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results

Background

This article is based on data from the first European SHARE survey (Survey of Health, Ageing and Retirement in Europe) carried out in 2004.

This is an international and multidisciplinary survey of a sample of households with at least one member aged 50 or over across Europe. The idea is to create a European panel database to investigate health and socio-economic aspects of ageing. The 2004 survey involved 10 European countries: Germany, Austria, Denmark, Spain, France, Greece, Italy, the Netherlands, Sweden and Switzerland. The survey questions, which are identical in all countries, relate to health status, socio-economic status and living conditions.

Effects of health on the labour force participation of older persons in Europe

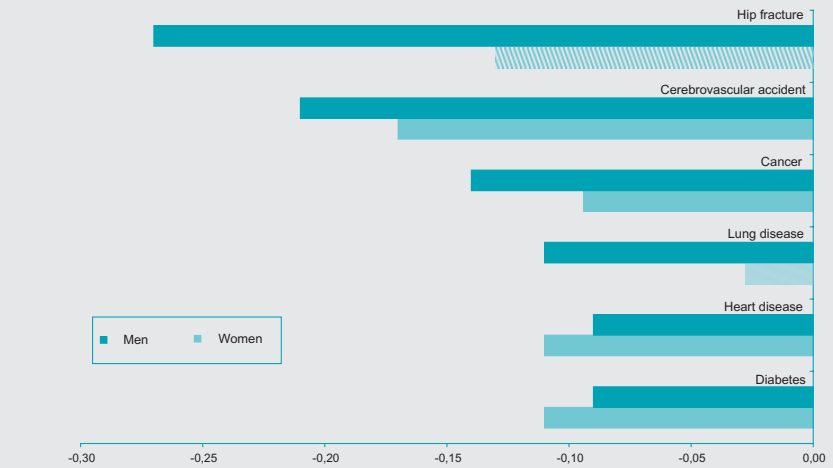
Thomas Barnay, Thierry Debrand

The health status of older Europeans has a major influence on the probability of being in employment, according to a study based on the SHARE 2004 survey. At the European level the employment rate of persons aged 50 or more is much lower for persons self-reporting a disease or severe restrictions in activities of daily living. For example it is half the average for persons who have suffered a cerebrovascular accident (CVA). Similarly, for persons suffering from cancer, the employment rate falls from 43% to 34% for women and from 63% to 42% for men.

After controlling the effects of age, educational level, marital status and country of residence on health status, the analysis shows that the diseases which are most detrimental to employment for men are: hip fractures, cerebrovasular accidents, heart disease and diabetes.

Finally the study shows that health status does not explain the differences in employment rate for men between European countries. This varies from a little over 40% in Austria to 80% in Switzerland. These differences are more likely to relate to differences in national economic circumstances and to regulations governing the legal age of retirement and mechanisms for leaving employment.

Most disabling diseases to employment rate between 50 and 65 years of age



***Source**: Share 2004, IRDES analysis.*

Note for the reader: Men who report having had a cerebrovascular accident have a probability of being in employment 21 points below those declaring no disease, other things being equal (hatched area: not significant at 5%).

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According to the SHARE survey[1], the employment rate for men aged between 50 and 65 is 62% compared to 43% for women for the ten European countries studied[2]. The Swiss, the Swedish and the Greeks have employment rates above 70%, whereas the Austrians, the Italians and the French have rates below 60%. This ranking is not the same for women, the rate ranging from above 71% in Sweden to less than 23% in Italy. The difference between men and women varies between countries: from 5 points in France and Sweden to 32 points in Spain and as high as 42 in Greece (see Figure 2 below).

This variation in rates of employment may be related to:

- differences in the institutional rules (legal age of retirement, financial incentives, mechanisms for early retirement, exemptions from job-seeking, invalidity pensions etc.);
- national economic environment;
- labour market structure;
- individual choices related to the family situation;
- and health status at the end of working life.

