



CEISUC
CENTRO DE ESTUDOS E INVESTIGAÇÃO
EM SAÚDE DA UNIVERSIDADE DE COIMBRA

Healthy enough to work longer?

M. Isabel Clímaco^{1,4}
Pedro Pita Barros²
Óscar Lourenço^{3,4}

¹ Instituto Superior de Contabilidade e Administração de Coimbra

² Faculdade de Economia da Universidade Nova de Lisboa

³ Faculdade de Economia da Universidade de Coimbra

⁴ Centro de Estudos e Investigação em Saúde da Universidade de Coimbra

Motivation:



- The population of the most developed countries is facing a process of gradual ageing
- A drawback of this adverse demographic scenario is → negative impact on labour force participation
- The labour market participation of the **55-65 age** group stands around **44% in UE** countries in 2005 → which reflects a decline in the effective age of retirement
- In average the actual age of retirement was 60.7 in 2004 for the euro area (Madaloni et al., 2006)
- This shift has put a significant pressure on the retirement system and in pension systems

Motivation:



- The discouragement of early retirement is a crucial issue for policymakers
- Some complementary targets have been advanced by European authorities → the possibility to extend working life → by postponing the effective retirement age
- However, the possibility to delay the age of retirement clearly depends on health status of older individuals

Objectives:



- The main core of this work is the relationship between: ageing, health and retirement
- We want to analyse the evolution of the individual's health status along life time (35-80 age range)
- We also intend to study the impact of retirement on individuals' health status using two different subpopulations
- Finally we want to know if there are health conditions that would allow to postponing the age of retirement

Other studies:



- Some empirical evidence suggests that older individuals have a strong preference for leisure and workers with generous pensions tend to retire earlier (Gruber and Wise, 2005)
- On the other hand this financial pressure alone cannot justify all the reduction in older workers participation rates of the past decades
- Health status has been considered as another potential determinant of the optimal retirement age (Lumsdaine and Mitchell, 1999)
- The overall theoretical effect of health on retirement behaviour remains ambiguous
- Some authors conclude that health measure matters and Self Assessed Health (SAH) is endogenous (Lindeboom and Kerkhofs, 2002)
- Other studies point out the importance association between individual retirement decision and their spouse decision (Mastrogiacomo et al., 2004)

Estimation Outline



- This work focus particular attention on the health conditions of retired people
- Our estimation strategy is as follows:
 - i. We estimate a “continuous” health index in order to analyse the evolution of the individual (35-80 age range) → trying to capture a health “breaking point”(an age at which the health index starts declining at a higher gradient)
 - ii. We estimate a model for the sub-population aged 50-80 years old, with the aim of comparing individuals’ health according to their retirement status
 - iii. We estimate a health index for two different groups (aged 50-65) regarding their health insurance coverage:
 - 1) one for the full sample
 - 2) another for the ADSE group (civil servants)

