



mea



Working Conditions, Retirement and Health

Felizia Hanemann

Morten Schuth

5th SHARE User Conference, Luxembourg

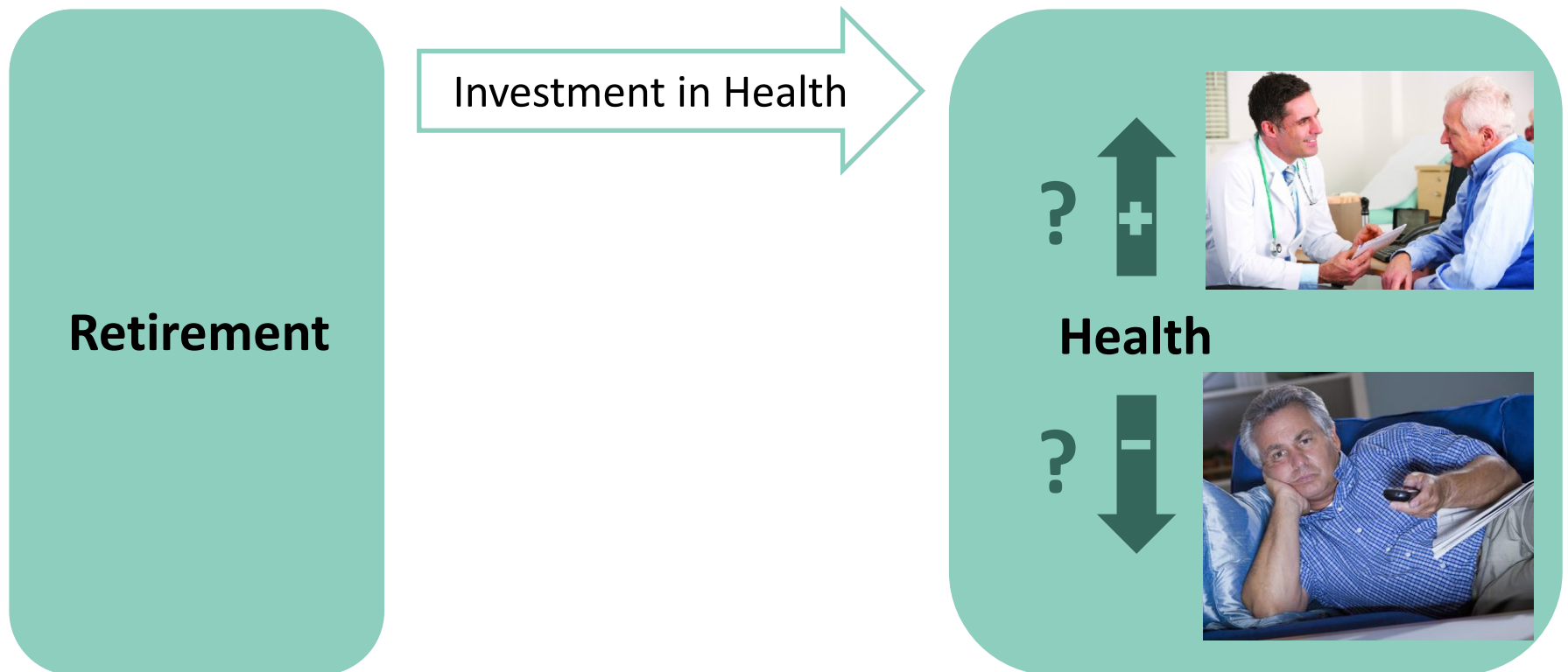
November 13th, 2015

Introduction

- How does retirement affect health?
- Retirement major life event, many changes

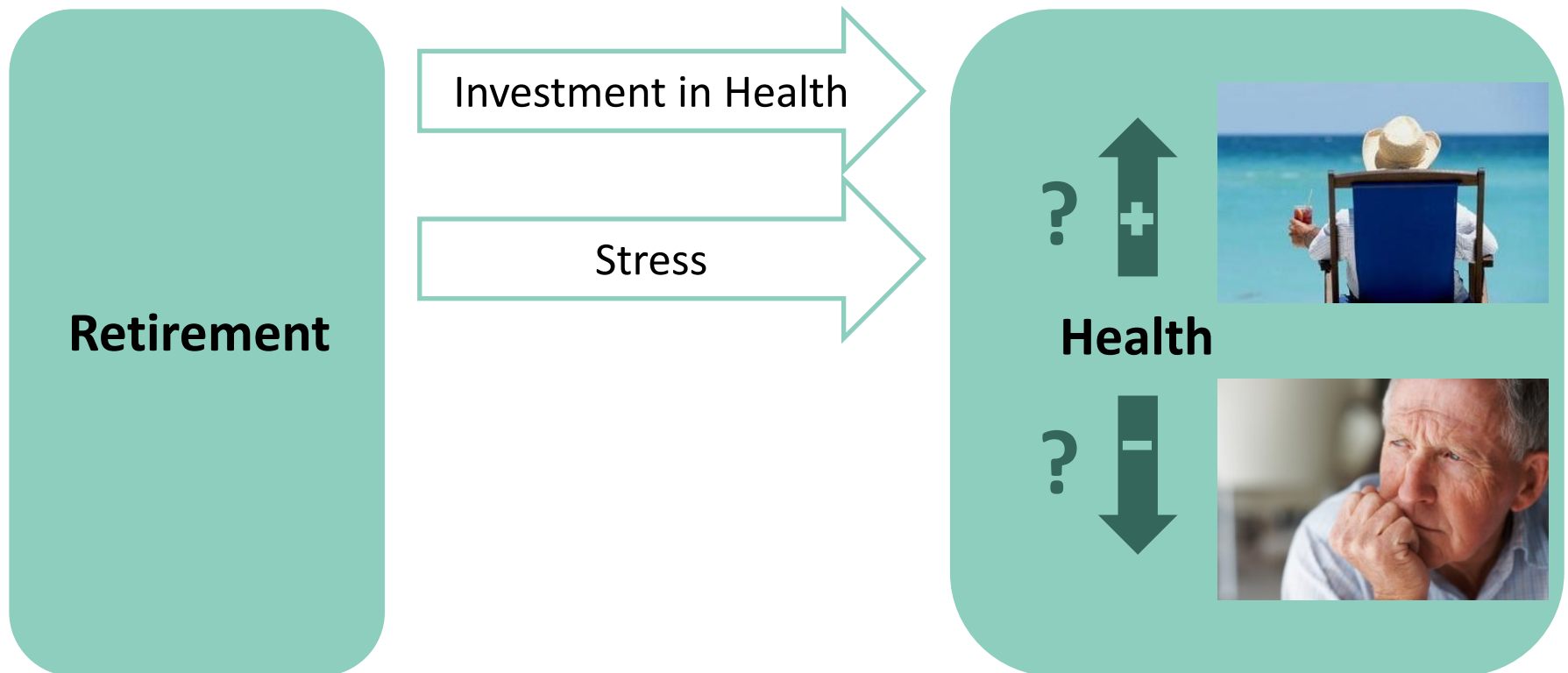
Introduction

- How does retirement affect health?
- Retirement major life event, many changes
- Possible pathways:



