# Exclusion, Employment and Opportunity

**A B Atkinson**
**John Hills**
**(editors)**

# Centre for Analysis of Social Exclusion

## Editorial Note

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# List of Contributors

Wiji Arulampalam is Reader in Econometrics at the University of Warwick.

David Ashton is Professor of Economics at the University of Leicester.

A B Atkinson is Warden of Nuffield College, Oxford.

Alison Booth is Professor of Applied Economics, ESRC Research Centre on Micro-Social Change at the University of Essex and Research Fellow of the CEPR.

Andrew Britton was Executive Secretary of the Churches' Enquiry into Unemployment and the Future of Work and formerly Director of the National Institute for Economic and Social Research.

Brendan Burchell is a member of the Faculty of Social and Political Sciences at the University of Cambridge.

Bryn Davies is a consultant in occupational psychology.

Alan Felstead is a Senior Research Fellow in the Centre for Labour Market Studies, University of Leicester.

Frances Green is Professor of Economics at the University of Leeds Business School.

John Hills is Professor of Social Policy and Director of the Centre for Analysis of Social Exclusion, London School of Economics.

Stephen Machin is Professor of Economics, University College London and a Research Associate of the Centre for Economic Performance at the London School of Economics.

# Preface

The principal aim of Section F of the British Association is to show how economic analysis can be applied to illuminate important issues of public concern. The theme for the 1997 Section F Meeting of "Equality and Opportunity" surely satisfied this criterion. The subject matter is highly relevant to key initiatives of the Labour Government elected in May 1997. The first Budget of Gordon Brown was centred on Welfare to Work, seeking to create employment opportunities for the young and the long-term unemployed. Training, education, and the acquisition of skills are central to the Government's programme. In August 1997, Peter Mandelson, Minister without Portfolio, announced that there would be a campaign against social exclusion as a prominent plank in government policy. December saw the establishment of the new Social Exclusion Unit. According to the Prime Minister, this is in many ways "the defining difference between ourselves and the previous government" (The Observer, 23 November 1997).

The measures are yet to take full effect, and it will not be possible to evaluate their impact for some time. But we can ask now what one can learn from modern economics, together with other social sciences, that is relevant to this policy area. Views differ as to the contribution of modern economics to understanding contemporary problems. Andrew Britton, in his chapter, reaches rather negative conclusions about the contribution of economics. He says that the subject of the Section's meeting shows up the limitations of economics rather than its strengths. In my contribution, I am more upbeat. While there are major gaps in our understanding, to a notable degree British economists have identified the areas where more knowledge is needed, and have invested in acquiring data and developing theories.

My Presidential Address, which is Chapter One of this Paper, is concerned with the three-way relationship between poverty, unemployment and social exclusion. These concepts are related but should not be equated. In debates about Social Europe, the terms poverty and social exclusion have on occasion been used interchangeably, but they are not the same. People may be poor without being socially excluded; and others may be socially excluded without being poor. Unemployment may cause poverty, but this may be prevented, as in a number of mainland European countries, by social security. In countries such as France there has not been the same rapid rise in poverty as in the United Kingdom. Unemployment may cause social exclusion, but employment does not ensure social inclusion; whether or not it does so depends on the quality of the work offered. "Marginal" jobs may be no solution.

The link between employment and social cohesion is the subject of Chapter Two by Andrew Britton, Executive Secretary of the Churches' Enquiry into Unemployment and the Future of Work, which reported in April 1997. He argues that conventional economic analysis is too committed to individualism and too narrowly focused on a material view of human well-being. It therefore misses an important part of the problem of unemployment: the role of work in providing self-esteem and a proper state of being. The search for social cohesion in the Report of the Churches' Enquiry may be seen as an application of a social contract, but a Christian approach is one based on sharing of suffering. The resulting policy recommendations have some congruence with the approach of the new Government, aiming to ensure enough good

work for all, but there are also major differences. Notably, the Report argues that paying taxes is an important way in which we discharge our social obligations, and that higher taxation is necessary to finance the creation of new opportunities, and new jobs, in fields such as health and education.

A key aspect of social exclusion is that of dynamics. People are excluded not just because they are currently without a job or income but because they have little prospects for the future. Assessment of the extent of social exclusion has therefore to go beyond current status. Mobility in terms of incomes is the subject of Chapter Three by John Hills, Director of the newly established Centre for Analysis of Social Exclusion at LSE. As he notes, longitudinal data are being used to argue that there is considerable social mobility, so that a great deal of poverty may be a one-off event, and that mobility had increased with labour market flexibility, so that we need be less concerned about the associated rise in earnings differences. He makes the point that mobility is in part a life-cycle phenomenon. This insight goes back at least to Seebohm Rowntree's study of York in 1899, but he and Karen Gardiner have taken the analysis an important step further by characterising different types of trajectory, such as "rising out of poverty" or "blips into poverty". Their characterised trajectories account for a much higher fraction of households than would be expected on a random basis. His chapter points the way to a much richer understanding of income dynamics.

By future prospects, we have in mind not only those of the current generation but also those of their children. Social exclusion may apply across generations. Intergenerational transmission of economic status is the subject of Chapter Four by Stephen Machin. Using data from the National Child Development Survey, he finds that the extent of intergenerational mobility is limited in terms of earnings and education, and that there is evidence of asymmetry in that upward mobility from the bottom is more likely than downward mobility from the top. He argues that childhood disadvantage is an important factor in maintaining immobility of economic status across generations. If this is the case, then inequality of outcome today is a cause of inequality of opportunity in the next generation.

The acquisition of skills is the subject of Chapters Five and Six. Wiji Arulampalam and Alison Booth in Chapter Five explore the connection between labour market flexibility and work-related training. They find, using data from the British Household Panel Survey, that workers on short-term contracts, or not covered by a union collective agreement, are less likely to be involved in work-related training to improve their skills. They suggest that there is a conflict between expanding the more marginal forms of employment and expanding the proportion of workers getting training. Such a finding underlines the importance of the quality of employment.

In Chapter Six, Francis Green and colleagues use evidence from the 1997 Skills Survey, and a comparison with the 1986 SCELI survey, to examine what has been happening to skills, with particular reference to those actually used in the workplace. The findings show a significant increase in the skills used in Britain, with the increase being particularly marked among women. There is greater use of problem-solving skills, of communication and social skills, and of computing skills. At the same time, the authors emphasise that the findings apply only to those in employment, nothing being said about skill acquisition by those not in work.

The chapters in this Paper draw on extensive economic research. A significant part of this research has been financed by the Economic and Social Research Council, and I end by stressing the importance of this funding, and that from independent foundations such as the Leverhulme Trust and the Joseph Rowntree Foundation.

Tony Atkinson
January 1998

# Chapter One: Social Exclusion, Poverty and Unemployment[1]

## Tony Atkinson

### 1        Poverty and Social Exclusion

A central theme of the paper is the three-way relationship between poverty, unemployment and social exclusion. These concepts are related but should not be equated. In debates about Social Europe, the terms poverty and social exclusion have on occasion been used interchangeably. Cynics have suggested that the term 'social exclusion' has been adopted by Brussels to appease previous Conservative governments of the United Kingdom, who believed neither that there was poverty in Britain nor that poverty was a proper concern of the European Commission.

Poverty and social exclusion are not, however, the same. By "poverty", I mean the dictionary definition of "lack of money or material possessions". This may go together with being "shut out from society" (Tony Blair, 23 November 1997), but it does not necessarily do so. People may be poor without being socially excluded in the Prime Minister's sense. People may be socially excluded without being poor. Confusion of the two concepts is one reason for differences of view about the role of social security benefits.

The three-way relationship between poverty, unemployment and social exclusion is developed in the next three sections of the paper. A route map is provided by Figure 1. Unemployment may lead to poverty, but it does not necessarily do so (Section 2). Does unemployment lead to social exclusion (Section 4)? To answer this, we have first to define what we mean by social exclusion (Section 3).

A second theme of this paper is the tension within the European Union between different approaches to the labour market. We can represent the UK as being in the middle of a tug of war between American and Continental European conceptions of the future of the labour market and the welfare state. On one side, there is increased labour market flexibility, which has dominated Anglo-Saxon thinking, and which has been forcefully advocated by the IMF and the OECD. On the other, there is the Continental European approach, which gives more weight to labour market security and social partnership, and which values the economic contribution of a proper system of social protection. This over-simplifies the two positions, but the tension is a genuine one.

Reflecting this difference in approach, debates about social exclusion in the United Kingdom emphasise the role of workers and families. Increased labour market flexibility is interpreted by many politicians to be a matter of adjustments by those on the supply side of the labour market: workers and their representatives. There are, however, other actors who should not be overlooked and whose role has received more attention in Continental debates. The Government itself may contribute to social

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**Figure 1: Route Map (Section numbers)**
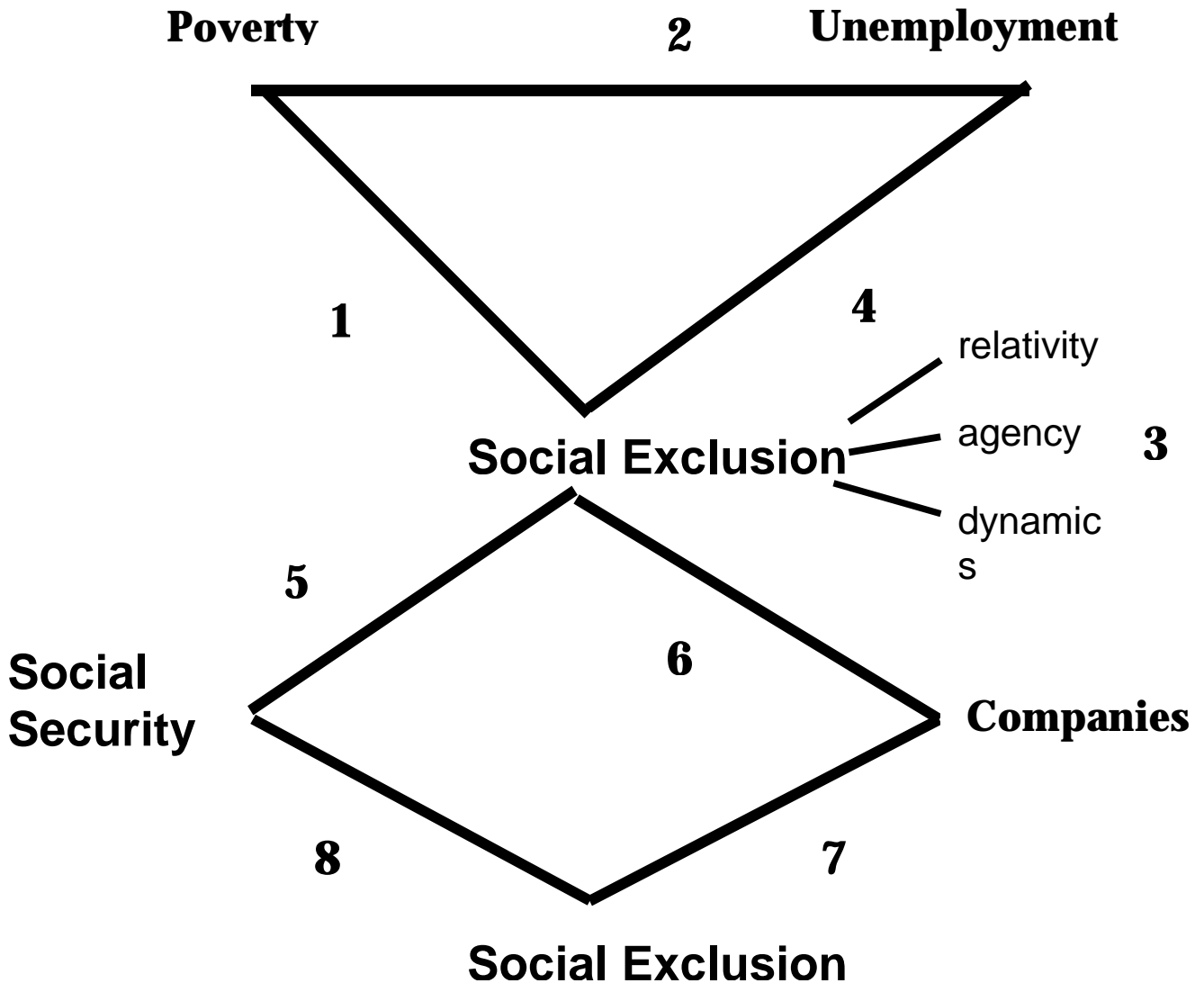


exclusion where its social security benefit programmes privilege certain groups of workers (Section 5). There are those who campaign for more inclusionary benefit schemes, such as a citizen's income; others argue that the state is too inclusionary and should be more open to pluralism in both welfare provision and life styles.

A further important class of actors is that of firms. There are two sides to the labour market, and we need to consider the role of employers, whose labour market decisions may contribute to the exclusion of workers (Section 6). A high required rate of return, or a short time horizon, may inhibit employers from taking on new workers. Firms may not be willing to invest in job creation. Examination of firm behaviour brings us to another dimension of social exclusion: that which occurs in the domain of consumption. People may be excluded if they are unable to participate in the customary consumption activities of the society in which they live. Their access to consumer goods and services depends in part on the pricing decisions of firms (Section 7). For utilities such as electricity or telephones, the connection of consumers may be influenced by regulatory and public sector policy.

Exclusion from consumption is also a function of income, which takes us back once more to social security benefits and the determination of benefit levels (Section 8). While poverty is not the same as exclusion, raising people's incomes via social security is an essential part of any programme to reduce exclusion. Simply linking benefits to retail prices is not sufficient to guarantee that benefit recipients can continue to participate in normal consumption activities. Their exclusion from consumption may in turn limit their capacity to engage in the modern labour market.

## 2    Unemployment and Poverty

The contrast between the US and Europe with respect to unemployment is striking. When I was a student in the first half of the 1960s, unemployment in the US was high (5%) and that in Europe was low: in the UK it was around 1%. The figure for 1997 for the US is much the same figure but that for the EU is over 10%. Europe has gone from being a low unemployment continent to being one with high unemployment.

This is well known. Less well known is that, in many Continental European countries, the massive rise in unemployment has not been accompanied by a corresponding rise in poverty. Figure 2[2] is based on national estimates of income poverty that can be used to compare changes over time. The diamonds show the percentage point increases in poverty rates, from the late 1970s to the early 1990s, for eight European Union countries, plotted against the percentage point increase in unemployment between 1974-9 and 1990-93. From the line labelled 45°, one can see whether the percentage point increase in poverty is larger or smaller than that in unemployment. This 1:1 relationship is a useful yardstick. Evidence for the United States, for example, showed that over the period 1959 to 1983 a 1 percentage point rise in prime-age male unemployment raised the poverty rate by about 1 percentage point (Blank and Blinder, 1986).[3]

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[2]        **Sources for Figure 2:**
**Changes in poverty: Denmark:** Nordisk Ministerråd (1996), Figur 1, page 35, persons aged 18-75, EU scale, 50% median; **Finland:** Nordisk Ministerråd (1996), Tabell 1, page 67, equivalence scale square root of household size, 50% median; **France:** EBF figure from Synthèses (1996), page 57 (corrected incomes), ERF figure from Synthèses (1995), page 56, EU scale, households, 50% median; **Germany (West):** Becker (1997), Tabelle 3 for EVS estimates, Hauser (1997), Tabelle 3 for GSOEP estimates, EU scale, persons, 50% mean; **Ireland:** Callan *et al* (1996), Table 4.13, EU scale, persons, 50% mean; **Italy:** Commissione di indagine sulla povertà e sull'emarginazione (1996), Tav. 1, page 15, and (1996a), Tav.1, page 7, Commissione equivalence scale, households, 50% mean; **Sweden :** Nordisk Ministerråd (1996), Figur 2, page 152, EU scale, persons, 50% mean; **United Kingdom:** Department of Social Security (1992), (1993), (1994), (1995), and (1996), Table F1, DSS equivalence scale, persons, 50% mean.
        Change in unemployment (1974-79) to (1990-93) for total labour force from OECD (1995), Table 2.15.
[3]        This relationship, it should be stressed, relates to the period prior to 1983; subsequently, it does not appear to hold (Blank, 1993).

**Figure 2  Changes in poverty and increases in unemployment in Europe: late 1970s to early 1990s**
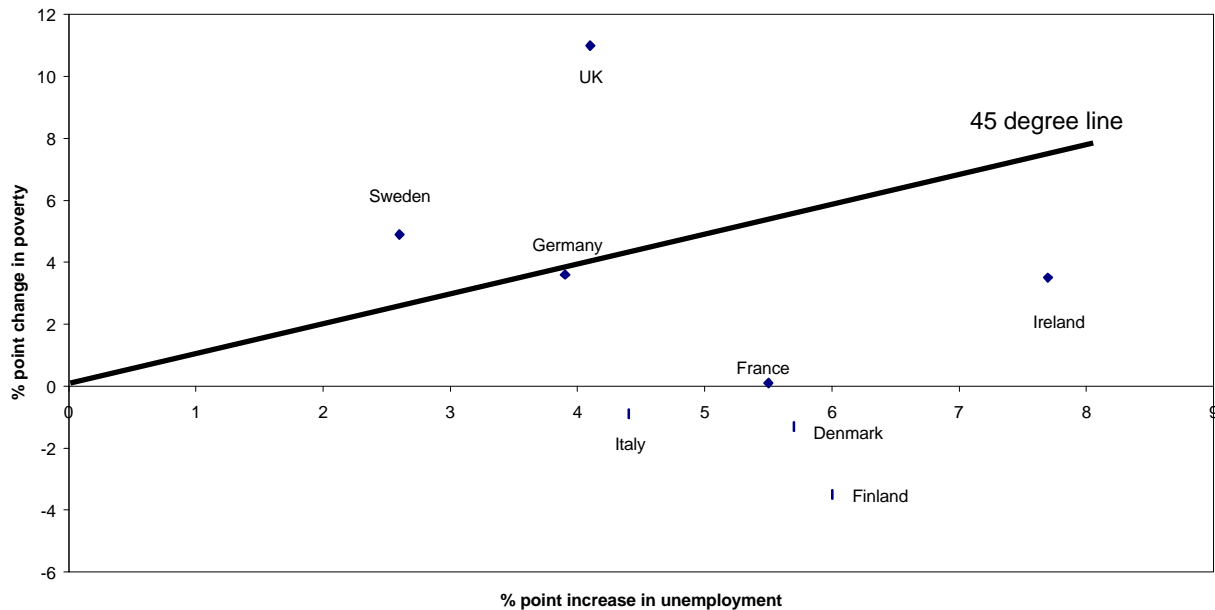


West Germany has close to a 1:1 relationship between unemployment and poverty; Sweden has a larger increases in poverty than unemployment. But it is the UK which stands out: the proportion of people living in households with low incomes more than doubled over the period when Mrs. Thatcher was Prime Minister (it fell a little while Mr. Major was Prime Minister).[4] In the majority of European countries, however, there has been little or no increase in poverty. Between the late 1970s and the early 1990s, poverty did not show a trend increase in Denmark, Finland, France or Italy.

