Moving Back Home: Insurance Against Labor Market Risk

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University of Pennsylvania

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
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
   - 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 et 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
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

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, ≥ 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]
Facts about low-skilled young workers

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

2. Substantial labor market risk  
   [separation rates, earnings changes]
Facts about low-skilled young workers

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

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]
Facts about low-skilled young workers

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

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

3. Coresidence related to labor market?  
   Cross-section: NO  
   Dynamics: YES  
   [home vs away earnings, employment]  
   [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
  - Publicly 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

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

\[ u(c, g) = \frac{(c^{1-\phi} g^{\phi})^{1-\gamma}}{1-\gamma} \]
Youths

Preferences

Period utility: 

\[ U^Y_{jt} = u \left( c^Y_{jt}, g^Y_{jt} + (1 - r_{jt}) g^p_{jt} \right) - h_{jt} v + r_{jt} z_{jt} \]

\[ u(c, g) = \frac{(c^{1-\phi} g^\phi)^{1-\gamma}}{1-\gamma} \]
Youths

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\[ u (c, g) = \frac{(c^{1-\phi} g^\phi)^{1-\gamma}}{1-\gamma} \]

Budget Constraint

Home: \[ c_{jt}^y + g_{jt}^y + a_{j,t+1} \leq w_{jt} h_{jt} - \tau (w_{jt} h_{jt}) + b (1 - h_{jt}) + R a_{jt} + T_{jt} \]

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

\[ a_{j,t+1} \geq 0 \]

Consumption floor = c
Preferences

Period utility: \( U_{jt}^P = u \left( c_{jt}^P, g_{jt}^P \right) + \eta U_{jt}^Y \)
Preferences

Period utility:  \[ U^p_{jt} = u \left( c^p_{jt}, g^p_{jt} \right) + \eta U^y_{jt} \]
Preferences

Period utility: \[ U^p_{jt} = u\left(c^p_{jt}, g^p_{jt}\right) + \eta U^y_{jt} \]
Parents

Preferences

Period utility: \( U_{jt}^P = u \left( c_{jt}^P, g_{jt}^P \right) + \eta U_{jt}^V \)

Budget Constraint

\[
\begin{align*}
c_{jt}^P + g_{jt}^P + T_{jt} &= I_j^P - \tau(I_j^P) \\
T_{jt} &\geq 0
\end{align*}
\]
Resource sharing across generations

Two forms of parental support: financial transfers and coresidence
Resource sharing across generations

Two forms of parental support: financial transfers and coresidence

Three effects of coresidence:

1. Utility cost from foregone independence ($z$)
2. Savings from direct housing costs ($\chi$)
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:

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

- Symmetric transition matrix:

$$\text{corr}[z_t, z_{t+1}] = \rho_z$$

$$\text{var}[z_t] = \sigma_z^2$$
Two types of exogenous shocks

Preference shocks

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  \[
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  \]

Labor market shocks: search model

Not working at $t - 1$

- Prob $\lambda_0$: job offer from \( \log w_{jt} \sim N(\mu_t, \sigma_0) \)

Working at $t - 1$

- Prob $\delta$: job destruction $\implies h_{jt} = 0$
- Prob $\lambda_1$: new wage drawn:
  \[ \log w_{jt} = \mu_1 + \log w_{j,t-1} + \epsilon_{jt}, \quad \epsilon_{jt} \sim N(0, \sigma_1) \]
### Timing protocol for actions in each period:

<table>
<thead>
<tr>
<th>state</th>
<th>nature</th>
<th>youth</th>
<th>parent</th>
<th>youth</th>
</tr>
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<td>$a_t, r_{t-1}$</td>
<td>$w_t, z_t$</td>
<td>$r_t$</td>
<td>$T_t$</td>
<td>$h_t, a_{t+1}$</td>
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Dynamic game

Timing protocol for actions in each period:

\[
\begin{array}{cccc}
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\text{youth} & & & \\
\end{array}
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a_t, r_{t-1} & w_t, z_t & r_t & T_t \\
w_{t-1}, h_{t-1}, z_{t-1} & & & h_t, a_{t+1} \\
\end{array}
\]

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]
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 exercises]
Roadmap

1. To what extent do labor market shocks account for parent-youth living arrangements?

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Value of insurance channels

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

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

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<th>Bottom Quartile $I^p$</th>
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- Measure **value of insurance channel** as increase in asset transfer, when insurance channel is removed:  [measuringvalues]
## Value of insurance channels

