homeownership: A Quantitative Analysis

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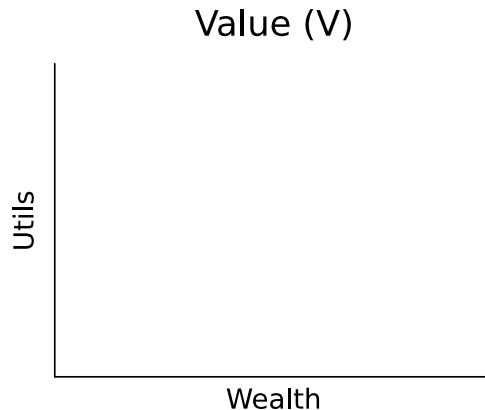
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- How to smooth? **Partial Ownership**
 - Convex combination of renting and owning (e.g., own 50% and rent 50%)
- **PO contracts are increasingly common but not studied**
 - E.g., England, Australia, China, Norway, Sweden, US
 - Norway: builders and fintechs offer PO

- We quantify partial ownership's impact on household...
 - 1) Homeownership, 2) Welfare, and 3) Financial fragility
- **Method:** We introduce partial ownership into a life-cycle model
 - Identification: Norwegian partial ownership contract
 - Focus on households: Exogenous prices and no firms

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- **Method:** We introduce partial ownership into a life-cycle model
 - Identification: Norwegian partial ownership contract
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- **Trade-offs**
 - + “Completing” the housing market
 - Stimulate borrowing

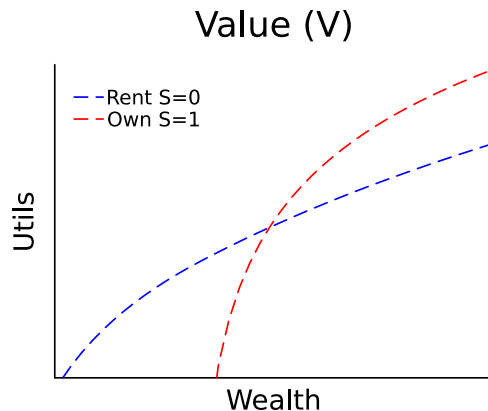
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- Should I rent **or** own: $S \in \{0, 1\}$
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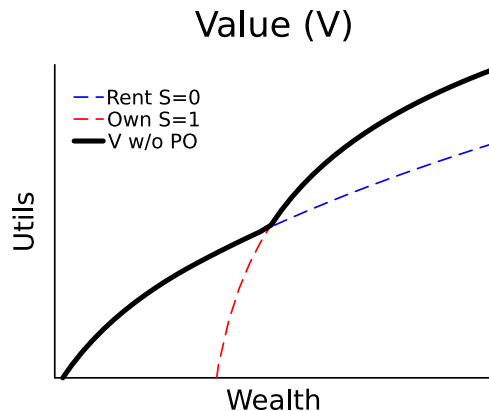
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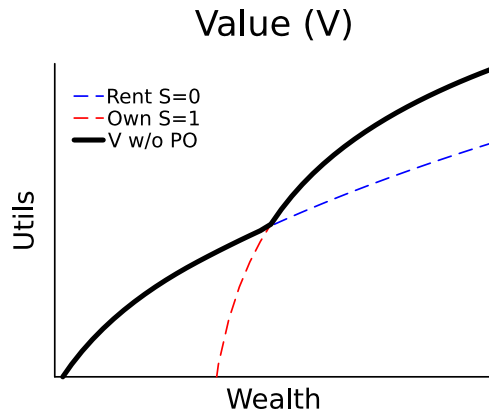
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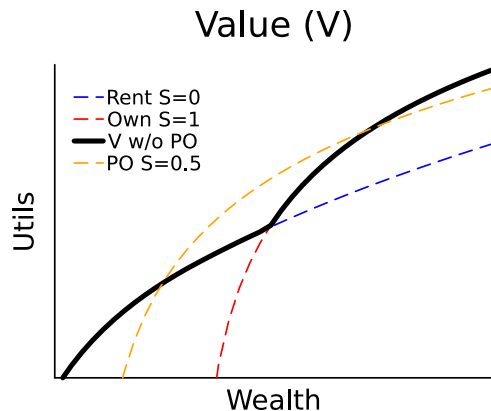
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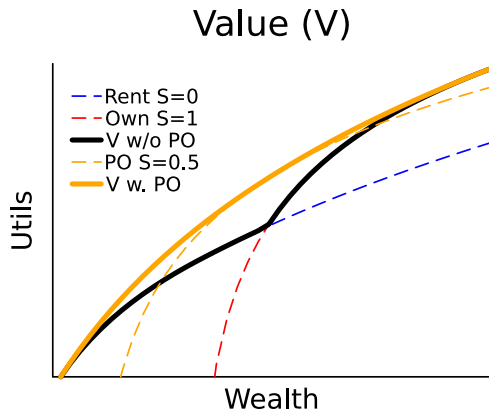
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- Convex combo ($S \in [0, 1]$) = PO
 - Welfare gains largest at threshold
 - 'Marginal' owners also benefit