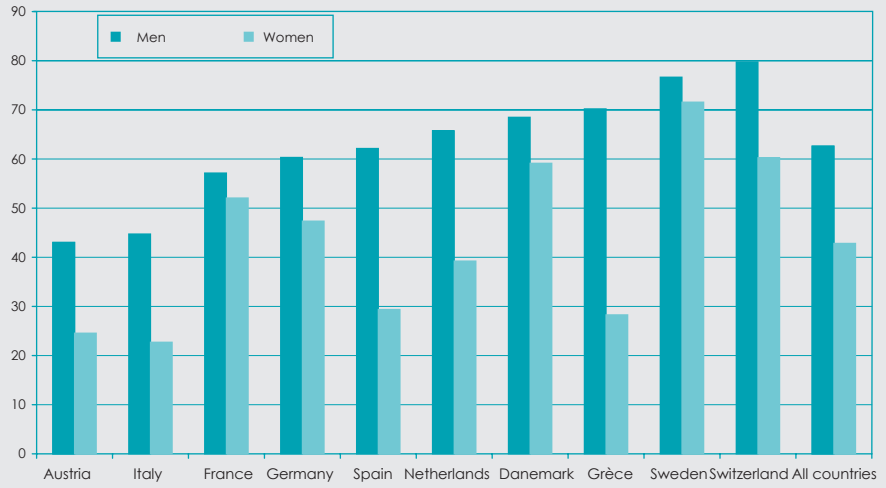
Here we focus on one particular determinant of labour market participation by older persons: health status. The objective of this study is to evaluate the effect of disease on self-reporting of limitation of activity, and thence to measure the impact of activity restrictions, both before and after controlling for disease, on labour market participation.

Health status and employment: causes and effects are difficult to establish

Several international empirical studies show that health status is one of the variables which determine older persons' labour force participation (Currie and Madrian, 1999).

Although the relationship between health status and employment may seem obvious, unravelling causes and effects is complicated and ambiguous. Two effects seem to counteract each other: on one hand working conditions may reduce health status at the end of working life (Volkoff *et al.*,

Employment rate by sex and country for 50 to 65 year olds



Source : *Share 2004, IRDES analysis.*

1 The French 2004 survey was realized by INSEE and coordinated by the Institute for Research and Documentation in Health Economics (IRDES). The collection of data in the SHARE survey was principally financed by the European Commission within the Fifth Framework Programme of Research and Development (project QLK6-CT-2001-00360 of the quality of life thematic programme). Additional finance was made available by the American National Institute on Ageing (U01 AG09740-13S2, P01 AG005842, P01 AG08921, P30 AG12185, T1-AG-4553-01 et OGHA 04-064). Supplementary funding was provided by CNAVTS, COR, DREES, DARES, the CDC Funds and the CGP. The SHARE database is presented in Borsch-Supan et al (2005); methodological detail is developed in Borsch-Supan and Jürges (2005).

2 These employment rates correspond to rates known elsewhere in Europe (Eurostat, 2005).

Proportion of persons self reporting severe restrictions in activities of daily living

Source : *Share 2004, IRDES analysis.*

2000), and on the other, poor health may result in early departure from the labour market (Barnay, 2005). Thus, Blanchet and Debrand (2005) show, using results from the 2004 SHARE survey, that health status and working conditions have a significant impact on the desire to retire as soon as possible. Moreover, follow-up of the ESTEV cohort has shown that health status was indeed one of the determinants of early retirement (Saurel Cubizolles M.J. *et al.*, 2001).

Difficulties in measuring health status using a health-employment approach

It is necessary to assess the health status of individuals before measuring the effect of health status on labour market participation. In general surveys do not enable measurement of individual health status as this would be diagnosed by the medical profession. This is usually recorded using self declaration questions. The SHARE survey uses several health measurement tools, all of which involve self declaration[3]: perceived health, activity restrictions, chronic disease and risk factors.

There are two intrinsic problems with this approach to gathering information. Firstly individual characteristics (age, education, sex, nationality etc.) affect the perception of health status and the way in which this is declared. The second issue relates to the relevance of the health indicators chosen to measure the effect of health status on work. For example we know that the effect of health on employment is underestimated if we use individuals' self reported health status directly (Bound, 1991; Campolieti, 2002). This is why it is necessary to use several indicators in order to account for bias when measuring health status. Restrictions in activity help to explain the interrelation between health and employment to the extent that they provide information on those restrictions in activities of daily living which may affect ability to work. Moreover the existence of disease may be one of the causes of restrictions in activity (WHO, 1980). Hence we use these two health

3 The first three health measurement tools are derived from the following questions in the SHARE survey. For perceived health: "Would you say that your health is very good, good, average, poor or very poor?"; for chronic disease: "Have any of these problems been diagnosed by a doctor?"; and for restrictions in activities of daily living: "During the last 6 months, to what extent have health problems prevented you from carrying out your normal activities?".