The same picture is shown by studies using data from the Luxembourg Income Study. Smeeding (1997) uses a scale of

    0 for a change of less than 1 percentage point,
    + (or -) for an increase (decrease) of 1 to 2 percentage points,
    ++ (--) for 2 to 4 percentage points,
    +++ (---) for 4 points or more.

Taking a base year between 1979 and 1981, the UK scored +++ for the change up to the early 1990s, and the US ++, whereas Sweden and Norway scored +, and France

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[4]    The high quality of statistics in the UK on financial poverty owes a great deal to the Department of Social Security. The development of the Households Below Average Income series (for example, Department of Social Security, 1997) is one of the most important recent developments in official statistics. There is equally a long tradition of academic inquiries, from the postwar revival of concern with Abel-Smith and Townsend's *The Poor and the Poorest* (1965) to the establishment in October 1997 of the ESRC Centre for Analysis of Social Exclusion.

and Spain scored -. For shorter periods, West Germany and the Netherlands scored +, but Belgium, Denmark and Finland scored 0. Smeeding concludes that

> trends in poverty in the 1980s were generally flat with the exception of the United States and the United Kingdom (1997: 25).

This may suggest that we need not be concerned about unemployment in Europe. However, there is a serious risk, emphasised by Sen (1997), that Europeans become complacent about their levels of unemployment. He contrasts attitudes in the United States and Europe:

> American social ethics finds it possible to be very non-supportive of the indigent and the impoverished, in a way that the typical West European, reared in a welfare state, finds hard to accept. But the same American social ethics would find the double-digit levels of unemployment, common in Europe, to be quite intolerable (1997: 11).

As he, and others such as Clark and Oswald (1994), have stressed, unemployment has costs which go beyond the loss of cash income. Even if there were 100% replacement of lost income, individuals would suffer from unemployment. Moreover, it is not only individual welfare which is at stake but also wider objectives such as social integration.

At the same time, it does not follow that employment implies social inclusion. People may remain excluded even though at work. This however raises the question that I can avoid no longer – what do we mean by social exclusion?

## 3 The Definition of Social Exclusion

Social exclusion is a term that has come to be widely used, but whose exact meaning is not always clear. Indeed, it seems to have gained currency in part *because* it has no precise definition and means all things to all people. A review of the sociological literature concluded that

> Observers in fact only agree on a single point: the impossibility to define the status of the 'excluded' by a single and unique criterion. Reading numerous enquiries and reports on exclusion reveals a profound confusion amongst experts (Weinberg and Ruano-Borbalan, 1993, translation by Silver, 1995: 59).

There do however seem to be three elements that recur in the discussion. The first is that of *relativity*. People are excluded from a particular society: it refers to a particular place and time. In the case of poverty, such relativity has been challenged. According to Joseph and Sumption,

> A person who enjoys a standard of living equal to that of a medieval baron cannot be described as poor for the sole reason that he has chanced to be born into a society where the great majority can live like medieval kings (1979: 27).

However, whatever the merits of an absolute approach when measuring poverty, it has no relevance to social exclusion. We cannot judge whether or not a person is socially

excluded by looking at his or her circumstances in isolation. The concrete implementation of any criterion for exclusion has to take account of the activities of others. People become excluded because of events elsewhere in society. Exclusion may indeed be a property of groups of individuals rather than of individuals. Economists tend to consider individuals and their families in isolation: for example, taking no account of whether the respondents in a sample survey come from the same street or neighbourhood. Yet social exclusion often manifests itself in terms of communities rather than individuals, an illustration being the use by financial institutions of street postcodes for purposes of credit rating.

This brings me to a second element, which is that of *agency*. Exclusion implies an act, with an agent or agents. People may exclude themselves in that they drop out of the market economy; or they may be excluded by the decisions of banks who do not give credit, or insurance companies who will not provide cover. People may refuse jobs preferring to live on benefit; or they may be excluded from work by the actions of other workers, unions, employers, or government. This notion of agency has been examined by Sen in his work on social justice, stressing the difference between (1) the realisation of one's objectives irrespective of one's own role and (2) their realisation as a result of one's own efforts (Sen, 1985 and 1992). Put the other way round, in terms of failure to achieve the status of inclusion, we may be concerned not just with a person's situation, but also the extent to which he or she is responsible. Unemployed people are excluded because they are powerless to change their own lives.

A third key aspect is that of *dynamics*. People are excluded not just because they are currently without a job or income but because they have little prospects for the future. By "prospects", we should understand not only their own but also those of their children. Social exclusion may apply across generations. Assessment of the extent of social exclusion has therefore to go beyond current status. The same can be argued of poverty, and Robert Walker has argued that this is one way of bringing together the two concepts:

> when poverty predominantly occurs in long spells ... the poor have virtually no chance of escaping from poverty and, therefore, little allegiance to the wider community ... In such a scenario the experience of poverty comes very close to that of social exclusion (1995: 103).

There is greatly increased risk but the two concepts should not be equated: social exclusion is not simply long-term, or recurrent, poverty. Social exclusion is not only a matter of ex post trajectories but also of ex ante expectations. We need forward-looking indicators.

Empirical implementation of measures of social exclusion poses major research problems, but the three elements of relativity, agency and dynamics provide a basis for considering in principle the mechanisms of exclusion and inclusion that are the subject of the rest of the paper.

## 4      Unemployment and Social Exclusion

The 1994 European Union White Paper on *Growth, Competitiveness, Employment* argues that the creation of jobs is necessary to safeguard

the future of our children, who must be able to find hope and motivation in the prospect of participating in economic and social activity (European Commission, 1994: 3).

Would a fall in unemployment in Europe provide such a guarantee of social inclusion?

The answer must depend on the reason for unemployment and on the form taken by the increase in employment. If unemployment is due to deficiency of aggregate demand, or technological shifts, then an individual worker may reasonably feel that he or she is powerless in the face of macro-economic forces. Studies of unemployment in the 1930s, such as Bakke (1933) in the United States or Jahoda *et al* (1933) in Germany, emphasised the loss of personal control; and recent reviews in the 1980s

have been impressed more by the similarities than the differences in research findings on current unemployment (Lewis *et al*, 1995: 159).

Reduction of such "involuntary" unemployment would score positively in terms of the agency dimension of exclusion. On the other hand, this presupposes that return to work does in fact restore a sense of personal control. As noted in one summary of Bakke's research, it

suggested that much of the apparent inactivity and negative mood of the unemployed was not a function of job loss alone. It was also a function of past work experiences which left people feeling they lacked control of their lives (O'Brien, 1986: 195-6).

If, on the other hand, unemployment is attributed to high reservation wages, for example, on account of the level of unemployment benefit, then again the issue arises of the nature of the employment which would be generated as a result of policy measures to reduce unemployment (for example, benefit cuts). Critics of the American approach of labour market flexibility see it as generating jobs which are less privileged in their remuneration or in their security. The newly created jobs are seen as "marginal" rather than "regular" jobs, where the latter have the expectation of continuing employment, offer training and prospects of internal promotion, and are covered by employment protection. "Marginal" jobs lack one or more of these attributes; they may also be low paid. In this respect, the relativity of the concept of exclusion becomes important. If the expansion of employment is obtained at the expense of a widening of the gap between those at the bottom of the earnings scale and the overall average, then it may not end social exclusion.

It is possible that new jobs are marginal, but offer future prospects, which brings us to the dynamic dimension of exclusion. The key question is whether these jobs are in fact stepping-stones to regular employment or whether they trap people in low paid and insecure jobs with recurrent unemployment. Does the young woman who comes in to do part-time photocopying get taken on as a management trainee? Figures 3A and 3B show two different stylised situations, where the size of the circles is an indicator of the relative probabilities of movement. In Figure 3B, employment in the marginal sector is indeed a stage of transition to regular employment. Workers progress. Having proved their employability, they stand a good chance of being taken on in a regular job. In terms of the typology in John Hills' paper in this volume, people are rising out of

poverty. On the other hand, in Figure 3A there is little connection between the regular sector and marginal employment/ unemployment. People go up and down at the lower levels of income. Their trajectories are, in Hills' terminology, repeated poverty or blips out of (into) poverty. This happens independently of the overall rate of unemployment.

**Figure 3A: Social Separation**

| | To: | | |
| From: | Regular job | Marginal job | Unemployment |
|---|---|---|---|
| Regular job | ● | ● | ● |
| Marginal job | ● | ● | ● |
| Unemployment | ● | ● | ● |

**Figure 3B: Stepping Stone Mobility**

| | To: | | |
| From: | Regular job | Marginal job | Unemployment |
|---|---|---|---|
| Regular job | ● | ● | ● |
| Marginal job | ● | ● | ● |
| Unemployment | ● | ● | ● |

Which, if either, of these two pictures is more relevant is an empirical question. Recent research has made productive use of longitudinal data, such as those collected in the British Household Panel Survey (a far-sighted social science investment which is now paying off) to learn about labour market transitions. We have seen a series of very interesting studies, including chapters in this volume. Here I simply refer to one study, that by Amanda Gosling *et al* (1997), which casts light on the transitions out of low paid jobs, where low pay is defined in terms of hourly earnings in the bottom quartile. The findings (Gosling *et al*, 1997, Figure 3.1) indicate that 36% of low paid men in the first year of the survey had moved out by the next year, but this included 11% who were out of work. Of the 25% who moved up the earnings distribution, about 30% reverted to the low paid group in the next year or the following one. This suggests that a significant number are indeed trapped, although this kind of evidence tends to raise as many questions as it answers: for example, it is not clear that hourly earnings are an adequate yardstick. As at the top of the scale, it is the total remuneration package which is relevant, including the qualitative features associated with the marginality of jobs.

The link between employment and social inclusion is a complex one. Creating jobs can contribute to ending social exclusion, but success depends on the nature of

these new jobs. Do they restore a sense of control? Do they provide an acceptable relative status? Do they offer prospects for the future? These are important questions.

# 5     Social Security

In describing the history of use of the word "exclusion" in France, Hilary Silver states that

> The coining of the term is generally attributed to René Lenoir, who, in 1974 ... estimated that `the excluded' made up one-tenth of the French population. ... All were social categories unprotected under social insurance principles at that time (1995: 63).

This brings us to a different source of exclusion: that people are excluded from the welfare state.

In France, concern with a patent lack of solidarity led to the introduction of the Revenu Minimum d'Insertion. In the UK the situation is different in that a national system of social assistance has long been in operation (although this has begun to come under threat). There are however questions as to how far means-tested benefits can be relied on as a source of inclusion. As is well known, take-up of assistance is significantly less than 100% (Department of Social Security, 1996a). Incomplete take-up in part reflects lack of information, or the time costs of claiming, but studies of the motives for not claiming reveal that it is also related to stigma associated with receipt of assistance. People do not wish to be identified as recipients of Income Support, and in this regard the benefit system itself is exclusionary. There are also fears that the new government measures stressing return to work will stigmatise those who remain on benefits, making them feel excluded by the state. There are serious dangers in stressing the negative aspects of welfare receipt. Headlines such as "The £X million Scandal of 'Skivers'" do not help.

Consideration of the role of the state may lead to more fundamental questioning. Goodin has argued that there is a sense in which

> the state, as presently conceived, is *too inclusive*. It is not necessarily itself the only source of social succour available to any given citizen. But it claims a monopoly on the power to legitimate any other sources of social succour (1996: 363).

He puts forward an alternative model in which

> we could be members of many different clubs, drawing on them in turn for many different purposes and many different kinds of support and assistance (1996: 364).

The European Union is, he suggests, a prototype of such an organisation. It is an intriguing thought that exclusion at a national scale might be resolved at a European level. Political realities indicate that access to Brussels may be even more difficult for those on margins of society, but the European Poverty Programmes have been explicitly concerned with the fostering of economic and social integration of under-privileged groups (see for example Duffy, 1994).

These considerations point to a rather different agenda from that usually envisaged under the slogan of "rethinking the welfare state", but they should not be taken as implying that national social security has no role to play in combatting social exclusion - to which I return in Section 8.

# 6    Role of Employers

In his Presidential Address to Section F in 1958, Professor Arthur Brown, seeking to explain how the postwar decade had come to surpass the hopes of Lord Beveridge with regard to unemployment, noted

> one factor which was imperfectly foreseen, and which may have played a very important part in realising the still lower level of unemployment which we have reached. That factor is a change in the attitude of employers, from regarding labour as a commodity always in elastic supply to treating it as something which, if once released, may not be easily replaced (1958: 450).

The role of employers is, in my view, too little emphasised in today's economic analysis. In seeking to explain the rise in unemployment, we have to consider the hiring decisions of employers. Are people now being excluded from the labour market by the employment practices of companies?

To illustrate this, let us return to the explanation of unemployment, in this case taking a simple model of equilibrium employment based on matching of vacancies/unemployed and bilateral wage bargaining, jobs are created until

> Marginal return to labour =
> Reservation wage
> + Cost of job creation * (Rate of job termination + Rate of discount) / Employer's relative bargaining power

Employment is expanded up to the point where the marginal return is equal to the right hand side. The left and side falls as employment increases, so that the larger the right hand side the lower is employment.

From this, we can see the basis for the labour flexibility argument referred to earlier. Cutting social security benefits, it is argued, reduces the reservation wage, and hence expands employment. Reducing hiring costs expands employment. Reducing trade union power, and hence increasing that of the employers, increases employment. This however focuses on the side of labour supply. Attention needs to be directed not just at workers and unemployed but also at employers. How do firms influence job creation and job destruction? If, for instance, employers now expect jobs to be short-lived, anticipating a high rate of termination, this raises the right hand side, making job creation less attractive. Perhaps most importantly, if employers are applying a higher rate of discount to future benefits, then they are less willing to invest in job creation. Debate about "short-termism" should not be confined to the capital market; it may be equally relevant to the labour market.

In this way, we are led to link social exclusion with the capital market, bringing it closer to the heart of economic analysis. The next step is to bring in the product market.

# 7    Social Exclusion in Consumption

Social exclusion has so far been equated with exclusion from the labour market, but it is only one face of social exclusion. People may face exclusion in other parts of their lives, notably in the domain of consumption. An important strand in the concerns that have been expressed is that people are unable to participate in the customary consumption activities of the society in which they live. The most evident example is that of homelessness, but also significant are access to durables, food expenditure (nutritional content), and expenditure relating to recreational, cultural and leisure activities. The last of these is particularly relevant to families with children. Peer group pressure may mean that a Manchester United shirt or Nike trainers are necessary for children to be included in neighbourhood activities.

Exclusion may apply not just to goods but also to services. The poor may be excluded from insurance cover where premia are set on a postcode basis; banks may refuse on similar criteria to open bank accounts or to issue credit cards. The services are not available locally:

> Using computerised mapping technology to show where profits are highest, banks and building societies have been pulling out of poorer areas. [For example] all the building society branches have closed in Birmingham's Aston ward since 1986 (Rossiter and Kenway, 1997: 7).

Such credit-rating criteria may be a rational response on the part of financial institutions, but this does not change the consequences for individual families. According to McCormick (1997), when a low income housing estate in Scotland suffered flooding in the winter of 1994, 95 per cent of the tenants were not insured.

A good example of exclusion in consumption is the telephone. A person unable to afford a telephone finds it difficult to participate in a society where the majority have telephones. Children are not invited out to play, because neighbours no longer call round - they call up. Letters do not allow the same contact to be kept with relatives who have moved away. A person applying for a job may not be called for interview since he or she cannot be contacted directly. This may sound like an advertisement for the telephone companies, but it is to them, and other suppliers of key goods and services, that I would like to direct attention. The conditions under which goods are supplied is an aspect which is overlooked in the analysis of poverty. The pricing decisions of the suppliers determine whether or not the poor are excluded from this dimension of consumption. If one examines the choices made by profit maximizing firms (Atkinson, 1995), then it is quite possible that the profit-maximizing price excludes some customers from the market. Equally, there is no guarantee that firms will go on supplying the qualities of goods that the poor want to buy. For example, it is not now easy to buy small quantities of foodstuffs, or cheap cuts of meat.

Exclusion of consumers is a particular issue where the supply of the good or service has passed from public to private hands. This raises questions to do with regulation – the subject of last year's Section F meeting. Whereas the government could require *public* enterprises to choose their tariffs in such a way that households living on Income Support can afford electricity or gas, or to travel to work, privatisation requires that some mechanism be put in place to avoid exclusion of low income customers by the new profit maximising management. Where the industry is regulated, then the regulators can impose an access condition. The United Kingdom privatisation legislation contains an obligation to supply "all reasonable demands", but this is open

to a variety of interpretations, and some deny that social exclusion is an appropriate consideration. According to John Vickers,

> the advantages of regulators having discretion to pursue distributional ends are outweighed by disadvantages of capture, influence activities, uncertainty, and unaccountability (Vickers, 1997: 18).

This is not apparent to me. The risks of political influence arise not just with regulation but also with taxes and transfers. Fiscal policy may be "captured", preventing a government from using redistributive taxes and benefits. One has to balance the two sides.

The potential seriousness of consumer exclusion is illustrated by the UK gas industry. Ruth Hancock and Catherine Waddams Price (1995) have examined the impact by income groups of the reductions in gas tariffs for those who pay by direct debit. A larger proportion in the top quintile already pay by direct debit and of the remainder almost all have bank accounts, so that they can take advantage of the preferential tariff. In the bottom quintile a sizeable proportion do not have bank accounts. What this points to is the risk of multiple exclusion, where people are unable to open a bank account and are thereby unable to avoid paying by more expensive slot meters.

The policy of utility suppliers is also relevant to the determination of social security benefits, which brings me back to this subject.

## 8      Social Security Cannot be Left Out

Results from the recent literature on the economics of industrial organisation can be used to illuminate the problem of regulation just discussed. They also point to the interdependence between the living standards of the poor and those of the society in which they live. From models of firm decisions about pricing and about the qualities supplied, it can be seen that in the long-run the price of goods rises as incomes rise in the community in general. As the bulk of the population becomes richer, so the poor need more income to keep up. Firms no longer find it profitable for example to produce goods of lower quality, when the rest of the population has moved "up market".

