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DISABILITY, HEALTH AND RETIREMENT IN THE UNITED KINGDOM

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ABSTRACT

Over the last thirty years pathways to retirement have changed substantially in the UK. They have been dominated by spells of unemployment in the late 1970s, with then an increased importance of disability spells from the mid-1980s onwards. At the end of the period the direct route from work to retirement was increasingly more common. General economic conditions seem to have been important driving forces during the entire period. In contrast changes in health do not seem to provide convincing explanations for these trends: mortality has been falling over the period without any apparent link to the share of the population reporting ill health or disability or to the number claiming benefits. We also find evidence that recent reforms have had some impact. The halting of the previous growth in the rate of in-flow onto disability benefits in the mid-1990s coincided with the implementation of a major reform. Evidence from the pilots of the Pathways-to-Work programme in 2003-2005 suggests that those moving onto disability benefits moved off these benefits faster than they would otherwise have done as a direct result of the programme.

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1. Introduction

Two potentially contradictory trends have been identified as populations around the world have been ageing in recent years. On the one hand, improvement in health has led to non-abated increases in life expectancies. On the other, health conditions and disability have become seen, more than ever, as the main obstacle to longer working lives. This apparent paradox is at the core of policies aiming to encourage longer working life as various institutional settings (state pensions, disability benefits and unemployment insurance) interact with changes in health status and labour market conditions. Previous research has highlighted the impact of financial incentives of pension systems across a number of developed economies (Gruber and Wise 1999, 2004) but much less is known on the role that other pathways to retirement and changes in health conditions have played.

The UK is a fine example of these interactions. With stricter unemployment benefits and relatively few early retirement schemes (Banks et. al 2010), disability benefits have come over time to represent an important pathway to retirement. At the same time, life expectancy has been rising continuously while measures of self-reported health or disability do not seem to exhibit similar falls. As a result, disability benefits have become on top of the policy agenda with reforms following each other at a very rapid pace since the mid 1990s: a major reform in 1995 was followed by important changes in 2000, 2001, 2003, 2006, 2008 and lately 2010.

When one considers the degree of policy interest for this issue, one could be surprised at the limited literature on the subject in the UK. The main reason behind this is not the lack of interest from economists but more the lack of suitable data that combine information on labour market situation and comprehensive measures of health and disability. Most early work had to rely on self-reported measures of incapacity for work and benefit receipts. The obvious problem is that self-reported measure of disability could be affected by benefit receipt and offers therefore limited explanatory power (Myers 1982, Bound 1991). The main result from this early literature (Doherty 1979, Fenn 1981, Piachaud 1986, Disney and Webb, 1991) was that both disability benefits and self-reported disability were linked to the labour market conditions: increased unemployment seemed to lead to increased number of claimants of disability benefits and increased self-reported disability. More recent research (Benítez-Silva et al. 2010) has confirmed this relationship between the business cycle and the incidence of self-reported disability and provided more insights to the mechanisms involved, showing that unemployment had a large impact on the outflow rate out of disability benefits. Increasingly, researchers have tried to go beyond measures of self-reported health to capture the impact of more objective measures of health shocks. Disney et al. (2006) have for instance used panel data to construct instruments of self-reported health, showing that these health shocks were important predictors of movements in and out of paid work among

those approaching the state pension age in the UK. In an alternative approach, anchoring vignettes have been used to try and control for group or country-specific reporting effects on subjective health and work disability, with particular application to international comparisons (see Kapteyn et al. (2007) or Banks et al. (2008) for example.

This paper examines changes in health and disability related transfers in the UK over the last thirty years, and describes how they are related to changes in labour force participation. The objective is to present a comprehensive description of the reforms to the institutional setting, along with available time series coming from administrative data on benefit receipt, cross-section or panel data on self-reported health and their interactions with labour force status. By providing systematic evidence on institutions and data, we hope to help future research providing a fuller picture of the trends over this period. We also present evidence on the impact of two large reforms to disability benefits in the UK that help shed light on the long-term changes in disability prevalence in the UK.

Section 2 presents the evolution of transfers targeted towards people with disabilities in the UK, focusing on recent reforms and the distinctive features of these benefits compared to their equivalent in other countries. Section 3 shows the evidence available on the different pathways to retirement in the UK while section 4 presents evidence on various health measures, including mortality and self-reported health, and contrasts these evidences with labour market outcomes. Section 5 presents evidence on two major reforms of the UK disability benefit system, the 1995 reform and the more recent Pathways–to-Work programme. Section 6 concludes.

2. History of transfers targeted towards people with disability in the United Kingdom

Disability is a difficult characteristic to define. The traditional approach in the literature has rested on the pioneering work from Nagi (1965, 1991) who identified three components of disability: a pathology, an impairment and an inability to perform expected activities.[3] This approach leads to view disability as a permanent condition, completely separated from sickness, defined as a temporary incapacity. This distinction between permanent and temporary conditions has not been instrumental in the design of the UK benefit system. Historically, as this section will describe in more detail, sick and disabled individuals were all covered by sickness benefits, the only distinction coming from duration of claims. As a result the focus has been more on long term sickness than on 'disability'. In order to facilitate the comparison with other countries, we present the benefits available both to short-term sick and to long term sick or disabled.

[3] See Bound and Burkhauser (1999) for a review on these definitions and the implications for the measurement of the population with disabilities.

Transfers targeted towards long term sick or disabled in the UK are a complex set of benefits that have evolved over time and been relabelled multiple times. To clarify this institutional setting, with a jungle of acronyms, it is helpful to distinguish four types of 'disability' benefits: work-related injury benefits, disability insurance, non-contributory benefits and means-tested benefits (Creedy and Disney 1985, Burchardt 1999).

2.1. Work-related injury benefits

Compensatory benefits, for injuries at work or during wars, were historically the first ones to be implemented in the UK with the enactment in 1897 of the Workmen's Compensation Act, which established the legal liability of employers to compensate employees for loss of earnings capacity as a result of an accident or disease linked to employment (Walker 1981, Walker and Walker 1991). During World War I a state scheme, the War Disablement Pension, was introduced to offer compensation to veterans of H.M. Armed Forces. It was followed in 1948 by the Industrial Injuries Disablement Benefit (IIDB), set up by the National Insurance Industrial Injury Act 1946.[4] Both schemes still exist today and have only been marginally changed over time.[5] They offer more generous benefits than other disability benefits, are not means-tested, and can be cumulated with other benefits.

2.2. Disability and sickness insurance

The second type of disability benefits is earnings replacement benefits. The UK schemes share some characteristics of other countries' sickness and disability insurance but also have two defining features inherited from their origin.

First, they are not really insurance schemes, as generally understood. The welfare system put in place in the UK in 1948 largely followed the design of the Beveridge report (Beveridge 1942). It relied on an insurance principle, whereby eligibility to benefits was determined by contribution requirements, but benefits were not earnings related, unlike the US SSDI or examples in Continental Europe. As a result the system has largely been targeted at low income individuals for whom flat-rate benefits represented a large replacement rate.[6]

Second, the UK system has not formally recognised permanent disability conditions. The benefit set up in 1948 was called *Sickness Benefit* and offered a benefit with unlimited duration.[7] Hence the coverage for disability was not

[4] The rate of the IIDB in 2009–10 was £143.60 per week (or $12,000 annually) for an extent of disablement of 100% and those over 18. The benefit is reduced proportionally with the disablement.

[5] The IIDB was originally split into Industrial Injury Benefit (IIB) for the first 26 weeks of sickness and Industrial Disablement Benefit for longer durations. In April 1983 IIB was abolished and replaced for the first 8 weeks by employers Statutory Sick Pay (SSP) and Sickness Benefit for durations between 9 and 25 weeks (see section 2.2 for more details on SSP).

[6] There is a short period between 1966 and 1980 when earnings-related Sickness benefits have been introduced but this social insurance experiment has been both limited and short-lived.

[7] The system introduced after World War II is also largely the heir of the general sickness insurance introduced by the National Insurance Act 1911. It provided sickness benefits payable for 26 weeks along with a disability benefit and some health care benefit. All these benefits were distributed through

distinguished from short-term sickness, and only duration of claim could distinguish the long-term sick from the short-term sick.

Table 2.1 presents the evolution of these schemes from 1948 to 2010 according to duration of incapacity while Box 2.1 summarizes the changes to the generosity of these sickness and disability schemes. In 1971 *Invalidity Benefit (IVB)* was split from Sickness Benefit but still followed the structure inherited from the previous scheme, whereby entry to IVB would be offered to those who had been on sickness benefits for longer than 28 weeks. IVB offered a higher level of benefit than Sickness Benefit but without imposing another health test when entering IVB. The screening process at the time relied on a medical assessment, by a personal doctor, of the ability to conduct "suitable work".

In 1983 a major reform was introduced to transfer administration of sick pay claims from Sickness Pay to employers, for the first eight weeks of sickness, increased to 28 weeks in 1986. Employers were mandated to pay *Statutory Sick Pay (SSP)*, payments which would be reimbursed by the government through lower National Insurance contributions.[8] For those who would not qualify to SSP, Sickness Benefit was still available.

Table 2.1 Structure of benefits in the UK by duration of incapacity (1948-2010)

<table>
<tr><th></th><th colspan="4">Duration of incapacity to work</th></tr>
<tr><th></th><th>1-8 weeks</th><th>9-28 weeks</th><th>29-52 weeks</th><th>More than 1 year</th></tr>
<tr><td>1948-1971</td><td colspan="4">Sickness Benefit</td></tr>
<tr><td>1971-1982</td><td colspan="2">Sickness Benefit</td><td colspan="2" rowspan="3">Invalidity Benefit (IVB)</td></tr>
<tr><td>1983-1985</td><td>Statutory Sick Pay (SSP)</td><td>Sickness Benefit</td></tr>
<tr><td>1986-1995</td><td colspan="2">SSP/ Sickness Benefit</td></tr>
<tr><td>1995-2008</td><td colspan="2">SSP/ Incapacity Benefit (IB) short term lower rate</td><td>IB short term higher rate</td><td>IB long term rate</td></tr>
<tr><td>2008-</td><td colspan="2">SSP/ ESA</td><td colspan="2">Employment Support Allowance (ESA)</td></tr>
</table>

The number of claimants increased slowly until the mid-1980s for the older working age individuals, when a sharp increase of IVB recipients was registered for all age groups. One can see in Figure 2.1 and Figure 2.2 the number of IVB

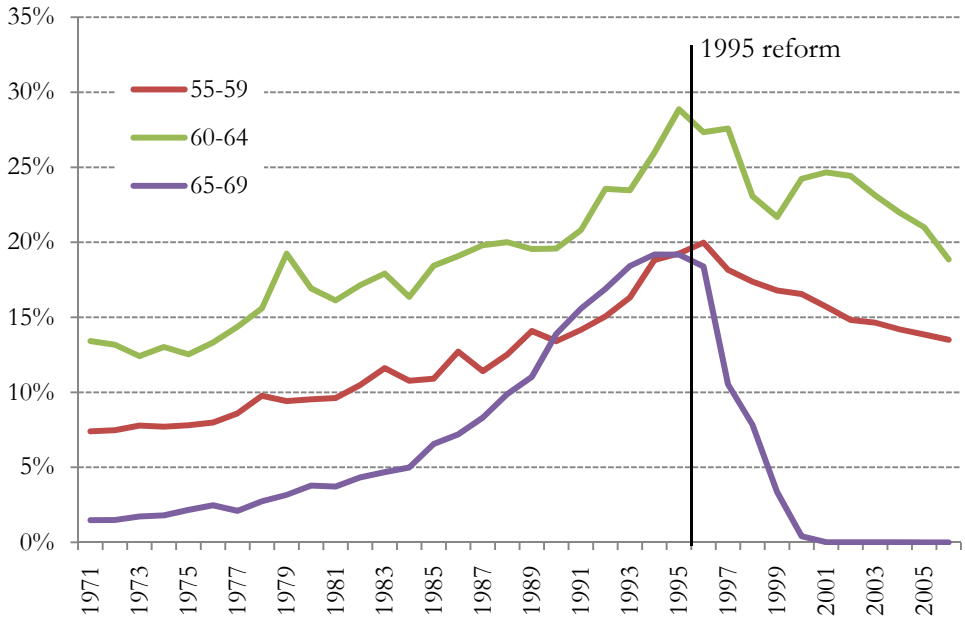
approved Friendly Societies but the scheme largely paved the way for further state interventions (see chapter 2 of Creedy and Disney 1985 and Gilbert 1965).

[8] Control of SSP was made by self-certification of sickness from the part of employees, which has raised concerns when expenditures on SSP turned out to increase more rapidly than Sickness Benefit (Creedy and Disney, 1985 page 127).

recipients as a share of the 55-59, 60-64 and 65-69 age groups for men and women. Between 1985 and 1996, the share of the 55-59 year old men on IVB almost doubled, from 10.9% to 20.0%.

In 1995 a reform was introduced which replaced the IVB and Sickness Benefit schemes with *Incapacity Benefit (IB)*. This maintained the "own occupation test" to qualify for the first 28 weeks of incapacity but replaced the "suitable work test" of IVB with an "all work test" to qualify for the higher rate IB. This new medical screening was also removed from personal doctors and was instead administered by medical staff at the regional level and commissioned by the scheme's administration. The growth of the IB roll was stopped, even slightly reversed but the stock remained high, especially for younger individuals. In addition to these changes, IB was no longer paid to new claimants above the state pension age (65 for men and 60 for women, at the time). Individuals previously typically preferred to stay on IVB than to receive the basic state pension as the latter is taxable whereas the former was not. The new IB benefit excludes those above state pension age (at the time 60 for women and 65 for men) and is treated as taxable income. This is why the number of claimants of IB aged above the state pension age drops markedly after the 1995 reform in Figures 2.1 and 2.2.

Figure 2.1 IVB/IB recipients as a share of population (males), by age group.

