HOW TO IMPROVE THE HUMAN CAPITAL OF OLDER WORKERS OR THE SAD TALE OF THE MAGIC BULLET

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EXECUTIVE SUMMARY

Governments across much of the developed world are concerned to increase labour market activity rates and employment among older workers. A variety of policies have been advocated including the improvement of education and training provision. This paper evaluates the role that such provision might play. Clearly it is always designed to, and usually succeeds in, increasing the human capital of its recipients, in the sense that, to varying degrees, knowledge and skills are enhanced. However, if this is to improve the labour market position of individuals, the extra human capital must be economically productive and throughout the paper the emphasis is on this. The paper briefly outlines the nature of labour market disadvantage suffered by older workers, who are defined as those over 54. It goes on to discuss the causes of the disadvantage and considers whether better education and training might alleviate it. It evaluates some policy initiatives and concludes that education and training have only a limited role to play in the absence of accompanying policy measures.

Amongst older workers, inactivity and unemployment are particularly heavily concentrated amongst the less educated and the less skilled. This is often attributed to globalisation, skill-biased technological progress or job-queuing. Despite such explanations, it is not clear what role lack of skill per se plays in this disadvantage. Labour market regulations, seniority or age related-wages, moral hazard, the attitudes of older workers themselves and skills obsolescence, as well as age discrimination, may help to explain the underprivileged position of older workers in the labour market. In addition to having low employment and activity rates, older workers receive little training. What is eminently clear is that the problem is particularly concentrated amongst those who are less educated or skilled, amongst those who missed out on education and training early in their lives - once at the bottom of the heap, always at the bottom of the heap.

OECD Governments are concerned to bring older workers out of unemployment into employment and out of inactivity into employment. They embrace training as one possible means of achieving this aim. The available evidence suggests two overarching conclusions – one general and one specific to the paper's immediate concerns. The general one is that the relationship between training and a country's economic success is more problematic and complex than often apparently appreciated by policy makers. For the individual, education and training on the whole improve labour market prospects. But there are qualifications. Not all education and training is equally powerful in achieving this; in the UK, for example, short episodes of work-based training or training when unemployed have limited impact, whilst returns to vocationally orientated courses are less than to academic ones. The specific conclusion is that one could not hope to offset decades of labour market disadvantage by giving an individual a couple of weeks or even a couple of months training. This suggests the need to be modest in one's aims.

The best available evidence, particularly from the active manpower policy literature, suggests very strongly that training programmes, on their own, are of limited use in bringing people out of unemployment or inactivity into jobs. Of prime importance are subsidies and targeted job search and job placement programmes; and even here there are risks of deadweight loss and of ineffectiveness if they are not part of a larger policy package. Even if training can, in principle, help to bring people back into work, the jobs they acquire may not be brilliant ones. This implies a problem of incentives. Depending on the social security/pension regime prevailing, workers may not be inclined to take on low-paying or low status jobs. Indiscriminately providing training, in the absence of other linked initiatives, would be wasteful.

The paper stresses the importance of continuous learning during the whole of working life as a means of reducing the dangers of labour market disadvantage in the older years. It also argues that formal

training episodes are not the only route to continuous learning. Informal learning and development are also critical, and these are closely related to broader aspects of job quality.

For those who are in work, lack of training may be at least as much a symptom as a cause of job insecurity. The problem is not only making the workers more attractive, it is also a matter of making the jobs on offer more attractive. The more high quality jobs there are available, the greater the demand for skill and the more training and development that will be in offer. Though some of it will be specific to each employing organisation, much of it is likely to be transferable, even in the absence of government intervention to deal with possible externalities. Without a large number of high quality jobs, some people are going to suffer. Although an increase in the number of well-trained people might enable some employers to enhance the quality of some jobs, on its own training is unlikely to dramatically alter the quality mix of jobs on offer. The key to preventing the older worker suffering disproportionately in such circumstances almost certainly lies elsewhere than in training. The lack of training received by older workers is dominantly a symptom of broader problems they face. And it is these broader problems that deserve prime attention. One limited role that training might play, though almost certainly it would have to be heavily subsidised by governments, would be to prepare older workers for self-employment as an alternative to the hostile climate they face as employees.

1. INTRODUCTION[1]

Governments across much of the developed world are concerned to increase labour market activity rates and employment among older workers. A variety of policies have been advocated including the improvement of education and training provision. This paper evaluates the role that such provision might play. Clearly it is always designed to, and usually succeeds in, increasing the human capital of its recipients, in the sense that, to varying degrees, knowledge and skills are enhanced. However, if this is to improve the labour market position of individuals, the extra human capital must be economically productive and throughout the paper the emphasis will be on this. Section 2 briefly outlines the nature of labour market disadvantage suffered by older workers, who, for these purposes, are defined as those over 54. Section 3 discusses the causes of the disadvantage, whilst Section 4 considers whether better education and training might alleviate it. Section 5 evaluates some policy initiatives and Section 6 concludes that education and training have only a limited role to play in the absence of accompanying policy measures.

2. THE LABOUR MARKET POSITION OF OLDER WORKERS

The EU has two key objectives on the employment of older workers. The Stockholm Objective (2001) is that "at least half of the EU population in the 55 – 64 age group should be in employment by 2010" (European Commission, 2003, p.157). The Barcelona Objective (2002) is to achieve a "five year delay in the average age at which people withdraw from the labour force by 2010" (ibid) – an increase in

1. We are grateful to members of the OECD staff for comments on an earlier version of this paper.

the average exit age from 60 to 65. Obviously the Stockholm target is complimentary with the Barcelona target. However achieving the latter will assist in achieving the former only if increased labour force participation is synonymous with employment rather than unemployment. In other words, keep people in the labour force for longer and try to ensure that they can get jobs.

Among the EU 15, only Denmark, Portugal, Sweden and the UK met the Stockholm target in 2001[2]. In Belgium, France, Italy, Luxembourg and Austria the employment rate was less than one third[3]. According to a recent study[4], across the EU 15 the average exit age from the labour force was 59.9 in 2001, with men leaving about 18 months later than women. There were big differences between countries, but none of the EU 15 met the Barcelona target. The exit age is above that of the EU 15 in some of the accession countries, but below it in others.

These objectives were set against the background of major changes over the previous 30 or 40 years. Across the EU as a whole female labour force activity rates are much higher than 30 or 40 years ago, but this increase in participation was not particularly marked for the over 55s, and indeed participation fell in Austria and France. However, the younger cohorts of women are more likely to remain in the labour force beyond 55 than are the older cohorts. By contrast, over the same period, there was fall in the labour force participation of prime age men across the OECD, with the major exception of Germany. For older men the fall, mainly in the 1970s and 1980s, has been substantial, particularly in France, Belgium and Germany. The years since the early 1990s did not witness much further decline. Activity rates in the accession countries are generally lower than in the EU 15. In a context of rising unemployment in most European countries from the early to mid 1970s, male (especially older male) employment rates also fell.

