

Health and expenditures of Dutch households

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Utrecht, 14 October 2016

Netspar Pension Day

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Motive

An important question is: what are the motives for people to save.

- Van Ooijen, Alessie and Kalwij (2015).

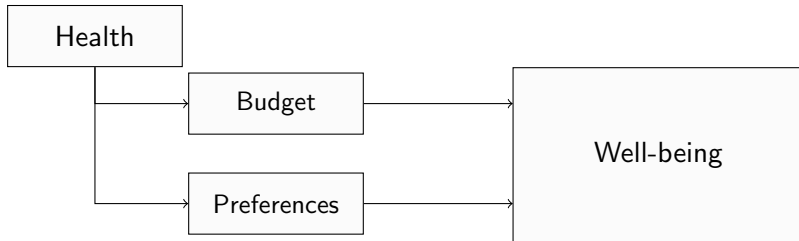
▶ Reforms

- Mandatory deductibles increased, 2013
- Municipalities responsible for long-term care, 2015
- Ageing in place, 2015.

▶ Implications for well-being of elderly unclear

- Higher (necessary) medical expenditures
- Consumption preferences possibly health-state dependent

Health and Consumption



Evidence increasing medical expenditures (LISS)

- ▶ “Could you indicate whether your expenditures on medical care and health costs NOT covered by insurance have increased or decreased compared to two years ago?” (March 2015)

The expenditures have increased	654	37%
The expenditures are approximately equal	1,048	60%
The expenditures have decreased	49	3%

Ages 55 to 85

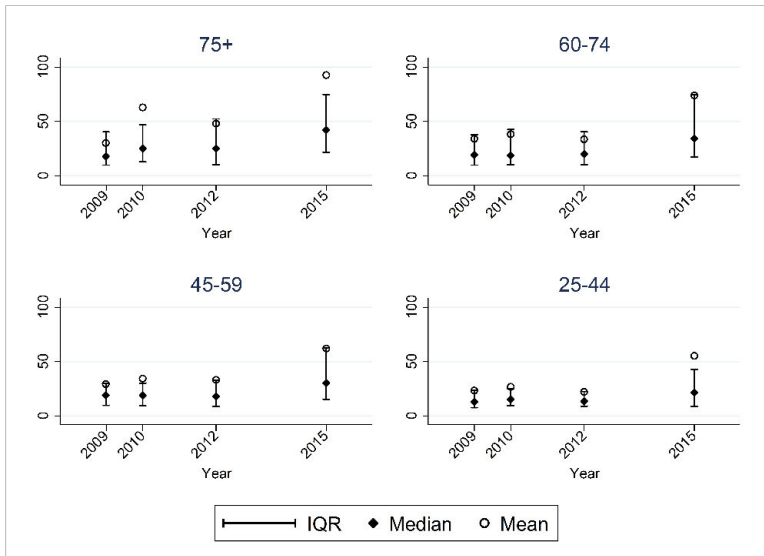
Follow-up question: by how much on average per month increased/decreased?

	Mean	Std. Dev.	p25	Median	p75
Increased	69	190	10	25	50
Incr./equal/decr.	20	186	0	0	18

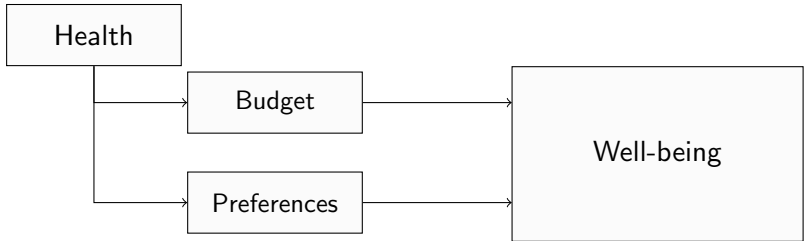
- ▶ “How many euros do you spend on medical care and health costs NOT covered by insurance per month, on average?”
- ▶ Percentage ‘zeros’ by year and age group:

	2009	2010	2012	2015
55-64	32,3	36,6	39,0	15,8
65-74	28,6	29,3	32,6	12,9
75-85	30,1	32,2	27,9	9,0

