

# Implications of population ageing for the labour market

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## Key points

- The average age of people in the labour force has been gradually increasing for at least a decade. This ageing process will continue in future decades.
- The pace of labour force ageing in the UK is expected to be relatively slow by OECD standards, but it will accelerate if increased numbers of older workers delay their retirement.
- Economic research on the effects of past changes in the age structure of the population indicates that demographic changes can influence aggregate or age-group-specific employment rates, unemployment rates and relative wages. Where effects have been identified, those effects have typically been relatively small.
- Key issues raised in the literature on the ageing of the labour force include the need to maintain the employability of older workers who wish to remain in work; the need to maintain the relevance of older workers' skills; and the need to ensure that mobility levels are sufficient for adjustment to future changes in the location and composition of jobs.

***This article presents work undertaken as part of the Labour Market and Demography Project. It is a literature review, and, as such, the views discussed are not necessarily the views of ONS.***

## Introduction

THE AVERAGE age of the British labour force is gradually rising. This process began in the late 1980s. Between 1991 and 2001, the mean age of participants in the labour force increased by approximately 1.5 years, from 37.5 to 39.0 years. The ageing of the labour force is projected to continue during the coming two decades.

This article summarises some of the key strands of recent discussions in the research literature about the implications of population ageing for the labour market. From the outset, it needs to be said that there are substantial uncertainties as to what ageing will mean for the experiences of younger and older workers in the labour

force, and for the performance of the labour market. This article aims to inform readers of the issues that are posed by ageing, but it will not resolve those uncertainties (see [Box 1](#)).

The focus of the article is restricted to the direct effects of workforce ageing within the labour market. It does not consider the implications of the wider set of demographic changes that are taking place, such as the impact of the growth in the number of adults who are aged over 65 on savings and investment rates and the demand for different goods and services.<sup>1</sup>

The article begins by presenting some basic facts on the changes in the age structure that have already taken place,

and the changes that have been predicted for the current and next decades. Assuming no major changes in participation patterns, it seems likely that the increase in the average age of the labour force in the current decade will be no faster than the increase recorded in the 1990s. By 2010, however, the proportion of working-age people between 50 and 64 years old will be greater than at any time since the mid-1970s.<sup>2</sup> This means that the experiences and outcomes of this age group will become relatively more important for the performance of the workforce as a whole.

Currently the employment patterns of older workers differ from those of prime-aged and younger workers in a number of important ways. For example, older workers are less likely to become unemployed, but once unemployed take longer to return to work and are more likely to leave the labour force. Their levels of participation in both formal education and workplace-based learning are significantly lower than those of prime-aged and younger adults. Older workers tend to change jobs less often, and are less geographically mobile.

### Box I Literature reviews

This article reviews the current research on the effects of population ageing on labour markets. Literature reviews are a common feature of academic research. Their purpose is to summarise the research material, sometimes to comment on the quality of the underlying research, and to add further value by looking for similarities or conflicts between researchers' findings. This includes making sometimes subjective judgements about how different pieces of research compare in terms of their quality.

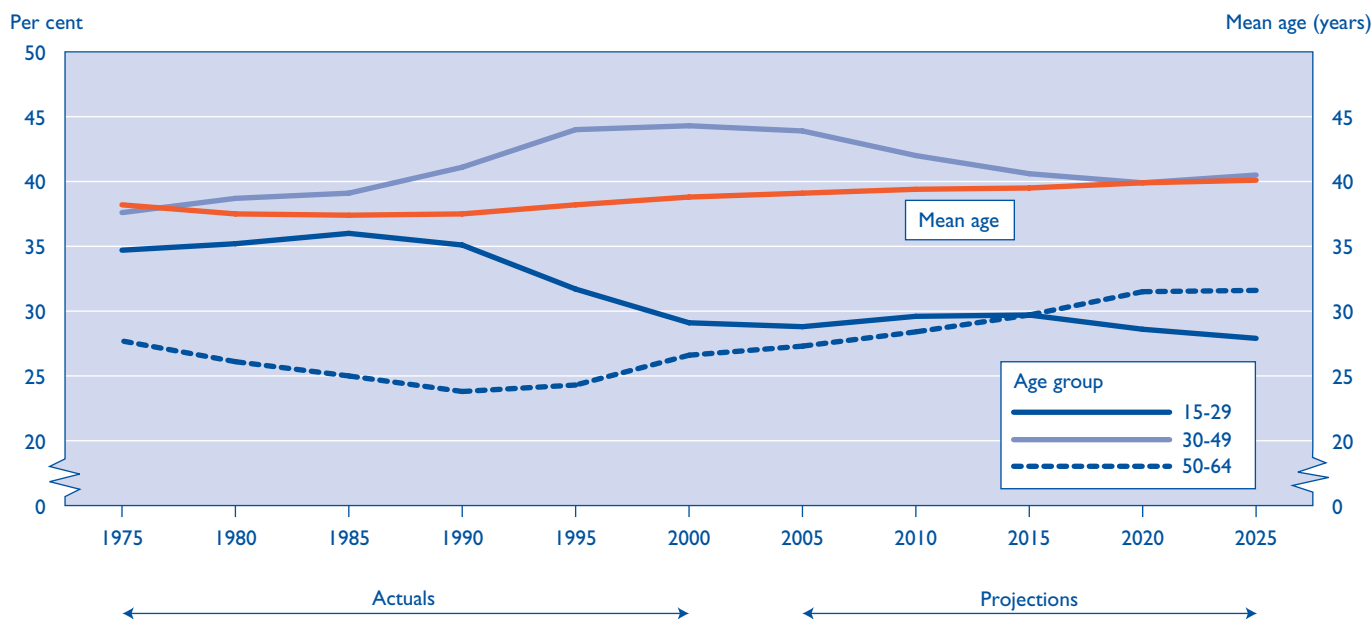
Readers are requested to avoid attributing views to ONS that should properly be ascribed to the original researchers.

