

# Disability and labour force participation of older persons : the importance of health

Debrand Thierry (IRDES)

HRS-ELSA- SHARE Conference

Rand, Santa Monica

IRDES

# Comments and remarks on the first version

The principal comments were:

- ◆ Do you use the better variable for the disability?
- ◆ Is it possible to introduce, in your model, the importance of the diseases?
- ◆ Are the behaviours of males and females different?
- ◆ You study only the physical health impact on the disability but, what is the importance of mental health on the labour force participation of older people?



---

# Framework of presentation

---



- Introduction and context
- A brief review of the literature
- Data and model
- Econometric Results
- Discussion

# Introduction and context

## □ Ageing population:

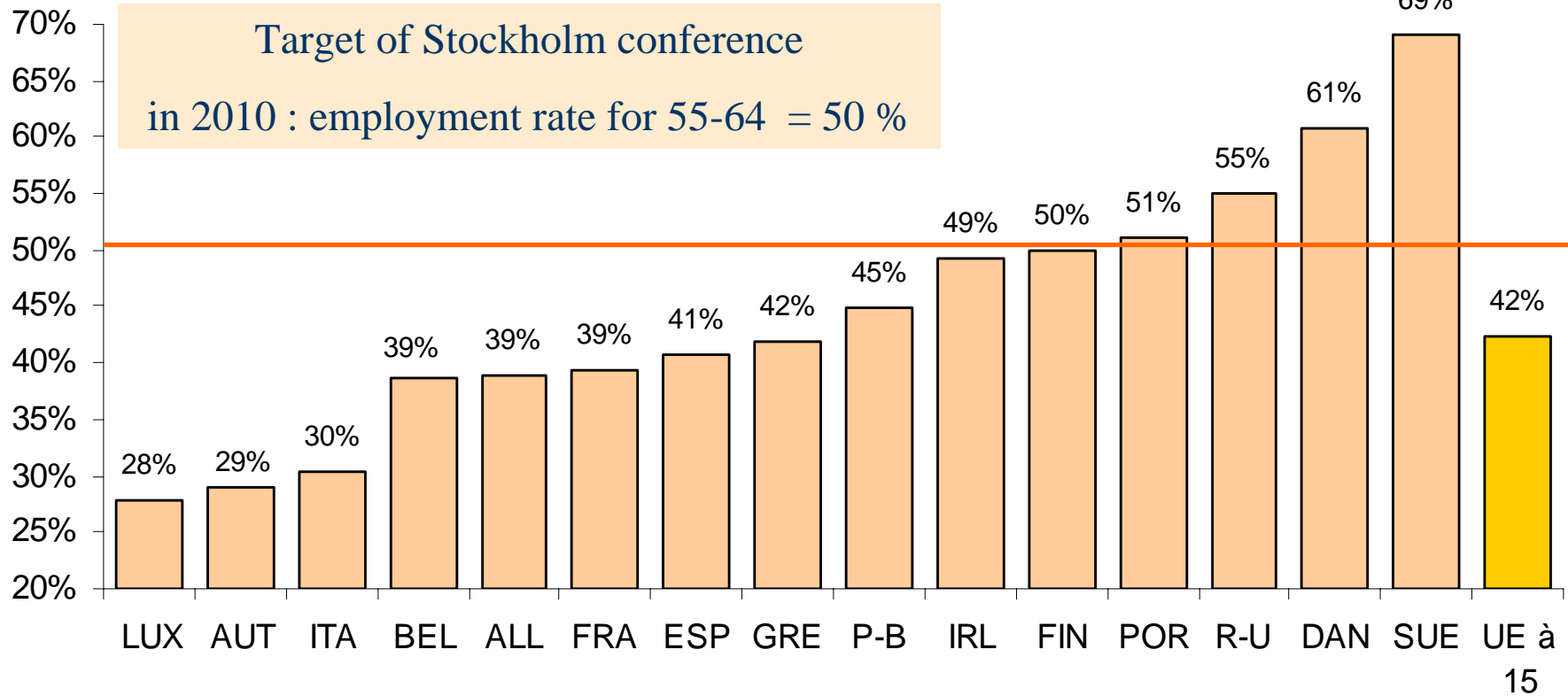
- The populations of industrialised countries, and European countries in particular, are getting older;
- The resulting changes in the population age structure are being modified;
- Population ageing causes an imbalance between generations.

## □ Retirement systems:

- In order to ensure the equilibrium of the Pay-as-you-go retirement system, different European countries have essentially adopted new policies;
- The pathway from working life to retirement is changing and people's health status is becoming more significant.

# Introduction and context

employment rate of 55-64 age in 2003 (OECD, 2004)



# The effect of health status on labour force participation

- ❑ Links between health status and labour force participation appear obvious but...causal relations would appear to be ambiguous (Strauss and Thomas, 1998).
  - ❑ On one hand working conditions may have a negative effect on people's health status towards the end of their working life;
  - ❑ On the other hand poor health may result in early departure from the labour market.
  - ❑ Empirical studies conclude there is a significant impact of « poor » health on the labour force participation

# The effect of health status on labour force participation

□ 2 main problems to study empirical health effect on the labour force participation (Anderson and Burkhauser, 1985) :

□ Firstly, measuring the effect of health status on the labour supply may be subject to biases, because health status in itself is a consequence of individual choice. For example, if the preference for work is positively (or negatively) correlated with the decision to consume health care currently or in the past, then estimation of the health effect on the decision to retire could be over- (or under-) estimated.