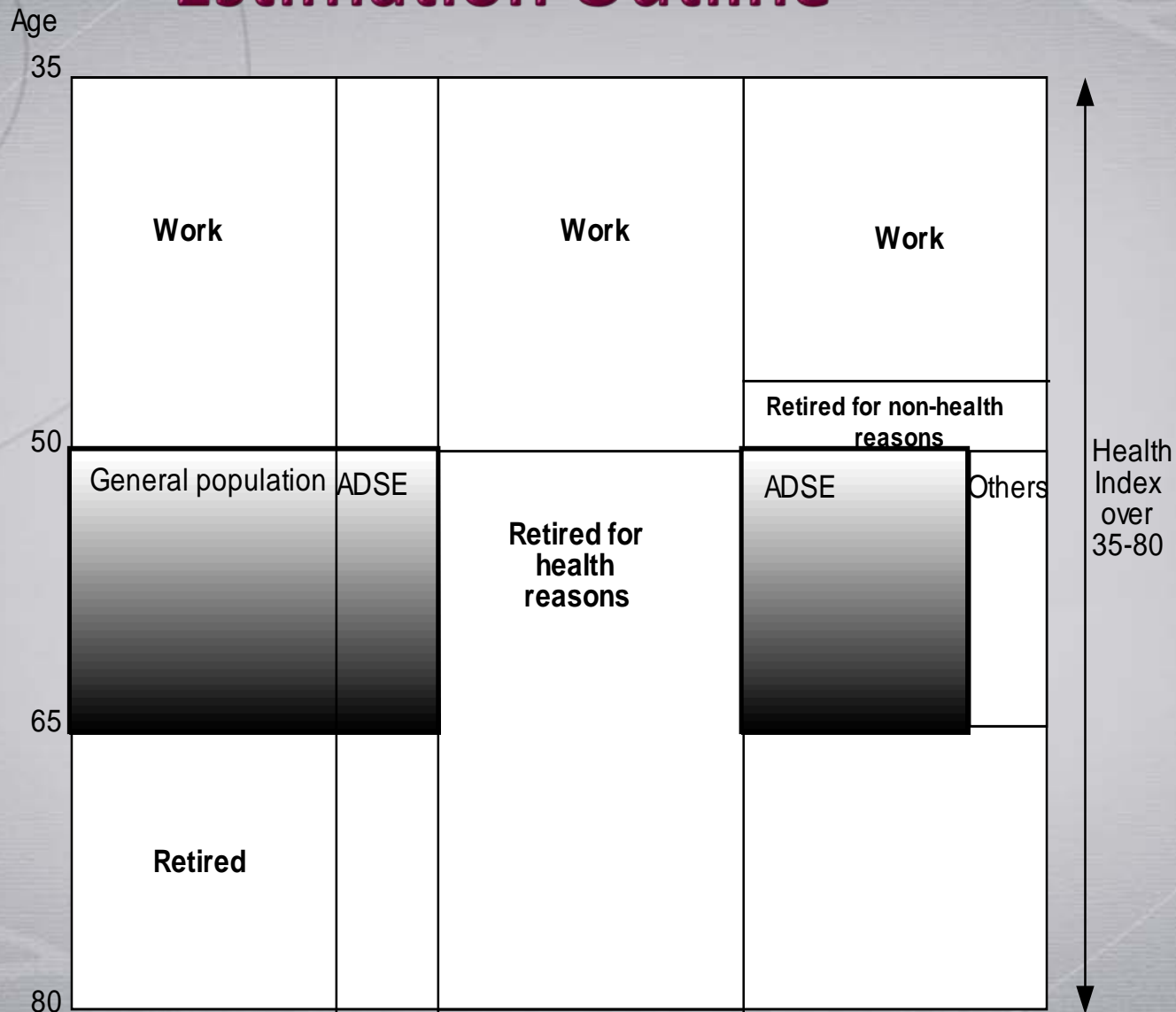
Estimation Outline



The idea is → people under ADSE coverage may retire earlier due to special rules (36 years of work) → this external early retirement rules provide an identification of the retirement effect (unrelated to health status)

- iv. Finally the health status among those actually retired at statutory age (65) was compared with those who might work till 70 years old
- Despite this different purposes a similar methodological strategy has been adopted → we chose to estimate an ordered probit model

Estimation Outline



Self Assessed Health (SAH) by retirement status



Retirement status	(35-80)		(50-65)		(50-80)	
	No	Yes	No	Yes	No	Yes
Very bad	3.15%	9.10%	4.12%	7.12%	4.90%	9.06%
Bad	12.6%	28.87%	16.32%	24.73%	19.04%	28.82%
Fair	44.02%	45.64%	49.72%	47.02%	49.19%	45.70%
Good	34.45%	14.77%	26.50%	18.57%	23.70%	14.78%
Very good	5.77%	1.62%	3.43%	2.54%	3.17%	1.64%
Total	100%	100%	100%	100%	100%	100%