This has evident implications for benefit levels. Linking benefits to the general price index may be insufficient to prevent people from being excluded from the consumption of key goods and services. As the rest of the population becomes richer, there is a rise in the minimum income needed to participate. For example to compete for a job, it is today not enough to "avoid being shabby", which was the criterion applied by Seebohm Rowntree in 1899. To keep up at school, children need a range of goods which was inconceivable even fifty years ago. This may mean that benefits allow people to purchase a better basket of goods than in 1949, but this is what is necessary to avoid exclusion. And it would not be possible to purchase the 1949 basket, since not all the goods are available in today's richer society.

The role of benefits should be stressed, since present Government policy is focussed so exclusively on the labour market. Income from work is important but cannot be the sole solution. As discussed in Section 5, the form of social security needs

to be reconsidered, but collective provision - whether social insurance or citizen's income or participation income - seems essential to assure social integration.

## Conclusions

In this paper, I have ranged widely; and indeed this is one of the main conclusions. Social exclusion is not just concerned with unemployment. People may be excluded from participation in today's society by the operations of the state: for example, through the use of means tested benefits that are seen as stigmatizing. People may be excluded by the pricing and other decisions of the suppliers of key goods and services. By the same token, government policy has to take a broad view. The setting up of the inter-departmental Social Exclusion Unit (Mandelson, 1997) is indeed the right way to go. Social exclusion is not just a matter for one government department. All policy proposals should be tested against the contribution that they make to promoting social inclusion.

The second conclusion is that government policy can make a difference. It is not the case that social exclusion is simply the product of world economic forces in the face of which the government is powerless. The government can make interventions in the labour market of the kind which have been announced under the heading of Welfare to Work, but the scope of policy should be broader. Employment in itself is not necessary inclusionary; the quality of the new jobs is also important. Policies of labour market flexibility may simply shift people from unemployment to marginal jobs with no prospects. The role of employers in job destruction and job creation needs to be considered. Labour market measures should not be seen as an alternative to social transfers; these policies are complementary. The form of social security needs to be re-considered from the standpoint of social exclusion, but it will remain important even with improved labour market opportunities. And there are other areas of policy which need to be reviewed. The government can intervene in the tariff policy of privatised utilities, such as gas, which may prevent people from having access to essential services.

The third conclusion is that economic analysis, for all its limitations, does have a useful role to play in illuminating the different elements of social exclusion. The flowering of empirical research using longitudinal data has come just at the right time to help understand the processes that determine how people escape, or do not escape, from social exclusion ("dynamics"). The analysis of employment determination casts light on the "agency" by which people are excluded. Models of decisions by firms about pricing show how people are excluded from consumption and demonstrate the "relativity" of the concept.

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# Chapter Two: Employment and Social Cohesion

## Andrew Britton

## Introduction

The enquiry was conducted under the auspices of the Council of Churches for Britain and Ireland, with support from all the main Christian denominations. Our report[5] was published in April of this year and received considerable publicity, not least because it appeared shortly before the general election and criticised all the main political parties for ignoring the problems of those in the greatest need.

This was not just another report on the economics of employment to add to the many which have been written in recent years.[6] The sponsoring group of church leaders asked for a report which "offers a theological exploration of issues" and "analyses the various emerging trends and evaluates the policy options from a Christian standpoint". Nevertheless they appointed a professional economist, with a background in academic research and government service to be the secretary of the working party and the main author of the report. In this paper I shall reflect on my experience in discharging that commission. What is it like to work as an economist for a church organisation? Can economics and theology engage in a fruitful dialogue? In particular how can they come together to address the issues of equality and opportunity which are the subject matter of this book?

Economics has been described[7] as "the most influential branch of secular theology". This should warn us that economics is not quite like the other academic disciplines represented here at the annual festival of science. The subject matter studied by most economists is, of course, peculiar to their branch of science, but that is not their only distinguishing feature. A recent collection of papers by economists of the Chicago school[8] began like this.

> Contemporary economists believe that economics is not defined by its subject matter but by its method. Economists try to understand and explain the world by assuming that the phenomena they observe are the outcome of people's purposeful decisions. *Individuals* try to achieve their objectives, given their limitations - limited time, money and energy - that is to say they *optimise*. The interactions of individuals will determine social outcomes - that is *market equilibrium*.

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[5]    *Unemployment and the Future of Work - An Enquiry for the Churches*, available from bookshops or from CCBI Publications, Inter-Church House, 35-41 Lower Marsh, London SE1 7RL.

[6]    For example, OECD (1994), *The Jobs Study*; European Commission (1993), *Growth Competitiveness and Employment*; Philpott, J (1994), *Looking forward to Full Employment*, EPI; and Britton, A (1996), *The Goal of Full Employment*, NIESR.

[7]    Hobsbawm, E, *The Age of Extremes*, p.547-8.

[8]    Tommasi, M and Ierulli, S, (1995), *The New Economics of Human Behaviour*, Cambridge University Press.

Economists are defined in this quotation as subscribing to a particular philosophical view of human nature and behaviour, different from that of some other social scientists. It could well be called a doctrine.

Oddly enough, many theologians at the same time are becoming less doctrinaire in the traditional sense of that word. You do not now, for example, have to believe in God to be an academic theologian. Some "liberation theologians" appear to equate doing theology with political activism rather than the contemplation of eternal truths. The point of this paper, however, is to argue that a Christian view of human nature must be different from that assumed by most economists. This is especially the case when they discuss policy questions like those relating to employment and social cohesion. It is very important, I believe for professional economists to realise that not everyone thinks like they do.

I will begin with some general remarks about the relations of positive and normative questions in economics and in Christian belief. As we shall see the distinction between ends and means usually made in discussing economic policy is far from straightforward. I will then describe how economists approach issues of employment and social cohesion, offering in both cases a Christian critique. Following on from that I will summarise the main policy conclusions of the churches' report, before offering a few related conclusions of my own.

## Ends and Means

Students of economics are told that they should distinguish sharply between normative questions (what should be?) and positive questions (what is?). However, more philosophically-minded economists recognise that the methods they follow often conflate the two. A recent study written jointly by a philosopher and an economist[9] concludes as follows:

> Unlike the natural sciences, positive economics explains choices in terms of reasons. Consequently, it cannot avoid depicting human beings as to some extent rational. It cannot avoid raising evaluative questions about the reasons it cites to explain choices, and it cannot avoid suggesting answers to them.

Thus a dialogue between economics and theology cannot be conducted on the basis that theology provides the value judgements whilst economics explains what is possible. Economic theory has some value judgements already implicit in its method. Moreover, theology is by no means confined to questions of value. It lays claim to knowledge of the state of the world as well. The Christian faith and traditions have a great deal to say about human nature and about the social and physical worlds in which we live. This teaching contrasts sharply with some of the assumptions made by economists.

Christian teaching agrees with economic theory that human behaviour can be explained as the result of rational choices, but it challenges the assumption that individual preferences are fixed. On the contrary, it calls for repentance, conversion

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[9]     Hausman, D and McPherson, M (1996), *Economic Analysis and Moral Philosophy*, Cambridge University Press.

and even rebirth. It challenges the methodological individualism which says that groups have no identity beyond that of their members - the church after all claims to be the body of Christ. It also challenges common notions of scarcity with stories about the superabundance of bread or wine or fishes. These are all disagreements about how the world actually is, not about how we would like it to be.

I was educated as an economist to see my role as a kind of engineering. I was an expert who could in principle sell his services to any client. I could say to the government, or for that matter the church, "show me your social welfare function", and then I could go away and work out what advice to give them. I now recognise that this model of economics will not quite do. Governments are reluctant to describe their priorities in the form economists would ideally wish. In fact they are reluctant to discuss hypothetical outcomes at all. Whatever the reason may be for this reticence in governments, I am quite clear that the church does not have a social welfare function at all.

Christians are not just concerned about outcomes. They are also, perhaps more, concerned about procedures and motives. They believe in justice and compassion. Procedural justice is at least as important as the justice of the consequences which follow. The value of a charitable gift resides in the cost to the giver rather than the benefit to the recipient - as the story of the widow's mite illustrates.

There is need for a new and different kind of dialogue between disciplines. Economics has much to contribute to theology, not least its respect for rationality and human freedom. Conversely, theology has much to contribute to economics, including a much wider appreciation of human motivation and potential. It is not good enough to say that the two disciplines deal with different spheres of human life. That would risk relegating Christianity to a private world of religiosity, treating faith as an escape from the world and not as a means of redeeming it.

Chemists distinguish between mixtures and compounds. Most attempts to integrate economics with theology can at best be called mixtures. The temptation in preparing a report for the churches on unemployment was to write a separate theological chapter, which many readers would then skip over. In fact we introduced some theology throughout the report making it an integral part of the argument. We were aiming to produce a kind of chemical reaction. I would not claim that we were always successful, but I do think the effort was worthwhile. In the end there should be a kind of Christian economics. This paper is another small step in that direction.

## Employment

Structural unemployment of the kind experienced in most advanced economies since about 1970 can be viewed as a shocking waste of resources. In various countries something between 5 and 20 per cent of the potential labour force is left idle, even though it would be perfectly willing to work at the going rate of pay. Total output of goods and services is being reduced by a comparable proportion, and everyone in society is poorer as a result. How has this come about?

One kind of explanation blames rigidities and distortions in the market for labour. New technology and new patterns of trade are destroying jobs all the time,

but the market should be creating new jobs to replace them. But this requires a flexible response: the wages of some jobs should fall if the demand for that kind of labour has been reduced, whilst the wages for other jobs should rise so that supply will rise to match demand.

Generally the trend is towards more demand for well-educated and well-motivated people, away from those capable only of routine or low-skilled work. If unemployment is to be minimised the market solution is for wage differentials to get wider. That is indeed what has been happening, most of all in America where unemployment has remained relatively low, much less in Continental Europe where unemployment is at its highest. In this economic model of the labour market the existence of powerful trades unions, and even the provision of Income Support to the unemployed, are seen as distortions preventing the labour market from achieving an equilibrium.

Economists as a rule favour market solutions to problems like this. They want to ensure that unemployed people have access to the labour market so that they can compete effectively for the jobs that are available. In the process they may bid down the going rate of wages, but that is better than allowing the harmful distortions to remain - or so we are told. The unemployed must be given the incentive to seek energetically for work - hence the Jobseeker's Allowance. If that is not enough then employers should be offered temporary subsidies to take on the long-term unemployed in preference to other workers, so that they can get back into circulation as it were - hence the New Deal of the new government. This is all about improved opportunities, one of the key words in the new policy consensus, and one of the key words in this book.

A Christian economics of unemployment would have a different emphasis. Christians see work in terms of creativity, like the creative work of God. They also see work as service, meeting the needs of one another and often getting involved with one another as persons, not only as providers and customers. As it happens, this view of work may well be a better guide to the future than can be found in more conventional economics.

Machines are taking over more and more of the mechanical aspects of work, whether physical or mental. According to a recent American bestseller,[10] "Now for the first time, human labour is being systematically eliminated from the production process". This is an exaggeration, but to the extent that it is true it applies to labour in activities like agriculture, manufacturing or transport. These were the most important sources of employment in the 19th and 20th centuries, when classical and neo-classical economics was developed. The same considerations do not apply to the mainly service-sector employment we can expect in the 21st century.

A young man, speaking of his own experience of unemployment to the churches' enquiry, said that it "destroys your spirit". This is one aspect of the unemployment problem totally missed by a conventional economic analysis. Ridiculous as it may be, conventional economics equates unemployment to leisure. Social psychologists know better than that,[11] recognising the destructive effect that unemployment can have on people's self-esteem. But even so this misses a crucial

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[10]     Rifkin, J (1995), *The End of Work*, Putnam.
[11]     See, for example, Argyle, M (1989), *The Social Psychology of Work*, Penguin.

dimension. For the Christian to work is to pray. Hence unemployment not only threatens our relationship with society but also deprives us of a means to express our gratitude to God.

The best analogy for unemployment could be that of disease. The mental anguish which many of those affected suffer is a symptom of a malfunction in a social relationship. The task of the economist is to find a cure. Typically, Christian tradition sees human well-being in terms of health rather than wealth. The aim of policy action should not be to maximise some objective function, as welfare economists might put it. It is simply to restore the individual and society to their proper state of being. In the present context that means full employment, or as we put it in the report, "enough good work for everyone".

## Social Cohesion

There is a branch of economics which deals with inequality, a branch to which our President, Tony Atkinson, has made a particularly important contribution. But why, one might ask, should an economist care about inequality at all? Conventional economic theory assumes that the welfare of each individual depends on the satisfaction of his or her own preferences. Why should preferences depend on the distribution of goods and services available to people other than myself - and perhaps a few close friends or relations? In economic theory there is, to quote a memorable pronouncement, no such thing as society, and a term like "social cohesion" has no real meaning at all.

Some economists are utilitarians, in the strict old-fashioned sense of the word. The right thing to do in any situation, they would say, is to achieve the greatest good for the greatest number. How the utility of many individuals is to be added up to a measure of total well-being remains problematic. However, it is plausible to assume that a pound given to a poor person will do more good than a pound given to a rich person. Hence one kind of welfare economics produces a simple justification for equalising incomes wherever this can be done without reducing the total resources available for distribution.

The issue of equality does not only arise in a utilitarian context. It is implicit in much of political and social ethics. To quote again from the recent study[12] of economics and moral philosophy:

> Appeals to equality play a crucial role in discussions of economic policy.
> Welfare-state programs have attempted to diminish inequalities in income
> and status, and concerns about inequalities constitute the main grounds
> upon which interferences with market outcomes have been defended. To
> understand whether such programs are advisable, one needs to understand
> what (if any) sort of equality can be a moral ideal.

Some economists are attracted to the political theories of John Rawls.[13] He used the familiar myth of a social contract, but he said that it should be drawn up so as to maximise the welfare of the least favoured member of society. This was on the

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[12] Hausman and McPherson, op.cit., p.135.
[13] Rawls, J (1971), *A Theory of Justice.*

grounds that a fair social contract must be one in which the contracting parties did not know in advance what position they would occupy in the resulting society. Risk-averse individuals would play safe by adopting an egalitarian constitution.

All this theorising is based on the assumption of methodological individualism which Christian teaching decisively rejects. For Christians the whole body of the church is as real as its individual members - possibly more so. In the Bible nations are personified; they make moral choices and face judgement collectively. "We, being many, are one body…"

This is the sort of language that many economists find difficult to accept. They would regard it as "mystical" or "theological", in the pejorative sense of such words. Some natural scientists may react in the same way. But the programme of reductionism can be taken too far even in the physical sciences, and certainly in social science.

There are sometimes simple and elegant relationships describing group behaviour; to insist on reducing everything to its constituent parts may result in explanations which are clumsy and unnecessarily complicated. This applies to the behaviour of economic units such as companies, trades unions and national governments. The choices of both producers and consumers can often be best understood by reference to the social groupings to which they belong. Perhaps the real motive for dogmatic individualism is not scientific at all. Perhaps there is a quasi-religious inspiration behind it, that religion being the worship of the human will.

Christians see too great inequality as a threat to the unity of society, or perhaps as a sign that the bonds which hold society together have already been weakened. This is true of extremes of wealth as well as extremes of poverty. In our report we worry about pay at the top being too high as well as about pay at the bottom being too low. Ultimately what is valued is not equality as such but the mutual love and fellowship which it ought to express. Equality which resulted from coercion would have little merit. Those who seek equality out of envy rather than out of good will deserve no support at all.

Superficially some passages in our report may sound as if they were written by Rawlsians. We say, for example:

> We should look at unemployment and the future of work particularly from the viewpoint of the poor and the powerless themselves… As Christians we are called to listen to what they are saying and to pass the message on.

There is indeed a sense in which Christians always should take the side of the poor and the weak against the rich and powerful. But this has nothing at all to do with a mythical social contract. It has to be an expression of active sympathy or compassion, in other words a sharing in the suffering, and a willingness, to do all we can to remove the cause of the pain.

## Policy Conclusions of the Report

The report was written on behalf of the working part as a whole. In practice it was easier to reach agreement as to what our conclusions should be than it was to agree what was the reasoning behind them!

In our report we summarised our policy findings as follows:

The combination of policies most likely to achieve this aim (i.e. Enough good work for all) includes:

- reform of the tax system to encourage much more employment in the private sector;
- much more employment in the public sector, financed by higher taxation;
- a programme creating good jobs for the long-term unemployed;
- a national minimum wage;
- better conditions of work and fairer bargaining over pay;
- reform of social security benefits to reduce reliance on means-testing;
- giving priority in the education system to basic skills for all young people;
- a national employment forum at which such policies could be debated by all interested parties.

Probably the most controversial of these, especially since the election of the new government, is the second. More public spending can be justified in quite conventional terms. We need to expand the service sector to create more good jobs as the demand for labour elsewhere is reduced by new technology or competition from imports. But much of the service sector - for example, health and education - is dependent on public expenditure. Short of wholesale transfer of these services to private funding, there is only one answer - higher taxation.

That is the main argument developed in support of our conclusion in the report. There is, however, one passage where a rather different voice is heard:

One view, with which we sympathise, is that paying taxes is a way of discharging (in some part) our obligation to meet the needs of our national community as a whole, and especially the needs of its less fortunate members. The origin of that obligation can be attributed either to love or to justice - to compassion for those in need or to a duty to share God's gifts more fairly. A case for redistributive taxation can be constructed on either base. These arguments are not heard often enough today.

In any debate about opportunity and equality this is surely one issue that needs to be aired.

The main findings of our the report are addressed to the government. This is typical of reports of this kind. There is a danger that they degenerate into tedious shopping lists. I hope that we have kept that tendency under control! In fact, we know that we should not put too much trust in any government to heal the ills of our society. It is not just our political leaders who need to repent.

Economists too often assume that everyone in the private sector is motivated by narrow self-interest while the government is always high-minded and altruistic. This way of approaching policy issues comes all too naturally to one like myself who has been in the pay of governments for much of his working life! But governments have to take account of what the voters want and what industry and the City will

accept. The churches are not constrained in this way. Hence our report is addressed to society as a whole, in the hope of influencing public opinion. Only then is it likely that governments, employers and others in positions of power and responsibility will feel able to do what we believe the situation requires.

