

# Releasing Jobs for the Young? Early Retirement and Youth Unemployment in the United Kingdom

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## 1. Introduction

Previous volumes of the International Social Security project at the NBER have shown convincingly that the incentives provided by pension schemes provisions have had a strong negative impact on labor force participation at older ages (Gruber and Wise, 1999 and 2004). Many countries increased the generosity of their state pension provision in the 1970s, despite the fact that demographic changes (both differences in cohort sizes and higher life expectancy) would subsequently pose serious threats to the financial viability of those pension schemes. In many instances it was stressed that changes to pension provisions have somehow been made with the idea to “release jobs” for the young. Indeed with unemployment increasing after the 1970s oil shocks it is perhaps unsurprising that European governments were implementing various reforms aimed at reducing unemployment, and youth unemployment in particular. In other words increased incentives to retire early may have been motivated by this expected impact of early retirement: less unemployment among the young only at the expense (and benefit) of more leisure time among the old.<sup>1</sup>

This paper tries to take this claim seriously and assess whether or not we have any empirical evidence of links between early retirement and youth unemployment. Most economists would today dismiss the idea immediately as another version of the naïve “lump-of-labor fallacy”.<sup>2</sup> In its most basic form, this proposition holds that there is a fixed supply of jobs and that any reduction in labor supply will reduce unemployment by offering jobs to those who are looking for ones. Taken to the extreme, this view would support that the idea that a high *level* of employment of one group of individuals can only be at the expense of another group: if for instance were the population of a country to increase, younger individuals would be unemployed as older individuals would not “release” enough jobs for the new entrants. The absurdity of this view in the long term is simply seen by considering the fact that the size of a country does not bear any relation to the *share* of population unemployed.

There might be, however, a subtler claim, i.e. that controlling for population size (and overall demand), the employment *rate* of younger workers might be affected by the share of older workers employed. Older and younger workers might have different characteristics in terms of qualifications, skills and productivity and therefore be more or

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<sup>1</sup> Evidence on the impact of pension arrangements on the public finances and on the welfare of older individuals can be found in Gruber and Wise (2007 and forthcoming respectively).

less substitutable depending on the degree of flexibility of labor markets. Some economists have suggested that specific policies to encourage employment of the old might end up being counterproductive, if for instance productivity declines markedly with age and if the wages of older workers end up above their productivity. Mulligan and Sala-i-Martin (1999) suggest provocatively that negative externalities of older workers might lead to the incentives for early exit from the labor force.

Given that changes in pension systems should be, and usually are, for the very long term, our interest is to look for a long term relationship between labor force participation rates of the old and employment rates of the young: it is very likely that labor markets take time to adjust to changes in age or sex composition and that substitution effects could be seen in the very short term. Hence we will cover labor markets and policies in the United Kingdom (UK) over more than forty years and provide empirical evidence on programs abandoned a long time ago. This historical background will prove essential to provide empirical evidence for of a relationship (or absence of relationship) intrinsically difficult to uncover.

The challenges when estimating a causal relationship between the employment rates of different age groups rest on a combination of endogeneity and general equilibrium effects. At the micro level, controlling for enough factors, a degree of substitution must indeed be apparent. Workers of similar qualification, skill, ability, experience and other characteristics, should be at least partly substitutable if one controls for total output. This micro-substitution is of particular interest for labor economists but does not lead to specific conclusions on the overall employment relationship between older workers and younger ones. The question we would like to answer is *unconditional*, i.e. does a higher (lower) rate of labor force participation of older worker increase (decrease) unemployment of the younger ones, not controlling for the fact that output might be higher (lower)?

At the macro level, where the macro-substitution is to be found, one is faced with the problem of endogeneity. Changes in the employment of the old are not exogenous and react, with youth unemployment, to general changes in labor demand, following, for example, the ups and downs of business cycles. These shifts in labor demand may be hard to control for. Moreover they are usually measured by changes in

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<sup>2</sup> Other versions include capping weekly hours of paid work, limits to immigration or increased incentives for mothers to stay at home, all as means to reduce unemployment.

GDP, i.e. by changes in measured output. Interpretations of an absence of substitution at the macro level will therefore be hard to distinguish from simultaneity issues.

The first step in our analysis is to examine the importance of incentives to retire on older labor force supply in the UK over the last forty years. We describe the reforms to pension system and early retirement schemes to assess in what respect are the changes in financial incentives exogenous from the labor market situation. The UK case is very interesting in that respect, as most of the pension reforms – and arguably all of the major reforms in the 1980s and 1990s – were motivated more by public finance considerations (both short and long run) than by unemployment. Section 2 describes the debates about the relationship between the number of older and younger workers in the UK and discusses in what respect they led to changes in policies to foster early exit of older workers. Section 3 contains descriptive figures comparing the labor force participation of older individuals in the UK with the evolution of employment for younger individuals as well as a cross-country comparison of the French and the UK experience. Section 4 describes in detail the Job Release Scheme (JRS), the major UK early retirement scheme of the late 1970s and early 1980s, and presents estimations of what could be considered to be a “natural experiment” of specific incentives to encourage early retirement. Section 5 describes the methodology of comparable regressions both at the micro level and in times series of the relationship between young and old labor force participation. Section 6 concludes.

## 2. Debates and policies in the United Kingdom

Compared to many continental European countries, the UK has not developed extensive policies to encourage older workers to leave jobs for the young. This does not mean that debates and policies about the “lump of labor” have been absent from the UK, quite the contrary. The debate about work sharing started in 19<sup>th</sup> century UK about working-time regulations. Walker (2007) traces back the first appearance of the expression “lump of labour fallacy” to an article from the UK economist David F. Schloss (1891) and suggests that it is the London based magazine *The Economist* that has lately popularized the phrase by repeatedly denouncing the “fallacy”.<sup>3</sup> If the debate about work sharing was mostly confined to hours of work the idea that reducing the labor

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<sup>3</sup> Walker (2007) expresses a sceptical view of the idea that economists have been able to prove the “lump-of-labor” to be a fallacy indeed.

supply of older workers could help mitigate the rise in unemployment was most keenly put forward in the aftermath of the late 1970s oil shock (Laczko and Phillipson, 1991).

The first policy that led to the growth of early exit from the labor force was the Redundancy Payments Act of 1965, which required employers to make lump-sum payments to workers who lost their jobs. The idea was not to fight unemployment but to help reduce overstaffing in UK industries by securing greater acceptance of these restructuring and facilitating workers' mobility to new jobs. In practice, however, the Act was used by companies to get rid of older workers and thus to encourage early exit. Early retirement packages by private companies have been used extensively in the late 1970s but comprehensive information is very scarce about these private schemes.

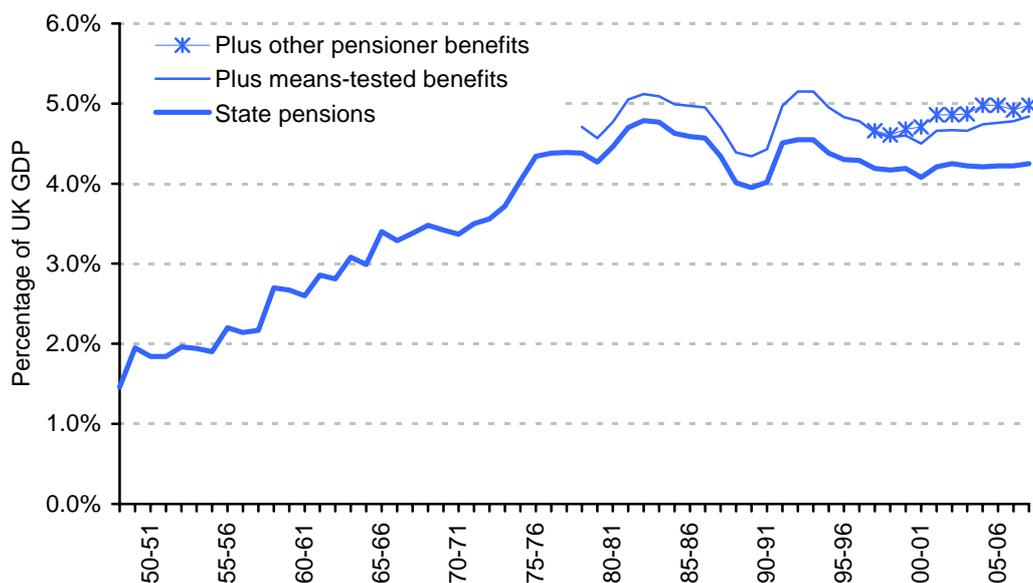
<b>Box 2.1. Reforms to the UK state pension system, 1975 to present day</b>	
Social Security Act 1975	<p>Basic State Pension (BSP) made more generous for those with certain formal caring responsibilities from April 1978. Married women no longer given the choice of opting out of the BSP from April 1977.</p> <p>State Earnings-Related Pension Scheme (SERPS) introduced for all employees not in a defined benefit employer arrangement from April 1978. Entitlement based on the best 20 years of earnings (between a lower and an upper earnings limit set) uprated to retirement by growth in average earnings. Accrual rate set at 25%.</p>
Social Security Act 1980	<p>State pension payments to be increased by growth in prices instead of the greater of growth in prices or earnings from November 1980.</p>
Social Security Act 1986	<p>Entitlement to SERPS to be calculated on the basis of earnings over entire working life (16 to state pension age) rather than across the best 20 years phased in for those reaching the state pension age from April 2000 onwards.</p> <p>The accrual factor on SERPS to be reduced from 25% to 20% of earnings between the lower and upper earnings limits. This is being phased in for those reaching the state pension age between April 2000 and March 2008, although accrued entitlement from before April 1988 is protected.</p> <p>Surviving partners of those dying after April 2000 to inherit 50 percent of their spouse's state pension instead of 100 percent. (This change was later put back to October 2002 after the Department for Social Security failed to correctly inform some individuals of this change, and now relates to year reached state pension age rather than year died).</p>

