Moving Back Home: Insurance Against Labor Market Risk

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Workshop on Financial Underpinnings of Macro Models
October 22-23, 2010

Outline

1. **Panel data on parent-youth living arrangements**
   - Common to move in and out of parental home
   - Movements related to labor market events

Outline

1. **Panel data on parent-youth living arrangements**

2. **Estimate structural model of parent-youth interactions**

   - Account for parental coresidence dynamics as response to labor market shocks and preference shocks

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1. **Panel data on parent-youth living arrangements**

2. **Estimate structural model of parent-youth interactions**

3. **Important implications of option to live at home**

   - Valuable insurance channel for low-skilled youth, particularly for youths from poor families
   - Key component of private transfers within family
   - Crowding out by public insurance

Outline

1. **Panel data on parent-youth living arrangements**

2. **Estimate structural model of parent-youth interactions**

3. **Important implications of option to live at home**

   - Low savings rates
     Hubbard-Skinner-Zeldes 95
   - Small consumption response to shocks
     Blundell at al 08, Kaplan-Violante 08

[relationship to existing literature]

Monthly panel data on living arrangements

Require dataset with two key features:

1. high frequency panel on parent-youth living arrangements
2. contemporaneous labor market outcomes

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2. contemporaneous labor market outcomes

NLSY97: cohort born in 1980-1984

- Retrospective monthly coresidence questions in first 6 waves
- Male youths who do not go to college
- Start panel in first month after leaving school, $\geq$ age 16
- 1,613 males, aged 16 - 23, 41,406 monthly obs (av 26)

[survey question]

Facts about low-skilled young workers

1. **Dynamics in parent-youth coresidence** [move back home] [durations]

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   Cross-section: **NO** [home vs away earnings, employment]
   Dynamics: **YES** [proportional hazard models]

Facts about low-skilled young workers

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2. **Substantial labor market risk** [separation rates, earnings changes]

3. **Coresidence related to labor market ?**

   Cross-section: **NO** [home vs away earnings, employment]
   Dynamics: **YES** [proportional hazard models]

4. **Minimal use of "traditional" insurance mechanisms**

   - Low financial wealth [wealth data]
   - Small government benefit receipts [benefits data]
   - Reported financial transfers are common but small [transfers data]

[coresidence and the business cycle] [historical coresidence cross-section] [historical coresidence dynamics]

Model of parent-youth interactions

- Dynamic game between youths and parents
- Two types of shocks. Challenge to identify stochastic process for unobserved preference shocks and labor market shocks
- Multiple insurance channels:
  - Savings and endogenous labor supply
  - Coresidence and financial transfers from parents
  - Publicy provided insurance

Environment

- Discrete time, $t = 0, 1, \ldots T$, monthly period
- Families, indexed by j, two members:
  - youth (y)
  - parent (p)
- 2 residential states for youth:
  1. Home: $r_{jt} = 0$
  2. Away: $r_{jt} = 1$

Youths

Preferences

$$\text{Period utility:} \quad U_{jt}^{y} = u\left(c_{jt}^{y}, g_{jt}^{y} + (1 - r_{jt})\, g_{jt}^{p}\right) - h_{jt} v + r_{jt} z_{jt}$$

$$u(c, g) = \frac{\left(c^{1-\phi} g^{\phi}\right)^{1-\gamma}}{1-\gamma}$$

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Budget Constraint

$$\text{Home:} \quad c_{jt}^{y} + g_{jt}^{y} + a_{j,t+1} \leq w_{jt} h_{jt} - \tau\left(w_{jt} h_{jt}\right) + b\left(1 - h_{jt}\right) + R a_{jt} + T_{jt}$$

$$\text{Away:} \quad c_{jt}^{y} + g_{jt}^{y} + a_{j,t+1} + \chi + \kappa\left(1 - r_{j,t-1}\right) \leq w_{jt} h_{jt} - \tau\left(w_{jt} h_{jt}\right) + b\left(1 - h_{jt}\right) + R a_{jt} + T_{jt}$$

$$a_{j,t+1} \geq 0$$

$$\text{Consumption floor} = \underline{c}$$

Parents

Preferences

$$\text{Period utility:} \quad U_{jt}^{p} = u\left(c_{jt}^{p}, g_{jt}^{p}\right) + \eta\, U_{jt}^{y}$$

Parents

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Parents

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Budget Constraint

$$\begin{aligned} c_{jt}^{p} + g_{jt}^{p} + T_{jt} &= I_{j}^{p} - \tau(I_{j}^{p}) \\ T_{jt} &\geq 0 \end{aligned}$$

Resource sharing across generations

Two forms of parental support: financial transfers and coresidence

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Three effects of coresidence:

1. Utility cost from foregone independence (z)
2. Savings from direct housing costs (χ)
3. Alter technology for transferring additional consumption:

   Cheaper for parent to deliver the same amount of utility to youth if youth lives at home

Two types of exogenous shocks

Preference shocks

- z_{jt} : discrete Markov process with age-varying mean:

$$E\left[z_t\right] = \alpha_z + \beta_z t$$

- Symmetric transition matrix:

$$\begin{aligned} corr\left[z_t, z_{t+1}\right] &= \rho_z \\ var\left[z_t\right] &= \sigma_z^2 \end{aligned}$$

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Labor market shocks: search model

Not working at $t-1$

- Prob λ_0: job offer from $\log w_{jt} \sim N\left(\mu_t, \sigma_0\right)$

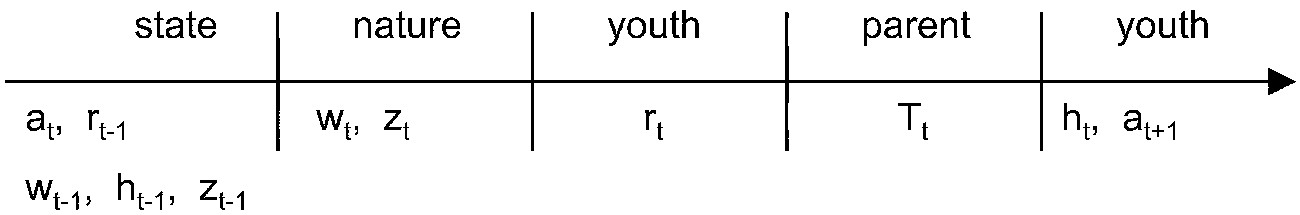
Working at $t-1$

- Prob δ : job destruction $\Longrightarrow h_{jt} = 0$
- Prob λ_1 : new wage drawn:

$$\log w_{jt} = \mu_1 + \log w_{j,t-1} + \varepsilon_{jt}, \qquad \varepsilon_{jt} \sim N\left(0, \sigma_1\right)$$

Dynamic game

Timing protocol for actions in each period:



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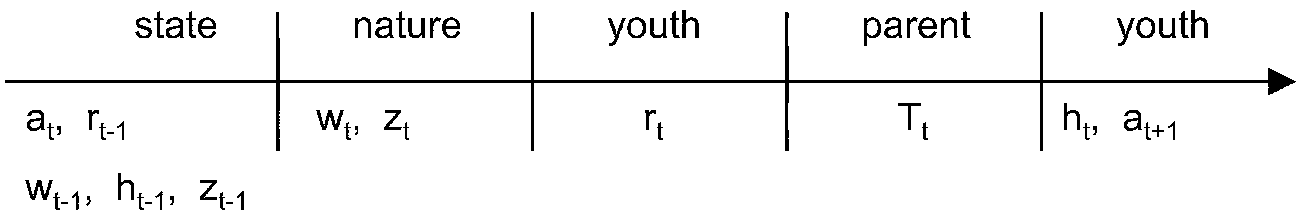

Solution concept: Markov Perfect Equilibrium

- Other reasonable timing protocols and solution concepts
- Inefficiencies from this one are very small [pareto frontier]

Estimation

Simulated minimum distance estimator [parameter estimates]

- Match average moments, age 17-23 [moments]
- Calibrate $\phi = 0.3$ based on equivalence scales [phi calibration]

Model accounts for salient features of data

- labor market [labor market fit]
- living arrangements [coresidence fit]
- over-identification: effect of labor market on moving probabilities [prob moving]

Identification: which moments pin down which parameters?

[graphical GMM]

Roadmap

1. To what extent do labor market shocks account for parent-youth living arrangements?
2. How important is option to live at home as insurance?
3. What are crowding out effects of public insurance?
4. What are implications of parental support for savings behavior?

What accounts for living arrangements?

Estimated process for unobserved preference shocks

- increasing mean with age
- change infrequently
- changes are large

Variance decomposition of living arrangements

Cross-section: mostly preference shocks

Dynamics: mostly labor market shocks

[decomposition] [decomposition by parental income] [counterfactual exercizes]

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Value of insurance channels

- Measure welfare cost of job loss as compensating asset transfer:

Value of insurance channels

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	Bottom Quartile IP	Top Quartile IP
Welfare cost of a job loss		
- compensating asset transfer	$\$11,100$	$\$12,100$
- number of months earnings	5.9	6.4

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- Measure value of insurance channel as increase in asset transfer, when insurance channel is removed: [measuringvalues]

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Consumption drop from job loss

	Immediate % drop in cons
Benchmark	24
Without coresidence	33
Without financial transfers	26
Halve unemployment benefits	27

- Consumption response is larger without coresidence...

Consumption drop from job loss

	Immediate % drop in cons
Benchmark	24
Without coresidence	32
Without financial transfers	26
Halve unemployment benefits	27

- ... but is less affected by absence of transfers (since larger incentives to live at home)

Consumption drop from job loss

	Immediate % drop in cons	
	UI = \$500	UI = \$250
Benchmark	24	27
Without coresidence	32	41
Without financial transfers	26	26

- Without coresidence, halving UI has a large effect on consumption response to job loss...