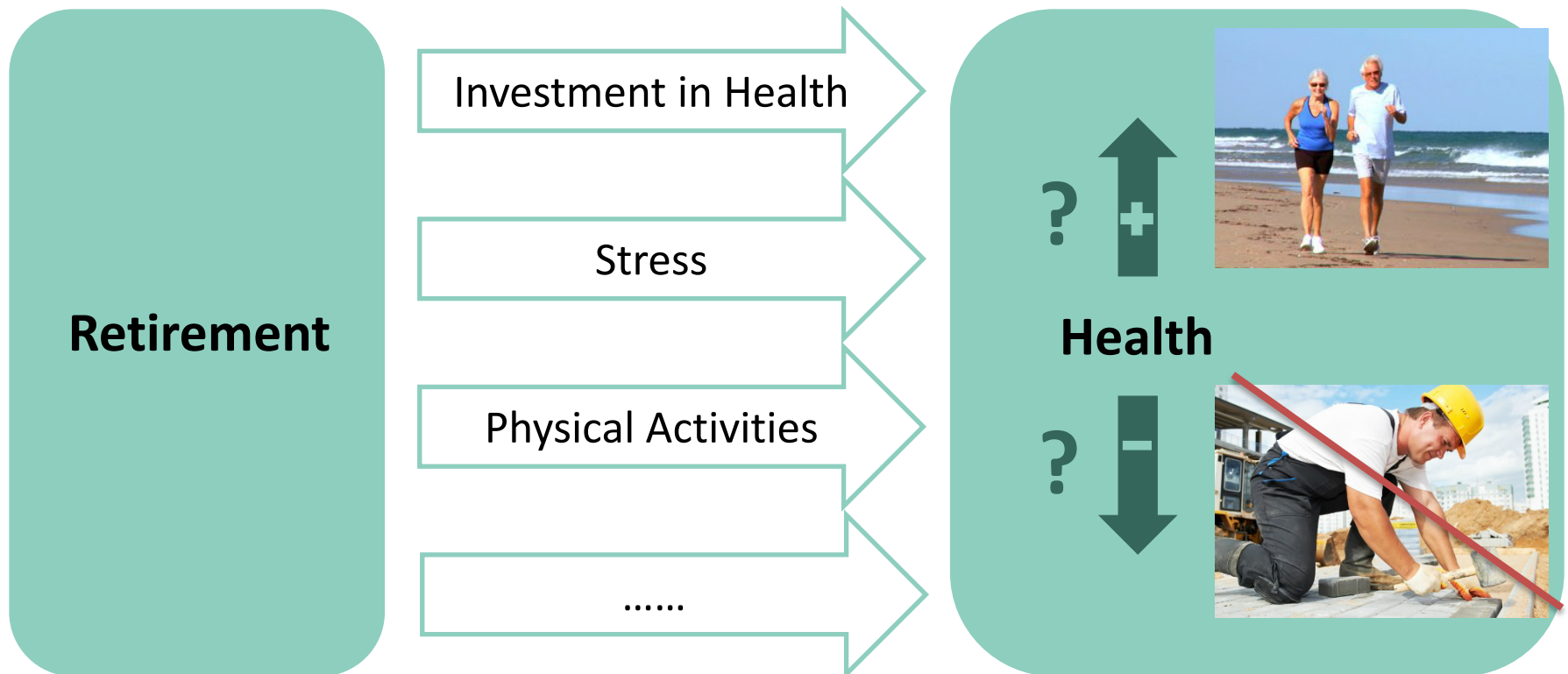
Introduction

- How does retirement affect health?
- Retirement major life event, many changes
- Possible pathways:



Introduction

- How does retirement affect health?
- Retirement major life event, many changes
- Possible pathways:



Introduction

Research questions:

1) How does retirement affect health?

→ Previous findings in the literature are mixed

2) Does work quality play a role?