Social Security Act 1995	<p>State pension age for women to be increased from 60 to 65 gradually between 2010 and 2020 (by 1 month every 2 months).</p> <p>Technical change made to the formula used to calculate SERPS entitlement. This reduced the generosity of SERPS to those reaching the state pension age after April 1999, with both retrospective and prospective SERPS rights reduced.</p>
Child Support, Pensions and Social Security Act 2000	The State Second Pension (S2P) to replace SERPS from April 2002 onwards. This is more generous to lower earners and to some individuals with caring responsibilities.
Pension Act 2007	<p>Both the level and the coverage of the BSP to be increased. The level is to be earnings (rather than price) indexed from some point between 2012 and 2015. For those reaching the state pension age from April 2010 onwards the number of qualifying years needed to receive a full BSP reduced from 39 for women and 44 for men to 30 years for both. Accrual of S2P to be reduced for higher earners to claw back some of the increase in BSP.</p> <p>State pension age to be increased from 65 to 68 gradually between 2024 and 2046.</p>

Pension reforms in the UK have not been influenced heavily by concerns about unemployment of the young (see Box 2.1 for a chronology of reforms).<sup>4</sup> The UK pension debate has largely been focused on the trade-off between social assistance, i.e. providing a minimum income to the elderly, and social insurance, i.e. increasing the contributory principle of pension provision. Concerns about the cost to the public finances have tended to reduce this latter objective to a minimum. The 1975 Social Security Act (applied from April 1978) increased the generosity of the Basic State Pension (BSP) scheme and introduced the State Earnings-Related Pension Scheme (SERPS), to provide higher benefits, related to earnings, for those employees who were not a member of an employers defined benefit pension arrangement. Two years later, in 1980, the generosity of state pensions was reduced with an indexation in line with the growth in prices instead of the greater of the growth in prices or earnings. This reduced generosity took place while unemployment was increasing and concerns for the labor market implications were clearly not motivating these reforms. Since then overall state spending on pensions remained at a roughly constant share of UK GDP, as Figure 2.1 provides clear evidence.

<sup>4</sup> For an overview of the pension system in the UK see Blundell and Johnson (1995), Dilnot *et al.* (1984, 1994) and Disney and Emmerson (2005).

**Figure 2.1. State spending on financial transfers to pensioners in Great Britain, 1948–49 to 2007–08**



Source: Emmerson, C., Tetlow, G. and Wakefield, M. (2005).

The main policy that explicitly had the goal to reduce elderly employment in order to reduce youth unemployment was the JRS. It was introduced in 1977 and was described as “*a measure which allows older workers to retire early in order to release jobs for the registered unemployed*” (Department of Employment, 1978). The debates in Parliament about the scheme were not so much about its effectiveness (substitution between older workers and younger ones was assumed to be very high) but about the gross cost of such a scheme. The following exchange in the House of Commons in 1979 is very revealing of the debate in the UK in the late 1970s:

*Mr. Atkins, MP: “In view of the large numbers of people involved, would not even a phased reduction of the age to 60 provide many thousands of jobs for younger people? Is it not a fact that there is an even more urgent need because of the rapid development of microcomputer technology?”*

*Mr. Grant, The under-Secretary of State for Employment: “This is a cost-effective way of dealing with the problem. Nevertheless, it entails additional resources and therefore must be looked at in the light of overall priorities. However, it is being considered further.”<sup>5</sup>*

The scheme appeared at the time to be limited in its achievement due to the fact that the take-up rate remained low (Makeham and Morgan 1980). The allowance being unrelated to earnings, the incentives for an early exit was confined to low-wage earners

and those who could draw an occupational pension alongside the JRS allowance. In 1984, suggestions by some MPs to make the scheme earnings-related were rejected on the ground of cost.<sup>6</sup> Until the end of the scheme in 1988, there were repeated claims from some MPs to increase the scope of the scheme by reducing the age at which an individual could take opportunity of it (we will see in the next section that the scope was indeed changed many times). Calls for expansion of the scheme can be seen as late as the 1987 Labour Party general election manifesto:<sup>7</sup>

*“We will extend the voluntary Job Release Scheme to men over 60 so that those who want to retire early vacate jobs for those who are currently unemployed. This could take as many as 160,000 people out of unemployment and into work.”*

Similar claims – albeit on a smaller scale – can be found in the 1987 Liberal / SDP manifesto: *“For the long-term unemployed we will provide a guarantee of a job through (...) an expanded job release scheme, opening up 30,000 jobs by allowing men to benefit from the scheme at 62 years of age.”*

In the early 1980s the government’s main policy towards the elderly was to reduce their labor supply in order to reduce the numbers on the unemployment register (Brown 1990). In 1981 men aged 60 and over who had been unemployed for one year could claim the long-term supplementary benefit rate provided they ceased to register for unemployment. In 1983 this possibility was extended to all men aged 60 and over. These measures were not expected to release jobs for the young but simply to reduce the formal unemployment count.

In the same period it was debated whether to reduce state pension age for men from 65 to 60 in order to make it the same for men and women. Interestingly a large part of the debate was about the real *ex post* cost of such a measure, the advocates of the move insisting that due to the substitution between older workers and younger unemployed the *ex post* cost would be small. The first costing<sup>8</sup> of this proposal rested on the assumption of a substitution rate of 75% (i.e. 75% of jobs vacated would be filled by individuals who would otherwise had been unemployed). An Institute for Fiscal Studies research paper by Hammond and Morris (1985) estimated variants of these costs according to different estimations of the degree of substitution between older workers and younger ones. They used a substitution rate of 50% as benchmark but stressed the

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<sup>5</sup> House of Commons, 20<sup>th</sup> February 1979, Hansard, vol. 963 cc228-9.

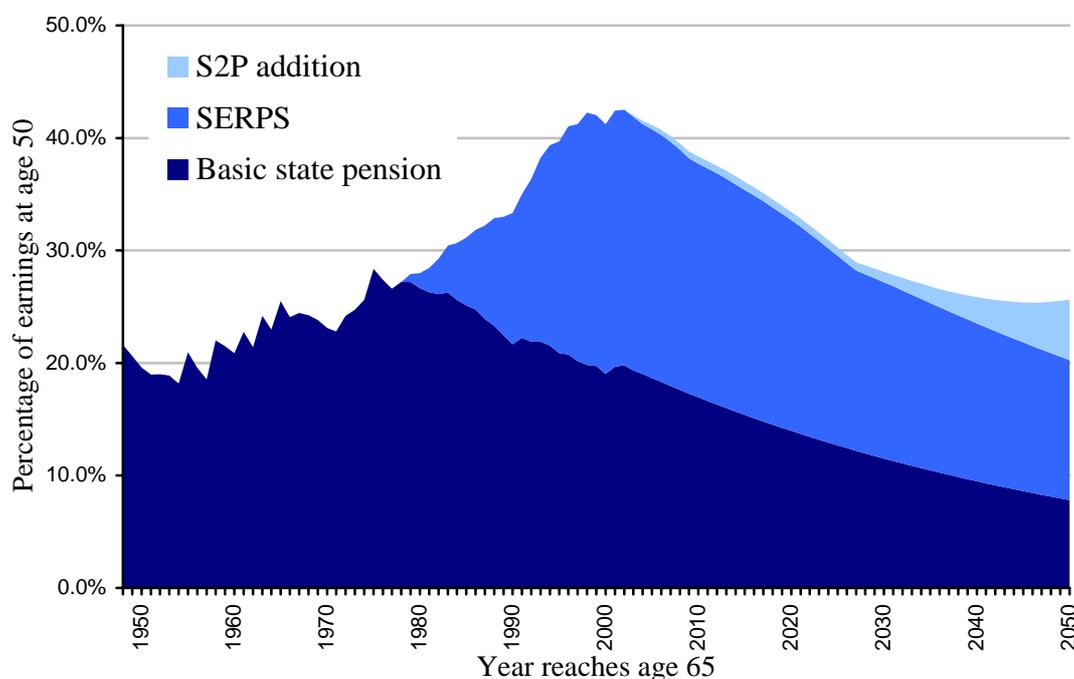
<sup>6</sup> Debates in the House of Commons, 20<sup>th</sup> November 1984.