Consumption drop from job loss

	Immediate % drop in cons	
	UI = \$500	UI = \$250
Benchmark	24	27
Without coresidence	32	41
Without financial transfers	26	26

- ... but with coresidence, the effect of halving UI is much smaller

Consumption drop from job loss

	Immediate % drop in cons	
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- ... not true for financial transfers

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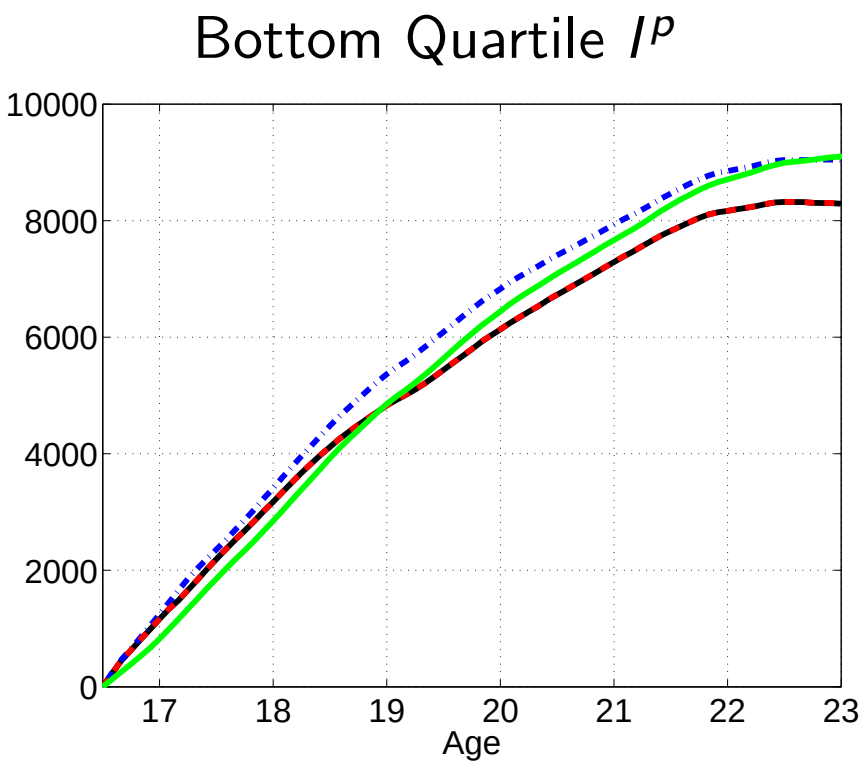
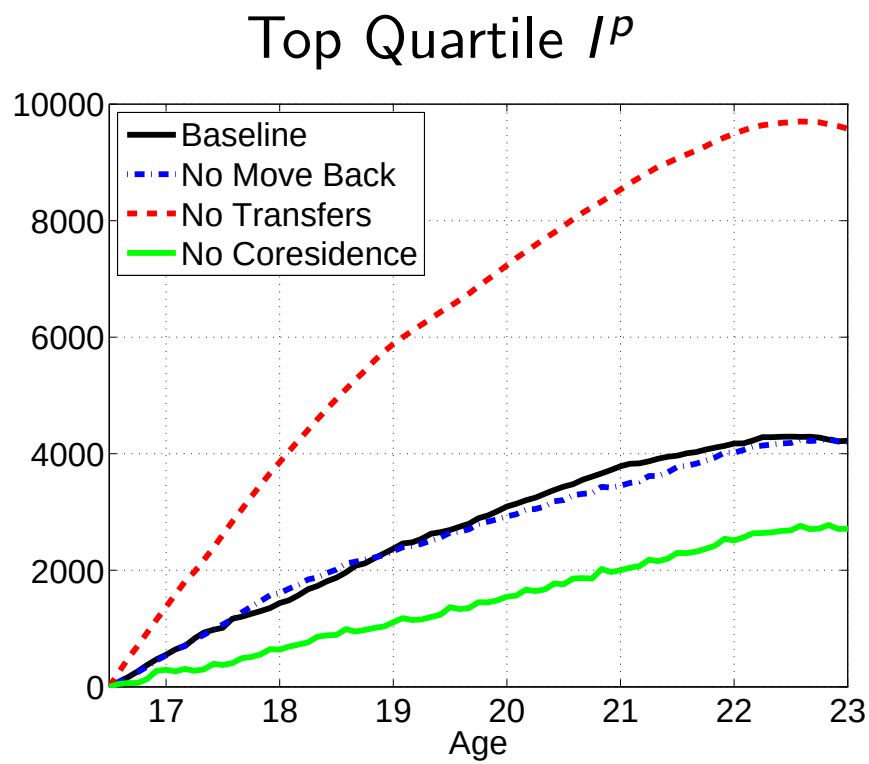
Age profile of assets





Effect of parental support on savings

	Bottom Quartile I^p	Top Quartile I^p
Average assets at age 23	$\$8,300$	$\$4,200$
Change from baseline	(%)	(%)
No move back	10	-36
No transfers	0.2	127
No coresidence	9	-0.5

Conclusions

- Low-skilled youth face substantial risk in labor market, yet make minimal use of traditional insurance mechanisms
- Moving out of home is a transitional phase with coresidence dynamics associated with labor market events
- The option to move back home is a valuable insurance channel, particularly for youths from poor households
- **Implications:**
  1. Lower incentives for youths to save
  2. Small consumption response to shocks
  3. Option to coreside with parents should be considered when evaluating gains from redistributive interventions targeted at young workers

From Wikipedia...

> "**Boomerang Generation** describes the current generation of young adults in contemporary western culture, born approximately between 1977 and 1989. The term 'boomerang' refers to the commonality with which these young adults choose to move back home with their parents after a brief period of living on their own..."

http://en.wikipedia.org/wiki/Boomerang_Generation

Related literature

Intergenerational transfers / Family risk-sharing
Becker (1974), Kotlikoff and Summers (1981), Bernheim et al. (1985), Cox (1987,90), Cox and Rank (1992), Altonji, Hayashi and Kotlikoff (1992,97), Cubeddu and Rios-Rull (2003)

Parent-Youth living arrangements
McElroy (1985), DaVanzo and Goldscheider (1990), Buck and Scott (1993), Rosenzweig and Wolpin (1993,94), Ermisch and Di Salvo (1997), Costa (1999), Ermisch (1999), Goldscheider and Goldscheider (1999), Card and Lemieux (2000), Fogli (2004), Manacorda and Moretti (2006), Alessi et al. (2006), Pezzin et al. (2007), Sakudo (2007), Giuliano (2007), Bethencourt and Rios-Rull (2007), Becker et al. (2008)

Insurance and idiosyncratic risk over the lifecycle
Deaton and Paxson (1994), Attanasio and Davis (1996), Storesletten, et al. (1997), Low (2005), Heathcote et al. (2007), Low et al. (2007), Krueger and Perri (2006), Blundell et al. (2008)

Non-unitary models of household
McElroy and Horney (1981), Chiappori (1988, 92), Bourguignon et al. (1992,93), McElroy (1990,92)

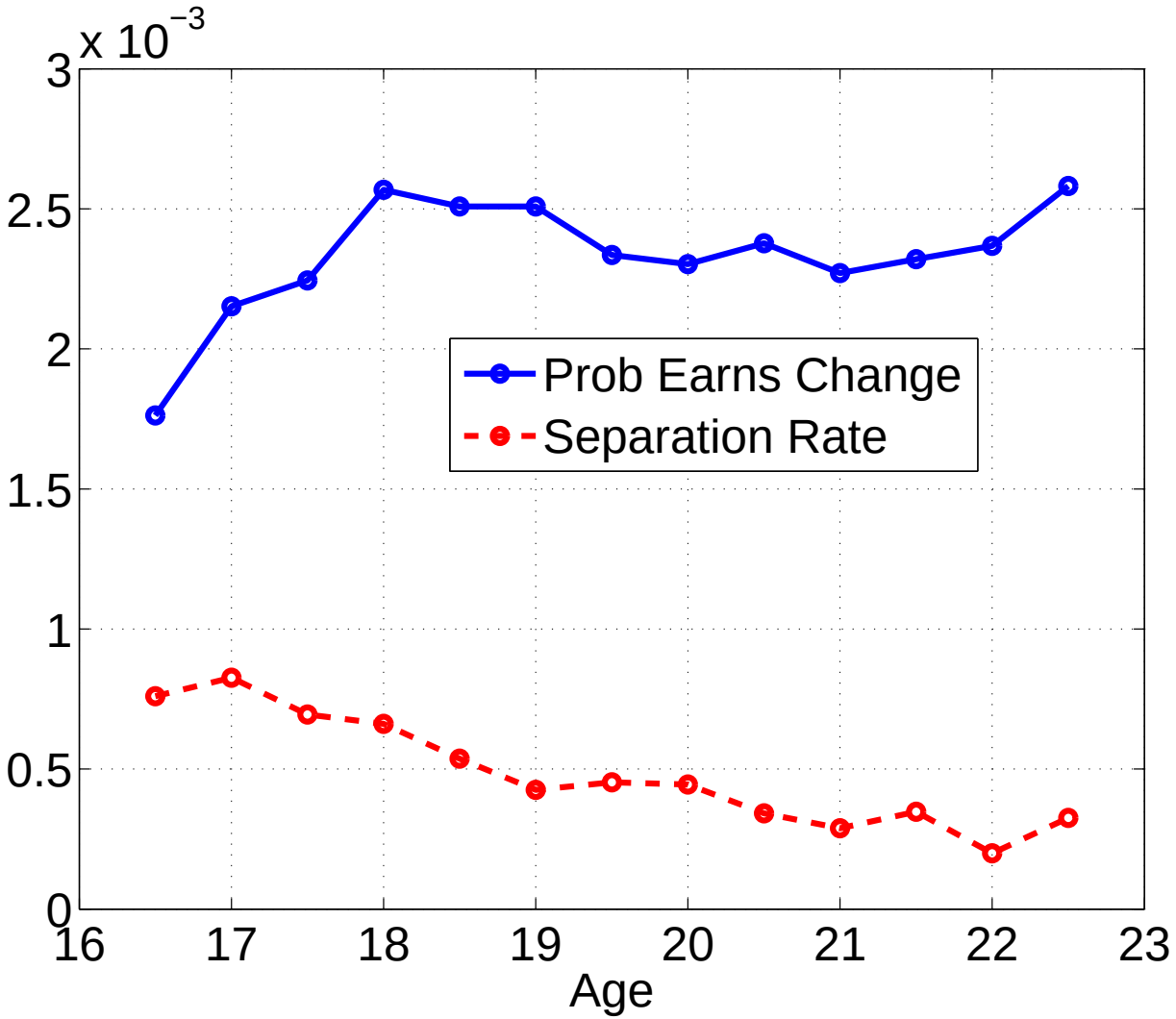
Labor search with savings
Danforth (1979), Lentz and Tranaes (2005), Lise (2006), Low et al. (2007)

[return to outline]

Since [date of last interview], has there been a continuous period of one month or more when you and your [mother (figure)/father (figure)] lived in different places? If you were temporarily away at summer camp, but lived with your [mother (figure)/father (figure)] before and after that time, please include those months as months you were living with [him/her].

