

# Moving Home: Non-Market Insurance and Labour

## Market Risk\*

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Job Market Paper

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### Abstract

In 2023, more than half of renter households spent above 30% of their gross income on housing costs. This type of non-discretionary spending exacerbates consumption losses while unemployed. I use data from the Health and Retirement Study to show that workers use the option to move home as an insurance channel against labour market risk, and this channel is operative into middle age (up to age 40). To quantify this insurance mechanism, I estimate a structural lifecycle model of individuals who can insure against unemployment risk via saving or moving home. Agents exist in a directed search environment where they trade off future job market outcomes against job finding rates. I find that among workers who can move home, eliminating the option reduces average search duration by 8 weeks. Further, the absence of the move home option is equivalent to a 41% reduction in the unemployment benefit for an ex ante consumer.

**Keywords:** co-residence, shared housing, labour market risk, non-market insurance

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# 1 Introduction

Households of more than one adult generation have become common in the United States: in 2021, 18% of households had parents and adult children coresiding (Pew Research Center, 2022). One potential cause of this relationship is high housing costs: in 2023, more than half of renter households paid more than 30% of their gross income on housing (U.S. Census Bureau, 2024). An expensive housing market restricts disposable income and creates an environment where negative income shocks, such as unemployment, are more punishing for consumers. If an unemployed worker can avoid the cost of housing via a co-residence arrangement with parents, the welfare costs of unemployment fall and the choice to move home constitutes an insurance mechanism against labour market risk.

This paper documents a novel empirical trend in the share of adults entering co-residence with their parents and uses a quantitative model to estimate the welfare gain of the option to move home in the context of existing unemployment insurance. I find workers are approximately twice as likely to move home when they are moving from employment to unemployment relative to remaining employed. This trend is robust to both parent and child characteristics, and is observed into middle age for the children. Motivated by this finding, I estimate a structural model of job search and family co-residence to identify changes in search behaviour and welfare implications of the option to move home. Consumers with the option to co-reside search in submarkets that provide higher wages at the cost of longer search durations. For an ex ante consumer the move home option is equivalent in welfare terms to a reduction in the unemployment insurance benefit of roughly one half.

Existing work from Kaplan (2012) uses the National Longitudinal Survey of Youth (1997) to identify this insurance channel among young men. A major challenge in extending this understanding to older workers is disentangling the motives for young people moving home. Shared housing acts as an in-kind transfer from parents to their adult children by reducing housing costs and diminishing the impact of negative income shocks. However, co-residence can also represent an in-kind transfer from children to their parents if they provide household labour and especially eldercare that the parent would otherwise need to purchase on the market. The degree to which parental needs are a large concern and a confounding factor for identifying the labour market insurance mechanism is increasing in the ages of parents and children. Applying this insurance channel to a sample of workers into middle age requires controlling for the characteristics of aging

parents.

I leverage the Health and Retirement Study, a panel dataset of Americans over 50. The focus of the HRS is health and aging, making it an imperfect tool for analysis based around earnings risk and unemployment. However, the HRS has several key features that are essential for addressing the question of shared housing as labour market risk. First, it explicitly links parents and adult children, including when those children live away from their parents. Many datasets, administrative and otherwise, link parent and child record while they share a dwelling, but those links weaken or break as children move out. Second, it maintains these linkages over a period of approximately 20 years with a consistent set of observables. A comparable dataset with parent-child linkages is the NLSY97, which tracks parents and children beginning in 1997 to the present. While these two products cover similar timeframes, many of the linked variables such as co-residence are gradually dropped from the NLSY97 as the sample cohort ages. This makes the NLSY97 an obvious candidate for evaluating the co-residence flows and labour market outcomes among young adults, but rapidly loses its effectiveness as our population of interest increases in age.

Third and crucially, the HRS reports increasingly important parent characteristics as they age including current diagnoses, health history, limitations to work and to living independently. Further, it reports on characteristics of the child-side of this relationship via the child's assistance with various eldercare needs and stated intentions to help in the future as their parents continue to age. More traditional support in the form of direct financial support is also present in both directions – from parents to children and vice versa. Information on each child's physical proximity to their parent is also reported. With all of these characteristics combined, I can robustly estimate the effect of a child's Employed-to-Unemployed transition on the likelihood of them moving home with a parent.

I use these observations to estimate a quantitative model of piece-rate job search and co-residence. In this environment, consumers save and search for work when unemployed and can choose to live at home until age 40 regardless of employment state. The tradeoff to living at home with a parent is avoiding the cost of housing, which is particularly punishing during unemployment spells, at the cost of some forgone independence utility. When consumers have the option to move home, I find they select into submarkets with higher wages but a greater risk of a failed search and in turn, longer search durations. This is indicative of the labour market insurance mechanism influencing search behaviour as well as job market outcomes: for workers who can move home, removing that option reduces their average job search duration by approximately 8

weeks. Further, I evaluate the welfare implications of the move home option and find that for an ex ante consumer the opportunity to move home with a parent is worth approximately 41% of the unemployment benefit.

This paper contributes to a developing literature on co-residence between adult children and their parents. Empirically, evidence across multiple countries confirms the young adults use the option to move home with parents as a form of insurance (Acolin et al., 2024; Albanesi et al., 2022; García-Andrés et al., 2021). However, the co-residence motives of older children are unexamined. Through the Health and Retirement Study, I am able to control for parent health needs and child eldercare, allowing identification of the labour market insurance motive later into the lifecycle, regardless of gender, education, or other child characteristics.

Existing work in quantitative macroeconomics tends to take one of two approaches when modeling the co-residence choice among adult children. The first approach is to construct a strategic game between parents and children, and characterize the effects of economic characteristics on the sequential choices of both agents. Models of this kind can be considered as evaluating behaviour under a joint coresidence choice in static and dynamic settings (Kaplan, 2012; Zaber, 2018). In contrast, the second approach is to abstract from the strategic interaction between parents and children to evaluate the existence of the coresidence option on some other macroeconomic phenomenon, usually in a dynamic setting (Dyrda et al., 2024). This paper takes the second approach, extending existing work by endogenizing labour supply decisions over the lifecycle in a directed search environment. Further, I estimate the value associated with the option to move home in the context of existing unemployment insurance programs.

The rest of this paper proceeds as follows: section 2 provides an overview of the Health and Retirement Study, identification of the labour market co-residence motive, and compares the main empirical result in the HRS to analogous trends in the NLSY97. Section 3 outlines the theoretical model of job search and non-market co-residence and section 4 explains the model estimation. Section 5 discusses the model validation and results; section 6 concludes.

## 2 Empirical Motivation

A primary challenge to identifying this housing-based insurance mechanism is isolating motives for migration into co-residence. One can imagine many reasons for adult children and parents to co-reside, and they are

not limited to unemployment risk. From the perspective of the adult child, moving home can be the response to a divorce or separation, particularly when the outside option for housing is expensive. Considering aging parents, co-residence may arise as a response to growing complex health needs. To disentangle these factors from the labour market insurance motive I require data that reports these additional factors as well as links parents and children across a variety of ages.