<sup>7</sup> UK general election manifestos can be found on line at <http://www.psr.keele.ac.uk/area/uk/man.htm>.

importance of the assumption: “the numbers of people taken from the unemployment register or placed on the unemployment register following a change in the age at which men and women become eligible for a state pension is a much more crucial determinant of the final cost to government revenues.”

By 1988 the JRS had been phased out for new claimants, and in the 1990s the idea that reducing the labor supply of older workers could help mitigate unemployment was dropped altogether from the UK policy debate. The Social Security Act of 1986 reduced the generosity of SERPS by computing benefits on the basis of earnings over the entire working life rather than across the best 20 years. The reform was phased in between 2000 and 2008. Figure 2.2 describes these reductions in generosity, first to the BSP and then to SERPS.

**Figure 2.2. State pension entitlement for male with median (age-specific) earnings, full employment history, 1948 to 2050.**



Notes: Calculations for individuals with full contribution history with median male age specific earnings and 2% annual economy-wide real earnings growth. The 2007 Pension Act is not included in these computations.

Source: Disney and Emmerson (2005).

In recent years the case against policies that aimed at encouraging earlier retirement seemed to generate consensus amongst UK economists. Layard *et al.* (1990) rephrased the ‘lump-of-labor’ fallacy as a ‘lump-of-output’ fallacy (i.e. early retirement can reduce unemployment only if one assumes that output is constant) and summarized

<sup>8</sup> DHSS evidence to Social Services Committee (1982).

the view of many on early retirement policies. The very recent pension reforms are solely concerned with the adequacy of individual retirement saving decisions, with recognition that for those with inadequate provision a combination of increased saving and later retirement might be the most appropriate solution. In April 2002, the State Second Pension (S2P), a scheme more generous to low earners, replaced SERPS. With the 2007 Pension Act, requirements to qualify for a BSP have been reduced and the level of the BSP increased while state pension age is planned to increase from age 65 to age 68. This dramatic increase did not lead to fears of rising youth unemployment. Interestingly a major document from the new Labour government, the report dedicated to the elderly, *Winning the Generation Game* (Cabinet Office 2000), contains a specific box denouncing the “lump of labour fallacy”: “*The lump of labor fallacy is difficult to dispel because it feels true in individual cases and requires a wider understanding of the labor market to understand why it is not. It is particularly insidious in relation to older people who are detached from the labor market and it should not be allowed to influence policies towards this group.*” Today’s consensus in the UK seems to be at the opposite end of the early 1980s consensus.

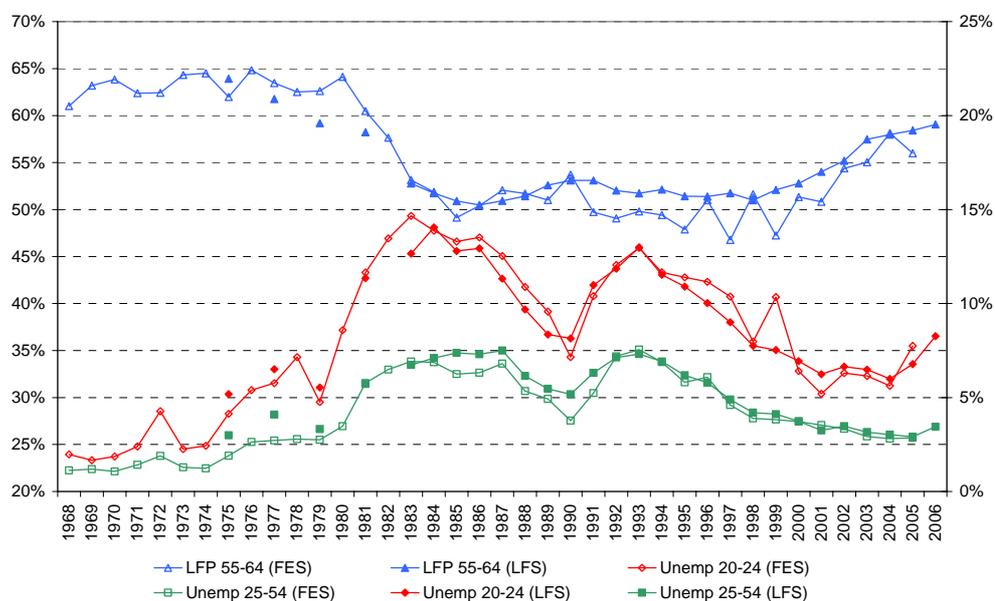
### 3. Descriptive analysis

This section describes trends over time in the economic activity of older and younger individuals. Figures 3.1 and 3.2 contrast the evolution of labor force participation of the old (defined as those aged 55 to 64) to the evolution of the unemployment and employment share of the young (defined as those aged 20 to 24) and of those of the prime age (defined as those aged 25 to 54). We use data from the Labour Force Survey (LFS) from 1975, 1977, 1979, 1981 and 1983 to 2006 (inclusive) and the Family Expenditure Survey (FES) from 1968 to 2005 (inclusive). Both surveys show very consistent evolution of both employment and unemployment rates.

Figure 3.1 illustrates clearly the massive structural shocks of the late 1970s and early 1980s in the UK: a massive rise in youth unemployment, a strong rise in unemployment for prime age individuals and a massive drop in labor force participation of older workers (a drop of more than 10 percentage points). Unemployment rates of the young and prime age were quicker to decline than older workers’ labor force participation, which stayed stable until the end of the 1990s. The last period exhibits a reversal in these trends, with increased participation of the old and substantial reductions in unemployment of the young and prime aged. Figure 3.2 provides a similar picture

adding the fact that employment of the prime aged have trended upwards during the period with the increase in female labor force participation, while youth employment has recently been falling with increasing participation in higher education.

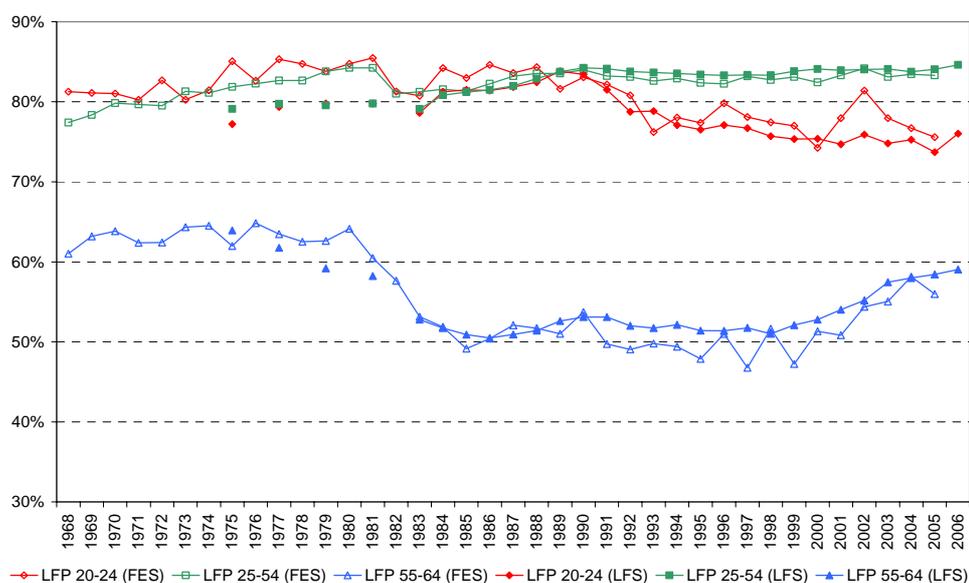
**Figure 3.1. Labor force participation of older individuals compared to unemployment of younger individuals**



Notes: Unemployment is expressed as a share the population in the age group (and not as a share of the active). The right hand axis corresponds to the unemployment series whereas the labor force participation series can be read on the left hand axis.