Positive medical expenditures for different age groups



Health and Consumption



Research questions

- ▶ How do consumption patterns change with health and as people age?
 - What spending categories are complement and which are substitute to deteriorating health?
 - Do we see notable and significant differences after recent reforms? If so, are these differences possibly alarming?
 - Do preferences change or are household budgets affected?
- ▶ The main focus is on the Dutch elderly population but we consider the whole life cycle.
- ▶ The Netherlands, provides a good setting to analyze this question

Measuring health-state dependence of marginal utility

- ▶ Three approaches described by Finkelstein et al. (2009)
 - Willingness to pay for health insurance
 - Observe utility differences with health shocks across individuals with varying consumption levels (Finkelstein et al., 2012)
 - Observe consumption levels with health shocks (Lillard and Weiss, 1997)
- ▶ Total consumption vs. consumption categories
- ▶ Shapiro (2003) examines how total nonmedical consumption changes with health for the US.
- ▶ Similar approach as Banks et al. (2015) for the UK and related to Hong, Pijoan-Mas and Ros-Rull (2015) for the US.

Demand system

- ▶ 'Almost Ideal Demand System' (Deaton and Muellbauer, 1980)
- ▶ Dependent variables: budget shares of the categories
- ▶ Endogenous RHS variables: total spending
 - Falls short of fully integrable QUAIDS model (Banks et al., 1997)
 - Net income as an instrument for total spending (following Banks et al. (2015))
- ▶ Other RHS variables: demographics including health
- ▶ Relative prices assumed constant

Data

- ▶ LISS panel
- ▶ 5000 representative Dutch households
- ▶ Detailed data on monthly consumption (2009, 2010, 2012, 2015)
- ▶ Self-reported health (2007-2013, 2015)
- ▶ Head of household age 18 and and above.

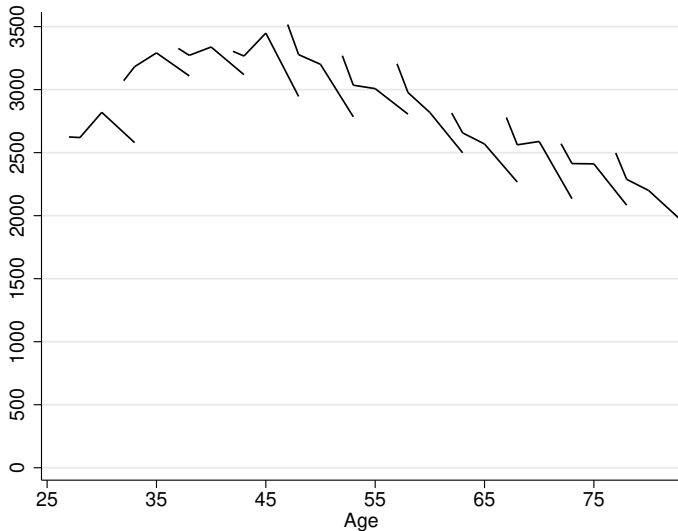
Monthly household expenditures (non-durable goods) in 2015 Euros

	Couples (N=6777)				Singles (N=4072)			
	> 74	60-74	45-59	< 45	> 74	60-74	45-59	< 45
housing	331	483	711	937	384	437	527	576
utilities	252	259	278	238	216	214	200	161
transport	133	162	190	187	84	104	111	110
insurance	307	310	319	277	212	203	187	165
child care	0	0	15	148	0	0	2	17
transfers	40	27	47	8	33	28	53	14
loans	19	28	51	56	9	23	49	52
leisure (family)	174	226	225	179	27	20	33	33
home maintenance	72	51	56	45	75	39	33	23
food at home	387	424	485	394	241	250	272	229
other	107	132	141	121	113	115	116	107
medical	89	77	65	42	76	47	36	29
personal	315	372	544	463	306	268	330	318
Total expenditures	2226	2551	3127	3096	1779	1748	1949	1835

