Do Couples Self-Insure? The Effect of Informal Care on a Couple's Labor Supply

Norma B. Coe, Center for Retirement Research at Boston College
Meghan M. Skira, University of Georgia
Courtney Harold Van Houtven, Durham VA and Duke University

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Why care about informal care (IC)?

- About 9 million Americans 65+ need help with basic personal activities, household chores or errands.
- Most of the disabled elderly remain in the community, relying solely on informal care.
- IC is provided predominantly by adult children.
- IC a modest substitute for paid LTC, reducing utilization and Medicare costs

    - Policy attention to support informal caregivers due to their potential to save public long-term care costs

Are there spillover effects for the caregiver?

- Reward to caregiver
- Health: depression, injury, immune function, etc.
  - Health care costs
- Work effects for caregiver
  - Informal caregivers face competing time demands
  - Decrease or Increase?
- If a decrease can affect financial security in retirement for caregiver

Research questions

1) Does informal care provided by adult children of elderly parents or in-laws have a causal impact on:
    - Labor force participation (LFP)?
    - Retirement?
    - Hours worked?
    - Wages?

2) Are there differential effects by type of care?

3) Do couples insure each other's earnings?

Hasn't this been done before?

- **INDIVIDUALS**
  - Negative correlation between LFP and caregiving.
    - Ettner (1995), Pavalko & Artis (1997), Crespo & Mira (2010), Heitmueller (2007), Bolin et al. (2008), Heitmueller et al. (2010)
  - Little effect on retirement
    - Dentinger and Clarkberg (2002)
  - Mixed evidence that caregiving reduces work hours, conditional on working.
    - Yes: Ettner (1995, 1996), Johnson & LoSasso (2000, 2006), Spiess & Schneider (2003), Bolin et al. (2008)
    - No: Wolf & Soldo (1994), Bolin et al. (2008), Casado-Marin et al. (2010)
  - Mixed evidence that informal caregivers incur wage penalties.
    - Yes: Carmichael & Charles (1998, 2003), Heitmueller & Inglis (2007)
    - No: Bolin et al. (2008)

INDIVIDUALS

- Van Houtven, Coe, Skira, 2012
  - Differential effect by outcome and type of care
  - Personal caregiving lowers LFP for men by 2.4 %pts.
    - For women, personal caregiving reduces hours per week by 3.
  - Chore caregiving has a larger impact on other aspects of work for women.
    - 2.3 %pts higher retirement
    - 3.8 hours fewer hours of work a week
    - Lower wages, by about $0.66 an hour
  - Intensive caregiving causes a 10 hour a week decrease among working women.

What about for couples?

- Couples may decide together how to
  - Divvy up caregiving demands
  - Change work to accommodate caregiving
- By ignoring these processes are we
  - Overstating effects?
    - Self-insurance
  - Understating effects?
    - Desire for joint retirement and leisure time

Couples

Simultaneously Caregiving	Neither	Wife Only	Husband Only	Both
Any type of care	67%	9%	3%	22%
Personal care	88%	5%	1%	7%

Ever a caregiver	Women				Men			
	Neither	Wife Only	Husband Only	Both	Neither	Wife Only	Husband Only	Both
Any type of care	44%	11%	5%	41%	43%	11%	4%	41%
Personal care	69%	10%	2%	19%	68%	10%	2%	20%

Hasn't this been done before?

COUPLES

- Léger, 2005
  - Adult children work hours pre/post parent illness
  - PSID and Parent Health Supplement (PHS)
  - Results
    - Fixed effects control for unobserved heterogeneity gives much smaller effects
    - Women reduce hours worked- those who cohabit and whose parent lives independently
    - Considering total hours in couple lead to small decreases in year after illness and cohabiting only

Data

Health and Retirement Study

- Nine waves (1992–2008)
- Nationally representative sample of older Americans
  - adult children age 51-61 initially
  - parents prime candidates for care with mean age 82
- Rich informal caregiving, labor force, and wealth data

- Sample selection
  - Age 50-70 who had worked since age 45
  - Parent or parent in law was alive in the current or prior two waves
  - Married for at least 2 years to same person
  - No limits on spouse age, work

Outcomes

- Working for pay
  - = 1 if work for someone else or self-employed
  - = 0 if out of work, looking for work or retired
- Retired
  - Self-reported (full or partial)
- Usual hours worked each week | working
- Wage per hour | working

Caregiving measures

Informal Care:

- Did you spend a total of 100 or more hours (since previous wave interview month-year/in the last two years) helping both parents/ mother/father with
  - basic personal activities like dressing, eating, or bathing?
  - other things such as household chores, errands, transportation, etc.?

