

Supplementary material

Chapter 2

Search strategy

Embase	<p>((('caregiver'/de OR 'caregiver burden'/de OR 'caregiver support'/de) AND ('family'/de OR 'nuclear family'/exp)) OR (caregiv* OR care-giv* OR ((carer OR carer* OR caring) NEAR/6 (spous* OR husband* OR wife OR wives OR daughter* OR son OR sons OR informal* OR family OR relative OR relatives)):ab,ti) AND ('health impact assessment'/exp OR 'psychological aspect'/de OR 'depression'/de OR 'mental stress'/de OR 'psychological distress assessment'/exp OR (((mental OR psychological* OR physical OR health) NEAR/6 (impact* OR effect OR affect* OR implication* OR status* OR aspect* OR profile* OR outcome*)) OR depressi* OR ((stress OR distress OR strain) NEAR/3 (carer OR caregiver*)):ab,ti) AND ('aged'/exp OR 'geriatrics'/exp OR (aging OR ageing OR elder! OR ((aged OR older) NEAR/3 (population OR relatives OR person*)) OR geriatric* OR geronto* OR spous* OR parent*):ab,ti) AND (instrumental variable analysis/de OR 'regression discontinuity design'/exp OR ('propensity score' OR match* OR 'simultaneous equation' OR 'simultaneous equations' OR ((instrument*) NEAR/3 (variable)) OR Difference-in-differences OR 'Difference in differences' OR D-in-D OR ((Regression) NEAR/3 (discontinuity OR kink OR fuzzy OR sharp OR DD)) OR 'selection model' OR 'Heckman model'):ab,ti) NOT ([Conference Abstract]/lim OR [Letter]/lim OR [Note]/lim OR [Editorial]/lim) AND [english]/lim</p>
Ovid	<p>((Home Nursing/) AND (Family/ OR exp nuclear family/)) OR (caregiv* OR care-giv* OR ((carer OR carer* OR caring) ADJ6 (spous* OR husband* OR wife OR wives OR daughter* OR son OR sons OR informal* OR family OR relative OR relatives)).ab,ti.) AND (exp health impact assessment/ OR exp depression/ OR (((mental OR psychological* OR physical OR health) ADJ6 (impact* OR effect OR affect* OR implication* OR status* OR aspect* OR profile* OR outcome*)) OR depressi* OR ((stress OR distress OR strain) ADJ3 (carer OR caregiver*)):ab,ti.) AND (aged/ OR geriatrics/ OR (aging OR ageing OR elder! OR ((aged OR older) ADJ3 (population OR relatives OR person*)) OR geriatric* OR geronto* OR spous* OR parent*).ab,ti.) AND ((propensity score OR match* OR simultaneous equation OR simultaneous equations OR ((instrument*) ADJ3 (variable)) OR Difference-in-differences OR Difference in differences OR D-in-D OR ((Regression) ADJ3 (discontinuity OR kink OR fuzzy OR sharp OR DD)) OR selection model OR Heckman model).ab,ti.) NOT (letter OR news OR comment OR editorial OR congresses OR abstracts).pt. AND english.la.</p>
Web of Science	<p>TS=(((caregiv* OR care-giv* OR ((carer OR carer* OR caring) NEAR/5 (spous* OR husband* OR wife OR wives OR daughter* OR son OR sons OR informal* OR family OR relative OR relatives)))) AND ((((mental OR psychological* OR physical OR health) NEAR/2 (impact* OR effect OR implication OR affect* OR implication* OR status* OR aspect* OR profile* OR outcome*)) OR depressi* OR ((stress OR distress OR strain) NEAR/2 (carer* OR caregiver*))) AND ((aging OR ageing OR elder! OR ((aged OR older) NEAR/2 (population OR relatives OR person*)) OR geriatric* OR geronto* OR spous* OR parent*)) AND (("propensity score" OR match* OR "simultaneous equation" OR "simultaneous equations" OR ((instrument*) NEAR/2 (variable)) OR Difference-in-differences OR "Difference in differences" OR D-in-D OR ((Regression) NEAR/2 (discontinuity OR kink OR fuzzy OR sharp OR DD)) OR "selection model" OR "Heckman model"))</p>
Scopus	<p>TITLE-ABS-KEY(((caregiv* OR care-giv* OR ((carer OR carer* OR caring) W/5 (spous* OR husband* OR wife OR wives OR daughter* OR son OR sons OR informal* OR family OR relative OR relatives)))) AND ((((mental OR psychological* OR physical OR health) W/2 (impact* OR effect OR affect* OR implication* OR status* OR aspect* OR profile* OR outcome*)) OR depressi* OR ((stress OR distress OR strain) W/2 (carer* OR caregiver*))) AND ((aging OR ageing OR elder! OR ((aged OR older) W/2 (population OR relatives OR person*)) OR geriatric* OR geronto* OR spous* OR parent*)) AND (("propensity score" OR match* OR "simultaneous equation" OR "simultaneous equations" OR ((instrument*) W/2 (variable)) OR Difference-in-differences OR "Difference in differences" OR D-in-D OR ((Regression) W/2 (discontinuity OR kink OR fuzzy OR sharp OR DD)) OR "selection model" OR "Heckman model"))</p>