→ Hypothesis:

Retiring from a job with low work quality has a positive effect on health

**mea**

Data



11 Waves



6 Waves



4 Waves

- High sample sizes
- More variation
- Cross-country comparisons

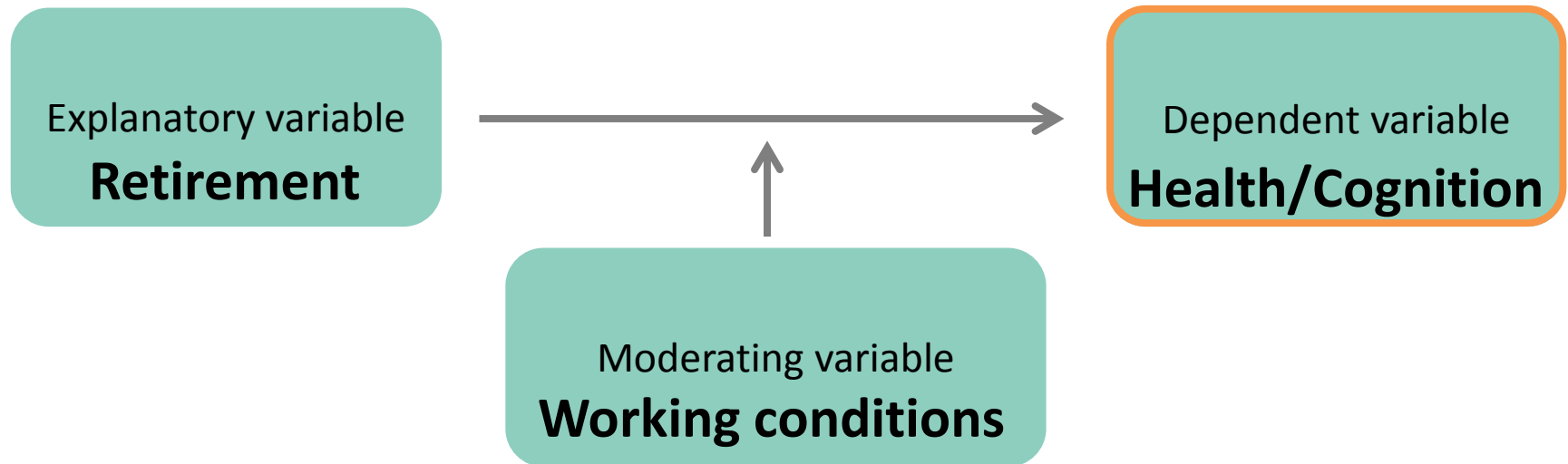
	id	name	age	sex	height	weight	hair	eye	skin	ethnicity	religion	education	occupation	income	marital	children	parents	siblings	pets	hobbies	travel	health	status
1	1	John	25	Male	175	70	Brown	Blue	Fair	White	Christian	High School	Teacher	45000	Married	2	John	John	2	Reading	Yes	Good	Active
2	2	Jane	30	Female	160	55	Blonde	Green	Fair	White	Christian	College	Nurse	50000	Married	1	Jane	Jane	1	Gardening	Yes	Good	Active
3	3	Mike	40	Male	180	85	Black	Brown	Dark	Black	Muslim	University	Engineer	60000	Single	0	Mike	Mike	0	Chess	No	Good	Active
4	4	Emily	22	Female	165	60	Red	Blue	Fair	White	Christian	High School	Student	30000	Single	0	Emily	Emily	0	Shopping	Yes	Good	Active
5	5	David	35	Male	170	75	Grey	Blue	Fair	White	Christian	College	Manager	55000	Married	1	David	David	1	Fishing	Yes	Good	Active
6	6	Alice	28	Female	155	50	Blonde	Green	Fair	White	Christian	High School	Teacher	40000	Married	2	Alice	Alice	2	Reading	Yes	Good	Active
7	7	Robert	45	Male	185	90	Black	Brown	Dark	Black	Muslim	University	Engineer	65000	Single	0	Robert	Robert	0	Chess	No	Good	Active
8	8	Sarah	20	Female	160	55	Red	Blue	Fair	White	Christian	High School	Student	35000	Single	0	Sarah	Sarah	0	Shopping	Yes	Good	Active
9	9	James	32	Male	175	70	Grey	Blue	Fair	White	Christian	College	Manager	50000	Married	1	James	James	1	Fishing	Yes	Good	Active
10	10	Michelle	27	Female	165	60	Blonde	Green	Fair	White	Christian	High School	Teacher	45000	Married	2	Michelle	Michelle	2	Reading	Yes	Good	Active
11	11	Kevin	38	Male	180	85	Black	Brown	Dark	Black	Muslim	University	Engineer	60000	Single	0	Kevin	Kevin	0	Chess	No	Good	Active
12	12	Laura	24	Female	160	55	Red	Blue	Fair	White	Christian	High School	Student	30000	Single	0	Laura	Laura	0	Shopping	Yes	Good	Active
13	13	Christopher	42	Male	185	90	Grey	Blue	Fair	White	Christian	College	Manager	55000	Married	1	Christopher	Christopher	1	Fishing	Yes	Good	Active
14	14	Stephanie	21	Female	155	50	Blonde	Green	Fair	White	Christian	High School	Teacher	40000	Married	2	Stephanie	Stephanie	2	Reading	Yes	Good	Active
15	15	Daniel	36	Male	170	75	Black	Brown	Dark	Black	Muslim	University	Engineer	65000	Single	0	Daniel	Daniel	0	Chess	No	Good	Active
16	16	Olivia	23	Female	165	60	Red	Blue	Fair	White	Christian	High School	Student	35000	Single	0	Olivia	Olivia	0	Shopping	Yes	Good	Active
17	17	Matthew	31	Male	175	70	Grey	Blue	Fair	White	Christian	College	Manager	50000	Married	1	Matthew	Matthew	1	Fishing	Yes	Good	Active
18	18	Natalie	26	Female	160	55	Blonde	Green	Fair	White	Christian	High School	Teacher	45000	Married	2	Natalie	Natalie	2	Reading	Yes	Good	Active
19	19	Andrew	41	Male	180	85	Black	Brown	Dark	Black	Muslim	University	Engineer	60000	Single	0	Andrew	Andrew	0	Chess	No	Good	Active
