Happy Together or Home Alone?

A Structural Model of The Role of Health Insurance in Joint Retirement

Dina Guo

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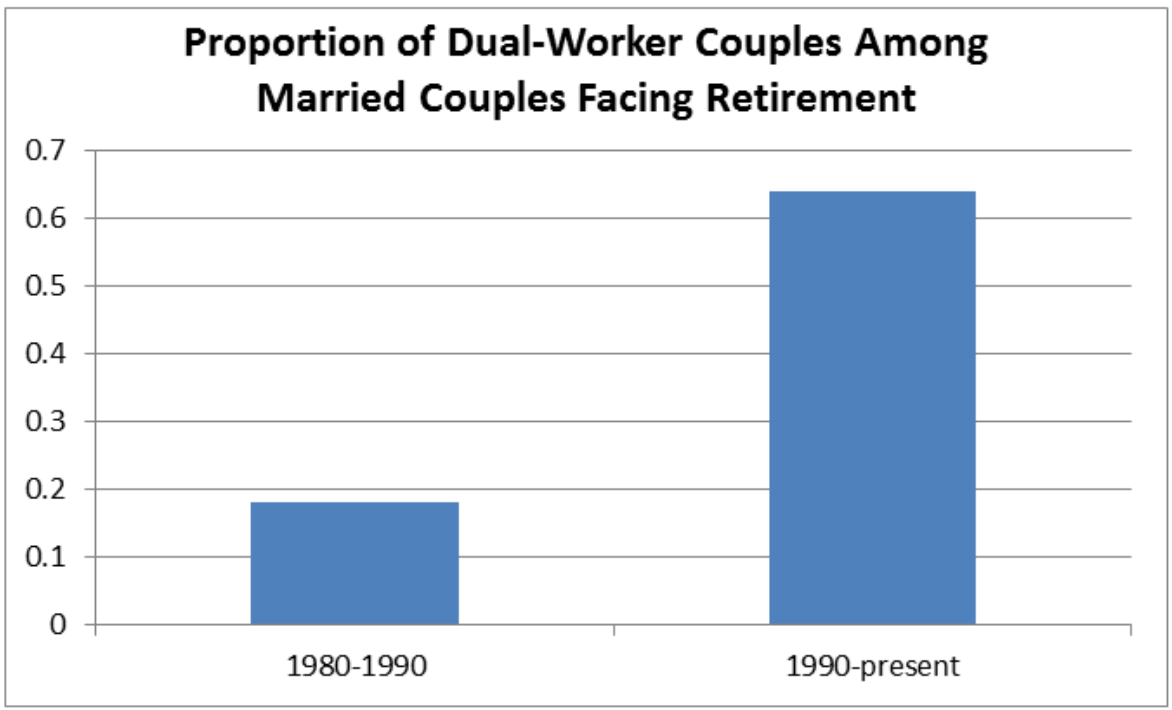
Motivation-Why is Joint Retirement Important?

- Baby-boom $\rightsquigarrow$ retirement age
- Majority of them are married
- $\uparrow$ Labor Force Participation of women



Source: United States Census Bureau

Motivation-Why Health Insurance (HI) is Crucial?

Before 65, EPHI is main source
Interdependence of EPHI
$\Rightarrow$ EPHI affects joint retirement

- Delay retirement to keep HI for self or spouse
- HI $\rightarrow$ medical expense
- HI $\rightarrow$ health (correlated within a HH) $\rightarrow$ preference for leisure

Research Goals

Answer the questions:

- How do cooperatively acting couples make retirement decisions?
- How much and through what channels does health insurance affect household joint retirement decisions?

Literature Review

Literature Review

Joint Retirement

- Hurd (1990), Gustman & Steinmeier (2000, 2004), Casanova (2010)
- **They have identified:**
  - Correlation in tastes for caring needs of one spouse
  - Complementarity in spouses' preferences for leisure
  - Correlation in economic variables: shared income & assets

Contributions:

- Health insurance (own and spousal)
- Correlated spouses' health transitions (source of interdependence within HH)

Literature Review

Health Insurance (HI) & Labor Supply Decisions

HI & Individual Retirement Decisions: Madrian (1994), Rust & Phelan (1997), French & Jones (2004,2011), etc.