To the extent that these differences in employment patterns are driven by age-related differences in the skills, preferences, savings, or non-wage incomes of workers which persist in the future, then population ageing has the potential to lead to some changes in outcomes across the labour force as a whole, simply by changing the age composition of the labour force. It could also lead to changes in the nature, speed and costs of labour market adjustment.

Unfortunately, the underlying drivers of the age differences that are currently observed in the labour market are not

fully understood. In addition, future shifts in the structure and behaviour of the labour supply will interact with shifts in the demand for labour, with results that are difficult to predict. Nevertheless, by examining current age patterns and trends, it is possible to consider the nature and direction of the changes that will flow from labour force ageing. This article outlines some of the key ideas that have been put forward in the literature and discusses their basis. It also discusses some of the issues that arise in assessing the impact of changes in the age composition of the

Figure | Proportions of working-age people by age group; mean age of working-age population; United Kingdom; 1975 to 2025<sup>a,b</sup>



Sources: Office for National Statistics; Government Actuary's Department<sup>a</sup>

a Data for 1975 to 2000 are ONS interim post-2001 census population estimates as at October 2002; data from 2005 are interim post-census projections by the Government Actuary's Department released in October 2002.

b Working-age is defined here as all people aged 15 to 64.

population, and briefly reviews the findings of past empirical research into this topic.

### How rapid is the ageing process?

The demographic changes that are currently underway are modifying the relative sizes of different age groups in the working-age population. This section looks firstly at the changes in the age structure of the working-age population, before turning to consider the accompanying changes in the composition of the labour force.

Figure 1 provides a simple overview of the demographic changes by grouping the working-age population into three broad age groups: younger adults (15-29 years); prime-aged adults

(30-49 years); and older adults (50-64 years).<sup>3</sup> From the late 1980s the share of younger people began to decline, reflecting the movement into this age group of the smaller birth cohorts that were born in the late 1960s and 1970s. At the same time, prime-aged adults began to make up an increasing share of the working-age population, driven by the ageing of the larger birth cohorts of the 1950s and early 1960s. Between 1990 and 2000, the average age of the working-age population increased by 1.3 years.

Population projections prepared by the Government Actuary's Department in 2002<sup>4</sup> indicate that the pace of ageing during the next two decades is expected to be somewhat slower than in the 1990s. The average age of the working-age population is projected to increase

by around 0.7 years in the decade to 2010, and 0.5 years in the following decade. The decline in the proportion of younger adults in the 1980s and 1990s is expected to level off after 2000. The biggest changes in composition will occur further up the age distribution. From about 2005 onwards the proportion of prime-aged adults (30-49 years) will begin to fall. The proportion of older adults (aged 50-64) will continue to grow throughout the period, rising from around 27 per cent in 2000 to around 32 per cent in 2020.

Changes in the size and average age of the labour force are the product of both demographic changes, which alter the size and age structure of the working-age population, and changes in labour force participation patterns. In recent decades, shifts in participation rates have played an important role in modifying patterns of labour force ageing. During the 1990s, for example, the female labour force aged more rapidly than the female working-age population due to strong growth in the participation rates of prime-aged and older women. At the same time, reductions in activity rates for older men helped to slow the rate of ageing of the male labour force. Substantial falls in activity rates for young people of both sexes during the 1990s also had an impact, contributing to the ageing process.

Table 1 summarises recent changes in the age structure of the labour force.<sup>5</sup> During the decade from 1991 to 2001, the mean age of the labour force increased from 37.5 to 39.0 years. The proportion of younger adults (aged 16-29) fell from around one third to just one quarter; the 50-plus age group increased by around three percentage points. Note, however, that the proportion of older workers in the labour force of 2001 was no larger than in 1981.