[back to data]

Unstable labor market



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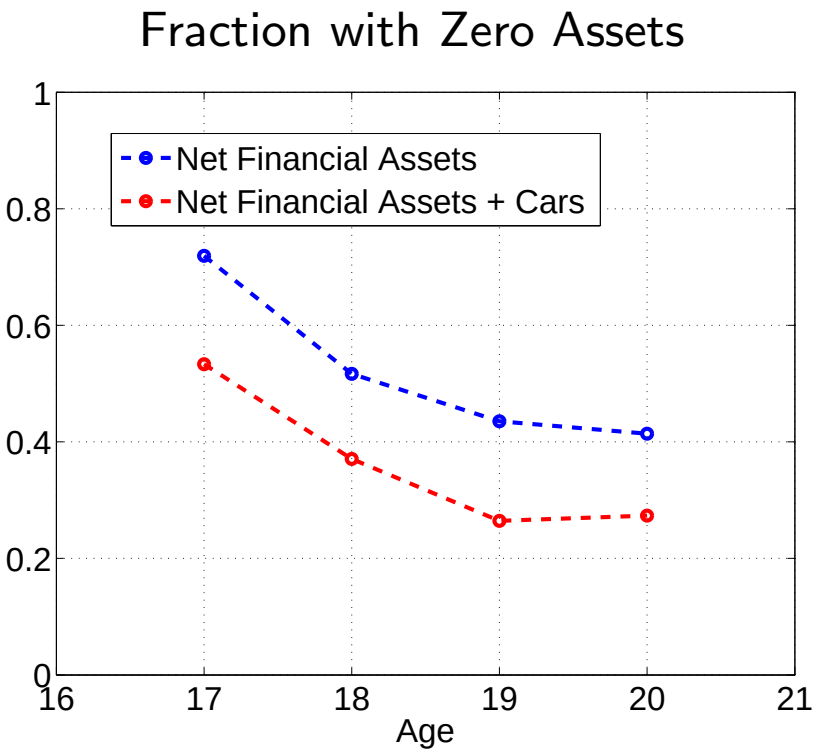
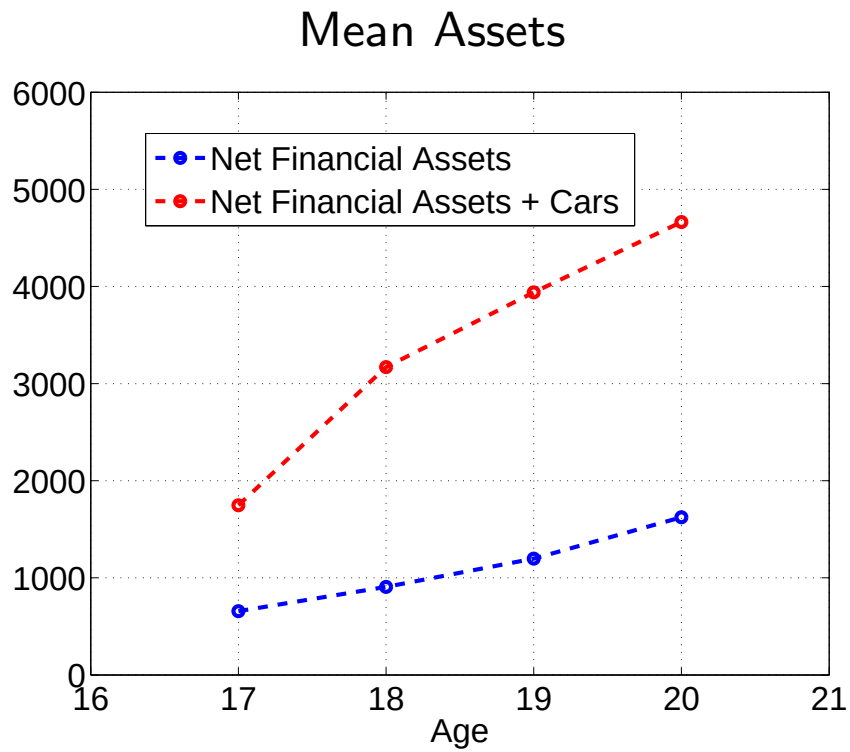
Low financial wealth





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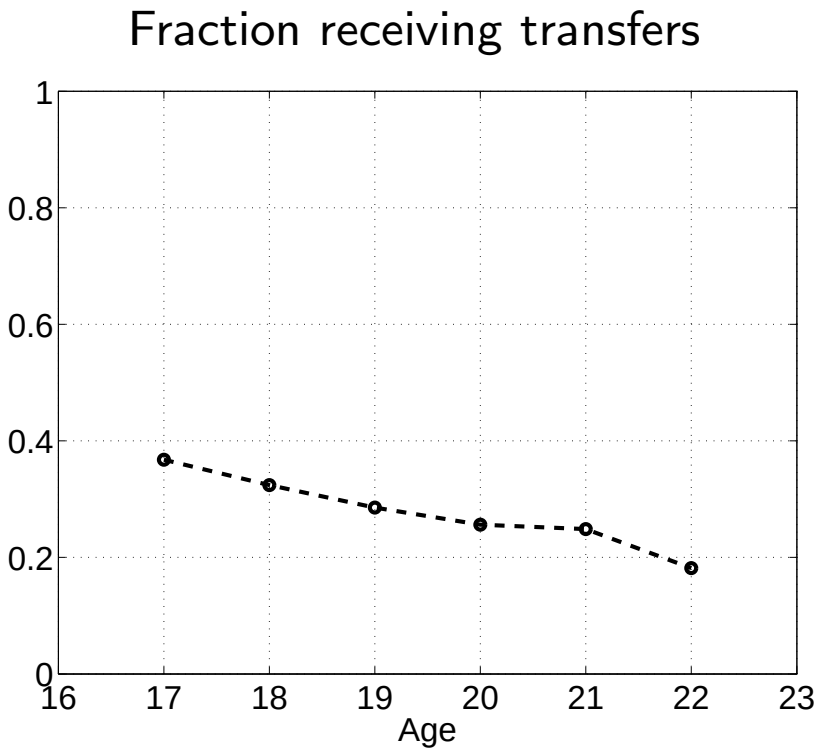
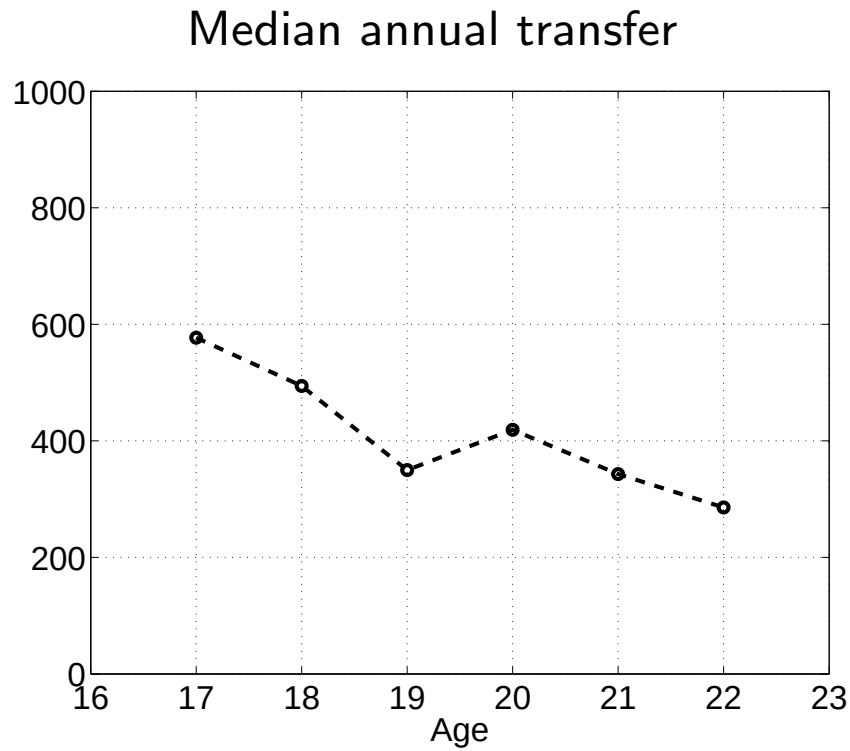
Financial transfers: common but small





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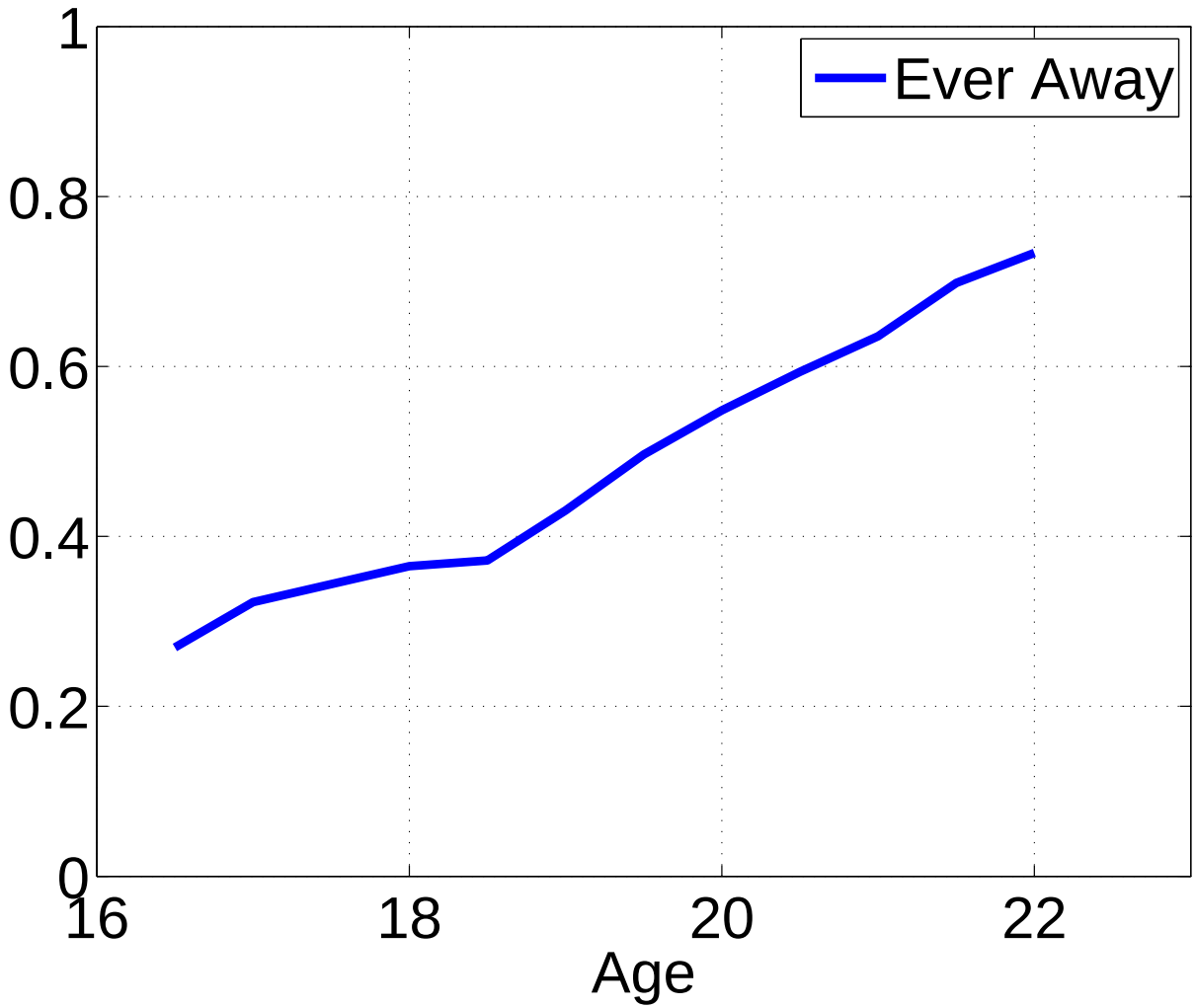
Common to move back home