Comparing the performance of the EU with leading OECD countries, in Japan participation as well as employment rates for older workers declined in the early 1970s and gradually increased until the end of the nineties. In the US participation rates grew steadily in the same period with the most rapid increase at the end. In both countries participation rates as well as employment rates for older workers are much higher than in Europe; in 2002 they were 58 per cent in the US and 62 per cent in Japan.[5]

Turning to more recent years, 1997-2002 saw rising employment rates for older workers over the EU as a whole, with the rise in 2002 being particularly sharp. But even in these years experience varied from country to country. For example, between 1997 and 2001 employment rates grew markedly in Finland, the Netherlands, Denmark, Ireland, Spain and Sweden, much less so in France and Belgium and not at all in Italy, Luxembourg and Austria.

In 2002, 40 per cent of older workers (aged 55 – 64) in the EU were in employment, 3 per cent were "actively looking for a job" and 57 were inactive ("not seeking work"). On this same measurement basis, the inactivity rate is 97 per cent for those over 65 years of age. The "inactive" are customarily divided into the following groups:

(i) those who are in fact actively seeking work – "passive job seekers";
(ii) discouraged workers – those who believe that no work is available;
(iii) the sick or disabled;
(iv) those in education or training;

2. Much of the material on recent developments is drawn from European Commission (2003).

3. Note that the definition of the employment rate is number of employed/total population rather than the number of employed/ number of economically active.

4. Employment Outlook 2003.

5. Source: ILO.

(v) those who are "retired".

According to EU research (European Commission, 2003), 6 per cent of the inactive would like to work. If these and the unemployed actively seeking work were in jobs, this would add 2.5 million people to the employed 55 – 64 population. This is half the increase needed to reach the 50 per cent employment target. There is reason to believe that this estimate of 6 per cent is an under-estimate of potential attachment to the labour market. According to a survey by the Centre for Research on the Older Workforce (CROW), for instance, 78 per cent of older workers in the UK are willing to consider some sort of work after they formally retire (CROW, 2004).

The same EU study claims that "for the current EU 15 members, a very simple simulation shows that to reach the Barcelona target about two thirds of those who were between 46 and 55 years old in 2001 should still be active (in the labour force) in 2010 when they will be 55 – 64. This contrasts with a comparable cohort of 1991 of which only half remained active between the ages of 55 –64 in 2001" (European Commission, 2003, p.164).

3. WHY ARE SOME OLDER WORKERS DISADVANTAGED AND WHO ARE THEY?

The falls in activity and employment rates of older workers over time were intimately linked to trend rises in unemployment from the early 1970s. But why did the old suffer disproportionately in this respect? The ones who lost out in particular tended to be the less skilled. The EU define high skilled as those completing tertiary education, the medium skilled as those completing upper secondary education and the low skilled as those who do not. Employment rates are much lower for the low skilled and low skilled women in particular. Similarly, the low skilled have lower activity rates, higher unemployment rates and earlier exit ages.

Why are the less-educated worse off?

Forgetting about age for the moment, the literature has been swamped by discussion about why the less educated suffer disproportionately high unemployment, low employment and low activity rates, and about why such disadvantages have increased over time. The main contenders have been the globalisation hypothesis and explanations involving skill-biased technological change. An alternative explanation is job-queuing.

A central variant of the globalisation explanation is Adrian Wood's adaptation of the Heckscher-Ohlin model (see, for example, Wood, 1998). This argues that as trade between the developed world and the less developed world increases, the relative demand for the less skilled falls in developed countries. Unless wages and labour costs are flexible downwards, the less skilled will lose out in employment terms. The consensus amongst macroeconomists is that this explanation has relatively little mileage in quantitative terms. Instead there is a tendency to opt for the technical change explanation. However, both theory and historical experience tell us that any given episode of technological advance can be up-skilling or de-skilling. In the case of technological change in recent years the empiricists generally argue that it has been up-skilling that has dominated, in the sense that a larger proportion of jobs demand capabilities which the less skilled do not possess (see, for example, Dickerson & Green, 2002; Machin, 2002; Machin and van Reenen, 1998; Machin, Berman and Bound, 1998). The evidence is perhaps less overwhelming than is

conventionally thought, not least because unsatisfactory proxies (occupation, for instance) for skill are often used.

An alternative explanation is job queuing. As Spence (1973) suggested, a low level of educational attainment may be an indicator of low capabilities more generally. The higher skilled compete for low-skilled jobs with the less skilled, resulting in 'crowding-out' effects. Such an explanation has serious policy implications since it could imply that training interventions for particular groups would have no effect on the jobs available in the queue as a whole, and at best would improve the position of the target group without any overall Pareto improvement. There is some limited empirical support for this proposition (see, for example, the work on crowding-out by Dutch researchers – Teulings and Koopmanschap (1989) and, to a lesser extent, Van Ours and Ridder (1995).[6] The OECD (2004a) finds no effect of training on the aggregate level, whereas it does find that training improves prospects on the individual level, which is entirely consistent with a job queuing explanation.

Additional explanations include the possibility that people with higher levels of educational attainment may have more-efficient job search techniques and/or better labour market information. Also, they may have higher potential earnings from market activities providing them with a greater incentive to participate. Furthermore, the gap between marginal productivity and wage may be greater in the case of high-educated workers than in the case of low-educated for a whole variety of reasons including minimum wage regulations (OECD, 2004b).

Why are older workers disadvantaged?

Why should less educated workers who are older suffer particular disadvantage? A whole catalogue of explanations can be brought to bear on the question (see, for example, Funk, 2004).

First, it should be noted that older workers are on average less educated than workers in other age categories, which may contribute to their unfavourable position in the labour market. In the future, however, this is likely to change as the current cohorts of prime age workers are on average better educated.

To different extents in different countries, it may be that labour market regulations serve to make it more expensive or risky to hire or retain older workers. It may be that social security and pension arrangements make it easier, in a variety of dimensions (including conscience), for employers to shed older workers.

