Caring for Mom and Neglecting Yourself? The Health Effects of Caring for an Elderly Parent

Norma B. Coe
Center for Retirement Research at Boston College

Courtney Harold Van Houtven
Duke University Medical Center, Department of Veterans Affairs

Workshop on the Future of Family Support for Older People
London
May , 2009

Children and Informal Care

- Little work done on the effects of caregiving on health

  - Studies largely cross-sectional

- Adult Children most common source in terms of #, and may be increasing

  - Differential life expectancy

  - Increased divorce rates

  - Baby boomer aging

- Key differences from spousal caregivers also make them important

  - Differences in age

  - Less financial and emotional dependence

  - Initial health

  - Labor force participation

Children and Informal Care - Health

Adult children had higher burden compared to other relatives (Andren and Elmstahl, 2007)

Ending caregiving

- Feelings of relief after stopping caregiving compared to spousal care (Eloniemi-Sulkava et al., 2002)

Very small studies, n<100

Longitudinal study, found psychological distress highest at start or end of caregiving (Hirst, 2004, 2005)

- Not specific to adult children

Why Should We Care?

If fully rational agents

- Child does not bear full cost of health investments

    - Health insurance

        - If publicly provided, affects future insurance provision

    - Social safety net

        - Pay for health declines if have to stop work due to caregiving

Irrational/uninformed agents

- Adult child may underestimate the health effect of caregiving

Outline

- Data

- Model Identification

- Health effects the first time caregiving
  - Selection in

- Health effects for continued caregiving
  - Selection out

- Note on methods

- Robustness checks

Data

Health and Retirement Study

- 1992-2004 (2-years) panel

- born between 1931-1941

- only a (not co-residing) mother alive

- Two main samples

  - Non-caregivers: Selection into caregiving (N=8007; individuals=3316)

  - Caregivers: Selection out of caregiving (N=2557; individuals=1467)

- Separated by marital status and gender

  - Different propensities to provide care/ cultural expectations based on gender

  - Different prevalence of depression

Information on Adult Children

Health

- High blood pressure

- Heart condition since last wave

- Self-rated health - good/excellent health vs. other

- Depressive symptoms (CES-D8 0-8)

Working status

- None, part-time, full-time

Wealth

- Net worth quintiles/Ln(net worth)

Demographics

Information on Siblings

- Gender

- Marital status

- # children

- # children in the house <18

- Age

- Work status (none, part-time, full-time) – up to 4 randomly selected siblings

Information on Parents

- Alive

- Age (age when died)

- Education

Health

- Can be left alone for an hour

- Needs help with activities of daily living (ADL)

- Doctor diagnosed memory problems

- Enter a nursing home (only if died)

- Was ill (if died)

HRS Caregiving Questions

Did you spend a total of 100 or more hours (since Previous Wave Interview Month-Yeah/in the last two years) helping your (parents/mother/father) with **basic personal activities like dressing, eating, and bathing**?

Did you spend a total of 100 or more hours (since Previous Wave Interview Month-Year/in the last two years) helping your (parents/mother/father) with other things such as **household chores, errands, transportation**, etc.?

Roughly how many hours did you yourself spend giving such assistance?

Asked first question about all siblings as well.

Health Effects of Caregiving

$$H_{c,t+2} = \alpha + \beta_1 H_{c,t} + \beta_2 A_{c,t+2,t} + \beta_3 H_p + \beta_4 X_c + \mu$$

H_c: health (depression, self-reported health, heart condition, HBP)

A_c: Informal care

H_p: Age, education (both parents), and indicator variables for needing help with activities of daily living, and having diagnosed memory problem

X_c: Age, age squared, number of children, race, and being foreign-born, education categories, ln(net worth), work status

Potential Endogeneity

Start caregiving

- Least attachment to the labor force – related to health?

- Minimum level of health?

End of caregiving

- Stop caregiving due to own health declines?

Identification – Selection into Caregiving

Informal care (A) depends on the expected informal care behavior of the adult child's siblings (Checkhovich and Stern, 2002; Holmes and Van Houtven, 2003).

$$A_c = f(X_c, X_s, X_f, H_p, W_c, L_c)$$

use exogenous family structure variables as instruments in selection into A (Ettner, 1995; Stern, 1995; van Houtven & Norton, 2004; 2008; LoSasso and Johnson, 2002; Holly et al, 2008)

Selection Into Caregiving

$$A_{j,t} = \alpha + \beta_1 X_f + \beta_2 X_s + \beta_3 X_j + \beta_4 W_{j,t-1} + \beta_5 R_c + \varepsilon$$

Conditional on not caring in previous period.