## 2.1 Data

The Health and Retirement Study (HRS) is a panel of longitudinal survey data centered around aging adults and their families. It is maintained by the University of Michigan and the National Institute on Aging. The study surveys approximately 20,000 households every two years beginning in 1998. One relative strength of the HRS is repeated linkages between parents and children, particularly as the children age alongside their parents. Additionally, the survey reports a variety of non-standard parent characteristics such as health conditions, eldercare needs, and financial support to adult children. Using the health and eldercare information, I can isolate the motive among children to move home to be conditional on labour market outcomes exclusively. Identifying this insurance mechanism is the primary empirical contribution of this paper.

For convenience, I use the HRS Family File cleaned by the RAND Corporation which links the 20,000 parent households to 55,000 children up to 2018. This setting allows me to avoid the co-residence and employment impacts of the COVID-19 global pandemic. Additionally, I restrict the HRS sample to exclude post-secondary students as I assume they interact with the labour market and its risk distinctly from those seeking full-time employment. To further control health and eldercare motives for co-residence I restrict child ages from 20 to 40 years of age.

Given this analysis is based on flows around co-residence and employment, key observable characteristics are constructed from two subsequent survey waves. For a worker to have moved home, it is not sufficient for them to live with a parent in any given wave. Workers must first live independently, then in a subsequent wave be living with one or both parents. Similarly, to observe job separations I use a cross-wave variable for workers moving from employment to unemployment as well as employment to employment. The data on employment states is noisy and infrequent, so I cannot say who among the Employed-Unemployed group were separated voluntarily (i.e. quits) versus involuntarily (layoffs) or who among the Employed-Employed

have stayed with a consistent employer and who have experienced a job separation between survey waves but were able to find employment again. Since these observables depend on two waves for identification, I drop the first wave (1998) from the analysis.

Previous work on unemployment risk often leverages higher-frequency datasets such as the National Longitudinal Survey of Youth (1997 Cohort). HRS interviews are two years apart, however adult children are questioned on their co-residence status well into middle-age. This contrasts with existing work from the NLSY97, where parental co-residence is reported until 2009, when the oldest members of the cohort were 29. This longer series of co-residence information allows me identify that an insurance channel previously only examined for young men is present for all workers well into middle age.

## 2.2 Summary Statistics

Table 1 reports summary statistics for children in the HRS aged 20–40. Each panel covers a distinct area of child characteristics, and differences between the full sample of children, EU, and EE children are informative of the relative importance of child characteristics on employment transitions. Note that because of the simultaneous timing when these characteristics are observed (a common survey wave) it is unclear if child characteristics influence employment transitions or vice versa. These relationships are estimated more formally in section 2.3.

In the first two panels of demographics and co-residence, there is little variation in most characteristics between EU, EE, and all children. However, the share of children who move home is much larger among EU children – suggestive of the key empirical observation summarized in Figure 1. Children transitioning out of employment move home at a rate  $2.9\times$  larger than those who remain employed.

One feature of the HRS that is useful when evaluating parental support is direct financial transfers between parents and children. This type of direct support also interacts with employment transitions since it functions as an insurance mechanism similarly to co-residence. EU children are 43% more likely to receive a transfer from a parent and on average receive around \$400 more than EE peers.

The final panel in Table 1 is informative of parent needs driving co-residence. It reports child assistance with activities of daily living and instrumental activities of daily living, as well as future intention to help. The former two are measures used by the National Institute of Health to summarize necessary capabilities for aging individuals to live independently. Activities of daily living refer to the most basic activities including

Table 1: Summary Statistics for Children Aged 20–40 in the HRS

	All Children	EU Type	EE Type
<b>Panel A: Demographics</b>			
Age	32.1	31.9	33.2
Years of Education	13.6	13.0	12.2
<b>Panel B: Co-residence</b>			
Coresidence Share	.111	.155	.184
Move Home Share	.018	.057	.020
<b>Panel C: Financial Transfers</b>			
Share who Give to Parents	.018	.020	.015
Share who Receive from Parents	.215	.233	.163
Mean Transfer from Parents	\$1905.44	\$1671.21	\$1292.77
<b>Panel D: Eldercare</b>			
Share who Help with ADLs	.006	.010	.015
Share who Help with IADLs	.009	.015	.021
Share who Intend to Help in Future	.329	.343	.345

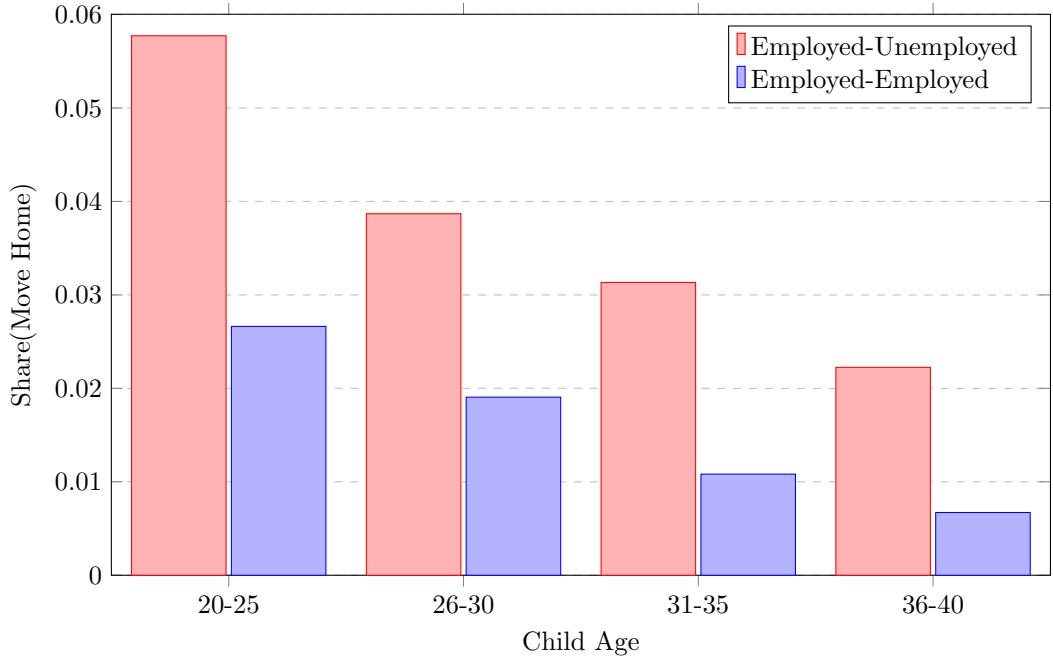
**Note:** Panel A reports mean child age and years of education. Panel B shows the static co-residence share and share of children who move home. Panel C lists the share of children who give and receive a transfer from their parent(s) as well as the size of the average transfer from a parent to their child. Panel D summarizes the share of children who assist with activities of daily living, instrumental activities of daily living, and intention to help with eldercare in the future.

feeding oneself, mobility within the household, and personal hygiene. Instrumental activities refer to more complex tasks such as transportation, managing finances, and meal preparation. Panel D shows there is little overlap between EU transitions and additional eldercare for parents: EE children are helping aging parents at higher rates than EU. The relative size of these shares are also small, peaking at around 2% of children aiding parents. This is suggestive of the age restriction on the sample of children filtering out most eldercare relationships while preserving co-residence as labour market insurance for children.