HI & Labor Supply of prime-aged (21-65) Married couples: Olson (1998, 2000), Royalty & Abraham (2006), etc.

- Either focus on individuals or younger couples' labor supply decisions

HI & Married Couples' Retirement: Kapur & Rogowski (2007), Blau & Gilleskie (2006)

- Don't focus on how (channels through which) HI affect retirement decisions
- Don't differentiate the source(quality) of HI coverage

Contributions

Contributions

- Consider **3 channels** that HI may affect
  - HI $\rightarrow$ O.O.P. medical expenditure (as been done in the literature)
  - HI $\rightarrow$ total medical expenditure
  - HI $\rightarrow$ health
- **Interdependence** of spouses' health transitions
- Capture the **heterogeneity** of HI plan characteristics (not only HI coverage matters, quality of HI plan matters too)

Data

Data

Primary Data

Health and Retirement Study (HRS)

- Panel survey of individuals over age 50 and their spouses
- Biannual, 9 waves, 1992-2008
- demographics, employment, HH assets, EPHI eligibility

Supplemental Data

Medical Expenditure Panel Survey (MEPS)

- A large scale survey of families and individuals
- Annually, 1996 present
- Characteristics of HI plans, which vary by firm size and industry

HRS

Missing Data Problem

EPHI eligibility:

- Model HH EPHI coverage choices $\rightarrow$ All available EPHI plans
- Conditional basis: observed if choose to be covered by own employer

Imputation

- Imputation model which captures the endogenous selection rule
- Using couples in the HRS
- A Pearson-Chi square test–fits data very well

Model

Choice-Specific Utility Flow

- HH utility flow is a weighted sum of both spouses' utility

Spouse i's Utility Function:

$$u_{it}(d_t, s_t, \theta_u) = \frac{c_t^\alpha}{\alpha} + exp\{X_t^i \beta^i + \varepsilon_i\} L_{it}$$

$$X_t^i \beta^i = \beta_0^i + \underbrace{a_{it}}_{\text{age}} \beta_1^i + \underbrace{H_{it}}_{\text{health}} \beta_2^i + H_{-i,t} \underbrace{\beta_3^i}_{\text{caring}} + L_{-i,t} \underbrace{\beta_4^i}_{\text{complementarity}}$$

Budget Constraint

$$C_t + s_t = \underbrace{A_t + Y\left(rA_t, w_t, pb_{mt}, pb_{ft}\right) + ssb_{mt} + ssb_{ft} + TR_t}_{\text{HH income}} - \underbrace{\Gamma_t}_{\text{Paid HI premium}}$$

$$A_{t+1} = s_t - OOP_{mt} - OOP_{ft}$$

- $OOP_{it} = TOT_{it} - f\left(TOT_{it}, HICoverage_{it}\right)$
  - co-insurance rate; deductible (channel 1)
- TOT_{it} is endogenously determined by:
  - Demographics: include age, race, etc.and Health
  - Leisure, and HI coverage (channel 2)

Joint Health Transitions

Bivariate Probit Model: (channel 3)

$$\begin{cases} H^*_{mt} = X'^{m}_{t-1}\beta^m_1 + HI^m_{t-1}\beta^m_2 + H^*_{ft}\beta^m_3 + u_{mt} \\ H^*_{ft} = X'^{f}_{t-1}\beta^f_1 + HI^f_{t-1}\beta^f_2 + H^*_{mt}\beta^f_3 + u_{ft} \end{cases}$$

Divide HHs into 4 subsamples based on their original health statuses:

- GG: both are originally in good health
- BG: only wife is originally in good health
- GB: only husband is originally in good
- BB: both are originally in bad health