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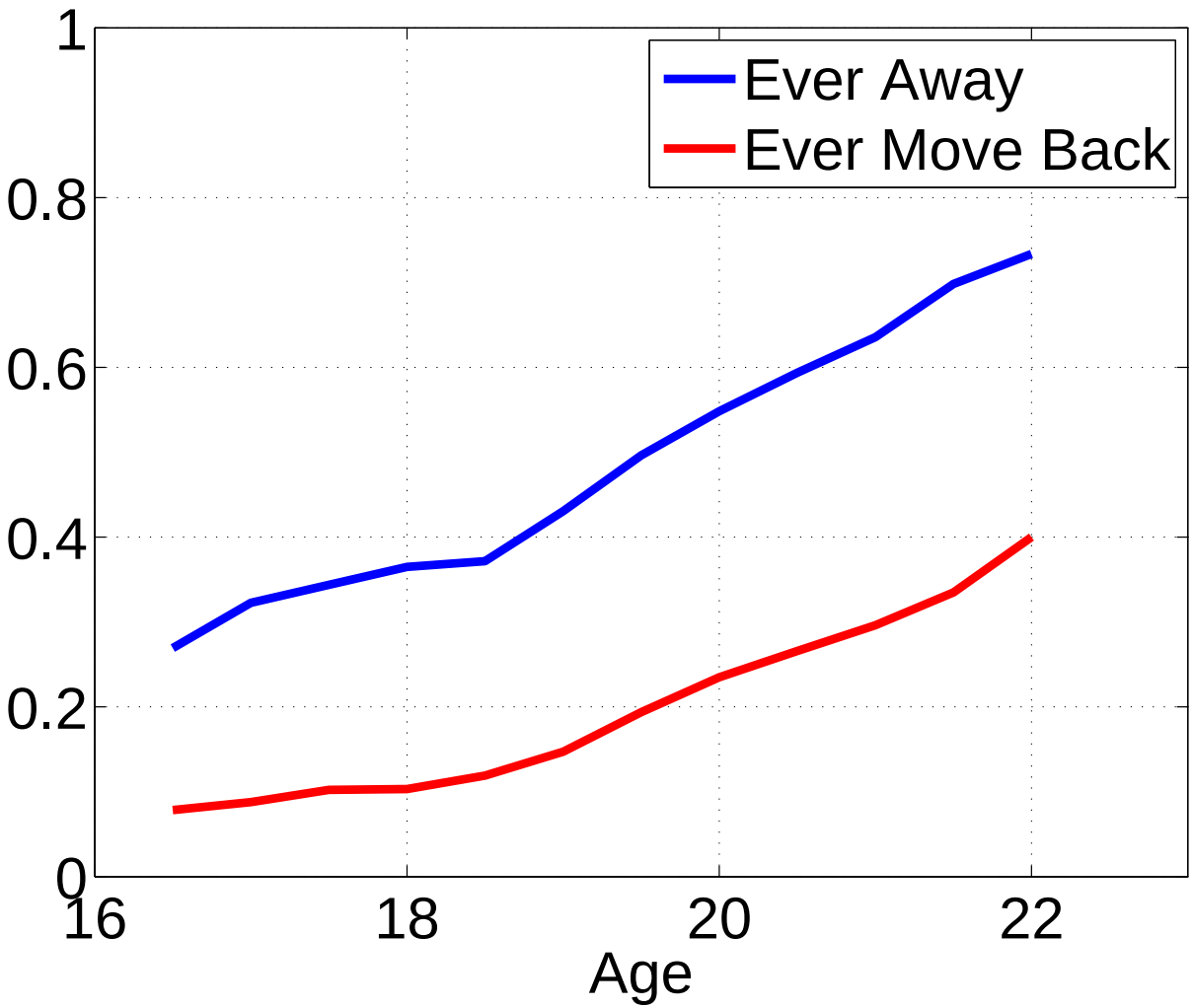
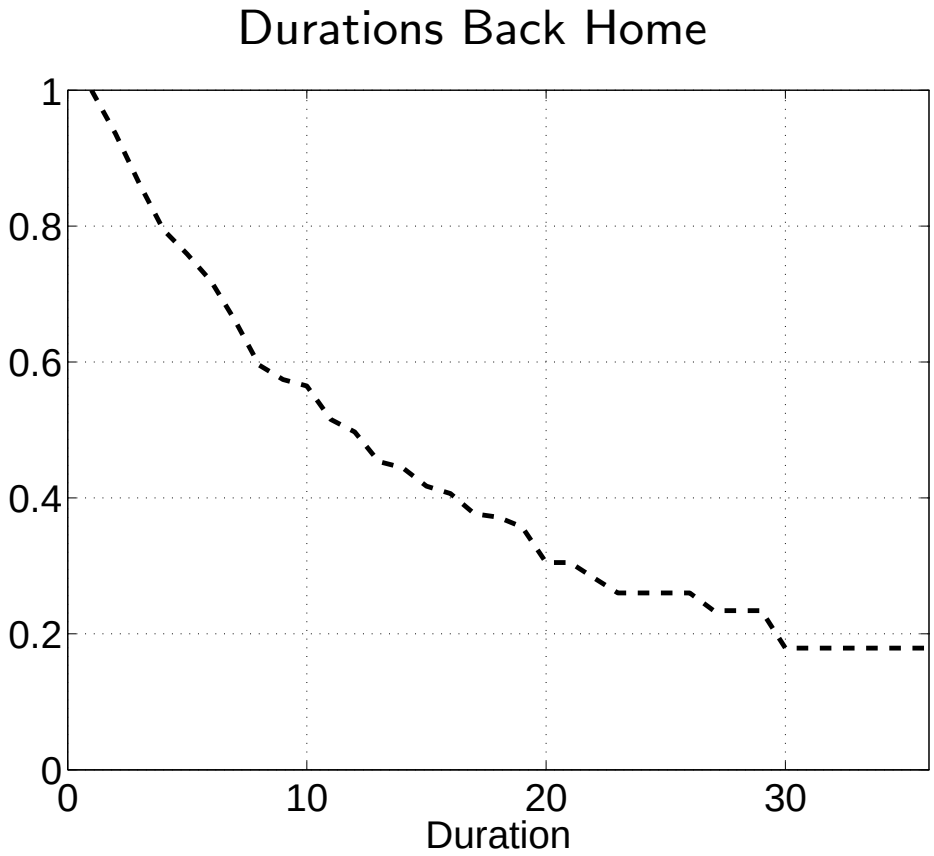


[return to facts]

Durations back home: long and heterogeneous

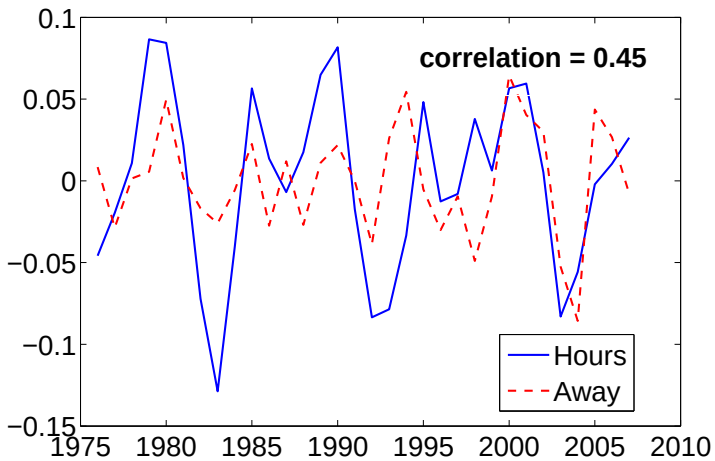


Median duration back home	12
Fraction spells $\leq$ 6 months	28%
Fraction spells $\geq$ 2 years	26%

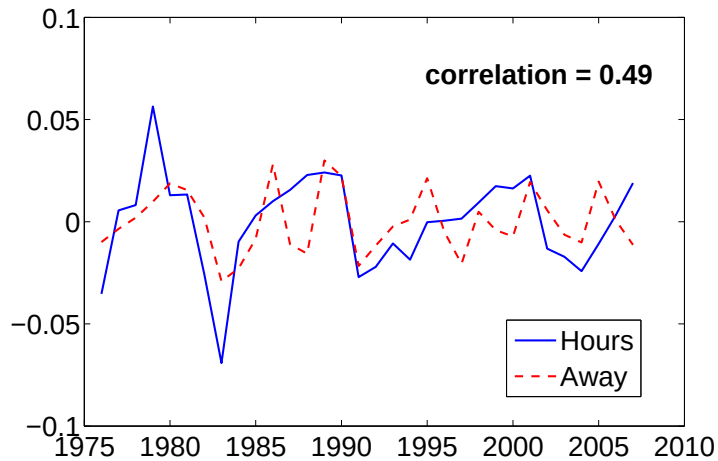
[return to facts]