A commonly offered explanation is age-related wages. Whether a positive age wage relationship is embedded in a formal seniority pay system or not, the key question is whether wages rise faster than productivity for any given worker. According to a recent EU report, "there is no empirical evidence that older workers are more or less productive than other age groups" (European Commission, 2003, p.174). Clearly this is a finding for the average, but, to the extent that it is true (at least for those who keep their jobs), age disadvantage would depend purely upon the age wage relationship. In this context, it is noteworthy that the older groups who suffer disproportionate disadvantage are the ones where the tendency of wages to rise with age relationship is least strong.[7]

Moving from the demand side to the supply side, it may well be that some social security and pension arrangements encourage people at the margin to remain out of the labour market. For example, systems which award relatively generous sick and disability benefits and where doctors are willing to collude in the

6. However, the findings of Gautier et al (2002), also for the Netherlands, are inconsistent with crowding-out.

7. Contrast, for example, the age earnings profiles of manual workers with those of professional workers.

classification process could have this effect. The Netherlands and Sweden followed this path for many years. Faggio and Nickell (2003) suggest that something similar, though on a smaller scale, may have happened in the UK. To take a second example, occupational or state pension schemes which allow for early retirement might also have similar effects.

Work attitudes amongst older workers could contribute to their disadvantage. It is well known that older workers are less mobile in a variety of dimensions, including the geographical. A study by Hausman (2003) in Luxembourg also indicated that motivation and attitudes of older workers are very important.

One way of rationalizing such observations could be via a moral hazard explanation. Because older workers have only a short period of potential employment remaining, they may perceive the penalties of being caught shirking as relatively low. Thus employers may regard them as less malleable and therefore less attractive than younger people.

The bleak labour market position of older workers may also be due skill obsolescence. According to a EU report, evidence from OECD's International Adult Literacy Survey "proves that the productivity of older workers is not impaired by age but by skills obsolescence". (European Commission, 2003, p.174). De Grip and van Loo (2002) offer a typology of different types of skill obsolescence:

* Technical skills obsolescence:
  - wear of skills due to ageing, injuries or illness;
  - atrophy of skills because of insufficient use;
* Economic skills obsolescence
  - job specific skills obsolescence as a consequence of technological or organisational renewal of the production process;
  - obsolescence due to shifts in the sectoral structure of employment;
  - firm-specific obsolescence due to firm closure or reorganisation;
* Organisational forgetting due to quits of workers with firm specific skills.

They argue that technical skills obsolescence affects the *stock* of human capital a worker possesses, whereas economic skills obsolescence affects the *value* of the human capital a worker possesses. Organisational forgetting refers to obsolescence at the aggregate level and may be considered the organizational opposite of learning by doing.

There is a real empirical question as to how important the process of skills obsolescence might be for older workers. Certainly one might expect the relevance and type of skills obsolescence to vary with educational background and employment history and status. Two dimensions of obsolescence relating to ageing are undeniable. The first is reduction of physical strength, vigour and endurance. Clearly this is potentially important particularly in manual jobs and in other jobs that have a physical dimension to their performance. This set of jobs may be a very large one, including the desk-bound. The process is certainly significant for, but by no means restricted to, low-skilled jobs. Jobs in research, for example, are often most suited for young adults.[8]

The second is that field specific knowledge acquired in the early years tends to become outmoded as that particular field moves on, unless the knowledge is regularly updated[9]. Technical skills obsolescence,

8. How many academics in their 50s are able to burn the midnight oil as frequently as academics in their 20s?

9. Yet, even here care is needed. For example, in a study of skills obsolescence among graduates from Dutch tertiary education Allen and van der Valden (2002, p.48) find that contrary to conventional wisdom, skills obsolescence occurred as much amongst graduates from more generic and technical courses as amongst those from more field specific studies". Furthermore, "skills obsolescence did not appear to affect wages or the likelihood of engaging in subsequent additional training".

in the terminology of de Grip & van Loo, is thus particularly important for older workers, yet all other types of skills obsolescence potentially pertain to any age-category and there is no a priori reason to suspect they will affect older workers more than younger ones. Furthermore, technical skills obsolescence alone does not serve as a particularly credible explanation of the poor position of older workers; if this were the dominant explanation, why should their labour market experiences be so markedly different from those of prime age males in their forties? Even on apparently straightforward aspects of obsolescence, like IT and computer use, the evidence is often mixed. For example, Borghans and ter Weel (2002, p.69), contend that "older workers do not have particular difficulties to transform and adapt to a computerized environment" in contrast to the findings of Aubert et al. (2004).[10]

If, following the modern trend, one defines skills widely to include generic skills or capabilities, then one particularly contentious issue relates to the impact of ageing on a broader set of attributes than those related purely to the physical. They relate to characteristics such as adaptability, the capacity to cope with change and flexibility of thought and action. Although it is commonly asserted that ageing has a negative impact here, the evidence, as opposed to the assertion, is thin. And, to the extent that there is some truth in the assertions, there may be characteristics which improve with age that might act in compensation, as far as the individual's overall productivity is concerned. Indeed, Disney and Hawkes suggest that "the long run shift towards the service sector may benefit older workers. Some service sector jobs may require interpersonal skills that are accumulated with experience and also require less in the way of physical functional capacities" (Disney & Hawkes, 2003, p.59). One suspects that within internal labour markets, the productivity of workers according to age depends not just on the individual employee but also on the organisations attitude to job design and allocation of function.

What is undoubtedly true is that any individual is more likely to be able to cope with the vicissitudes of economic life more effectively the more his capabilities and skills are maintained and enhanced throughout his working life. But what exactly this means will vary from individual to individual and from circumstance to circumstance. One should also recall that this capability maintenance and enhancement is achieved not just through formal off-the-job training episodes (which is primarily what is captured in the statistics used in the studies which will be cited below), but also by on the job training and by development which can occur in the pursuance of everyday tasks.

Economists could certainly benefit from delving more deeply into psychological and medical literature when trying to ascertain the impact of ageing on work capabilities and specifically on economic productivity.

Thus far we have discussed possible causes of disadvantage, whether on the demand side or the supply side, which are objective. A further possibility is that older workers may suffer from age discrimination. This is perceived to be a prevalent phenomenon across the EU.[11] In the UK, for instance, a recent governmental report observed: "one of the key causes of declining economic activity among older people is age discrimination by employers, which affects both the retention and re-entry of older workers. (…)There is a widespread perception among many employers that older people have inappropriate skills, are less productive and flexible, and take more sick leave than younger people" (Cabinet Office, 2000, ch.4). Indeed, a recent MORI Survey (2002) for the UK found that age discrimination was the most common form of discrimination experienced in the labour market, with 5 per cent of respondents indicating to have experienced age discrimination due to older age. Other findings suggest a more dramatic picture. According to estimates by the UK Department of Trade and Industry (DTI, 2004) up to

10. The reason for this discrepancy may be that Borghans and ter Weel are concerned with only employed workers, whereas Aubert et al are concerned with flows into and out of employment.