3

Chronic disease, restrictions in activity and participation in employment

	Male % of the population	female % of the population	Severe restriction in activity		Participation in employment	
			Men	Women	Men	Women
Parkinson's Disease	0,2	0,2	45,5	54,5	18,2	9,1
Hip fracture	1,0	0,8	26,4	46,0	35,8	26,0
Osteoporosis	1,2	8,2	28,6	21,3	42,9	22,5
Cataract	2,3	2,6	17,2	20,9	48,3	31,0
Cerebrovascular accident	2,4	1,7	44,6	32,4	28,1	21,6
Cancer	2,8	4,9	23,4	18,1	42,1	33,8
Asthma	3,8	4,9	15,8	21,0	56,6	40,0
Lung disease	3,9	3,3	28,0	30,0	40,5	31,0
Gastric ulcer	5,8	4,1	18,2	21,6	54,1	36,4
Diabetes	7,9	6,2	16,5	21,5	44,7	24,1
Cardiac disease	8,2	4,6	23,8	24,0	43,2	24,0
Polyarthritis	9,3	18,0	21,3	19,9	45,6	29,1
Cholesterol	18,2	16,0	10,5	13,3	58,8	32,1
Arterial hypertension	23,4	25,7	11,8	14,3	55,1	34,4
Severe restriction in activity	9,4	10,5	-	-	27,0	24,1
Average			9,3	10,5	62,6	42,8

Source : *Share 2004, IRDES analysis.*

Note for the reader: For the 10 countries studied and for the age group 50-65, 8.2% of men and 4.6% of women report having cardiac disease. For those individuals declaring cardiac disease, 23.8% of men and 24% of women (respectively 9.3% and 10.5% on average for the 10 countries) report restrictions in their normal activity and 43.2% of men and 24% of women are in employment (respectively 62.6% and 42.8% on average for the ten countries).

indicators to measure the interrelation between health and employment.

According to the 2004 SHARE survey 30.8% of men declare some restriction and 9.3% severe restriction in response to the question concerning activities of daily living (see Table 1). These proportions are 37.6% and 10.5% respectively for women. The populations which consider themselves most "restricted in their activity" are those in Northern Europe, with rates above 40% for women (Sweden, Denmark and the Netherlands) and above 35% for men (Denmark and the Netherlands). However on the basis of other general health indicators from other sources, the Scandinavian countries have relatively good health status compared to the rest of Europe. In 2003 63.8% of persons self reported good or very good health in Spain compared to 74.5% in Sweden and as high as 77.4% in the Netherlands (Eco-Santé, OECD 2005). Hence health status alone cannot explain these differences. Incentive bias related in particular to generous national sickness insurance systems (disability pensions) may affect the responses. It is very likely that reporting differences exist, i.e. that responses to the same question vary between countries, for a given state of health and equivalent socio-economic characteristics. Therefore we need to account for these differences when measuring the impact of health on employment.

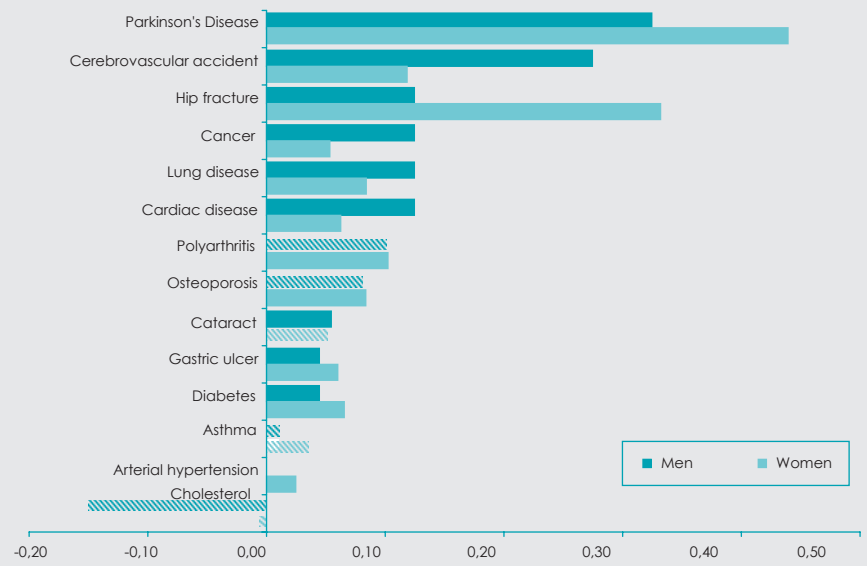
Method of analysis

The effect of health variables (diseases, restrictions in activity) is evaluated using a Probit model, estimated independently for men and women, and controlling for the effects of age, education level, family status and country.

Two models are analysed. The first model explains restrictions in activity. The objective of the second model is to explain the probability of being employed. The figure show the effect of disease and restrictions in activity on employment, all other things being equal.

These results should be interpreted with caution. As well as the classic "reporting" bias (particularly socio-cultural) there may be other sources of bias specific to countries, given that translation and interpretation will vary between countries. There may also be additional self reporting biases concerning health status, given the possibility of leaving the labour market using mechanisms designed to compensate poor health status.