### 2.3 Labour Market Co-Residence Motive

The empirical contribution of this paper is centered around the observation that a larger share of adult children move home when experiencing a transition from employment to unemployment relative to peers who are persistently employed. This trend, shown in Figure 1, is representative of non-market insurance against labour market risk via in-kind housing services. Existing work from Kaplan (2012) identifies this mechanism for non-college men aged 17 to 22. In this section, I expand this understanding to all workers up to age 40 while controlling for parent and child characteristics.

Figure 1: Share who Move Home by Age and Employment Transition



**Note:** Adult children are more than twice as likely to move home when experiencing an EU transition relative to EE

To identify the existence of this labour market insurance channel via non-market housing arrangements, I employ a probit regression of cross-wave employment flows on workers' move home choice. A worker is considered to have "moved home" if in one survey period they are living independently and in a subsequent period are living with a parent.

$$Pr(\text{MoveHome}) = \alpha_0 + \boldsymbol{\alpha} \text{ Year} + \boldsymbol{\beta} \text{ } \mathbf{X}^c + \boldsymbol{\gamma} \text{ } \mathbf{X}^p + \boldsymbol{\delta} \text{ } \mathbf{X}^h + \boldsymbol{\eta} \text{ } \mathbf{X}^e + \epsilon$$

Where  $\boldsymbol{\alpha}$  is a vector of year fixed-effects.  $\mathbf{X}^c$ ,  $\mathbf{X}^p$ ,  $\mathbf{X}^h$ ,  $\mathbf{X}^e$  are vectors of characteristics for children, parents, parent health, and parent eldercare needs with associated vectors of coefficients  $\boldsymbol{\beta}$ ,  $\boldsymbol{\gamma}$ ,  $\boldsymbol{\delta}$ ,  $\boldsymbol{\eta}$ .<sup>1</sup> The primary covariates are employment flows: specifically for workers who are employed through two subsequent periods ("EE") and those who separate from employment for any reason ("EU"). Additional controls include child characteristics such as income, education, marital status, and financial transfers from parents as well

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<sup>1</sup>See appendix for a complete list of covariates and the full regression specification

parent characteristics including assets, home values, education, and health conditions.

Table 2: Probit Predicting Move Home Likelihood

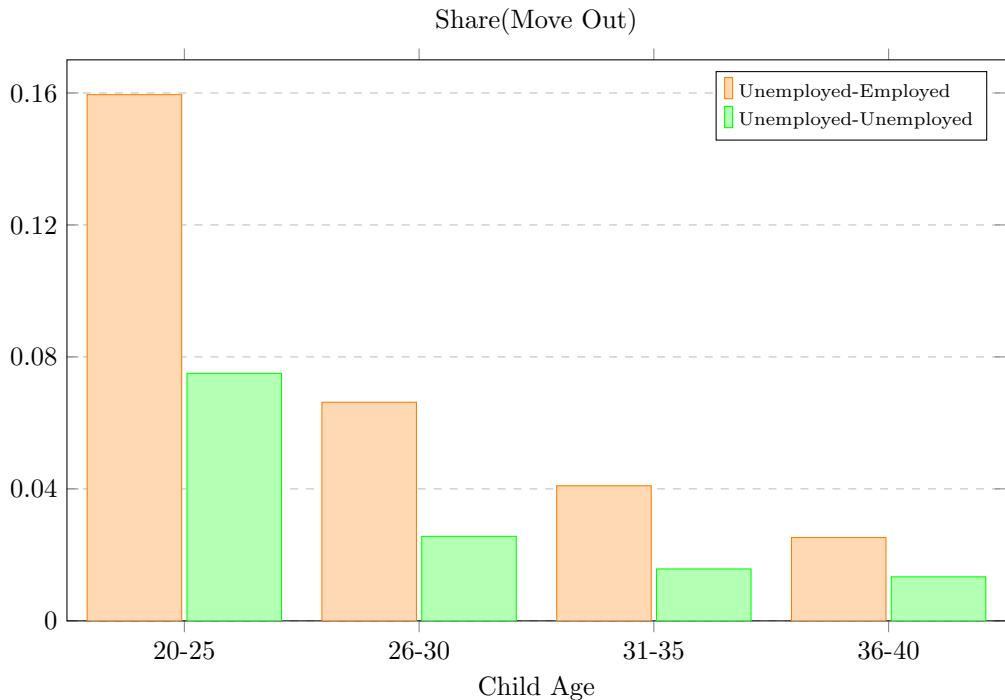
Independent Variable	AME	p-value
<b>Child Employment Transition</b>		
EE	<i>Base</i>	
EU	0.016	0.000
UE	0.004	0.040
UU	0.003	0.079
<b>Child Income</b>		
<10K	<i>Base</i>	
10–35K	−0.012	0.000
35–70K	−0.020	0.000
70–100K	−0.020	0.000
100K+	−0.024	0.000
<b>Child Age</b>		
20–25	<i>Base</i>	
26–30	−0.006	0.001
31–35	−0.008	0.000
36–40	−0.012	0.000
Parent Assets	$−1.84 \times 10^{-9}$	0.021
Parent Home Value	$3.86 \times 10^{-9}$	0.002
<b>Parent Employment</b>		
Not Working	<i>Base</i>	
Part-time Work	0.002	0.457
Full-time Work	0.003	0.008

**Note:** Average marginal effects are reported as relative changes from the mean share of children who move home (0.031)

Workers experiencing an E-U transition are  $2.3 \times$  more likely to move home with a parent relative to an identical worker with an E-E transition. The likelihood of an adult child moving home is decreasing in their income and age, suggesting that workers in an E-U transition will self-insure via residual earnings from employment before they elect to move in with a parent.

A straightforward counterfactual can confirm the reverse case of the labour market insurance motive. Instead of moving home when experiencing a job separation, children in the data also move out when they find a job. Specifically, workers in an Unemployed-Employed transition move out of co-residence at much

Figure 2: Move Out Flows Conditional on Employment Transitions



**Note:** Flows out of the parental household among job-finders (unemployed-employed) and those who remain persistently unemployed. For each age group, children transitioning into employment (UE) are more likely to move out. This demonstrates the reverse case of the labour market insurance motive.

higher rates than those who remain unemployed.