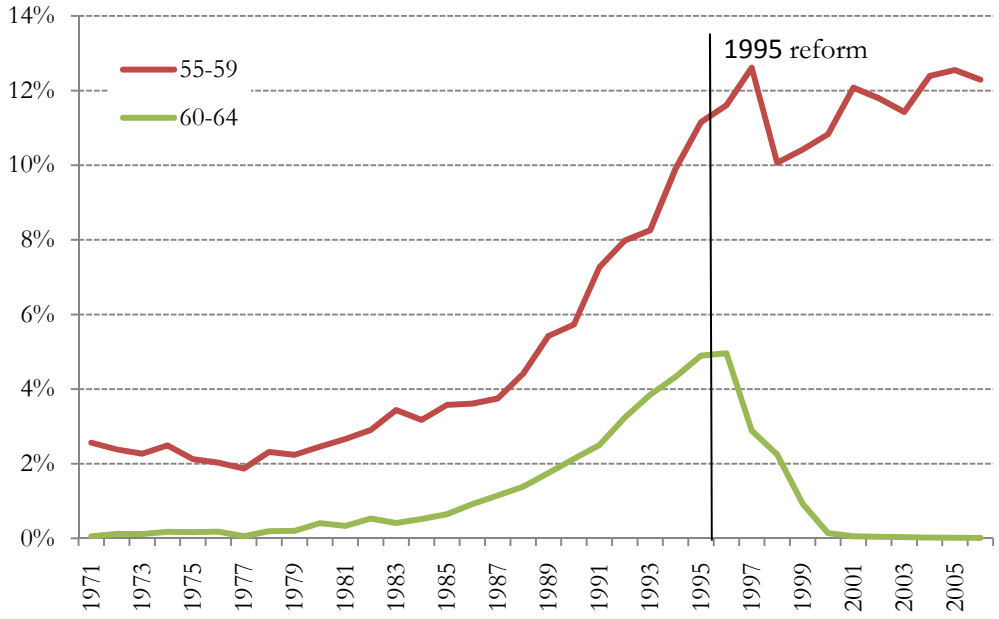


Note: IV/IB claimants' data from Anyadike-Danes and McVicar (2007), working age population from Family Expenditure Survey.

The 1999 Welfare Reform and Pensions Act introduced further changes, with a tightening of the health test from April 2000 onwards and a reduction in the generosity of IB from April 2001. The new health test is called Personal Capability Assessment, which is designed to assess capacity for work instead of checking incapacity for work and is therefore supposed to foster return to work.

The reform also increased the eligibility requirement for IB from having paid contribution in any year before the start of incapacity to having paid sufficient contributions in one of the last three years. Finally it introduced means-testing of IB with regard to individual private pension income at a rate of 50% above £85 a week.

Figure 2.2 IVB/IB recipients as a share of population (females), by age group.



Note: IV/IB claimants' data from Anyadike-Danes and McVicar (2007), working age population from Family Expenditure Survey.

Box 2.1. Reforms to the UK Disability Insurance system, 1948 to present day

1948	Introduction of Sickness Benefit. Flat rate benefit, no distinction by duration of claims.
1966	Introduction of earnings-related Sickness benefit.
1971	Introduction of Invalidity Benefit (IVB). Higher rate for duration above 6 months.
1972 reform	Introduction of Invalidity Allowances. Supplements for becoming disabled at younger age.
1980	Abolition of earnings-related Sickness benefit.
1983/1986	Introduction of Statutory Sick Pay.
1995 reform	Incapacity Benefit (IB) replaces IVB. New claimants receive less generous Incapacity Benefit, which is taxable (unlike IVB). "Own occupation" test replaced by "Any occupation" test. Regional medical test instead of personal doctor. No longer paid to people over state pension age.
2001 reform	Increased contribution requirement to qualify for IB. Introduction of means-testing with regard to pension income.

Pathways–to-Work expansion 2003-2008	Piloting of a package of reforms consisting in increased conditionality, increased support and increased financial incentives to return to work.
2008 reform	Employment support allowance (ESA) replaces IB for new claimants.
2010 reform	ESA is applied to all existing IB claimants.

In 2003 the New Labour government decided to pilot an ambitious, and expensive, programme to incentivize IB claimants to return to work called *Pathways-to-Work*. The programme included increased conditionality with mandatory work focused interviews, increased financial incentives to return to work and increased support with the provision of voluntary schemes designed to help disabled individuals to return to work. The scheme was evaluated in pilot areas and then expanded to the rest of the country (Adam, Bozio and Emmerson 2011).

In 2008 the Government announced a new scheme to replace IB, the *Employment Support Allowance (ESA)* for new claimants. This new scheme incorporates a stricter eligibility health test along with a redesign of the benefit rates. In the first 13 weeks of claim, the claimant is subjected to a Work Capacity Assessment which determines whether the individual is entitled to ESA. Among those found eligible for ESA, the Work Capacity Assessment distinguishes between those who have "limited capacity to work and are unable to follow work related activities" and the remainder who have "limited capacity to work but are able to follow work related activities". For the last group claimants are mandated to attend the Pathways-to-Work programme. ESA will be progressively applied to all existing IB claimants, i.e. existing claimants are going to be re-tested for the stricter eligibility between October 2010 and 2014.

2.3. Non-contributory benefits

Whereas the previous disability benefits are only available to those who have a sufficient National Insurance contribution record, a set of benefits were created in the 1970s for individuals of working age, with congenital disabilities, and who did not qualify for the contributory scheme. In 1975 the *Non-Contributory Invalidity Pension (NCIP)* was introduced, offering a benefit of 60% of IVB to men or single women. In 1977 the scheme was extended to married women who were "incapable of performing normal household duties" under the name of *Housewife Non-Contributory Invalidity Pension (HNCIP)* but at lower rate than the NCIP. Both NCIP and HNCIP were replaced in 1984 by the *Severe Disablement Allowance (SDA)* which stopped the distinction that was deemed discriminatory against women. It was subsequently abolished in 2001 for new claimants.

In the 1970s a number of schemes were also designed to offer benefits to compensate the extra cost endured by disabled individuals, either in the form of carers or the extra cost of mobility. In 1971 the *Attendance Allowance (AA)* was created for those who required personal assistance and in 1976 a *Mobility*

Allowance (MA) was introduced for those who had difficulty moving around. Also in 1976 an *Invalid Care Allowance (ICA)* was introduced for those who could not work because they had to stay at home to care for a disabled relative.[9] In April 1992 the *Disability Living Allowance (DLA)* replaced MA and AA for those who had become disabled before the age of 65, while AA was kept for those aged over 65. In terms of total expenditure, DLA represents the biggest transfer targeted towards people with disability in the UK. In 2006-07 it represented £9 billion of expenditure, approximately 0.7% of national income. If one adds the £4 billion of AA and £1.2 billion of CA, the non-contributory disability benefits represent more than 1% of national income. With the June 2010 Budget, the government plans to cut DLA spending by re-examining the health of existing claimants. The details or this reform are not known at the time of writing.

2.4. Means-tested benefits

A number of means-tested benefits targeting poor household have provisions that include premiums for disability. *Income Support (IS) on ground of disability* for instance offers a premium for low-income households containing at least one disabled individual.

Another example is *Working Tax Credit (WTC)*, the UK equivalent of the US Earned Income Tax credit (EITC), has also a supplement for disabled workers, and has a less onerous hours rule than that applied to non-disabled childless adults, with a further premium for severely disabled. *Housing Benefit (HB)* is another means-tested benefit with additional income for those with disability and increased premium for those with severe disability.

3. Pathways into retirement and program reforms

Given the complexity of pathways into retirement, it is important to put the changes to disability schemes in the wider context of other reforms to state pension schemes and unemployment schemes. Presenting data on pathways into retirement requires long panel datasets where each individual can be followed from work into retirement status. The UK does not have comprehensive administrative data such as the ones available for Germany (see Borsch-Supan et al., this volume) but we can shed light on these transitions using three approaches: cross-sections from Family Expenditure Survey (FES) and Labour Force Survey (LFS), one-year economic transitions from LFS and the longer panel from the British Household Panel Survey (BHPS).

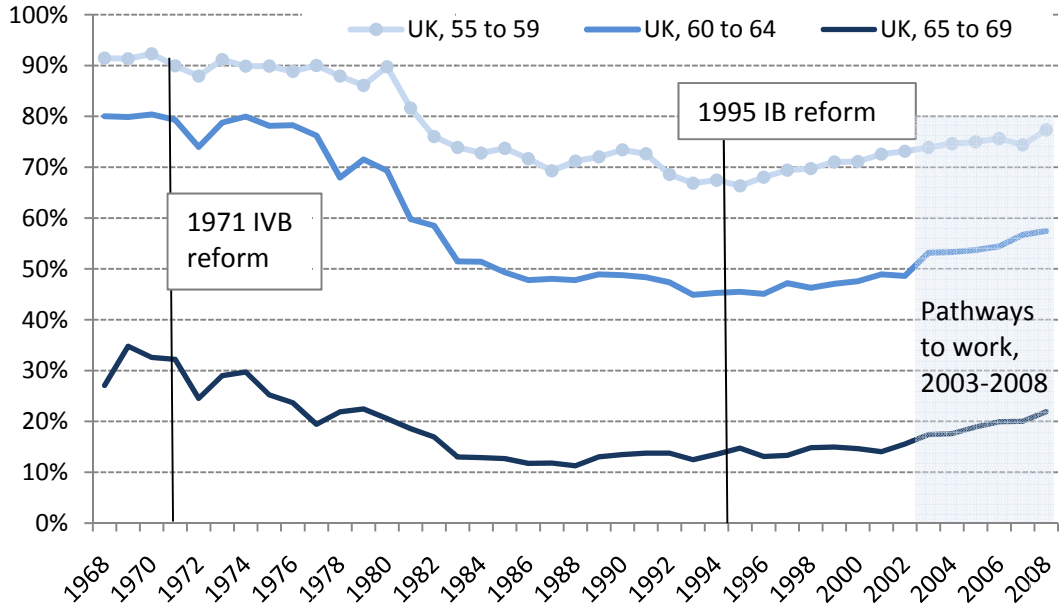
3.1. Cross-section evidence on economic activity

Two representative surveys provide good information on participation in the labour market in the UK. The FES goes back to 1968 and from 1975 onwards, the LFS offers large samples of British households with a full description of their

[9] In 2003 ICA was renamed *Carer's Allowance (CA)*.

labour market status. The employment rate of older males by three age categories (55 to 59, 60 to 64 and 65 to 69) over a forty year period, from 1968 to 2008, is shown in Figure 3.1. We also add in the figure the main reforms to disability benefits in the UK over that period, i.e. the introduction of IVB in 1971 and the introduction of IB in 1995. No obvious relationship strikes out from these time series. The introduction of a more generous IVB in 1971 does not seem to have led, at least immediately, to a change in the employment rate of older workers, while the more restrictive reform of 1995 is also hardly visible. The progressive introduction of the Pathways–to-Work programme over the 2003-2008 period is associated with an increase in employment for the older workers but given that the programme only affected a small share of the country until 2006, it is difficult to ascribe this increase to this reform (we return to this issue in section 5).

Figure 3.1 Employment rate and IVB/IB reform (males)

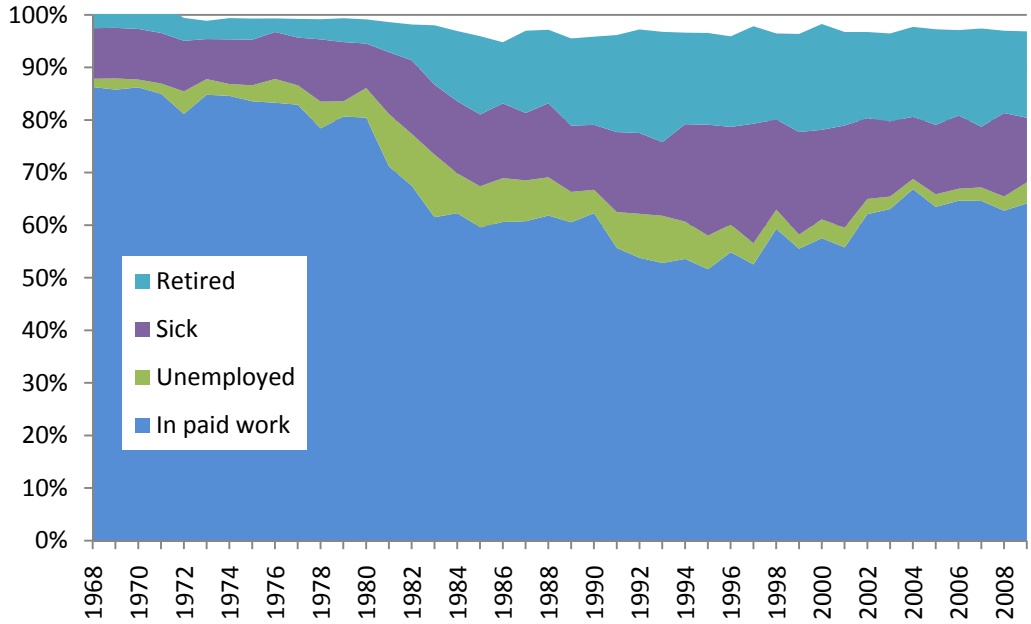


Sources: 1968 to 1983 Family Expenditure Survey; 1983 onwards Labour Force Survey

Another way to look at the change in labour market status over the long term is to look at reasons given by survey respondents for not being in work. We present in Figure 3.2 cross-sections of 55-64 year old men by self-reported economic activity. We cannot split those who report a health problem between the short-term sick and long-term sick but we still capture the changes in non-employment between those who look actively for work (the official unemployed) those who report being inactive because retired and those who report being inactive because of sickness. Given the way the questions in the survey are structured, an individual who is not working because of a temporary illness but has kept his job will be classified as employed. Therefore those who report being sick are both not employed and not looking for work. Two facts stand out from this figure. First, the big drop in older male employment in the late 1970s and early 1980s

was associated with a large increase in the unemployed and the retired. The share of those reporting being sick did not increase immediately. However, starting in the mid-1980s, the share of 55-64 year old reporting being inactive because of sickness increased markedly, in line with the increase in disability benefits recipients observed in Figure 2.1. Over the last ten years the increase in employment rate of this group has largely been at the expense of the unemployed, and only marginally at the expense of those reporting health problems. As a general remark, the share of those inactive because of sickness is always much larger than those looking for work, even when the official unemployment rate reached its highest level in the 1980s.