11. See for example OECD country reports on the UK (OECD, forthcoming), Luxembourg (OECD, 2004h) and Italy (OECD, 2004g)as well as MORI (2002), and DTI (2004).

21 per cent of workers between 50 and 59 years of age could have experienced some form of age discrimination during the recruitment process. The same report estimates that 5 per cent of the economically active population as a whole has suffered from age discrimination.

If we define discrimination as treating two people with similar capabilities differently simply because of age, then conventional statistical models of discrimination seem a relevant way of evaluating the problem. There are two possibilities. The first is that the median older worker is less well possessed of certain relevant characteristics than the median younger worker. However, there are overlapping distributions, which means that the "better" older worker is condemned by the median. The second possibility is that the perception of the median of the group is incorrect. To the extent that such discrimination occurs, there may be "positive feedback" and it may have a negative impact on older workers' attitudes and incentives to work.

The old get relatively little training. The less skilled get particularly little training. According to Heckman (2000) this is because the old have a shorter horizon to recoup their investment and because there are dynamic complementarities in human capital investment. That is, training and formal education are complementary goods Indeed, most available evidence suggest that the effects of training on productivity of older workers are small, if positive at all, something we will return to later.

Of course, this finding may also reflect age discrimination or the fact that older workers themselves are not motivated to train because i) the expected return to training is low ii) there are insufficient suitable training opportunities iii) the training opportunities that do exist do not offer the training desired. (OECD,2004 a). Another possible explanation of the low training levels of the old may be their lower job mobility. In addition, older workers generally have a longer tenure than any other age category and consequently have more experience and know-how, which may decrease the need for training. More experience could compensate for a lower training level (European Commission, 2003).

The amount of training received correlates positively with exit age. This need not indicate that training is a cause of participation or that a low exit age of low-skilled workers is the cause of low-training levels for older workers. The causal connection may run both ways; decisions whether to hire or fire a worker may be taken prior to deciding whether a worker should receive training and decisions whether or not to retire may depend on the offering of training.

The next section will explore these issues in more detail and evaluate whether training can make a difference.

4. CAN EDUCATION AND TRAINING HELP?

Although there is a vast, though not necessarily unequivocal, empirical literature on the impact of education and training on labour market outcomes for adult workers in general, the amount of research that specifically focuses on older workers is scarce.

The OECD's public position, as exemplified by Chapter 4 of *Employment Outlook 2004*, seems clear. It is to support a "preventive" strategy whereby human capital is maintained and enhanced throughout the working life in order to increase chances of employability amongst older workers. As the Chapter puts it, such an approach can "be part of a general strategy to reduce non-employment traps as well as to increase

participation rates among mature and older workers" (p.197). This is in the context of a "job-first" strategy. For example, the evidence "suggests that well-designed policies to foster lifelong learning can complement making-work-pay schemes and effective labour market programmes, with the aim of minimising the number of people who do not attain and maintain the skills required to command earnings that bring them above the poverty threshold" (p.207).

The Chapter states (p.187) that "there are ….several related channels through which education *might* have an impact on aggregate employment rates" and that "the OECD Jobs Study suggests at least four reasons why the mechanisms shaping the relationship between education and employment …..*might* also apply to skills acquired in adulthood" (p. 189). The four possible channels through which there might be a relationship between adult learning and aggregate employment are as follows. First, "individuals who have entered their working life with no qualifications may make up for it later" (p.9). Second, there is evidence that "adult training has a positive impact on productivity at the firm level". Third, firms and countries need to maintain their competitiveness and training could be important for this. Finally, human capital obsolescence may engender a need for education. The Chapter is careful to stress that "as in the case of initial education, the relevance of adult education and training for aggregate labour market performance remains an issue to assessed empirically" (p. 189). It notes that "between 42 per cent and 46 per cent of the residual cross-country variance of labour force participation rates is explained by the variance of training participation rates" (p.190), and that "this evidence lends some empirical support to the hypothesis that investment in adult education and training, by increasing the income that individuals can expect from labour force participation, raises the relative value of market activities with respect to home production and, consequently, leads to higher employment rates" (p.192).

Let us return to the four possible channels mentioned above, about all of which the OECD is suitably cautious. First is the possibility that that individuals who have entered their working life with no qualifications may make up for it later. Both Heckman and Blundell have discussed this possibility. Heckman's "central conclusion" is that "at current total investment levels, efficiency would be enhanced if human capital investment were reallocated to the young" (Heckman, 2000, p.8). He argues that investing in training for older workers is not likely to yield great returns as older workers only have a short time to recoup their investment and will not benefit from the dynamic complementarities that characterize human capital accumulation as much as young people would. He suggests that for older workers, wage subsidies may be a more efficient way of stimulating participation and improving labour market outcomes (Heckman, 2000, p.51). Blundell (2000) is perhaps less dismissive of this channel, but does not argue strongly for it.

The second possible channel is the relationship between training and productivity at the firm level. However, the evidence for such a *causal* relationship is not necessarily as pervasive as it appears at first sight. An influential example of this genre of studies in the UK is Machin et al. (2003). They try to estimate the impact of changes in human capital levels on productivity growth. They conclude that training "in the last 4 weeks" does appear to have an impact on productivity and that the employment of workers with higher vocational qualifications *may* have be positively related to productivity. A problem with most such studies is that if a full and adequate range of control variables is not used, then a correlation between training and productivity may not imply a causal connection. Certain types of firms have characteristics that cause them to be both highly productive and to be good trainers. This is but one example of a series of possible endogeneity issues which usually are not fully addressed. In our view, there is little empirical work, certainly for the UK, which adequately accounts for this complication (Keep, Corney & Mayhew, 2003). Across the array of international literature, the OECD (p.189) argues that there are only two studies (Dearden et al., 2000 and Ballot et al., 2001) that appropriately account for the endogeneity issues. Both of these studies find a positive impact of training on productivity, but two articles hardly represent a substantial corpus of literature demonstrating the link.