## 2.4 Non-Labour Market Co-Residence Motives

Extensive sub-sampling is done on the raw HRS Family File to identify (1) the direction of those who move home, and (2) rule out non-labour market motives for moving home. I will begin with the former: ensuring that when adult children enter into co-residence they are in fact moving back in with their parents instead of hosting them in their own homes. This is related to the latter issue, the confounding nature of eldercare responsibilities on move home flows.

The first adjustment I make is to create a categorical variable for the inferred direction of co-residence based on home ownership. I assume that if, in the survey period when co-residence begins, the child is a

homeowner and the parent is not, then the child is hosting the parent. In other words, co-residence happens because the parent has some need, financial, medical, or otherwise instead of the child relying on parents as labour market insurance. In contrast, if the parent is a homeowner and the child is not, I assume the child is moving home in the sense they are returning to living with their parents after some period of independence. This scheme results in approximately two thirds of observations where a child enters co-residence having an identifiable direction; those left unidentified are excluded from the sample.

The question of eldercare is addressed in two ways. First, children are sampled on age as to exclude most parents with extensive eldercare needs. Details of this transformation are shown in section 2.2. Second, I report average marginal effects from a probit estimation on the share of children who move home while controlling for eldercare and parent health characteristics in section 2.3.

## 2.5 Robustness: HRS versus NLSY97

As an exercise to ensure the HRS conforms with previously reported results by Kaplan (2012) I plot the share of EU and EE children who move home for a set of ages where the two datasets align in Figure 3. The NLSY97 uses an annual sample of children and the HRS employs a biannual sample of aging adults. While these samples vary significantly, the key empirical trend of this paper holds. The share of workers who move home is much larger among those who experience a job separation relative to those who remain employed in two survey waves. This is true for a variety of ages and holds when the NLSY97 is transformed into biannual frequency to ensure greater comparability with the HRS.

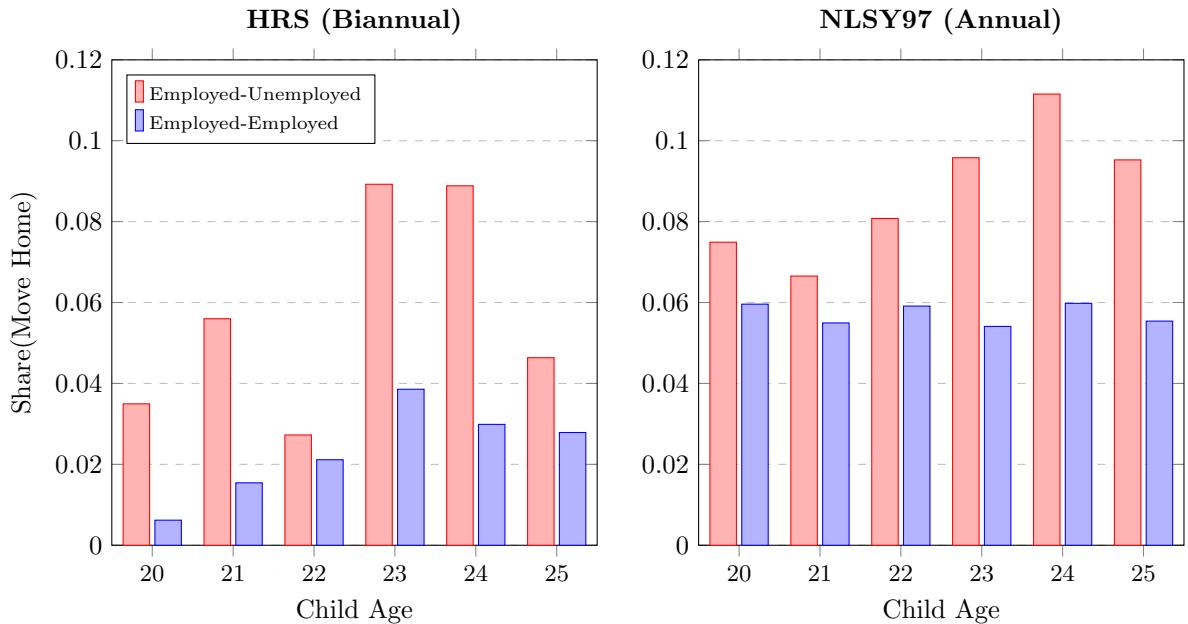
# 3 Model

This paper leverages a lifecycle model of consumption, savings, and co-residence. The main novel feature is the option workers have to move home, dependent on age. Additionally, consumers choose a submarket in which to search and tradeoff against unemployment risk.

## 3.1 Consumers

Consumers are the primary decision-makers in this model. They choose allocations for consumption ( $c$ ) and savings ( $a'$ ) at every age. During their working life and while unemployed, they choose a submarket in which

Figure 3: Comparison of Move Home Trends Among the HRS and NLSY97



From ages 20-25, workers experiencing an EU transition are more likely to move home than those in an EE transition. This is a consistent finding between the HRS and NLSY97.

to search indexed by piece-rate ( $\phi$ ) and their individual-specific productivity ( $\epsilon$ ). If matched, they earn an after-tax piece-rate of output as their wage; if unmatched, they receive a government-financed unemployment benefit  $b$ . When they retire, they receive a similarly-funded pension benefit  $S$ .

All consumers in this environment are considered to be adult children in the context of multigenerational co-residence. This means that for each consumer there is some unmodelled agent, a parent, who is older than the child and provides non-market housing while they are able. When choosing where to live, consumers face a trade-off between independence utility ( $\chi$ ) and the cost of rental housing ( $\kappa_h$ ). If they live at home ( $d_h = 0$ ), they can avoid the cost of housing but forgo the utility benefits of living independently ( $d_h = 1$ ). This decision is subject to a Type-I extreme value taste shock ( $\xi^c, \xi^i$ ).

$$U(a, \epsilon, \phi, a', d_h) = \frac{c^{1-\sigma}}{1-\sigma} + d_h \chi \quad (1)$$

subject to

$$c + a' = (1 - \tau)\phi\epsilon + (1 + r)a' - d_h\kappa_h$$

when employed, and

$$c + a' = b + (1 + r)a' - d_h\kappa_h$$

when unemployed.