Model Specification

We begin with a structural empirical model:

$$Y_{it}^{*} = \alpha_0 + \alpha_1 X_{it} + \alpha_2 CG_{it} + \alpha_3 Y_{st}^{*} + \varepsilon_{it}$$

$$Y_{st}^{*} = \beta_0 + \beta_1 X_{st} + \beta_2 CG_{st} + \beta_3 Y_{it}^{*} + \varepsilon_{st}$$

Simple substitution leads to:

$$Y_{it}^{*} = \gamma_0 + \gamma_1 X_{it} + \gamma_3 X_{st} + \gamma_4 CG_{it} + \gamma_5 CG_{st} + \epsilon_{it}$$

How we measure causal relationship?

- Longitudinal data
  - Individual fixed-effects
  - Time-invariant heterogeneity – taste for care
- Time-variant heterogeneity: instrumental variables
  - Alternative sources of care
    - Mother/ in-law became widowed
  - Parent/ in-law health
    - ADL needs, cannot be left alone, diagnosed memory problem ➔ parent “ill health”
    - Died (end of caregiving episode)

IV sets

1. Mother ill; mother-in-law ill; mother widowed, mother-in-law widowed
   - Ill health causing care giving, and lack of spousal care

2. 1. + indicators for mother/father/mother-in-law/father-in-law died
   - Care giving starting and ending

3. Indicators for mother died, father died, mother-in-law died, father-in-law died, indicators for mother widowed, mother-in-law widowed.

Endogeneity concerns

		Women				Men			
Care Measure	IV Set	Work	Retirement	Hours	Wages	Work	Retirement	Hours	Wages
Any	1	X	Reject exog (6%)	Reject exog (5.5%)	Weak	X	X	X	X
	2	X	Reject exog (1%)	X	X	X	X	X	X
	3	X	Reject exog(1%)	X	X	X	X	X	X
Personal	1	X	X	Reject exog (10%)	X	X	X	X	X
	2	X	Reject exog (5%)	X	X	X	X	X	X
	3	Reject exog (10%)	Reject exog (5%)	X	X	X	X	X	X
Chore	1	X	X	Weak Reject exog (10%)	Weak	X	X	X	Weak
	2	X	Reject exog (1%)	Weak	X	X	X	X	X
	3	X	X	X	Weak	X	X	X	X
Intensive	1	Weak	Weak	Weak	Weak	Weak	Weak	Weak	Weak
	2	Weak	Weak	Weak	X	Weak	Weak	Weak	Weak
	3	Weak	Weak	Weak	X	Weak	Weak	Weak	Weak

'X' indicates the joint F-statistic for the excluded instruments in the first stage equation is greater than 10, we do not reject the over-identification test (null of valid exclusion restrictions), and we do not reject exogeneity at conventional significance levels.

Sample Characteristics for Couples

	Women				Men			
	Neither	**Wife Only**	**Husband Only**	**Both**	**Neither**	**Wife Only**	**Husband Only**	**Both**
Working for pay	57.6	60.2	61.4	65.6	66.5	65.3	73.0	75.2
Hours of work /week (among workers)	36.5	35.1	35.6	36.7	43.7	44.7	42.5	44.2
Hourly wage	$16.94	$16.58	$17.65	$20.03	$30.50	$25.64	$28.25	$28.37
Percent of the sample	43.6	10.8	4.6	40.9	43.4	11.1	4.3	41.0
Observations	1,495	372	158	1,399	1,482	381	148	1,400

Sample Characteristics for Couples

	Women				Men			
	Neither	**Wife Only**	**Husband Only**	**Both**	**Neither**	**Wife Only**	**Husband Only**	**Both**
Average Age	55.4	55.3	55.9	54.1	59.5	59.6	58.4	57.7
Non-white	18.6	17.2	14.5	11.4	18.1	17.3	16.2	11.9
Education								
Less than HS	28.8	23.4	19.0	15.2	34.9	29.9	18.2	19.3
College graduate	14.1	16.4	17.7	18.8	21.0	20.7	31.7	24.8
Exc. Or VG Health	51.0	50.8	55.7	58.5	45.1	45.7	64.9	54.3
Years of work experience	21.3	22.9	23.9	23.4	36.1	37.3	36.3	37.1
Observations	1,495	372	158	1,399	1,482	381	148	1,400

Results: Husbands' labor force participation

	LFP		Retirement	
	I	II	III	IV
Caregiver (any type)	-0.0064		-0.0030	
	(0.0114)		(0.0296)	
Spouse caregiver (any type)	-0.0042		0.0145	
	(0.0109)		(0.0301)	
Personal caregiver		-0.0320**		-0.0171
		(0.0161)		(0.0489)
Spouse personal caregiver		0.0112		0.0378
		(0.0139)		(0.0387)