Outline

Intro

Model

Model without Partial Ownership

Modeling Real For-Profit Partial Ownership Contracts

Results

1) Take-Up and Homeownership Dynamics

2) Welfare and Willingness to Pay

3) Financial Fragility

Conclusion

Benchmark Model without Partial Ownership

- Standard life-cycle model with own/rent choice
 - e.g., Cocco (2005), Cocco and Campbell (2007), Yang (2009)

- Frictional housing market [Details](#)

- Utility over housing and goods consumption:

$$U(C, H, S) = \frac{(u(C, H)\chi(S))^{1-\gamma}}{1-\gamma}$$

- Homeownership preference shifter: $\chi(S) = 1 + \chi S$
- Standard two-step estimation: matches data well (not surprising!) [Model Fit](#)

Renting vs Owning: Trade-offs

- + Ownership utility
- + Lower expected user cost of owner-occupied housing
- Adjustment costs
- Mortgage regulation (LTV, LTI)
- ± Segmentation in house sizes
- ± Risk-reward trade-offs

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- ⇒ Partial ownership allows households to balance trade-offs

Introducing a For-Profit Partial Ownership Contract

- We model the most popular contract in the competitive market
- Important contract elements:
 - Ownership share limited to 50%, 60%, ...,90%
 - Can always increase ownership share
 - Can always sell; household receives their share
 - Cannot decrease ownership share
 - Household responsible for all in-unit maintenance but shared depreciation

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- Target: Households buy 57% on average $\implies \alpha = 0.35$ Identification

Moment	Model	Data	Target
Average initial ownership share	57.0%	57.0%	Y
Average Age	35.4	35.0	N
Std. Dev. Age	9.6	13.0	N

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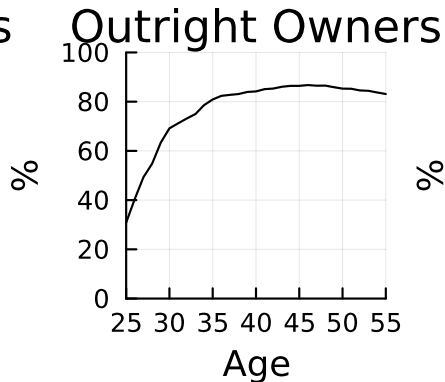
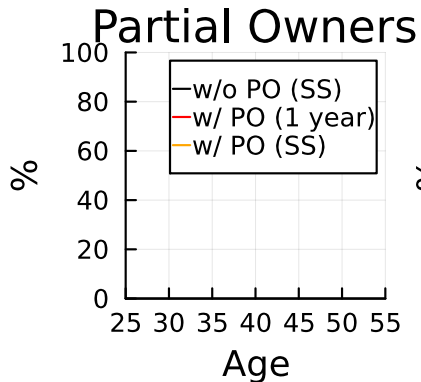
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2) Welfare and Willingness to Pay