Estimation Results

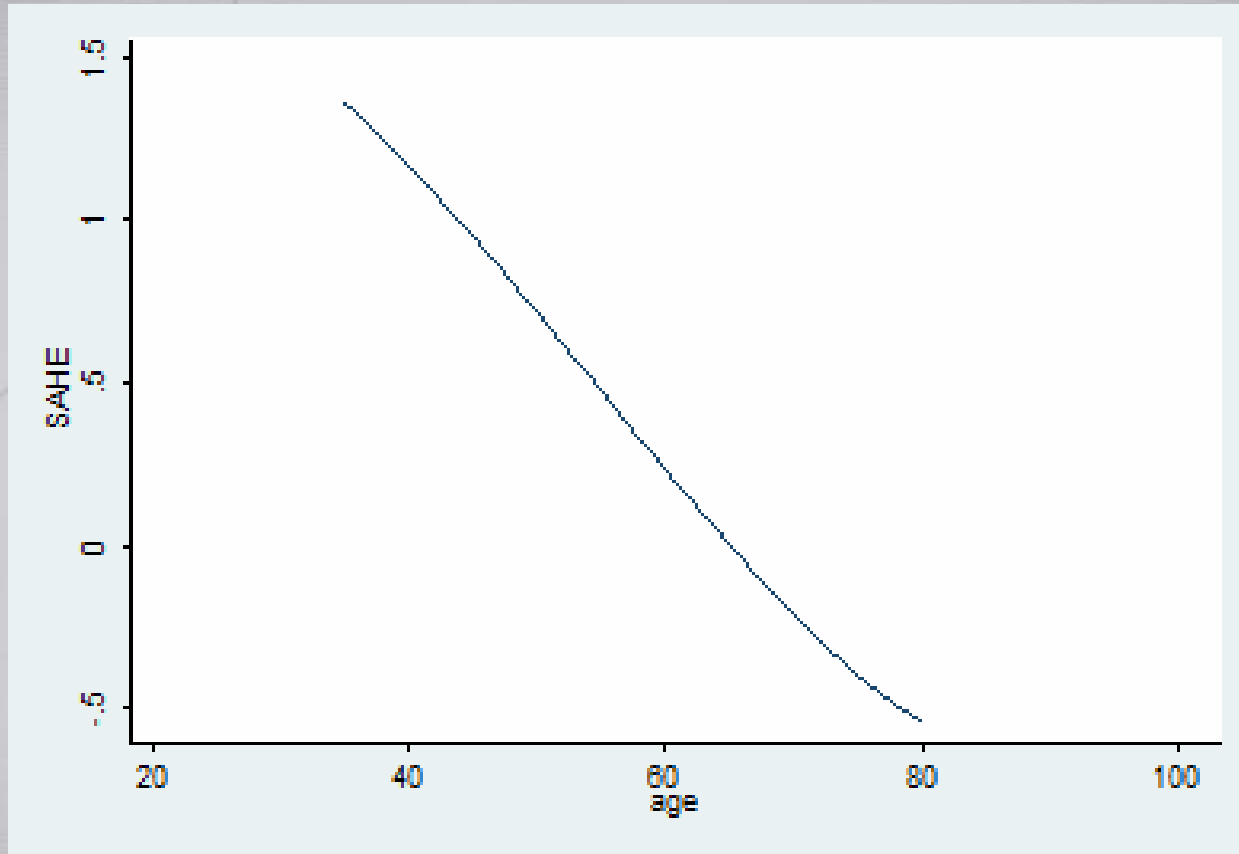


i) Subpopulation 35-80 years old

- The results suggests that **age** and **functional limitations** (EQ-5D) are the most important among the determinants of health (both statistically significant)
- As expected we find a relatively **strong age gradient** in the relationship between ageing and poor health status
- We also highlight the **negative impact** of objective health indicators, particularly **some chronic diseases**: diabetes, high blood pressure, pain, stroke and cancer, kidney illness and rheumatism (all statistically significant)
- The effect of **education** is consistent with prior studies (educations improves individuals' efficiency in producing health)
- Conversely to other studies the **impact of marital status** and **risk consumption** (tobacco) on health is not statistically significant

Health Index (SAHE)

i) Subpopulation 35-80 years old



A health index (SAHE) has been estimated to evaluate the individuals' evolution with age → however no “breaking point” has been found

ii) Ordered Probit for SAH (50-80 years) by retirement status



SAH (N= 3008)		(50-80) years	
	Coef.	St.Err	
Age 10	-0.1004*	0.0408	
Gender* retirement	0.1612	0.3580	
Married*retirement	-0.1200	0.1367	
Income*retirement	0.0025	0.0119	
Educ1*retirement	0.3251*	0.1455	
Diabetes*retirement	0.2482*	0.1166	
Stroke- Cancer*retirement	0.3033*	0.1664	
Retirement	-0.4372	0.5886	