□ Secondly, we must consider the relevance of the indicators chosen to measure health status. It is impossible to find an adequate variable capable of measuring “true health status”.

# The effect of health status on labour force participation

- ❑ The basic hypothesis, in the literature, is to consider "true" health or disability as an unobservable variable.
- ❑ Bound (1991) assumes that participation in the labour market depends on socio-demographic variables and on some latent self-reported disability (a composite indicator which he defines as "true" disability). He introduces a variable of self-reported disability into his model, enabling an approximation of "true" disability.
- ❑ Using this method, Bound (1999) and Campolieti (2002) show that the effect of health on labour force participation is underestimated if self-reporting alone is used to measure health status.

# Modelling

- ◆ The first equation in the model is one which describes the labour force participation of older persons taking into account the concept of disability

$$p = \mathbf{I}_{p^* > 0} \quad \text{avec} \quad p^* = X' \beta_p + \lambda \eta + \varepsilon_p$$

(where  $p^*$  is a latent variable describing labour force participation,  $X$  is a vector which partly describes the observable characteristics of each individual and  $\eta$  is a latent unobservable disability)

- ◆ The second equation corresponds to an individuals' self-reported disability:

$$d = \mathbf{I}_{d^* > 0} \quad \text{avec} \quad d^* = X' \beta_d + \eta + \varepsilon_d$$

(the difference between “true” disability and self-reported disability depends on observable individual characteristics)

# Modelling

- ◆ The third equation is one which explains the idea of individuals' unobservable “true” disability:

$$\eta = X' \beta_{\eta} + Z' \gamma + \varepsilon_{\eta}$$

(“True” disability depends on the sociodemographic characteristics of each individual and Z is a vector of variables representing the health status characteristics )

- ◆ We can therefore solve the following participation equation:

$$p^* = X' \beta_p + \lambda \hat{d}^* + \varepsilon_{p^*}$$

(Labour participation depends on proxies of “true” disability and on the sociodemographic characteristics )

# News

- ◆ I introduced the grip strenght test
- ◆ I introduced the scale of depression : Euro-D, and we measure the importance of mental health on the probability to participate to the labor force.
- ◆ I didn't use the variable strictly disability but just disability, and we could compare our results to the results available in the economic litterature
- ◆ Lastly, we estimated this model for the male and female and we took into account the family structure and the occupational status of the partner.

# Descriptive statistics

- The diseases most often diagnosed among 50 to 64 year olds are arterial hypertension (24 %), cholesterol (18 %) and arthritis (9%) for the men and arterial hypertension (26 %), arthritis (18%) and cholesterol (16 %) for the females. Other diseases are prevalent in less than 10 % of the population.
- These diseases seem to have an effect on labour force participation.
- Level of education and participation in the labour market seem to be positively correlated.
- Age and participation in the labour market seem to be negatively correlated.

# Some descriptive statistics new variables

- Euro-D :

- The score results for men are better than for women
- The effects on the disability (-) and LFP (+) seem to be more important for males than for females.

- Grip strenght test :

- The score results for males are better than for females
- The effects on the disability (+) and LFP (-) seem to be closed for males than females.

# Estimation of labour force participation equation with direct introduction of health

- Reporting directly “restricted in one’s activity” reduces the probability of labour force participation from between 16 to 11 points for women and between 24 and 18 for men.
- The health status variables, all appear to have a negative effect, significant or almost, on labour force participation.
- The diseases with the greatest effect are: Stroke (- 20 points), hip fracture (- 20 points), parkinson (- 16 points), etc.. for men; and Stroke (- 15 points), hip fracture (- 15 points), parkinson (- 10 points), etc.. for females
- The BMI marginal effect is weak for both gender.

# Estimation of labour force participation equation with direct introduction of health

We also find the classical effects of socio-demographic variables on employment participation.

- The level of education has a positive effect on employment participation,
- While age has the opposite effect.
- Moreover, to live with a partner who works has a positive impact on the LFP (reference is to live alone); there is an opposite impact for people who lives with a partner unemployed .
- The household size has a negative impact on the LFP for women and positive for men

# Estimation of disability equation

- Most diseases have a positive effect on the declaration of disability. (except for cholesterol for men and cholesterol, blood pressure, stomach, parkinson, cataracts for women (ns))
- BMI has an effect on self-reported activity limitation.
- Family structure and the employment status of partner have no effect.
- The level of education has a negative effect on disability status.
- The Euro-d score has a positive effect.
- The grip strenght result has a negative effect on disability status.

# Estimation of labour force participation equation in two stages

- The estimated coefficients of the proxy values are significantly negative. The value associated with this proxy is higher in absolute value than the value estimated in the estimations of labour force participation equation with direct introduction of health status and disability.
- The marginal effect is equal to - 35 points for females and to - 51 points for men.
- This suggests that using the health self-reported measure leads to a downward bias in the impact of disability status on labour force participation.

# Concluding remarks

- Using the self-reported health measure leads to a downward bias in the impact of disability status on labour force participation for women and men;
- Our results closely reflect the work of Bound and Campolieti on North American Data (HRS, canadian database);
- But the impact of disability seems to be more important in Europe than in North American countries. We should introduce the institutional indexes to really understand the differences across the countries.
- And if we want to understand the behavior of LFP of older persons we have to take into account all the dimension of health



---

# New title?

---

Physical health, Mental health and Household structure are determinants of labour force participation for the older persons in Europe

all suggests are welcome....

Thanks for your attention...