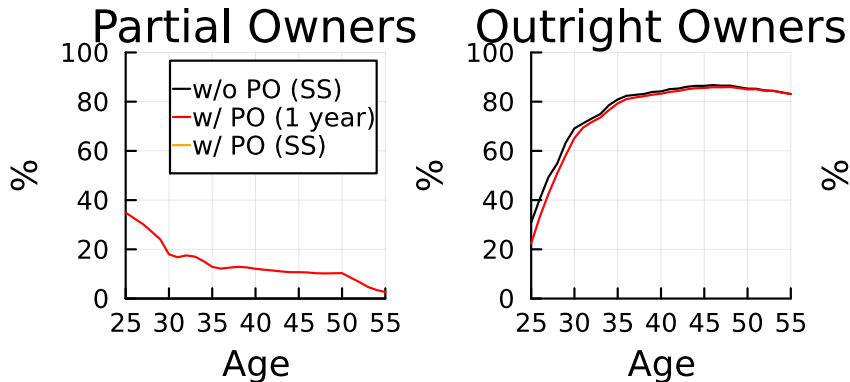
3) Financial Fragility

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Partial Ownership After One Year and in Long Run

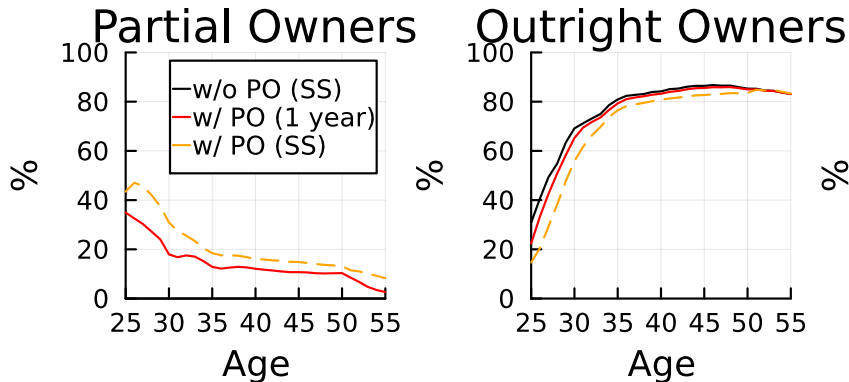


Partial Ownership After **One Year** and in Long Run



- Short run: PO mainly crowds out renting

Partial Ownership After One Year and in Long Run



- Short run: PO mainly crowds out renting
- Long run: PO also crowds out traditional homeownership

Welfare: Willingness to Pay for PO

- Welfare measure: WTP to have access to PO contracts

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- **Mean WTP: 10%** of income for young households (\approx \$3,5000)
- High WTP driven by households that are: Figure
 - low-income
 - renting
 - face high house prices

Regulators Financial Fragility Concerns

- Government is trying to expand access to PO contracts

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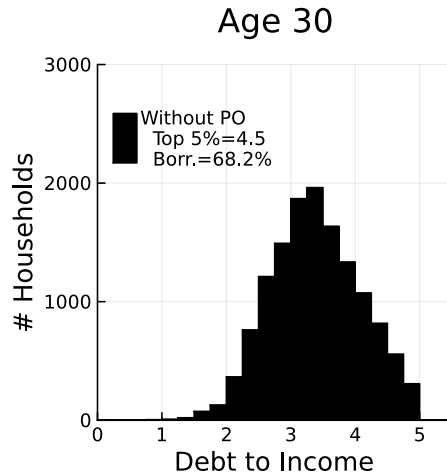
- Government is trying to expand access to PO contracts
- Norway's Financial Stability Authority, October 2023
*...the risk that [partial ownership] could lead to **increased financial vulnerability** in Norwegian Households.*
- Norwegian Central Bank, October 2023:
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- What is the impact of PO on household debt?