## Conclusions

I end with some brief conclusions of my own. The subject of this book, "Equality and Opportunity" shows up the weaknesses of economics rather than its strengths. Economics does not have much purchase on the real issues evoked by those words. As a discipline it is too deeply committed to individualism and to a narrowly material view of human well-being. Fortunately, Christianity, although its influence on the majority of this country is now quite tenuous, offers an alternative perspective which does address the questions people actually want to ask. People in general do recognise the social and spiritual significance of work; and they really do want to belong to a cohesive society. It is not only Christians who say these things, but Christians say them with particular conviction because they belong naturally with faith in Christ.

I have raised some very broad issues in this paper about the relationship between economic theory and Christian belief, issues which remain unresolved and largely unexplored. Further dialogue, based on mutual respect, between the disciplines of economics and theology could well prove fruitful.

# Chapter Three: Does Income Mobility Mean That We Do Not Need To Worry About Poverty?

## John Hills[14]

In October 1997, a new research centre, funded by the Economic and Social Research Council, began work at the London School of Economics. We are called the Centre for Analysis of Social Exclusion, but our focus will also be on understanding the prevention of exclusion and promotion of inclusion. "Social exclusion" is obviously a vogue phrase at the moment, with the establishment of the Government's Social Exclusion Unit, and the appearance of the phrase in political speeches during the last few months. However, the phrase is more useful than simply being a euphemism for "poverty". As Tony Atkinson explains in his paper, it embodies the ideas of *dynamics* and *process*. As part of the work of the new centre, we would like to understand why some people's lives follow one set of trajectories, while others follow different ones.

The emergence of the phrase in British political discourse and the establishment of the new centre reflect the coincidence of three factors:

- Policy interest in a "hand-up" rather than a "hand-out" approach, or in "pathways out of poverty" as the late John Smith put it. Policymakers may think that it could be cheaper to intervene at exactly the right moment to turn someone's trajectory around rather than simply giving more cash to those who are poor at any one time. On the other hand, it might, of course, cost more in the short-term, at least, if really changing someone's trajectory involved substantial investment in education, training, and so on.

- Data availability. After a comparative dearth of longitudinal data, researchers now have access to an increasingly rich set of British longitudinal datasets including: the British Household Panel Survey (BHPS); the National Child Development Survey (NCDS) and the 1970 Birth Cohort Study (BCS 70); and the Lifetime Labour Market Database (LLMDB), and other panel data drawn from the New Earnings Survey (NES).

- In addition, there is perhaps greater understanding on the part of researchers that, for instance, "one-off" poverty is a different phenomenon from persistent or repeated poverty. Isolated observations of low income may reflect a temporary gap between jobs; a relatively short period for young people whose incomes will later rise; or even errors in the data. This difference has implications both for the seriousness of the problem and for appropriate policy responses. Indeed, if all poverty was accounted for by one-off "blips", maybe we would not need to worry about it very much at all.

In this paper I examine what the new data and recent analysis have been telling us, and what questions arise that should be on the agenda of the new research centre.

There are, however, two cautions given that CASE has only just started work. First, this is an area where others – including other contributors to this volume - have much greater experience and expertise. Second, we have only just started work, and so we do not yet have many new research findings: the empirical material referred to below is mostly from the work of others, although it does include a small amount of new analysis carried out by Karen Gardiner (also from CASE) and myself, looking at patterns of income mobility in the first four years of BHPS.

## How *not* to understand dynamics

I would like to start, however, by discussing how *not* to use and understand the newly available data and results. In particular, some of the commentary on the 1995 report of the Joseph Rowntree Foundation's Income and Wealth Inquiry Group (Barclay, 1995), suggested that subsequently available data on income dynamics invalidated some of its key findings. For instance, Figure 1, drawn from the report, uses cross-sectional data from the Family Expenditure Survey (FES) to show the differences in income over two periods between those in successive tenths of the income distribution at one date, and that of their earlier predecessors. Over the 1961 to 1979 period the incomes of all groups rose, with incomes at the bottom rising fastest. Over the 1979 to 1991/92 period covered by the official Department of Social Security *Households Below Average Income* (HBAI) series, the pattern was very different, with incomes at the bottom rising least (or even falling on the series giving incomes after housing costs).[15]   However, new information on income mobility, it was suggested – notably by the then Secretary of State for Social Security, Peter Lilley, in a speech in Southwark Cathedral - meant that figures of kind were less alarming for three reasons:

- First, analysis of BHPS data showed that there was a lot of mobility from year to year between income groups – the poor do not stay poor long. As Mr Lilley put it, "Social mobility is considerable. Discussion about poverty is often based on the assumption that figures for households on low incomes describe a static group of people trapped in poverty, unable to escape and getting poorer. However this picture has been blown apart by recent studies. They show that the people in the lowest income category are not the same individuals as were in it last year, still less fifteen years ago" (Lilley, 1996).
- Second, and in stark contrast to other figures showing a dramatic widening in earnings dispersion since the mid-1970s, new DSS analysis of panel data drawn from national insurance records suggested that the lowest paid had, in fact, been increasing their earnings fastest. Again, as Mr Lilley put it, "The results destroy the notion that people remain frozen in their place in the hierarchy of earnings. It challenges any contention that those on low earnings generally saw their

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[15] The most recent HBAI analysis, covering the period up to 1994/95 suggests that the pattern changed in the two years after 1992/93, with incomes for the lowest income groups growing faster than the average (DSS, 1997).

earnings fall. Indeed, it showed that the lowest earners saw their incomes rise fastest" (Lilley, 1996).

In addition, the more flexible labour market and changed economy may mean that there is more mobility than in the past – the gaps between rich and poor may have widened, but so may have movement between income groups. If so, averaging incomes over a longer period would give a slower growth in inequality than that shown in comparing cross-sections of incomes at one moment.

The message of this stress on income mobility appears to be that what is at work is a kind of "lottery model" of income determination. Each year a celestial income determination drum is twirled and, depending on the numbers which come up, each of us ends up randomly on Income Support or as a multi-millionaire. The next year our fate is back with Mystic Meg, and we take our chances again.

In this kind of world, a great deal of "poverty" will be a one-off phenomenon – although even in a lottery world, the unlucky may suffer a run of bad luck and have repeated spells of low income. For instance, in a random allocation of incomes over a period with four observations (say over four years):

- 41 per cent of us never go into the poorest fifth;
- 41 per cent are in the poorest fifth once; but
- 18 per cent are in the poorest fifth more than once, and they account for 49 per cent of low income observations. (The relationship between the proportions of individuals and of low income observations is discussed further below).

The implication is that we do not need to worry so much about the increase in inequality. The difference between winners and losers may have increased, but as we all have the chance of being winners and losers, it does not matter much. In particular, provided that we all save or insure in the good times, we can cope with the bad ones. Again, in the lottery world, only about a tenth of low income observations (being in the poorest fifth) would come from the chronically unlucky whose number comes up three or four times out of four.

**Figure 1: Change in Real Net Income by Income Group**



**(a) 1961 to 1979**

**(b) 1979 to 1991-92**
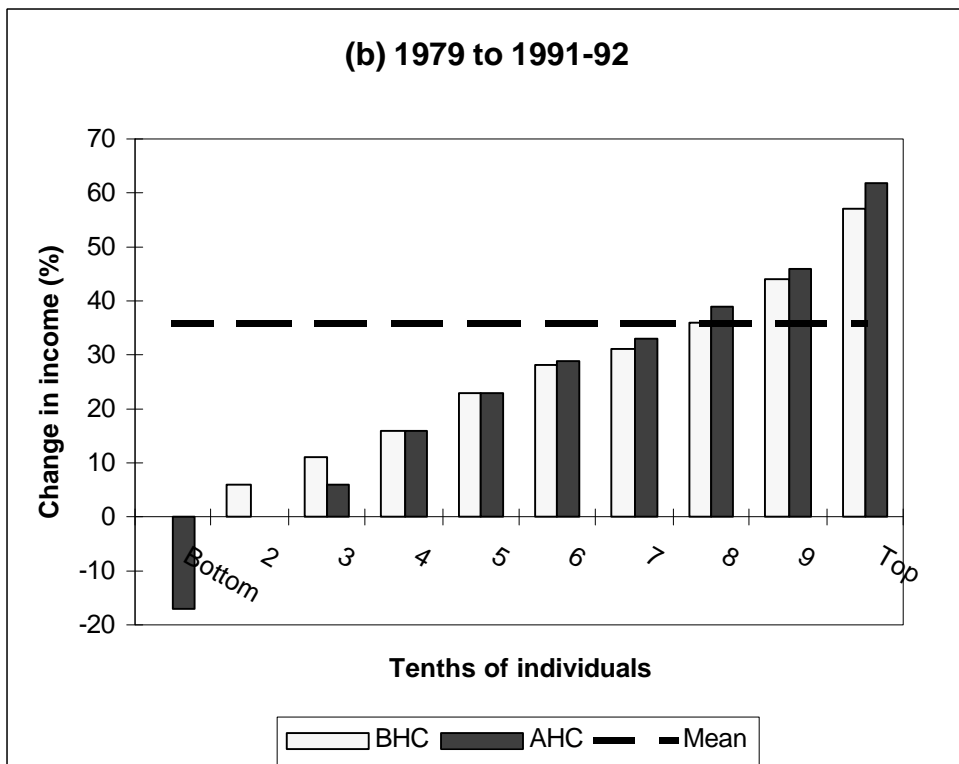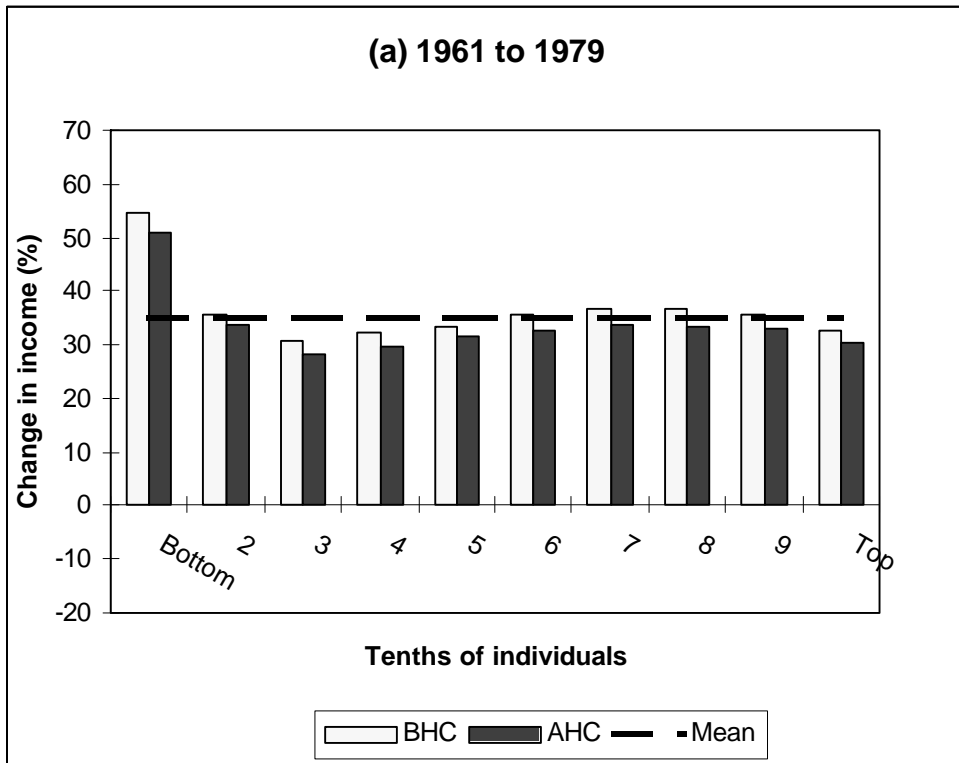
**Note:** BHC is before housing costs; AHC is after housing costs.
**Source:** Goodman and Webb (1994); DSS (1994).

# 1. Are the low paid catching up?

How well the data match this vision is discussed further below, as is evidence on whether the lottery drum is tumbling faster than it used to. However, I want to touch briefly on the second of Mr Lilley's propositions, that the low paid have been catching up. The results on which this assertion is based are illustrated in Table 1. This is drawn from the analysis of the Lifetime Labour Market Database by Nicholls, Ball and Marland (1997). The database consists of the earnings in fifteen successive years of those aged 25-44 at the start of the period (to avoid the effects of periods in full-time education and of retirement). The table compares the growth in earnings between 1978-79 and 1992-93 of those with earnings in both years, arranged by initial earnings quintile groups. It shows that those who started in the bottom fifth had the fastest growth of incomes, 42 per cent, while the other groups had increases of between 28 and 33 per cent. At first sight, this might seem to contradict, for instance, Gosling *et al*'s (1994) analysis of hourly male wages from the Family Expenditure Survey, showing that between 1978 and 1992, the bottom decile (the cut-off for the bottom tenth) hardly changed in real terms, while the top decile grew by 50 per cent, or similar findings of widening wage dispersion from the New Earnings Survey (Hills, 1995, Figure 24).

### Table 1: Changes in Median Earnings by 1978-79 Earnings Quintile Group

| All aged 25-44 | Median earnings £ p.a. | | |
|---|---|---|---|
| 1978-79 earnings group (fifths) | 1978-79 (Sept 1995 prices) | 1992-93 (Sept 1995 prices) | % change (Real) |
| 1 (lowest) | 9300 | 13200 | 42 |
| 2 | 11900 | 15700 | 32 |
| 3 | 13900 | 17800 | 28 |
| 4 | 16200 | 21000 | 30 |
| 5 (highest) | 20900 | 27900 | 33 |

**Note:** Median earnings in 1992-93 are calculated for those who were in the relevant quintile group in 1978-79 and were in class 1 employment in 1992-93.
**Source:** Nicholls, Ball and Marland (1997), Table 5.

It is not that there is anything wrong with the LLMDB figures in themselves, but the interpretation that they imply that the lowest paid are "catching up" in any meaningful way is surprising. There are three problems. First, the data only relate to those with earnings in both years. But a substantial proportion of the lowest paid in the first year do not have earnings in the final year. For instance, of those aged 25 to 34 at the start, 23 per cent of the original lowest paid fifth end up in the bottom fifth. However, 28 per cent of them end up in the "credits" category, for instance being unemployed. Looking at the older, 35 to 44 year-old, group, 41 per cent of the lowest paid fifth end up in the "credits" category. The 42 per cent increase in earnings for those ending up in work leaves out those at the bottom who drop out altogether.

Second, there is a problem resulting from both measurement error and short-term variability in earnings. Results of the kind shown in Table 1 are vulnerable to

the "regression fallacy" (Friedman, 1992). Where incomes are either subject to measurement error or have a transitory component, division by *starting* income (rather than, say, average income over the period) biases the results. The individual observations initially found at the bottom will disproportionately tend to be those with negative measurement errors or negative transitory components of income. This produces more apparent convergence in later observations than there is in the true underlying earnings relativities (see Atkinson *et al.*, 1983, Figure 5.2).

Third, crucially, there is an important age effect. This is shown in Figure 2, drawn from the same analysis of the LLMBD. The panels show the way in which earnings tend to rise with age, reaching a relative maximum when workers are in their early forties, and then tend to decline. Given the particular age group in the LLMBD, the lowest paid at the start will tend to have been the youngest, and this cohort will have reached its relative peak of earnings at the end of the period. By contrast, the highest paid group at the start will have included many of the older workers in their forties, and their earnings will have tended to decline in relative terms as a result of the age effect.

**Figure 2: Median Earnings by Age, 1978-79 to 1992-93**
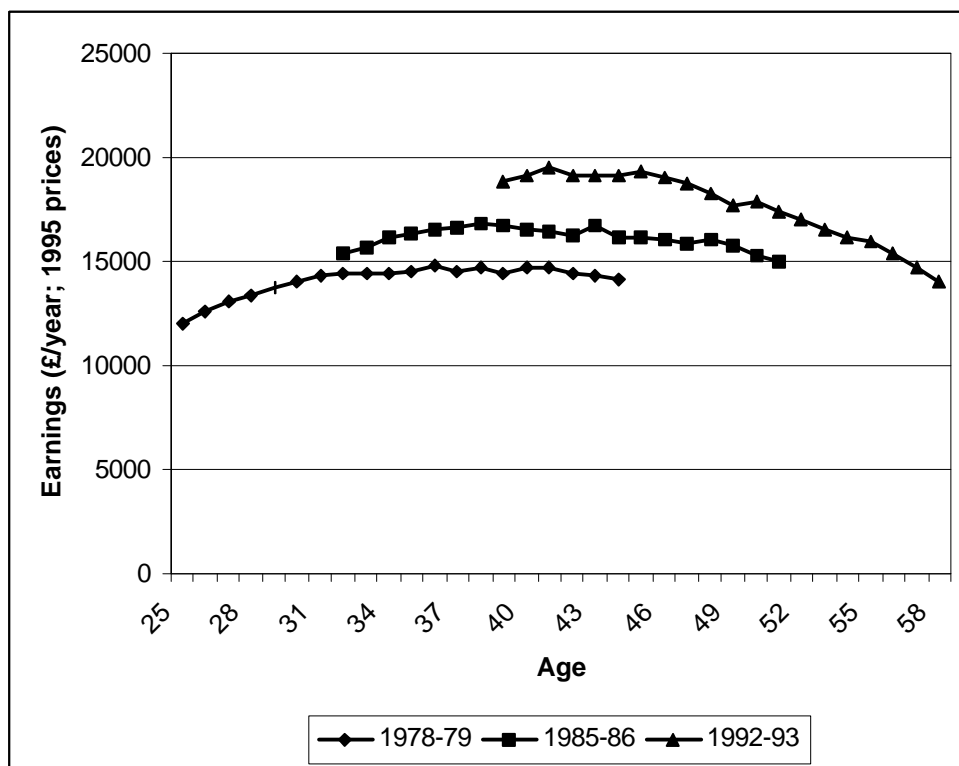


**Source:** Ball and Marland (1996).

This is, of course, important and *does* suggest that some low incomes are a life-cycle phenomenon which people will "grow out of". Of course, other low incomes are also a life-cycle phenomenon, for instance, declining incomes for the elderly, and these will *not* be grown out of. Rowntree (1902) told us about this nearly one hundred years ago, but it is still useful to be reminded of it. However, using this

phenomenon to imply that the low paid in general are in some sense catching up on the rest of us – so that low pay is not a problem – is a misuse of the data.

## 2.     How much mobility is there?

The most straightforward way of looking at mobility is perhaps a *transition matrix* showing what percentage of, say, the poorest tenth end up in each income group a year later. If there was complete immobility, all the positive entries would be in the leading diagonal and would equal 100. By contrast, if movements from year to year are random – as in the lottery model – then all of the entries in a ten by ten matrix will equal 10. The less mobility there is, the greater the numbers on the leading diagonal will be. Where actual results fall between the extreme cases gives an idea of how much mobility there is. Whether you think it represents "a lot" or "a little" depends to some extent on prior expectations.