The effect of self reported diseases on the probability of reporting restrictions in activity



Source : *Share 2004, RDES analysis.*

Note for the reader: For men, reporting having cancer increases the probability of reporting restrictions in activity by 12 point s compared to a person not reporting cancer. All of the effects shown in this graph are significant at the 5% level except those shown as hatched. The effects are estimated for the group of 10 countries after controlling for the effects of age, education level, and marital status.

Decline in health status is associated with systematically lower participation in the labour force

There is a statistical correlation between health status and labour force participation. Reporting a restriction in activity reduces the employment rate by 36 points for men (from 62.6% to 27%) and by 19 points for women (from 42.8% to 24.1%). Whatever the disease self reported, the persons affected have a below average employment rate. The diseases with the biggest impact on the employment rate are also the most disabling:

- Parkinson's Disease: men have an employment rate of 18.2% i.e. 71% below the male average and 9.1% for women, i.e. 79% below the female average;
- Cerebrovascular accidents: the rate reduces by 55% for men and 50% for women.

Moreover, the most disabling diseases are also the least frequent in 50 to 65 year olds, for men and for women, with Parkinson's, cerebrovascular accidents and lung disease each affecting less than 4% of the population.

An econometric analysis (see Box page 4) enables us to reason on the basis of all other things being equal, i.e. taking into account age, education level, marital status and.

Using two models, we analyse first the effect of disease on declared restriction in activity, then the effect of activity restriction (with and without disease) on employment.

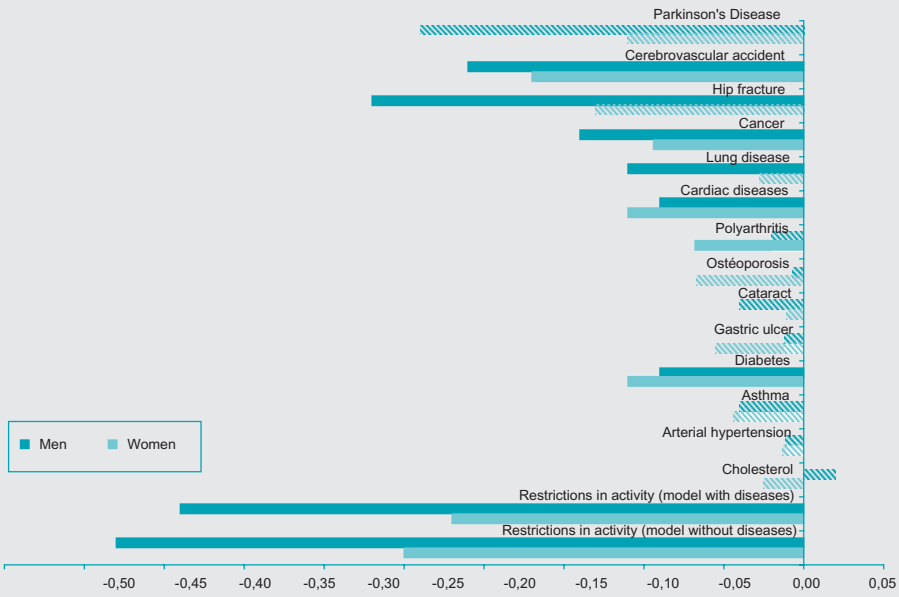
The effect of disease on activity restriction

Most self reported diseases (apart from cholesterol and asthma) have a significant positive impact on reported restriction in activity after controlling for age, education level, family status and country. Furthermore, for some diseases there is a big increase in reported activity restriction. For men, the diseases with the biggest impact on activity restriction (compared to a person reporting no disease) are Parkinson's Disease (+ 32 points) and cerebrovascular accidents (+ 27 points), followed by cardiac disease, lung disease, cancers and hip fractures, each with a positive impact of 12 points. For women, the disabling diseases are essentially Parkinson's Disease (+ 43 points), hip fractures (+ 33 points) and cerebrovascular accidents (+ 11 points).

The effect of activity restriction on employment

In addition, severe restriction in activity[4] has a strong negative impact on employment (- 43 points for men and – 25 points for women). When diseases are introduced to the explanatory model, the effect of restriction in activity on employment reduces slightly (-39 points for men and – 22 points for women) which conveys the very disabling effect of certain diseases. Nevertheless diseases seem to play a role in employment independently of their impact on severe restrictions in activity. In fact, after controlling for restriction in activity, the diseases with the highest significant effect on the probability of employment are respectively for men: hip fractures (-27 points), cerbrovascular accidents (-21 points), cancers (-14 points), lung diseases (-11 points), cardiac diseases ((-9 points); and for women: cerbrovascular accidents (-17 points), cardiac diseases (-11 points), diabetes (-11 points), cancers (- 9 points) and polyarthritis (-7 points). The effect of Parkinson's Disease (for both sexes) and hip fractures (for women) on labour force participation, although it is important, is not significant. For these two diseases, the results must be interpreted carefully given the prevalence of these diseases.