The third link mentioned by the OECD is the importance of education and training for competitiveness and therefore for employment. Competitiveness is critical for a country's economic success and it would be foolish to deny that, in the long term, this will require an educated labour force. However, this is not the same thing as saying that every incremental shot of education or training will be a good thing. This observation is consistent with the fact that, in a highly contentious empirical literature, there seems to be stronger evidence for a relationship between economic growth and levels of education than between economic growth and changes in the level of education. It is also important to note that such studies more often focus on education rather than training, and that a common conclusion of those who have reviewed the field is that the critical human capital variable is usually ill specified. Krueger and Lindahl (2001), for example, start with the puzzle that, whilst there appear to be large effects for schooling in micro data, these effects are more contentious in macro data. However, they find that correcting for measurement errors in the schooling variable produces positive macro returns to schooling, but stress that the returns could be the consequence not only of educational externalities but of reverse causality and omitted variable bias. Interestingly they suggest that, in their preferred specification, there is an inverted U shaped relationship between growth and education, and suggest that the typical OECD country is on the downward sloping segment of the education growth profile. In their careful survey Sianesi and van Reenen (2003) conclude that "whilst there is an emerging consensus on the important effect of education on growth, suspicion abounds surrounding the existing estimates of the size of the impact that education has on growth".

Turning to the OECD's fourth possible link, the evidence for the impact of skills obsolescence on the economic fortunes of older workers, as already noted, is scantier than often appreciated. In short, strong indications of the importance of certain types of skills obsolescence for older workers exist, though the evidence is not unequivocal. (See for example, Aubert, Caroli and Rogers, 2004; Bartel and Sicherman, 1993; Givord and Maurin2003; Borghans and ter Weel, 2002; Allen and van der Velden, 2002).

Empirical studies surveyed by the OECD (2004a) suggest that at the aggregate level, there is a positive correlation between adult training and activity as well as employment rates, even when controls for trends and institutions are included. At the individual level, training enhances job security, has a durable and positive impact on the probability of being employed as well as a negative impact on the probability of being unemployed. There is no evidence however, that training has an impact on unemployment rates at the aggregate level, which is consistent with the existence of crowding-out effects, for which, however, the direct evidence is sparse.

The bottom line is that these studies on adult training in general provide a limited basis for policy interventions. There are several reasons for this. First the causal mechanisms between the various correlations are unclear. Second the evidence alluded to thus far has relatively little to say about individual training interventions. Third, many, if not most studies, fail to address the costs of training and education and set these against the benefits.

The evidence on the impact of training specifically on the labour market fortunes of older workers is scant. Before considering what is available we attempt a typology of cases.

Education and training are clearly importantly related to the labour market disadvantage of older workers. Those who received relatively little of it in their early years suffer most when they get older. There are various mechanisms accounting for this link, but whichever of these mechanisms dominate, the provision of education and training in later years is usually unlikely to be sufficient on its own. Put crudely, we cannot suddenly give someone upper secondary education or a degree. Policy should be guided by the answers to the following two questions:

1. Can better or differently directed provision in early years prevent such severe problems emerging in later years?

2. What damage limitation can be achieved in the later years?

The answer to the first question is that undoubtedly any single individual would be in less danger later in life if that individual were better educated or trained early in life. The question is whether a Pareto improvement is possible, that is, whether a general increase in early education and training provision can increase total welfare. The answer to this question depends upon the demand side as well as the supply side. In other words it depends upon the use (or lack of it) to which employers put skills – upon the nature of production processes and upon the consequent structure of jobs available (see, for example, Keep and Mayhew, 2001).

The answer to the second question may lie in targeting by different types of disadvantage. It might be helpful to distinguish between the potential of training for employed, unemployed and inactive workers. We consider these groups in turn.

1. Those with jobs who might be kept in employment by more training

- Keeping people with their existing employers

Firm-specific training may strengthen the employee's position by making her more productive, which decreases the probability of layoff. Training may also aid a workers transition from one job to the other with the same employer.

- Moving from one employer to another (training whilst still working)

If insuperable skills obsolescence for an individual in the context of a given organisation is setting in, training whilst still in the current job may facilitate the transition to jobs with other employers.

- Involuntary quits

In times of economic downturn or rapid change, it could be that the old suffer a disproportionate number of layoffs because they are genuinely more difficult to train productively, successfully and cost effectively than younger workers. In such circumstances the employer presumably needs to be subsidised in order to be persuaded to give training. It might also be that concentration on training for workers in their late forties might, at least in part, change the calculus when that cohort of workers gets older.

It could be that there are misperceptions about training and older workers. Two obvious examples relate to pay-offs and to the perceived ability of older workers to absorb the training. Few employers think rigorously about pay-off periods, but we have a suspicion that there is a tendency to over-estimate their length, and further research into this possibility would be welcome. After all most employer-based training episodes are short (a matter of days) and dedicated to the teaching of very narrow and particular skills. If our suspicion is correct, then perhaps the education of employers is a useful policy response here. An increase in retirement age would also make a contribution. In the case of perceptions of older workers' capabilities, perhaps education of employers (at least as much as anti-discrimination legislation) is also the answer. It may also be that older workers themselves need to be taught about the importance of training, if the findings of Oosterbeek (1998) and Leuven and Oosterbeek (1999), about the lack of demand for training from older workers being more important than lack of supply, are representative of a widespread problem.

- Voluntary quits

It could be that older workers' decisions to retire are influenced by feelings that they are not doing as well as they could or ought to do in the firm. Training could comprise part of a package of measures to alter such feelings. This touches upon the issue of age discrimination. It would be beneficial to change the general attitude of society as a whole and not only the perceptions of older workers themselves. Campaigns to emphasise the worth of older workers by media and government may help. A recent government report contends that "some of the most effective emerging policy interventions of recent years rest as heavily on psychosocial effects as on economic logic" (Cabinet Office, 2004, p.67).

2. Those who are unemployed

- Would training whilst they are still unemployed help?

This answer to this question hinges on what causes the workers to be unemployed. To the extent that unemployment is a matter of individual characteristics which can be remedied, such as a lack of specific skills or motivation, training may be of help. To the extent that unemployment is caused by generalised low demand for labour, training is less likely to have an effect in the aggregate; the problem is with labour demand, not with labour supply.

- Would persuading employers to hire and train help?

A study, on the benefits to employers of raising workforce basic skills, by the National Research and Development Centre for Adult Literacy and Numeracy found that "those employers who have sponsored basic skills training are generally positive about the experience" (NRDC, 2003, p.6). This suggests that if training can be effective, persuading employers to hire and train is of crucial importance. Subsidies would almost certainly be required.

3. Those who are inactive (both voluntarily and involuntarily)

It is important to reiterate that training can only be helpful if increased participation translates into increased employment. Otherwise, policy measures encouraging the inactive to become active may be economically wasteful. Training can essentially serve two purposes. Firstly training may be a means to upgrade skills and competences and thereby employability. Secondly, for the voluntary inactive in particular, training may be a means of increasing the motivation to work.

- Helping people back into jobs from involuntary inactivity

The same questions and distinctions apply as in 2. The less extensive and the less recent the labour market experience of the inactive, and the lower their prior educational attainments, the more doubtful it is likely to be that training could bridge the gap.