Older people would have made up a larger share in 2001 if the participation rates of older men had not fallen substantially. To illustrate the magnitude of those participation effects, it can be estimated that the average age of the male labour force in 2001 would have been almost one year higher if activity rates for men aged 50 and over

Table 1 Proportions of labour force by age group and sex; mean age of labour force by sex; United Kingdom; spring quarters 1981-2001

	1981	1991	2001
<b>Age group (per cent)</b>			
<b>All</b>			
16-29	33.0	33.2	26.1
30-49	42.1	46.2	49.9
50-64	22.9	19.0	22.5
65+	2.0	1.6	1.5
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>
<b>Men</b>			
16-29	31.8	32.4	25.7
30-49	42.3	45.5	49.1
50-64	23.8	20.2	23.4
65+	2.1	1.9	1.7
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>
<b>Women</b>			
16-29	34.9	34.3	26.7
30-49	42.0	46.8	50.6
50-64	21.4	17.7	21.6
65+	1.7	1.3	1.2
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>
<b>Mean age (years)</b>			
All	38.0	37.5	39.0
Men	38.5	38.0	39.3
Women	37.3	37.0	38.7

Source: Labour Force Survey

Note: LFS estimates have been adjusted to reflect the post-2001 Census provisional revision of population estimates.

had remained at their 1981 levels. The proportion of the male labour force aged 50 and over would have been about 3 percentage points higher.

Official labour force projections, covering the years to 2011, were last prepared by ONS in 1998. These indicated that the ageing of the labour force was likely to continue at a steady rate rather than accelerate. They implied that the labour force would age by around 0.7 years between 2000 and 2010, and the share of workers aged 50 and over would increase by around 3 percentage points. A new, updated set of labour force projections is due to be released by ONS in autumn 2003.

The Organization for Economic Cooperation and Development (OECD) also examined labour force ageing trends across the OECD in 1998, and developed projections for each member country under two different assumptions about future retirement patterns. Consistent with the ONS work, the OECD projections for the UK pointed to relatively modest ageing of the labour force between 2000 and 2030. The projected increases in the share of older workers in the British labour force were smaller than those anticipated in many other OECD countries (1998, p126), reflecting Britain's somewhat younger population age structure.

All labour force projections are based on assumptions about future participation patterns that may or may not be realised in practice. Some of the biggest uncertainties concern the future retirement behaviour of workers in the 50-64 age group. During the past five years, a series of policy initiatives have been announced or implemented that are designed to reduce the incentives that currently encourage early retirement, and assist older people who have been displaced from jobs to return to work.<sup>6</sup> If these initiatives succeed in raising the effective average age of retirement, and prolonging the labour force participation of older workers, they will speed up the process of labour force ageing.

Summarising, UK labour force projections prepared in recent years suggest that, in the absence of major shifts in participation or retirement

patterns, the pace of labour force ageing in the coming decade is unlikely to exceed that of the 1990s, and may be somewhat slower. This suggests that participants and institutions in the labour market will have time to adapt. Research on the labour market effects of workforce ageing during the 1990s could help to throw light on the responses that have already been made.

While there is nothing new about the process of ageing, over the next two or three decades those aged fifty and over will come to make up a larger share of the working-aged population than ever before. This has the potential to increase the incidence of the types of employment difficulties that are particularly encountered by older people.

### Future effects of workforce ageing

The literature on population ageing and the labour market has identified a wide variety of potential issues and consequences. In this section some of the main hypotheses are reviewed and their basis explained.

### Upward pressure on employers' wage costs

There is a positive relationship over the lifecycle between age and earnings. Employers' wage costs will tend to be pushed up by labour force ageing if current earnings differentials by age are maintained (Johnson and Zimmermann, 1992, p5). The impact on unit labour costs will depend on whether average productivity rises in step with age. An older workforce may be more productive, given that older workers tend to have more years of prior work experience (Disney, 1996, p154). However, there is evidence that the positive relationship between age and earnings is in part the outcome of organisational pay policies that are designed to encourage retention and reward good performance, rather than a pure productivity effect (OECD, 1998, p130). Organisational pay structures that implicitly reward seniority will tend to push up wage costs in the face of workforce ageing, and could come under pressure for adjustment (Johnson and Zimmermann, 1992, p9).

Because workforce ageing has been under way for at least a decade, it is possible that some firms are already making incremental adjustments to their internal pay structures. The slow and gradual nature of workforce ageing should allow plenty of time for adaptations to be made. In addition, it has been suggested that the ageing of company workforces may bring some offsetting sources of labour cost savings for employers, such as lower turnover costs and lower absenteeism (Cabinet Office, 2000).

### Downward pressure on levels of economic activity

Currently the labour force participation rates of older adults are well below those of prime-aged and younger adults. Concerns have been expressed that the rising share of older workers in the labour force will have adverse effects on the number of older adults who are out of work and on aggregate levels of economic activity (Cabinet Office, 2000, p31).

The downward trend in the activity rates of older men over the past two decades has prompted a great deal of research into the reasons for early withdrawal from the labour market (Campbell, 1999; Disney, 1999; Disney et al. 1997; Department for Education and Employment, 2000). That research indicates that a complex set of factors is at work. The frequency of early retirement and early withdrawal from the labour force have been influenced by improvements in pre-retirement savings levels, and by the growth of occupational pension schemes that allow members to draw pensions before the state pension age. The increased provision of social security benefits to workers suffering ill health or disability, and shifts in the industrial and occupational structure of employment that have reduced the demand for the skills held by older workers in manual jobs, have also played a role.

