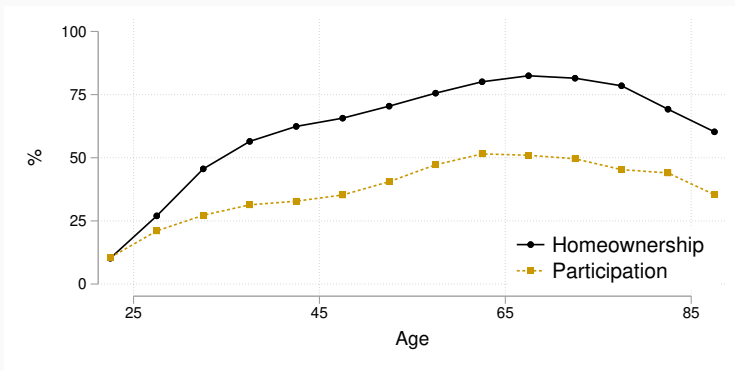


Stock Market Participation and Exit: The Role of Homeownership

Eirik Eylands Brandsaas

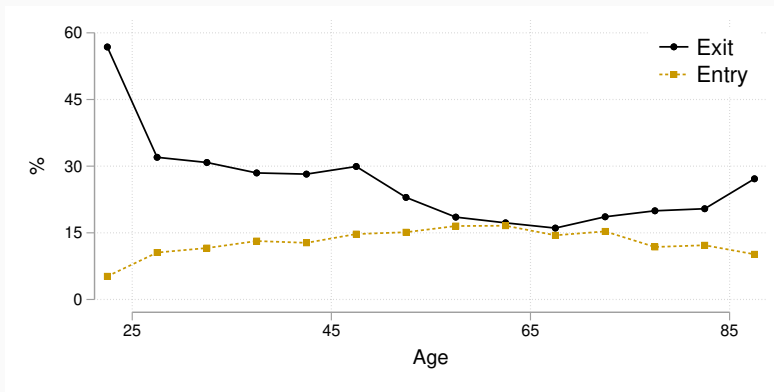
Limited Participation in Stock Markets



PSID 1999-2015. Binned age-dummies controlling for year effects.

- Ownership $>$ Participation
- Peak participation rate at 50%

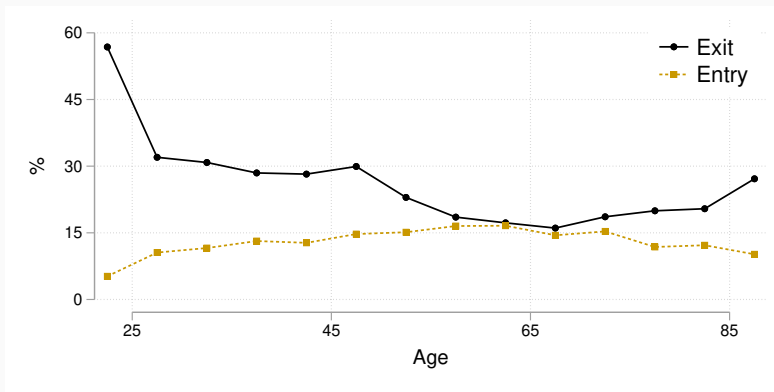
Two-Year Entry and Exit in Stock Markets



PSID 1999-2015. Binned age-dummies controlling for year effects.

- High exit rate \implies low participation rates

Two-Year Entry and Exit in Stock Markets



PSID 1999-2015. Binned age-dummies controlling for year effects.

- High exit rate \implies low participation rates
- Satisfactory theory of participation also explains entry/exit

Research Question & Mechanism

Research Question

How much of the stock market participation puzzle is explained by homeownership?

- Estimate life cycle model of portfolio choice to the US
- Rent/own and entry/exit decisions
- Horse race between model **with** and **without housing**

Research Question & Mechanism

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How much of the stock market participation puzzle is explained by homeownership?