Coresidence and the business cycle

16 to 19



20 to 24



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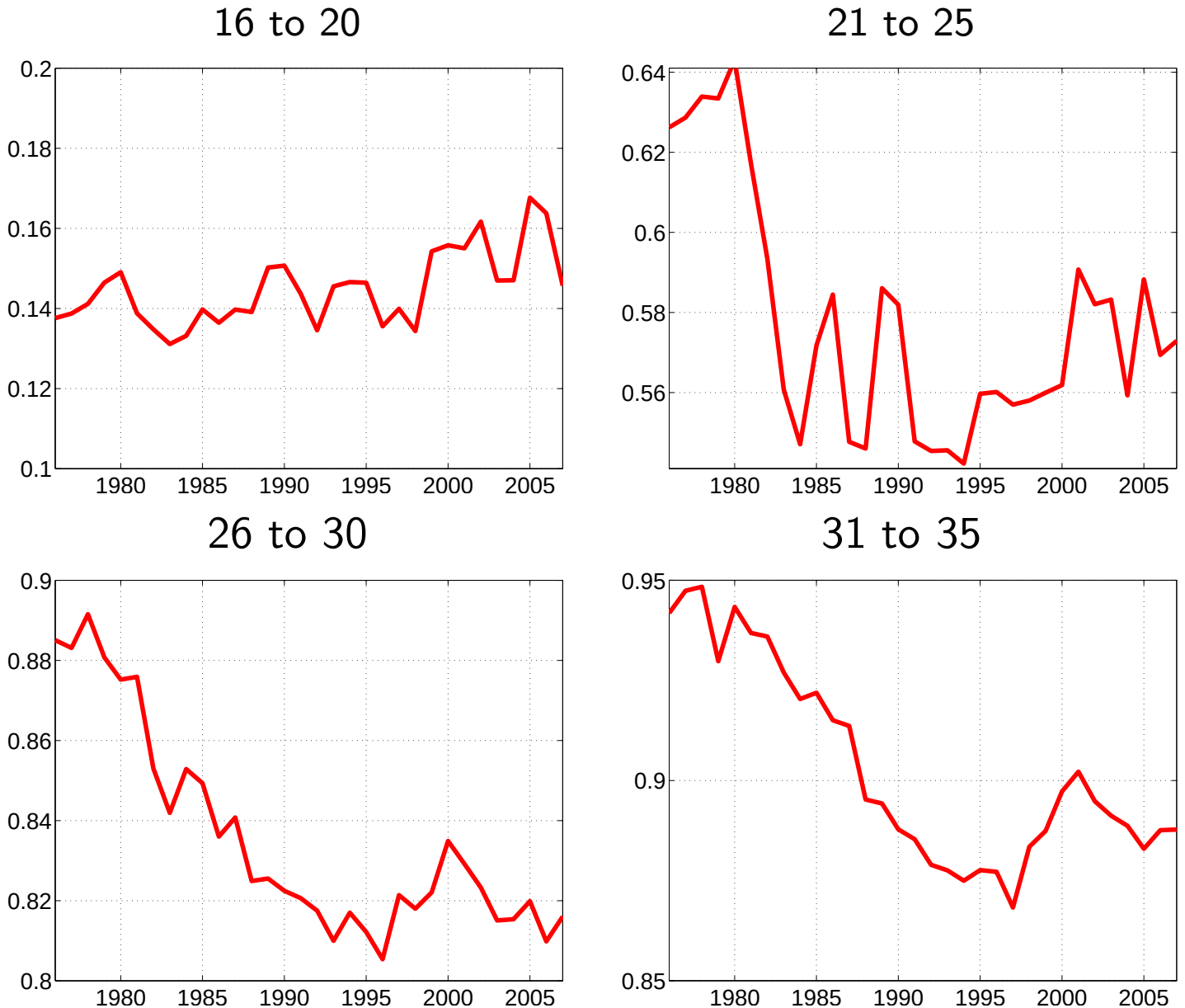
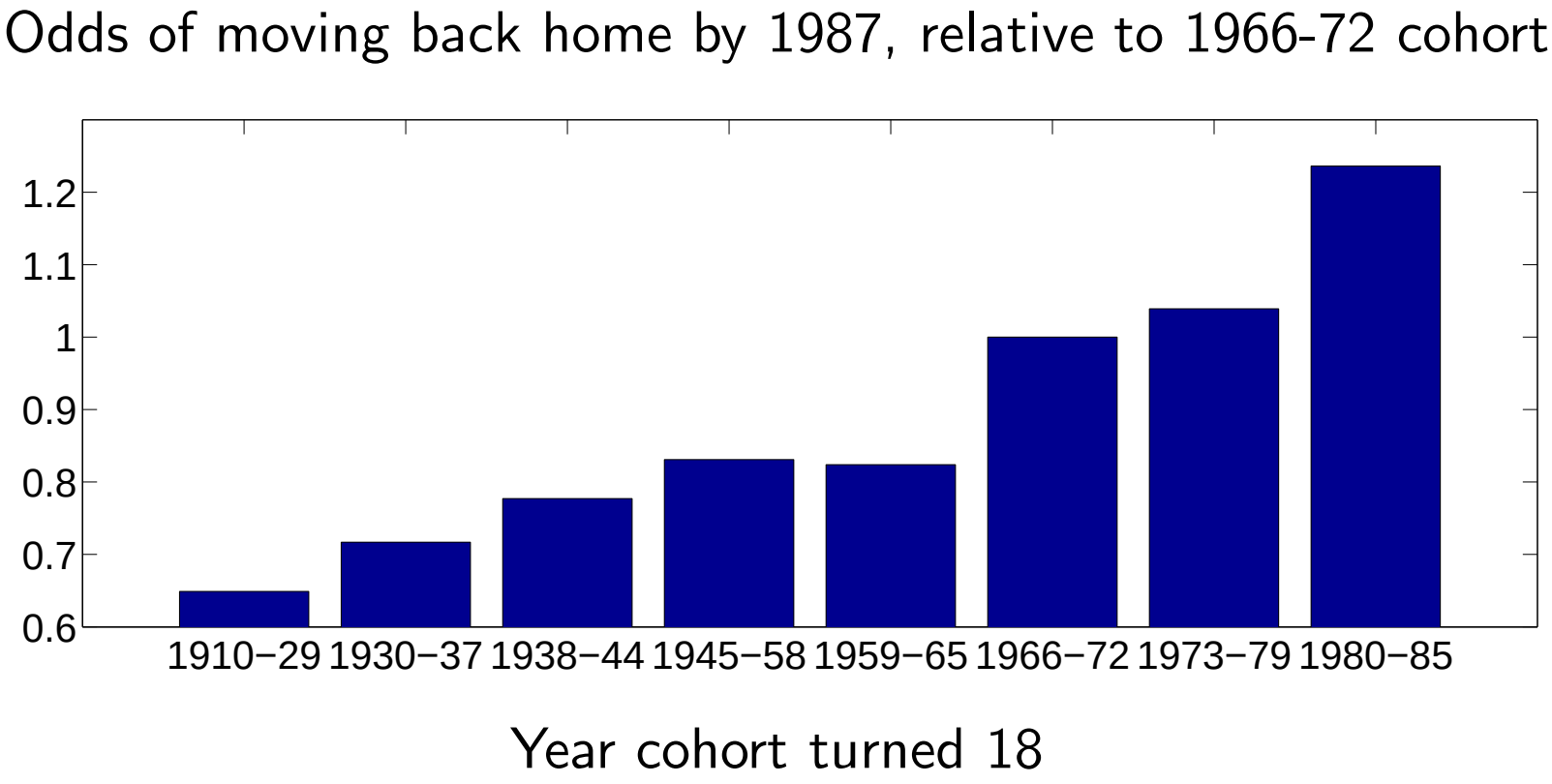
Historical parent-youth coresidence from CPS

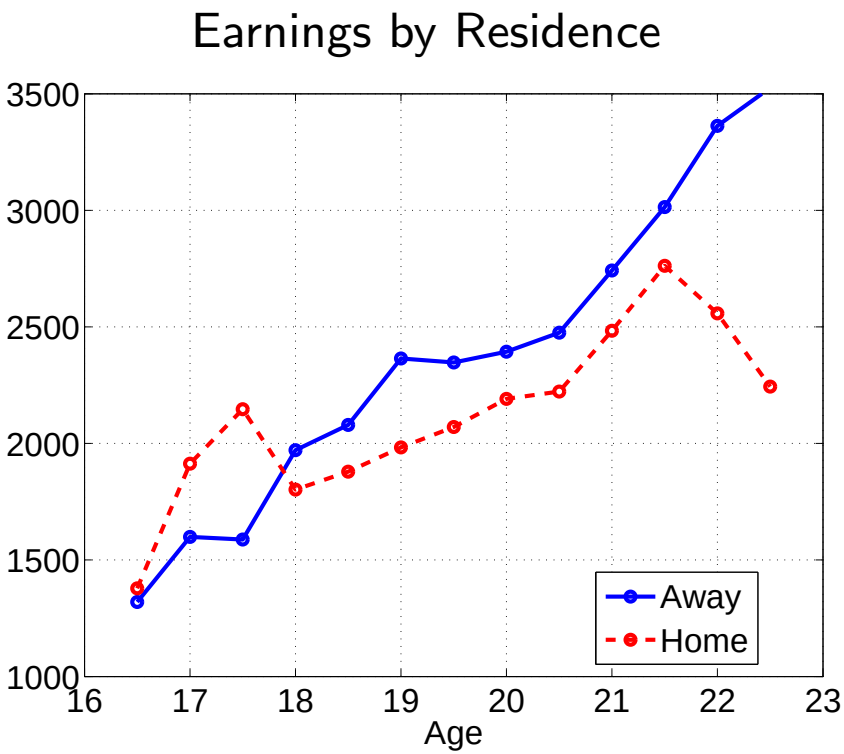


Odds of moving back home by cohort



Taken from Goldscheider and Goldscheider (1999), source: NSFH [return to facts]

Earnings and employment by coresidence: cross-section



[return to facts]

Coresidence dynamics and the labor market

- Coefficients from discrete-time proportional hazards model: multiplicative effect on baseline hazard

	Pr Move Out Again	Pr Move Back
Currently working	1.297 (0.271)	0.760 (0.088)
Stopped work		1.641 (0.353)

[return to facts]

Receipt of government benefits

	Receipt	Mean	Home	Away
Any Benefits	8%	$386	4%	15%
Unemployment Insurance	0.9%	$860	0.8%	1%
Food stamps	2%	$273	0.4%	5%
AFDC / TANF	0.5%	$343	0.2%	1%
WIC	5%	$168	2%	10%
Other Benefits	1%	$704	1%	2%

- per person/month observations for male sample

[return to facts]

Terminal values

1. Youth moves out, no further transfers.
2. Parents: no choice variables, calculate value
3. Youths: assume inelastic labor supply, no further wage risk, calculate value
4. Solve for an extra 2 years (24 periods) past data, to minimize impact of misspecification of terminal functions

[back to estimation]

Initial conditions

Wealth Distribution	$a_0 = 0$
Preference Shocks	$z_0 \sim$ stationary dist
Initial Residence	$\Pr(r_{-1} = 1) = 0$
Initial Employment	$\Pr(h_0 = 1) = 0.3$
Initial Wages	$\log w_0 \sim N(\mu_0, \sigma_0 \mid I^p)$

[back to estimation]

Parameters fixed outside model

γ	risk aversion	1.5
R	annual interest rate	3%
χ	housing costs	\$650
b	unemployment benefits	\$500
$\underline{c}$	consumption floor	\$100

[back to estimation]