While demographic change is not the cause of any of these trends, the rising share of older workers will undoubtedly increase the prominence of labour force participation and retirement decisions as policy issues. Since the late 1990s the participation rates of older men have



stabilised. Commentators appear to be divided on the question of whether the activity rates of adults in the 50-64 age bracket are more likely to rise or fall during the coming decades. Some argue that increased longevity, and reforms to occupational pension schemes and other social security programmes designed to reduce the opportunities and incentives for early retirement, are likely to prolong individuals' effective working lives and bring about higher participation rates in future (OECD, 1998, p.145). Others suggest that developed nations like Britain may experience continuing reductions in the participation rates of people in their fifties, driven by rising real incomes and individuals' preferences to retire early (Landis and Kellar, 2000).

### Reduced voluntary mobility between jobs, and lower turnover within enterprises

Younger workers tend to change jobs and employers relatively frequently, while older workers tend to have stable relationships with their employers. Consequently, average rates of voluntary separations from jobs decline with age, while average tenure increases. Using data from the British Household Panel Survey, Gregg, Knight and Wadsworth (1999, p253) estimate that the annual separation rate for workers aged 50 and over is around 10 per cent lower than that for workers aged 25-49, and half that for workers aged under 25. A higher share of older workers in the workforce means that quit rates will fall and average tenure will increase, all other things being equal (Gregg and Wadsworth, 1999, p118).

Groot and Verberne (1997) summarise the likely reasons for the age differences in voluntary separations. One contributing factor is that many employers, particularly in larger firms, operate remuneration systems that reward tenure or seniority as a means to fostering the development and retention of firm-specific skills, and to reduce turnover costs. Once workers have remained with an employer for a sufficient time to gain the benefits of tenure or seniority-based pay systems, they face higher costs of leaving.

Another reason is that older workers are more likely to have found a good job match, through job changes earlier in their working lives. Yet another reason is that job changes may require geographical mobility, which is costly, and older workers have less time remaining in the workforce in which to recoup those costs through higher earnings or other job-related benefits. These factors that contribute to lower job mobility among older workers seem likely to persist in future, although the magnitude of the age differences could change.

A decline in voluntary job mobility, if it occurred, would be likely to have both positive and negative consequences. Turnover costs to employers, including recruitment and initial training costs, would be reduced. This would have a favourable impact on overhead labour costs and profitability. On the other hand, the labour market as a whole might become less flexible. Adjustments to changes in technology and changes in product markets require the movement of workers across firms and between geographical regions. Nations with considerable labour market mobility may be better able to adjust to technical change or shifts in labour demand.

### An increase in involuntary job loss, especially among older workers

Flowing from the fact that older workers are less mobile, a decline in voluntary attrition rates could force some employers to make greater use of redundancy to adjust the size of their workforces (OECD, 1998, p145). Moreover, as older workers come to make up a large share of the labour force, they may be forced to bear a larger share of the impact and costs of redundancy (OECD, 1998, p145).

There is evidence that older workers are more adversely affected at present by involuntary job loss than are younger workers. Although older workers are less likely to be displaced from jobs through redundancy, dismissal or the termination of a temporary contract (Gregg, Knight and Wadsworth, 1999, p253), they are at greater risk of long-term unemployment following job loss.

If re-employed, they tend to experience significantly larger reductions in their average earnings than do young and prime-aged workers (Gregg, Knight and Wadsworth, 1999, p255). In part this reflects the fact that older workers have typically been working in their jobs for longer, and so have higher levels of job-specific skills and experience. Job displacement leads to a drop in earnings if some or all of the returns to accumulated on-the-job experience are lost in the next job (Gregg, Knight and Wadsworth, 1999, p251). Although there are other factors that also influence the cost of job loss, the positive relationship between age, tenure and the magnitude of the earnings losses that are associated with displacement seems likely to persist in future, with the result that older workers will continue to be harder hit by job loss.

### Reduced geographical mobility

Rates of regional migration peak among young adults, and decline with age until retirement (Champion et al., 1998, p65). This is partly due to the fact that older workers change jobs less often, as already noted. It also reflects the association of geographical migration with certain life course events that tend to happen early on, such as leaving home, beginning a career, forming a partnership, and having children. Assuming these life course events continue to trigger more migration decisions during early adulthood than later on, the rising share of older adults in the working-age population will tend to reduce national migration rates, all other things being equal (Greenwood, 1997, p647).

The implications of reduced migration are difficult to assess. In general, migration is believed to increase employment and productivity, by matching people to jobs in which their skills are used more efficiently. Migration also plays a role in narrowing disparities in economic performance across regions (Donovan et al., 2002, p2). A fuller assessment of the implications of labour force ageing for migration would need to consider the impacts on different types of

movements, distinguishing for example between job-related migration and other flows.

## An ageing of the stock of knowledge and skills of the labour force

The knowledge and skills held by people in the workforce influence productivity levels and provide a basis for innovation and productivity improvements. An increasingly mature labour force will have higher average levels of work experience. This increased level of experience could have positive effects on productivity (Disney, 1996, p187). On the other hand, workforce skills also depend on the stock of the knowledge that is acquired before entry to the labour market, or in the early stages of individuals' careers. There is a risk that stock of skills that derives from foundation education and training will become increasingly dated as the average age of participants in the workforce rises, with negative effects on innovation and productivity. At the same time, shifts in the age structure are likely to mean that the labour market becomes more reliant on mature and older workers to meet new and emerging skill needs (OECD, 1998, p123).