For instance, Table 2 shows Jarvis and Jenkins' (1997a) results comparing the income group of individuals between the first and second waves of BHPS. 36 per cent of the sample are on the leading diagonal (in bold), compared to 10 per cent in the random model or 100 per cent with complete immobility. 71 per cent are on the leading diagonal or the two neighbouring diagonals. In other words, nearly three-quarters of the sample are either in the same income group or a neighbouring one a year later. In the random model only 28 per cent would be in this position. As Jarvis and Jenkins (1997b) show more generally, while there is considerable income mobility, most of it is short-range.

**Table 2: Transitions between 1991 and 1992 Income Groups**

| Income Decile Group, Wave 1 | Income Decile Group, Wave 2 (% of initial group) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | All |
| 1 | **46** | 21 | 15 | 5 | 4 | 2 | 3 | 1 | 0 | 2 | 100 |
| 2 | 23 | **39** | 20 | 11 | 4 | 1 | 1 | 1 | 0 | 1 | 100 |
| 3 | 12 | 19 | **28** | 22 | 8 | 3 | 3 | 2 | 2 | 1 | 100 |
| 4 | 7 | 9 | 19 | **27** | 20 | 9 | 5 | 2 | 0 | 2 | 100 |
| 5 | 2 | 4 | 11 | 15 | **30** | 22 | 7 | 5 | 2 | 1 | 100 |
| 6 | 3 | 5 | 5 | 10 | 17 | **25** | 18 | 10 | 5 | 2 | 100 |
| 7 | 3 | 1 | 2 | 4 | 11 | 20 | **36** | 14 | 6 | 3 | 100 |
| 8 | 2 | 1 | 2 | 2 | 2 | 11 | 19 | **34** | 17 | 6 | 100 |
| 9 | 4 | 2 | 2 | 2 | 2 | 6 | 8 | 23 | **41** | 13 | 100 |
| 10 | 2 | 1 | 1 | 1 | 1 | 2 | 3 | 7 | 24 | **58** | 100 |
| All | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 100 |

**Notes:** Group 1 contains the poorest tenth; group 10 the richest tenth. Income = equivalent net household income (£ p.w., January 1991 prices), distributed amongst individuals.
**Source:** Jenkins and Jarvis (1997a).

In particular, for the poorest tenth only 46 per cent are also in the poorest tenth a year later. In that sense more than half of them "escape". However, 67 per cent of them remain either in the poorest or next-poorest tenth. Only a third move further than this. For the poorest fifth as a whole, 65 per cent are still there one year later and 85 per cent are either in the poorest or next-poorest fifth. Taking these figures together they suggest that around one third of low income is in some sense transient, but two-thirds is not.

Even so, repeating this process often enough could mean that the income groups will become completely mixed up. Casual readers might think that if 54 per cent of the poorest tenth leave it each year, then with repeated attrition less than 10 per cent would be left by Year 4. However, there are two problems:

- First, some people come back again, even if the process is random. In fact, low-income escapers are more likely to drop back into the poorest tenth than those who started with higher incomes.

- Second, the escape rates of those who stay at the bottom for more than one period seem to decline. Either people get stuck and find it increasingly hard to escape, or there are two different populations: "bouncers"; and "stickers".

Jarvis and Jenkins' (1997b) results for the transition between Waves 1 and 4 show that 37 per cent of the poorest tenth in Wave 1 are also in the poorest tenth in Wave 4, compared to the 9 per cent that would be expected if there was simply repeated attrition with more than half leaving each year.[16] Looking at the poorest fifth in Wave 1, 54 per cent are also in the poorest fifth in Wave 4, compared to only 23 per cent, if the attrition shown in Table 2 was repeated from wave to wave.

What Jarvis and Jenkins' results tell us is that low income is *not* a random phenomenon. Low income observations are linked. From their analysis of the first four waves of BHPS, one can plot how often different individuals (with income data for all four years) are found in the poorest fifth. Table 3 compares these findings with what one would expect from the "lottery model". It can be seen that the BHPS data are very different from those generated at random. In the BHPS 64 per cent of individual cases never enter the poorest fifth (compared to 41 per cent at random), and 14 per cent of individuals are in the poorest fifth three or four times (compared to only 2.7 per cent at random).

In terms of the proportion of low income *observations* (being in the poorest fifth in any given year), 61 per cent of these observations are accounted for by the individuals who are in the poorest fifth three or four times, compared to only 10.4 per cent in the random model. In other words, repeated low income accounts for a far greater proportion of the low income seen in cross-sections than a lottery model would suggest.

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[16]     DSS (1997) analysis of the first five waves of BHPS shows 36 per cent of the Wave 1 poorest fifth also in the poorest fifth in Wave 5 (compared to under 5 per cent in a repeated attrition model).

**Table 3: Repeated Low Income Observations: 'Lottery Model' and BHPS data**

| Number of low income (poorest fifth) observations | Lottery model (4 years) | BHPS data (Jarvis and Jenkins) |
|---|---|---|
| *(a) Percentage of individuals with each number* | | |
| None | 41 | 64 |
| 1 | 41 | 13 |
| 2 | 15 | 9 |
| 3 | 2.5 | 7 |
| 4 | 0.2 | 7 |
| *(b) Percentage of low income observations accounted for* | | |
| None | - | - |
| 1 | 51 | 17 |
| 2 | 36 | 22 |
| 3 | 9.6 | 26 |
| 4 | 0.8 | 35 |

**Source:** Own calculations and Jarvis and Jenkins (1997b), Table 1.

## 3.    Is mobility increasing?

Unfortunately, there is no equivalent of the BHPS – which started at the beginning of the 1990s – for earlier periods, with which one could compare the recent pattern of mobility to give direct evidence on whether mobility has indeed risen during the period through which cross-sectional inequality has increased. There are, however, three sources of indirect evidence.

### *(a) Earnings*
Richard Dickens (1997) of the LSE's Centre for Economic Performance has looked at *earnings* mobility, using panel data from the same source (the annual New Earnings Survey) as the DSS analysis discussed above. He constructs a mobility index for year-to-year movements in the earnings distribution (abstracting from age effects) over the period 1974-94. The results show that there has been a very clear decline in earnings mobility over the period.

However, his analysis also shows that the mobility index is correlated with inflation. This has also declined over the period. One might expect such a correlation given that the pattern of annual settlements could lead to much greater variation in people's position in the earnings distribution from observation to observation at times of rapid inflation. If one observation was just after a settlement, but the next just before the next one, the comparison might suggest a significant decline in relative earnings, even though this was about to be corrected. With the lower inflation rates of the late 1980s than in the 1970s, the effect would be smaller and this could affect the value of the index. Allowing for this, Dickens still finds that the mobility index has fallen by 22 per cent for men, and by 11 per cent of women. There is certainly no evidence of an *increase* in mobility. He reaches the overall conclusion

that, "The low paid are worse off both in terms of the relative wage they receive, *and* in terms of the opportunity to progress out of the low pay trap" (Dickens, 1997).

*(b) Benefits*

Earnings are, however, only part of the picture. Many of the poorest groups do not have earnings. In fact, *most* of the poorest depend on benefits like Income Support. If mobility at the bottom has been increasing, one might expect to see people receiving Income Support for shorter periods. Figure 3 shows the numbers of Income Support recipients who have been receiving it for over two years. In terms of absolute numbers, far more people had been receiving IS for over two years in the first half of the 1990s than in the 1970s. Overall the number of long-term recipients rose from 1.9 million in 1979 to 3.3 million in 1995.

**Figure 3: Income Support (SB) Recipients over 2 Years**
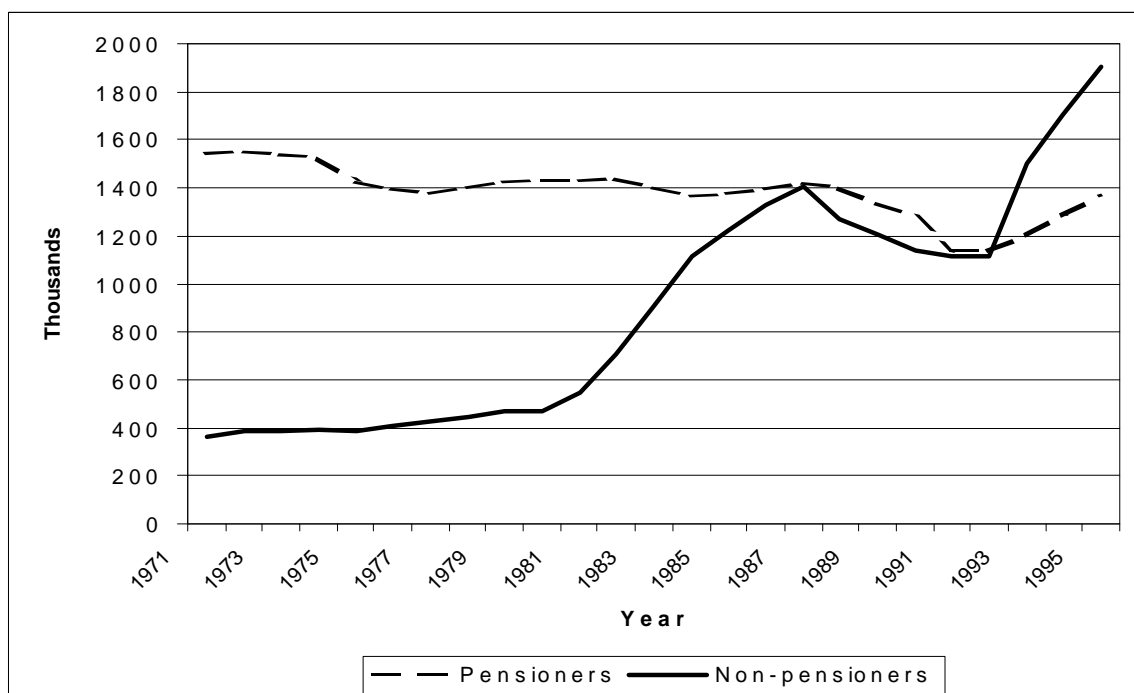


**Source:** *Social Security Statistics.*

**Figure 4: Income Support (SB) Recipients by Duration (uncompleted spells)**
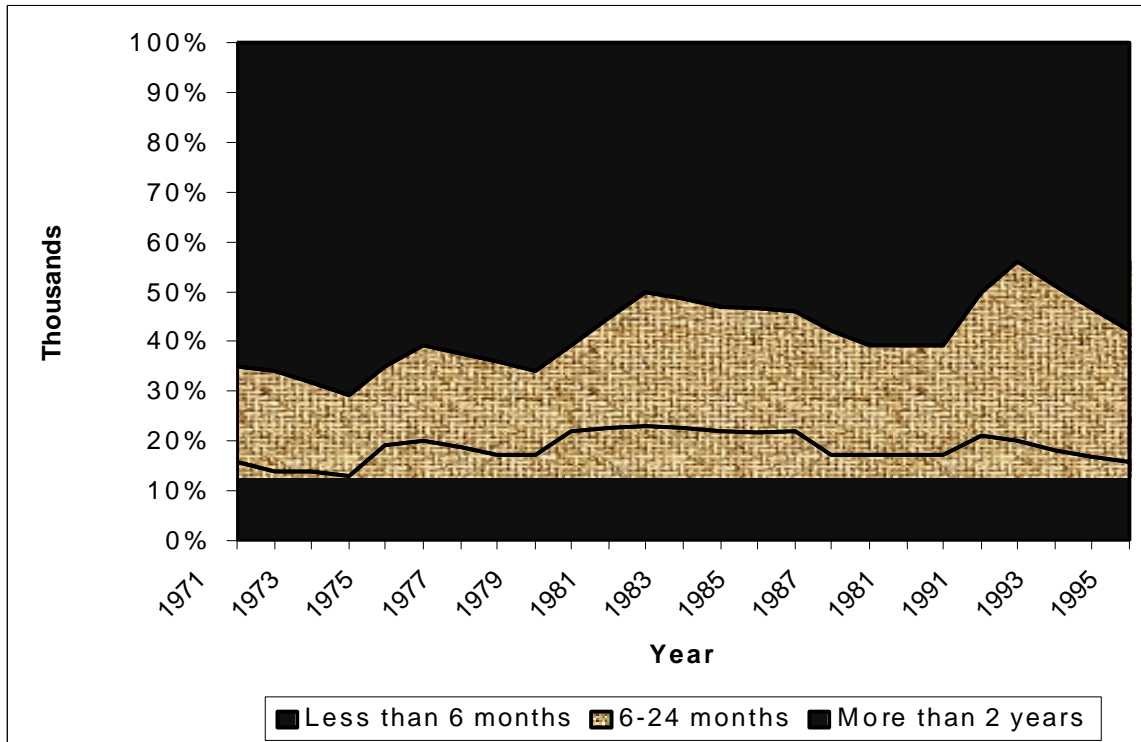


**Source:** *Social Security Statistics.*

On the other hand, there are also many more *short-term* IS recipients as well, so Figure 4 shows a small decline in long-term cases as a proportion of all IS recipients, from 65 per cent in 1971 to 58 per cent in 1995.

There are thus many more people receiving Income Support – almost by definition amongst the poorest – than before but a slight decline in the percentage who are long-term. The rise in the absolute number of non-pensioner long-term IS cases suggests falling mobility at the bottom. However, fewer pensioners are amongst the poorest now, with the opposite effect. The overall result of these effects is unclear, but again there is little evidence for a *rise* in mobility at the bottom.

### (c) Incomes

While there is no 1970s equivalent of the BHPS. one earlier panel survey does allow examination of some income transitions over the period from 1978 to 1979. This is the combination of the then Department of Health and Social Security's *Family Finances Survey* and its follow-up *Family Resources Survey* (not to be confused with the current survey of the same name). The results from these were analysed by Hancock (1985). The surveys looked at families with children only, focussing on those with "Relative Net Resources" (essentially income after housing costs as a percentage of each family's Supplementary Benefit scale rate) of under 140 per cent in the first year. These represented the poorest 15 per cent of all families with children.

The first two columns of Table 4 compare Hancock's findings – which can be expressed as the rates of mobility out of the poorest 5, 10, and 15 per cent – with Jarvis and Jenkins' (1996) findings for one year transitions out of the poorest 10 and 20 per cent between the first four waves of BHPS. The two sets of results show the importance of the size of the group from which escape is being measured: the smaller the group, the more likely is escape within a year (partly reflecting measurement error and short-term variability as discussed above). This comparison *does* suggest that mobility was greater in the early 1990s than the late 1970s, for instance with only 43 per cent of the poorest tenth escaping after a year in the earlier surveys, but between 49 and 55 per cent escaping in the later survey (depending on which waves are examined).

However, the results are not straightforwardly comparable. The earlier results are in terms of numbers of families (and then only those with children), the later ones in terms of numbers of individuals. If one counts only families with children within the BHPS, the escape rate from each group is somewhat faster. The third column shows, for instance, that the escape rate from the poorest tenth is between 52 and 60 per cent (depending on the years chosen, being faster between the earlier waves), significantly more than the 43 per cent in the earlier survey. This does suggest a rise in mobility at the bottom. Even so, the increase in mobility does not appear to be of the scale required to offset the kind of growth in cross-sectional inequality seen in Figure 1, and the results are hard to compare because mobility varies over the economic cycle (which was in a boom in the late 1970s, but in recession in the early 1990s).

**Table 4: Has Income Mobility Risen?**

| | 1978-1979 (families with dependent children, income after housing costs) | Early 1990s (all individuals, one year transitions in BHPS) | Early 1990s (families with dependent children, one year transition in BHPS) |
|---|---|---|---|
| *% leaving income group:* | Poorest 5%: 58 Poorest 10%: 43 Poorest 15%: 31 | Poorest 10%: 49-55 <br><br> Poorest 20%: 35-39 | Poorest 5%: 62-75 Poorest 10%: 52-60 Poorest 15%: 45-51 |

**Sources:**
First column is from Hancock (1985), Table 2.2 reanalysed (transitions between Family Finances Survey and Family Resources Survey in terms of Relative Net Resources, with cut-offs of 100%, 120% and 140% relative to SB scales); second column is from Jarvis and Jenkins (1996), Table 3 (transitions between first 4 waves of BHPS); third column is from reanalysis of the dataset based on BHPS derived by Jarvis and Jenkins.

## 4.    Examining trajectories

Clearly from these results, poverty and low income are not random processes, but nor are those affected by them a stagnant group. As part of the work of CASE we would like to understand why different people follow different *trajectories,* and then
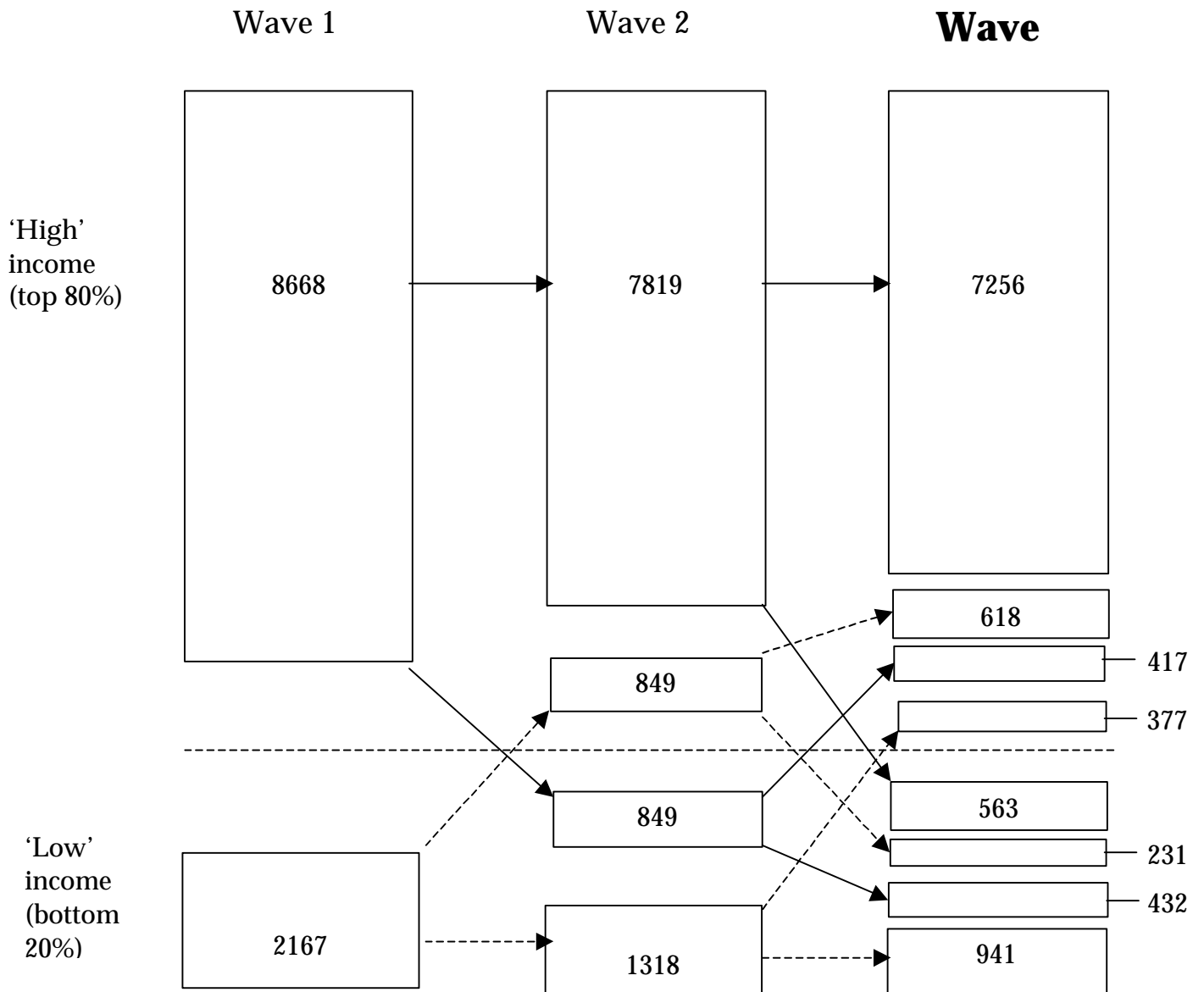
perhaps what factors or policies might help some onto a more positive trajectory. To do that we need to understand the data in a more complex way than can be derived from two-dimensional transition matrices, useful as they are:

- Are those who leave poverty *really* escaping, or do they soon drop back again?