<u>Family level (f)</u>: numbers of sons, number of daughters, mom needs help, mom can be left alone, mother's and father's education

<u>Sibling level (s)</u>: number of children and grandchildren siblings have

<u>Child level (j):</u> age, age squared, # children, # grand children, lagged work status, log (net worth)

<u>Race respondent level (c)</u>: Race, ethnicity, US born

Identification – Selection Out of Caregiving

- Death of the care recipient

    - Provides an exogenous shock that switches person from caregiver to non-caregiver

- We test against a bereavement effect

Methods

- Appropriate model?

    - OLS

    - IV

    - IV FE

        - Accounts for repeated observations over time

    - Arellano-Bond estimator

        - Accounts for the correlation of prior work status/health with the error term

        - Uses 2x differences in lagged H to instrument for changes in the variables (breaks correlation with error term of having lagged H predicting current H)

Descriptive Statistics – Adult Child

Explanatory Variables	Caregivers	Non-Caregivers
Demographic characteristics		
Female	0.64	0.55
Is an eldest daughter	0.33	0.27
Married	0.73	0.75
Age	57.69	54.76
Education (years)	12.82	12.31
Number of children	3.42	3.38
Number of grandkids	4.28	2.32
Work/Wealth Measures		
Full-time work	0.45	0.51
At least part-time work	0.54	0.57
Net worth	297,869	249,864

Descriptive Statistics

	Caregivers	Non-Caregivers
Health Measures		
Depressive symptoms	1.16	0.27
Heart condition	0.09	0.11
High blood pressure	0.22	0.36
Self-reported very good or excellent health	0.53	0.53
Mother's Characteristics		
Mother needs ADL help	0.30	0.23
Mother has doctor diagnosed memory problem	0.04	0.005
Mother's age	87.40	79.55
Mother's education (years)	10.04	9.73
Family Structure Instrument List		
Number of girls	1.89	2.23
Number of boys	1.64	1.97
Eldest child in family is female	0.55	0.53
Number of siblings' kids	6.46	8.04

Recorded the first time we observe the individual

Effect of Initial Selection INTO Caregiving

First Stage: Selection Into Caregiving

	Family[1] Structure
Single Men	
Number of boys	-.032***
	(.012)
F(1,227)	7.4***
Obs	447
R-squared	0.10
Married Men	
Number of girls	-.0158***
	(.0045)
F(1,1531)	12.35***
Obs	3,668
R-squared	0.05

	Family[1] Structure
Single Women	
Number of boys	-.0186**
	(.0072)
F(1,553)	6.69**
Obs	1,255
R-squared	0.07
Married Women	
Number of girls	-.0204***
	(.0047)
F(1,140)	18.76***
Obs	3,309
R-squared	0.07

Note: regression also includes level variables and parent-level variables and year of interview indicator. Standard errors are clustered on the individual to account for multiple observations of the same person.

Health Effects: First 2 Years Caregiving

	CES-D8$_t$	Good Health or Better$_t$	High Blood Pressure$_t$	Heart Condition$_t$
	OLS	OLS	Probit	Probit
Married Women				
Health$_{t-2}$	0.4624***	0.5129***	1.8476***	4.233***
	(0.0297)	(0.0189)	(0.0831)	(0.1570)
Caregiving$_t$	0.1665**	0.0044	0.0084	0.0643
	(0.0731)	(0.0167)	(0.0751)	(0.1245)
Observations	3310	3308	3309	3309
Individuals	1403	1403	1403	1403
R-squared	0.24	0.39		
Married Men				
Health$_t$	0.4227***	0.4873***	3.7253***	4.2947***
	(0.0343)	(0.0195)	(0.1041)	(0.2071)
Caregiving$_t$	0.0269	-0.0202	0.0383	0.1073
	(0.0647)	(0.0203)	(0.1142)	(0.1285)
Observations	2993	2990	2993	2987
Individuals	1239	1239	1239	1239
R-squared	0.19	0.34		

Note: Regression also includes individual level variables, parent-level variables, and year of interview indicator. Standard errors are clustered on the individual to account for multiple observations of the same person.

