Healthier lifestyles after retirement in Europe? Evidence from SHARE

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Introduction

Why looking at health behaviors and retirement?

- Evidence about the importance of health behaviors to lower mortality and improve functional capacity, also among the elderly (Adams et al. 1990, Davis et al., 1994, Johansson and Sundqvist, 1999);
- Smoking, alcohol drinking and low engagement in activities, including exercising, are major risk factors that account for the 80% of the total chronic diseases (World Health Organization).
- Mixed findings about the effects of retirement on health (Zhao et al., 2012): looking at channels (or inputs) might shed more light on this.

Research questions:

- Do individuals change their lifestyle upon retirement?
- Who are those more likely to invest in health preserving behaviors after retirement?

Literature I

Retirement and health

- Most developed countries have recently passed reforms aimed at increasing retirement ages to ensure financial sustainability of social security systems.
- However the debate about whether delaying retirement would actually reduce government expenditures on social security programs is still an open issue, given the potentially negative impact of such policies on population health.

Why?

- On one hand workers health, especially for those in strenuous occupations, deteriorates both physically and mentally generating increases in health care costs larger than savings in pension expenditures,
- on the other hand work could preserve individuals health compared to retirement (e.g. the *use it or lose it hypothesis* - Rohwedder and Willis, 2010).

Literature II

The economics literature has tried to distinguish empirically between the two scenarios, but findings vary widely.

Mixed findings can be explained by different outcomes or empirical strategies used, but also by the existence of several competing channels through which retirement affects health.

- retirement could have a negative impact on health because of a decrease in work-related physical exercise, loss of ambition, or a lower engagement in activities, accelerating the decline in health due to aging (Insler, 2014 and Eibich, 2015);
- retirement provides also individuals with more leisure time and less job-related stress.

Due to different job characteristics, some individuals might experience either positive as well as negative or no effects on health due to retirement.

Why retirement on health behaviors rather than health

- They are mechanisms through which retirement operates: retirement is considered a remarkable *shock* and this might induce behavioral changes Cutler and Glaeser (2005); consequence of shocks to time discounting, incomes, or beliefs about the future;
- Many health conditions are mostly affected by health behaviors and it takes time for changes in health behaviors to translate into health outcomes;

Three papers (Insler, 2014, Eibich, 2015 and Zhao et al., 2012) focus on retirement and health behaviors in **causal terms**: They all find that individuals reduce smoking intensity upon retirement significantly and are more likely to exercise.

In this paper we contribute to the literature on the **causal effect of retirement on health behaviors** by adopting a multi-country perspective and by looking at heterogeneous effects.

Data

We use data drawn from the Survey of Health Aging and Retirement in Europe (SHARE) on individuals aged 50+ plus their partner regardless of age.

We consider the three regular waves: 2004 (wave 1), 2006/07 (wave 2) and 2011 (wave 4). The third wave (SHARELIFE) is retrospective; it is used to investigate heterogeneous effects.

Countries that participated to all three waves: DK, SE, AT, FR, DE, CH, BE, NL, ES and IT.

We select individuals that self report being retired from work or employed/self-employed and whose age is in between 45 and 85 with no missing information about ADL and IADL, chronic diseases, age, marital status, number of grandchildren and health behaviors.

Health behaviors

We consider the following outcomes:

smoking - dummy that takes value one if the individual currently smokes, and zero otherwise