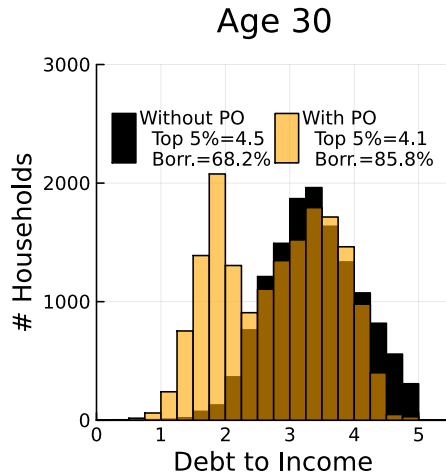
DTI Distribution - Borrowers Aged 30

- No PO: Households against constraint



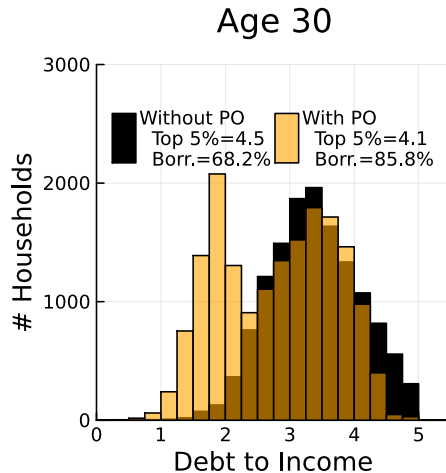
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DTI Distribution - Borrowers Aged 30

- No PO: Households against constraint
- PO increases # of borrowers
- PO decreases right tail of debt
- **Tradeoff**
 - Aggregate debt \uparrow
 - Right tail \downarrow



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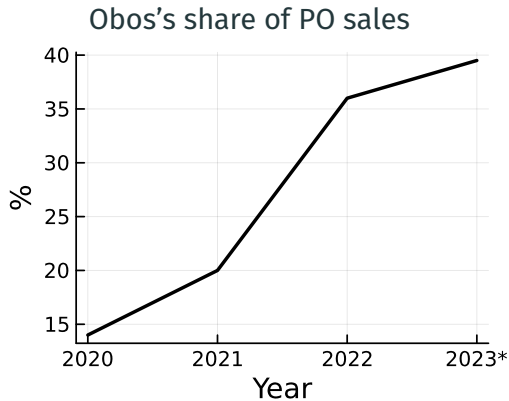
First paper studying for-profit partial homeownership contracts

- 1) Large demand for PO, increases homeownership among young households
- 2) Large welfare gains for young households facing high house prices
 - $1 + 2 \implies$ PO has potential to mitigate affordability 'crisis'
- 3) Financial fragility: more, but safer, debt
 - Many possible extensions
 - PO in GE (adverse selection, pricing)
 - Leverage the ownership elasticity α : Why do households own?

Thank you

Partial Ownership in the Wild

- US: Fintech startups (Quarter)
- UK, NZ, AU: welfare programs
- Norway, Sweden: Multiple builders offers PO since 2020 + fintech startups
- China: Pilot programs in large cities. Currently 140,000 units in Shanghai



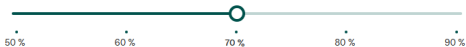
Note: 2023 through February. Source: OBOS

Obos Contract Example

[Back to Model Contract](#)[Pris](#)[Bostartpris](#)[Delelepris](#)[Bolligbytte](#)

Price, Bostart price, PO price, House Swap

Eierandel Ownership Share (S)



Totalpris med OBOS Delele:

Total purchase price

kr 5 410 988

Totalprisen for boligen = innskudd + fellesgjeld + omkostninger.

Innskudd: kr 2 618 000

Price of your share

Innskudd er delen av totalprisen du skal finansiere, som ikke er dekket av fellesgjelden til borettslaget.

Fellesgjeld: kr 2 772 000

Debt tied to your share

Fellesgjelden er lånet vi har forhandlet fram for borettslaget. Du er ansvarlig for den delen av fellesgjelden som er knyttet til boligen din.

Omkostninger: kr 20 988

Transaction costs

Omkostninger er en engangskostnad som dekker offentlige avgifter, tinglysningsgebyr m.m.

Driftskostnader og nedbetaling av fellesgjeld år 1-5: kr 14 402

Monthly maintenance
and debt payemnts
years 1-5

De første fem årene betaler du renter på din del av fellesgjelden og driftskostnader.

Driftskostnader og nedbetaling av fellesgjeld fra år 6: kr 16 684

Monthly maintenance
and debt payemnts
years 6+

Fra det sjette året betaler du avdrag og renter på din del av fellesgjelden og driftskostnader.