Chapter 5

Table S5.1: Overview comparability variables

		STREAM (NL)	USoc (UK)
Informal Care Provision			
Informal care	S	Binary; 1 if yes. Have you spent part of your time on one of the following activities in the past 12 months? Informal care (for example taking care of an invalid person in your close environment without being paid. Does not include looking after healthy children)	S Binary; 1 if yes Is there anyone living with you who is sick, disabled or elderly whom you look after or give special help to (for example a sick, disabled or elderly relative/husband/wife/friend etc.)? or 'Do you provide regular service or help for any sick, disabled or elderly person not living with you? [Exclude help provided in course of employment]'
Care intensity	S	How many hours per week have you spent on informal care in the past 12 months?hours per week	S Now thinking about everyone who you look after or provide help for, both those living with you and not living with you - in total, how many hours do you spend each week looking after or helping them?
Care Obligations			
Mother alive	A	Binary	S Binary
Father alive	A	Binary	S Binary
Both parents alive	A	Binary	S Binary
Living partner (married, registered partnership)	A	Binary	S Binary
Living siblings	A	Binary	S Binary
Age of mother	A	Age in years if alive	S Age in years if alive
Age of father	A	Age in years if alive	S Age in years if alive
Age of partner	A	Age in years if alive	S Age in years if alive
Willingness to Care			
Age	S	Age in years	S Age in years
Female	S	Binary; 1 if female	S Binary; 1 if female
Primary Education	S	Level of Education 1 if Low (registered by internet panel) or Everything below secondary education	S Current status highest educational or vocational qualification. 1 if Other qualification or No

			qualification.
Secondary Education	S	Level of Education 1 if Mid (registered by internet panel) or Degree from secondary education or qualification to enter job market	S Current status highest educational or vocational qualification. 1 if A-level or GCSE
Tertiary Education	S	Level of Education 1 if High (registered by internet panel) or Tertiary degree.	S Current status highest educational or vocational qualification. 1 if Degree or Other higher degree
Employed	S	Are you currently... <i>(several answers possible)</i> * Having one paid job as an employee (salaried employment, temporary employee or stand-by employee); Having several jobs as an employee	S Which of these best describes your current employment situation? Paid employment, on maternity leave, unpaid worker in family business, apprenticeship
Self-Employed	S	Are you currently... <i>(several answers possible)</i> * Self-employed or entrepreneur	S Which of these best describes your current employment situation? Self employed
Unemployed	S	Are you currently... <i>(several answers possible)</i> * Unemployed	S Which of these best describes your current employment situation? Unemployed; Government training scheme
Retired	S	Are you currently... <i>(several answers possible)</i> * Retired early; Retired	S Which of these best describes your current employment situation? Retired
Homecarer	S	Are you currently... <i>(several answers possible)</i> * Housewife/homemaker	S Which of these best describes your current employment situation? Looking after family or home
Disabled	S	Are you currently... <i>(several answers possible)</i> * Long-term sick or disabled	S Which of these best describes your current employment situation? Work disabled
Education_other		Are you currently... <i>(several answers possible)</i> * Studying	Which of these best describes your current employment situation? Full-time student; doing

			something else
Working Full-Time	S	WN: How many hours per week do you work according to your contract? 1 if >=30	S If employed full time (i.e. greater than 30 hours per week). This measure is based on total hours, i.e. including both normal and overtime hours.
Income quintiles	A	Equivalized household disposable income Converted into 5 quintiles	S Equivalized total household net income Converted into 5 quintiles
HH Income Fraction	A	Personal income divided by household disposable income	S Total net personal income (no deductions) divided by total household net income (no deductions)
Children < 14 in Household	A	Binary	S Binary