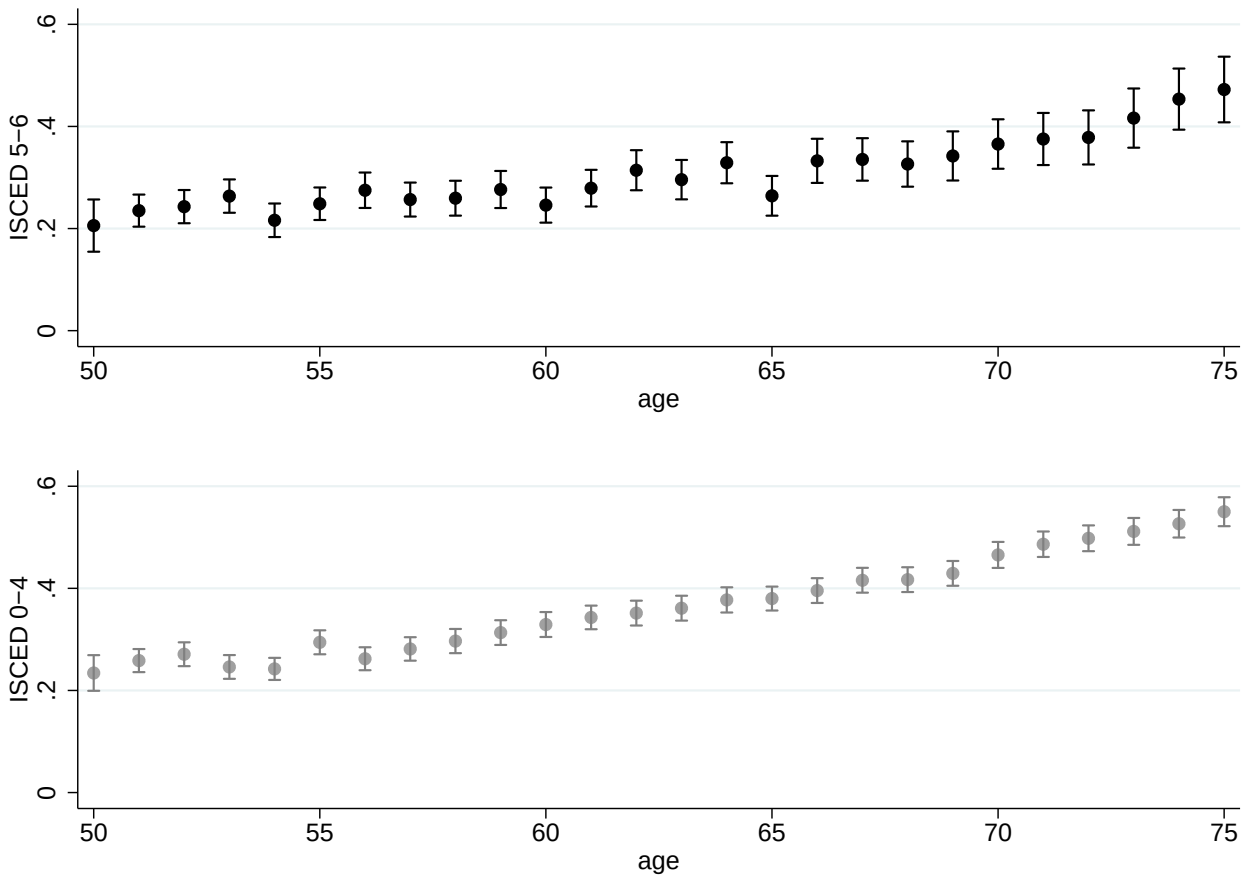
no activities - dummy that takes value one if the person reports practicing never or almost never any activity requiring either a moderate or substantial level of energy
no vigorous activities - dummy that equals one if he or she reports practicing never or almost never only sports or vigorous activities

drinkeveryday - dummy that takes value one if the person reports drinking almost every day

 # visits to GP - reports the number of visits to the General Pratictitioner
visits to SP - dummy that takes value one if the person reports having had contacts with a specialist in the last 12 months

Some descriptive evidence

No vigorous activities, by age and education



Empirical strategy I

Let's consider the following:

$$y_{i,t} = \alpha_1 retired_{i,t} + X_{i,t}\beta + \mu_i + \epsilon_{it} \quad (1)$$

where:
$y_{i,t}$ is the outcome of interest, $X_{i,t}$ is a vector of individual characteristics such as age;
the error term can be decomposed into unobserved time-invariant heterogeneity μ_i and all other time varying unobserved effects.