Sources: LFS (1975, 1977, 1979, 1981 and 1983 to 2006) and FES (1968 to 2005).

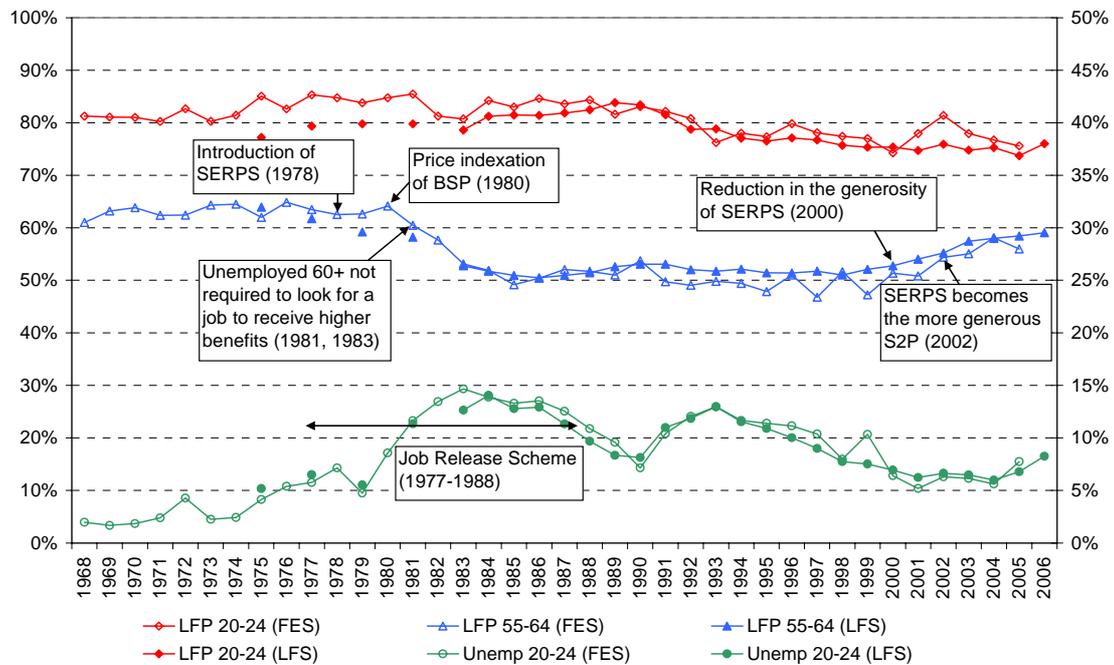
**Figure 3.2. Labor force participation of older individuals compared to employment of younger individuals**



Sources: As Figure 3.1.

Figure 3.3 illustrates on one graph the major changes to the various public retirement schemes and the labor force participation of older individuals against the labor participation and unemployment of the young. The introduction of SERPS in 1978 increased the generosity of pension provisions, while the indexation of state pensions to growth in prices (rather than the greater of growth in prices or earnings) from 1980 onwards went in the opposite direction. These two reforms predate the large drop in labor force participation of the old but hardly explain it. The JRS was introduced in 1977 when unemployment of younger individuals had been increasing for five years continuously. The unemployment continued to increase while the scheme was extended. Youth unemployment started to decline when the scheme was reduced in scope.

**Figure 3.3. Program changes and labor force participation of young and old (1968-2006)**



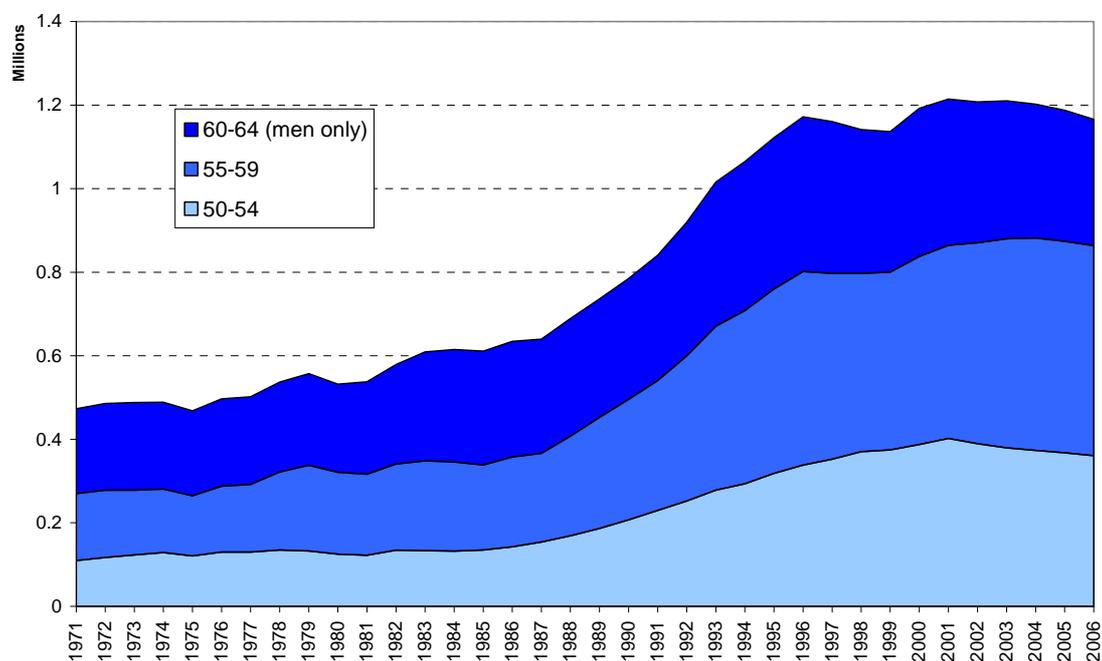
Notes: As Figure 3.1.  
Sources: As Figure 3.1.

From 1984 onwards, and up to 1998, the labor force participation of the old remained stable in the UK. Since then it has been increasing, from 51% in 1998 to 59% in 2006. It is hard to link directly this sizeable rise to changes in the pension system. While the generosity of SERPS was reduced in 2000, the introduction of S2P from 2002 represented an increase in generosity and would be expected to have the opposite impact on labor force participation. Planned increase in the state pension age are not due to take

place before 2010 for women and 2024 for men. Most UK commentators have stressed that the increase in elderly employment in recent years is largely attributable to the upturn in the economic cycle since the mid-1990s (Disney and Hawkes, 2003).

When considering labor force participation in the UK one has also to acknowledge the rise in the numbers claiming incapacity benefits. After the end of the JRS, the Invalidity Benefit scheme (later reformed into Incapacity Benefit) has seen the number of its recipients increase dramatically. Figure 3.4 shows the number of recipients of the Invalidity/Incapacity Benefit for the 50-64 age group (both male and female). These schemes became, over the decade from mid-1980s onwards, a major path of early exit from the labor force. From April 1995 Invalidity Benefit was replaced by Incapacity Benefit for new recipients, with the latter having a more stringent health test. The reform stopped the growth in recipients but did not reverse the trend. The replacement of Incapacity Benefit with the Employment Support Allowance from October 2008, which again is intended to have a more stringent health test, is expected by the Government to reduce receipt numbers.