The impact of reported diseases and activity restrictions on the probability of being in employment



Source : Share 2004, IRDES analysis.

Note for the reader: For men, reporting diabetes reduces the probability of being in employment by 9 points compared to a person not reporting this disease. All the effects shown in the figure are significant at the 5% level except those shown as hatched. The effects are estimated for the group of 10 countries after controlling for the effects of age, education level and marital status. 2 different models are estimated: the first includes diseases and restrictions in activity, and in the second only restrictions in activity are presented (variable: activity restriction (model without diseases)).

4 Barnay and Debrand (2006) controlled for endogenous bias by constructing a proxy corresponding to the estimation of disability with sociodemographic, disease and Body Mass Index variables using Bound's model (1991).

Differences in health status do not explain European differences in employment rates

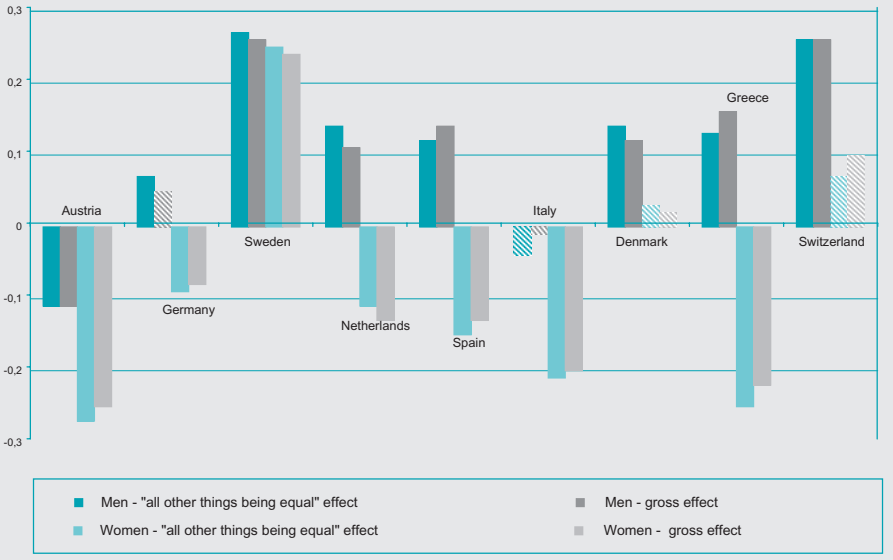
We have introduced indicator variables for each of the countries to explain participation in the labour market in Europe, using France as a reference. Without taking health problems into account, after controlling for sociodemographic variables, the Swedes and the Swiss have a significantly higher probability of being employed than the French. In the female population, only the Swedes are significantly more often in employment than the French. Taking health problems into account has little effect on intercountry differences. Differences in the structure of the labour market and in retirement mechanisms are therefore much more likely to account for the variation in employment rates in Europe.

If health has a fundamental role at individual level i.e. that within a country health status has an important effect on whether older persons participate in the labour market, it is economic and institutional characteristics which determine intercountry variation.

* * *

Particular attention should be paid to health status as a factor reducing the participation of older persons in the labour market. In fact, if the employment of older persons is influenced above all by the nature of the employment market at the end of working life and by mechanisms for retirement, it might be fruitful to develop policies for the prevention of those diseases with the biggest impact on employment (like cerebrovascular accidents) in order to increase the employment rate of older persons. Moreover, diseases do not have the same effect on being in employment for men and women: both their prevalence and their individual impact are different. It would therefore appear to be necessary to differentiate the analysis by sex.

"Country" impact on the probability of being employed



Source : *Share 2004, IRDES analysis.*

Note for the reader: In Spain, men aged between 50 and 65 have a 14 point greater probability of being employed than in France, after controlling for sociodemographic variables. A difference of 2 points is explained by less favourable health status variables. This leaves a specific national effect of 12 points.

All the effects shown in the figure are significant at the 5% level except those shown as hatched. The effects are estimated for the group of 10 countries after controlling for the effects of age, education level and marital status. 2 different models are estimated: the first includes diseases and restrictions in activity ("all other things being equal" effect) and the second (gross effect) without health indicators.

Further information

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