20	20	Isabella	19	Female	155	50	Red	Blue	Fair	White	Christian	High School	Student	30000	Single	0	Isabella	Isabella	0	Shopping	Yes	Good	Active
21	21	Benjamin	33	Male	175	70	Grey	Blue	Fair	White	Christian	College	Manager	55000	Married	1	Benjamin	Benjamin	1	Fishing	Yes	Good	Active
22	22	Grace	29	Female	165	60	Blonde	Green	Fair	White	Christian	High School	Teacher	45000	Married	2	Grace	Grace	2	Reading	Yes	Good	Active
23	23	Ethan	37	Male	180	85	Black	Brown	Dark	Black	Muslim	University	Engineer	65000	Single	0	Ethan	Ethan	0	Chess	No	Good	Active
24	24	Hannah	20	Female	160	55	Red	Blue	Fair	White	Christian	High School	Student	35000	Single	0	Hannah	Hannah	0	Shopping	Yes	Good	Active
25	25	Jonathan	34	Male	175	70	Grey	Blue	Fair	White	Christian	College	Manager	50000	Married	1	Jonathan	Jonathan	1	Fishing	Yes	Good	Active
26	26	Karen	25	Female	165	60	Blonde	Green	Fair	White	Christian	High School	Teacher	45000	Married	2	Karen	Karen	2	Reading	Yes	Good	Active
27	27	Christopher	42	Male	185	90	Black	Brown	Dark	Black	Muslim	University	Engineer	65000	Single	0	Christopher	Christopher	0	Chess	No	Good	Active
28	28	Stephanie	21	Female	155	50	Blonde	Green	Fair	White	Christian	High School	Teacher	40000	Married	2	Stephanie	Stephanie	2	Reading	Yes	Good	Active
29	29	Daniel	36	Male	170	75	Black	Brown	Dark	Black	Muslim	University	Engineer	65000	Single	0	Daniel	Daniel	0	Chess	No	Good	Active
30	30	Olivia	23	Female	165	60	Red	Blue	Fair	White	Christian	High School	Student	35000	Single	0	Olivia	Olivia	0	Shopping	Yes	Good	Active
31	31	Matthew	31	Male	175	70	Grey	Blue	Fair	White	Christian	College	Manager	50000	Married	1	Matthew	Matthew	1	Fishing	Yes	Good	Active
32	32	Natalie	26	Female	160	55	Blonde	Green	Fair	White	Christian	High School	Teacher	45000	Married	2	Natalie	Natalie	2	Reading	Yes	Good	Active
33	33	Andrew	41	Male	180	85	Black	Brown	Dark	Black	Muslim	University	Engineer	60000	Single	0	Andrew	Andrew	0	Chess	No	Good	Active
34	34	Isabella	19	Female	155	50	Red	Blue	Fair	White	Christian	High School	Student	30000	Single	0	Isabella	Isabella	0	Shopping	Yes	Good	Active
35	35	Benjamin	33	Male	175	70	Grey	Blue	Fair	White	Christian	College	Manager	55000	Married	1	Benjamin	Benjamin	1	Fishing	Yes	Good	Active
36	36	Grace	29	Female	165	60	Blonde	Green	Fair	White	Christian	High School	Teacher	45000	Married	2	Grace	Grace	2	Reading	Yes	Good	Active
37	37	Ethan	37	Male	180	85	Black	Brown	Dark	Black	Muslim	University	Engineer	65000	Single	0	Ethan	Ethan	0	Chess	No	Good	Active
38	38	Hannah	20	Female	160	55	Red	Blue	Fair	White	Christian	High School	Student	35000	Single	0	Hannah	Hannah	0	Shopping	Yes	Good	Active
39	39	Jonathan	34	Male	175	70	Grey	Blue	Fair	White	Christian	College	Manager	50000	Married	1	Jonathan	Jonathan	1	Fishing	Yes	Good	Active
40	40	Karen	25	Female	165	60	Blonde	Green	Fair	White	Christian	High School	Teacher	45000	Married	2	Karen	Karen	2	Reading	Yes	Good	Active