- Do those who escape go far? (Jarvis and Jenkins, 1997a and b, suggest not.)

- How much of the movement observed is accounted for by life-cycle changes – for instance, young workers whose pay rises rapidly with experience?

- Are the movements over time chaotic, or do they follow recognisable patterns?

- Are poverty and low income observations simply one-off "blips" (maybe measurement error or short-term unemployment), aberrations in otherwise stable patterns of higher income?

- Do the observed movements reflect large changes, or might they just be "wobble", with income just changing enough to take people across some dividing line between one income group and another, but not representing any substantial change? In other words, it is important to distinguish the genuine "movers" from those who are simply "shakers".

Analysis by both the Institute for Fiscal Studies and the ESRC Research Centre on Micro-Social Change at Essex University has begun to give some information about the variety of trajectories which people follow. Figure 5 shows the pattern of movement between the first three waves of BHPS revealed by Goodman, Johnson and Webb's (1997) analysis. The figure shows how people move between "low income" (poorest 20 per cent) and "high income" (the other 80 per cent) groups. This generates eight possible trajectories, each followed by at least 2 per cent of the sample (the boxes are scaled in proportion to the numbers following each trajectory). The pattern is already becoming hard to follow, but it can be seen that those who escape from the low income group between Waves 1 and 2 have a greater propensity (more than a quarter) to drop back into it in Wave 3 than those with "high" income in the first two waves (only 7 per cent of them do so). Also, those who stay with low income in the first two waves have a lower escape rate in Wave 3 (29 per cent) than the original low income group in Wave 1 (39 per cent of them were outside it in Wave 2).

Figure 6 shows the more complex pattern of transitions between the first four waves of BHPS given by Jarvis and Jenkins (1997b). Again, this looks at movements in and out of the bottom fifth. There are now sixteen possible trajectories, so the figure separates out those starting in the bottom fifth in the lower panel from those starting outside it. Again, each trajectory is followed by at least 0.9 per cent of the sample. The picture confirms the declining escape rates for those who remain at the bottom: 39 per cent of the Wave 1 poorest escape by Wave 2, but only 21 per cent of those in the poorest fifth in all three of the first three waves are outside it in Wave 4.

**Figure 5: Trajectories in First Three Waves of BHPS (IFS analysis)**



| Wave 1 | Wave 2 | **Wave** |
|--------|--------|----------|

'High' income (top 80%)

8668 → 7819 → 7256

618

417

377

849

849

563

231

'Low' income (bottom 20%)

2167

1318

432

941

**Source:** Goodman, Johnson and Webb (1997), Figures 9.2 and 9.3.

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# Figure 6: Trajectories in First Four Waves of BHPS
## (Jarvis and Jenkins analysis)
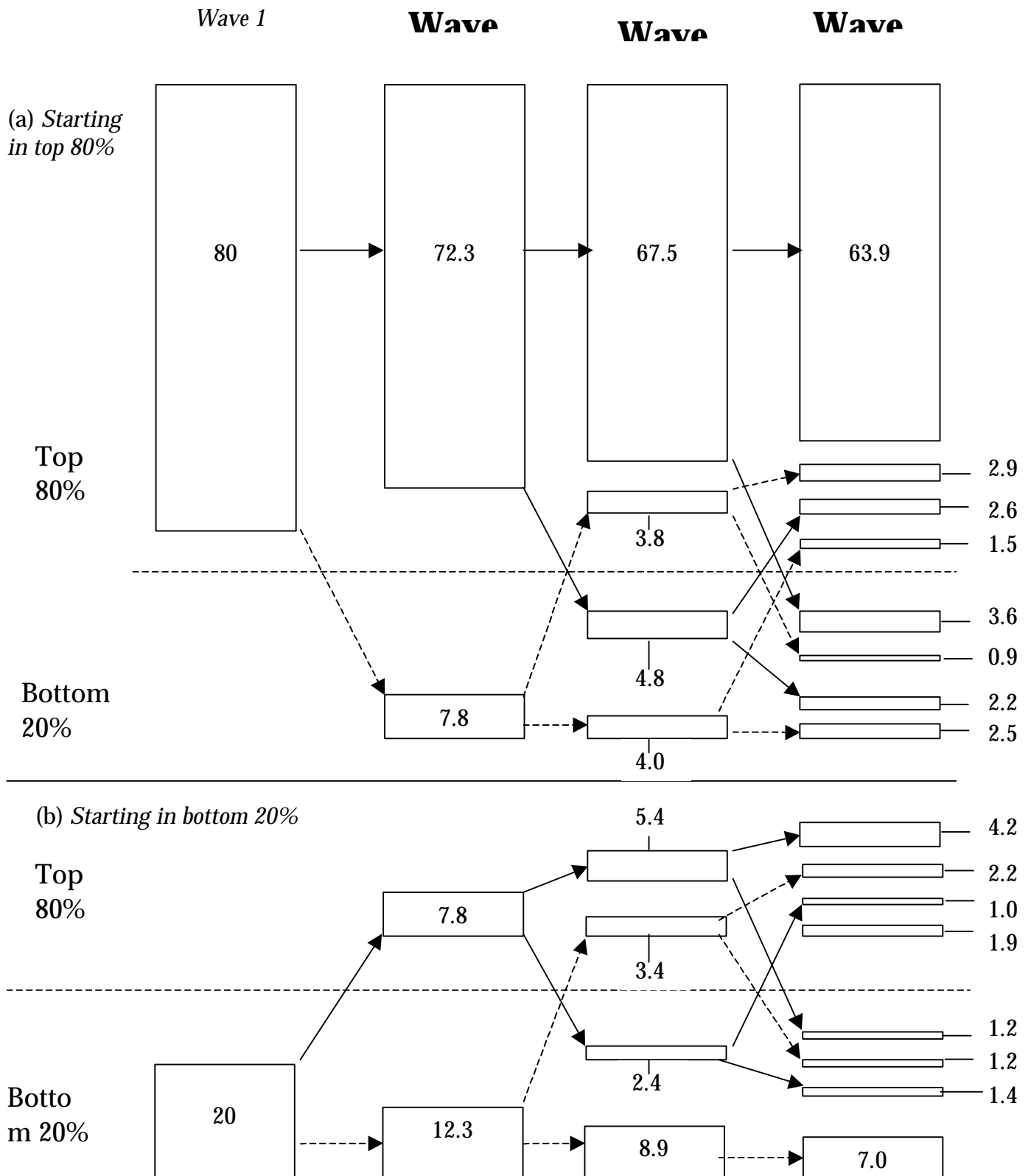


**Source:** Jarvis and Jenkins (1997b), Table 1.

Despite the complexity of the patterns shown, there are two limitations to this kind of analysis as a way of capturing the movement which is occurring. First, the "movements" tell us simply that people have moved across a particular threshold. We have no way of telling whether these are large or small movements. Second, the diagrams give little impression of what is happening within the upper part of the distribution, which may also be of interest – if only so that one could tell whether patterns of mobility lower down the distribution were similar to those higher up.

To try to get round this problem, Karen Gardiner from CASE and I reanalysed the dataset of equivalised incomes over four waves of BHPS created by Jarvis and Jenkins. The observations are divided into ten groups in each wave. In the first wave, these are simply decile groups, with a tenth of the sample in each group. In subsequent waves the boundaries are taken from the initial deciles (cut-offs), increased in line with *average* income growth. If the overall shape of the distribution remained unchanged, there would still be a tenth of the sample in each group in later waves. On the other hand, if, for instance, those with low incomes had above average income growth, relative poverty would fall and so would the number in the bottom groups. This seems preferable in principle to simply taking actual decile groups in each subsequent wave, although it does not in fact make much difference over this particular period.[17] An individual could therefore be in any of ten groups in each of four waves, giving a total of 10,000 possible combinations of trajectories. We grouped these possibilities into five broad "trajectory types", as illustrated in Figure 7:

- 1. **Flat** trajectories, where the individual crosses no more than one boundary over the four waves, in other words spending the four periods in the same income group or one of its neighbours. This means that a small "wobble" would not prevent someone's trajectory being allocated to this group. Within this category, individuals are classified as *poor flat* if all observations are within the bottom two groups, or if at least two of the observations are within them. Others are classified as *non-poor flat*.

- 2. **Rising** trajectories, where the individual crosses more than one boundary, and all movements from wave to wave are either upwards or flat. Those starting in the bottom two groups would be *rising out of poverty*, as opposed to *non-poor risers*.

- 3. **Falling** trajectories, where more than one boundary is crossed, and all movements are downwards or flat. Those ending in the bottom two groups would be *falling into poverty*, as opposed to *non-poor fallers*.

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[17]     An alternative would be to take the deciles of the initial wave of data, and adjust them for inflation only. This would give a measure of mobility against absolute income standards, as opposed to the movements against a relative income standard shown here.

**Figure 7: Trajectory-type Classifications**

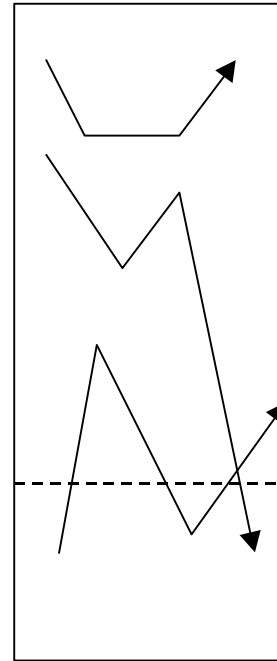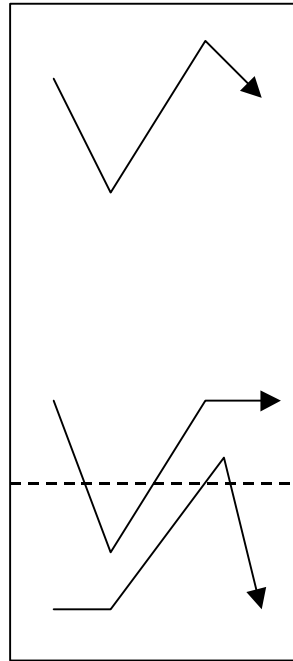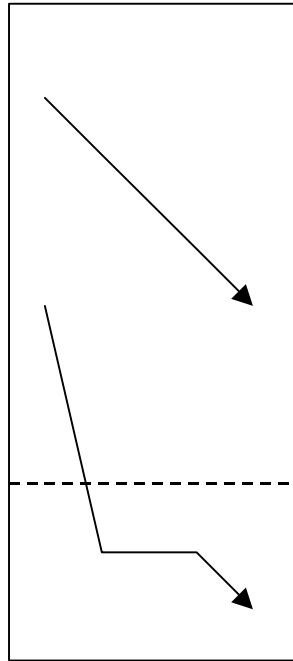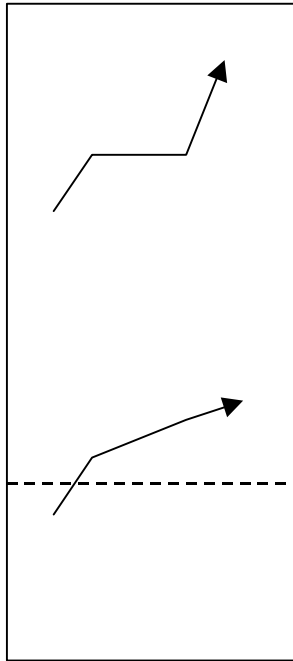| | 2. *Rising* | 3. *Falling* | 4. *Blips* | 5. *Other* |
|---|---|---|---|---|
| ng no han undary | Crossing 2+ boundaries (upwards or flat between waves) | Crossing 2+ boundaries (downwards or flat between waves) | 'Flat' except one wave | Other cases |

- 4. **"Blips"**, where the basic trajectory is flat (within two neighbouring groups for three of the periods), but one observation is further away (excluding those already defined as "rising" or "falling"). This group divides into three: *blips out of poverty* (where the flat part of the trajectory is in the bottom two groups, or at least is so for two out of the three observations), *blips into poverty* (where the "blip" observation is in one of the bottom two groups and the others are higher), and the remaining cases of *non-poor blips.*
- 5. **Other** trajectories, covering all possibilities not included in the four types described above. These sub-divide into trajectories with *repeated poverty* (two observations in the bottom two groups), *one-off poverty* (one observation in the bottom two groups), and *non-poor* cases.

It should immediately be recognised that even at random, a proportion of cases will fall into the first four trajectory groups. If there are enough cases, some of them will apparently be following a consistent pattern, even if this has only been generated by something like the lottery model.

Table 5 therefore compares the results which we obtain from the four wave BHPS data with the pattern which would be seen in a hypothetical dataset containing 10,000 cases, each representing one of the possible trajectories. Within such a dataset, 70 per cent of cases would fall into one of the chaotic "other" categories.

One might take low income observations which result from the "rising out of poverty", "blips into poverty", and "other one-off poverty" trajectory types as being less problematic than the others – they would be consistent with either transitory low income or low income which the individual had clearly escaped from by the fourth wave. Other low income observations are either from trajectories where the individual is consistently poor, or only blips temporarily out of low income, or where low income is repeated within a more chaotic pattern. Within the hypothetical dataset, more than half of low income observations would be generated by the less problematic trajectories.

The third and fourth columns of the table show the patterns we actually found in the data. Rather than 70 per cent of cases (and 71 per cent of poverty observations) coming from the "other" groups, these accounted for only 18 per cent of cases (and 19 per cent of poverty observations). The four other categories capture the majority – four-fifths - of what is going: the income movements are not as chaotic as might have been thought. Overall, nearly two-thirds (63 per cent) of the BHPS cases are within the "flat" or "blip" categories. The trajectories are, if anything, flatter than one might have expected from single year transitions of the kind seen in Table 2.

**Table 5: Four Wave Trajectories by Type**

| | Hypothetical dataset (10,000 possible trajectories) | | First four waves of BHPS | |
|---|---|---|---|---|
| | % of cases | % of low income observations | % of cases | % of low income observations |

| Trajectory type | | | | | |
|---|---|---|---|---|---|
| 1. *Flat:* | Poor | 0.3 | 1.1 | 9.2 | 43.0 |
| | Non-poor | 1.1 | 0.1 | 30.6 | 1.0 |
| 2. *Rising:* | Out of poverty | 3.8 | 6.8 | 4.0 | 8.8 |
| | Non-poor | 3.0 | - | 6.4 | - |
| 3. *Falling:* | Into poverty | 3.8 | 6.8 | 3.3 | 8.5 |
| | Non-poor | 3.0 | - | 5.3 | - |
| 4. *Blips:* | Out of poverty | 2.6 | 8.9 | 3.7 | 13.3 |
| | Into poverty | 3.8 | 4.9 | 4.6 | 6.7 |
| | Non-poor | 8.6 | - | 15.2 | - |
| 5. *Other:* | Repeated poverty | 12.4 | 30.9 | 4.4 | 11.2 |
| | One-off poverty | 32.4 | 40.6 | 5.9 | 7.6 |
| | Non-poor | 25.2 | - | 7.6 | - |
| *By low income observations* | | | | | |
| None | | 41.0 | - | 64.1 | - |
| One | | 41.0 | 51.2 | 13.7 | 17.7 |
| Two | | 15.4 | 38.4 | 9.2 | 23.6 |
| Three | | 2.6 | 9.6 | 6.0 | 23.1 |
| Four | | 0.2 | 0.8 | 6.9 | 35.6 |

**Note:** 'Low income' observations are below the cut-off for the poorest fifth in Wave 1, uprated with average income growth in later waves.

Of the poverty observations in the actual dataset, 43 per cent come from the "poor flat" group, 13 per cent from the "blip out of poverty" group, 9 per cent from the "falling into poverty" group, and 11 per cent from other cases with repeated poverty. Less than a quarter of poverty observations come from the less problematic trajectories. Those rising out of poverty account for 9 per cent of the observations, those "blipping into poverty" for only 7 per cent, and other one-off cases for 8 per cent.

In some sense, therefore, 77 per cent of observed poverty still represents a "problem", despite the dynamics. At the same time, any cross-section will show some people whose general trajectories are, in fact, unfavourable as not being in poverty at that moment. For instance, in the BHPS dataset in any single year 1 per cent of people would be in the "out" part of a "blip out of poverty" trajectory, and 2 per cent would be in one of the "out" years of a trajectory involving repeated poverty. This adds a tenth to the numbers affected by low income. Allowing for these cases, the size of the "poverty problem" is therefore still 80 to 90 per cent of the amount observed at any one time.

