

Informal care, work, and well-being

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Introduction

How does parental caregiving affect caregivers' work and well-being?

Contribution

- consideration of cognitive ability and caregiving intensity
- careful treatment of the endogeneity of caregiving

Results

- a reduction in employment, mixed effects on health in countries with limited formal care options
- a slight increase in cognitive ability, especially in countries with more generous formal care option

Introduction

Long-term care

- majority of care is provided informally
- population ageing to increase need for long-term care
- increased female labour force participation, increased mobility, and changing social values
- financing poses a big challenge
- policy efforts to increase informal caregiving rates

Pathways

Work

- Trade off between work and caregiving
- Respite from caregiving activities
- Additional income source

Health/Cognitive ability

- Cognitive stimulation and increased physical activity
- Stress
- Social isolation

Literature

Mixed findings

- Work

Carmichael and Charles (1998, 2003), Heitmueller and Michaud (2006), Heitmueller (2007), van Houtven et al. (2013), King and Pickard (2013), Bolin et al. (2008), Crespo and Mira (2010)

- Health

Aneshensel (1995), Piquart and Sörensen (2003, 2005), Fredman et al. (2008), Coe and van Houtven (2009), Brown et al. (2009)

- Cognitive ability

Caswell et al. (2003), Vitaliano et al. (2005, 2007, 2011), de Vugt et al. (2006), Norton et al. (2010), Lee et al (2004), Buyck et al. (2011), Bertrand et al. (2012)

Survey of Health, Ageing and Retirement in Europe (SHARE)

Sample selection

- Female respondents in 13 European countries with at least two interviews in wave 1, 2, and 4
- Sample includes 25,261 person-wave observations from 10,891 individuals living in
 - Scandinavia (DK, SE),
 - Central Europe (AT, DE, NL, FR, CH, BE),
 - Eastern Europe (CZ, PL),
 - and the Mediterranean (ES, IT, GR)

Descriptive statistics

	Never caregiver		Ever caregiver		Sig. diff.
Labour force participation					
Employed	0.206	(0.405)	0.476	(0.500)	1%
Weekly hours worked (if working) ^a	31.956	(14.742)	33.745	(16.072)	10%
Cognitive ability					
Verbal fluency	17.954	(6.978)	21.989	(6.702)	1%
Short-term memory	4.803	(1.756)	5.721	(1.617)	1%
Long-term memory	3.357	(1.976)	4.307	(1.902)	1%
Good numeracy skills	0.364	(0.481)	0.538	(0.499)	1%
Health					
Depression (EURO-D)	2.924	(2.371)	2.678	(2.277)	5%
Fair or poor self-perceived health	0.366	(0.482)	0.219	(0.413)	1%
Grip strength	26.186	(7.163)	30.046	(6.301)	1%

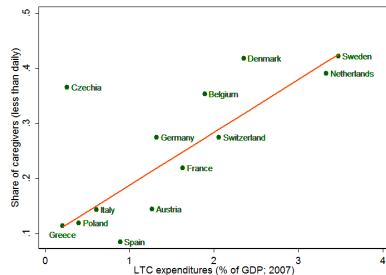
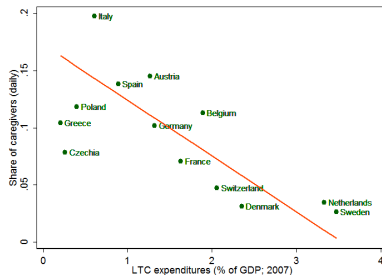
Weighted mean coefficients based on respondents' first observation. Standard deviation in parentheses. The last column states whether the means are statistically different at the 1%, 5%, or 10% level. Never/Ever caregiver: N=9,587/1,298. ^aN=2,401/683.