Health Effects: Persistence of Effects

	CES-D8$_t$	Good Health or Better$_t$	High Blood Pressure$_t$	Heart Condition$_t$
	OLS	OLS	Probit	Probit
Married Women				
Care$_t$ &Health$_{t+2}$	0.1062	-0.0312*	0.1850**	0.0631
(N=3075)	(0.0741)	(0.0185)	(0.0799)	(0.0946)
Care$_t$ &Health$_{t+4}$	0.2005**	-0.1384**	0.2571***	0.1082
(N=2542)	(0.0892)	(0.0688)	(0.0807)	(0.0930)

Note: Regression also includes individual level variables, parent-level variables, and year of interview indicator. Standard errors are clustered on the individual to account for multiple observations of the same person.

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Effect of Continued Caregiving (Controlling for Selection OUT)

Transitions Out of Caregiving

	Cared for Mother at Time t		
	Entire Sample	Mother Still Alive$_{t+2}$	Mother Dies$_{t+2}$
Cared for Mother$_{t+2}$	45%	52%	0%
Did Not Care for Mother$_{t+2}$	55%	48%	100%
N	2,709	2,316	393

First Stage – Continued Caregiving

	Married Women	Single Women	Married Men	Single Men
Mother died	-0.5538***	-0.5415***	-0.4628***	-0.3955***
	(0.0191)	(0.0409)	(0.0243)	(0.0987)
Observations	1270	347	817	123
R-squared	0.21	0.25	0.17	0.47
Year fixed-effects	X	X	X	X
F-test	837.32***	175.42***	361.19***	16.04***

Note: Regression also includes individual level variables, parent-level variables, and year of interview indicator. Standard errors are clustered on the individual to account for multiple observations of the same person.

Health Effects – Continued Caregiving

	CES-D8	Heart Condition	High Blood Pressure	Good Health
Married Women				
Care Giving$_{t2,t}$	0.5997**	-0.0440	-0.0135	-0.1020*
	(0.2934)	(0.0337)	(0.0495)	(0.0609)
N	1229	1270	1270	1270
Estimation Method	A-B	IV	IV	IV
Single Women				
Care Giving$_{t2,t}$	-0.3500	-0.0138	-0.0765	-0.1611
	(0.5160)	(0.0764)	(0.0946)	(0.1581)
N	347	347	317	317
Estimation Method	IV	IV	A-B	A-B
Married Men				
Care Giving$_{t2,t}$	0.6463**	0.0446	-0.0009	0.1676**
	(0.3063)	(0.0489)	(0.0663)	(0.0848)
N	808	817	817	817
Estimation Method	A-B	IV	IV	IV
Single Men				
Care Giving$_{t2,t}$	-0.3725	0.3971**	-0.1508	0.0738
	(0.7735)	(0.1602)	(0.1491)	(0.2551)
N	116	123	116	116
Estimation Method	A-B	IV	A-B	A-B

Note: Regression also includes individual level variables, parent-level variables, and year of interview indicator. Standard errors are clustered on the individual to account for multiple observations of the same person.

Health Effects – Persistence of Effects

	CES-D8	Heart Condition	High Blood Pressure	Good Health
Married Women				
Care Giving$_{t2,t}$	0.6498**	-0.0192	-0.0422	-0.1059
	(0.3149)	(0.0418)	(0.0677)	(0.0777)
N	996	996	996	996
Estimation Method	IV	IV	IV	IV
Single Women				
Care Giving$_{t2,t}$	-0.0999	-0.0905	-0.2269	0.0637
	(0.7149)	(0.0884)	(0.1520)	(0.1155)
N	258	258	258	258
Estimation Method	IV	IV	IV	IV
Married Men				
Care Giving$_{t2,t}$	0.5777	-0.0877	-0.0190	-0.0820
	(0.3577)	(0.0881)	(0.1029)	(0.1160)
N	632	632	632	632
Estimation Method	IV	IV	IV	IV
Single Men				
Care Giving$_{t2,t}$	-0.2385	0.6076**	-0.1058	-0.0730
	(0.9005)	(0.2529)	(0.2540)	(0.3320)
N	89	89	83	83
Estimation Method	IV	IV	A-B	A-B

Note: Regression also includes individual level variables, parent-level variables, and year of interview indicator. Standard errors are clustered on the individual to account for multiple observations of the same person.