## 5.     What next?

This paper has only scratched the surface of the information which analysis of income mobility could reveal. As well as refining the trajectory types described above, it would be very useful to investigate the characteristics of those found in the different groups. For instance, how do they vary in terms of age, education, family circumstances, or the kind of neighbourhood in which they live? What events are associated with people taking different trajectories? We already know a great deal about the characteristics of those with low incomes at any one time, but it would help both understanding and the development of policy if we were able to differentiate between those who start in similar circumstances, but whose lives go in different directions. In the meantime, the income mobility observed in Britain in the early 1990s does not mean that should stop worrying about poverty.

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# Chapter Four: Childhood Disadvantage and Intergenerational Transmissions of Economic Status

## Stephen Machin[18]

### Key Points:

- On the basis of study of quite large samples of parents and children, the extent of intergenerational mobility is limited in terms of earnings and education.
- There is evidence of an asymmetry such that upward mobility from the bottom of the earnings distribution is more likely than downward mobility from the top.
- The cognitive achievement of children in their early years is significantly related to the labour market earnings of their parents.
- Childhood disadvantages (specific to the child and to their parents) are an important factor in maintaining immobility of economic status across generations.

## I.    Introduction

Many people are interested in the extent to which inequalities persist across generations. It is straightforward to establish why one should care about the extent of intergenerational transmission. For an offspring to be in an advantageous or disadvantageous position simply because of their parents' achievement has a distinct feel of unfairness to it, particularly from an equality of opportunity perspective. Many individuals across the political spectrum would champion the cause of equality of opportunity and this is why accurately measuring the extent of intergenerational transmission is important. In the same way pinning down the transmission mechanisms that underlie intergenerational transmissions is important, especially those associated with childhood disadvantage.

## II.    Recent Estimates of the Extent of Intergenerational Transmission of Economic Status

Economists have typically considered intergenerational mobility in terms of earnings, income or education in two, rather simple, ways. The first uses a tool commonly utilised in economics, regression analysis, whilst the second considers movements up or down a distribution of interest. I therefore begin by summarising work on intergenerational earnings mobility that uses these approaches before turning to consider intergenerational transmissions of other measures of economic status.

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[18]    This article draws heavily on material from Machin (1997) and Gregg and Machin (1997).

### *The Regression Based Approach*

The regression based approach typically specifies an earnings equation for members of family i of the form

$$y_i^{child} = \alpha + \beta \, y_i^{parent} + u_i \tag{1}$$

where y is earnings and u an error term.

In terms of equation (1) one can assess the extent of intergenerational mobility (or immobility) from estimates of $\beta$: $\beta = 0$ implies complete mobility as child earnings are independent of those of their parents; $\beta = 1$ implies complete immobility as child earnings are fully determined by the parental earnings.

Most early studies in economics adopted this approach. The survey of this early work by Becker and Tomes (1986) states that $\beta$ was generally estimated at around .2, leading them to conclude that "aside from families victimized by discrimination, regression to the mean in earnings in the United States and other rich countries appears to be rapid" (Becker and Tomes, 1986: S32). However, more recent estimates have strongly challenged this view and pointed out serious methodological problems with the early work (see Solon, 1992; Zimmerman, 1992; and Dearden, Machin and Reed, 1997, for more details on these problems). The following Table summarises some of the more recent estimates, all of which show estimates of $\beta$ that tend to lie some way above the .2 "consensus" estimates described by Becker and Tomes. They all seem to imply a significant degree of immobility that violates the equality of opportunity characteristic of complete intergenerational mobility. For example, the 'typical' father-son $\beta$ estimate in the Dearden, Machin and Reed (1997) study suggests that a son from a family (say family 1) with father's earnings twice that of a father in another family (say family 2) earns 40-60% more than the son from family 2.

| Author | Data | *Estimate of b* |
|---|---|---|
| Becker and Tomes (1986) | "Consensus" estimates from early (mainly US) studies | About .200 |
| Atkinson (1981) and Atkinson *et al.* (1983) | UK data on 307 father-son pairs with sons subsequently traced (in the late 1970s) from 1950 Rowntree survey in York | .36 - .43 |
| Solon (1992) | US panel data from the Panel Survey of Income Dynamics on about 300 father-son pairs | .39 - .53 |
| Zimmerman (1992) | US panel data from the National Longitudinal Survey of Youth on 876 father-son pairs (but most estimates based on less than 300) | .25 - .54 |
| Dearden, Machin and Reed (1997) | UK panel data from the National Child Development Survey (a cohort of all children born in a week of March 1958) using earnings data for cohort members in 1991 and parents in 1974 - 1565 father-son pairs, 747 father-daughter pairs | Sons: .4-.6<br>Daughters: .5-.7 |

### *The Transition Matrix Approach*

Of course the single number $\beta$ estimates given above are simply average estimates of the degree of intergenerational mobility. There may be important variations around this average. So the second commonly used approach for ascertaining the extent of intergenerational mobility uses transition matrices which split the parental distribution of economic status into a certain number of equal sized intervals (maybe quartiles, quintiles, or deciles) and then examines how many of their offspring remain in the same interval or move elsewhere. An example, in terms of quartile transmissions (where one splits the parental earnings distribution into four equal parts) based on data taken from the Dearden, Machin and Reed (1997) study is given below:

| 1565 Father-Son Pairs | Son's Quartile | | | |
|---|---|---|---|---|
| **Father's Quartile** | **Bottom** | **2nd** | **3rd** | **Top** |
| Bottom | .338 (.024) | .297 (.023) | .238 (.022) | .128 (.017) |
| 2nd | .294 (.023) | .312 (.023) | .253 (.022) | .140 (.018) |
| 3rd | .304 (.023) | .243 (.022) | .243 (.022) | .209 (.021) |
| Top | .064 (.012) | .148 (.018) | .266 (.022) | .522 (.025) |

| 747 Father-Daughter Pairs | Daughter's Quartile | | | |
|---|---|---|---|---|
| **Father's Quartile** | **Bottom** | **2nd** | **3rd** | **Top** |
| Bottom | .366 (.035) | .321 (.034) | .193 (.029) | .118 (.024) |
| 2nd | .274 (.033) | .305 (.034) | .262 (.032) | .160 (.027) |
| 3rd | .231 (.031) | .219 (.030) | .305 (.034) | .246 (.032) |
| Top | .129 (.025) | .155 (.027) | .241 (.031) | .476 (.037) |

The Table shows, from looking at the leading diagonal, that the biggest proportion of sons who remain in the same quartile as their fathers is in the top (i.e. highest earning) quartile. This is very marked with 52 percent of sons remaining in the top earnings quartile if their fathers were in that top quartile (for daughters the analogous percentage is 48 percent). The Table demonstrates an important asymmetry in mobility with upward mobility from the bottom of the distribution being more likely than downward mobility from the top.

### *Intergenerational Transmissions of Unemployment*

Whilst most work on intergenerational mobility has looked at transmission in terms of earnings, income or educational attainment some work has looked at the unemployment status of sons and how it relates to unemployment experiences of their fathers. In their analysis of National Child Development Survey (NCDS) data Johnson and Reed (1996) report that 9.9 percent of sons had been unemployed for a year or more in the decade preceding 1991 (when they were aged 33). However, 19.1

percent of sons whose fathers were unemployed at (child) age 16 experienced at least a year of unemployment between 1981 and 1991.

***Intergenerational Transmissions of Early Parenthood***

Again using NCDS data Kiernan (1995) considers intergenerational transmission of teenage motherhood by looking at the extent to which young parents also had young parents themselves. A strong pattern is found with 26 percent of the cohort's teenage mothers also having a teenage mother, as compared to 10 percent of the cohort's mothers who gave birth at the age of 20 or after.

***Summary***

The research discussed in this section shows that an important part of an individual's economic and social status is shaped by the economic and social status of their parents. In the next section I go on to discuss work that tries to get into the 'black box' of transmission to see what factors may underpin the strong intergenerational correlations depicted in the studies discussed above.

## III. Childhood Disadvantage as a Transmission Mechanism

The principal impact of parents on their children is shaped in the childhood years of growing up. The most natural question to ask is then: how important is childhood advantage or disadvantage as a transmission mechanism underpinning intergenerational mobility and how do they impinge on success or failure in economic and social terms in adulthood?

***Ability in the Early Childhood Years and Parental Economic Status***

In its strongest form (abstracting away from debates about genetic transmission) perfect mobility ought to suggest little relation between child ability and economic status. If a relation is uncovered one could think of this as being part of the transmission mechanism underpinning transmissions of economic status across generations. The following regression (taken from Machin, 1997) considers this question by relating the test scores of NCDS cohort members' sons and daughters (aged 6-8) to parental earnings (in 1991)[19]:

619 (Maths) / 617 (Reading) Child and Cohort Member Pairs
(standard errors in brackets)

Child's Maths Test Score Percentile = 6.932 ln(Parent's Earnings)
(1.939)

Child's Reading Test Score Percentile = 4.720 ln(Parent's Earnings)
(1.903)

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[19]  The regressions are based on children aged 6 years 0 months to 8 years 11 months at the time of the test and include a constant and controls for sex of the child and the cohort member parent.

There is a strong relationship. A 50 percent higher level of log(parental earnings) suggests that a child would be around 3.5 percentile points higher in the age 6-8 maths test score distribution and 2.5 percentile points higher in the reading score distribution. To the extent that these test scores are positively correlated with subsequent economic success (and quite a lot of evidence says they are), then growing up in a family where father's labour market earnings are high seems to be an important stepping stone to having higher earnings later in life.

### *Childhood Disadvantage and Success or Failure in the Labour Market*

So, how do early life factors like childhood poverty or social disadvantage influence individuals' achievements in adulthood? In particular, how does growing up in a disadvantaged environment influence subsequent success or failure in the labour market? Gregg and Machin (1997) have considered this question in some detail by analysing data from the National Child Development Survey (NCDS).

To understand how disadvantage transmits itself into adult life it is necessary to separate out the effects of childhood poverty from parental factors or innate child ability. Gregg and Machin do this by using the extremely rich NCDS data source[20] to model economic and social outcomes in the earlier years of adulthood as a function of children's development through environmental, parental and individual specific factors. By following people through childhood and into the adult labour market this enables one to focus on the effects of factors like financial distress in the childhood years or measures of social dislocation (e.g. contact with the police or truancy) after controlling for the early age ability of children (via test scores at age 7) and other factors like parental education. The Gregg and Machin analysis of NCDS has uncovered important patterns that demonstrate a strong effect of childhood disadvantage on adult economic and social outcomes even once one nets out these factors.

At age 16 the main results are as follows:

- staying on at school, better school attendance and reduced contact with the police are more likely for children with higher age 7 maths and reading ability, for children with more educated parents and for children who grew up in families that did not face financial difficulties in the years in which children grew up;

- the impact of family financial difficulties is more important than family structure (whether the father was ever unemployed, or living in a lone mother family);

- if children were ever placed in care during their childhood this massively increased their chances of contact with the police.

In terms of acting as a transmission mechanism underpinning intergenerational mobility, probably the key question concerns the extent to which these factors impact on later economic and social success or failure. To investigate this, Gregg and

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[20]     The NCDS data covers all individuals born in a week of March 1958 and the cohort members (and in some years their parents and schools) have so far been interviewed at ages 7, 16, 23 and 33 in 1965, 1974, 1981 and 1991.

Machin considered the relationship between economic and social outcomes at ages 23 and 33 and an array of measures of disadvantage in the childhood years.

Not unsurprisingly the educational attainment of the disadvantaged is considerably lower: for example, only 1 percent of boys who had school attendance less than 75% or who had been in contact with the police went on to get a degree (or higher) by age 23; this compares to 13 percent of the other NCDS boys. Figures for girls are 1 percent and 11 percent respectively. In terms of family disadvantage only 4 percent of boys (3 percent of girls) who were ever placed in care or lived in a family facing financial difficulties went on to degree level as compared to 13 percent of boys (11 percent of girls) who were not in such a situation in their childhood years.

At the other end of the education spectrum the disadvantaged are heavily over-represented in the part of the population that have no educational qualifications. For example, 53 percent of boys (62 percent of girls) with school attendance less than 75% or who had been in contact with the police left school with no educational qualifications. This compares to 19 percent of boys and 25 percent of girls with better attendance and no police contact.

Because of these striking differences in educational attainment the research then considers whether the effect of disadvantage works primarily through the fact that disadvantaged children have lower education levels or whether any effect still persists once one nets out the effect of education differences between those who are stylised as the disadvantaged and the other children in the sample.

The age 23 economic and social outcomes looked at were: hourly wages; months spent in unemployment since age 16; whether in a job at age 23; whether boys experienced any spell in prison or borstal since age 16; whether girls became lone parents by 23. The age 33 outcomes looked at are wages and job status at 33.

The results demonstrate a strong link between poor economic and social outcomes at 23 or 33 and childhood disadvantage. Whilst part of the link is explained by the inferior education of the disadvantaged this is clearly not the whole story: even once one nets out the effect of education differences the individuals characterised by disadvantage have significantly worse wages, unemployment time, employment and worse social outcomes (i.e. more likelihood of a prison spell for young men and of lone parenthood for young women). The key factors associated with disadvantage are both family based (growing up in a family facing financial difficulties, ever being placed in care in the childhood years) and child specific (low school attendance, contact with the police).

All in all these results are strong evidence that childhood social disadvantage factors have an important impact on age 23 and 33 outcomes. Even after netting out a variety of pre-labour market factors and educational attainment the less advantaged individuals in the NCDS cohort are much less likely to be employed, to have experienced longer unemployment spells and/or detrimental social experiences. Indices of childhood disadvantage like family poverty, family dislocations resulting in children being placed in care, poor school attendance and contact with the police seem to be important factors that underpin the transmission of economic and social status across generations.

## IV. Conclusions

Accurately measuring the extent of intergenerational mobility and understanding the factors that underpin such mobility or immobility is important, especially when one bears in mind the rapid expansion in inequality that has occurred in Britain in the last couple of decades. The policy implications of this rise become all the more important for future generations if there is not much mobility in economic status across generations. The results reported here suggest that, on the basis of study of quite large samples of parents and children, the extent of mobility is limited in terms of earnings and education. Regression estimates point to an intergenerational mobility parameter ( ) of the order of .40 to .60 for men and .45 to .70 for women. Furthermore, from considering transition matrices, there is strong evidence of an asymmetry such that upward mobility from the bottom of the earnings distribution is more likely than downward mobility from the top. In the same vein the early age cognitive achievement of children is significantly related to the labour market earnings of their parents and to their parents' maths and reading abilities. All this points to an important degree of persistence in economic success or failure across generations, central to which is the ability of individuals to achieve higher earnings in the labour market.

Furthermore, factors associated with growing up seem to represent an important transmission mechanism that maintains this persistence of economic success or failure across generations. Research based on the unique cohort databases available in the UK shows that disadvantage in the childhood years has effects long into the adult life and there are often detrimental effects that spillover to the next generation. Having parents with low income or earnings during the years of growing up is a strong disadvantage in terms of labour market success and can contribute importantly to factors like adult joblessness and participation in crime. The fact that these childhood disadvantages underpin the persistence of economic and social stature across generations needs to be borne in mind by policymakers when designing policies that affect labour market outcomes in the longer term.

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# Chapter Five: Labour Market Flexibility And Skills Acquisition: Is There A Trade-Off?

## Wiji Arulampalam and Alison L Booth[21]

## Abstract

This paper explores the nexus between work-related skills acquisition and labour market "flexibility" (which we proxy by contract type, part-time employment, and lack of union coverage), using the first five waves of the British Household Panel Survey (BHPS) conducted over the period 1991-1995. Our results show that workers on short-term employment contracts, or who are not covered by a union collective agreement, are significantly less likely to be involved in any work-related training to improve or increase their skills in the current job. A man on a temporary or fixed term contract is 19% less likely to receive training in his current job than a man on a permanent contract, while a comparable woman is nearly 14% less likely. A man in a non-union job is 9% less likely to receive training than an otherwise identical man in a union-covered job, while a woman a non-union job is 11% less likely to receive training than her counterpart in a union-covered job. In addition, we find that part-time male workers are 8% less likely to receive work-related training than full-time men, while women in part-time work are 10% less likely to receive work-related training than their full-time counterparts. Our findings suggest that there is a trade-off between expanding the more marginal forms of employment, and expanding the proportion of the workforce getting work-related training.

## I.     Introduction

There has been growing emphasis in Britain on the need to increase flexibility in the labour market and to facilitate work-related skills acquisition in order to allow Britain to meet the competitive challenges of the new millennium (see for example Beatson, 1995; OECD, 1995). However, the term "labour market flexibility" has been interpreted in different ways. To some, a flexible labour market appears to be one in which the returns to entrepreneurs and the start-up and demise of firms are unconstrained by institutional rigidities such as employment restriction legislation and trade union activity. In such a world, entrepreneurs can hire workers as readily and for as long as they wish, without facing costs in adjusting either hours or workers at the margin. To others, a flexible labour market means one in which

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workers are able to adapt to changing demands by firms for skills by training and retraining as necessary over their working lives.

How compatible is the goal of promoting flexibility (in the sense of removing institutional rigidities) with the aim of increasing workers' flexibility through work-related skills acquisition? In particular, new forms of flexible employment maybe detrimental to long-run economic performance if they are associated with the under-valuation of training investment through the shortening of agents' time horizons. According to the human capital approach, agents are more likely to invest in the acquisition of skills the longer is the post-training period over which they can amortise their investment. If either the firm or the worker expects job attachment to be short-term, then work-related training will either not be provided (the firm) or will not be accepted (the worker), depending on who bears the training costs. Consequently, workers who are in the more marginal forms of employment such as in part-time employment, or in contract jobs, may be less likely to undergo training in precisely those skills that are supposed to make them more adaptable and flexible in the face of technological change. Only if skills have a very short life (as might be the case with rapid obsolescence of technology) would firms be indifferent to training temporary as opposed to permanent workers. Moreover, past cross-sectional studies have shown that for Britain there is a positive correlation between work-related training on the one hand, and trade union presence and firm size on the other.[22] So the increasing weakness of one form of "institutional rigidity" - the trade union - observed over the past fifteen years in Britain, and the growing proportion of new firms with no union recognition, may be associated with less provision of skills at the workplace.