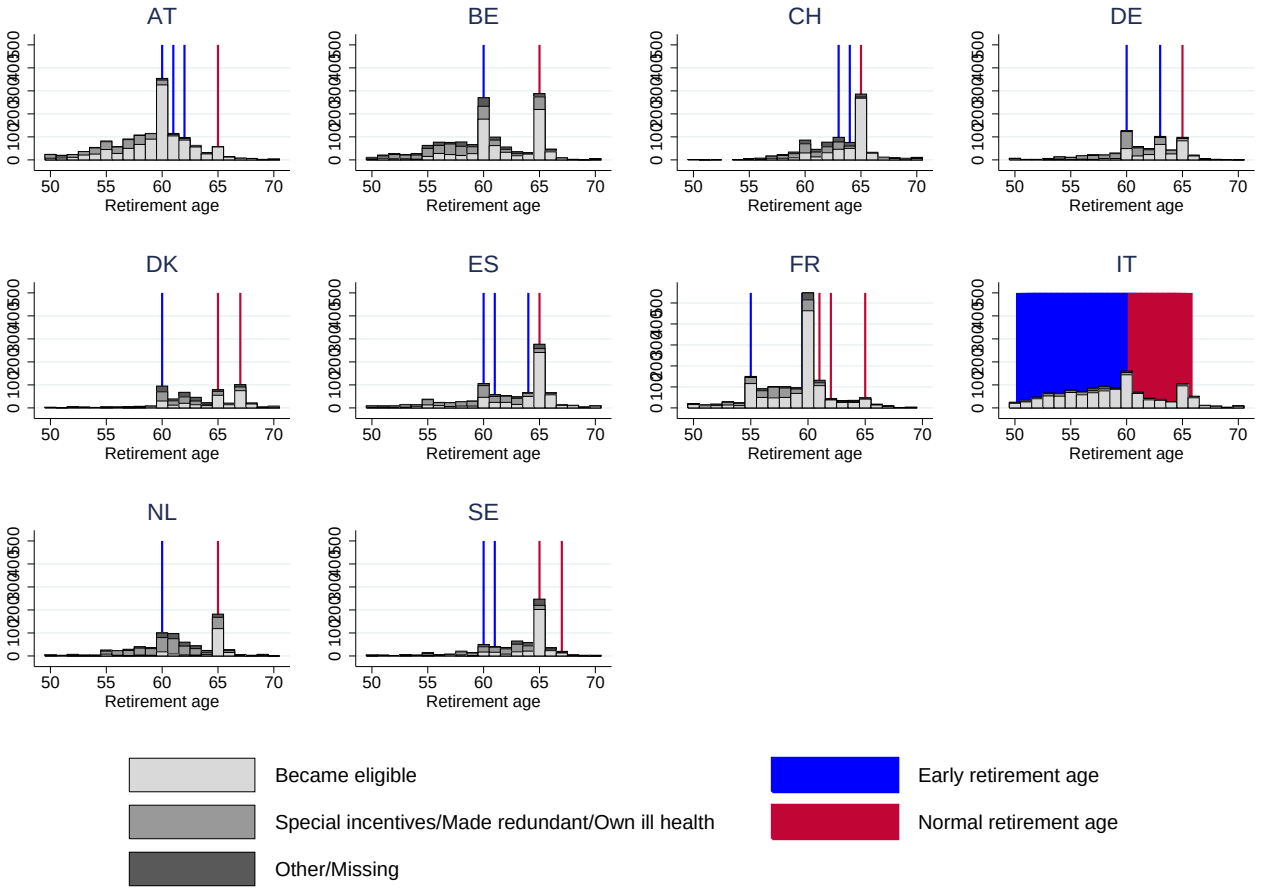
OLS estimates are likely to be biased:

- omitted variables (e.g. motivation)
- reverse causality (health induced retirement)

We use fixed-effects panel data models to control for time-invariant heterogeneity and circumvent the issue of endogenous retirement decision by using changes in eligibility rules for early and normal retirement as for instance in Angelini et al. (2009), Coe and Zamarro (2011), Mazzonna and Peracchi (2012), Bonsang, Adam and Perelman (2012).