**Figure 3.4. Number of Invalidity Benefit and Incapacity Benefit recipients aged 50 to the state pension age, 1971-2006.**

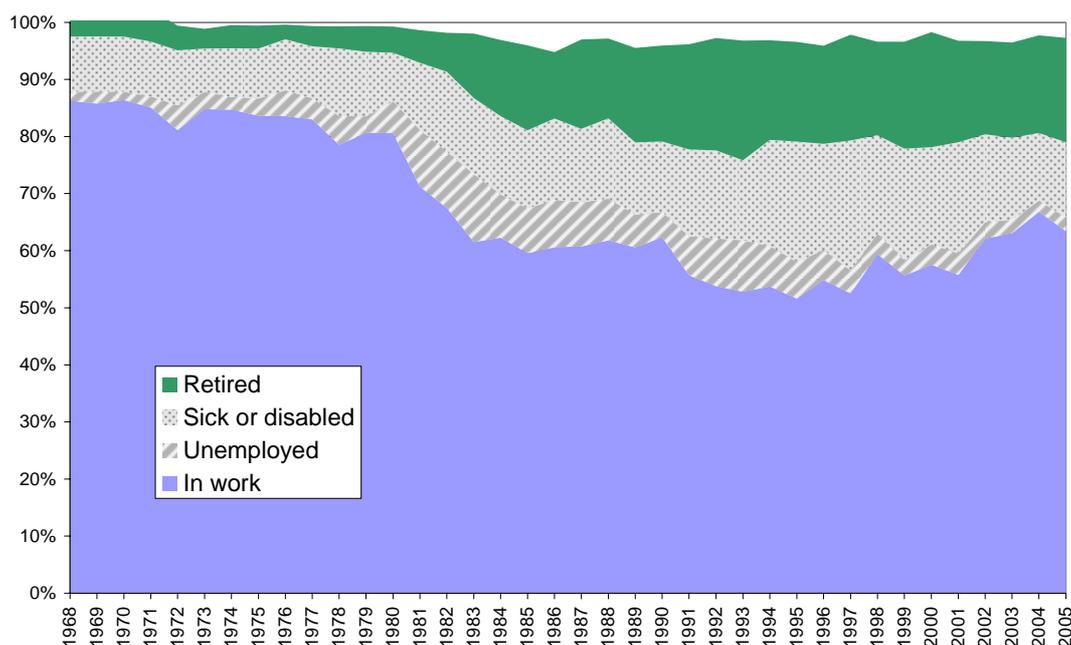


Source: Computations from the authors using EIRNI database (Anyadike-Danes and McVicar, 2007).

Figure 3.5 illustrates the various paths towards retirement in the UK and the importance of the 'sick or disabled' route. The massive drop in employment rates in the

late 1970s is again very clear. First unemployment increases, then the share of older individuals reporting that they are retired or that they are ‘sick or disabled’ increases considerably. It is only over the period since 1995 when employment is definitely increased, with falls in both unemployment and the numbers reporting that they are ‘sick or disabled’. The proportion reporting that they are retired is little changed over the period from the late 1980s onwards. .

**Figure 3.5. Employment status of older men (55-69 years old)**



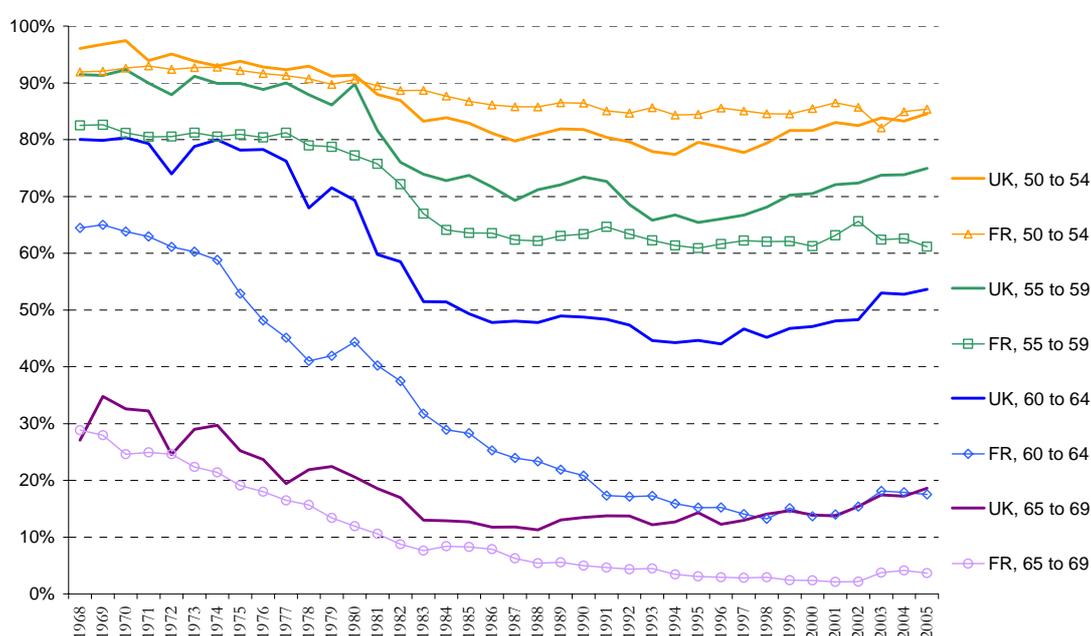
Source: FES 1968 to 2004.

So far the descriptive evidence hardly supports the claim that older workers crowd-out younger ones. The UK case seems to highlight that both old and young workers react to the general economic conditions. In times of relative economic hardship, youth unemployment rises while older labor force participation is reduced; in times of economic expansion, the employment level of both groups increases. To understand better the possible relationship between retirement incentives and youth unemployment, one can advantageously undertake a cross-country comparison – which is finally the *raison d'être* of this volume.

We thus present in Figure 3.6 a France-UK comparison of employment rates of older workers over the 1968-2005 period. This comparison is very interesting because both countries are of similar size and have relatively similar economies. Both have had significant and ageing primary and secondary industries that were hit by the 1970s oil shocks and restructured in the 1980s in part with the help of early retirement schemes.

Both countries have experienced large drop in employment rates of the 55 years old and above until the mid-1980s. Even though France had lower employment rates among both 60-64 year olds and 55-59 year olds before these macro shocks, the UK-France difference is no different in 1983 to that seen in the late 1960s. Both countries have used early retirement schemes even if public subsidies for these schemes were far more developed in France than the UK, where only the JRS can be seen as a public early retirement scheme. Early retirement schemes in France also started as private schemes but have been progressively extended to become public policies.

**Figure 3.6. Employment rates of the older men (France-UK)**

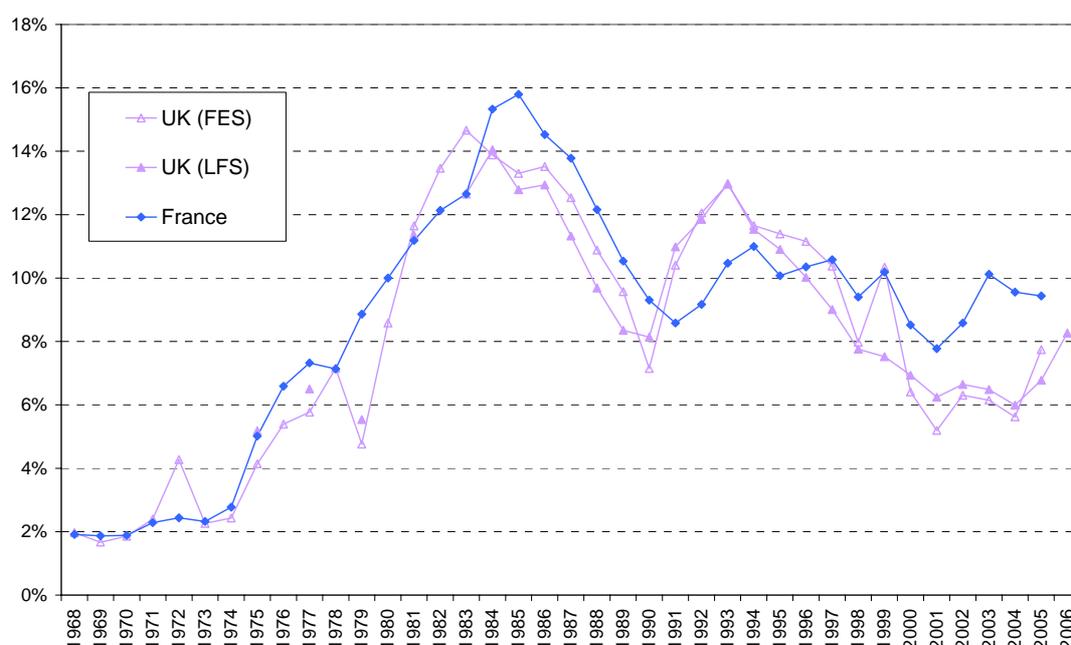


Sources: Family Expenditure Survey (1968 to 1982) and Labour Force Survey (1983 to 2005) for the UK, Enquete Emploi for France (FR).

While the JRS was designed to be – and turned out to be – temporary, the French government decided to stabilize the trend towards the use of early retirement vehicles by introducing permanent changes to the pension system, i.e. by lowering the retirement age from 65 to 60. The idea was that the need for early retirement schemes (i.e. schemes that were not part of the formal pension system) would thus disappear and that by providing pensions earlier to every retiree, it would be fairer. From 1983 onwards, trends in employment rates of the French and UK elderly began to diverge markedly. While the UK employment rate of the 60-64 years old remained stable at 50%, the French one went on falling, down to 14% in 2000. While the difference for this age group was only 15 percentage points in 1968, it is now more than 35 percentage points apart. The 1983 French pension reform also reduced the incentives to work for the 65

and above. The employment rate of 65-69 years old, at roughly the same level up the mid-1980s, started also to diverge. French employment male past age 65 is now almost non-existent while close to 20% of UK males aged 65 to 69 were still working in 2006, with a clear trend over the last ten years towards increased employment among this group.