Moments used in estimation

Labor Market Moments	**Coresidence Moments:**
mean, variance log earns	fraction away from home
mean, variance log entry earns	mean growth rate in fraction away
av growth mean log earns	mean duration spells back home
av growth mean log entry earns	fraction ever moved back
mean unemployment duration	auto-correlation coresidence
prob start work	diff: mean log earns, home vs away
prob stop work	growth in diff: mean log earns, home vs away
prob earnings change	**Other Moments:**
mean log earns change	fraction receiving transfers
fraction not working	mean assets at age 20
mean unemployment duration	

[back to estimation]

Calibration of economies of scale

- Let e be increase in income required to maintain welfare when adding a third adult to a two-adult household
  - OECD scale $\Rightarrow e = 1.41$
  - OECD-modified scale $\Rightarrow e = 1.33$
  - Square root scale $\Rightarrow e = 1.22$

- For a static, unitary version of the model with equal weights on each members, can show $e(\phi)$ to be given by

$$e(\phi) = 2\left(\frac{\phi}{1+\phi}\right)^{\phi}$$

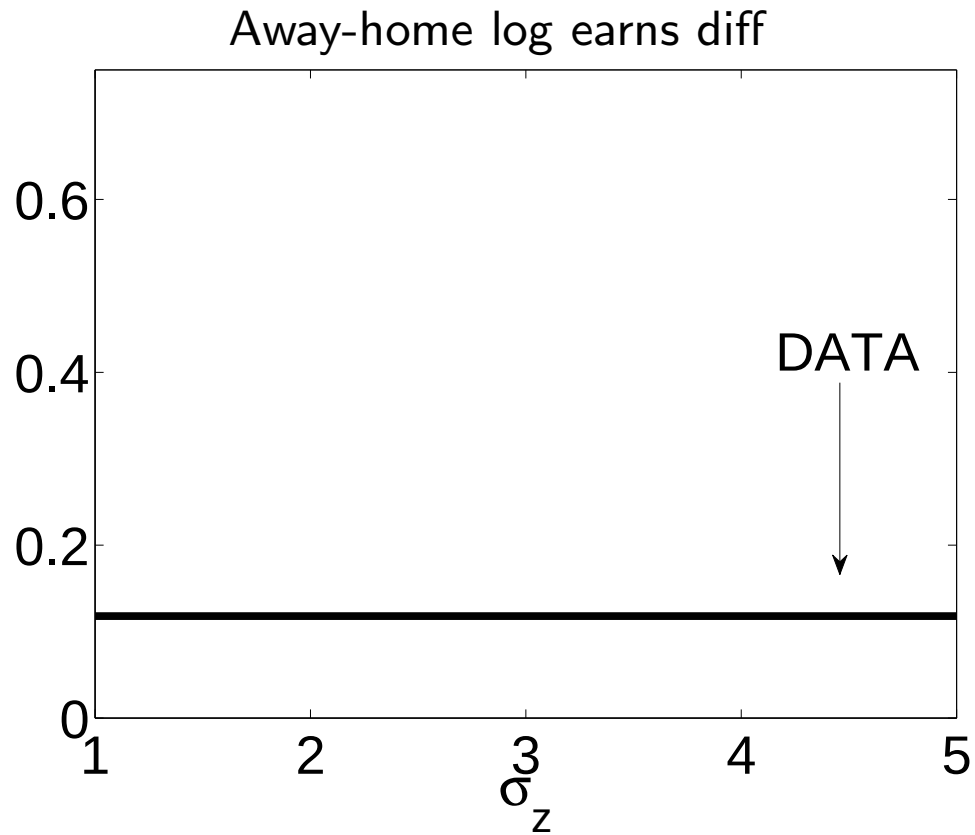
- Based on above equivalence scales, this implies $\phi \in [0.20, 0.42]$. Midpoint ≈ 0.3

[back to estimation]

Which moments pin down which parameters?

- Fix parameters at estimated values
- Vary parameters one at time, illustrate which model moment changes

Example: cross-sectional var of pref (σ_z) identified by away-home earnings diference



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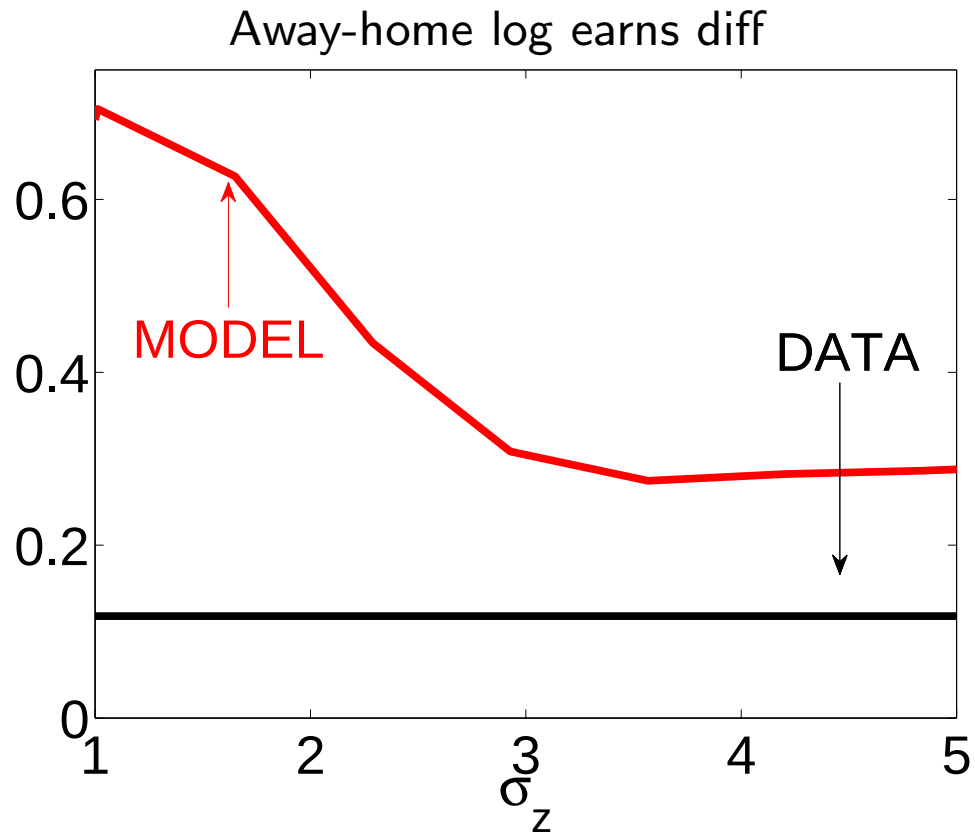

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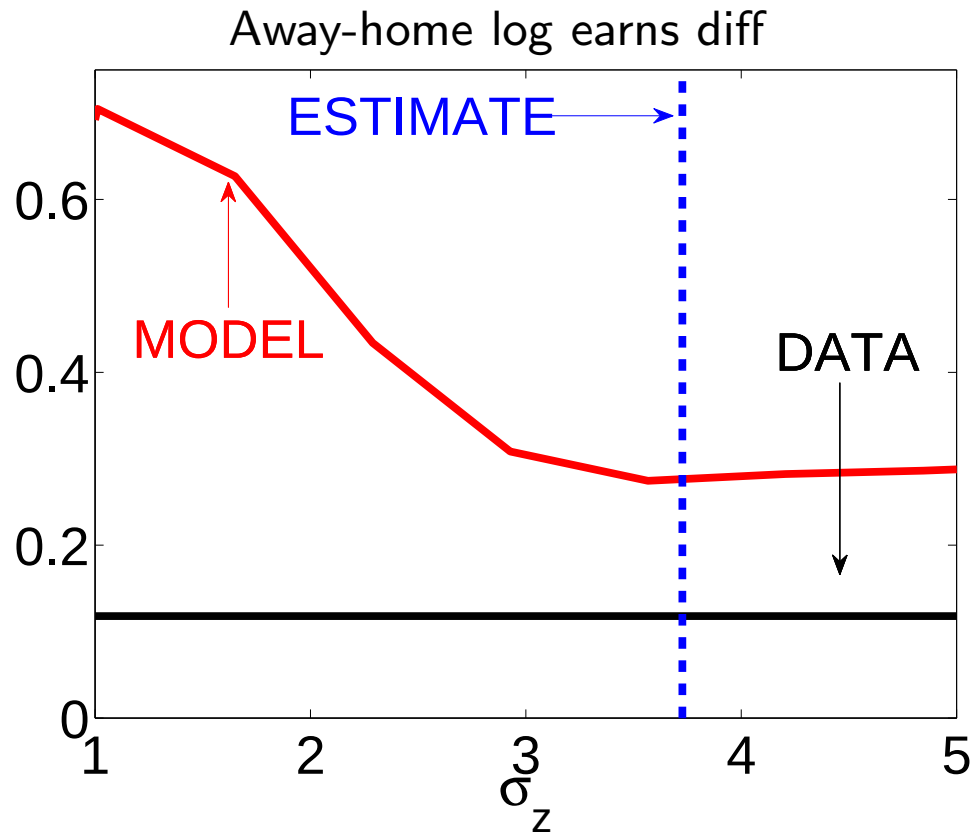