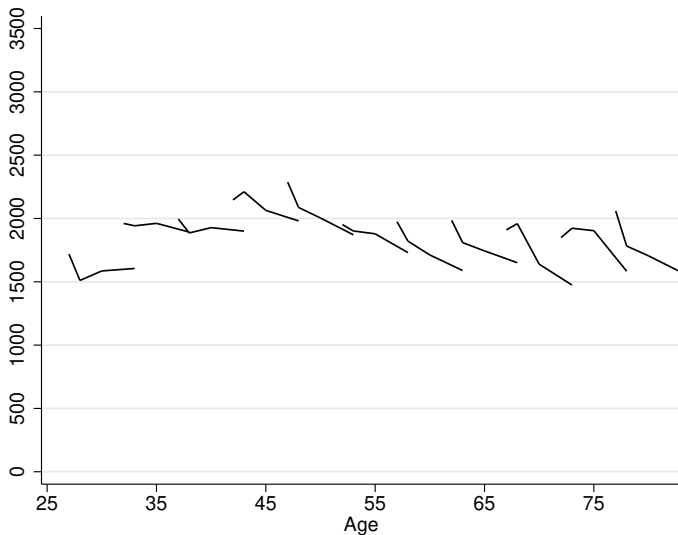
Monthly household expenditures (non-durable goods) in 2015 Euros

	Couples (N=6777)				Singles (N=4072)			
	> 74	60- 74	45- 59	< 45	> 74	60- 74	45- 59	< 45
personal	315	372	544	463	306	268	330	318
personal (excl. 2015)	395	429	612	503	379	307	359	357
food away	40	54	98	74	48	53	61	71
tobacco	6	21	31	25	11	19	32	30
clothing	140	120	181	162	74	68	83	84
personal care	54	55	68	57	40	33	38	35
leisure (personal)	47	67	98	83	57	56	60	63
(further) schooling	5	7	32	20	4	6	15	22
gifts	83	81	77	61	111	48	48	35
other	19	23	25	21	35	25	20	17
Total expenditures	2226	2551	3127	3096	1779	1748	1949	1835

Monthly expenditures of couples (2015 Euros)



Monthly expenditures of single person households (2015 Euros)



Summary statistics

	(1)	(2)	(3)
couple	62.47	58.67	58.67
age<45	28.37	26.52	26.52
age45-59	30.76	29.73	29.73
age60-74	31.82	34.03	34.03
age>74	9.05	9.71	9.71
retired	28.68	30.81	30.81
zero children	70.04	73.60	73.60
once child	9.83	8.93	8.93
two children	14.13	12.20	12.20
more than two children	6.00	5.27	5.27
Net monthly household income	2894.6 (5798.4)	2831.0 (6104.5)	2831.0 (6104.5)
Total monthly household expenditures	2346.8 (1208.3)	2299.8 (1166.9)	1166.9 (1180.3)
2009	0.23	0.24	23.97
2009	0.23	0.24	23.55
2012	0.25	0.25	24.82
2015	0.29	0.28	27.66
Observations	10849	8,977	7,673

Health measures

- ▶ Self-reported health
- ▶ Number of experienced chronic diseases; include the following seven diseases: hypertension, diabetes, cancer, heart disease or stroke, chronic lung disease and arthritis.
- ▶ ADL problems: having difficulties with performing the following tasks (without the help of others): dressing and undressing, walking across a room, bathing or showering, eating, getting in and out of bed, and using the toilet.
- ▶ Mental health problems; based on the RAND Mental Health Inventory.

Prevalence of health problems

	Couples (N=3963)				Singles (N=3710)			
	> 74	60-74	45-59	< 45	> 74	60-74	45-59	< 45
	Head of household/Spouse							
Physical health	24.3	19.0	14.4	9.6	33.4	25.0	24.3	13.0
	24.3	21.6	15.3	11.6				
Mental health	19.8	15.0	21.9	19.6	24.9	26.6	33.8	33.6
	24.3	22.5	26.5	25.4				
ADL	38.7	23.6	20.3	12.9	49.5	33.5	29.1	18.7
	38.0	28.1	25.0	19.7				
Chronic diseases	79.2	60.9	30.8	9.5	82.9	62.8	39.2	9.2
	72.8	55.5	31.1	14.2				
Experienced chronic diseases	1.34	0.97	0.44	0.11	1.64	1.06	0.60	0.11
	(1.00)	(1.01)	(0.77)	(0.35)	(1.17)	(1.06)	(0.90)	(0.37)
	1.29	0.89	0.41	0.17				
	(1.10)	(1.00)	(0.70)	(0.45)				