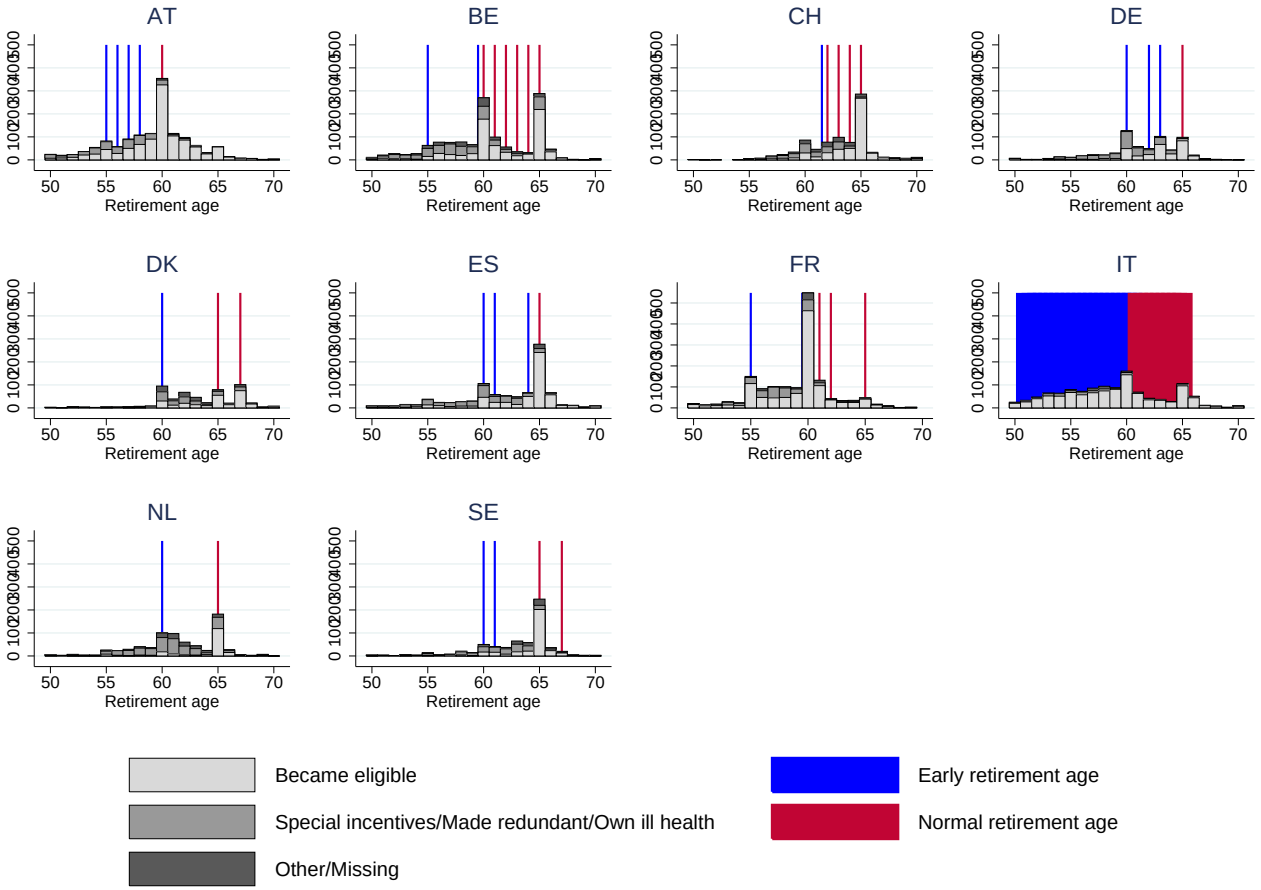
Eligibility rules - Males

Early and normal eligibility ages for pension benefits - Males



Eligibility rules - Females

Early and normal eligibility ages for pension benefits - Females



Empirical strategy II

Differently from similar studies, we investigate in greater detail **heterogeneity** in retirement effects related to gender, education, early-life condition, household net wealth and job characteristics.