Figure 3.2 Economic activity of 55-64 year-old men (1968-2009)



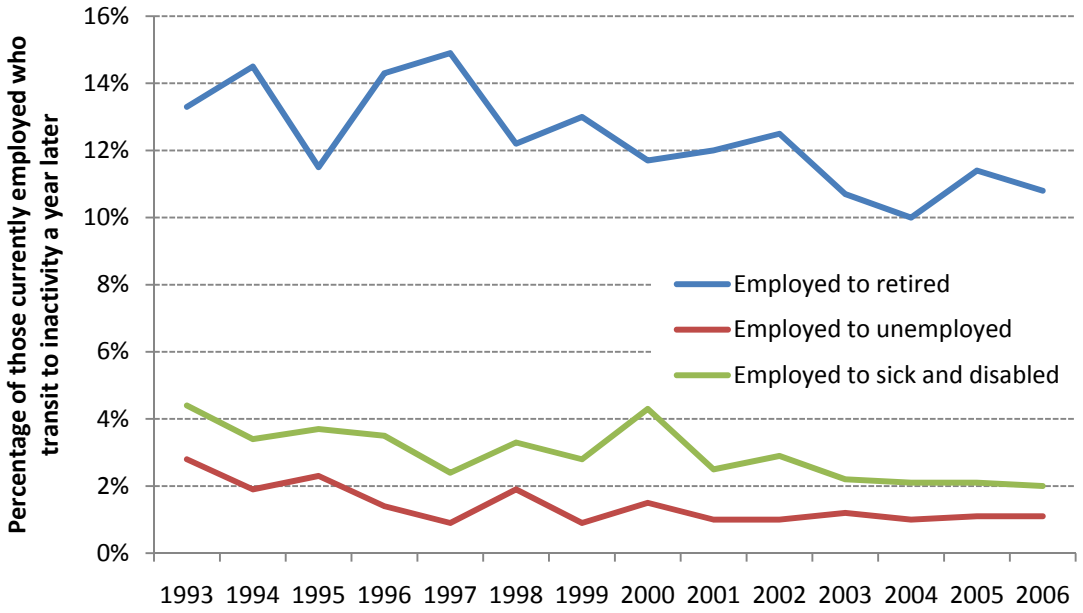
Sources: 1968 to 2009 Family Expenditure Survey.

3.2. One-year transitions from LFS

One advantage of the LFS since 1992 is that survey respondents are asked about their economic position quarterly in five successive waves. This provides us with a one-year panel dataset from 1993 onwards allowing us to present evidence on transitions from employment into inactivity. Figure 3.3 presents the evolution of these short-term transition rates for 60 to 64 year old men. The most striking fact over the period, especially since the late 1990s, is the reduction in the transition rate from employment into retirement. This coincides with the significant increase in the employment rate of this group over the period. Transitions to unemployment and disability have declined over the early 1990s and stabilised at a low level since. There is hardly any evidence from these statistics that the 1995 reform has had much impact on the transitions through disability and the dominant factor over the period remains the change in

retirement behaviour of this age group which, over this period, is increasingly occurring at an older age. .

Figure 3.3 One year transition rates to inactivity from employment (60-64 year old men)



Sources: Quarterly Labour Force Survey 1992-2006.

Figure 3.4 Previous economic activity of newly retired men

Sources: Quarterly Labour Force Survey 1993-2008.

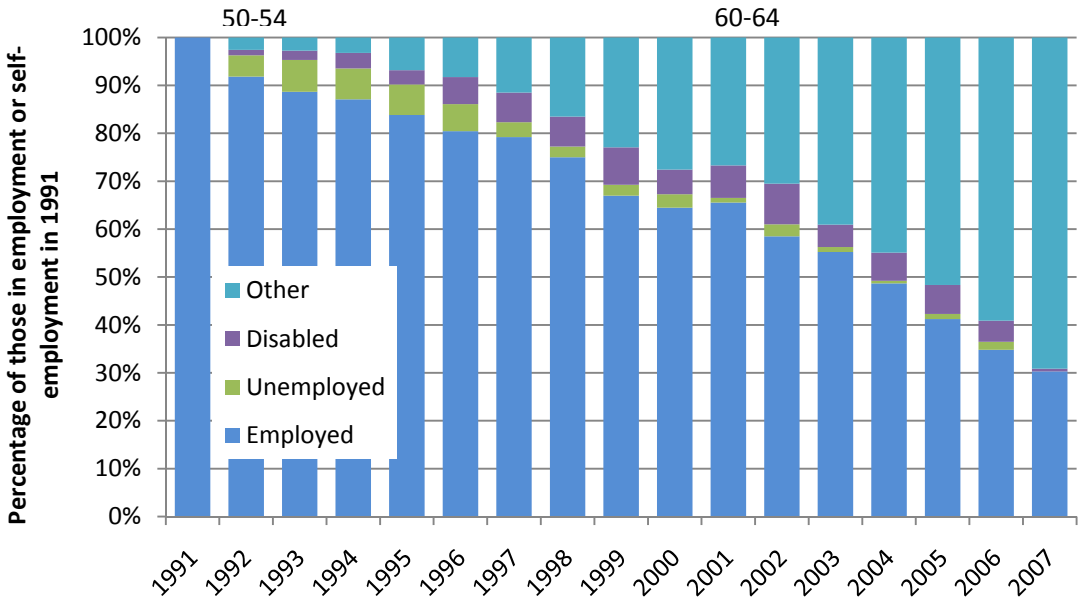
Figure 3.4 presents similar evidence by looking reversely to the previous activity of newly retired individuals, i.e. individuals who declare that they are retired in one year but were not in the previous year. From the mid-1990s to the days before the financial crisis, direct transition from employment to retirement has

increased markedly: whereas in 1994 only 54% of newly retired men were coming directly from employment, this share reached 67% in 2008. This has been matched by a similar decrease of newly retired men coming from unemployment, whose proportions were halved from 20% to 10%. On the other hand there is only limited evidence of reductions in those coming from long-term sickness or disability. From 1994 to 2001 the proportion is increasing, from 25% to 35% while a decline is evident in the more recent years down to 23% in 2008.

3.3. Evidence from BHPS

The short-term transition rates from the LFS provide a good but limited description of the pathways to retirement that individuals might experience. It is possible to imagine that transitions to unemployment cascade into disability before retirement and that short-term transitions do not capture these effects. In order to shed light on these long-term transitions, we use a long panel dataset, the British Household Panel Survey, which surveys 10,000 individuals every year since 1991 and up to 2007. Although we have access to seventeen waves of BHPS, there are only few cohorts that we can follow from age 50 through retirement. We have selected the cohort born between 1938 and 1942 who were aged 49 and 53 in 1991 and aged 65 to 69 in 2007. In Figure 3.5 we present the evolution of self-reported economic activity for a sample of men from this cohort who were in paid work in 1991. Between age 50 and 55, inactivity is largely dominated by unemployment, whereas disability becomes a more substantial aspect from age 55 onwards up to much older ages. Nonetheless the decrease in employment over the 50-69 age group is still largely dominated by the increase in other status, i.e. retirement.

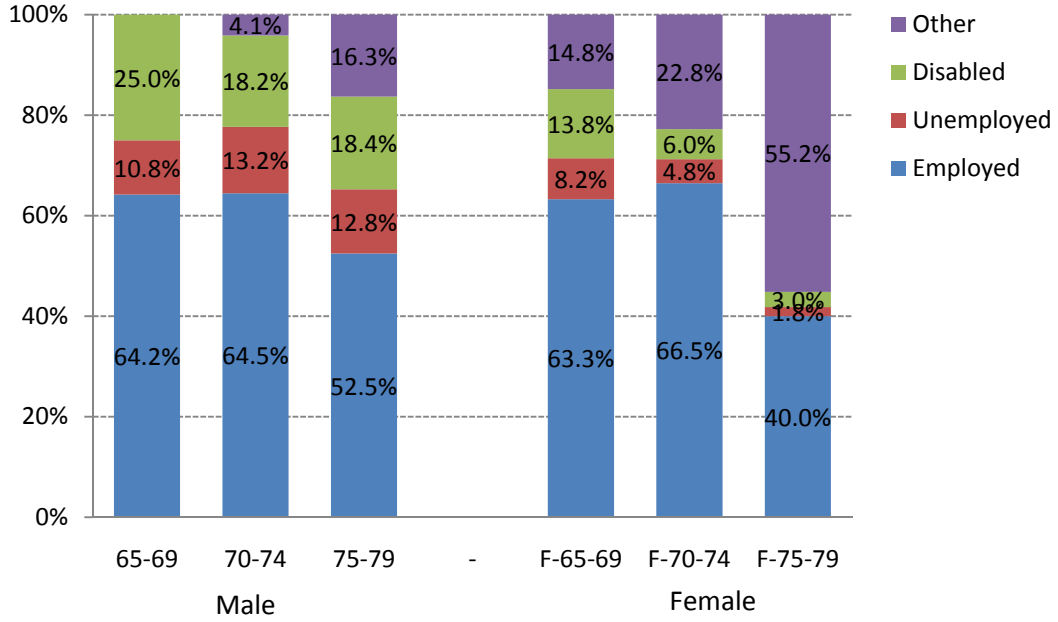
Figure 3.5 Subsequent activity of men born between 1938 and 1942 in work in 1991



Sources: British Household Panel Survey 1991-2007.

In Figure 3.6 we present similar statistics to Figure 3.4 but using the long panel of the BHPS as opposed to the short panel of LFS data. Those who were retired in 2007 transited largely directly from employment: 64.5% of retired men aged 65-69 in 2007 were in employment before retiring compared with 63.3% for women. This leaves still a significant share that transit through unemployment and disability: 25.0% of men aged 65-69 came from disability against 13.8% for women. Disability is an ever more important transition for women as the increase in labour force participation of women has reduced the other form of inactivity while increasing eligibility to disability benefits.

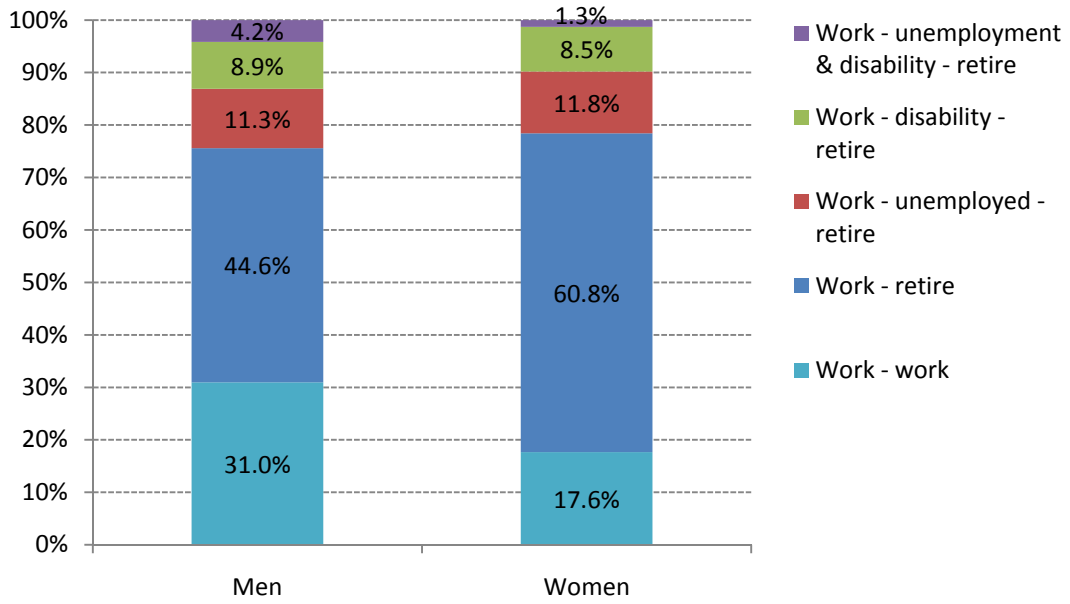
Figure 3.6 Last activity of those retired in 2007, Cohort born 1938-1942



Sources: British Household Panel Survey 1991-2007.
Note: Those who are inactive throughout the panel are included in "other".

Figure 3.7 takes full advantage of the long panel from the BHPS by presenting evidence on transitions from employment into retirement and distinguishing the different pathways. The large majority of men and women aged 65-69 are either still in work or have transited directly from employment to retirement (75.6% of men and 78.4% of women). This is not to say that spells of unemployment or disability are rare, as a significant proportion of men transit through unemployment (11.3%) and disability (8.9%). It is however much less common to experience multiple transitions from unemployment to disability before retiring as these two options seem to be alternative pathways.

Fig. 3.7 Pathways from work into retirement, , Cohort born 1938-1942



Sources: British Household Panel Survey 1991-2007.
Note: The sample includes all those aged 49 to 53 and in work at the start of the panel (in 1991) and retired at the end (aged 65 to 65 in 2007). Less than 1% of the 49-53 years old working in 1991 ends up unemployed or disabled in the last wave of the panel.

4. Evidence on long term trends in health and labour participation

This section aims to provide evidence on long term trends in health using measures of mortality rates at different ages and self-reported measures of disability. We then attempt to relate these changes to changes in the labour force participation.