Relatively few adults acquire new formal qualifications beyond the age of around 25. This is not surprising, because economic models of the returns to education show that the financial incentives to acquire new qualifications decline steeply with age (OECD, 2001, p15). Older workers face higher opportunity costs when they undertake education that requires time away from work, because the earnings they must forgo are higher. The shorter remaining length of the working life for older workers also reduces the period in which they can gain benefits, in the form of higher wages or improved job opportunities, from having the additional qualifications.

Consistent with this reasoning, empirical estimates of the returns to education for adults in the UK suggest that the financial benefits of acquiring new qualifications when over the age of

30 are often small or non-existent. Jenkins et al. (2002) used data from the National Child Cohort Study to estimate the employment and wage effects of studying for qualifications between the ages of 33 and 42. For most groups of learners, they found little evidence of positive wage effects (suggesting that the overall returns, taking into account the costs of learning, may have been negative).

Given poor returns to investments in lengthy off-job education and training undertaken at older ages, on-the-job training and short courses are likely to become increasingly important means for maintaining and updating the skills of an older workforce. The costs of short training episodes can be recovered more quickly by employers and employees, increasing the likelihood of a positive rate of return. Currently, rates of participation in job-related training decline with age, but the age differences are less pronounced than for participation in formal education. In the spring 2002 Labour Force Survey (LFS), for example, 49 per cent of employees aged 50-54 reported that they had participated in job-related training in the past four weeks, compared with 57 per cent of employees aged 25-29. These data suggest that firms (who finance the majority of job-related training) generally do not view older workers as unsuited for training (OECD, 1998, p139), and that older workers are not especially reluctant to undertake it.

The incentives for workers aged over 45 to undertake job-related education or training would be improved by increases in the average length of working lives, extending the pay-back period for education and training investments (OECD, 2001, p15). Participation in formal education might also be raised if programmes were designed in a way that reduces the high opportunity cost for older workers to participate, for example through the greater use of modular courses (OECD, 2001, p15).

## A rise in the incidence of ill health and disability within the labour force

The risk of poor health and disability

rises with age. Poor health and disability can reduce productivity at work, and are often associated with early withdrawal from the labour force. Evidence from the Retirement Survey, for example, indicated that the onset of health problems prompted or hastened the retirement of around one third of the sample members who had retired before the state retirement age (Tanner, 1997, p54).

The rise in the proportion of older workers in the labour force will increase the level of health problems and disability, all other things being equal. The effects of population ageing could, however, be mitigated by reductions in the incidence of disability at older ages, driven perhaps by improvements in the general health of the population or by improvements in health and safety conditions within workplaces. Changes in the employment structure that are reducing the share of manual occupations, in which accidents and occupational health problems have historically been higher, may help to bring about reductions in the incidence of disability due to workplace accidents or illness (OECD, 1998, p136).

## Lessons from past research on the labour market effects of changes in the age structure

Many of the predictions that have been made on the consequences of ageing are based on the idea that the shift in the age structure will move future employment patterns towards those of older people in today's labour market. Older workers tend to remain in jobs for longer, for example, and therefore it is predicted that average tenure levels will rise.

There is evidence that the performance of the labour market can be influenced by shifts in demographic composition. This reflects the fact that aggregate indicators of labour market performance, such as the national employment rate, are simply the weighted average of the employment rates of all separate age groups. The compositional effects of age structure change do not operate in isolation from other processes of change, however.

Shifts in the demand for different types of labour and changes in economic performance driven by business cycles can have more substantial impacts on both outcomes for particular age groups and for the labour force as a whole. Factors such as the performance of the economy, technological change, shifts in the demand for goods and services, and changes in pension and income support policies, are likely to have greater influence on future employment, unemployment and wage levels, and can modify or offset the compositional effects of ageing. This is borne out by the findings of empirical research on past changes in the age structure.

Economists have used historical data to estimate the impacts of changes in the relative sizes of different age groups on indicators of labour market performance such as employment and unemployment rates. Most of these empirical studies have considered the impacts of changes in the relative supply of young people. During the 1970s and early 1980s many OECD countries experienced rapid growth in the share of younger workers within the labour force, driven by the entry of people born in the 'baby boom' era. That growth was reversed in the years after 1985, as the baby boom generation was progressively replaced by smaller birth cohorts born in the late 1960s and the 1970s.

Barwell (2000) provides a British example of such a study. He examined the impact of the decline in the youth labour force share between 1984 and 1998 on the UK unemployment rate. He estimated that the underlying demographic changes caused a decline in the aggregate unemployment rate of between 0.32 and 0.45 percentage points (controlling for the effects of the simultaneous decline in youth participation rates). This represents 6-10 per cent of the total fall in the aggregate unemployment rate experienced during the period of study. The impact was measurable, therefore, but rather small.<sup>7</sup> Katz and Kreuger (1999) have undertaken a similar analysis of the impact of age structure changes on the aggregate unemployment rate in the USA. They estimate that changes in the age composition of the labour force,

driven by the maturing of the baby boom generation, can account for up to 0.4 percentage points of the total decline in the unemployment rate in the USA between the late 1980s and the late 1990s.