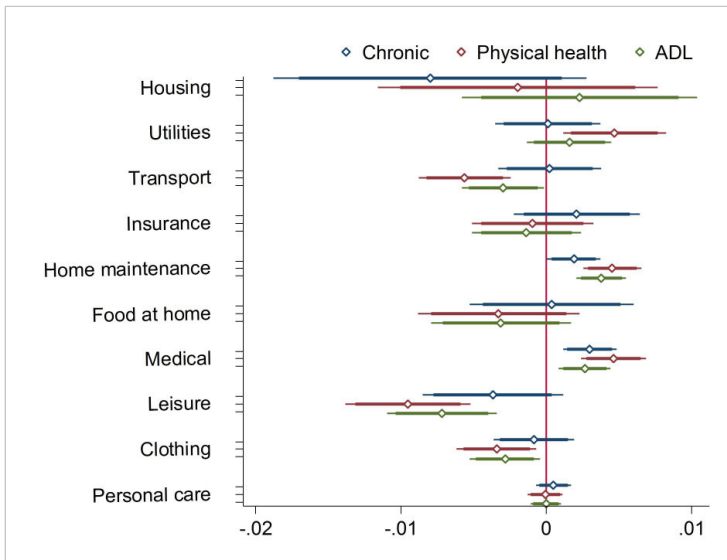
The first stage: health and log expenditures

	Physical	Chronic	ADL	Physical	Chronic	ADL
poorhealth	-0.0119	-0.0206*	-0.00603			
poorhealth_avg				-0.00523	-0.0195	-0.004
healthpoor_dev				-0.0313**	-0.0265	-0.009
age 45-59	-0.00399	2.03e-06	-0.00434	-0.00471	-0.000290	-0.004
age 60-74	-0.0644***	-0.0559***	-0.0647***	-0.0652***	-0.0564***	-0.0649
age >74	-0.109***	-0.0971***	-0.109***	-0.110***	-0.0979***	-0.109*
educlow	-0.0433***	-0.0424***	-0.0435***	-0.0436***	-0.0425***	-0.0436
educhigh	0.0734***	0.0720***	0.0735***	0.0736***	0.0721***	0.0735
homeowner	0.0431***	0.0433***	0.0433***	0.0437***	0.0434***	0.0435
nrchildren	0.0602***	0.0597***	0.0605***	0.0604***	0.0597***	0.0605
2010	-0.0381***	-0.0377***	-0.0390***	-0.0380***	-0.0376***	-0.0390
2012	-0.0507***	-0.0494***	-0.0507***	-0.0502***	-0.0491***	-0.0507
2015	-0.127***	-0.127***	-0.127***	-0.126***	-0.126***	-0.127*
couple	0.191***	0.193***	0.191***	0.190***	0.192***	0.190*
ln income	0.385***	0.387***	0.386***	0.386***	0.387***	0.386*
Constant	4.599***	4.590***	4.595***	4.593***	4.590***	4.593*
Observations	7,662	7,648	7,659	7,662	7,648	7,65
R-squared	0.512	0.512	0.512	0.512	0.512	0.51