Ability to Care

SF12 - Mental Score	S	computed score, 0-100	S computed score, 0-100
SF12 - Physical Score	S	computed score, 0-100	S computed score, 0-100
Longstanding illness	S	Binary: 1 if yes to any of the options. Do you have one or more of the following longstanding diseases, conditions, or handicaps, and if yes, please indicate which one? (<i>several answers possible</i>) H26a Complaints of the hands or arms (also arthritis, RSI) H26b Complaints of the legs or feet (also arthritis) H26c Complaints of the back and neck (also arthritis, RSI) H26d Migraine or severe headache H26e Cardiovascular diseases H26f Asthma, bronchitis, emphysema H26g Gastrointestinal disorders H26h Diabetes H26i Severe skin disease H26j Psychological complaints/disorders H26k Hearing problems H26l Epilepsy H26m Life-threatening diseases (e.g. cancer, AIDS) H26n Problems with vision H26o Other, e.g. H26p No	S Binary; 1 if yes. Do you have any long-standing physical or mental impairment, illness or disability? By 'long-standing' I mean anything that has troubled you over a period of at least 12 months or that is likely to trouble you over a period of at least 12 months.

(A) From Administrative register data, (S) from survey data

* For this question several answer options are possible. To mimic the USoc sample, answer options are made exclusive. In case someone registered as being (self-)employed next to another answer options (e.g. homemaker), employment was registered.

Table S5.2 depicts the estimated selection and outcome effects for all our covariates. The largest selection effects are estimated for being employed and working full-time ($s=-0.19$) while the largest outcome effects among non-health outcomes are found for having a living partner ($d=0.12$). Unsurprisingly, the outcome effects for health outcomes are the largest ($d=0.45$), illustrating again the importance of conditioning on pre-treatment health.

Table S5.2: Estimated selection and outcome effects

Variable	Dutch Sample		UK Sample	
	Selection Effect (s)	Outcome Effect (d)	Selection Effect (s)	Outcome Effect (d)
Care Obligations				
Mother alive	0.07	-0.03	0.01	-0.03
Mother aged 60-64	0.00	0.00	-0.01	0.00
Mother aged 65-69	0.01	-0.01	-0.01	-0.01
Mother aged 70-74	-0.03	-0.01	-0.09	-0.01
Mother aged 75-79	0.04	0.00	0.03	0.02
Mother aged 80-84	-0.07	0.04	0.04	-0.01
Mother aged 85-89	0.03	0.01	0.01	0.01
Mother aged 90-94	0.01	-0.01	0.01	0.00
Mother aged 95-99	0.00	0.00	0.01	0.00
Father alive	0.04	-0.01	-0.01	-0.03
Father aged 60-64	0.00	0.00	0.00	0.00
Father aged 65-69	0.01	0.00	0.00	-0.01
Father aged 70-74	-0.03	-0.01	-0.05	-0.02
Father aged 75-79	-0.01	-0.01	-0.01	0.02
Father aged 80-84	-0.03	0.02	0.02	-0.01
Father aged 85-89	0.00	0.00	0.03	0.01
Father aged 90-94	0.00	0.00	0.00	-0.01
Father aged 95-99	0.00	0.00	0.00	0.00
Both parents alive	0.02	-0.01	-0.06	-0.02
Siblings alive	0.00	-0.03	0.01	-0.04
Living partner	0.04	0.09	0.01	0.12
Partner aged 30-39	0.00	0.00	-0.03	-0.01
Partner aged 40-49	-0.03	-0.01	-0.06	-0.01
Partner aged 50-59	-0.03	-0.04	0.03	-0.06
Partner aged 60-69	0.01	0.04	0.02	0.07
Partner aged 70-79	0.01	0.00	0.04	0.00
Personal Characteristics and Socio-Economic Status				
Age 45-49	-0.02	-0.07	-0.10	-0.06
Age 50-54	-0.04	-0.04	0.04	-0.05
Age 55-59	0.04	0.01	0.03	0.00
Age 60-64	-0.03	0.08	0.01	0.09