The problem for a worker can then be split into three cases: employed, unemployed, and searching for work. Workers without a match search first, followed by choices conditional on their employment state. When searching, workers choose piece-rate which along with their age and individual-specific productivity determines a submarket  $(j, \epsilon, \phi)$ . The value of search is a comprised of the values of employment and unemployment, weighted by the job finding probability  $f(j, \epsilon, \phi)$ .

$$V_s(j, a, \epsilon) = \max_{\phi} \{ f(\theta(j, a, \epsilon))V_u(j, a, \epsilon) + [1 - f(\theta(j, a, \epsilon))V_e(j, a, \epsilon, \phi) \} \quad (2)$$

Whether employed or unemployed, the consumer chooses savings and whether or not to live at home until age 40. After age 40, they live independently<sup>2</sup> with certainty. Those with the option to move out face extreme value Type-I shocks on each option, co-residence and living independently, drawn from a common distribution. The value of unemployment prior to the realization of the shock is:

$$V_u(j, a, \epsilon) = \max \mathbf{E}_{\xi^c, \xi^i} \{ V_u^{cores}(j, a, \epsilon) + \xi^c, V_u^{indep}(j, a, \epsilon) + \xi^i \} \quad (3)$$

The probability of a consumer choosing to live independently ( $h_u$ ) will depend on the relative values of  $V_u^{cores}$  and  $V_u^{indep}$  as well as the EV scale parameter  $\eta$  which determines the variance of the shock process.

$$Pr(d_h = 1|u) = h_u(j, a, \epsilon) = \frac{\exp(\eta V_u^{indep}(j, a, \epsilon))}{\exp(\eta V_u^{indep}(j, a, \epsilon)) + \exp(\eta V_u^{cores}(j, a, \epsilon))} \quad (4)$$

Following the realization of the shocks, the unemployed consumer chooses saving for the current period before re-entering the search process next period. This choice is summarized by two functions, one for each housing choice:

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<sup>2</sup>This restriction allows parents to face mortality risk without creating "orphaned" children

$$V_u^{cores}(j, a, \epsilon) = \max_{a' \geq 0} \left\{ \frac{[b + (1+r)a - a']^{1-\sigma}}{1-\sigma} + \beta V_s(j+1, a', \epsilon) \right\}$$

$$V_u^{indep}(j, a, \epsilon) = \max_{a' \geq 0} \left\{ \frac{[b + (1+r)a - a' - \kappa_h]^{1-\sigma}}{1-\sigma} + \chi + \beta V_s(j+1, a', \epsilon) \right\}$$

subject to

$$c + a' = b + (1+r)a' - d_h \kappa_h$$

The problem for an employed consumer is defined similarly. The consumer makes a discrete choice between co-residence and living on their own subject to extreme value shocks and their own age. The probability of such a consumer living independently is:

$$Pr(d_h = 1|e) = h_e(j, a, \epsilon, \phi) = \frac{\exp(\eta V_e^{indep}(j, a, \epsilon, \phi))}{\exp(\eta V_e^{indep}(j, a, \epsilon, \phi)) + \exp(\eta V_e^{cores}(j, a, \epsilon, \phi))} \quad (5)$$

where the discrete choice is given by:

$$V_e(j, a, \epsilon, \phi) = \max \mathbf{E}_{\xi^c, \xi^i} \{ V_e^{cores}(j, a, \epsilon, \phi) + \xi^c, V_e^{indep}(j, a, \epsilon, \phi) + \xi^i \} \quad (6)$$

After observing the co-residence shocks, the employed worker chooses their savings before facing a job destruction shock  $\delta$ . If they are subject to the shock, they become unmatched and must search again in the following period. If they instead stay matched, they enter into employment next period without engaging in the search process.

$$V_e^{cores}(j, a, \epsilon, \phi) = \max_{a' \geq 0} \left\{ \frac{[(1-\tau)\epsilon\phi + (1+r)a - a']^{1-\sigma}}{1-\sigma} \right. \\ \left. + \beta[(1-\delta)V_e(j+1, a', \epsilon, \phi) + \delta V_u(j+1, a', \epsilon)] \right\}$$

$$V_e^{indep}(j, a, \epsilon, \phi) = \max_{a' \geq 0} \left\{ \frac{[(1-\tau)\epsilon\phi + (1+r)a - a' - \kappa_h]^{1-\sigma}}{1-\sigma} + \chi \right. \\ \left. + \beta[(1-\delta)V_e(j+1, a', \epsilon, \phi) + \delta V_u(j+1, a', \epsilon)] \right\}$$

When consumers reach age 65, they enter retirement and receive a constant pension benefit  $S$ . Each period they make a savings decision and face an age-dependent mortality risk  $\psi_j$ . The problem of retirees can be expressed as:

$$V_r(j, a) = \max_{a' \geq 0} \left\{ \frac{[S + (1+r)a - a']1 - \sigma}{1 - \sigma} + \beta \psi_j V_r(j + 1, a') \right\} \quad (7)$$

### 3.2 Firms

A representative firm chooses whether or not to post in each submarket at a common cost  $\kappa_p$ , indexed by a required productivity for workers and a piece-rate of output that constitutes the wage. Additionally, the firm takes the worker's age into account when making the posting decision as it influences expectations of future output flows. Once a match is formed, it persists until a job destruction shock is received with probability delta or the worker reaches retirement age. All else equal, younger workers are more desirable to firms because they can produce longer before they retire. The firm's value can be expressed as:

$$V_f(j, \epsilon, \phi) = (1 - \tau)\epsilon(1 - \phi) + \beta[(1 - \delta)V_f(j + 1, \epsilon, \phi) + \delta V_p(j + 1, \epsilon, \phi)] \quad (8)$$

Where  $q(\theta(j, \epsilon, \phi))$  is the firm's job filling probability determined by the search process. Matching in this environment follows the tradition set by Den Haan et al (2000), where the matching function is defined by:

$$M(u, v) = \frac{uv}{(u^\alpha + v^\alpha)^{1/\alpha}}, \quad \theta = \frac{v}{u} \quad (9)$$

where job filling and finding probabilities are:

$$\begin{aligned} q(\theta(j, \epsilon, \phi)) &= \frac{M(u, v)}{v} = \left[ \frac{1}{1 + \theta^\alpha} \right]^{1/\alpha} \\ f(\theta(j, \epsilon, \phi)) &= \frac{M(u, v)}{u} = \left[ \frac{1}{1 + (1/\theta)^\alpha} \right]^{1/\alpha} \end{aligned}$$

A submarket will have vacancies posted as long as there are non-negative expected profits from operating. On other words, the firm must produce enough to cover the cost of posting. This free entry condition can be expressed as:

$$V_p(j, \epsilon, \phi) = \max\{q(\theta(j, \epsilon, \phi))V_f(j, \epsilon, \phi) - \kappa_p, 0\} \quad (10)$$

Given the production market is competitive, profits in equilibrium will be zero and  $V_p(j, \epsilon, \phi) = 0 \forall (j, \epsilon, \phi)$

submarkets where the firm posts.