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Roadmap

1. To what extent do labor market shocks account for parent-youth living arrangements?

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## Consumption drop from job loss

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<td>Benchmark</td>
<td>24</td>
</tr>
<tr>
<td>Without coresidence</td>
<td>33</td>
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<td>26</td>
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<td>Halve unemployment benefits</td>
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Consumption response is larger without coresidence...
Consumption drop from job loss

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... but is less affected by absence of transfers (since larger incentives to live at home)
## Consumption drop from job loss

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

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... but with coresidence, the effect of halving UI is much smaller
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... not true for financial transfers
Roadmap

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Age profile of assets

Bottom Quartile $I^p$

Top Quartile $I^p$
## Effect of parental support on savings

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<th>Top Quartile $I^P$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average assets at age 23</td>
<td>$8,300</td>
<td>$4,200</td>
</tr>
<tr>
<td><strong>Change from baseline</strong></td>
<td>(%)</td>
<td>(%)</td>
</tr>
<tr>
<td>No move back</td>
<td>10</td>
<td>−36</td>
</tr>
<tr>
<td>No transfers</td>
<td>0.2</td>
<td>127</td>
</tr>
<tr>
<td>No coresidence</td>
<td>9</td>
<td>−0.5</td>
</tr>
</tbody>
</table>
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
“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...”

Related literature

Intergenerational transfers / Family risk-sharing
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),
Fogli (2004), Manacorda and Moretti (2006), Alessi et al. (2006), Pezzin et al.
al. (2008)

Insurance and idiosyncratic risk over the lifecycle
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)
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].
Unstable labor market

![Graph showing the relationship between age and probability of earnings change and separation rate. The graph is labeled with "Prob Earns Change" and "Separation Rate." The x-axis represents age, ranging from 16 to 23. The y-axis represents the probability of earnings change, which is shown in a logarithmic scale, from 0.5 to 3 x 10^{-3}. The graph shows a rising trend in the probability of earnings change with age, while the separation rate decreases.]

[return to facts]
Low financial wealth

Fraction with Zero Assets

Net Financial Assets

Net Financial Assets + Cars

Mean Assets

Net Financial Assets

Net Financial Assets + Cars

[return to facts]
Financial transfers: common but small

Fraction receiving transfers

Median annual transfer
Common to move back home

[return to facts]
Common to move back home

[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%
Coresidence and the business cycle

16 to 19

20 to 24

correlation = 0.45

correlation = 0.49

[return to facts]
Historical parent-youth coresidence from CPS

16 to 20

21 to 25

26 to 30

31 to 35
Odds of moving back home by cohort

Odds of moving back home by 1987, relative to 1966-72 cohort

Taken from Goldscheider and Goldscheider (1999), source: NSFH [return to facts]
Earnings and employment by coresidence: cross-section

Earnings by Residence

Employment by Residence

[return to facts]
Coresidence dynamics and the labor market

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

<table>
<thead>
<tr>
<th></th>
<th>Pr Move Out Again</th>
<th>Pr Move Back</th>
</tr>
</thead>
<tbody>
<tr>
<td>Currently</td>
<td>1.297 (0.271)</td>
<td>0.760 (0.088)</td>
</tr>
<tr>
<td>working</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stopped work</td>
<td></td>
<td>1.641 (0.353)</td>
</tr>
</tbody>
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[return to facts]
## Receipt of government benefits

<table>
<thead>
<tr>
<th>Benefits</th>
<th>Receipt</th>
<th>Mean</th>
<th>Home</th>
<th>Away</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any Benefits</td>
<td>8%</td>
<td>$386</td>
<td>4%</td>
<td>15%</td>
</tr>
<tr>
<td>Unemployment Insurance</td>
<td>0.9%</td>
<td>$860</td>
<td>0.8%</td>
<td>1%</td>
</tr>
<tr>
<td>Food stamps</td>
<td>2%</td>
<td>$273</td>
<td>0.4%</td>
<td>5%</td>
</tr>
<tr>
<td>AFDC / TANF</td>
<td>0.5%</td>
<td>$343</td>
<td>0.2%</td>
<td>1%</td>
</tr>
<tr>
<td>WIC</td>
<td>5%</td>
<td>$168</td>
<td>2%</td>
<td>10%</td>
</tr>
<tr>
<td>Other Benefits</td>
<td>1%</td>
<td>$704</td>
<td>1%</td>
<td>2%</td>
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- 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