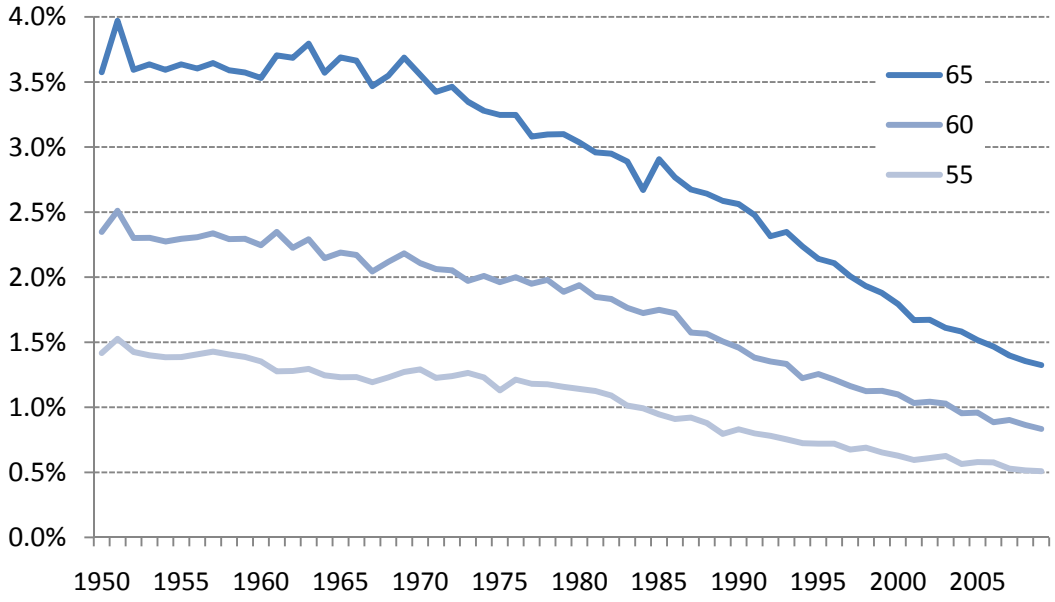
4.1. Mortality data

There are two advantages in using mortality data. First, mortality is a well defined concept and it is therefore easy to present comparable information across countries. Second, mortality rates are available over long periods and can be matched with historical data on labour force participation. However mortality data have also very obvious limitations for our purpose: they are not individual data, and do not allow assessing individual specific health shocks to labour force participation. And perhaps even more importantly, morbidity is a very different issue from disability or incapacity to work, which is more likely to matter to explain trends in labour force participation. England and Wales life tables are available from 1841 onwards by age and sex and by period and cohort.[10] We use in this section period data for ease of comparison with other countries.

[10] Mortality rates calculated on a "period basis" do not account for future changes (typically improvements) in mortality rates, whereas those calculated on a "cohort basis" do allow for such changes.

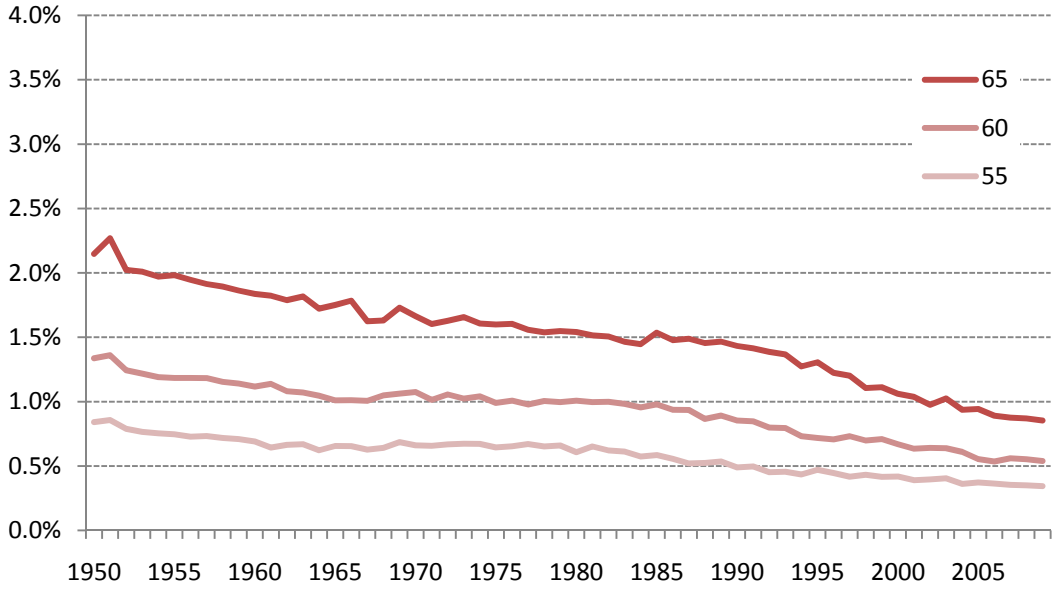
Figure 4.1 and 4.2 show the evolution of period mortality rate of English and Welch men and women at age 55, 60 and 65. Until the 1970s, there was only a minor reduction in mortality rates for men at age 55 and 60 and almost no improvement at age 65. During that decade men mortality rates started falling rapidly, especially at older ages. The fall in mortality rates is less impressive for women, but as Figure 4.2 makes clear, women have experienced much lower mortality rate than men and much earlier decline in mortality at older ages.

Figure 4.1 Age-specific mortality rate for English and Welch men



Sources: England and Wales life tables, GAD.

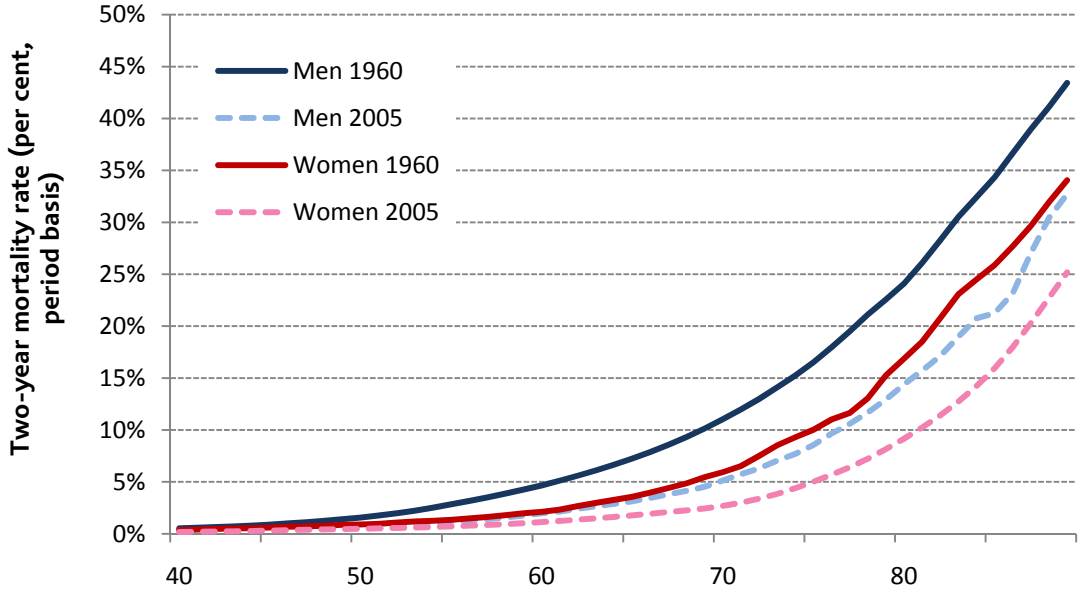
Figure 4.2 Age-specific mortality rate for English and Welch women



Sources: England and Wales life tables, GAD.

Figure 4.3 presents two-year mortality rates by age for both men and women comparing the period data from 1960 and 2005. Mortality rates increase steeply by age and are higher for women but the gap between men and women has got smaller since 1960, men having enjoyed a somewhat larger reduction in mortality than women. Whereas the 5% two-year mortality rate was reached at 61 for men in 1960, it was only attained at age 70 in 2005. For women, the age of the 5% two-year mortality rate increased from 68 to 75 over the same period.

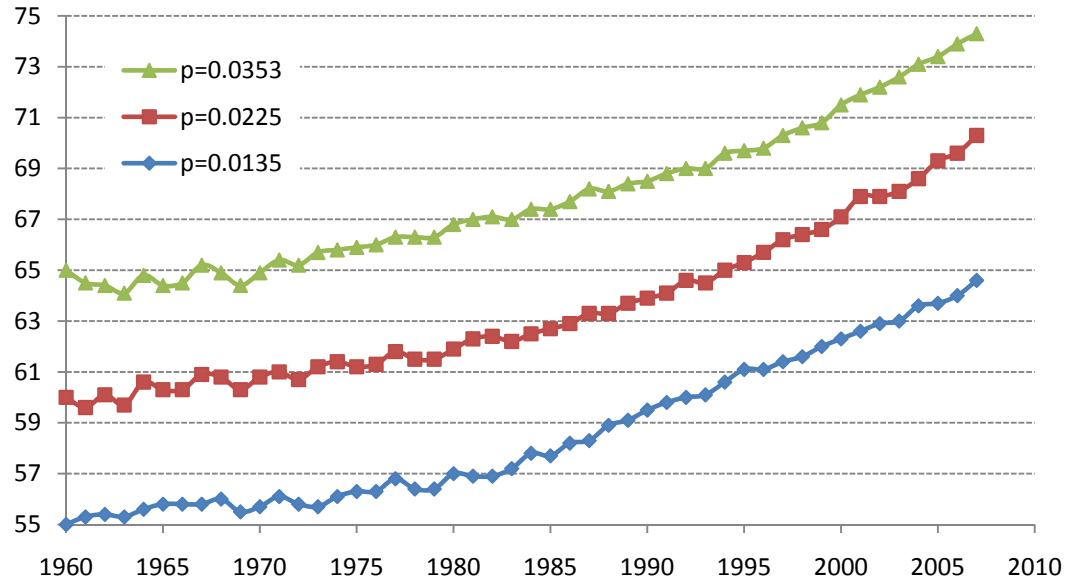
Figure 4.3 2-year mortality rate for male and women



Sources: England and Wales life tables, GAD; computations from the authors.

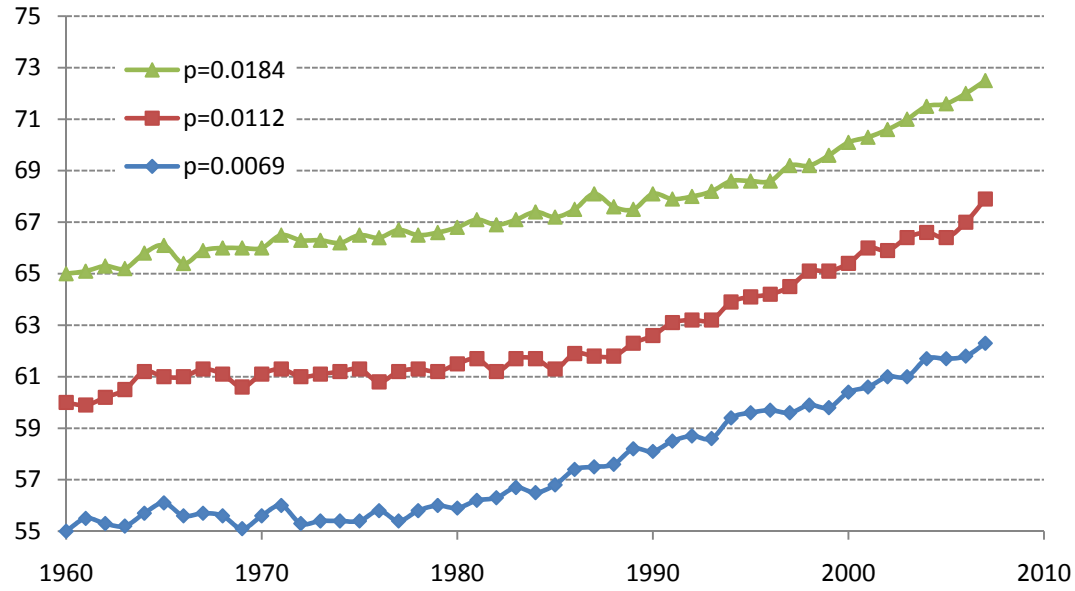
Figures 4.4 and 4.5 show the age of equal mortality rate over time computed using one-year mortality rates ("isomorts"). This graphically illustrates the ageing process as an increase in the age where individuals face the same probability of death: being a British 65 year old man in 1960 – when state pension age was already 65 – is equivalent in terms of mortality risk to being aged 74 today. Or reversely being 65 today is like being 55 in 1960. The increase is less pronounced for women, reflecting as before the larger reduction in mortality for men, but is nonetheless impressive. For instance, being a 60 year old woman in 1960 – the then state pension age – is today equivalent in terms of mortality risk to being 70 years old.

Figure. 4.4 Isomorts: Age of equal period mortality rate, English and Welch men



Sources: England and Wales life tables, GAD; computations from the authors.
Note: p represents the mortality rate of the isomorphs.

Figure 4.5 Isomorts: Age of equal period mortality rate, English and Welch women



Sources: England and Wales life tables, GAD; computations from the authors.
Note: p represents the mortality rate of the isomorphs.