### 3.3 Equilibrium

Suppose  $s_u = (j, a, \epsilon)$ ,  $s_e = (j, a, \epsilon, \phi)$ ,  $s_r = (j, a)$  are state vectors for consumers who are unemployed, employed, and retirees, respectively. There is an equilibrium such that the policy functions  $c_u(s_u)$ ,  $c_e(s_e)$ ,  $c_r(s_r)$ ,  $a'_u(s_u)$ ,  $a'_e(s_e)$ ,  $a'_r(s_r)$ ,  $h_u(s_u)$ ,  $h_e(s_e)$ ,  $\phi(s_u)$ , and the distributions of consumers over their state variables such that:

- The policy function  $\phi(s_u)$  solves the problem of the searcher given in (2)
- The policy functions  $c_u(s_u)$ ,  $a'_u(s_u)$ ,  $h_u(s_u)$  solve the problem of the unemployed consumer given in (3)
- The policy functions  $c_e(s_e)$ ,  $a'_e(s_e)$ ,  $h_e(s_e)$  solve the problem of the employed consumer given in (6)
- The policy functions  $c_r(s_r)$ ,  $a'_r(s_r)$  solve the problem or the retired consumer given in (7)
- A firm posts in each submarket where there is positive profit, subject to the free entry condition (9)
- The government sets a proportional tax on labour income ( $\tau$ ) which satisfies their budget constraint

$$\int \tau \epsilon \phi \, d\omega_e(j, a, \epsilon, \phi) = \int b \, d\omega_u(j, a, \epsilon) + \int S \, d\omega_r(j, a) \quad (11)$$

## 4 Calibration

The two main externally estimated parameters for this model are the match elasticity ( $\alpha$ ), taken from the seminal paper by Den Haan, Ramey, and Watson (2000)<sup>3</sup> and the job destruction rate ( $\delta$ ) taken from the HRS as an annualized estimate for Employment-Unemployment flows. Consumer risk aversion ( $\sigma$ ), discount factor ( $\beta$ ), and interest rate ( $r$ ) are taken at values standard from the literature. Series for survival probabilities are taken from the Social Security Administration life tables and the age profile of earnings is estimated in Raveendranathan and Stefanidis (2024)<sup>4</sup> using the Panel Study of Income Dynamics.

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<sup>3</sup>Den Haan, W. J., Ramey, G., Watson, J. (2000). Job Destruction and Propogation of Shocks. *The American Economic Review*, 90(3), 482-498.

<sup>4</sup>Raveendranathan, G., Stefanidis, G. (2024). The Unprecedented Fall in U.S. Revolving Credit. *International Economic Review*, 66(1).

Table 3: External Parameters

Parameter	Value	Source
<b>Panel A: Housing</b>		
$\kappa_h$	Rent to income ratio	0.05
$\eta$	EV distribution scale	1.000
<b>Panel B: Labour Market</b>		
$\alpha$	Match elasticity	1.27 Den Haan et al (2000)
$\delta$	Job destruction rate	0.02 EU share (HRS)
$\nu$	Age profile of earnings	Panel Study of Income Dynamics
<b>Panel C: Lifecycle</b>		
$\sigma$	Risk aversion	2.00
$\beta$	Discount factor	0.96
$r$	Interest rate	0.04
$\psi$	Survival probabilities	Social Security Administration

A summary of the internal parameter estimates can be found in Table 3. The most important estimate from the perspective of the co-residence-based insurance is the independence utility,  $\chi$ , which is targeted to match the share of E-U workers who move home in the HRS. The labour market in this model is identified by the cost of posting,  $\kappa_p$ , targeted to the unemployment share and the standard deviation of productivity,  $\sigma_\epsilon$ , targeted to the standard deviation of log earnings for workers aged 26 to 30. The fiscal system is estimated via unemployment insurance ( $b$ ) and pension benefits ( $S$ ), which are targeted to aggregate spending on UI and pensions, respectively.

Table 4: Internal Parameters

Parameter	Value	Target	Model	Data
$\chi$	Independence utility	4.703	EU move home share	.0413 .0413
$\kappa_p$	Cost of posting	.0034	Unemployment share <sup>a</sup>	.0478 .0420
$b$	UI benefit	.2454	UI exp. to income ratio <sup>b</sup>	.0042 .0042
$S$	Social security benefit	.7537	SS exp. to income ratio <sup>c</sup>	.0525 .0525
$\sigma_\epsilon$	St. dev. productivity	.8868	SD log earnings (age 26-30) <sup>d</sup>	.9000 .9000

<sup>a</sup> Bureau of Labor Statistics (2025)

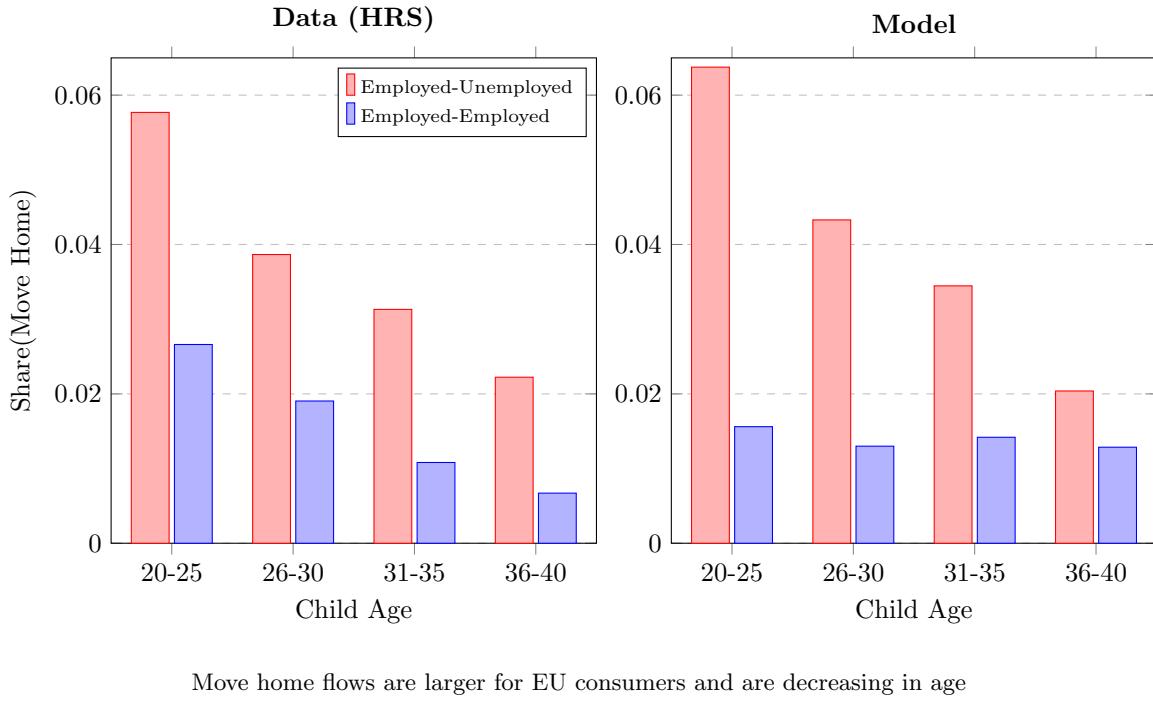
<sup>b,c</sup> Bureau of Economic Analysis (2024)

<sup>d</sup> Kuhn & Ríos-Rull (2013)<sup>5</sup>


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<sup>5</sup>Kuhn, M., Ríos-Rull, J. V. (2013). 2013 Update on the U.S. Earnings, Income, and Wealth Distributional Facts: A View from Macroeconomics. *Federal Reserve Bank of Minneapolis: Quarterly Review*, 37(1).