Sample Restrictions

- Age between 50 and 75
- Excluded:
 - Homemakers and unemployed
 - Never worked/not worked since 50
 - Re-entering the labor market
 - Only participated in one wave
- Final sample:
 - 51,802 individuals
 - 177,854 observations
 - 12,158 retirement transitions

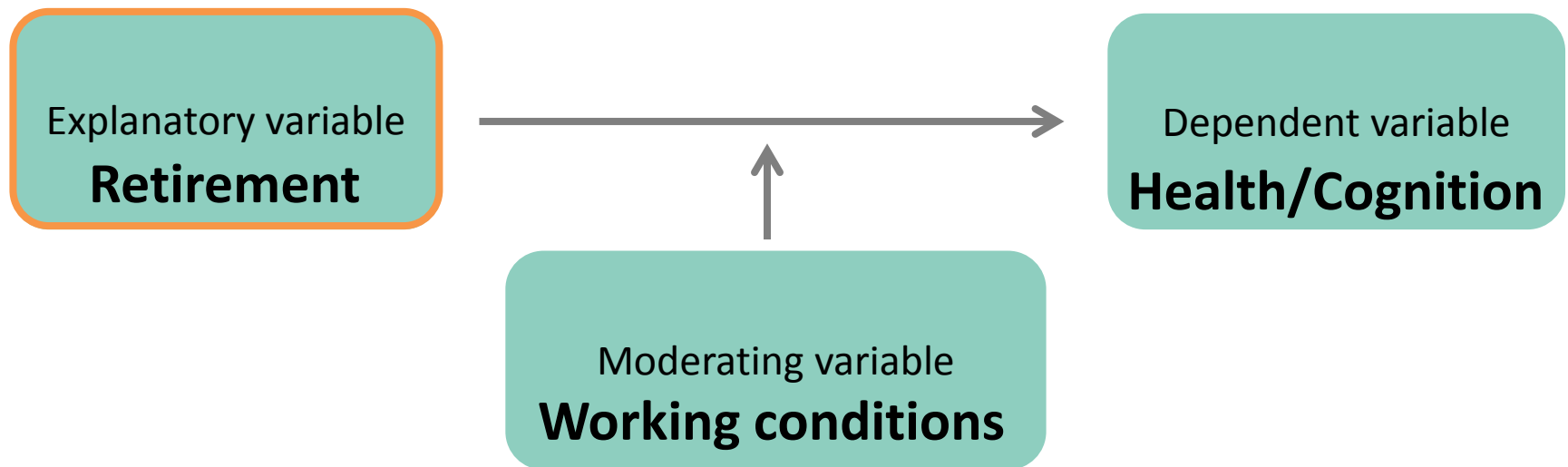
Variables

- Health:
 - Self-reported health status
 - Latent health index (PCA)
- Cognition (measured by word recall)



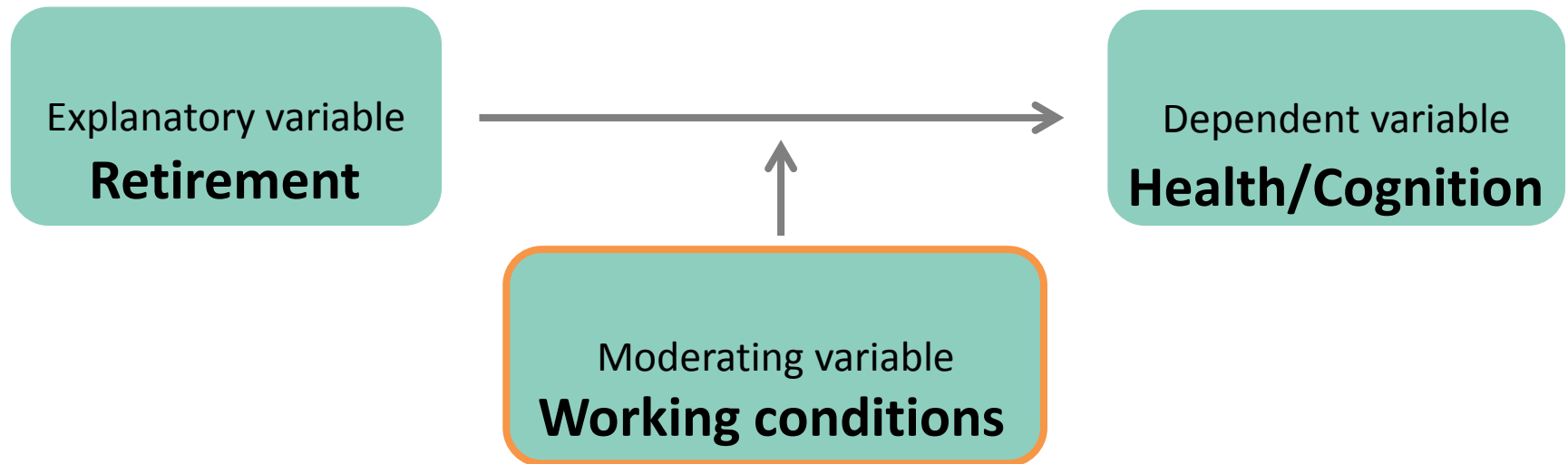
Variables

- Retirement
 - Self-reported employment status „retired“
 - No paid work in the last four weeks