- Estimate life cycle model of portfolio choice to the US
- Rent/own and entry/exit decisions
- Horse race between model **with** and **without housing**

Mechanism

- New owners have low liquid wealth
- Renters save for downpayment - *'T is close'*
- House transactions increases exit frequency

Model

Model Overview

- Extends Fagereng, Gottlieb, & Guiso (2017, JF) and Cocco, Gomes, & Maenhout (2005, RFS)
- Life-cycle model
- Uninsurable persistent and transitory income risk
- Portfolio choice between risky stocks and safe bonds
- Per-period participation costs
- Small probability of very low stock return (tail event)
- Decision problems (no market clearing)

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- Portfolio choice between risky stocks and safe bonds
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- Small probability of very low stock return (tail event)
- Decision problems (no market clearing)
- I add a simple housing market

Simple Housing Choice

- Housing is a consumption good and an asset
- Households can rent 'small', own 'small' or 'large'
- One-period risk-free mortgages
 - Loan-to-value requirement
- Stochastic house prices
 - Renters face expenditure risk
 - Owners face wealth risk
- Purchase cost on owner-occupied housing
- Written to nest Fagereng et al. (2017)

Estimation

Estimation

- Most parameters calibrated externally
- Estimate models separately
- Estimate five/six parameters internally
- Target three/four life-cycle moments
 - Financial wealth/Net worth
 - Participation rate
 - Conditional portfolio weight

Estimation

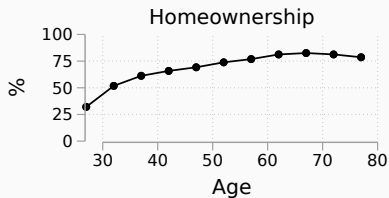
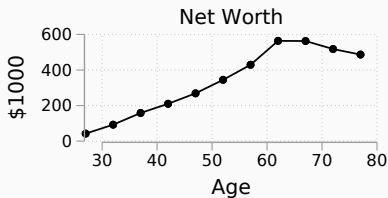
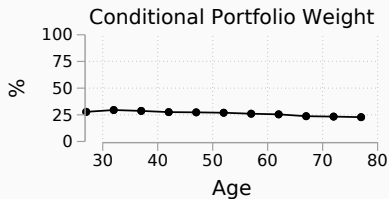
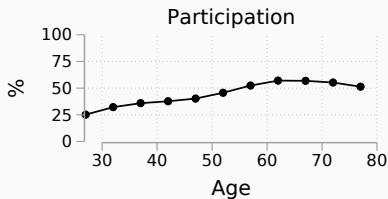
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Estimation

- Most parameters calibrated externally
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- Estimate **five**/**six** parameters internally
- Target **three**/**four** life-cycle moments
 - **Financial wealth**/**Net worth**
 - Participation rate
 - Conditional portfolio weight
 - **Homeownership rate**
- Housing decreases participation cost from \$441 to \$124

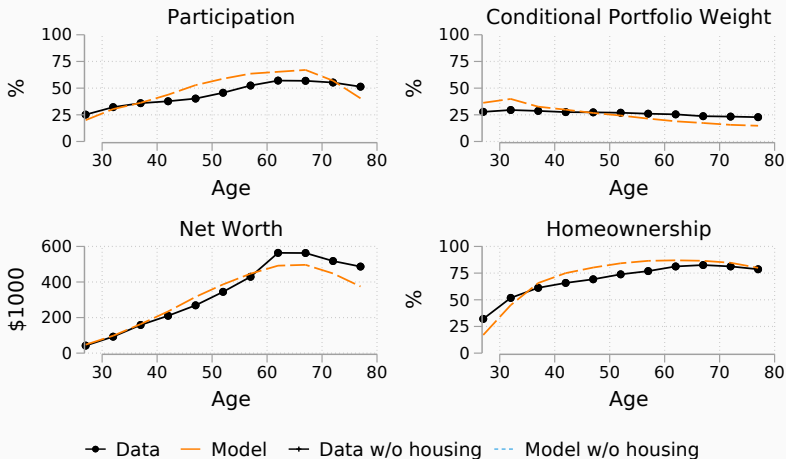
► Table

Model Fit



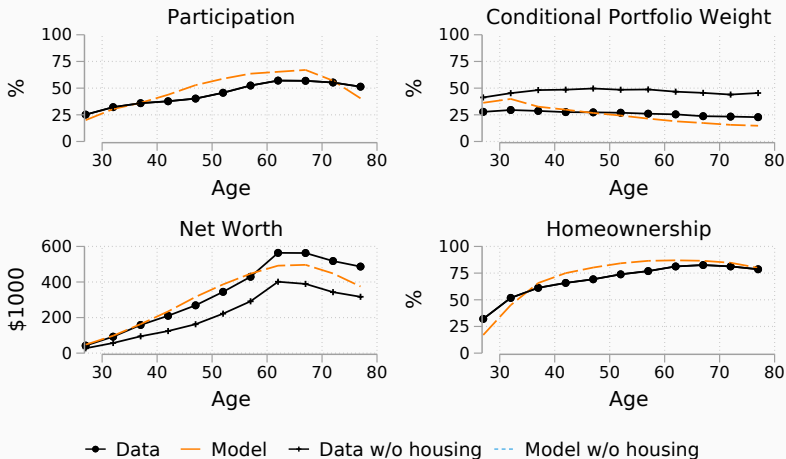
● Data — Model + Data w/o housing - - - Model w/o housing