To this aim, we estimate the effect of *retirement* in subsamples based on:

- gender;
- marital status;
- education (according to the International Standard Classification of Education - ISCED);
- early life conditions (few books - indicator of early life conditions - parental education and economic status during childhood -, a zero-one dummy for the presence of less than 25 books at the parental home at age ten);
- household net wealth (above or below median);
- job characteristics (time pressure, physically demanding, white/blue collar, high/low skilled).

Results Ia

Table: The effect of retirement on the probability of smoking and being inactive

	Smoking				No activities			
	POLS	FE	P2SLS	FE-2SLS	POLS	FE	P2SLS	FE-2SLS
Retired	-0.006	-0.017**	-0.031	-0.027	-0.008**	-0.006	-0.049***	-0.042***
	(0.009)	(0.007)	(0.024)	(0.023)	(0.004)	(0.006)	(0.012)	(0.016)
Obs	32,375	32,375	32,375	32,375	32,367	32,367	32,367	32,367
Individuals	13,465	13,465	13,465	13,465	13,464	13,464	13,464	13,464
R2	0.04	0.003	0.04	0.003	0.069	0.022	0.067	0.02
F-test statistic			379.643	145.669			380.511	146.467
			First stage:					
EligibleER			0.235***	0.163***			0.236***	0.164***
			(0.021)	(0.022)			(0.021)	(0.022)
EligibleSR			0.351***	0.301***			0.351***	0.301***
			(0.021)	(0.024)			(0.021)	(0.024)

*All FE regressions include age, age squared, a binary indicator for having a partner, household net wealth quartiles dummies, the number of grandchildren, and wave dummies. Pooled regressions include additionally education indicators, gender and country dummies. Clustered standard errors in parentheses by cohort and country. *** p<0.01, ** p<0.05, * p<0.1*

Results Ib

Table: The effect of retirement on the probability of being inactive and drinking

	No vigorous activities				Drink every day			
	POLS	FE	P2SLS	FE-2SLS	POLS	FE	P2SLS	FE-2SLS
Retired	0.046***	-0.002	-0.052**	-0.084***	0.045***	0.029***	0.017	0.041*
	(0.011)	(0.013)	(0.026)	(0.031)	(0.009)	(0.009)	(0.023)	(0.024)
Ob	32,372	32,372	32,372	32,372	32,382	32,382	32,382	32,382
Individuals	13,466	13,466	13,466	13,466	13,468	13,468	13,468	13,468
R2	0.108	0.017	0.105	0.015	0.117	0.002	0.117	0.002
F-test statistic			380.088	146.135			379.989	146.098
			First stage:					
EligibleER			0.236***	0.164***			0.236***	0.164***
			(0.021)	(0.022)			(0.021)	(0.022)
EligibleSR			0.351***	0.301***			0.351***	0.302***
			(0.021)	(0.024)			(0.021)	(0.024)

*All FE regressions include age, age squared, a binary indicator for having a partner, household net wealth quartiles dummies, the number of grandchildren, and wave dummies. Pooled regressions include additionally education indicators, gender and country dummies. Clustered standard errors in parentheses by cohort and country. *** p<0.01, ** p<0.05, * p<0.1*

Results Ic

Table: The effect of retirement on the number of visits to the General Practitioner and the probability of having contacts with a Specialist

	Number of visits to the GP				Visits to the Specialist			
	POLS	FE	P2SLS	FE-2SLS	POLS	FE	P2SLS	FE-2SLS
Retired	0.421***	-0.005	-0.153	-0.301	0.047***	0.009	0.089***	0.069
	(0.085)	(0.096)	(0.203)	(0.279)	(0.011)	(0.014)	(0.023)	(0.044)
Obs	32,011	32,011	32,011	32,011	32,358	32,358	32,358	32,358
Individuals	13,343	13,343	13,343	13,343	13,459	13,459	13,459	13,459
R2	0.142	0.009	0.14	0.008	0.067	0.01	0.067	0.009
F-test statistic			377.215	146.602			378.231	146.185
			First stage:					
EligibleER			0.235***	0.164***			0.236***	0.164***
			(0.021)	(0.022)			(0.021)	(0.022)
EligibleSR			0.353***	0.304***			0.351***	0.302***
			(0.021)	(0.024)			(0.021)	(0.024)