Female	0.06	-0.08	0.11	-0.07
Education: Primary	0.02	-0.04	0.10	-0.04
Education: Secondary	0.03	0.04	0.00	0.02
Education: Tertiary	-0.07	0.00	-0.09	0.02
Self-Employed	-0.01	0.02	-0.02	0.02
Unemployed	0.02	-0.02	0.04	-0.03
Working full-time	-0.13	0.06	-0.19	0.07
Retired	0.03	0.01	0.02	0.06
Homecare	0.02	0.00	0.05	-0.01
Education_other	0.00	0.00	0.01	0.00
Employed	-0.13	0.09	-0.18	0.08
Disabled	0.09	-0.10	0.08	-0.12
Income Quintile 1	0.05	-0.08	0.12	-0.09
Income Quintile 2	-0.03	0.00	0.05	-0.01
Income Quintile 3	0.02	0.00	-0.04	0.02
Income Quintile 4	-0.04	0.03	-0.06	0.03
Income Quintile 5	0.01	0.06	-0.07	0.05
Income Fracion > 0.5	-0.10	0.01	-0.03	-0.04
Children in HH	-0.02	-0.02	-0.05	-0.02
Health				
MCS > 50	-0.12	0.45	-0.16	0.43
PCS > 50	-0.12	0.19	-0.18	0.18
Long-Standing Illness	0.10	-0.16	0.08	-0.18

Note: Depicted are only the outcome and selection effects for mental health. The effects for physical health differ slightly, e.g. indicating younger age-dummies to have a positive outcome effect but same selection effect. For the majority of variables however the differences are negligible and the maximum values used for the simulation would remain the same.

Chapter 7

Overview variables and harmonization across surveys

	United States HRS RAND-version	Denmark & Netherlands SHARE & Administrative data
Age	Age at begin month of the interview	Age at interview
Gender	1 if Gender: female	1 if Gender: female
Partner in household	1 if Marital status: Married or Partnered	1 if Marital status: Married living with spouse or Registered partnership
Education following Avendano (2009)	Highest level of education 1. Low – High school or less 2. Mid –some college 3. High - tertiary: college and above	Highest level of education as Isced-1997 1. Low –Lower secondary or lower (Isced 0-2) 2. Mid – upper secondary & vocational: (Upper) secondary education ; (Isced 3) 3. High - Post-secondary (Isced 4-6)
Alternative Education definition following Beaumaster et al. (2017; 2018)	Highest level of education 1 Low – Less than upper secondary: less than high school 2 Mid – upper secondary & vocational: GED, High-school graduate, or some college 3 High - tertiary: college and above	Highest level of education as Isced-1997 1. Low – Less than upper secondary: Pre-primary education; Primary education or first stage of basic education; Lower secondary or second stage of basic education (Isced 0-2) 2. Mid – upper secondary & vocational: (Upper) secondary education; Post-secondary non-tertiary education) (Isced 3-4) 3. High - tertiary: First stage of tertiary education; Second stage of tertiary education (Isced 5-6)
Any nursing home use after interview 2012/2013 (dependent variable)	<u>From survey data (wave 12)</u> [Since R's LAST IW MONTH, YEAR/in the last two years] have you been a patient overnight in a nursing home, convalescent home, or other long-term health care facility? <u>From exit interview (wave 12)</u> Was [First Name] living in a nursing home or other health care facility at the time [he/she] died?) [Other than this nursing home stay and excluding/Excluding] any hospice stays, ([since [Prev Wave Family R IW Month], [Prev Wave Family R IW Year]/in the last two years]), had [he/she] been a patient overnight in a nursing home, convalescent home, or other long-term health care facility?	<u>From administrative data</u> Respondent made use of any long-term care with overnight stay in the two calendar years after the survey (2014 & 2015) We include individuals who made use of long-term care with overnight stay but deceased at some point in the two post-survey years. Dutch sample: we include individuals who made use of geriatric rehabilitation (<i>geriatrische revalidatiezorg</i>). Danish sample: The Danish register data builds on the register of stays in nursing homes (AEPI), which measures mainly longer-term and permanent stays in nursing homes where the individual changes address to the nursing home. Based on aggregate statistics, around 7% of spots in nursing homes are for shorter-term stays and rehabilitation.