**Figure 3.7. Share of the 20-24 age group unemployed (France-UK)**



Sources: As Figure 3.6.

A comparison between youth unemployment in France and in the UK is shown in Figure 3.7. The share of the 20-24 age group unemployed according to ILO definition is compared across both countries over the same period as in Figure 3.6. First it should be noted that this is not the unemployment rate usually presented (i.e. the unemployed as a share of the active). Given the marked differences between the two countries in terms of the share of the 20-24 age group in education, unemployment rates might not be considered as directly comparable. Nevertheless, the striking fact emerging from Figure 3.7 is that youth unemployment shares are very similar in both countries and do react strongly to changes in general economic conditions. When LFP of the old was declining similarly in both countries (up to the early 1980s as shown in Figure 3.6), youth unemployment was rising almost identically. The higher intensity of early retirement policies in France and the divergence in LFP of the old described in Figure 3.6 did not seem to have led to any significant decrease of youth unemployment in France relative to

that seen in the UK. If anything, youth unemployment has been higher in France than in the UK in recent years

All these descriptive analyses do not provide causal evidence in any sense, but they suggest convincingly that over the long term, higher (lower) labor force participation of the old is not related to higher (lower) unemployment of the young.

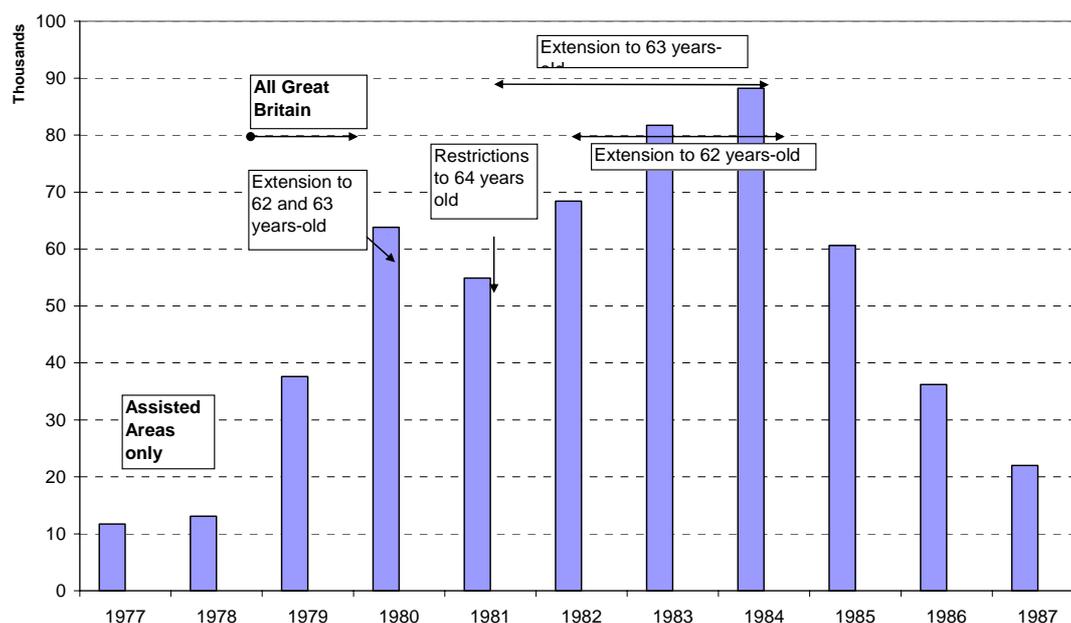
#### 4. An evaluation of the Job Release Scheme

The only public policy in the UK with the aim to reduce unemployment by enticing older workers to retire is the JRS. This section describes its implementation in detail and presents estimates of its possible effect using a difference-in-differences methodology. The goal is to assess whether or not this specific policy has had measured positive impact on youth employment in the short term, irrespective of its long term and wider impact.

The JRS was introduced in the UK in 1977 by a Labour government and was expanded in the early 1980s under the Conservative government of Margaret (now Lady) Thatcher. It was supposed to be temporary and very selective (contrary to examples in continental Europe of general early retirement schemes). It was first limited to employees within one year of the state pension age (59 for women and 64 for men) in some specific areas of the country (Assisted Areas) where unemployment was more prevalent. The scheme required the employer to provide a job to an individual from the unemployment register. A JRS claimant must agree not to take another job, nor setup a self-employed business.

The scheme was changed at multiple times as Figure 4.1 exemplifies. Very soon after its introduction it was limited to full-time employees. In April 1977 it was extended nationwide, then extended temporarily to younger men (aged 62 and 63) in 1979-1980 (but not younger women), then restricted for new claimants to 64 year old men (with 59 year old women still eligible), then again extended in 1982-1984 to men and women within 3 years of the state pension age before being restricted for new claimants once more to just those within one year of the state pension age. It was closed in early 1988. A similar scheme applied to part-time jobs (the Part-time JRS). Its take up rate was much lower than the full-time scheme with only a few thousands recipients.

**Figure 4.1. Numbers supported by the JRS allowance (yearly average)**

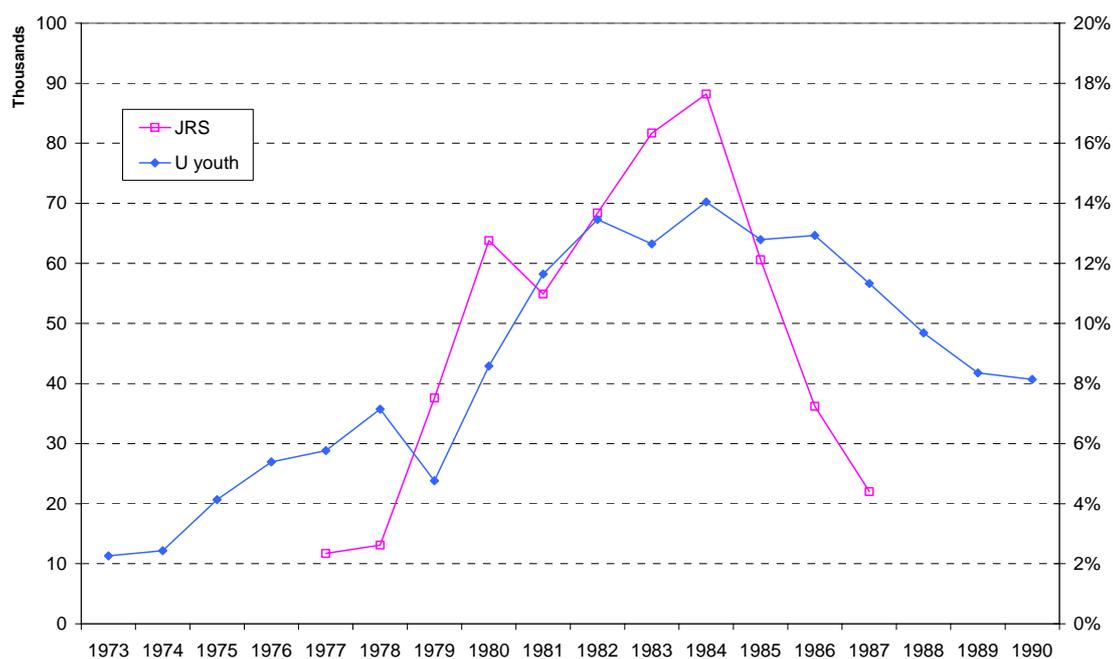


Sources: House of Commons Session 1988–89; Employment Committee 2<sup>nd</sup> report “The Employment Patterns of the Over 50s”, Table 6.2 page 95.

The JRS offered a flat rate allowance (described in detail in Appendix A) and therefore was more attractive to low earners or individuals that could claim a private occupational pension alongside a JRS award. If the allowance was low relative to average earnings, it was 40% higher than the flat rate BSP (available at age 65 for men) and 70% higher than the unemployment benefit. Surveys of recipients of JRS show that indeed many individuals received an occupational pension alongside the scheme allowance (Makeham and Morgan, 1980).