Results: working husbands' wages and hours

	Log Wage		Work Hours	
	V	VI	VII	VIII
Caregiver (any	0.0076		0.1808	
type)	(0.0133)		(0.5218)	
Spouse caregiver	0.0117		0.0458	
(any type)	(0.0130)		(0.5059)	
Personal		0.0251		-0.5586
caregiver		(0.0177)		(0.7641)
Spouse personal		-0.0171		0.4245
caregiver		(0.0158)		(0.5812)

Results: wives' labor force participation

	Women			
Any (self)	-0.005			
	(0.013)			
Any (spouse)	0.008			
	(0.013)			
Personal (self)		0.0005		
		(0.016)		
Personal (spouse)		-0.022		
		(0.019)		
Chore (self)			-0.008	
			(0.013)	
Chore (spouse)			0.012	
			(0.014)	
Intensive (self)				-0.009
				(0.019)
Intensive (spouse)				-0.002
				(0.025)
e(N)	12952	15092	12952	12952
e(N-g)	3067	3220	3067	3067
e(r2-o)	0.069	0.054	0.069	0.069
e(r2-w)	0.144	0.151	0.144	0.144

Results: wives' retirement

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IV (2SLS) estimation
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Estimates efficient for homoskedasticity only
Statistics robust to heteroskedasticity and clustering on ID2

Number of clusters (ID2) =       2684                Number of obs =    12304
                                                     F( 26,  2683) =    41.87
                                                     Prob > F      =   0.0000
Total (centered) SS     =  1517.821429               Centered R2   =   0.0258
Total (uncentered) SS   =  1517.821429               Uncentered R2 =   0.0258
Residual SS             =  1478.624586               Root MSE      =     .392

------------------------------------------------------------------------------
             |               Robust
     selfret2 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
--------------+---------------------------------------------------------------
   caregiver2 |   .3768063   .2196092     1.72   0.086    -.0536199    .8072325
 spcaregiver2 |  -.5542121    .278707    -1.99   0.047    -1.100468   -.0079564
```

Results: working wives'

Hours

	Women			
Any (self)	1.097**			
	(0.479)			
Any (spouse)	-1.520***			
	(0.5)			
Personal (self)		0.683		
		(0.622)		
Personal (spouse)		-1.354*		
		(0.734)		
Chore (self)			1.420***	
			(0.503)	
Chore (spouse)			-1.774***	
			(0.526)	
Intensive (self)				0.262
				(0.755)
Intensive (spouse)				-1.191
				(1.103)
e(N)	7081	8524	7081	7081
e(N-g)	2276	2532	2276	2276
e(r2-o)	0.00006	0.0006	0.00005	0.0001
e(r2-w)	0.09	0.086	0.091	0.088

Ln(Wages)

	Women			
	-0.028			
	(0.027)			
	0.011			
	(0.027)			
		-0.016		
		(0.036)		
		0.025		
		(0.042)		
			-0.047*	
			(0.028)	
			0.016	
			(0.026)	
				0.035
				(0.039)
				-0.041
				(0.048)
	6129	7427	6129	6129
	2106	2384	2106	2106
	0.085	0.086	0.085	0.084
	0.036	0.034	0.036	0.036

Conclusions

- Individual fixed effects seems to address endogeneity concerns for married men; some for married women.
- Personal caregiving lowers LFP.
  - 3.2 percentage points lower for married men.
  - Stronger effect than when we only consider individuals (VCS, 2012)
  - Find offsetting effects on hours of work for couple a la Léger
- Married women's hours respond to household care provision, but opposite patterns predicted by self-insurance.
  - That is, if husband provides care, wife reduces work hours

Next steps

- Revisit IV approach
  - Caregiving effect on retirement unrealistically large

- Unclear what is the correct modeling of this process?

How can we improve modeling?

- Tried bivariate and multivariate probits– odd signs or all non-significant effects
- Find instruments that belong in spouse but not own caregiving equation
- Modeled hours of work as couple since CG decisions colinear; Tried Honore estimator (Leger, 2005)
- First difference model like in paper (I) from model (II) (McGeary)
- We assume LFP not in CG equations, thus assuming a two step process
  - But if is simultaneous then…

$$LFP(H) = LFP(W) + CG(W) + CG(H)$$

$$LFP(W) = LFP(H) + CG(W) + CG(H)$$

$$CG(W) = LFP(W) + LFP(H) + CG(H)$$

$$CG(H) = LFP(W) + LFP(H) + CG(W)$$

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