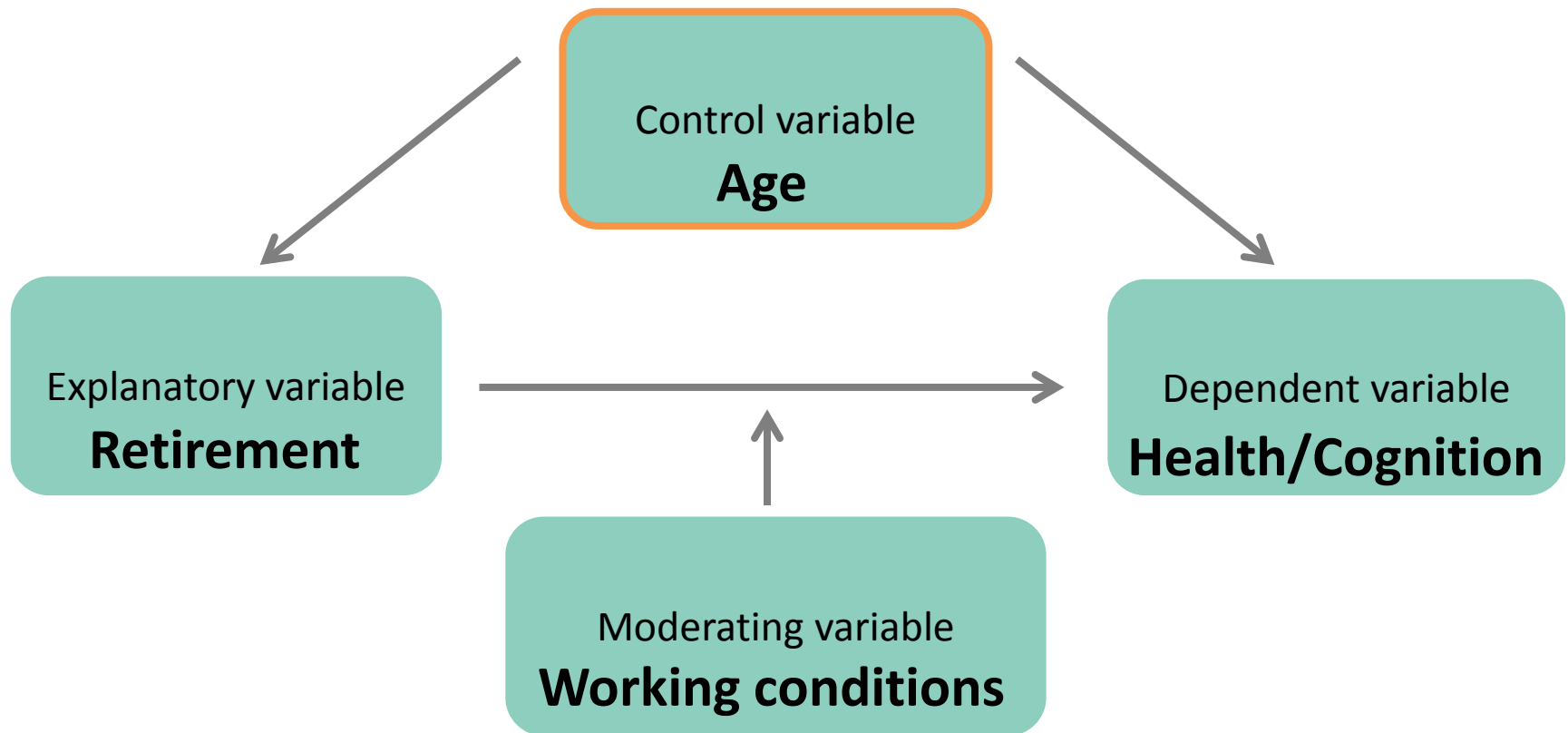
Variables

- Working conditions
 - Low control in job (Karasek and Theorell 1991)
 - Effort-reward imbalance in job (Siegrist 1996)



Variables

- Fixed-effects IV approach, 2SLS estimation
- Instruments: Early and normal retirement ages



**mea**

Results

First Stage Results

VARIABLES	(1) retired
Normal	0.13*** (0.004)
Early	0.09*** (0.004)
Age	0.03* (0.016)
Age ²	-0.00*** (0.000)
Constant	-1.20 (0.840)



Being over the early and normal retirement age significantly increases the probability of being retired

Main Results

VARIABLES	(1) Self-reported health	(2) Health index	(3) Cognition
Retirement	0.34*** (0.046)	0.27*** (0.060)	-0.64*** (0.221)
Age	0.00 (0.026)	-0.05 (0.044)	0.42*** (0.080)
Age ² /1000	-0.18** (0.071)	0.12 (0.111)	-3.95*** (0.217)
Observations	170,593	170,593	111,597
R-squared	0.02	0.15	0.04
Number of ID	50,084	50,084	29,007
F	285.2	720.3	193.5

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Working Conditions

VARIABLES	(1) Self-reported health	(2) Latent health index	(3) Cognition
Retirement	0.34*** (0.046)	0.27*** (0.060)	-0.64*** (0.221)

- Effort-Reward imbalance in last job

VARIABLES	Self-reported health	Latent health index	Cognition
Retirement	0.38* (0.194)	0.52** (0.256)	0.65 (0.583)

- Low control in last job

VARIABLES	Self-reported health	Latent health index	Cognition
Retirement	0.58** (0.258)	0.78** (0.325)	1.28** (0.608)

Robustness Checks

- Results are robust to the following specifications:
 - Include age polynomials
 - Include time spent in retirement
 - Separate models for HRS, ELSA and SHARE
 - Random subsamples of HRS and ELSA to adapt sample sizes
 - Reduce waves used so that time of data collection is similar in HRS, ELSA, SHARE

**mea**

Conclusion

Conclusion

- Overall, retirement has a positive effect on health
 - Likelihood of reporting good health increases by 34 pp
 - Likelihood of being assigned to high quintile of health index increases by 27 pp
- Retirement has a negative effect on cognition
 - Cognition score decreases by 0.64
- Working conditions seem to play a role, but effect of occupation needs further research



Thank you for your attention

Gender (preliminary)

VARIABLES	(1) Self-reported health	(2) Latent health index	(3) Cognition
Retirement	0.34*** (0.046)	0.27*** (0.060)	-0.64*** (0.221)

- Female

VARIABLES	Self-reported health	Latent health index	Cognition
Retirement	0.34*** (0.097)	0.39*** (0.123)	-0.42 (0.376)