The JRS was put in place in times of rising youth unemployment. Figure 4.2 shows the rise in the share of youth unemployed compared to the numbers supported by the JRS. The scheme was (generally) expanded until 1984 and was reduced in scale in 1985, just when youth unemployment stopped rising. The high correlation between the expansion of the JRS and unemployment highlights the estimation difficulties encountered in this volume. It is impossible to attribute any success to the JRS in reducing youth unemployment and, in addition, it appears clear that the introduction of this scheme was prompted by rising youth unemployment.

**Figure 4.2. Youth unemployment and numbers supported by the JRS (1973-1990)**



Notes: Youth unemployment as a share of population is shown in the right-hand axis, while numbers supported by the JRS are to be read in the left-hand axis (in thousands).

Sources: See Figure 3.1 for youth unemployment and Figure 4.1 for numbers on JRS.

The fact that the conditions to qualify for this scheme changed so many times is a dream scenario for economists willing to evaluate a policy. It generates many treated and control groups. Unfortunately no specific data is available to study the individuals possibly affected – the scheme took place a long time ago, at a time policy evaluations were far from being as developed as today. Nevertheless we can use the LFS for the years 1975, 1977, 1979, 1981 and 1983 to 1989 (inclusive) to study the impact of the JRS on the employment of the old. Our methodology will rely on estimating difference-in-differences impact on the employment of the old using changes in the age threshold.

We use each change in the rules determining eligibility to JRS as pseudo natural experiment. We estimate the effect of being eligible to the JRS on employment rates of males controlling for age dummies and year dummies. Results are presented in Table 4.1. The expansion of the scheme seemed to lead to a reduction in the employment rates of the age group concerned (specifications 1 and 3), but neither of the two periods of restriction of the scheme lead to a statistically significant increase in employment (specifications 2 and 5). The estimation using all the changes in scheme eligibility (specification 4) leads to a 3.6 percentage points decline in the employment rate of 62-64 years old men as a result of the JRS (from a base of 44%). A causal interpretation is possible only under the common trend assumption, i.e. that 61 years old have had no

change in employment prospects from 62 years old during this period, except through the impact of the JRS. This might be a strong assumption. Older workers might be more likely to reduce their labor force participation in times of rising unemployment, even without early retirement schemes. The fact that we do not find statistically significant reversal of the trend when eligibility to the scheme is restricted adds to this possible weakness.

**Table 4.1. Estimated impact of the JRS on employment of the old and the young**

Coefficient (Standard error)	Old					Young
	(1)	(2)	(3)	(4)	(5)	(6)
	-0.035*	-0.014	-0.056***	-0.036***	0.007	0.038***
	(0.021)	(0.028)	(0.017)	(0.007)	(0.021)	(0.003)

Notes: Statistical significance at the 1, 5 and 10% level denoted by \*\*\*, \*\* and \* respectively.

Specification (1) corresponds to the introduction of the JRS to 62, 63 and 64 years old in 1979 as compared to 61 years old in 1977 (unaffected in both years).

Specification (2) corresponds to the restriction of the JRS to 63 years and above in 1981. We compare 63 years old to 62 years in both years. The coefficient presented is the interaction between being 62 years in 1981. If the removal of the JRS led to increase in employment rate of 62 years old, we would expect a positive and significant sign.

Specification (3) corresponds to the expansion of the JRS to 62 and 63 years old in 1983 and 1984, 61 and 64 years old are used as controls.

Specification (4) corresponds to a general analysis of the effect of JRS over the entire period, controlling for age and period dummies.

Specification (5) corresponds to the restriction of the scheme after 1984 to the 64 years old, using 63 years old as controls. If the removal of the JRS had had a positive impact on employment of the 63 years, we would have expected a negative sign.

Specification (6) corresponds to the coefficient on JRS variable in a regression of youth unemployment status with sex and age dummies as controls (period 1975 to 1989).

Even if we accept the result that the JRS had a negative impact on employment of the old, we cannot directly apply this methodology to assess its impact on youth labor status. The difference-in-differences methodology rests on comparing alike older individuals, but no young can be deemed unaffected as “jobs released” by 63 or 62 years olds can be filled by any young unemployed. The only strategy left for us is to use the variation in eligibility to the scheme over time and compare the periods of increased eligibility to periods of restrictions. We run a regression on unemployment probability of those aged 20 to 24 controlling for age and sex dummies adding the number of jobs

presumably released as a share of youth population (specification 6).<sup>9</sup> The results lead to significantly positive coefficients of the JRS eligibility variable, i.e. an increase in the numbers supported by the JRS is associated with a 2 percentage points *increase* in the unemployment probability of the young, controlling for year, age and sex. We do not interpret this result as causal – we have shown that the JRS eligibility was linked to expansion of youth unemployment and to the political need to expand this policy.

Even when looking at one specific early retirement scheme, which was conditioned on hiring unemployed, we do not find conclusive evidence of at least some substitution between young and older workers. This does not, again, prove that these schemes have had no effect on the youth unemployment, but despite our best effort we have not been able to identify, even in the short run, their presumed positive (negative) impact on youth employment (unemployment).

## 5. Regression analysis

In this section we present regression analyses based on data from the UK covering the entire period, i.e. from 1968 to 2005. Table 5.1 presents the results of OLS regressions that exhibit simple correlations between employment of the old and labor status of the young. These estimations have been done following similar specifications in every country of this volume to facilitate comparisons. The table reproduces the coefficients on the employment rate of those aged 55-64. The top part of the table shows pure correlations between labor market status of the young and employment rate of the old. Four specifications are presented, in “levels”, i.e. rates of population regressed on rates, “3 years lag”, “5 years differences” and “5 years log differences”. The bottom part of the table presents the same regressions including a set of controls, i.e. a constant, GDP per head, growth of GDP per head and the share of manufacturing within GDP.

Results of correlations without any controls show strong positive association between employment of the young and employment of the old, and strong negative association between employment of the old and youth unemployment. In other words when labor market conditions are good for the old, they are typically also good for the young.

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<sup>9</sup> We use the number of claimants of the JRS as a proxy for the number of “jobs released”.

Once controls are included, the magnitude of this strong association is reduced but remains largely statistically significant. Even controlling for GDP and its variations, there remains a positive association between employment rates of the old and employment rates of the young. These correlations are not necessarily causal effects. They suggest simply that in the long term in the UK one does not find changes in employment rates of one age group at the expense of the other.

**Table 5.1. Direct relationship between the elderly labor force participation and unemployment or employment of younger individuals**

	Youth 20–24			Prime age 25–54	
	UE	EMP	SCH	UE	EMP
<b>No controls</b>					
Levels	–0.53*** (0.07)	1.10*** (0.15)	–0.84*** (0.25)	–0.27*** (0.03)	0.15*** (0.05)
3 years lag	–0.21** (0.10)	1.01*** (0.14)	–1.10*** (0.20)	–0.15*** (0.04)	0.06 (0.05)
5 years differences	–0.68*** (0.11)	0.51*** (0.18)	0.22 (0.15)	–0.32*** (0.05)	0.44*** (0.08)
5 years log differences	–2.85*** (0.60)	0.30** (0.12)	0.13 (0.24)	–2.91*** (0.51)	0.23*** (0.04)
<b>With controls</b>					
Levels	–0.18*** (0.06)	0.37*** (0.13)	–0.24** (0.13)	–0.20*** (0.04)	0.22*** (0.07)
3 years lag	–0.06 (0.06)	0.09 (0.13)	–0.08 (0.12)	–0.11*** (0.04)	0.07 (0.07)
5 years differences	–0.28** (0.11)	0.56** (0.25)	–0.09 (0.22)	–0.21*** (0.07)	0.54*** (0.11)
5 years log differences	–1.00* (0.53)	0.34* (0.19)	–0.22 (0.38)	–1.75*** (0.56)	0.22*** (0.06)

Notes: Statistical significance at the 1, 5 and 10% level denoted by \*\*\*, \*\* and \* respectively. Reported is the coefficient on elderly employment (55–64 years old), with its standard error below in parenthesis. The dependant variable is mentioned at the top of each column, i.e. for the first columns it is the share of unemployment of youth aged 20 to 24 regressed on the employment rate of the 55–64. UE is the share of the population unemployed, EMP is the share of the population in work and SCH is the share of the population in school and not in work.

Controls are constant, GDP per head, growth in GDP per head and share of manufacturing in the economy.