- Helping people back into jobs from voluntary inactivity

Again many of the same considerations as in 2 apply, but, in the case of these people, there may be a particularly important role for motivation - making them aware of their own opportunities and of the positive aspects of the world of work, and, sometimes perhaps most important of all, removing or reducing fear of a world which from a distance may have become alien and daunting to them. Perhaps most important of all, training has to make the world of work more attractive and appealing. Thus, for example, a short course which potentially leads to a low paid and insecure job is not likely to be appealing

Even if training can play a role, it is unlikely that alone it can satisfactorily solve the sort of problems we have outlined above.

What evidence do we have on the potential effectiveness of training for older workers?

An abundance of studies focus on the relationships between formal education, wages and employment, but the effects of training have received less attention. Even fewer studies contain specific information on the effects of training for older workers. The paucity of relevant studies is widely recognised. The UK NRDC report on the skill development of older workers claims that "there is an almost total dearth of data on rates of return to training of any kind (NRDC, 2003, p.7)". According to the OECD country report on Norway the few studies that are available find "very different estimates of the rate of return on training and do not provide much indication of which types of training appear to be most effective. (..). It is important to carry out more evaluations of the effectiveness of different types of training, especially for older workers" (OECD, 2004c, p.109). The first conclusion of this section, therefore, is that there is a very clear need for more empirical research on the effects of training, and specifically of different types of training, for older workers.

Similarly, though it is well established that training opportunities for older workers are limited in most countries, there is little trustworthy and systematic evidence as to why. For example, is it because of lack of pay-off or perceived lack of pay-off? The results from the Finnish Adult Education Literary Survey suggest not. The survey found that older workers were more likely to report positive experiences with training than younger or prime-age workers. They reported more frequently that training helped them obtain higher wages and keep their jobs. One fourth of older workers claimed to have obtained a permanent job as a result of training. (OECD, 2004d, p.102). Although these results are noteworthy, the Survey can be criticized for its use of subjective measures, whilst it examined only those who actually received training and therefore may be affected by sample selection bias.

Perhaps more can be learned from examination of policy interventions. The next section proceeds to analyze the actual and prospective impact of various policy proposals specifically geared towards older workers, within the framework of the taxonomy developed in this section. In pursuing this line of enquiry, the OECD country reports on Ageing and Employment Policies have proved invaluable.

5. THE EVIDENCE FROM POLICY INTERVENTIONS

1. Keeping Older Workers Employed

Many studies surveyed by the OECD find that training has a positive impact on the individual employment prospects of older workers. Furthermore, training enhances perceived employment security. (OECD, 2004a)

In the Finnish Adult Education Survey, the reason older workers most often report for not engaging in training is simply that they do not have enough time rather than that suitable training is not on offer, although this is the second most important reason (OECD, 2004d, p.103). Clearly not finding enough time can only be a valid reason for workers who are employed as one expects the unemployed and inactive to have sufficient time to engage in training. The results suggest that it might be important to ensure that

employed workers have sufficient time to engage in training so that they do not have to wait until they become unemployed before starting to train.

2. Getting Unemployed Back into Employment

The evidence here is mixed. The impact of training is generally small but positive, although it is likely that such training generates large deadweight losses. Again, it is difficult to measure how much training matters in isolation or, in other words, how much of the measured effects of training should be attributed to other variables.

Data from the Czech Ministry of Labour and Social Affairs on the impact of retraining programmes for unemployed workers are positive. The OECD country report found that approximately 70% older workers who participated in the programmes were in employment a year after completing the courses (OECD, 2004e). However, only a limited number of older workers participated in the programmes.

Evidence from other countries on the impact of general training programmes suggests a less rosy view. In the UK the New Deal 50+ was a governmental package of policy measures specifically geared toward getting the older unemployed back into employment. Measures included training grants to individuals and non-pecuniary benefits in the form of a personal advisor at a job centre as well as financial incentives. Grierson (2002) finds that 77% percent of participants did not claim benefits during the months following the end of their entitlement, which suggests that the New Deal 50+ is very successful. Atkinson (2001), however, argues that more than half of the Employment Credit Recipients would have returned to work without participating in the programme. Overall, the evidence on the New Deal 50+ is thus mixed. After completion of the programme participants are better off, but what part of their success can be attributed to the programme is unclear. Interestingly, Atkinson attributes low take-up to, inter alia, the requirement for individuals to effectively organize their own training and to their own feelings that they were "too old to train". Many also felt that the new job did not require new skills.

In Sweden, the Activity Guarantee provides unemployed workers with the opportunity to train. This program seems unsuccessful for older workers. Of the 6113 persons between age 50 and 64 who left the activity guarantee between August 2000 and February 2002, only 741 got a regular job afterwards. The older unemployed also participate in a variety of labour market programmes that are open for all unemployed. However, pessimistic attitudes and the high incidence of long term unemployment suggest that "these general unemployment programmes only have had a limited impact on getting unemployed elderly back into jobs". (OECD, 2003, p93).

Such evidence is consistent with the survey of the effect of labour market policy measures by Martin and Grubb (2001), who argue that training that is targeted and has a strong on-the-job element is most likely to be successful. Evidence from the UK is consistent with such claims. Work Based Learning for Adults (WBLA) programmes in England and Scotland have job-placement rates at approximately 27 per cent which are relatively constant across age groups. Such a success rate is not negligible, but not overly impressive either, especially if one recognizes that to evaluate the "true" success of such programmes, one would need to look at the success rate of a control group (OECD, forthcoming).

3. Getting the Inactive back into Employment

The role that training can play in getting the inactive back to work is hard to evaluate and there is little evidence. A particularly problematic feature is that, depending on the specific country circumstances, it can be hard, if not impossible, to force people in this category to train. The inactive who do train are the most likely to be enthusiastic and optimistic about their employment prospects. Thus a self-selection bias is lying in wait for any econometric evaluations.

It seems that a significant part of the inactive are involuntarily inactive. The Finnish Labour Force survey showed that almost 20% of the older workers who are retired do not search a job because they think employers will not hire them or that work is not available. (OECD, 2004d) However, the fact that many studies indicate that workers who participate in training attach higher value to being employed and also have higher self-reported employment prospects, suggest that training might be helpful in fostering positive attitudes.