Model Fit



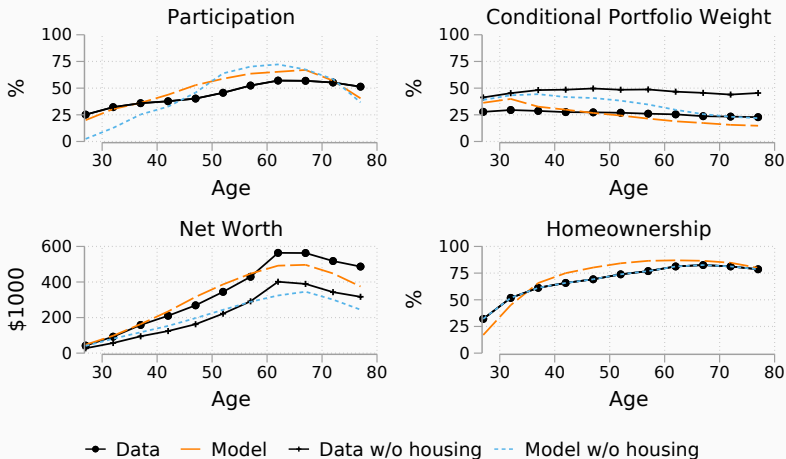
- Model with housing matches data well

Model Fit



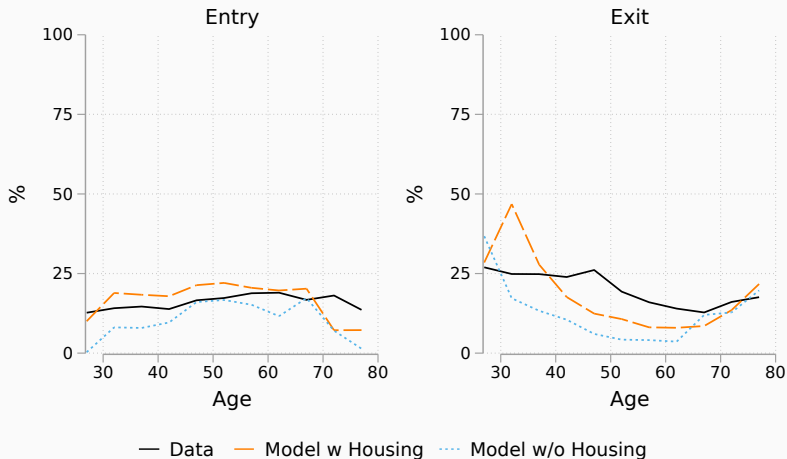
- Model with housing matches data well

Model Fit



- Model with housing matches data well
- Housing decreases squared error of participation by 71%

Model Fit: Entry and Exit Rates



- Need housing to generate significant exit

Conclusion

- Data show that high exit rates drive low participation rates
 - Standard model has too little exit
- I show that exit associated with house purchases
 - New owners are 16 percentage points more likely to exit
- Extend work horse model to include housing
 - Improves model fit
 - Housing reduces MSE on participation rates 71%

Appendix

Estimation

	Parameter	Housing	No Housing	Identifying Moments
q	Participation cost	0.124	0.441	Participation
β	Discount Factor	0.937	0.907	Net Worth, Participation
γ	Risk Aversion	4.518	4.111	Portfolio W., Net Worth
p_{tail}	Tail Events	0.041	0.044	Portfolio W., Participation
χ_1	Owner Preference	1.16	—	Homeownership
ψ	Bequest Motive	706.57	171.74	Net Worth (old households)
	# of Moments	44	33	
	Obj. Function	119.23	187.03	
	Part. Error	17.62	60.50	

Identifying moments are listed in approximate order of importance.

► [Back to estimation](#)