- Male

VARIABLES	Self-reported health	Latent health index	Cognition
Retirement	0.16* (0.089)	0.20 (0.127)	-0.04 (0.429)



- Adam, Bonsang, Germain and Perelman (2007). Retirement and cognitive reserve: a stochastic frontier approach applied to survey data. In: CREPP working papers 2007/04, HEC-ULg.
- Bonsang, Adam and Perelman (2012). Does retirement affect cognitive functioning?, *Journal of Health Economics*, 31(3): 490–501.
- Börsch-Supan and Schuth (2014). Early Retirement, Mental Health, and Social Networks, In: David A. Wise (Eds.), *Discoveries in the Economics of Aging*, The University of Chicago Press, Chicago, pp. 225-254.
- Coe and Zamarro (2011). Retirement Effects on Health in Europe, *Journal of Health Economics*, 30(1): 77-86.
- Poterba, Venti and Wise (2010). The Asset Cost of Poor Health, NBER Working Paper No. 16389.
- Rohwedder and Willis (2010). Mental Retirement, *Journal of Economic Perspectives*, 24(1): 119-38.

Latent health index (Poterba et al. 2010)

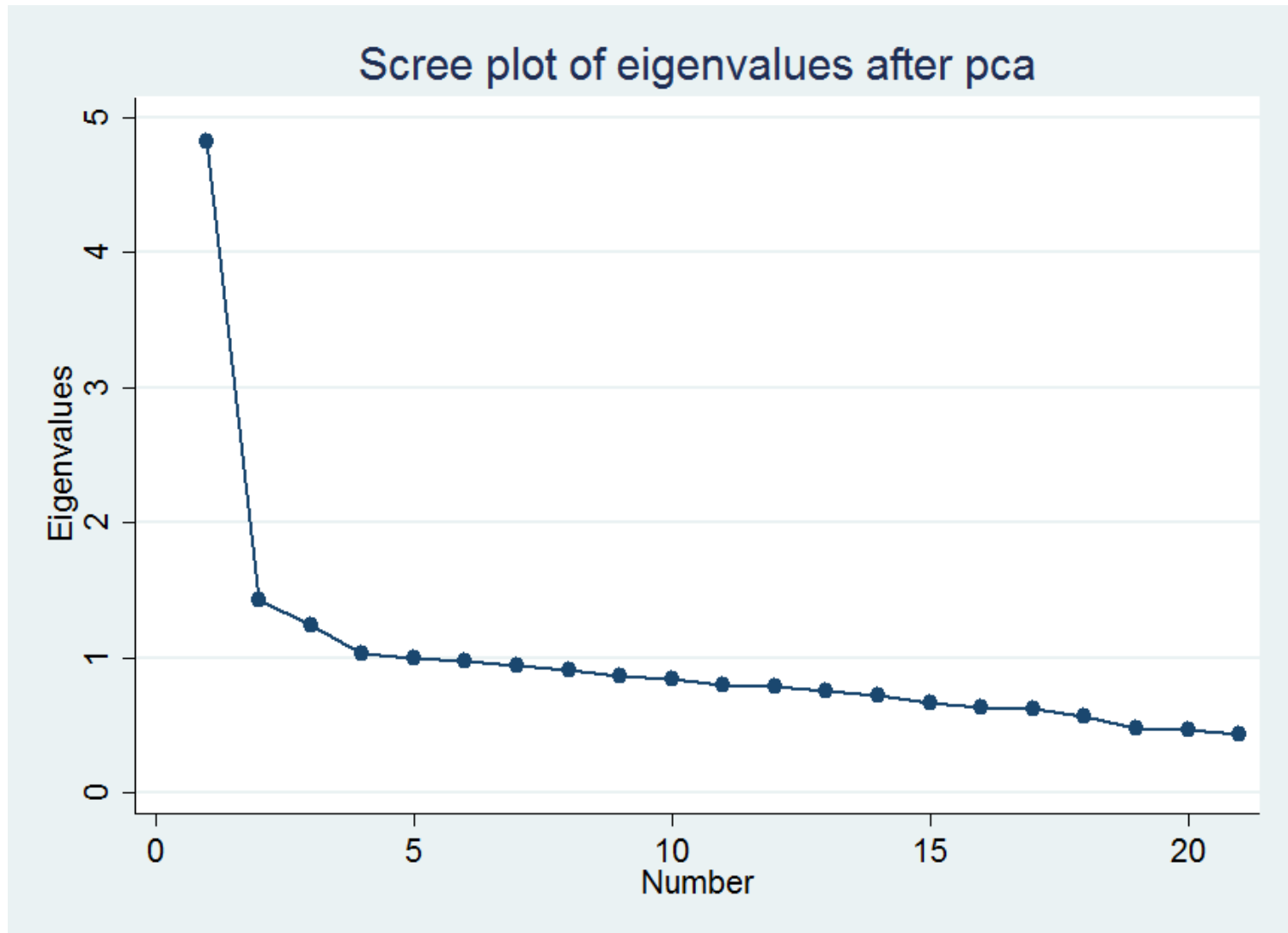
H_i : self-reported health status, doctor told: high blood pressure/hypertension, stroke, diabetes/high blood sugar, chronic lung disease, arthritis, cancer, heart trouble; IADL, ADL, BMI

1. Health information H_i are used to calculate the first principal component
2. Estimates of first principal component are used as health index
3. Respondents are assigned to quintiles
(higher quintile represents better health)

Principal Component Analysis

- Method to reduce many original variables to a few variables explaining the variance in the original variables → fewer dimensions
- Orthogonal transformation of original variables into new linearly uncorrelated variables
- First principal component represents most of the variation in the variables