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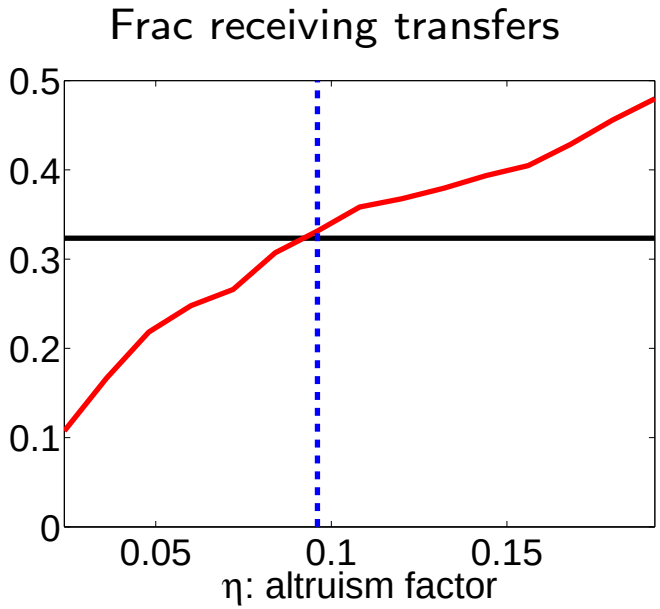
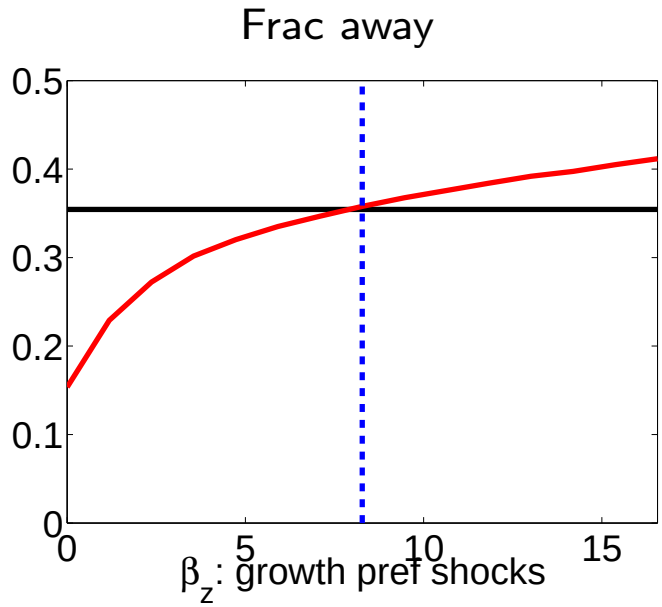
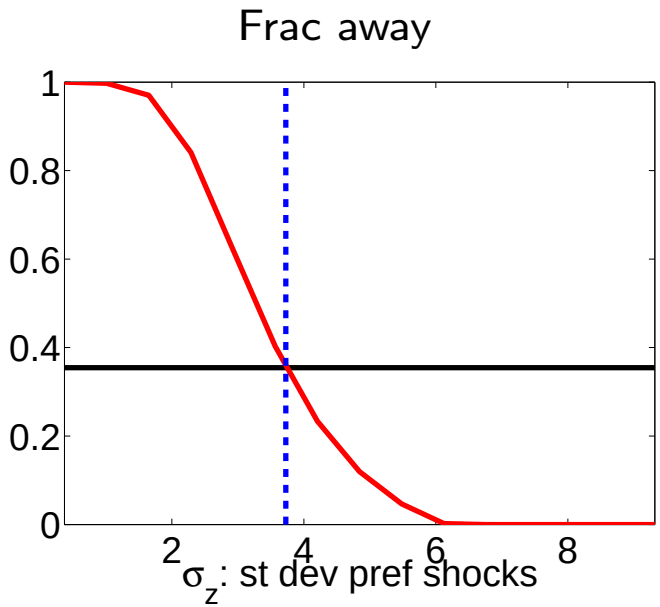
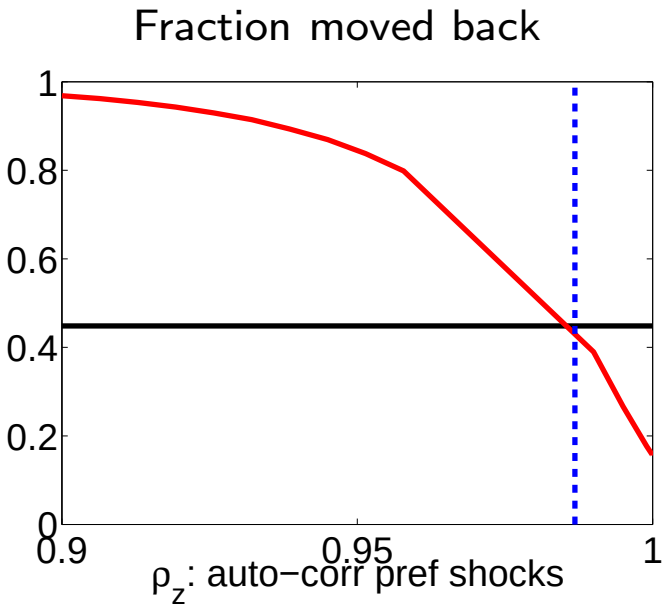


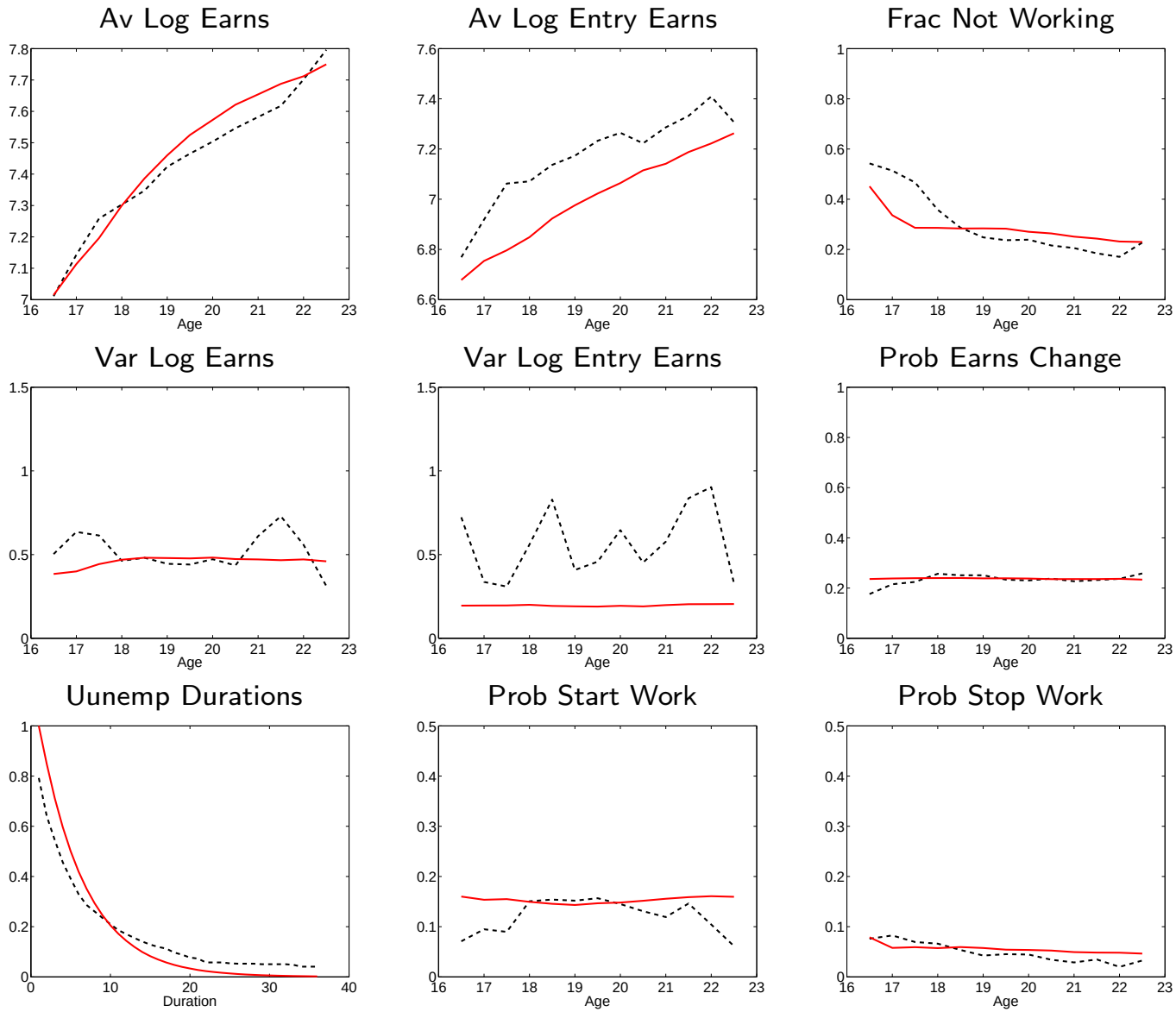






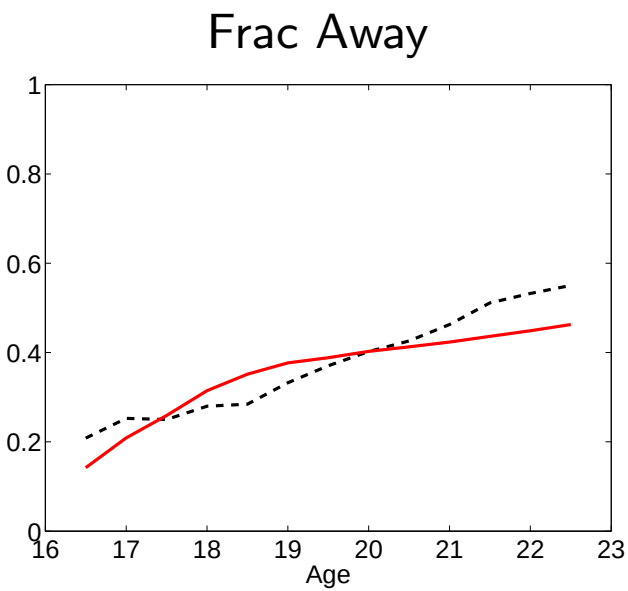
[back to estimation]