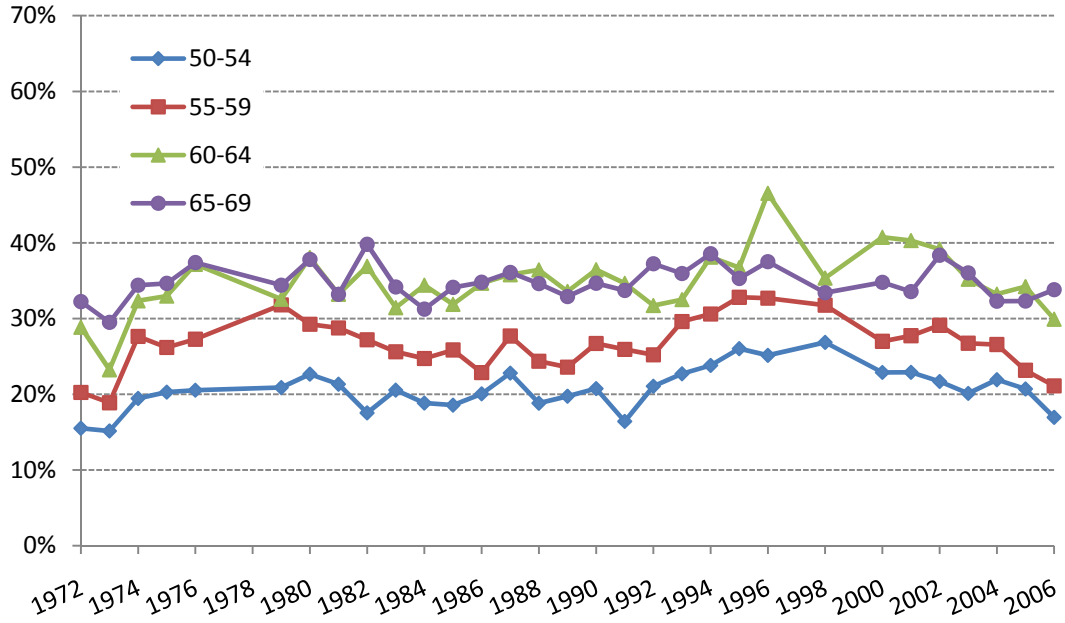
4.2. Measures of self-reported disability

Although the previous section highlights the large improvement in average life expectancy, the ability to continue economic activity at older age is more likely to be affected by health conditions that are not obviously related to morbidity. Objective measures of disability are particularly rare over long historical time

series as they have only been recently added systematically to survey on ageing. As a result, analysis of such measures, over the time period we are looking at here, is not possible. Going forward, however, the fact that ageing studies such as the Health and Retirement Study, the English Longitudinal Study of Ageing and the Survey of Health, Ageing and Retirement in Europe now routinely collect objective measures of physical functioning such as walking speed, grip strength, chair stands, balance tests and lung function, along with cognitive performance tests and huge batteries of questions on doctor diagnosed diseases and limitations in activities of everyday living, means that an analysis based on objective measures of health and functioning should be a priority for future research.

For our purpose here, however, there is useful information on self-reported health from the General Household Survey (GHS), which surveys annually 10,000 household in the UK from 1971 to 2006. In Figure 4.6 we show the proportion of men reporting limiting long-standing illness, the notion closest to the accepted definition of disability, by different age groups. Two facts are striking. First, over this thirty year period the share of men reporting some disability is relatively flat, despite the large improvement in health (at least as measured by the improvements in mortality rates). Second, this proportion of individual saying that they have some limiting long-standing illness is increasing by age at every period.

Figure 4.6 Proportion of men reporting limiting long-standing illness (1972-2006)

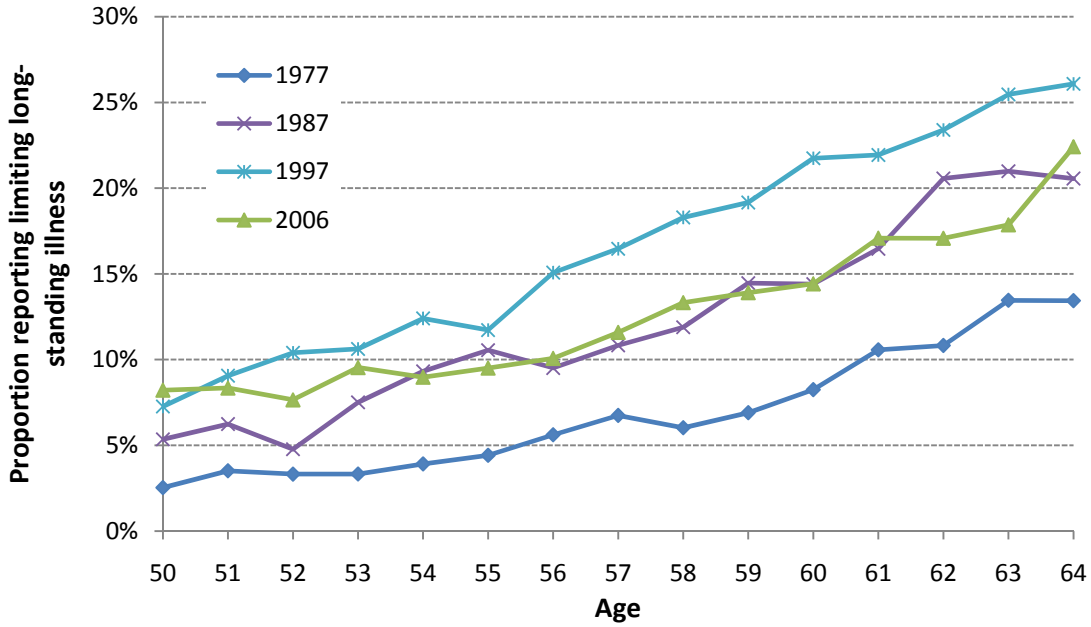


Source: General Household Survey 1972-2006.

The presentation of time-series averages by age group, however, tends to mask the systematic age variation in the data across later working-ages. In Figure 4.7

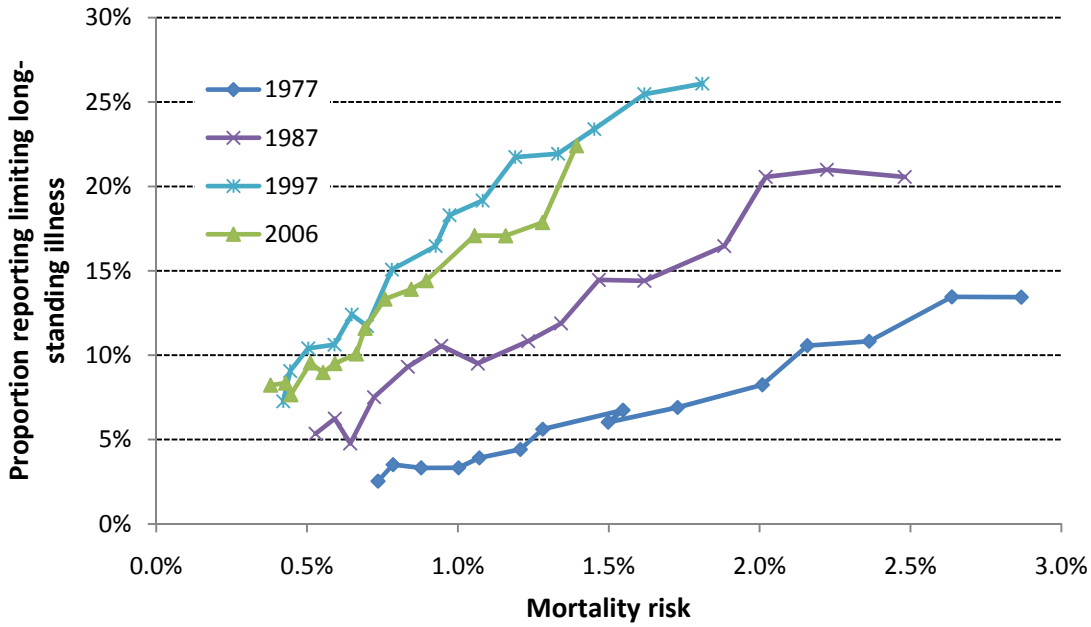
we present the proportion of men reporting limiting long standing illness by age at ten year intervals. The share of self-reported disability is steeply increasing by age at every period but although it was increasing at every age between 1977 and 1997, the latest year in our data exhibits a marked reduction for ages above 51. In Figure 4.8 we plot the same data with respect to specific age mortality rates for each year and the same time-patterns emerge. Similar evidence for women is presented in Figures 4.9 and 4.10. The changing rate of disability for given levels of mortality probability is something that we will return to in later sections of this paper.

Figure 4.7 Proportion of men reporting limiting long-standing illness by age



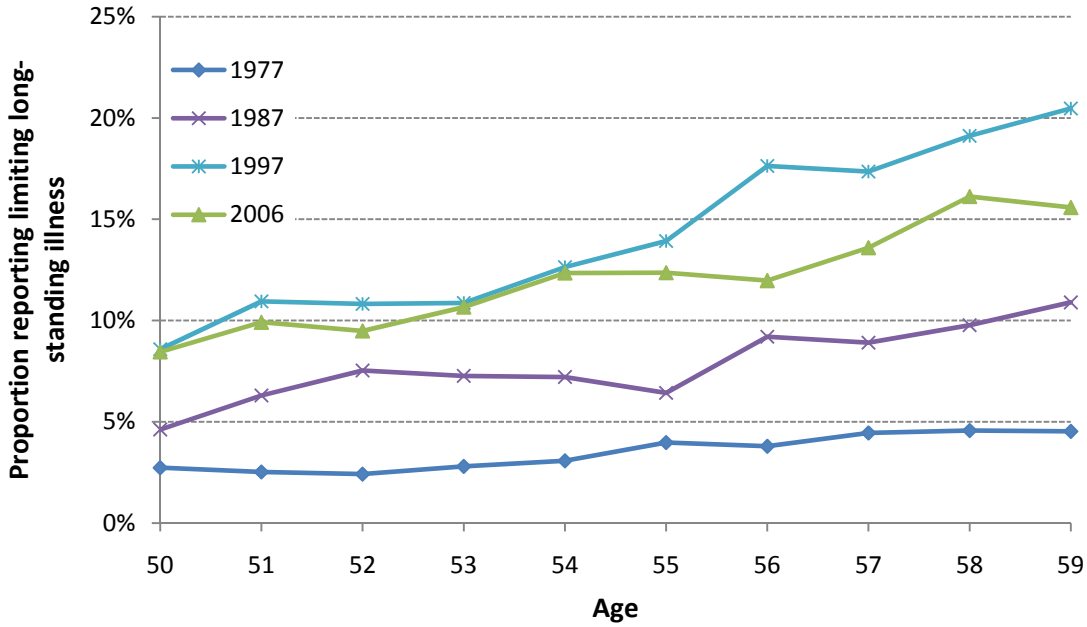
Source: General Household Survey 1972-2006.

Figure 4.8 Proportion of men reporting limiting long-standing illness by mortality risk



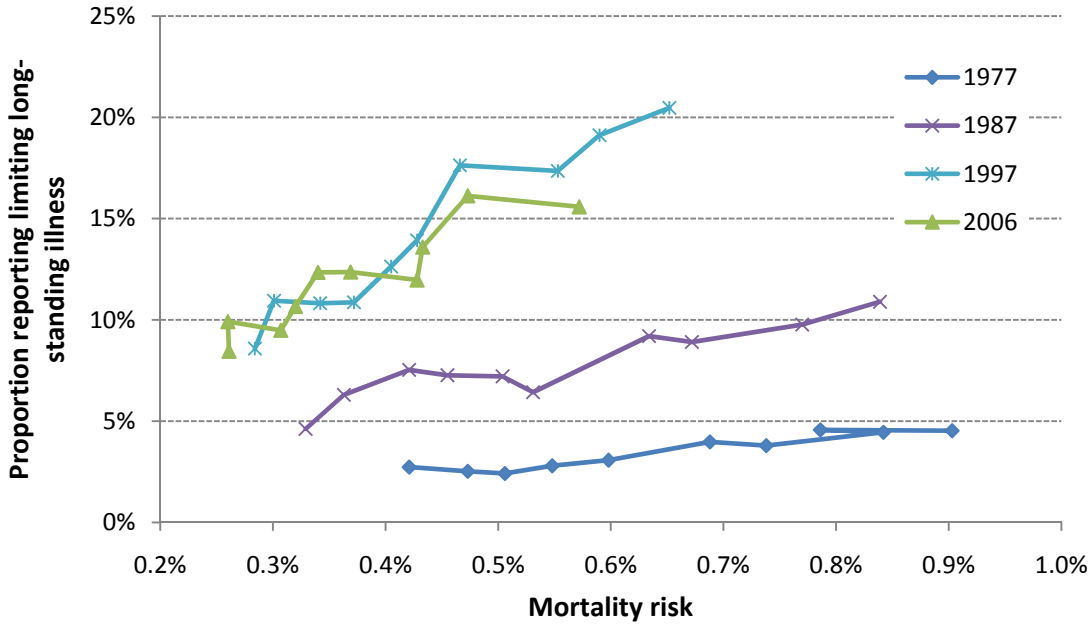
Sources: General Household Survey 1972-2006 and GAD mortality tables.
Note: Mortality risk is one year mortality rate at given age, from period life tables.

Figure 4.9 Proportion of women reporting limiting long-standing illness by age



Sources: General Household Survey 1972-2006.

Figure 4.10 Proportion of women reporting limiting long-standing illness by mortality rate

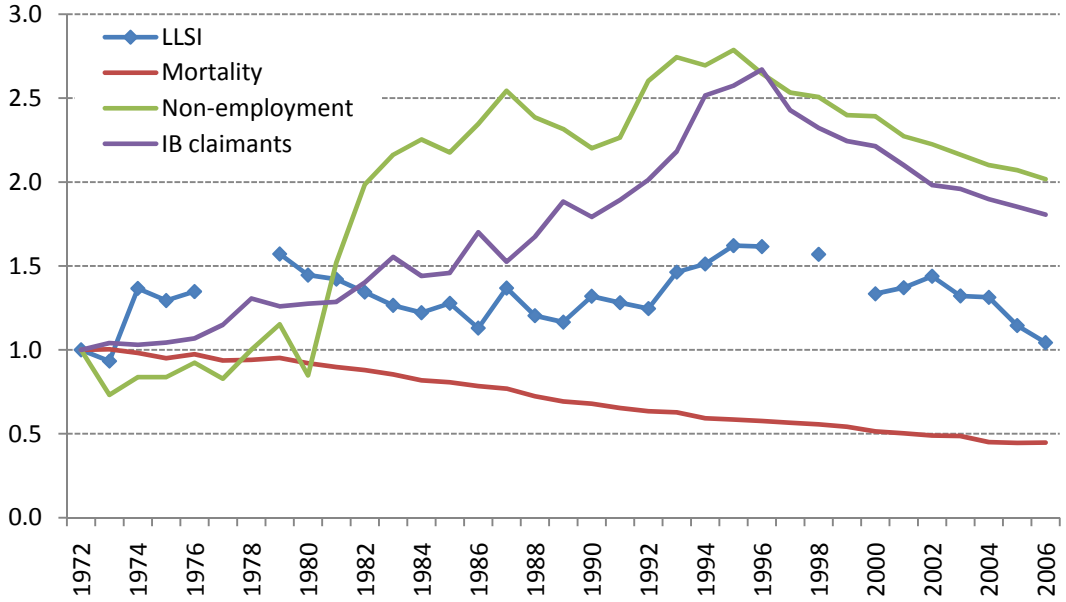


Sources: General Household Survey 1972-2006 and GAD mortality tables.
Note: Mortality risk is one year mortality rate at given age, from period life tables.