*All FE regressions include age, age squared, a binary indicator for having a partner, household net wealth quartiles dummies, the number of grandchildren, and wave dummies. Pooled regressions include additionally education indicators, gender and country dummies. Clustered standard errors in parentheses by cohort and country. *** p<0.01, ** p<0.05, * p<0.1*

Results II - Fixed effects - 2SLS estimates - Robustness

	Smoking	No activities	No vigorous activities	Drink everyday	# Visits to GP	Visits to SP
			With health controls:			
Retired	-0.027	-0.035**	-0.082***	0.04	-0.302	0.066
	(0.023)	(0.015)	(0.032)	(0.024)	(0.275)	(0.043)
F-test statistic	145.76	146.553	146.223	146.186	146.727	146.28
			Country-specific age effects:			
Retired	-0.034*	-0.036**	-0.078**	0.036	-0.243	0.071*
	(0.02)	(0.016)	(0.031)	(0.024)	(0.274)	(0.039)
F-test statistic	160.598	161.529	161.271	161.218	161.673	161.305
			Age $\leq$ 75:			
Retired	-0.023	-0.035**	-0.083**	0.033	-0.39	0.066
	(0.023)	(0.017)	(0.032)	(0.026)	(0.293)	(0.046)
F-test statistic	142.845	143.647	143.305	143.266	143.637	143.389
			Alternative definition of retirement:			
Retired	-0.051	-0.077***	-0.160***	0.077*	-0.481	0.128*
	(0.041)	(0.03)	(0.061)	(0.045)	(0.515)	(0.078)
F-test statistic	76.566	76.419	76.311	76.337	76.158	76.276

*FE-2SLS regressions include age, age squared, a binary indicator for having a partner, household net wealth quartiles dummies, the number of grandchildren, and wave dummies. Clustered standard errors in parentheses by cohort and country. *** p<0.01, ** p<0.05, * p<0.1*

Results IV - Heterogenous effects

Other robustness checks:

- Panel attrition (Jones et al., 2013)

Heterogenous effects:

Smoking

significant effect (5% level) for individuals with physically demanding jobs, blue collar;

Activities

significant effect (5% level) for individuals with a partner, highly educated, with high parental socio-economic status, white collar, high-skilled jobs;

Physical activity

significant effect (5% level) for individuals with a partner, highly educated, with high parental socio-economic status, with no physically demanding jobs, white-collar, high-skilled jobs;

Visits

no significant effect (5% level) are estimated.

Conclusions I

IV estimates show behavioral adjustments upon retirement:

- reduction in the probability of being inactive - also when sports and vigorous activities are considered separately (individuals provided with more leisure time change their behavior in terms of engagement in activities, this might correspond to the so-called *honeymoon effect*);

Heterogeneous effects:

- educated people are those more likely to change lifestyles after retirement in terms of activities in line with the so-called **education gradient** (Cutler and Lleras-Muney, 2010) where health behaviors can be seen as mediating factors through which education influences health (Brunello et al., 2011);
- job characteristics play also a role when looking at smoking behavior and vigorous physical exercise.

Conclusions II

Our results provide important information for the design of policies aiming to promote healthy lifestyles later in life about who are the potential targeted individuals and which factors affect behaviors.

According to our study, poorly educated individuals are less likely to engage in physical activity after retirement; active ageing policies should therefore support especially this group of the population.

The evidence that strenuous physical work might hasten disabilities preventing vigorous physical activity, requires:

- health promotion efforts at work in order to provide relief from repetitive, strenuous tasks and make adjustments to unsafe physical movements;
- adapted physical activity programmes during retirement.

Thanks for your attention!