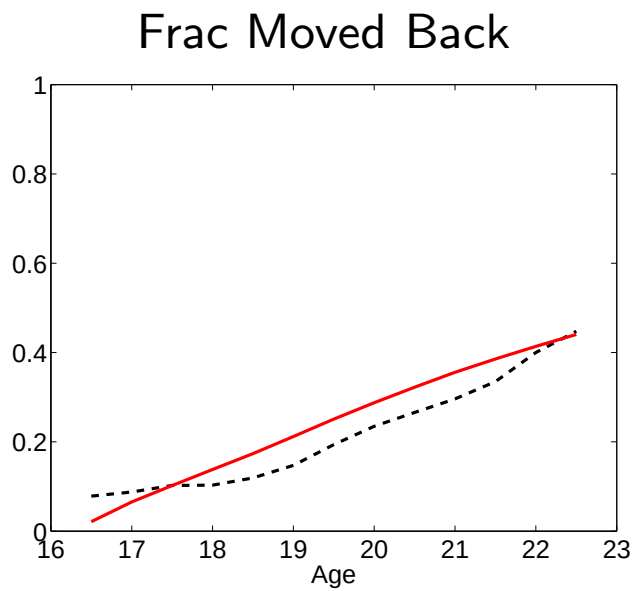
Labor market moments: model fit

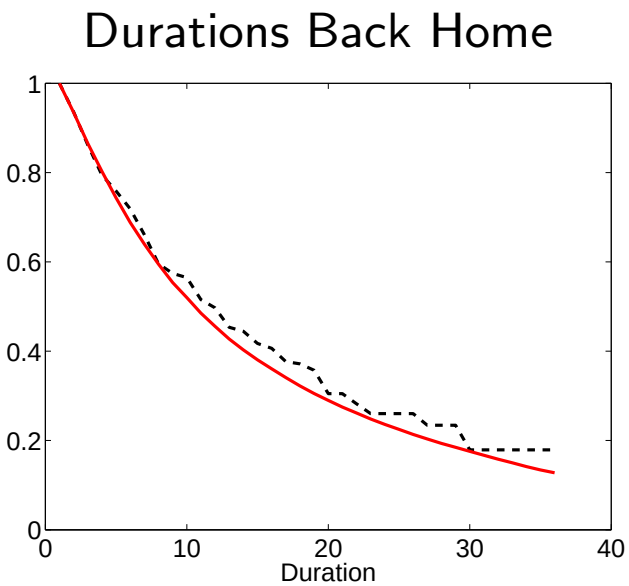


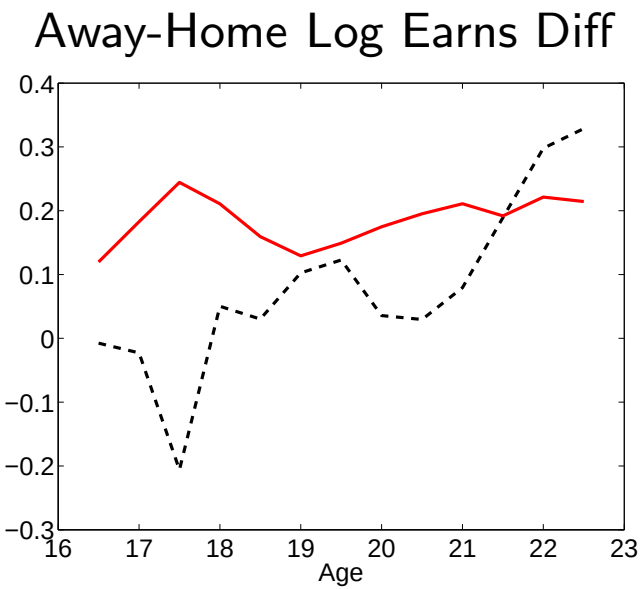
[back to estimation]

Coresidence moments: model fit









[back to estimation]

Coresidence dynamics by employment

Prob Move Back Home (%)

	Data	Model
Overall	3.1	2.4
Not Working	3.7	3.4
Working	2.8	2.1
Difference	0.9	1.3

Prob Move Out of Home (%)

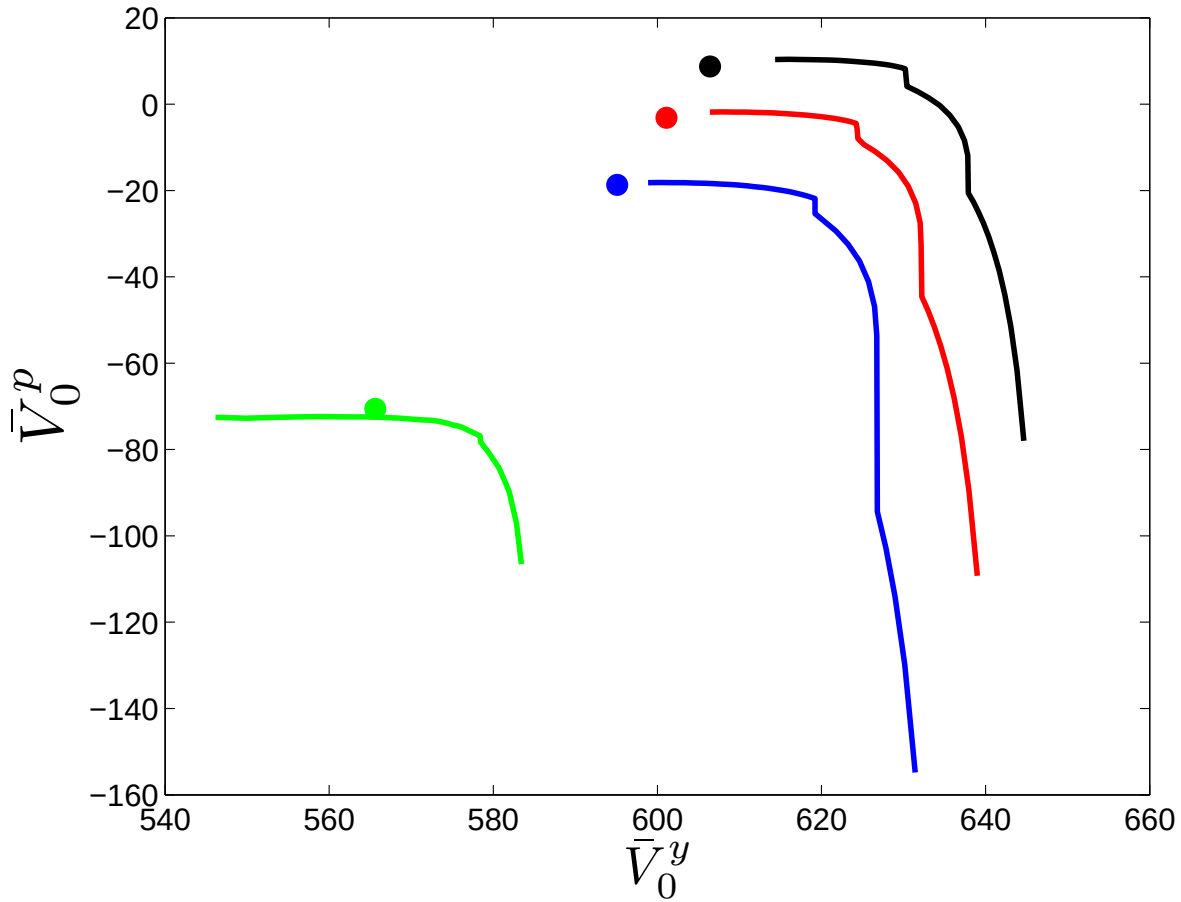
	Data	Model
Overall	2.9	2.1
Not Working	2.6	1.8
Working	3.0	2.2
Difference	−0.4	−0.4

[back to estimation]

How efficient is the game?

V_t^y : expected discounted value for youth

V_t^p : direct expected discounted value for parent



[return to game]

Variance decomposition of living arrangements

$$Var\left[r_t\right] = E\left[Var\left(r_t|z^t\right)\right] + Var\left[E\left(r_t|z^t\right)\right]$$

$$\frac{E\left[Var\left(r_t|z^t\right)\right]}{Var\left[r_t\right]}$$

	(%)
$Var\left(r_t\right)$: Residence Differences	15
$Var\left(mb_t\right)$: Movements Back Home	38
$Var\left(mo_t\right)$: Movements Out of Home	50

[back to importance of labor market shocks]

Variance decomposition of living arrangements

$$Var\left[r_t\right] = E\left[Var\left(r_t|z^t\right)\right] + Var\left[E\left(r_t|z^t\right)\right]$$

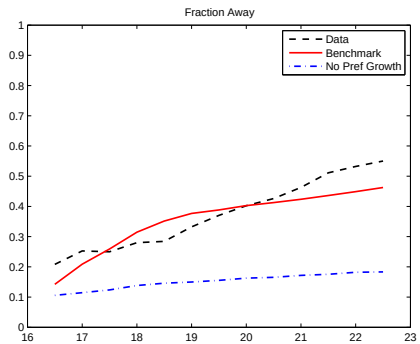
$$\frac{E\left[Var\left(r_t|z^t\right)\right]}{Var\left[r_t\right]}$$

	(%)	
	Bottom Quartile	Top Quartile
$Var\left(r_t\right)$: Residence Differences	21	7
$Var\left(mb_t\right)$: Movements Back	50	26
$Var\left(mo_t\right)$: Movements Out	57	36

[back to importance of labor market shocks]

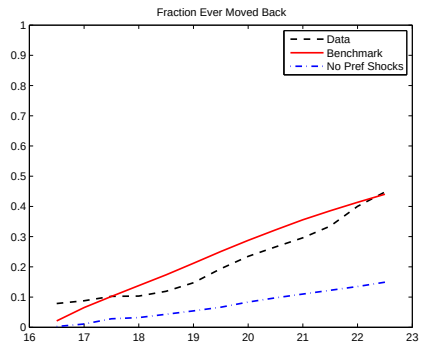
How much of coresidence dynamics due to labor market factors?

Fraction Away



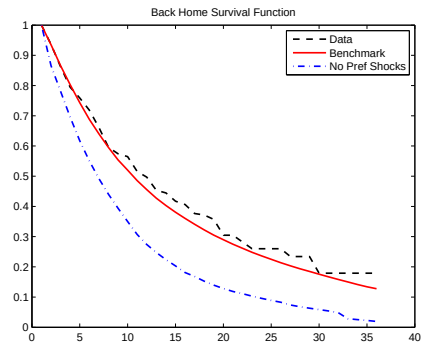
generarate 35%
of increase in frac away

Fraction Moved Back



generate 33%
of frac moved back

Durations Back Home



median duration reduced
$11 \rightarrow 7$ months

[back to importance of labor market shocks]

Measuring the value of insurance channels

- Define insurance w.r.t particular shock: job loss

  Full insurance: youth indifferent about losing job

  Partial insurance: diff in continuation values upon losing job:

$$\Delta_t(x_t) = V_t^y(a_t, r_{t-1}, w_t, z_t) - V_t^y(a_t, r_{t-1}, 0, z_t)$$

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- Value of insurance channel is widening in continuation value spread:

$$\frac{\widetilde{\mathcal{A}}_t(x_t)}{\mathcal{A}_t(x_t)} - 1$$

[back to value of insurance channels]

Coresidence and labor supply

Being able to live at home raises reservation wages

Induces intergenerational correlation in earnings

- Cross-sectional differences in utility costs of living at home
- Realization of preference shocks feeds back into labor market decisions
- Stronger effect for youths with poor parents: generate intergenerational correlation

Parameter estimates: labor market [back to estimation]

Parameter	Description	
δ	Job destruction probability	0.024
		(0.008)
λ_0	Job offer probability (not working)	0.191
		(0.017)
λ_1	New job offer probability	0.364
		(0.011)
μ_0	Mean log wage offer distribution	6.505
		(2.151)
μ_g	Growth rate mean log wage offer dist ($\times 10^{-2}$)	0.822
		(0.085)
σ_0	St. dev. log wage offer distribution	0.540
		(0.023)
μ_d	Mean change log wages | wage change($\times 10^{-2}$)	0.758
		(0.130)
σ_1	St. dev. change log wages | wage change	0.352
		(0.008)

Parameter estimates: preferences, other [back to estimation]

Parameter	Description	
α_z	Intercept for mean value of living away	1.065
		(0.271)
β_z	Age slope for mean value of living away	0.602
		(0.166)
σ_z^2	Variance of (log) value of living away	13.890
		(1.441)
ρ_z	Autocorrelation of (log) value of living away	0.987
		(0.006)
η	Altruism factor	0.096
		(0.041)
ν	Disutility of work ($\times 10^4$)	0.963
		(0.353)
β	Monthly discount factor	0.993
		(1.227)
κ	Fixed costs of moving out of home ($\times 10^{-3}$)	0.664
		(0.150)