Presuming that, on the whole, those in the labour market are generally more optimistic about their employment prospects than inactive workers, the low take-up of training grants by older unemployed workers, under the New Deal 50+, in the UK casts serious doubts on the efficacy of training for the inactive. The Japanese government encouraged 'self-training' for unemployed (as well as for the employed) in their 1998 Education and Training Benefit. This helped individuals to undertake training by covering (part of) the costs. Older workers were under-represented in the take-up of this opportunity. The OECD report on Japan argues that limited use of such take-up grants signals a "general unwillingness on the part of older persons to take-self training or possibly that the designated courses are not very attractive to them" (OECD, 2004f, p.126). The report on Japan, however, also finds that the success of Public Employment Services for older workers is limited and that this can be attributed to the small number of job openings for older people. This indicates a demand-side problem, which supply side solutions cannot hope to tackle.

Overall policy experience suggests a pessimistic view on the impact of training in getting the inactive back into employment.

One area of policy action that perhaps deserves more attention is the possibility of encouraging self-employment among older people, whether presently in the labour market or out of it. If a proportion of them face a complex interweave of disadvantage in the labour market, why not encourage them to compete in the "product market"? This might also allow them to achieve the flexibility that many of them desire in order to achieve their chosen work-life balance. Although there have been a number of policy initiatives in this area, for example the Enterprise Allowance Scheme in 1980s Britain and the recent PROMODE initiative in Mexico, the evidence about their effectiveness is thin.

6. CONCLUSIONS

Though experience varies from country to country, labour force participation and employment rates are generally low amongst older workers. For men they are much lower than they were 30 or 40 years ago. For women they are higher. The most commonly used comparative statistics, derived from Labour Force Surveys, may well overestimate the extent of labour market inactivity. Many of those registered as sick or disabled could, in fact, find suitable employment and many would want to. Many of those classified as retired are not, it is suspected, voluntarily so.

Amongst older workers, inactivity and unemployment are particularly heavily concentrated amongst the less educated and the less skilled. This is often attributed to globalisation, skill-biased technological progress or job-queuing. Despite such explanations, it is not clear what role lack of skill per se plays in this disadvantage. Labour market regulations, seniority or age related-wages, moral hazard, the attitudes of older workers themselves and skills obsolescence, as well as age discrimination, may help to explain the underprivileged position of older workers in the labour market. In addition to having low employment and

activity rates, older workers receive little training. What is eminently clear is that the problem is particularly concentrated amongst those who are less educated or skilled, amongst those who missed out on education and training early in their lives. Once at the bottom of the heap, always at the bottom of the heap.

OECD Governments are concerned to bring older workers out of unemployment into employment and out of inactivity into employment. They embrace training as one possible means of achieving this aim. The available evidence suggests two overarching conclusions – one general and one specific to our immediate concerns. The general one is that the relationship between training and a country's economic success is more problematic and complex than often apparently appreciated by policy makers. For the individual, education and training on the whole improve labour market prospects. But there are qualifications. Not all education and training is equally powerful in achieving this; in the UK, for example, short episodes of work-based training or training when unemployed have limited impact, whilst returns to vocationally orientated courses are less than to academic ones. The specific conclusion is that one could not hope to offset decades of labour market disadvantage by giving an individual a couple of weeks or even a couple of months training. This suggests the need to be modest in one's aims.

The best available evidence, particularly from the active manpower policy literature, suggests very strongly that training programmes, on their own, are of limited use in bringing people out of unemployment or inactivity into jobs. Of prime importance are subsidies and targeted job search and job placement programmes; and even here there are risks of deadweight loss and of ineffectiveness if they are not part of a larger policy package. Even if training can, in principle, help to bring people back into work, the jobs they acquire may not be brilliant ones. This implies a problem of incentives. Depending on the social security/pension regime prevailing, workers may not be inclined to take on low-paying or low status jobs. Indiscriminately providing training, in the absence of other linked initiatives, would be wasteful.

From time to time in this paper, we have stressed the importance of continuous learning during the whole of working life as a means of reducing the dangers of labour market disadvantage in the older years. We have also stressed that formal training episodes are not the only route to continuous learning. Informal learning and development are also critical, and these are closely related to broader aspects of job quality.

For those who are in work, lack of training may be at least as much a symptom as a cause of job insecurity. The problem is not only making the workers more attractive, it is also a matter of making the jobs on offer more attractive. The more high quality jobs there are available, the greater the demand for skill and the more training that will be in offer. Though some of it will be specific to each employing organisation, much of it is likely to be transferable, even in the absence of government intervention to deal with possible externalities. Without a large number of high quality jobs, some people are going to suffer. Although an increase in the number of well-trained people might enable some employers to enhance the quality of some jobs, on its own training is unlikely to dramatically alter the quality mix of jobs on offer. The key to preventing the older worker suffering disproportionately in such circumstances almost certainly lies elsewhere than in training. The lack of training received by older workers is dominantly a symptom of broader problems they face. And it is these broader problems that deserve prime attention. One limited role that training might play, though almost certainly it would have to be heavily subsidised by governments, would be to prepare older workers for self-employment as an alternative to the hostile climate they face as employees.

REFERENCES

Allen, J. & R. van der Velden (2002), "When Do Skills Become Obsolete and When Does it Matter?" in De Grip, A., J. van Loo & K. Mayhew, (eds.) *The Economics of Skills Obsolescence: Theoretical Innovations and Empirical Applications.* Research in Labor Economics 21, JAI.

Atkinson, J. & S. Dewson (2001), "Evaluation of New Deal 50 Plus: Research with Individuals (Wave 1)", *Employment Service Research Report ESR 91.*

Aubert, P., E. Caroli, & M. Roger (2004), "New Technologies, Workplace Organisation and the Age Structure of the Workforce: Firm-level Evidence", *CREST-INSEE and INRA-LEA Working Paper.*

Ballot, G., F. Fakhkakh & E. Taymaz (2001), "Who Benefits from Training and R&D? The Firm or the Workers? A Study on Panels of French and Swedish Firms", *ERMES Working Paper, No 01-12.*

Bartel, A. & N. Sicherman (1993), "Technological Change and Retirement Decisions of Older Workers", *Journal of Labor Economics*, *11.*

Blundell, R. (2000), "Comments on James Heckman's 'Policies to Foster Human Capital". *Research in Economics, 54*.

Borghans, L, & B. ter Weel (2002), "Do Older Workers Have More Trouble Using A Computer than Younger Workers" in De Grip, A., J. van Loo & K. Mayhew, (eds.) *The Economics of Skills Obsolescence: Theoretical Innovations and Empirical Applications.* Research in Labor Economics 21, JAI.

Cabinet Office (2000), "Winning the Generation Game: Improving Opportunities for People Aged 50-65 in Work and Community Activity", Performance and Innovation Unit Report*,* accessed through http://www.number-10.gov.uk/su/winning/active/.