Results



- We are interested in evaluating whether there is **any difference** between retired and no retired populations
- We use a Likelihood Ratio Test in order to test the null hypothesis that the two populations follow the same regression function against the alternative that one or more slopes differ in the two groups
- To perform the test we estimate first an ordered probit model that regresses individuals' health status on a full set of covariates plus a new set created by interacting those covariates with the retirement variable
- After estimation both models, the full and restricted ones we found that $LR= 60 \rightarrow$ the null hypothesis is rejected ($p < 0.001$). This means that, in fact, the **parameters** describing the health of the two populations **are different**

Results



- The results of the full model (see table above) → show that the impact of **some chronic disease** (diabetes, stroke and cancer) on health index **are higher** for the retired population (parameters are positive and statistically significant)
- Additionally the **positive impact** of education level “**Educ1**” (4 to 9 years of study) on health is higher for the individuals who are retired.
- As expected, the age effect is significant → which confirms the health deterioration with ageing
- Finally , the results show that the intercept term capturing the stand alone (level) health shock due to retirement variable is not significant → the potential retirement effects are captured by any other variable

iii) Ordered Probit for SAH (50-65 years): the full sample *versus* retired ADSE population



SAH (N= 694)	(50-80) years	
	Coef.	St.Err
Age 10	-0.2356*	0.1107
EQ-5D	1.9792*	0.3962
Married*retirement	-0.1200	0.1367
Income100*ADSE_r	0.0137	0.0357
Educ1*retirement	0.1508	0.4451
High blood pressure*ADSE_r	0.2150	0.3342
Retirement	-2.9899	3.1182

Results



- We use the ADSE sample as reference to test the impact of retirement on health status
- We estimated the SAH index for two groups: 1) the whole working population and 2) the retired civil servants (50-65)
- We are interested in evaluating whether there is any difference between the two groups
- After the estimation of both model, the full and restricted ones, we found that the **parameters** describing the two populations **are not different** → the covariates' effects are similar across the two groups
- The results of full model (see table above) show that the retirement status does not explain individual health
- Nevertheless we have to consider that health deteriorates with age → this negative effect might cause **some restrictions** on the ability to work of the older workers

Results



- Finally we have simulate what the individuals' health status would be if they **work for more five years**
- The idea is to compare health conditions of the following two groups:
 - 1) the individuals retired at legal age **with**
 - 2) those who hypothetically work till 70 years old
- The results show, for the average population, a **change from 0.62 to 0.52 points** in the individuals health status
- The health conditions of those individuals who stay at labour market till 70 years old would get worse
- Conversely to other studies it appears that there are **no health benefits** to stay in labour market **five years more** than the normal age (65 years old)

Conclusions



- We analysed the evolution of the individual's health status along life time (35-80 age range) → no “breaking point” has been found
- We found that the **parameters** describing the health of the two populations of retired and no retired individuals **are different**
- We also conclude that the group of all working population and the ADSE group are not statistically different and the retirement status does not explain individual health
- Our results suggest that ageing causes an important health deterioration → which would imply a less productive performance for those who would stay working above 65 and until 70 years old
- Is this deterioration large enough to be unacceptable developing a retirement postponing policy?

Conclusions



- Our overall conclusion is that policy makers should be aware of the consequences of postponing the retirement age
- It should to be analysed with prudence whether health conditions of elderly permit in fact the delay of retirement age
- Policymakers ought to invest on the elderly health status since this age group has an increasing weigh on the demographic structure of developed countries
- Future work should have available better information concerning the health account of the elderly before and after retirement
- The implementation in Portugal of SHARE (Survey of Health, Ageing and Retirement in Europe) project will enable a better understanding of the ageing process and its impact on health and the possibilities of keeping older citizens working beyond the present legal age of retirement