Multiple Hypothesis Testing

- Mental Health

  - Depression effect holds

- Physical Health

  - Self-reported health effect is insignificant

  - Heart Condition for single men remains significant

- All health measures

  - Only rejected for single men

Note: Regression also includes individual level variables, parent-level variables, and year of interview indicator. Standard errors are clustered on the individual to account for multiple observations of the same person.

A Note on Methods

A Closer Look at Methods - Depression

CES-D8$_{t+2}$	Linear Models		Non-Linear Models		Testing different error structures			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	OLS	IV	POISSON	IV POISSON	OLS RE	IV RE	A-B with 1 lag	A-B with 2 lags
CES-D8$_t$	0.4492***	0.4545***	0.2386***	0.2890***	0.3346***	0.3753***	0.0652	0.0544
	(0.0388)	(0.0387)	(0.0165)	(0.0238)	(0.0289)	(0.0288)	(0.0761)	(0.0686)
Caregiving$_{t+2,t}$	0.2414***	0.5569**	0.1900***	0.7054**	0.2208**	0.5721**	0.5997**	0.6071**
	(0.0929)	(0.2456)	(0.0721)	(0.3248)	(0.0956)	(0.2468)	(0.2934)	(0.2912)
Observations	1270	1270	1270	1270	1270	1270	1229	1229
Individuals	700	700	700	700	700	700	679	679
# of out-of-support preds	2	16				11		
Breush-Pagan Chi^2 test					.24			
Hausman Chi^2 test						.000		
AR(1)							-7.77	-8.39
P-value							0.00	0.00
AR(2)							0.36	0.30
P-value							0.72	0.76

Note: Regression also includes individual level variables, parent-level variables, and year of interview indicator. Standard errors are clustered on the individual to account for multiple observations of the same person.

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Robustness Check: Caregiving or Bereavement?

	CES-D8	Heart Condition	High Blood Pressure	Good Health
		Health Measure$_{t+2}$		
Married Women				
Mother Died$_{t2,t}$	-0.2196*	0.0002	0.0075	0.0030
	(0.1292)	(0.0148)	(0.0214)	(0.0338)
N	1507	1567	1567	1507
Specification	A-B(2)	OLS	OLS	A-B(1)
Single Women				
Mother Died$_{t2,t}$	-0.1176	0.0056	0.0545	0.0167
	(0.2546)	(0.0216)	(0.0340)	(0.0525)
N	522	522	583	522
Specification	A-B(1)	A-B(1)	OLS	A-B(1)
Married Men				
Mother Died$_{t2,t}$	0.0285	0.0083	-0.0369*	-0.0173
	(0.0969)	(0.0184)	(0.0191)	(0.0293)
N	1813	1870	1866	1810
Specification	A-B(1)	OLS	OLS	A-B(1)
Single Men				
Mother Died$_{t2,t}$	0.0543	-0.0037	0.0111	0.0708
	(0.3199)	(0.0460)	(0.0630)	(0.0790)
N	219	234	234	219
Specification	A-B(1)	OLS	OLS	A-B(1)

Note: Regression also includes individual level variables, parent-level variables, and year of interview indicator. Standard errors are clustered on the individual to account for multiple observations of the same person. Sample: Non caregivers.

Conclusions

Depression

- Married women
    - Initiating caregiving
    - 4-years afterwards
    - Continued caregiving
    - 4-years afterwards
- Married men
    - Continued caregiving

Self-Reported Health

- Married women
    - Continued caregiving
- Married men
    - Increases(!) with continued caregiving

Heart Condition

- Single men
    - Continued caregiving
    - 4-years afterwards

Conclusions

METHODS

- Evidence that it is important to use Arellano-Bond estimation when appropriate
  - Using IV-FE would have led to more numerous significant effects, including work reductions from informal care
  - May explain why other longitudinal studies have found larger work effects of informal caregiving. (Heitmuller, 2007; Michaud et al, 2008)

Extensions

- Duration of caregiving

- Married adult households
  - Examine care to in-law vs parent?
  - Differentiate between caregiving and new survival/health information

- Work and Wealth Effects
  - Work and Income as an outcome
  - Inter-vivos transfers and inheritances