Figure 4: Comparison of Move Home Flows Between Model and Data



## 5 Results

This section evaluates the quantitative model's performance against the empirical trend of EU workers moving home in greater proportions than EE. Further, it outlines positive and normative results concerning job search behaviour, model aggregates, welfare in terms of unemployment insurance benefits, and heterogeneity in welfare by age.

### 5.1 Model Validation

The quantitative model is able to match two key features observed in the Health and Retirement Study, shown in Figure 4. First, workers experiencing an EU transition are significantly more likely to move home than peers in an EE transition. This is indicative of moving home acting as an insurance mechanism against these labour market transitions and associated earnings risk.

Second, the magnitude of this effect is decreasing in the worker's age, at least for the EU type. This has

several implications. As workers age, they are more able to self-insure in their household through saving rather than coresiding. If living independently is sufficiently rewarding, EU workers will dissave before they move home. Another reason age interacts with the move home choice among workers is because it interacts with incomes via individual-specific productivity. As workers age, they become richer as their productivity rises, but relatively poorer as they approach retirement and have fewer opportunities to match with a firm and earn income. Based on the declining nature of move home flows by age, it appears as though the increasing productivity effects outweigh the decreasing work duration effects.

## 5.2 Job Search Behaviour and Model Aggregates

Consumers who have access to the option to live at home search in submarkets with higher piece-rates and lower job finding probabilities, (see Figure 5). This is because unemployment is much less damaging in terms of individual utility when the cost of housing is avoidable by moving home with a parent. In this environment the worker can adjust their risk of unemployment by choosing a submarket in which to search.

Table 5: Model Aggregates with and without the Move Home Option

	Baseline	No co-residence	Relative $\Delta$ (%)
Employment Share	0.95322	0.95623	+0.316
Average Job Finding Rate	0.36288	0.38735	+6.743
Tax Rate	0.06525	0.06492	-0.505
Average Assets	3.60543	3.60159	-0.107
Average Consumption	2.03555	2.03407	-0.073

Computed among workers aged 20-40 to control for the ability to move home. Restricting the move home option results in higher employment and job finding rates as well as lower taxes, assets, and consumption

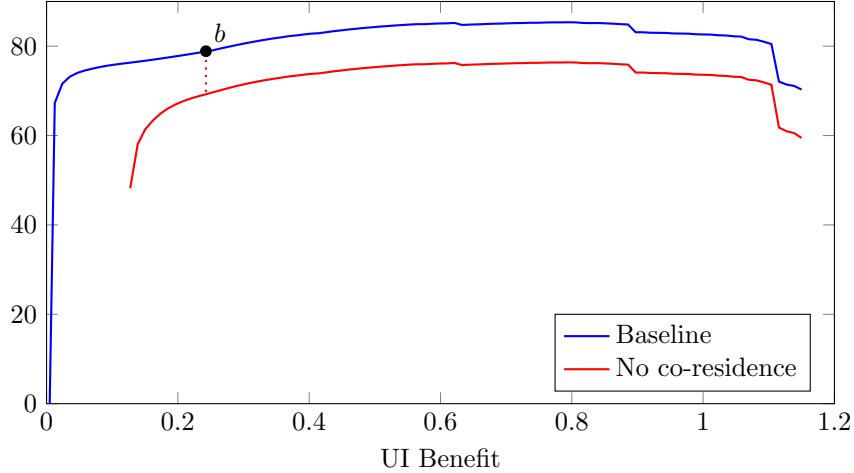
Table 5 details the impacts of individual-level choices on the full sample of workers aged 20 to 40. Constructing an environment where everyone must purchase housing increases employment through the job finding rate. This additional employment however does not lead to significantly increased asset accumulation or consumption – suggesting any financial gains from employment are absorbed by the mandatory cost of housing.

The most notable result is the over 2 percentage point increase in the job finding rate. The submarket choice, alongside savings, is the main mechanism consumers can control to influence their risk of and consumption loss from unemployment. The increase in the job finding rate in the absence of co-residence is

equivalent to .1525 model periods (years) or approximately 8 additional weeks of search before a match.

### 5.3 Welfare from Co-Residence

Figure 5: Lifetime Expected Utility Conditional on UI Benefit



The welfare associated with the move home benefit is largest when UI benefits are small. Note that the red line is not well-defined for  $b \leq \kappa_h$

The vertical distance between the two plotted curves in Figure 6 is an estimate of the welfare from the co-residence option. To evaluate this welfare in the context of an existing UI benefit, I measure the vertical distance ( $\sim 9$  utils) in terms of how much of a reduction in UI would induce the same utility reduction in an environment without co-residence. I find that ex ante the welfare from the option to move home is equivalent to a 41% reduction in current UI benefits.

The relative welfare benefit of the move home option is largest at low levels of UI. For example, the vertical distance between the two curves is much larger below  $b$ , the calibrated UI benefit, than above. This relationship implies that unemployment insurance and the move home option are complementary insurance mechanisms against labour market risk. In an environment with a generous UI system, non-market insurance through shared housing is relatively less important for the welfare of workers. In contrast, when unemployment is more punishing through reduced benefits the welfare implications of moving home are significant.

## 5.4 Welfare Across the Lifecycle

In Section 2.2, I showed that co-residence as labour market insurance is operative for workers into middle age. In addition to this finding, the welfare benefits are also significant for older workers. Table 5 reports that the value of the move home option is largest among workers aged 36-40. This is additionally interesting when paired with the results from Figure 4, which shows that move home flows are declining in age in both model and data. It would appear as if older workers value the option to co-reside highly, but do not exercise it as often as younger workers.

Abstracting from the model, consider why a worker in their late thirties might move home of their own accord. One side of their decision is the cost of housing and other basic consumption necessities – groceries, transportation, etc. These costs are geographically dependent and scale with the number of children in the household.

The other is the resources they can draw on during unemployment spells. Workers with longer tenures will on average have more savings, and additionally they are more likely to be homeowners. Even if assets are illiquid, home equity can serve as collateral for borrowed cash. All else equal, older workers have much better access to financial resources due to their own earnings history and asset accumulation.

Given that this paper examines family networks as a form of insurance via co-residence, it is worth discussing what other non-market insurance mechanisms may exist. The most important of these in the context of unemployment risk would be marriage, provided the spouse is also a worker. If one spouse is laid off and the other remains employed, it is much less damaging to household consumption than if a single worker were to lose their job. Given that older workers are more likely to be married, they are also better able to insure through their spouse's employment.

In the model environment, issues such as financing and household formation are ignored in favour of a simple theory of productivity and assets. Workers earn more each period as a function of their age. They also fear retirement in the sense that they understand their income will fall, and so they save while working. This results in an environment where aging workers are better off in the present but whose future expectations are declining each period.