Caregiving rates by country

Country	Sample size	Caregiving rates					
		Daily		At least weekly		Any frequency	
Denmark	864	0.008	(0.062)	0.057	(0.142)	0.119	(0.185)
Sweden	1,020	0.012	(0.077)	0.059	(0.146)	0.134	(0.198)
Switzerland	530	0.017	(0.092)	0.061	(0.156)	0.103	(0.192)
Netherlands	1,016	0.021	(0.095)	0.076	(0.168)	0.121	(0.190)
Austria	557	0.028	(0.100)	0.047	(0.124)	0.059	(0.137)
Czechia	531	0.029	(0.099)	0.056	(0.137)	0.077	(0.162)
France	1,012	0.031	(0.115)	0.065	(0.151)	0.101	(0.174)
Greece	932	0.035	(0.073)	0.057	(0.087)	0.073	(0.098)
Poland	554	0.039	(0.118)	0.051	(0.133)	0.061	(0.144)
Germany	816	0.042	(0.124)	0.089	(0.180)	0.121	(0.196)
Belgium	1,336	0.042	(0.120)	0.098	(0.167)	0.121	(0.182)
Spain	751	0.059	(0.148)	0.066	(0.158)	0.078	(0.173)
Italy	966	0.063	(0.146)	0.082	(0.155)	0.093	(0.161)
Total	10,885	0.033	(0.109)	0.070	(0.151)	0.102	(0.174)

Within standard deviation in parentheses. Countries ordered by daily caregiving rate.

Caregiving rates and LTC expenditures



Institutional Characteristics and Social Values

	Public LTC exp. (% of GDP) ^a	Public health exp. (% of total) ^b	Nursing home beds (per 1000 pop 65+) ^c	Elderly care state responsibility
Countries with predominantly family based LTC				
Poland	0.70	70.28	17.10	2.34
Czechia	0.80	84.18	43.30	2.63
Spain	0.80	73.05	29.30	2.92
Germany	1.40	76.45	50.30	2.79
Greece	1.40	65.05	1.40	2.33
Austria	1.60	67.83	38.70	2.93
Italy	1.90	77.84	16.60	2.84
Average	1.23	73.53	28.10	2.75
Countries with strong formal LTC				
France	2.20	76.75	51.80	3.41
Belgium	2.30	75.91	70.80	3.26
Switzerland	2.88	64.89	68.90	2.89
Netherlands	3.80	85.60	68.40	3.52
Sweden	3.90	81.62	80.40	3.61
Denmark	4.50	85.31	52.30	4.14
Average	3.26	78.35	65.43	3.42

Source: OECD Health Data 2013, OECD Health Data 2012 - Long-Term Care Data, European Commission: Ageing Report 2012; SHARE. ^a2010 or nearest year available. ^b2011 or nearest year available. ^c2009; Greece: 2000.

Empirical Model

Estimation equation

$$y_{it} = \beta_1 CG_{it} + \beta_2 X_{it} + c_i + u_{it} \quad (1)$$

- y_{it} indicates outcome of interest
- Fixed effects account for time-constant endogeneity
- IV approach to control for time-varying endogeneity
 - A change in parental health serves as an instrument for a change in caregiving activities
 - Assumption: Parental health only influences the daughter's employment decision through the time requirement of caregiving (van Houtven et al., 2013)

Empirical Model

Additional background variables

- age, age squared (interacted with country dummies)
- wave dummies, married, number of chronic conditions, ADL, IADL

Work

- household size, reached official retirement age, within 2 years, within 5 years

Well-being

- employed, other social activities, financial distress
- Depression: parental health, mother alive, father alive

Estimation results: Work (IV-FE)

	Family-care countries			Formal care countries		
Dependent variable: employed						
Parental caregiver	-0.233*			0.011		
	(0.120)			(0.134)		
Weekly caregiver		-0.278*			0.012	
		(0.154)			(0.149)	
Daily caregiver			-0.476*			0.017
			(0.264)			(0.215)
Observations	10,734	10,734	10,734	13,505	13,505	13,505
Unique individuals	4,839	4,839	4,839	5,645	5,645	5,645
First stage F statistic	46.06	31.53	17.24	20.01	24.58	24.60
Endogeneity test (p-value)	0.05	0.04	0.05	0.98	0.98	0.81

Dependent variable: weekly hours worked						
Parental caregiver	-1.940			3.852		
	(4.374)			(4.632)		
Weekly caregiver		-2.326			4.378	
		(5.298)			(5.298)	
Daily caregiver			-4.023			6.275
			(9.059)			(7.704)
Observations	10,686	10,686	10,686	13,417	13,417	13,417
Unique individuals	4,818	4,818	4,818	5,610	5,610	5,610
First stage F statistic	45.16	30.77	16.56	20.24	23.78	23.86
Endogeneity test (p-value)	0.59	0.53	0.69	0.47	0.44	0.34

Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

Estimation results: Cognitive ability (I)

	Family-care countries			Formal care countries		
Dependent variable: verbal fluency score						
Parental caregiver	0.884** (0.352)			-0.021 (0.318)		
Weekly caregiver		0.799** (0.373)			0.540 (0.379)	
Daily caregiver			1.223*** (0.419)			-0.627 (0.685)
Observations	11,388	11,388	11,388	13,860	13,860	13,860
Unique individuals	5,107	5107	5,107	5,778	5,778	5,778
R-squared	0.03	0.02	0.03	0.04	0.04	0.04

Dependent variable: short-term memory score						
Parental caregiver	0.084 (0.098)			0.159** (0.078)		
Weekly caregiver		0.030 (0.107)			0.230*** (0.088)	
Daily caregiver			-0.084 (0.113)			0.294** (0.137)
Observations	11,388	11,388	11,388	13,860	13,860	13,860
Unique individuals	5,107	5,107	5,107	5,778	5,778	5,778
R-squared	0.02	0.02	0.02	0.03	0.03	0.03

Robust standard errors in parentheses; *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Estimation results: Cognitive ability (II)

	Family-care countries			Formal care countries		
Dependent variable: long-term memory score						
Parental caregiver	-0.059 (0.097)			0.143* (0.084)		
Weekly caregiver		-0.104 (0.110)			0.090 (0.097)	
Daily caregiver			-0.141 (0.126)			0.289 (0.188)
Observations	11,388	11,388	11,388	13,860	13,860	13,860
Unique individuals	5,107	5107	5,107	5,778	5,778	5,778
R-squared	0.03	0.03	0.03	0.06	0.06	0.06

Dependent variable: good numeracy skills						
Parental caregiver	-0.001 (0.020)			0.007 (0.015)		
Weekly caregiver		0.019 (0.022)			-0.004 (0.018)	
Daily caregiver			-0.020 (0.025)			0.053* (0.030)
Observations	11,388	11,388	11,388	13,860	13,860	13,860
Unique individuals	5,107	5107	5,107	5,778	5,778	5,778
R-squared	0.01	0.01	0.01	0.01	0.01	0.01

Robust standard errors in parentheses; *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Estimation results: Health (I)

	Family-care countries			Formal care countries		
Dependent variable: Euro-D depression scale						
Parental caregiver	0.294** (0.134)			0.105 (0.108)		
Weekly caregiver		0.362** (0.148)			0.067 (0.124)	
Daily caregiver			0.274 (0.170)			0.399 (0.295)
Observations	10,949	10,949	10,949	13,625	13,625	13,625
Unique individuals	5,056	5,056	5,056	5,764	5,764	5,764
R-squared	0.05	0.06	0.05	0.04	0.04	0.04

Dependent variable: poor or fair self-perceived health						
Parental caregiver	0.033 (0.022)			0.009 (0.018)		
Weekly caregiver		0.038 (0.024)			0.000 (0.021)	
Daily caregiver			0.018 (0.029)			-0.015 (0.037)
Observations	11,388	11,388	11,388	13,860	13,860	13,860
Unique individuals	5,107	5,107	5,107	5,778	5,778	5,778
R-squared	0.05	0.05	0.05	0.07	0.07	0.07

Robust standard errors in parentheses; *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Estimation results: Health (II)

	Family-care countries			Formal care countries		
Dependent variable: grip strength						
Parental caregiver	0.539**			-0.064		
	(0.259)			(0.224)		
Weekly caregiver		0.540*			-0.225	
		(0.281)			(0.259)	
Daily caregiver			0.218			-0.038
			(0.298)			(0.397)
Observations	11,388	11,388	11,388	13,860	13,860	13,860
Unique individuals	5,107	5,107	5,107	5,778	5,778	5,778
R-squared	0.07	0.07	0.07	0.07	0.07	0.07
Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1						

Conclusion

- Informal caregiving has the potential to preserve physical health and cognitive ability
- Caregiving reduces caregivers' employment and mental health in family care countries
- System characteristics are important in determining the consequences of caregiving on caregivers