<table>
<thead>
<tr>
<th>Category</th>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wealth Distribution</td>
<td>$a_0 = 0$</td>
</tr>
<tr>
<td>Preference Shocks</td>
<td>$z_0 \sim \text{stationary dist}$</td>
</tr>
<tr>
<td>Initial Residence</td>
<td>$\Pr (r_{-1} = 1) = 0$</td>
</tr>
<tr>
<td>Initial Employment</td>
<td>$\Pr (h_0 = 1) = 0.3$</td>
</tr>
<tr>
<td>Initial Wages</td>
<td>$\log w_0 \sim N(\mu_0, \sigma_0</td>
</tr>
</tbody>
</table>

[back to estimation]
Parameters fixed outside model

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\gamma$</td>
<td>risk aversion</td>
<td>1.5</td>
</tr>
<tr>
<td>$R$</td>
<td>annual interest rate</td>
<td>3%</td>
</tr>
<tr>
<td>$\chi$</td>
<td>housing costs</td>
<td>$650</td>
</tr>
<tr>
<td>$b$</td>
<td>unemployment benefits</td>
<td>$500</td>
</tr>
<tr>
<td>$c$</td>
<td>consumption floor</td>
<td>$100</td>
</tr>
</tbody>
</table>

[back to estimation]
## Moments used in estimation

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

[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 $\approx 0.3$

[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 \((\sigma_z)\) identified by away-home earnings difference

![Graph showing away-home log earns diff vs \(\sigma_z\) with data point at \((1, 0.2)\).]
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 \((\sigma_z)\) identified by away-home earnings difference

![Graph showing away-home log earns diff vs \(\sigma_z\)](image)
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 \((\sigma_z)\) identified by away-home earnings difference
Which moments pin down which parameters?

Frac receiving transfers

Frac away

Frac away

Fraction moved back

\[ \eta: \text{altruism factor} \]

\[ \beta: \text{growth pref shocks} \]

\[ \sigma: \text{st dev pref shocks} \]

\[ \rho: \text{auto-corr pref shocks} \]
Labor market moments: model fit

[back to estimation]
Coresidence moments: model fit

Frac Away

Frac Moved Back

Durations Back Home

Away-Home Log Earns Diff

[back to estimation]
## Coresidence dynamics by employment

### Prob Move Back Home (%)

<table>
<thead>
<tr>
<th></th>
<th>Data</th>
<th>Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>3.1</td>
<td>2.4</td>
</tr>
<tr>
<td>Not Working</td>
<td>3.7</td>
<td>3.4</td>
</tr>
<tr>
<td>Working</td>
<td>2.8</td>
<td>2.1</td>
</tr>
<tr>
<td>Difference</td>
<td>0.9</td>
<td>1.3</td>
</tr>
</tbody>
</table>

### Prob Move Out of Home (%)

<table>
<thead>
<tr>
<th></th>
<th>Data</th>
<th>Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>2.9</td>
<td>2.1</td>
</tr>
<tr>
<td>Not Working</td>
<td>2.6</td>
<td>1.8</td>
</tr>
<tr>
<td>Working</td>
<td>3.0</td>
<td>2.2</td>
</tr>
<tr>
<td>Difference</td>
<td>−0.4</td>
<td>−0.4</td>
</tr>
</tbody>
</table>
How efficient is the game?

\( V_t^y \): expected discounted value for youth
\( V_t^p \): direct expected discounted value for parent

\[ \bar{V}_0 \]
Variance decomposition of living arrangements

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

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

| \text{Var} (r_t) : Residence Differences | 15 |
| \text{Var} (mb_t) : Movements Back Home | 38 |
| \text{Var} (mot) : Movements Out of Home | 50 |

[back to importance of labor market shocks]
Variance decomposition of living arrangements

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

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

<table>
<thead>
<tr>
<th></th>
<th>(%)</th>
<th>Bottom Quartile</th>
<th>Top Quartile</th>
</tr>
</thead>
<tbody>
<tr>
<td>\text{Var} (r_t) : Residence Differences</td>
<td>21</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>\text{Var} (mb_t) : Movements Back</td>
<td>50</td>
<td>26</td>
<td></td>
</tr>
<tr>
<td>\text{Var} (mo_t) : Movements Out</td>
<td>57</td>
<td>36</td>
<td></td>
</tr>
</tbody>
</table>

[back to importance of labor market shocks]
How much of coresidence dynamics due to labor market factors?

 generate 35% of increase in frac away

generate 33% of frac moved back

median duration reduced 11 → 7 months

[back to importance of labor market shocks]
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:

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

- Define **degree of insurance** by compensating asset variation, \( A_t(x_t) \):
  \[ V_t^y(a_t + A_t, r_{t-1}, 0, z_t) - V_t^y(a_t, r_{t-1}, 0, z_t) = \Delta_t(x_t) \]
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:
    \[ \Delta_t(x_t) = V_t^y(a_t, r_{t-1}, w_t, z_t) - V_t^y(a_t, r_{t-1}, 0, z_t) \]

- Define degree of insurance by compensating asset variation, \( A_t(x_t) \):
  \[ V_t^y(a_t + A_t, r_{t-1}, 0, z_t) - V_t^y(a_t, r_{t-1}, 0, z_t) = \Delta_t(x_t) \]

- Alternative equilibrium with insurance channel removed: \( \tilde{A}_t(x_t) \):
  \[ V_t^y(a_t + \tilde{A}_t, r_{t-1}, 0, z_t) - V_t^y(a_t, r_{t-1}, 0, z_t) = \tilde{\Delta}_t(x_t) \]
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:

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

- Define degree of insurance by compensating asset variation, \( A_t(x_t) \):

  \[
  V_t^y(a_t + A_t, r_{t-1}, 0, z_t) - V_t^y(a_t, r_{t-1}, 0, z_t) = \Delta_t(x_t)
  \]

- Alternative equilibrium with insurance channel removed: \( \tilde{A}_t(x_t) \):

  \[
  V_t^y(a_t + \tilde{A}_t, r_{t-1}, 0, z_t) - V_t^y(a_t, r_{t-1}, 0, z_t) = \tilde{\Delta}_t(x_t)
  \]

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

  \[
  \frac{\tilde{A}_t(x_t)}{A_t(x_t)} - 1
  \]
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

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Estimate</th>
<th>Standard Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\delta$</td>
<td>Job destruction probability</td>
<td>0.024</td>
<td>(0.008)</td>
</tr>
<tr>
<td>$\lambda_0$</td>
<td>Job offer probability (not working)</td>
<td>0.191</td>
<td>(0.017)</td>
</tr>
<tr>
<td>$\lambda_1$</td>
<td>New job offer probability</td>
<td>0.364</td>
<td>(0.011)</td>
</tr>
<tr>
<td>$\mu_0$</td>
<td>Mean log wage offer distribution</td>
<td>6.505</td>
<td>(2.151)</td>
</tr>
<tr>
<td>$\mu_g$</td>
<td>Growth rate mean log wage offer dist ($\times 10^{-2}$)</td>
<td>0.822</td>
<td>(0.085)</td>
</tr>
<tr>
<td>$\sigma_0$</td>
<td>St. dev. log wage offer distribution</td>
<td>0.540</td>
<td>(0.023)</td>
</tr>
<tr>
<td>$\mu_d$</td>
<td>Mean change log wages</td>
<td>wage change($\times 10^{-2}$)</td>
<td>0.758</td>
</tr>
<tr>
<td>$\sigma_1$</td>
<td>St. dev. change log wages</td>
<td>wage change</td>
<td>0.352</td>
</tr>
</tbody>
</table>
## Parameter estimates: preferences, other

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Estimate</th>
<th>Standard Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\alpha_z$</td>
<td>Intercept for mean value of living away</td>
<td>1.065</td>
<td>(0.271)</td>
</tr>
<tr>
<td>$\beta_z$</td>
<td>Age slope for mean value of living away</td>
<td>0.602</td>
<td>(0.166)</td>
</tr>
<tr>
<td>$\sigma_z^2$</td>
<td>Variance of (log) value of living away</td>
<td>13.890</td>
<td>(1.441)</td>
</tr>
<tr>
<td>$\rho_z$</td>
<td>Autocorrelation of (log) value of living away</td>
<td>0.987</td>
<td>(0.006)</td>
</tr>
<tr>
<td>$\eta$</td>
<td>Altruism factor</td>
<td>0.096</td>
<td>(0.041)</td>
</tr>
<tr>
<td>$\nu$</td>
<td>Disutility of work (<strong>$\times 10^4$</strong>)</td>
<td>0.963</td>
<td>(0.353)</td>
</tr>
<tr>
<td>$\beta$</td>
<td>Monthly discount factor</td>
<td>0.993</td>
<td>(1.227)</td>
</tr>
<tr>
<td>$\kappa$</td>
<td>Fixed costs of moving out of home (<strong>$\times 10^{-3}$</strong>)</td>
<td>0.664</td>
<td>(0.150)</td>
</tr>
</tbody>
</table>