4.3 Health measures and labour force participation

In order to summarize the evidence on labour force participation, benefit receipt and the health measures we have discussed previously, we present in Figures 4.11 and 4.12 indices of these measures alongside each other for men and women respectively. Both figures look at the evolution from 1972 to 2006 for the age group 55-59. Mortality is declining constantly over the period and does not seem to be related with any other trends. One interesting fact comes from the correlation between the number of claimants of disability benefits, the self-reported limiting long-standing illness and the overall change in non-employment that is observed among men. Non-employment increased sharply in the early 1980s, peaking after the 1992 recession. The IB claimant count increased slowly over the period before a rapid growth in the early 1990s and a strong reversal after the 1995 reform. Although it is difficult to make precise inference from these correlations, the trend in self-reported disability is also hump shed around the 1995 reform, laying grounds for claims that self-reported disabilities reflect as much the impact of being in receipt of a "disability benefit" as some measure of perceived incapacity.

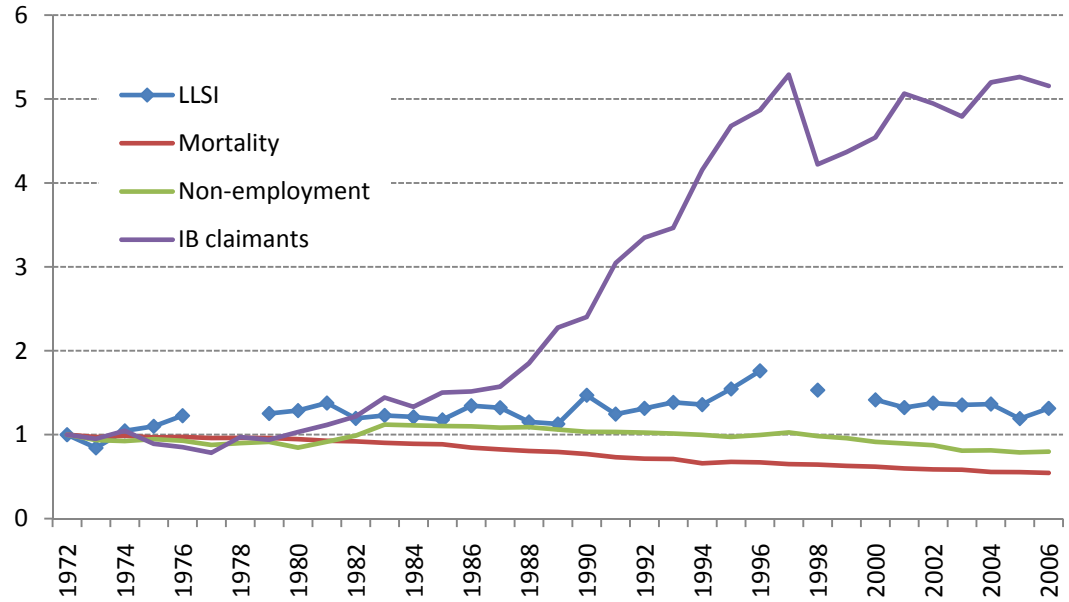
Figure 4.11 Health measures and labour force participation, men 55-59



Note: Indices 1 = 1972; LLSI stands for limiting long-standing illness.

Figure 4.12 presents similar evidence for women. The graph is dominated by the large increase in receipt of disability benefits, reflecting the increased eligibility of women to contributory disability benefits. Labour force participation is clearly on an increasing trend in that age group, except during the early 1980s when the employment rate of this group declined sharply.

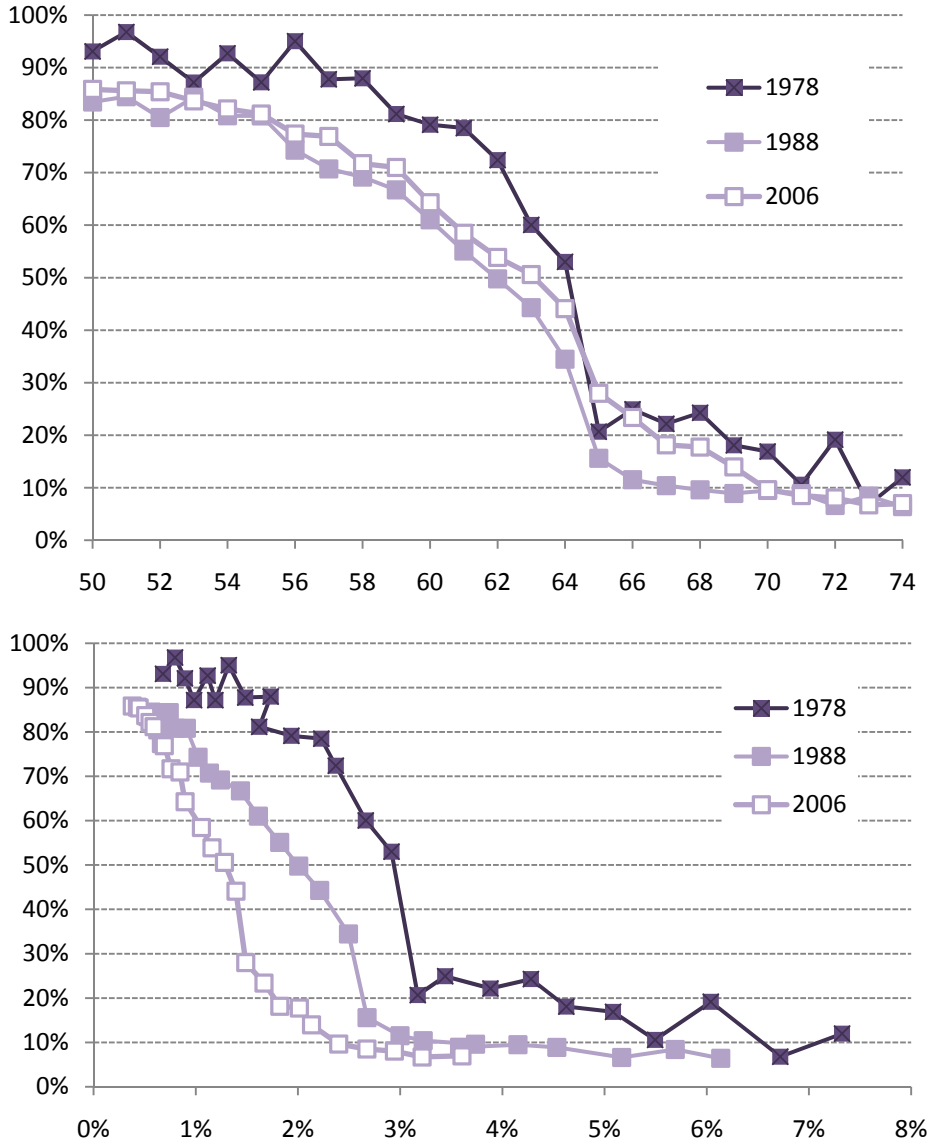
Figure 4.12 Health measures and labour force participation, women 55-59



Note: Indices 1 = 1972; LLSI stands for limiting long-standing illness.

Figures 4.13 and 4.14 contrast two ways of presenting ageing and labour force participation. The first panel shows the employment rate by age for three years at a ten year interval, while the second panel present the same data by the mortality rate at that specific age. In Figure 4.13 the employment of British men exhibit the characteristics that we have highlighted previously: a large drop in employment at the time of reaching the state pension age (age 65) and a significant drop at all ages between 1978 and 1988. The recent period appears favourably with an increase in the employment rate at all ages, but especially between 64 and 69. The second panel on the other hand highlights that these changes have taken place during a period of rapid decrease in mortality. For a given mortality rate, employment rates are now lower than at any other date, including the lowest point of the late 1980s.

Figure 4.13 Employment rate by age and mortality rates (males)

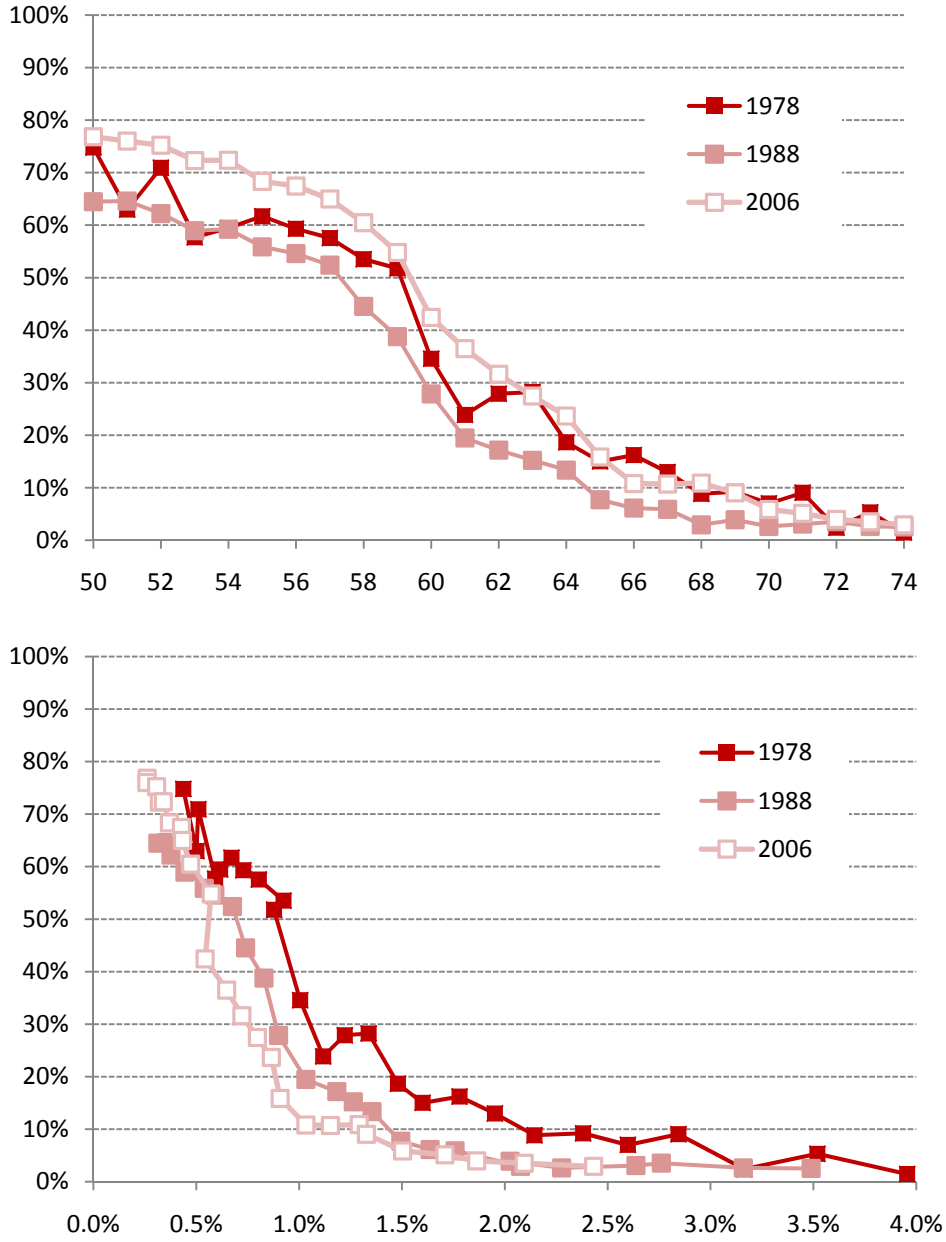


Sources: Labour Force Survey.

This is also the case for women, as shown by Figure 4.14. Only at the youngest ages, below age 55, is it possible to see the increasing participation of women counteracting the decline in employment for a given mortality rate.

These figures provide a vivid illustration of the meaning of ageing in our developed societies where age takes in effect different meaning and are related to a recent analysis of Shoven (2010), who discusses using mortality risk or remaining life expectancy as better measures of age than years-since-birth for the purpose of social security analysis and design. The limit of this approach in our context, however, that mortality risk measures do not capture fully functioning ability and therefore err on the side of putting too much emphasis on morbidity as opposed to measures of disability

Figure 4.14 Employment rate by age and mortality rates (females)



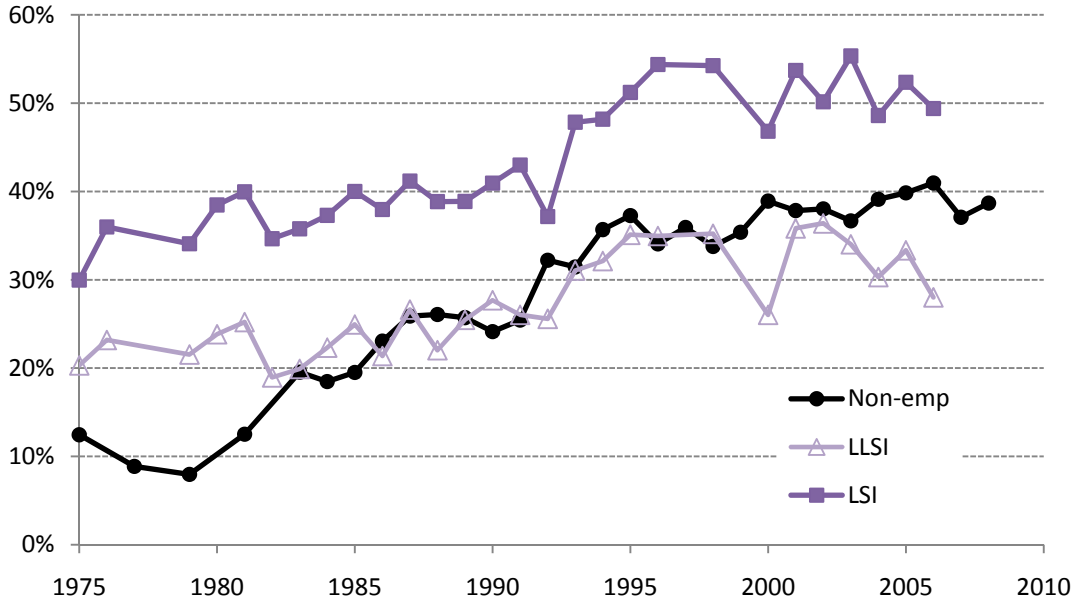
Sources: Labour Force Survey.