Preliminary Results

Husband Equation				**Wife Equation**			
Variable	Estimates		Std Err	Variable	Estimates		Std Err
Constant	-1.189	*	0.469	Constant	-0.475		0.391
Hispanic	-0.304	**	0.057	Hispanic	-0.395	**	0.058
Race				**Race**			
white (base)	omitted			white (base)	omitted		
black	-0.189	**	0.043	black	-0.156	**	0.048
others	-0.183	**	0.051	others	-0.141	*	0.056
Chronic_disease	-0.227	**	0.01	Chronic_disease	-0.246	**	0.011
age	0.082	**	0.014	age	0.063	**	0.012
age^2	-0.001	**	0.000	age^2	-0.001	**	0.000
Type I HI	-0.431	**	0.06	Type I HI	-0.426	**	0.068
Type II HI	0.136	**	0.042	Type II HI	0.123	**	0.04
Education				**Education**			
Less HS (base)	omitted			Less HS (base)	omitted		
HS	0.259	**	0.031	HS	0.326	**	0.035
College & above	0.554	**	0.037	College & above	0.573	**	0.047
Wife's latent health	0.073	*	0.035	Husband's latent health	0.129	**	0.038
correlation coefficient	-0.081						

Note: 1) Subsample size: 21885; 2) Double-starred items are statistically significant at the 5% level, and single-starred items are statistically significant at the 1% level. 3) Type I HI represents Medicare below age 64 and Medicaid, while Type II HI represents Medicare above age 64 and private insurance.

Preliminary Results

Spousal effects on health

Subsample	Husband Equation Variable	Estimates		Wife Equation Variable	Estimates	
GG	wife's latent health	0.073	*	husband's latent health	0.129	**
		(0.035)			*(0.038)*	
BG	wife's latent health	0.132	*	husband's latent health	0.183	*
		(0.054)			*(0.073)*	
GB	wife's latent health	0.077		husband's latent health	-0.025	
		(0.076)			*(0.064)*	
BB	wife's latent health	0.083		husband's latent health	0.063	
		(0.081)			*(0.098)*	

- For subsamples in which wives are originally in good health, spousal effects are positive & statistically significant
- This is not observed if the wife is originally in bad health
- Might because usually wives take care of their husbands

Preliminary Results

Magnitudes of Spousal effects on health:

Subsample	Pr[H_m=1|H_f=1]	Pr[H_m=1|H_f=0]	Difference
GG	0.89	0.84	0.05
BG	0.33	0.28	0.05
GB	0.83	0.77	0.06
BB	0.33	0.23	0.10
Subsample	**Pr[H_f=1|H_m=1]**	**Pr[H_f=1|H_m=0]**	**Difference**
GG	0.92	0.88	0.04
BG	0.85	0.82	0.03
GB	0.34	0.24	0.10
BB	0.31	0.22	0.09

- positive difference means positive effects of health dynamics of one spouse on that of the other one

Preliminary Results

Health Insurance (HI) effects on health

	Husband Equation				Wife Equation			
Subsample	Variable	Estimates		Std Err	Variable	Estimates		Std Err
GG	Type I HI	-0.431	**	0.06	Type I HI	-0.426	**	0.068
	Type II HI	0.136	**	0.042	Type II HI	0.123	**	0.04
BG	Type I HI	-0.303	**	0.064	Type I HI	-0.266	**	0.09
	Type II HI	0.066		0.064	Type II HI	0.181	**	0.064
GB	Type I HI	-0.264	**	0.091	Type I HI	-0.43	**	0.071
	Type II HI	0.279	**	0.074	Type II HI	0.111		0.061
BB	Type I HI	-0.266	**	0.075	Type I HI	-0.176	*	0.077
	Type II HI	0.076		0.08	Type II HI	0.164	*	0.074

- HI1 $\uparrow$ in bad health in the next period, and the effects are significant
- HI1 are only available to people with worst health (disability or lack of health treatment due to low income)
- HI2 $\uparrow$ in good health in the next period

Upcoming Work

- Finish dynamic programming and get estimates (20% left)
- Policy simulations
  - Decreasing trend of EPRetireeHI; The Affordable Care Act; Medicare: 65 $\nearrow$ 67;
  - Disentangle different channels through which HI make effects can evaluate HI related policies in multiple dimensions
  - Evaluate how these polices change husband and wife's welfare separately