Cabinet Office (2004), *Personal Responsibility and Changing Behaviour: The State of Knowledge and its Implications for Public Policy* (Issue Paper for Discussion Purposes), London.

Centre for Research into the Older Workforce (CROW) (2004), "Are Older Workers Different?", *CROW Briefing Paper 1.*

Dearden, L., H. Reed, & J. van Reenen (2000), "Who Gains When Workers Train? Training and Corporate Productivity in a Panel of British Industries", *IFS Working Paper, WP 00/04.*

Department of Trade and Industry (2004), "Partial Regulatory Impact Assessment for Age Discrimination Legislation" http://www.dti.gov.uk/er/equality/agedisrim_RIA.pdf.

Dickerson, A. & F. Green (2002), "The Growth and Valuation of Basic Skills", *SKOPE Research Paper No. 26.*

Disney, R., & D.Hawkes (2003), "Why has Employment Recently Risen among Older Workers in Britain?" http://www.nottingham.ac.uk/economics/staff/details/papers/Disney-Hawkes-Chapter4.pdf.

European Commission (2003), *Employment in Europe 2003, Luxembourg*: Office for Official Publications of the European Communities.

Faggio, G. & S.Nickell (2003), "The Rise in Inactivity Among Adult Men" in Dickens, R., Gregg, P. & Wadsworth, J. (eds). *The Labour Market under New Labour: the State of Working in Britain.* New York, Palgrave.

Funk, L. (2004), "Employment Opportunities for Older Workers: A Comparison of Selected OECD Countries". *CESifo DICE Report 2/2004.*

Gautier, P.A., J. van den Berg, J. van Ours & G. Ridder (2002), "Worker Turnover at the Firm Level and Crowding Out of Lower Educated Workers", *European Economic Review 46*.

Givord, P. & E. Maurin (2003), "Changes in Job Security and Their Causes: an Empirical Analysis Method Applied to France 1982-2002". *CEPR Discussion Paper, 3830.*

Grierson, K. (2002), **"**New Deal 50 Plus: Quantitative Analysis of Job Retention". IAD Information Centre accessed through http://www.dwp.gov.uk/jad/2003/151_rep.pdf.

de Grip, D. & J. van Loo (2002), "The Economics of Skills Obsolescence: A Review" in de Grip, A., van Loo, J. & Mayhew, K. (eds.). *The Economics of Skills Obsolescence: Theoretical Innovations and Empirical Applications.* Research in Labor Economics Vol. 21, JAI.

Hausman , P. (2003), *Le maintien en activité des travailleurs âgés au Luxembourg,* CEPS-INSTEAD.

Heckman, J. (2000), "Policies to Foster Human Capital", *Research in Economics, 54*.

Keep, E. & K. Mayhew (2001), "Globalisation, Models of Competitive Advantage and Skills", *SKOPE Research Paper No 22*.

Keep, E., K. Mayhew & Mark Corney (2002), "Rates of Return to Employers' Investment in Training and Employer Training Measures", *SKOPE Research Paper No 34*.

Krueger, A. & M. Lindahl (2001), "Education for Growth: Why and for Whom?", *Journal of Economic Literature*, 39 (4).

Leuven, E. & H. Oosterbeek (1999), "Demand and Supply of Work-Related Training: Evidence from Four Countries", in Polachek, S.W. & Robst, J. (eds.). Research in Labor Economics, Vol. 18, JAI.

Machin. S (2002), "The Changing Nature of Labour Demand in the New Economy and Skill-Biased Technological Change" http://158.143.98.51/~machin/.

Machin, S., E. Berman, & J. Bound (1998), "Implications of Skill-Biased Technological Change: International Evidence", *Quarterly Journal of Economics, 113*.

Machin. S & J.van Reenen (1998), "Technology and Changes in Skill Structure: Evidence From Seven OECD Countries", *Quarterly Journal of Economics*, *113*.

Machin, S, A.Vignoles, & F.Galindo-Rueda (2003), "Sectoral and Area Analysis of the Economic Effects of Qualifications and Basic Skills". *CEEP Research Report RR465.*

Market & Opinion Research International (MORI) (2002), *Age Discrimination at Work, London*.

Martin, J. & D. Grubb (2001), "What Works and for Whom: A Review of OECD Countries' Experiences with Active Labour Market Policies", *Swedish Economic Policy Review, 8*.

National Research and Development Centre for Adult Literacy and Numeracy (NRDC) (2003), *The Benefits to Employers of Raising Workforce Basic Skills Levels: a Review of the Literature,* London.

OECD (2003), *Vieillissement et Politiques de L'emploi/Ageing and Employment Policies Sweden,* Paris.

OECD (2004a), "Improving Skills for More and Better Jobs: Does Training make a Difference?", *Employment Outlook.*

OECD (2004b), "Coping with Ageing: A Dynamic Approach to Quantify the Impacts of Alternative Policy Options on Future Labour Supply in OECD Countries", *Economics Department Working Papers No. 371.*

OECD (2004c), *Vieillissement et Politiques de L'emploi/Ageing and Employment Policies Norway,* Paris.

OECD (2004d), *Vieillissement et Politiques de L'emploi/Ageing and Employment Policies Finland,* Paris.

OECD (2004e), *Vieillissement et Politiques de L'emploi/Ageing and Employment Policies Czech Republic,* Paris.

OECD (2004f), *Vieillissement et Politiques de L'emploi/Ageing and Employment Policies Japan,* Paris.

OECD (2004g), *Vieillissement et Politiques de L'emploi/Ageing and Employment Policies Italy,* Paris.

OECD (2004h), *Vieillissement et Politiques de L'emploi/Ageing and Employment Policies Luxembourg,* Paris.

OECD (forthcoming), *Vieillissement et Politiques de L'emploi/Ageing and Employment Policies United Kingdom,* Paris.

Oosterbeek, H. (1998), "Unravelling Supply and Demand Factors in Work-Related Training", *Oxford Economic Papers*, 50 (2).

Sianesi, B. & Van Reenen, J. (2003), "The Returns to Education: Macroeconomics", *Journal of Economic Surveys, 17 (2).*

Spence, M. (1973), "Job Market Signalling", *The Quarterly Journal of Economics 87*.

Teulings, C. & M.Koopmanschap (1989), "An Econometric Model of Crowding Out of Lower Education Levels", *European Economic Review, 33*.

Van Ours, J.& G.Ridder (1995), "Job Matching and Job Competition: Are Lower Educated Workers at the Back of Job Queues?", *European Economic Review, 39.*

Wood, A. (1998), "Globalisation and the Rise in Labour Market Inequalities", *Economic Journal, 108 (450).*