Principal Component Analysis



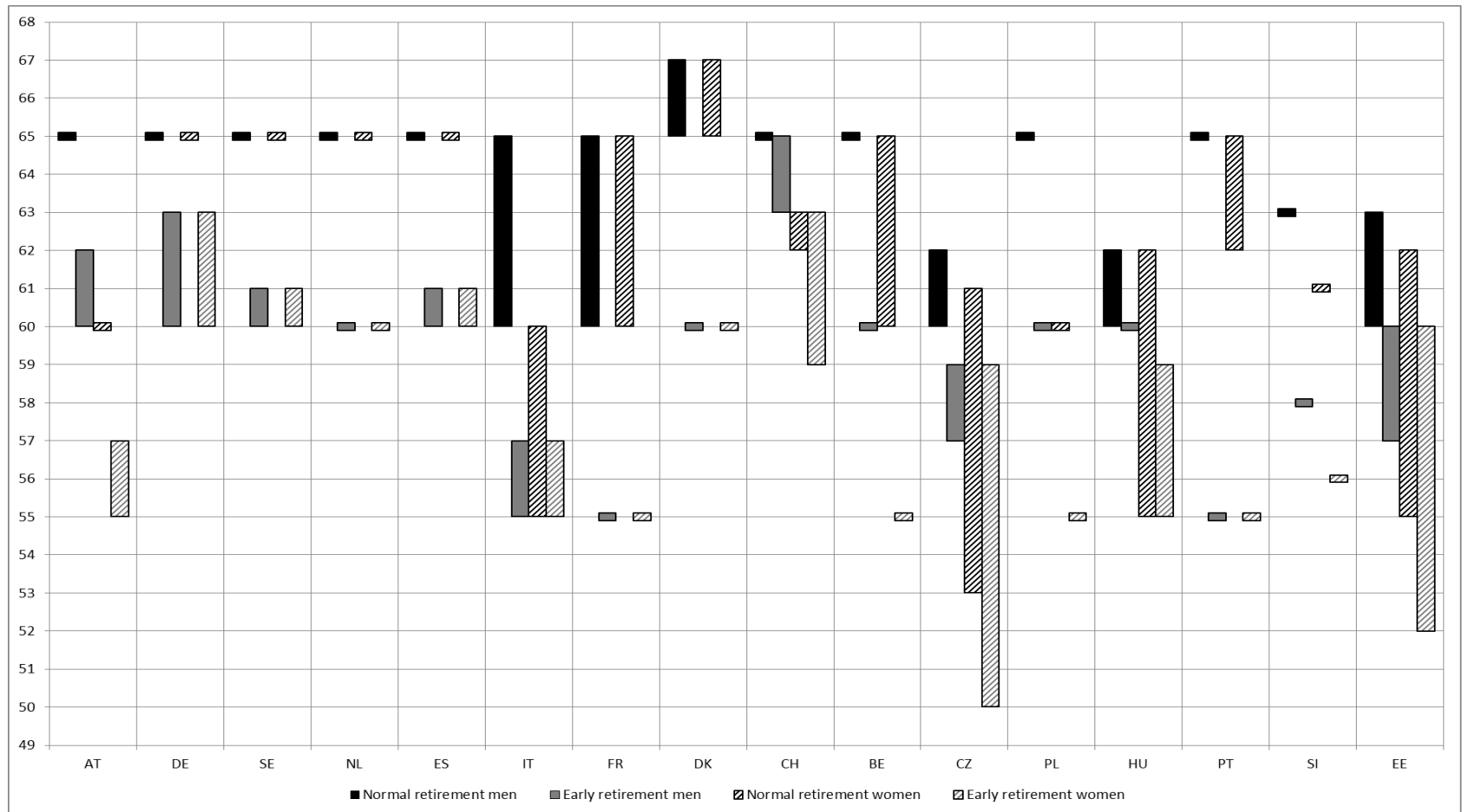
Summary Statistics

Variable	N	Mean	SD
Female	177,854	0.51	0.50
Status: Working	177,854	0.53	0.50
Status: Retired	177,854	0.47	0.50
Living with a partner	177,854	0.65	0.48
Number of children	177,854	2.45	1.96
Age at interview	177,854	62.79	6.64
Over early retirement age	177,854	0.63	0.48
Over normal retirement age	177,854	0.42	0.49

Reduced Sample

VARIABLES	(1) Self-reported health	(2) Latent health index
Retirement	0.24* (0.125)	0.55*** (0.100)
Age	0.04 (0.031)	0.02 (0.045)
Age ² /1000	-0.37** (0.153)	-0.51*** (0.125)
Observations	55,642	55,642
R-squared	0.01	0.04
Number of ID	24,379	24,379
Year FE	YES	YES
F	48.15	120.7

Instrument



Source: Börsch-Supan & Schuth (2015)

Sample Sizes

Country	Frequency	Percent
UK	24,736	13.91
Austria	5,067	2.85
Germany	2,379	1.34
Sweden	3,404	1.91
Netherlands	3,051	1.72
Spain	2,276	1.28
Italy	3,755	2.11
France	5,948	3.34
Denmark	3,777	2.12
Greece	1,004	0.56
Switzerland	3,723	2.09
Belgium	5,452	3.07
Israel	1,542	0.87
Czech Republic	5,098	2.87
Poland	1,146	0.64
USA	98,172	55.20
Slovenia	1,856	1.04
Estonia	5,468	3.07
Total	177,854	100.00