Returning to the British case, Barwell also considered the question of whether the decline in the youth labour force share, by reducing the relative supply of this type of labour, had had a positive impact on the youth unemployment rate. He was unable to find evidence that it had done so. The youth unemployment rate deteriorated rather than improved during much of the period when the youth share of the labour force was falling.

Korenmann and Newmark (1997) have reviewed the findings of 15 econometric studies that attempted to estimate the effects of changes in youth cohort size on the labour market outcomes of young people. They report that the findings were mixed, but on the whole provide some evidence of a small adverse effect of larger cohort size on the employment, unemployment and wages of young people across a number of OECD countries. They note, however, that reductions in the relative sizes of the youth labour force in the 1980s and 1990s in many countries were accompanied by continuing deterioration in youth labour market outcomes such as unemployment rates, rather than improvement. Newmark and Korenmann attribute this to the fact that the beneficial effects of the supply-side changes were swamped by changes in the composition of demand for labour, which favoured skilled and experienced workers and weakened the demand for young people.

Gottschalk (2001) gives reasons why the future effects of increases in cohort sizes on the employment, unemployment and wages of older workers may be less clear-cut than those flowing from changes in the youth labour market. One difference is that older workers are far more differentiated in their skills and experience levels than are people in the initial phase of their working lives. The demand conditions that are faced by older workers with different types and levels of skill will be equally diverse, suggesting that any

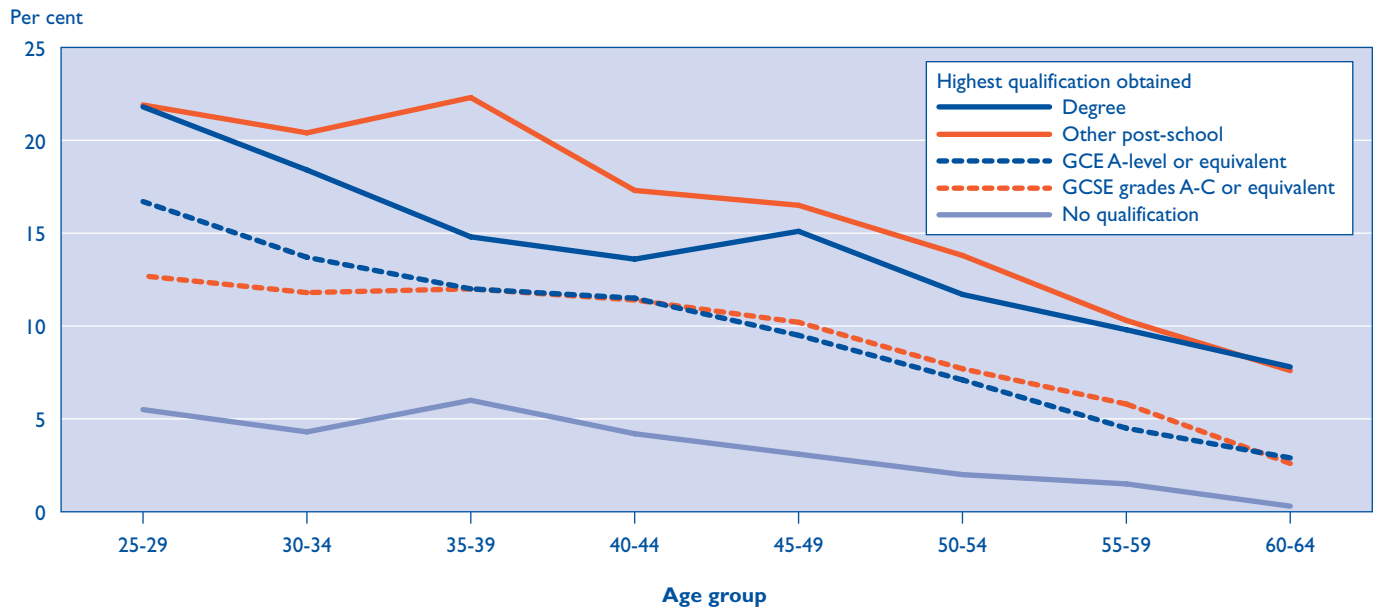
adjustments in employment or relative wages that occur in response to demographic change are likely to differ across different sectors of the labour market. Gottschalk predicts that any adverse effects of increased supply are most likely to be felt by less skilled older workers, who are more easily replaced by younger workers and may not have the basic skills needed to adapt to technological and other changes in workplaces.

The literature on labour force ageing identifies another process that will modify the compositional impacts of labour force ageing. Labour force ageing involves the replacement of one generation by another, as well as chronological ageing. People born in different eras have different socialisation experiences during childhood, influencing their aspirations and attitudes to work. They have different opportunities for education, and have acquired different levels and types of skill before entering the labour market. During the early and middle stages of their working lives, they are likely to have earned different levels of real income – affecting their savings and asset levels when they are in their fifties and sixties, and consequently their labour supply choices at those ages. It can be expected that inter-generational differences will influence the future labour supply decisions of older workers. This makes it risky to extrapolate forward the employment patterns of older workers that are observed in today's labour market.