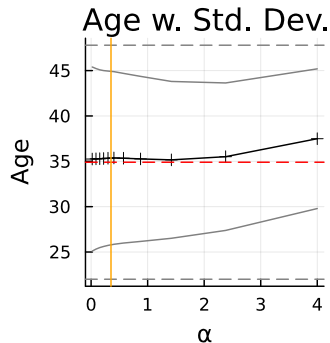
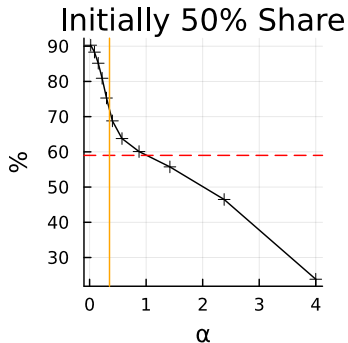
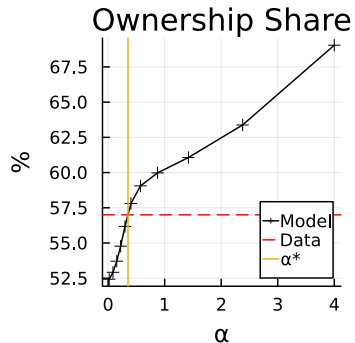
Leie per måned: kr 6 450

Monthly rent

Leien er for andelen av boligen som OBOS eier. Felleskostnadene kommer i tillegg, samt kapitalkostnader på borettslagets fellesgjeld.



Identification of ownership elasticity α :

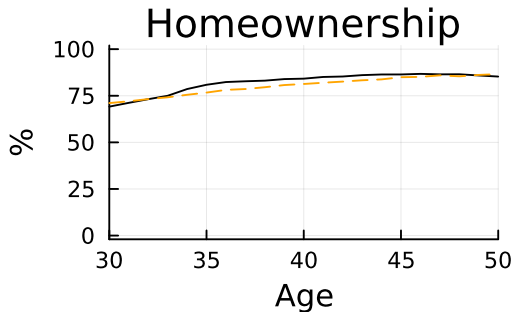
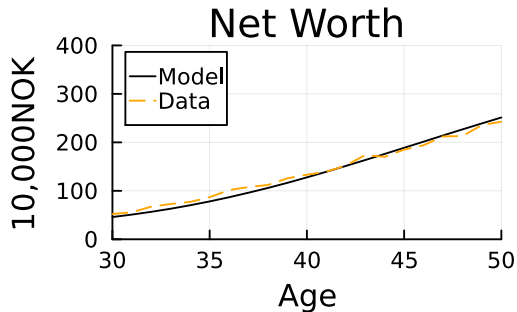


Frictional Housing Markets

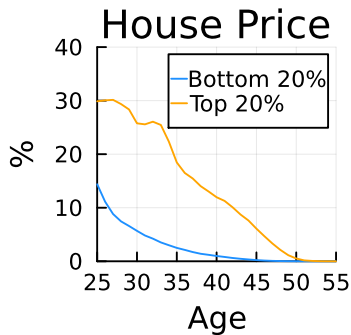
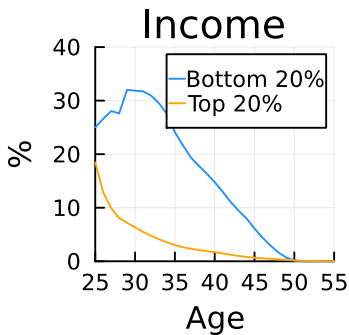
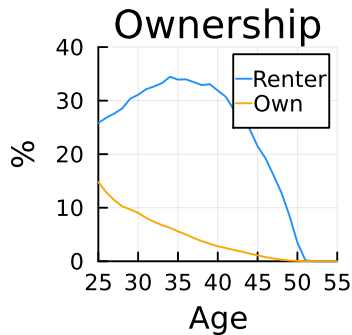
- Segmentation: rent small or medium; own medium or large
- Proportional sale and purchase costs on housing (\approx illiquid)
- Stochastic house prices with drift
- Constant rent-to-price ratio
- One-period risk-free mortgage with mortgage premium
 - subject to LTV and LTI requirements

First- and Second-Stage Estimation

- 'Off-the-shelf model' we know matches data well
- Set externally calibrated parameters
- Internal estimation:
 - Target wealth and homeownership in 2018 (before PO), ages 30-50
 - Discount factor $\beta = 0.961$ and ownership premium $\chi = 0.3$



WTP by Household Characteristics and House Price Levels



- WTP highest for renting and low-income households facing high house prices