Another more powerful way of looking at the same underlying data from Figures 4.6 to 4.13 is to combine it into one graph showing evolution of employment and self-reported health over time for a given mortality rate. Figure 4.15 presents the non-employment rate and measures of self-reported health over time for males at the age corresponding to a one percent mortality rate in the relevant year. As one would expect from the analysis in earlier sections of this paper, the reference age for the comparison constantly shifts upwards - in 1975 a 1 percent mortality rate was observed for men aged 53, whilst in 2008 this age had shifted to 61.

Both health measures, i.e. the share of men reporting long-standing illness and the share reporting a limiting long-standing illness, have increased over time but at a much slower rate than non-employment. Taking the period 1975-2007

as a whole, long-standing illness increased by two-thirds, limiting long-standing illness increased by half, but non-employment almost quadrupled, holding mortality probabilities constant. It is also worth noting that at the beginning of the period the rate of non-employment was only half the rate of disability as measured by limiting long-standing illness. Yet, by the end of the period non-employment rates were higher than disability rates by ten percentage points. These diverging trends are particularly apparent towards the beginning of the period (late 1970s and early 1980s) when non-employment was rising very fast while self-reported health measures were not, and also in the more recent years, when self-reported health measures have stopped their increase.

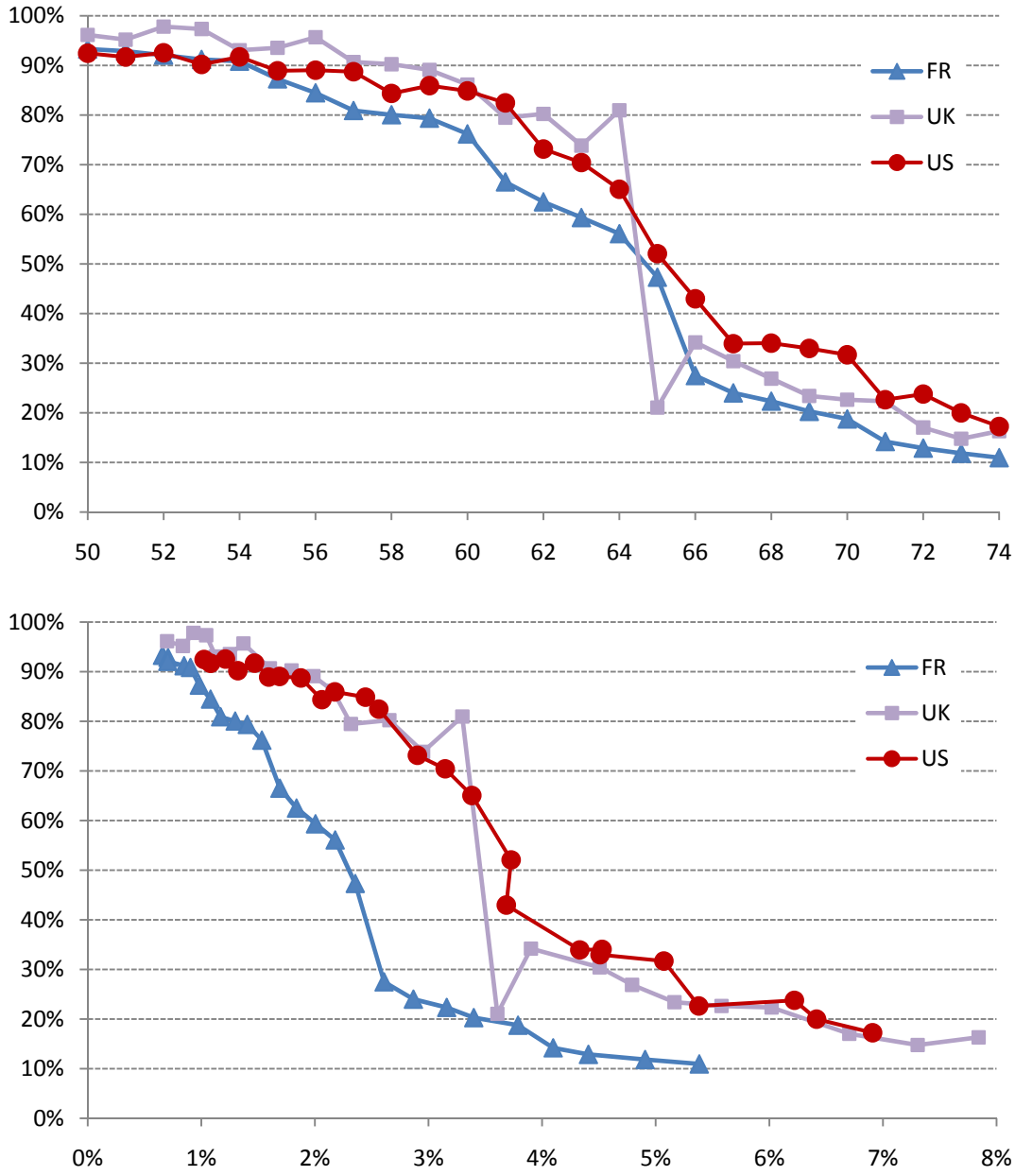
Figure 4.15 Non-employment rate and self-reported health measures for men with one percent mortality rate



Sources: Labour Force Survey, General Household Survey, computations from the authors.
Note: LLSI stands for limiting long-standing illness, LSI for long-standing illness. Both the LLSI and LSI are three-year moving averages.

Another possibility using these associations between age specific mortality rates and employment rates is to compare countries at various points in time. In Figures 4.16 and 4.17 we compare the case of France, the UK and the US between 1968 and 2006. In 1968, the UK and the US have very similar employment rates for given mortality rates whereas by 2006, the UK experience much lower employment rates than the US for mortality rates above 1%. Albeit the fact that the UK had in 1968 lower employment rate than the US after age 65, the British males had at that time higher mortality rates, conditioning on age, than American ones. On the other hand in 2006, British males have seen their mortality rates drop to the level of the Americans and therefore experience much lower employment rates than the US at any given mortality rate.

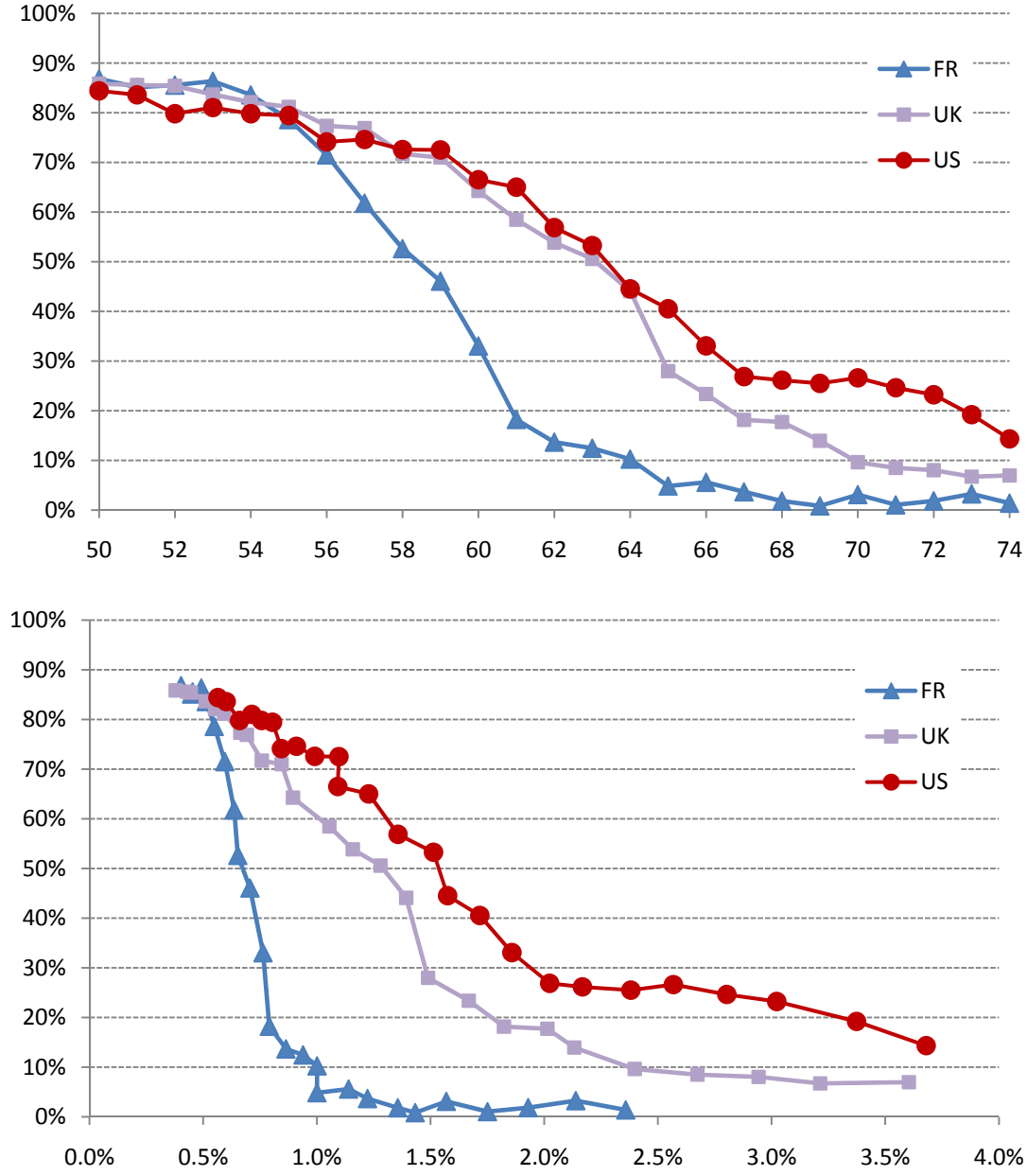
Figure 4.16 Employment rate by age and mortality rates in 1968 in France, the UK and the US (males)



Source: Enquête Emploi, Labour Force Survey, Current Population Survey, Human Mortality Database.

France had in 1968 relatively high employment rates at older ages, still lower than the US and the UK, but with a similar pattern. However, already in 1968, French males experienced lower mortality at a given age than American and British males. This leads to much lower employment rate in France than in the US and the UK for a given mortality rate in 1968. By 2006, the lower mortality rates of French males is still visible but employment rates at older age has dropped further leading to much bigger difference with the other two countries, especially at low mortality rates. For instance for a 1% mortality rate, the French males have in 2006 an employment rate of 12% against 61% for the UK and 72% for the US, and against 80% for French males in 1968.

Figure 4.17 Employment rate by age and mortality rates in 2006 in France, the UK and the US (males)



Source: Enquête Emploi, Labour Force Survey, Current Population Survey, Human Mortality Database.

5. Evidence from disability benefits reforms

The evidence presented so far relies heavily on times series but does not show any causal impact that policy targeted on disability benefits could have on employment and retirement patterns of individuals, in particular those who report some form of incapacity to work. This section presents evidence from two reforms of the UK disability benefits: the 1995 reform which intended to make the health test stricter, while the Pathways-to-Work programme which was designed to help IB claimants move off benefits and return to work.

5.1. The 1995 reform

Incapacity benefit replaced IVB and sickness benefit in April 1995. The effect of the reform was to reduce the benefit's generosity in a number of ways and to tighten the eligibility requirements.[11]

The reduction in generosity was realised by a number of different changes. First, the reform reduced the rate of benefit. IB is paid at three different rates according to the length of the period of incapacity. Short-term lower rate IB has replaced sickness benefit for people not eligible for SSP. A short-term *higher* rate of ICB is payable from week 29 to week 52. In spite of its name, this is less generous than IVB. Long-term IB, which is as generous as IVB, is only payable from week 52. Second, the generosity of the age additions has been reduced. Previously, someone would have been eligible for an age addition to their invalidity pension if the period of incapacity began before age 59. Since 1995 they are only eligible for an age addition if the period of incapacity begins before age 45. In addition, the age additions are payable after week 52, when long-term ICB begins, rather than after week 28. Third, IB became taxable from 1995 onwards. This brings it into line with the other main benefits (retirement pensions and unemployment benefits) and income support, which are subject to income tax. However, compensatory disability benefits (war disability pension and industrial injuries disablement pension) and extra costs disability benefits (disability living allowance, attendance allowance) remain not subject to tax. Fourth, unlike IVB, long-term IB is not payable to anyone over state pension age, although people who start receiving short-term IB before state pension age can continue to do so for the full 52 weeks.