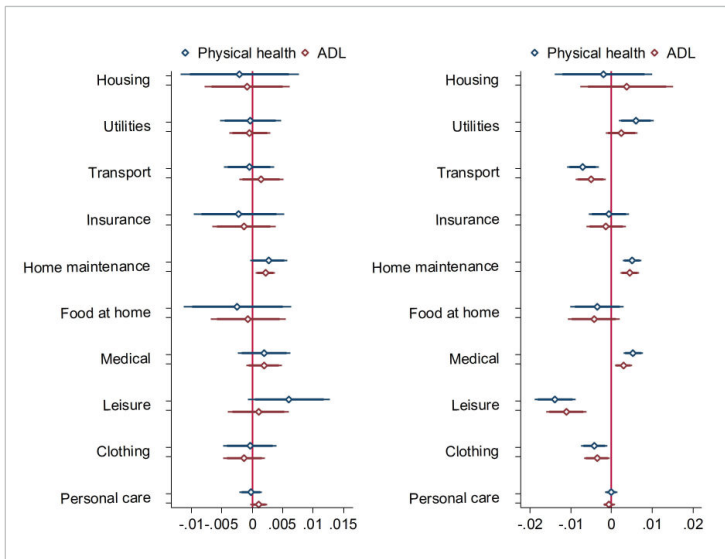
Other notable results

- ▶ Health neither affects total spending of singles and couples in a different way, nor spending of different age groups.

Complements and substitutes to poor health



Short versus long-term relationship

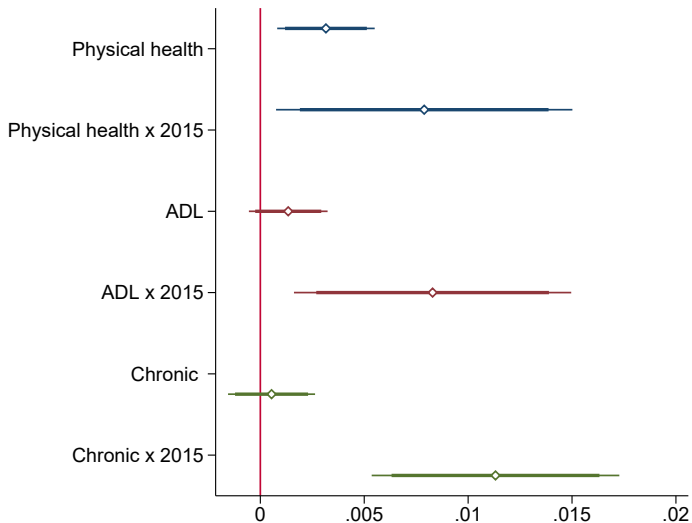


Complements and substitutes to poor health

- ▶ Complements: Utilities, Medical, Home maintenance
- ▶ Substitutes: Transport, Food at home, Leisure, Clothing

- ▶ No evidence of an immediate change in consumption after a decline in health.
- ▶ Increase in the budget share to medical expenses, among persons in poor health, in 2015.

Do the reforms increase spending on medical care?



Heterogeneity by age and household composition.

- ▶ In working age, people in poor health spend more on utilities, but cut back on clothes and leisure activities.
- ▶ In early retirement, people in poor health save on transportation.
- ▶ In late retirement, people in poor health spend significantly more on home maintenance, medical care (and to some extent) on personal care.
- ▶ Older people in poor health spend significantly less on food and leisure activities.

Robust for all health measures.

Health and perceptions of the financial situation.

- ▶ Level of financial satisfaction; financial situation relative to the previous year; enough money to cover expenses.
- ▶ Poor health has a significant impact on the level of financial satisfaction, in particular in working age and early retirement, but not among the very old (even after correcting for the level of household income).
- ▶ Robust for all health conditions and measures of financial satisfaction.
- ▶

Health and dissaving

- ▶ Younger households in poor health are about ten percent more likely to dissave than their healthy peers.
- ▶ There is weak evidence that poor people in old age are even more likely to save than their healthy counterpart.
- ▶ No significant differences between couples and singles. No differences in 2015 compared to previous years.

Conclusion

- ▶ Expenditures reduce with age – even after correcting for demographics and employment status. – > Expenditures on housing decline rapidly.
- ▶ No clear evidence of a change in total consumption after a change in health – both in the long run and short run.
- ▶ The change in spending patterns among the elderly seems due to a change in preferences.
 - ▶ Increase in the marginal utility of health related consumption.
 - ▶ Elderly derive less utility from leisure activities and spending on food.
 - ▶ Their financial ion remains constant.

Conclusion

- ▶ The change in spending patterns among the elderly seems due to a change in preferences.
- ▶ On the contrary, the budgetary costs of poor health – probably because of lower earning capacity – seems a significant burden for younger people.
- ▶ They reduce spending on leisure activities and clothing. There is little room to cut back on necessities.

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