One well-documented cohort difference that is likely to have an influence on future labour supply decisions stems from the growth of occupational pension coverage. Tanner (1997) finds that people with relatively generous occupational pension entitlements are more likely to retire early than those with no pension or lower entitlements. Both coverage rates and levels of pension receipt have been increasing over successive cohorts of men and women reaching retirement age (Johnson and Stears, 1995, p77). Due to post-war increases in women's labour force participation rates and the lengthening of their working lives, future cohorts of older women are likely



Figure 2 Proportions of employed people studying for a new qualification by highest current qualification and age group; United Kingdom; spring 2002



Source: Labour Force Survey

Note: data have not been adjusted to reflect the post-2001 Census revisions to population estimates.

to have greater personal access to occupational pension income than was the case in the past (Stears, 1997, p179). This trend would be expected to encourage more women to retire at an earlier age, all other things being equal.

Another significant cohort change that can be predicted using current data involves the upgrading of educational levels. The cohorts of workers who will be aged 45-64 in 2010 or 2020 will be better educated than similarly aged workers today. An analysis by OECD simulates the educational distribution of the UK labour force aged 45-64 in 2015 using data on the educational attainment of people in this birth cohort in 1995, and assumptions about future education-specific participation rates. The proportion of workers in this age group with less than upper-secondary education is projected to fall from 27.6 per cent to 13.0 per cent, while the proportion with university degrees is projected to rise from 11.2 to 16.4 per cent (OECD, 1998, p129). Future generations of older workers will also have higher levels of basic literacy and numeracy skills, because these basic skills are positively correlated with initial level of education (OECD, 1998, p138).

The higher educational levels of

future cohorts of older workers could have an impact in many areas of performance. Participation in continuing education and training is one example. Studies of participation in job-related education and training invariably find that participation is higher among adults with higher base levels of education, holding age constant. To illustrate, age-related differences in the proportion of employed people who reported that they were studying for a qualification in the spring 2002 LFS are shown in *Figure 2*. Rates of studying are plotted by current educational level. There is a negative relationship between age and studying for a new qualification, but for all age groups those with higher existing qualifications were more likely to be studying for a new qualification.

The relationship between existing level of qualifications and the likelihood of undertaking job-related training in the past 13 weeks is also quite strong, as shown in *Figure 3*. These relationships suggest the possibility that age-specific differentials in learning activity could flatten in future as the fraction of older workers who have not completed secondary school education gradually declines.

## Conclusion

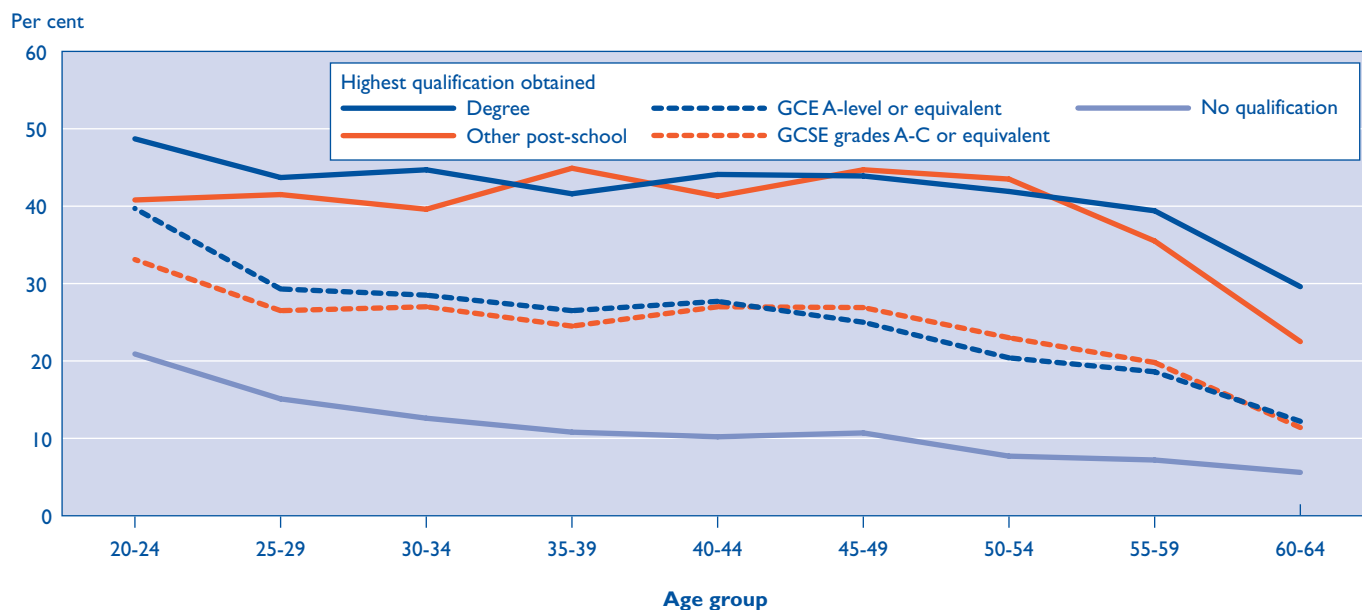
The working-age population and the labour force have been growing gradually older since the late 1980s. The labour market has adapted to significant changes in the age structure of the labour force in the past. The latest available labour force projections suggest that the process of ageing will continue at a similar speed to that experienced in the 1990s, implying that there will be considerable time for labour market participants and institutions to adjust. However, workforce ageing will accelerate if the historical trend towards early retirement is reversed.