Even after adding the controls for the aggregate effects of GDP growth etc. in Table 5.1, it may well be that the elderly labor force is endogenous. What about exploiting the incentive measures to retire as computed in previous volumes of the ISS-NBER project (see Gruber and Wise 1999)? We have established in section 2 of this chapter that pension reforms in the UK were not influenced by concerns relative to youth unemployment (early retirement scheme like the JRS were cautiously kept out of

social security elements). In that case, incentives measures which are good predictors of the probability to retire seem like reliable instruments to assess the impact of labor force participation on youth unemployment. The difficulty is that the macroeconomic nature of the estimation problem makes it impossible to remain at the microeconomic level. Effects on youth unemployment can only be assessed at the times series level (since it is not possible to apply the financial incentives to work faced by older individuals to the employment prospects of younger individuals at any more disaggregated level). It is therefore necessary to build incentives measures that do confidently explain labor force participation of older individuals in the times series dimension.

Table 5.2 contrasts the impact of our incentives measures at the micro level and at the aggregated level (times series) on the probability to retire. Specification (1) and (2) are based on estimation on micro data at the year, age and sex level. The standard model of Social Security Wealth (SSW) and Peak value (PV) is estimated with a variant in the definition of the peak value (PV\*). Detailed information on these incentives measures can be found in Appendix B. Controls include age, year and sex dummies as well as interactions between sex, age and year. At the micro level both incentives are statistically significant with the expected sign. Higher SSW leads to higher probability to retire while higher peak value, i.e. how much it is worth to delay retirement, leads to lower retirement probability.

**Table 5.2. Incentives measures and the probability to retire**

	Micro level estimation		Times series estimation	
	(1)	(2)	(3)	(4)
SSW	0.0030** (0.0014)	0.0054** (0.0024)	-0.0005 (0.0006)	-0.0007 (0.0022)
PV	-0.0022** (0.0011)		0.0001 (0.0018)	
PV*		-0.0024** (0.0011)		0.0001 (0.0018)

The results in times series are presented in specifications (3) and (4). Incentives and the dependent variable are aggregated at the year level. Controls include the same set of variables than in Table 5.1, i.e. constant, GDP, growth of GDP and share of manufacturing within GDP. All the effect of the incentives vanishes completely at the times series level. There are important reasons that can account for this. First both retirement incentives and employment rates vary greatly by sex and age within the same year. Estimating the impact of precise incentives on micro data makes use of these

important variations. Changes in times series are *per se* much smoother. Second, the time variations that may account for changes in economic environment are fully taken into account at the micro level (through the inclusion of year dummies) without concern, but need to be carefully controlled for in the time series regressions with all the caveats that entails.

The incentive variables therefore do not provide powerful instruments for the older labor force variable in the regressions of Table 5.1. Consequently, our results have to rest on the discussion of policy experiments in Section 4 and the regressions in Table 5.1. We find no evidence that changes in employment rates of older workers adversely affect the employment rate of the young.

## 6. Conclusion

Policies to foster early retirement to release jobs for the young have been limited in the United Kingdom. Pension provisions have been more influenced by constraints on the public finances, a desire to ‘privatize’ the system, and, more recently, with concerns with the adequacy of retirement saving than by youth unemployment. However the example of the JRS (1977-1988) shows that a desire to increase youth employment opportunities was also present in the UK at some stage. Looking precisely at the impact of this scheme we find some evidence that it reduced employment of the old but no positive effect can be found on youth employment. When looking at the entire 1968-2005 period, labor force participation of the old is positively associated with employment of the young. Controlling for the business cycle reduces the magnitude of the correlation but does not alter this positive association.

Overall we find no evidence of long-term crowding-out of younger individuals from the labor market by older workers. The evidence, according to a variety of methods, points always in the direction of an absence of such a relationship.

## Appendix A –Job Release Scheme Allowance

**Table A.1. Weekly allowance of the full-time JRS**

	Tax-free (men aged 64, women aged 59)			Taxable allowance (disabled men 60-63, able men aged 62 or 63)		
	Normal rate	Married with spouse with low income	Threshold for spouse income	Normal rate	Married with spouse with low income	Threshold for spouse income
01/01/1977	£23.00	–	–	–	–	–
01/11/1977	£26.50	–	–	–	–	–
01/07/1978	£26.50	£35.00	£8.50	–	–	–
01/04/1979	£31.50	£40.00	£8.50	–	–	–
06/04/1980	£36.00	£45.50	£10.00	£43.00	£53.00	£10.00
01/04/1981	£40.00	£50.50	£11.00	£47.50	£59.00	£11.00
01/04/1982	£43.50	£55.00	£12.00	£52.00	£64.00	£12.00
11/04/1983	£45.70	£57.75	£13.00	£54.60	£67.20	£13.00
01/04/1984	£48.00	£60.75	£13.00	£57.35	£70.55	£13.00
01/04/1985	£49.95	£63.00	£13.00	£58.35	£71.15	£13.00
01/04/1986	£51.95	£65.50	£13.00	£60.65	£74.00	£13.00
01/04/1987	£53.90	£67.55	£13.00	£61.15	£74.50	£13.00
01/04/1988	£56.05	£70.25	£13.00	£62.15	£75.50	£13.00

Sources: Makeham, P. and Morgan, P. (1980); Tolley's Social Security and State benefits, 1981, 1982, 1983–84, 1985, 1986, 1987–88; Written answers 8th March 1979 House of Commons; Special employment measures 1980–81, 14th February 1980, House of Commons; Speech 12th June 1985, House of Commons; Written answers 10th of July 1985 House of Commons; Written answers 19th of March 1986 House of Commons; Written answers 1st of April 1987 House of Commons; Written answers 30th March 1988 House of Commons.

**Table A.2. Weekly allowance of the part-time JRS**

	Tax-free (men 64, women 59)			Taxable allowance (disabled men 60-63, able men aged 62 or 63)		
	Normal rate	Married with spouse with low income	Threshold for spouse income	Normal rate	Married with spouse with low income	Threshold for spouse income
03/10/1983	£22.85	£28.90	£13.00	£27.30	£33.60	£13.00
01/04/1984	£24.00	£30.35	£13.00	£28.65	£35.30	£13.00
01/04/1985	£28.95	£35.55	£13.00	£33.80	£40.70	£13.00
01/04/1986	£30.10	£37.00	£13.00	£35.15	£42.35	£13.00
01/04/1987	£31.15	£38.05	£13.00	£35.80	£43.00	£13.00
01/04/1988	–	–	–	£37.25	£44.70	£13.00

Sources: Tolley's Social Security and State benefits, 1983-84, 1985, 1986; Written answers 19<sup>th</sup> of March 1986 House of Commons; Written answers 1<sup>st</sup> of April 1987 House of Commons; Written answers 30<sup>th</sup> March 1988 House of Commons.

## Appendix B – Incentives measures

The incentives we have computed for this volume follow the ones described in Gruber and Wise (1999, 2004). As each exercise leads to variants of these incentives measures, we detail in this appendix the exact computations done in this chapter.

For an individual aged  $t$ , we first compute Social Security Wealth at age  $t$  ( $SSW_t$ ). The value of the Social Security Wealth depends on the age  $t' \geq t$  at which the individual decide to retire and is given by:

$$SSW_{t,t'} = \sum_{s=t'}^T \beta^{s-t} \pi(s/t) B_s(t')$$

with  $B_s(t')$  is the expected level of pension at age  $s$  for an individual who retired at age  $t'$ ,  $\pi(s/t)$  the probability of surviving up to age  $s$  for an individual ages  $t$  and  $T$  the maximal age at death. The SSW incentive in this volume includes benefits paid to the survival spouse, but no other schemes than the state pensions (BSP, SERPS and S2P). In particular it does not include Invalidity Benefit or Incapacity Benefit, benefits from the JRS, or benefits targeted at those on low incomes. SSW does not include social security contributions (or other taxes) either.

The second incentive, the Peak Value (PV) is the absolute value of the difference between the maximum of the Social Security Wealth associated to all possible ages at retirement and Social Security Wealth in case of an immediate retirement:

$$PV_t = | \underset{s}{Max}[SSW_{t,s}] - SSW_{t,t} |$$

A variant of the Peak Value (PV\*) is the maximum present value of the Social Security Wealth associated to all possible ages at retirement beyond the current year:

$$PV^*_t = \underset{s \geq t+1}{Max}[SSW_{t,s}]$$

To compute these incentives, we simulate pensions at each age and in each year for three different types (men with full working life, women with full working life and women with reduced working life) and for each decile of the earnings distribution. Earnings profiles are estimated on the 1923 cohort and then earnings growth is applied to all other cohorts. Going forwards we assume 2½% inflation and 2% real growth in earnings.

Average incentives by year, sex and age, as well as at the year level, are computed using weights computed from the FES.

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