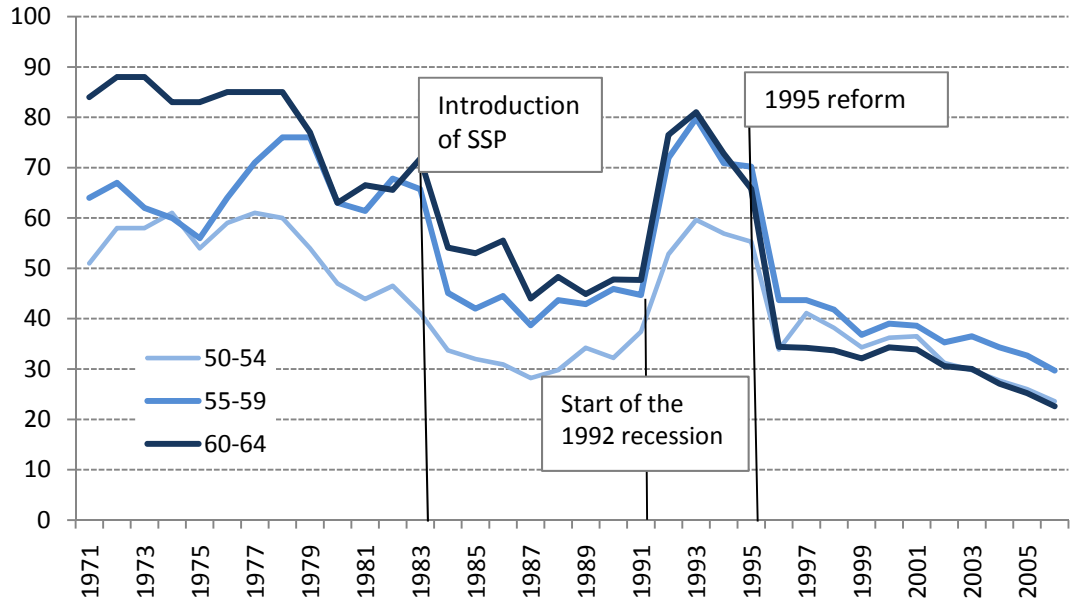
The tightening of eligibility requirement mostly came about with the replacement of the 'suitable work test' that applied to IVB recipients after 28 weeks by the 'all work test'. Instead of an assessment of a person's ability to perform jobs that it was reasonable to expect them to do given their age, health and qualifications, the 'all work test' required an assessment of the person's ability to do any kind of work. The all work test involved an 'objective' assessment of the level of difficulty the person had in performing different physical and mental activities (for example, walking up and down stairs, bending and kneeling, coping with pressure). Points were awarded for the degree of difficulty they had performing each activity, with a minimum total number of points necessary to be deemed incapable of work. A second change is that the all work test is carried out by the government medical service rather than the individual's own doctor. As with IVB, the claimant has the right to appeal for their case to be heard by a social security appeals tribunal.

The first evidence one can gather on the 1995 reform is to look at the change in inflows into the IVB/IB rolls. Given that the reform has made qualifying for the

[11] The changes affected only new claimants after April 1995. Those people already entitled to receive invalidity benefit continued to do so under the old rules.

benefit harder and that the generosity of the benefits has been reduced, one could expect to see changes in inflow rates into the scheme. Figure 5.1 represents the number of claimants to IVB and IB whose claim duration is less than one year. This is a relatively good proxy for the inflow rate although it is affected during the 1980s by the introduction of SSP. The latter has led to a decrease in inflows to IVB by shifting short-term sick into the employers' sickness scheme. In 1992 the recession hits the UK very acutely and this seems to have led to a peak in inflows onto IVB. The 1995 reform is associated with a dramatic drop in inflows which subsequently stabilized at the pre-1992 level.

Figure 5.1 Change in inflows into IB rolls (men, 50-64 years old, duration < 1 year)



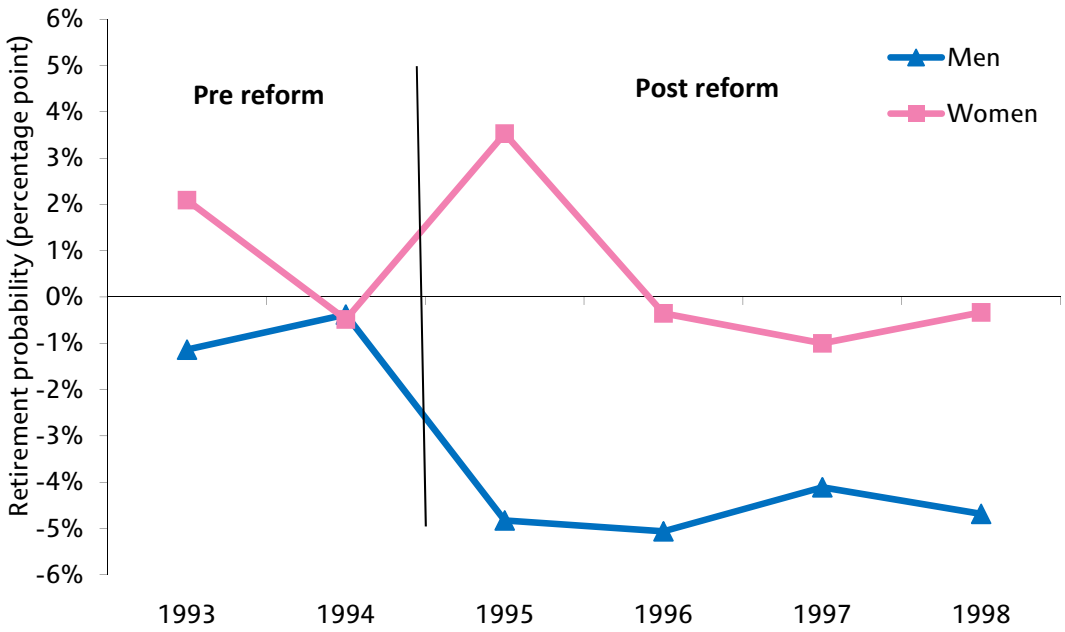
Sources: IV/IB claimants' data from Anyadike-Danes and McVicar (2007).

Disney, Emmerson and Wakefield (2003, 2006) examined the relationship between health and employment in the UK using panel data from the British Household Panel Survey from 1991 to 1998. They used a fixed-effects conditional logit model, instrumenting self-reported general health using responses to questions about specific health problems (following Bound et al., 1999). Older age, reaching state pension age, and deteriorations in health were all found to lead to increased probability of leaving work. They also tested whether the 1995 reform strengthen the relationship between health and employment by estimating co-efficient on health stock interacted with treated group. The estimated coefficients were positive but not statistically different from zero at conventional levels of statistical significance.

As an alternative and using the same dataset, we have run a probit retirement model among those in work, controlling for health stock. We plot in Figure 5.2 the year dummies before and after the reform. The coefficients for men do drop markedly post reform with the combined 1995-96 coefficients statistically

different from combined 1993-1994. No statistically significant effect is found for women.

Figure 5.2 Effect of the 1995 reform on retirement probability



Note: Figure shows estimated marginal effects of year dummies from a probit retirement model among those in work in the previous wave, also controlling for health stock (from Disney, Emmerson and Wakefield, 2003), a cubic in age, regional unemployment rate, whether own their home outright, and dummies for reaching the state pension age and being in a couple. Model estimated on individuals aged 50 to 64 in 1991.

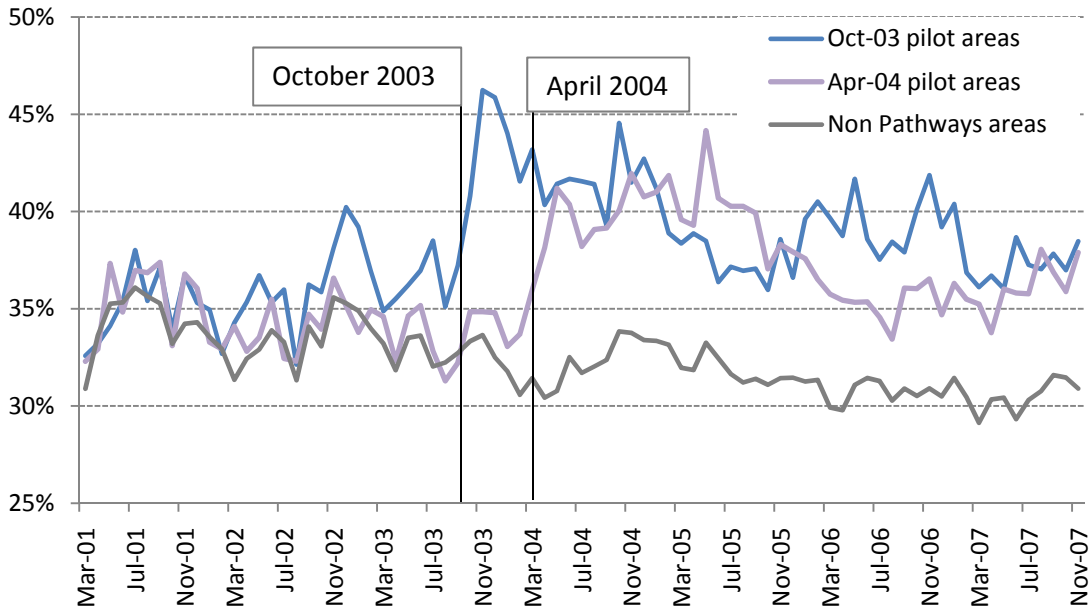
5.2. Pathways–to-Work reform

Although the 1995 and 2001 reforms were associated with the ending of the increasing trend in numbers receiving disability benefits, the stock of recipients remained at a high level. As a result a new programme, called Pathways-to-Work, designed to help claimants return to work, was implemented. It comprised three components: an increase in financial incentives to return to work with the ability to keep (approximately) 50% of the disability benefit for up to 12 months after returning to work; increased conditionality of benefits with mandatory work-focused interviews; and voluntary schemes to help beneficiaries manage their health problem more successfully. Initially the programme was applied to those moving on to disability benefits (rather than existing claimants) and this impact of this programme on new claimants was piloted and has been thoroughly evaluated (see Adam et al. 2011).

The programme was first piloted in three large areas in October 2003 and four further large areas in April 2004. Later on the scheme was expanded to other areas of the country, in various phases. We present in Figures 5.3 and 5.4 the outflow rate at 6 months out of IB in the pilot areas and subsequent expansion areas. After the introduction of the programme the exit rate out of benefit increased substantially in each in the treated areas. This provides convincing evidence that the programme had a decisive impact on movements off benefits,

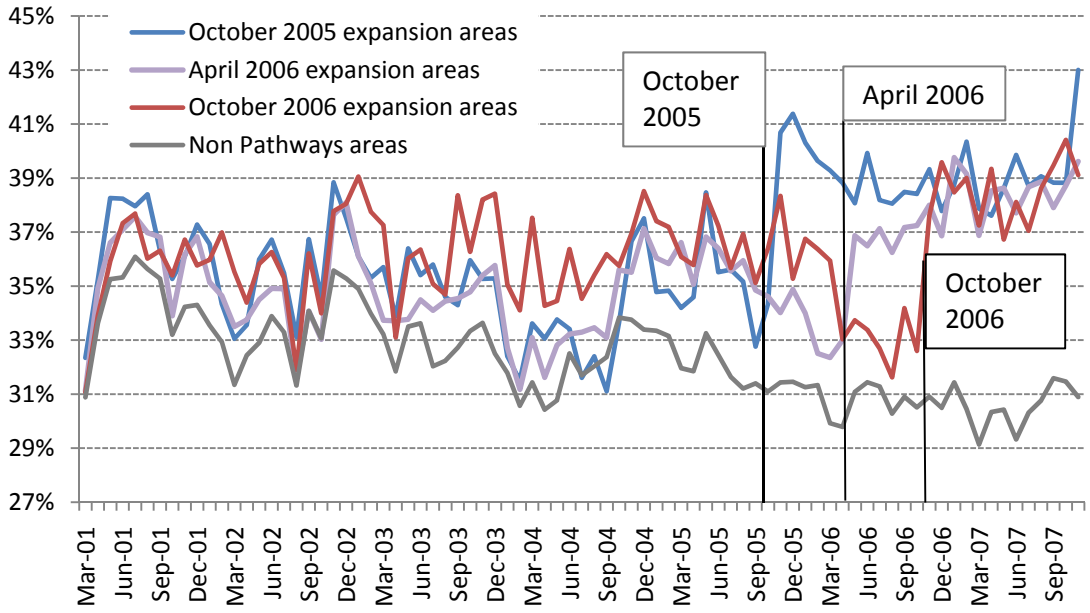
although there is some evidence that the effect become smaller as it was rolled into subsequent areas. Adam et al. 2011 have shown that the impact on exit out of benefit has been concentrated on durations less than one year, suggesting that the programme has mostly been successful in bringing forward exit out from benefit among those who would have left within one-year of receipt, rather than removing from the disability rolls those who would otherwise have received benefits for longer than a year. Using a difference-in-difference strategy, the authors show that the programme has had a significant effect on the probability to return to work in the two groups of pilot areas, but that this positive effect has been limited to those who do not report a mental health problem and was concentrated on women.

Figure 5.3 Six months outflow rate from IB, by pilot and non-pilot areas



Sources: administrative data on benefit flows, DWP.

Figure 5.4 Six months outflow rate out of IB in the expansion areas



Sources: administrative data on benefit flows, DWP.

The evaluation of this programme highlights that outflows from benefit, and more specifically back to employment, do matter considerably. Furthermore they are not necessarily the same: the study shows that while the impact on benefit receipt did not persist beyond 12 months the employment impact was still significant at 18 months. Even if policymakers have tended to concentrate on stricter eligibility with the hope of reducing inflows to benefit, the case for an outflow policy remains strong, at least within the UK institutional setting.

6. Conclusion

Over the last thirty years pathways to retirement have changed substantially in the UK. They have been dominated by spells of unemployment in the late 1970s, with then an increased importance of disability spells from the mid-1980s onwards. Pathways to retirement through unemployment have been reduced in the early 1990s, while disability spells have started to be less common from the mid-1990s onwards. At the end of the period – before the financial crisis – the direct route from work to retirement was increasingly more common.

The empirical evidence on the underlying causes of these changes is still mixed. There is weak evidence of unemployment and disability reforms' effects on the routes to retirement, but the general economic conditions seem to have been important driving forces during the entire period. Changes in health measures do not provide convincing explanations for these trends: mortality has been falling over the period without any link to the share of the population reporting ill health or disability or to the number claiming benefits. There is some evidence

though that self-reported disability is associated with changes in the number of disability claimants.

There is also evidence that recent reforms have also had an impact. The 1995 reform was associated with, at the very least, the halting of the previous growth in the rate of in-flow onto IB (and possibly also a fall in the percentage describing themselves as having a limiting long-standing illness). Evidence from the pilots of the Pathways-to-Work programme suggests that those moving onto disability benefits moved off these benefits faster than they would otherwise have done as a direct result of the programme. This programme was also found to have an enduring impact on subsequent employment rates. While the recent financial crisis and associated recession is likely to lead to much attention being focused on getting the newly unemployed back in to paid work, those who receive disability benefits and who could potentially return to the labour market may still need assistance.

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