What is distinctive about the current demographic changes is that older workers will come to make up a larger share of the labour force than in recent history. This means that the experiences and outcomes of older workers will have a growing influence on the performance of the labour force as a whole.

Empirical research on the effects of past shifts in the age structure indicates that changes in the relative sizes of different age groups can have an impact on both aggregate and age-specific employment rates, unemployment rates



Figure 3 Proportions of employed people undertaking training by highest current qualification and age group<sup>a</sup>; United Kingdom; spring 2002



<sup>a</sup> Training is defined as job-related training undertaken in the previous 13 weeks. Note: data have not been adjusted to reflect the post-2001 Census revisions to population estimates.

and relative wages. This can occur either through direct compositional effects, or through market responses to the changed relative supply of a particular type of labour. As an example, Barwell (1999) estimated that the decline in the youth labour force share could account for 0.32 to 0.45 percentage points of the total decline in the aggregate UK unemployment rate between 1984 and 1998. While significant, the magnitude of the

demographic effects estimated in past research has typically been relatively small. In addition, historical experience indicates that the effects of demographic changes can at times be offset or obscured by the impact of other supply-side and demand-side changes.

The literature on the population ageing that will take place during coming decades identifies a number of issues and risks for the performance of the labour market and the welfare of

older workers. Issues that are strongly emphasised in the literature include the need to maintain the employability of older workers who wish to remain in work, or cannot afford to retire early without state support; the need to maintain the relevance of older workers' skills; and the need to ensure that mobility levels are sufficient for adjustment to future changes in the location and composition of jobs.

## Notes

- Both are likely to have indirect effects on the labour market via changes in investment flows and shifts across industries and occupations in the derived demand for labour. See Boersch-Supan (2001) for a discussion of these indirect effects. An overview of the broader range of policy issues associated with population ageing is given in Dunnell (2001).
- Data for earlier periods has not been considered.
- The definition of 'working-age' used here differs from the official one, in that women aged 60-64 are included. Fifteen-year-olds are also included because, at the time of writing, the latest population estimates – taking into account information from the 2001 Census – were available for 5-year age groups only.
- The Government Actuary's Department interim 2001-based population projections are used.
- The figures shown in Table 1 have been adjusted to incorporate the effects of the interim reweighting of key Labour Force Survey estimates, taking into account the latest population data from the 2001 Census.
- Most recently, a government Green Paper released in December 2002, *Simplicity, Security and Choice: Working and Saving for Retirement*, outlines additional back-to-work assistance for those aged 50 and over, and proposes that compulsory retirement ages be made unlawful unless employers can show that they are justified.
- Demographic change may also have contributed to the rise in the aggregate employment rate during the same period by increasing the population share of age groups that have the highest employment rates (35-49 years). A simple shift-share analysis suggests that age structure changes can account for around 0.7 percentage points of the total increase in the aggregate UK employment rate of 5.5 percentage points that was recorded between 1984 and 2002. This simple calculation does not control for any interactions that may exist between changes in the population share of an age group and its employment rate.

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What are the implications of an ageing population? An older population presents many challenges to labour markets, government tax, government spending and the wider economy. One of the great achievements of the Twentieth Century is a dramatic rise in life expectancy. For example, life expectancy in the US has increased from 45 in 1902 to 75.7 in 2004 (link). Population demographics have been shifting for the past few centuries. This is not the first time we have had shifts in the age profile of the population. How will it be funded? A big issue is whether spending commitments are funded or unfunded. This chapter reviews the implications of population ageing for savings and monetary policy, inflation and relative prices, exchange rates and international trade, financial assets, and assessments of... Consumer Price Index for the elderly™, The Economics Daily, Bureau of Labor Statistics, U.S. Department of Labor. Washington, DC: United States of AmericaGoogle Scholar. Bofinger, Peter (2001). Heckscher-Ohlin revisited: implications of differential population dynamics for trade within an overlapping generations framework. In: Journal of Economic Dynamics and Control 29.9, pages 1471-1493.CrossRefGoogle Scholar. Schieber, Sylvester J and John B Shoven (1996). The implications of demographic and labour market change in New Zealand. The age composition of the population is projected to change over the next 50 years. Using a central reference scenario, assuming medium fertility, medium mortality, medium labour force participation and 5,000 net immigration, persons aged 0-14 are projected to fall from 22.3 percent of the population in 2001 to 15.5 percent in 2051. Those aged 15-64 are projected to fall from 66 to 59 percent over the same period. On the same scenario persons aged 65+ are projected to increase from 11.7 percent of the population in 2001