For a worker with few or no assets, retirement at age 65 represents a large consumption loss unless they can catch up to their peers. As workers age, their opportunities to catch up decrease, and in a lifetime context costs like  $\kappa_h$  that are constant become increasingly damaging in utility terms. This is why we observe two

main trends in the model: first, not many older workers (36+) move home with their parents. However, among those who do move home, the welfare gain is significant because for them moving home is not just insurance against periodic labour market risk, but also against lifetime undersaving.

Table 6: Mean Periodic Consumption by Age

<b>Age</b>	<b>Baseline</b>	<b>No Coresidence</b>	Relative $\Delta$ (%)
20-25	1.42420	1.41984	-.3061
26-30	1.87711	1.87370	-.1817
31-35	2.19626	2.19419	-.0943
36-40	2.35736	2.35586	-.0636
Total	1.93804	1.93513	-.1502

Estimates for average periodic consumption by age group. Columns 2 and 3 report mean consumption under the baseline model and a counterfactual without coresidence, respectively. Column 4 shows the relative change between the two.

## 6 Conclusion

This paper extends our understanding of co-residence as labour market insurance in a few crucial ways. First, I confirm that this insurance mechanism is present across all workers into middle age. Additionally, it is robust to a variety of parent and child characteristics including health and eldercare. This provides further evidence of the move home motive coming from labour market outcomes and not other factors like aging or family formation. Second, I use a quantitative model to evaluate the existence of the move home option in terms of search behaviour and welfare. I find that among workers who can move home, eliminating that option shortens job search duration by 8 weeks. The welfare results are also significant: for a newly created consumer with no prior assumptions, allowing them to move home and avoid housing costs is equivalent to a 41% reduction in the unemployment benefit.

My findings have several implications for policy, both in the context unemployment insurance and elsewhere. On unemployment insurance, subsidies for shared housing may provide an alternative lever for policy makers as long as those subsidies can be structured more efficiently than direct cash transfers. As I have shown, co-residence between parents and children has significant implications for job search and match formation. Encouraging co-residence through subsidies, tax credits, or other public mechanisms will alter the job-finding environment. Further work is needed to evaluate the quality of matches emerging from search while co-residing to understand the tradeoffs associated with this mechanism.

## 7 Appendix

The vectors of characteristics are as follows.

- Child characteristics:  $\mathbf{X}^c = \{\text{Income, Education, Age, Gender, Employment Transition, Marital Status, Parental Status}\}$
- Parent characteristics:  $\mathbf{X}^p = \{\text{Income, Assets, Primary Residence Value, Education, Employment}\}$
- Parent health characteristics:  $\mathbf{X}^h = \{\text{High Blood Pressure, Diabetes, Lung Disease, Heart Disease, Ever Had Stroke, Ever Had Cancer}\}$
- Eldercare characteristics:  $\mathbf{X}^e = \{\text{Child Helps with ADLs, Child Helps with IADLs, Child Intends to Help in Future}\}$

Activities of daily living (ADLs) consist of the most basic tasks one must perform to take care of themselves. This includes hygiene, dressing, meal preparation, and others. In contrast, instrumental activities of daily living (IADLs) refer to more complex but necessary tasks for self-reliance such as meal planning, transportation, and keeping appointments. In general, aging adults will require assistance with IADLs before they require assistance with ADLs.

Probit regression specification:

$$\begin{aligned}
Pr(\text{MoveHome}) = & \alpha_0 + \alpha_1 \text{Year} + \beta_1 \text{ChildIncome} \\
& + \beta_2 \text{ChildEducation} + \beta_3 \text{ChildAge} \\
& + \beta_4 \text{ChildGender} + \beta_5 \text{ChildEmploymentTransition} \\
& + \beta_6 \text{ChildMaritalStatus} + \beta_7 \text{ChildParentalStatus} \\
& + \eta_1 \text{ChildHelpADL} + \eta_2 \text{ChildHelpIADL} \\
& + \eta_3 \text{ChildIntendsHelp} + \gamma_1 \text{ParentIncome} \\
& + \gamma_2 \text{ParentAssets} + \gamma_3 \text{ParentHomeValue} \\
& + \gamma_4 \text{ParentEducation} + \gamma_5 \text{ParentEmployment} \\
& + \delta_1 \text{ParentHighBP} + \delta_2 \text{ParentDiabetes} \\
& + \delta_3 \text{ParentHadCancer} + \delta_4 \text{ParentLungDisease} \\
& + \delta_5 \text{ParentHeartDisease} + \delta_6 \text{ParentHadStroke}
\end{aligned}$$

Table 7: Average Marginal Effects on Pr(Move Home)

Independent Variable	AME	p-value
<b>Year</b>		
2000		<i>Base</i>
2002	0.00246	0.182
2004	0.00483	0.023
2006	0.00024	0.898
2008	0.00738	0.001
2010	0.00369	0.076
2012	0.00466	0.016
2014	0.00504	0.020
2016	0.00782	0.000
2018	0.01095	0.000
<b>Child Income</b>		
<10K		<i>Base</i>
10–35K	−0.01155	0.000
35–70K	−0.02003	0.000
70–100K	−0.02035	0.000
100K+	−0.02411	0.000
<b>Child Education</b>		
Less Than High School		<i>Base</i>
High School Graduate	−0.00433	0.193
Partial College Completion	0.00203	0.563
College and Above	−0.00141	0.669
<b>Child Age</b>		
20–25		<i>Base</i>
26–30	−0.00629	0.001
31–35	−0.00837	0.000
36–40	−0.01244	0.000
<b>Child Employment Transition</b>		
E–E		<i>Base</i>
E–U	0.01588	0.000
U–E	0.00353	0.040
U–U	0.00331	0.079
Child Gender (Female)	−0.00338	0.000
Child Marital Status	−0.02618	0.000
Child Parental Status	0.00034	0.790
Child Helps w/ ADLs	0.01627	0.007
Child Helps w/ IADLs	0.01269	0.007
Child Intends to Help in Future	0.01125	0.000
Parent Income	$6.22 \times 10^{-10}$	0.802

*Continued on next page*

Table 7: Average Marginal Effects on Pr(Move Home) (continued)

Independent Variable	AME	p-value
Parent Assets	$-1.84 \times 10^{-9}$	0.021
Parent Home Value	$3.86 \times 10^{-9}$	0.002
<b>Parent Education</b>		
Less Than High School		<i>Base</i>
GED	-0.00300	0.263
High School Graduate	0.00412	0.028
Partial College Completion	0.00276	0.135
College and Above	0.00397	0.037
<b>Parent Employment</b>		
Not Working		<i>Base</i>
Part-time Work	0.00160	0.457
Full-time Work	0.00318	0.008
Parent has High Blood Pressure	-0.00091	0.435
Parent has Diabetes	-0.00007	0.960
Parent has ever had Cancer	-0.00107	0.464
Parent has Lung Disease	0.00067	0.689
Parent has Heart Disease	0.00069	0.583
Parent has ever had a Stroke	0.00518	0.005

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