Nights spent in nursing home nights	<u>From survey data (wave 12)</u> Number of nights in nursing home, in previous 2 years (<i>rwnrsnit</i>)	<u>From administrative data</u> Dutch sample: For LTC with overnight stay we use the reported start and end date of care. For individuals making use of geriatric rehabilitation we compute the number of nursing home stays based on the cost of care provided. In case of multiple stays values are summed. Danish sample: Number of nights in the nursing home for short-term stays is generally not measured.
Current NH user (at interview 2012/2013) (Exclusion variable)	Respondent lives in nursing home at time of the interview (<i>rwnhmliv</i>)	Interview took place in nursing home (<i>Mn024</i>)
Household Income	Household income is calculated as: Total household income (<i>hwitot</i>) / number of people in household (<i>hwhhres</i>) As this is gross income, we subtract the averaged Federal Income Tax Liability, State Income Tax Liability and the FICA as calculated in the RAND HRS TAX Calculations from this amount. Individuals are then grouped in three: Household income < \$15,000 Household income -\$15,000 – \$35,000 Household income > \$35,000	Quartiles of full sample household income Household income is calculated as: Total household income (<i>Thinc</i>) / number of people in household (<i>hhsiz</i>) <i>HRS calculates household income/wealth based on the income of the respondent and partner whereas SHARE includes the income of all survey participants and their partners. We therefore checked whether any additional respondents were present in the Dutch and Danish samples.</i> Euro values are converted into 2013 PPP adjusted dollars based on OECD data (2020 ¹) and grouped in three: Household income < \$15,000 (NL: 11,970 EUR) (Den: 110,323 DKK) Household income -\$15,000 – \$35,000 (NL: 11,970-27,930 EUR) (DEN: 110,323-257,420 DKK) Household income > \$35,000 (NL: >27,930 EUR) (DEN: >257,420 EUR)
Homeowner	1 if homeowner No homeowner in case the individual was unable to answer the question regarding the asset value of primary residence (<i>HwAHOUS / HwAFHOUS</i>) because individual has no assets in primary residence	1 if homeowner (excluding member of a cooperative) based on <i>otr</i> ^f

¹ OECD (2020b). Purchasing power parities (PPP) (indicator). doi: 10.1787/1290ee5a-en

Value of primary residence in 10.000\$s	<p>The market value of the household primary residence.</p> <p>Outliers at the 99% are winsorized.</p> <p>This value is divided by 10,000.</p>	<p>The question captures the respondent's valuation of the household primary residence. Specifically, the respondent is asked how much h/she expects to receive if the property were to be sold.</p> <p>Outliers at the 99% are set to the 99% level.</p> <p>The value is converted into 2013 PPP adjusted dollars based on data from OECD (2020b) and then divided by 10,000.</p> <p><i>HRS calculates household income/wealth based on the income of the respondent and partner whereas SHARE includes the income of all survey participants and their partners. We therefore checked whether any additional respondents were present in the Dutch and Danish samples.</i></p>
Memory problems	<p>Total number of words recalled (<i>rwimrc</i>)</p> <p>Memory problems=1 in case <=3 words are recalled*</p> <p>In case of a proxy interview, this word recall test is not conducted. Memory problems is set to 0.</p> <p>* This threshold for memory problems is chosen following Purser et al. (2005)</p>	<p>Total number of words recalled (<i>cf104tot-cf107tot</i>)</p> <p>Memory problems=1 in case <=3 words are recalled*</p> <p>In case of a proxy interview, this word recall test is not conducted. Memory problems is set to 0.</p> <p>* This threshold for memory problems is chosen following Purser et al. (2005)</p>
Proxy interview	<p>1 in case a proxy respondent responded to the interview</p> <p>Proxy used in case of health problems, or when respondent unavailable</p>	<p>1 in case a proxy respondent responded to the interview</p> <p>Proxy used in case of health problems</p>
Weights	<p>The person-level weights for those living in community (<i>r11wtresp</i>)</p>	<p>Calibrated cross sectional individual weights (<i>cciw</i>)</p>