The purpose of this paper is to explore the nexus between skills acquisition and labour market "flexibility" (as proxied by employment status, contract type, and lack of union coverage). The data source used in our analysis is the British Household Panel Survey (BHPS), Waves 1-5, conducted over the period 1991-1995. We also explore the relationship between general education, and subsequent training. In so doing, we document the extent to which there is inequality in access to work-related training in Britain in the 1990s, which may exacerbate earnings inequality. We control for unobserved individual heterogeneity by exploiting the panel nature of the data to estimate panel probits of training incidence. The analysis is carried out separately for men and women in employment. Our results show that workers on short-term employment contracts, in part-time employment, or who are not covered by a union collective agreement, are significantly less likely to be involved in any work-related training to improve their skills. The estimated negative impact of these variables on the training probability is quite large. Our results suggest that there is a trade-off between expanding the more marginal forms of employment, and expanding the proportion of the workforce getting work-related training. Moreover, many studies have shown, after controlling for other earnings-augmenting attributes, that workers who receive work-related training earn higher wages subsequently (see *inter alia* Duncan and Hoffman, 1979; Booth, 1991; Lynch, 1992;

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[22] See *inter alia* Booth (1991), Greenhalgh and Mavrotas (1994), and Green *et al* (1996), who use the 1987 British Social Attitudes Survey, the General Household Survey, and the 1990 Workplace Industrial Relations Survey respectively.

Arulampalam *et al*, 1997). Thus our analysis of the extent to which there is inequality in access to work-related training in Britain in the 1990s also offers some suggestions as to why earnings inequality is increasing. Expansion of the more marginal forms of employment will exacerbate earnings inequalities in Britain, since these jobs tend to offer less training, and pay lower earnings.

In the following section we describe the data source, and examine the raw data to see the extent of work-related training for workers characterised by various measures of employment flexibility. In Section III.1, we describe the econometric model, while in Section III.2 we present the estimated marginal effects and discuss the results. The final section summarises and draws some conclusions.

## II. The Data

The data used in our analysis are the first five waves of the British Household Panel Survey (BHPS). This is a nationally representative random sample survey of private households in Britain. Wave 1 interviews were conducted during the autumn of 1991, and annually thereafter (see Taylor *et al* (1996)). Our analysis is based on a panel of men and women aged between 18 and 55 in 1991 who provided complete information at the interview dates, who were in employment at the time of the survey, and who were not self-employed, in the armed forces or farmers.[23] These restrictions do not guarantee a continuous record for the entire sample period. For example, a worker leaving employment for Waves 2 and 3 would be represented in 1991 and 1994-5, but excluded for the intermediate years. Our estimating sample includes 2982 men and 3117 women, with respectively 9659 and 9904 person-year observations for each.

The precise form of the training incidence question, asked of all individuals currently in work, is as follows: "Since September 1st last year, have you taken part in any education or training schemes or courses, as part of your present employment?" If yes, the respondent was then asked: "Was any of this training (a) Training to help you get started in your current job? (b) To increase your skills in your *current job* for example by learning new technology? (c) To improve your skills in your *current job*? (d) To prepare you for a job or jobs you might do in the future? (e) To develop your skills generally?" Our focus of interest in the present paper is on work-related training to improve or increase skills in the current job, rather than induction training or training for future work or for skills generally. For this reason, we use the responses to (b) and (c) of this training question to construct a variable taking the value unity if individuals received training to increase or improve skills in the current job, and zero otherwise.[24] The responses are given in Table 1, for all person-year observations, disaggregated by gender and by our three measures of the

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[23]    Agricultural workers are included in the male sub-sample, but excluded for women because there were too few cases.

[24]    However, in our econometric estimation we also experimented with an alternative definition of work-related training that also included (d) and (e) from the training question. This increases the training incidence by 3 percentage points for both men and women (the training categories are not mutually exclusive) . We found that the main results of the paper are unchanged.

insecurity of a job: *type of contract, part-time employment, and non-coverage by a trade union.*[25]

### Table 1:Training by "Job Insecurity", W1-5 Pooled

|  | Men | | Women | |
|---|---|---|---|---|
|  | % of sample (person years) | Training % | % of sample (person years) | Training % |
| *All employees* | 100.00 (9659) | 35.69 | 100.00 (9904) | 33.07 |
| Temporary | 5.17 ( 499) | 19.84 | 7.44 ( 737) | 24.69 |
| Part-time | 3.44 ( 332) | 31.02 | 40.31 (3992) | 23.10 |
| Uncovered | 46.69 (4510) | 29.25 | 47.59 (4713) | 22.05 |

**Notes:**
(i)      Training incidence is defined as training to increase or improve skills in the current job in the previous 12 months.
(ii)      Temporary includes casual , seasonal and fixed-term contract workers too.
(iii)      Uncovered means that the worker's wages are not covered by a union collective agreement.

The BHPS asks individuals in employment if their current job is permanent, or a seasonal, temporary or casual job, or one done under contract or for a fixed period of time. We construct a dummy variable "seasonal/temporary/casual/fixed term" taking the value of unity if individuals report that they are on such flexible contracts, and zero otherwise. The variable "part-time job" takes the value of unity if the individual's usual hours of work (excluding overtime and meal breaks) in a normal week are 30 or less, and zero otherwise. The third variable that proxies flexibility of employment is "Not covered by a trade union", which takes the value of unity for workers not covered by a union and zero otherwise. This variable was constructed from the responses to the question about whether or not there is a recognised trade union or staff association for negotiation of pay or conditions.[26] While Waves 1 and 5 questionnaires of the BHPS asked both job-movers and job-stayers for information on union status, the Waves 2-4 questionnaires only requested this if individuals changed employer. Therefore in our empirical estimation in Section III, we make the assumption that the Wave 1 union coverage remains constant across Waves 2, 3 and 4 for people who did not change employer.

Table 1 shows that the incidence of training for men is generally higher than for

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[25]      These questions on training incidence were followed by a question on total time spent in *all* forms of training, as follows: "Since September 1st last year, how long have you spent on this training? Please tell me *approximately* how much time you have spent on training *in total*." However, calculation of the length of time spent in training each year using the BHPS is not straightforward, owing to the inconsistent method in which the information has been collected at each wave. At Wave 1, individuals were asked to report how many days were spent training. At Wave 2, respondents were asked how many hours per week had been spent in training, and for how many weeks. At Waves 3, 4 and 5 respondents were free to choose the unit of time (hours, days, weeks, or other) spent in training. We do not use these data in the present paper, principally because we wish to focus only on training to increase/improve skills in the current job, while the time-measure refers to *any* training including for induction purposes.
[26]      The precise form of the question is as follows: "Is there a trade union, or a similar body such as a staff association, recognised by your management for negotiating pay or conditions for the people doing your sort of job in your workplace?"

women, with the exception of men who are on temporary/seasonal/casual/fixed term contracts. The incidence of training for women on these flexible contracts is very similar to the training incidence for part-time women. For both men and women, these raw data show that not being covered by collective bargaining is associated with lower training incidence.

When the information on training is disaggregated across waves, as shown in Table 2, it is seen that both men and women reported significantly more training in Wave 1 (conducted in 1991) than in subsequent waves. However, the incidence of training is roughly similar across the period 1992 to 1995. While it may have been the case that substantially more training was experienced in 1991, even though this was a recession year, it may also be the case that there is some recall error. Individuals may have over-reported training in the first wave by reporting any training events spent in, say, the last 15 months rather than the one-year period requested. In subsequent waves, there is less likelihood of such a recall error, because individuals were prompted by the 12 month period since they were last interviewed to focus on training between interview dates. [27]

**Table 2: Training in the Current Job, 1991-1995 (%)**

|  | 1991 | 1992 | 1993 | 1994 | 1995 |
|---|---|---|---|---|---|
|  | **Wave 1** | **Wave 2** | **Wave 3** | **Wave 4** | **Wave 5** |
| *Men* |  |  |  |  |  |
| *All* | 40.90 | 33.09 | 33.05 | 35.00 | 35.49 |
|  |  |  |  |  |  |
| Temporary | 27.89 | 18.29 | 12.05 | 14.29 | 25.23 |
| Part-time | 36.84 | 28.07 | 31.75 | 35.39 | 22.54 |
| Uncovered | 32.98 | 26.10 | 27.01 | 28.82 | 30.70 |
|  |  |  |  |  |  |
| Number of observations | 2154 | 1949 | 1776 | 1906 | 1874 |
|  |  |  |  |  |  |
| *Women* |  |  |  |  |  |
| All | 36.36 | 30.90 | 31.17 | 33.79 | 32.70 |
|  |  |  |  |  |  |
| Temporary | 24.35 | 21.79 | 23.64 | 26.39 | 26.32 |
| Part-time | 24.80 | 20.92 | 21.07 | 24.65 | 23.78 |
| Uncovered | 26.49 | 19.76 | 19.36 | 22.39 | 21.56 |
|  |  |  |  |  |  |
| Number of observations | 2162 | 1974 | 1861 | 1968 | 1939 |

**Notes:** See notes to Tables 1.

Tables 1 and 2 are interesting for a number of reasons. First, the overall proportions of all male and female employees receiving training to increase/improve their skills in the current job are approximately the same.

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[27] We are grateful to Heather Laurie for this point. For this reason, we also experimented with estimating our models only for Waves 2 -5, and found it made little difference to our estimates.

Secondly, the proportion of workers on temporary, seasonal or casual contracts is consistently lower than for "permanent" employees. But proportionately more women on such flexible contracts receive training than men. Thirdly, and somewhat curiously, the fraction of part-time male workers being trained is not much smaller than the fraction of all male workers being trained, with the exception of Wave 5, when the proportion of part-time men being trained is 13 percentage points lower than for all male employees. In contrast, substantially fewer part-time women receive training than all women. This gender difference is particularly interesting, given that the elapsed job tenure of female part-time workers exceeds that of full-time women, but is similar to that of part-time men.[28] Fourthly, proportionately fewer workers who are not union-covered receive training than all workers, but the proportion of uncovered women workers getting training is considerably smaller than the proportion of male uncovered workers being trained. In the following section, we investigate the extent to which flexible employment affects training incidence after we control for other factors, both observable and unobservable.

## III.    Estimation of Training Incidence

### III.1    The Econometric Model

The experience of work-related training is the result of optimising decisions made by both an individual worker and an employer. For employer-provided training, the employer decides to offer a course to a worker, who then decides whether or not to accept. Since the data preclude it, we do not model the structural framework for the training decision. Instead, using binary models we estimate reduced form equations of the determinants of training incidence.

We explicitly take into account individual unobserved heterogeneity by estimating panel data models of the training probability. The observed dependent variable is binary, taking the value one if the individual has received training to increase or improve skills in the current job over the past 12 months, and zero otherwise. It is important to control for unobserved individual heterogeneity in the context of training, because individuals may be characterised by different degrees of motivation or unmeasured ability that have a significant effect on the probability of receiving work-related training. Individuals may only accept or volunteer for training, or firms may only offer training to workers, if they are highly motivated, or have high levels of ability (and thus lower costs associated with training).

We specify the model for individual i in period t as:

$$Y_{it}^* = X_{it}'\beta + v_{it} \qquad \text{i=1,...,n  and  t=1,...,5} \qquad (1)$$

where $Y_{it} = 1$ if $Y_{it}^* > 0$, and $= 0$ otherwise, $Y^*$ denotes the unobservable individual propensity to train, X is a vector of time-varying and time-invariant exogenous variables (including the insecurity of employment variables, $\beta$ is the vector of coefficients associated with the vector X, and $v$ is the unobservable error term. Thus

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[28]    In 1991 (Wave 1), average elapsed job tenure was 141 months for full-time women, and 153 months for part-time women. The comparable figures for men were 186 months (full-time) and 153 months (part-time).

it is assumed that training incidence is observed only when the individual's propensity to receive training crosses a threshold (zero in this case). This specification assumes that all the inter-individual heterogeneity can be captured by the observed variables. However as noted above, unobserved, and possibly unobservable, variables may also influence the individual's propensity to receive training. Assuming that the heterogeneity across individuals is time-invariant, we decompose the error term $v_{it}$ in (1) as

$$v_{it} = \alpha_i + u_{it} \tag{2}$$

where the $\alpha_i$ denotes the individual specific unobservable effect and the $u_{it}$ is a random error. We treat the $\alpha_i$ as random[29], and choose to use the random effects probit models estimated under the common assumption that $u_{it} \sim IN(0, \sigma_u^2)$[30] and the $u_{it}$ are independent of the X. In order to marginalise the likelihood, we assume that $\alpha_i \sim IN(0, \sigma_\alpha^2)$ and is independent of the $u_{it}$ and the X. This implies that the correlation between two successive error terms for the same individual is a constant, given by

$$\rho = \text{corr}(v_{i2},\, v_{i1}) = \frac{\sigma_\alpha^2}{\sigma_\alpha^2 + \sigma_u^2}. \tag{3}$$

This formulation is referred to as 'equicorrelation' in the literature, since the correlation between the $v_{it}$ s over time are the same. As shown in Heckman (1981), the parameters of this model are easily estimated by noting that the distribution of $Y_{it}^*$ conditional on $\alpha_i$ is independent normal. We also provide estimates of the above model under the assumption that $\rho = 0$. This is the pooled probit model which ignores the panel nature of our data.[31]

The estimation of the model above requires a sample of employed people, since the dependent variable measures training received in the current job. For the sample of employed women, it may be the case that women in employment at a particular wave are a non-random sample of the adult female population. To allow for the possibility of sample selection biases of this kind, we proceed as follows.

We take equation (1) as the equation for the unobservable individual propensity to train, and also specify the model for employment for individual i in time period t as:

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[29] The $a_i$, can be treated as fixed or random. If $a_i$ is treated as fixed, we cannot obtain consistent estimates of $a_i$, since the number of $a_i$ increases with the sample size. This is the familiar incidental parameter problem addressed by Neyman and Scott (1948). In the case of *fixed* effects, an assumption of a logistic distribution for $u_{it}$ produces a computationally simple maximum likelihood estimator. This is the conditional maximum likelihood estimator, where the conditioning is carried out with respect to the minimal sufficient statistics in order to eliminate the unobservable $a_i$. But unfortunately the effects of time-invariant covariates cannot be estimated, as they get eliminated with the fixed effects when the conditioning is carried out. On the other hand, estimation of a fixed effects probit model does not produce consistent parameter estimates of β or $a_i$.

[30] IN refers to Independent Normal distribution.

[31] All the models presented in this paper were estimated using Limdep 7.0; see Greene (1995).

$$E_{it}^* = Z_{it}'\gamma + \varepsilon_{it} \qquad\qquad i=1,.....,n \ \text{ and } \ t=1,...,5 \qquad\qquad (4)$$

where $E_{it}$ = 1 if $E_{it}^* > 0$, and = 0 otherwise, $E_{it}^*$ denotes the unobservable individual propensity to be in employment, $Z_{it}$ is a vector of time varying and time-invariant exogenous variables, $\gamma$ is the vector of coefficients associated with the vector Z, and $\varepsilon$ is the unobservable error term. Thus, it is assumed that an individual is found to be in employment only when the unobservable $E^*$ crosses a threshold.

If the correlation between the error terms of equations (1) and (4) is non zero, then any estimation of equation (1) which ignores this will result in inconsistent parameter estimates. This is what is commonly known as sample selection bias (see Maddala (1983)). We therefore assume that, at each time period t, the errors in equations (1) and (4) are distributed as a BIN$(0,0, \sigma_v^2, \sigma_\varepsilon^2, \rho)$.[32] The estimation can then be carried out using standard software packages such as Limdep which allows the estimation of bivariate probit models with partial observability (equation (1) is only observed for those who cross the threshold in (4)). For the purposes of model identification, we require at least one variable in Z which is not in X. Since the number of children and health status affects female labour force participation but not the experience of training, we use these variables to identify the model. (The variables included in the participation equation are listed in Note (iii) to Table 4. )

### III.2    The Estimates

The estimates of the determinants of work-related training are presented in Table 3 for men and women. We report only the marginal effects,[33] estimated for two models: a pooled cross-sectional probit (Model 1) which ignores the panel nature of the data, and a random effects probit model (Model 2) which exploits the panel nature of the data to control for unobservable individual heterogeneity. The means of the variables are given in Table A1 in the Appendix. Our preferred model for both men and women, is the random effects probit, as the null hypothesis that $\rho = 0$ is easily rejected. Estimated $\rho$ (rho) is 0.359 for men and 0.330 for women, and is statistically significant at the 1% significance level for both men and women. The estimated effects are similar in sign and magnitude across Models 1 and 2, but there are sufficient differences to suggest that failure to control for unobservable individual heterogeneity understates the impact of most of the variables on the training probability.

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[32]    BIN refers to Independent (over i) Bivariate Normal.

[33]    All the marginal effects are calculated as the derivative of the conditional expectation of the observed dependent variable, and evaluated at the sample means, following the procedure in Limdep (Greene (1995)). Since, variables defined as dummy variables can only change in discrete amounts, some argue that it makes more sense to calculate these effects by calculating the percentage predicted change evaluated at the discrete change in the dummy variable. As there is not much difference in the calculations, we have chosen to report the usual marginal effect calculations provided by Limdep.

**Table 3: Marginal Effect Estimates of training to increase or improve skills at current employer, 1991-1995**

| | Men | | Women | |
|---|---|---|---|---|
| | *model 1* **pooled probit** | *model 2* **random effects probit** | *model 1* **pooled probit** | *model 2* **random effects probit** |
| variables | Marginal Effects (absolute t) | Marginal Effects (absolute t) | Marginal Effects (absolute t) | Marginal Effects (absolute t) |
| Intercept | 0.030 (0.351) | 0.005 (0.044) | -0.377 (4.083) | -0.368 (3.016) |
| *Insecure employment attributes* | | | | |
| Seasonal/temporary/casual/fixed term | -0.187 (7.168) | -0.189 (6.473) | -0.128 (6.386) | -0.135 (5.859) |
| Part-time (30 or less hours) | -0.053 (1.772) | -0.078 (2.122) | -0.094 (7.853) | -0.099 (6.602) |
| Not covered by a trade union | -0.084 (6.651) | -0.088 (5.289) | -0.091 (7.115) | -0.110 (6.840) |
| **Demand-side factors** | | | | |
| TTWA u/v ratio $*10^{-3}$ | -0.427 (0.852) | 0.392 (0.689) | 0.052 (0.104) | -0.146 (0.249) |
| *Individual characteristics* | | | | |
| Age $*10^{-1}$ | -0.241 (6.161) | -0.259 (4.725) | -0.019 (0.485) | -0.484 (0.973) |
| Age-squared $* 10^{-3}$ | 0.233 (4.634) | 0.247 (3.458) | 0.012 (0.246) | 0.442 (0.679) |
| White | 0.062 (2.137) | 0.072 (1.748) | 0.051 (1.745) | 0.066 (1.511) |
| Married | 0.057 (4.023) | 0.057 (2.883) | -0.002 (0.162) | -0.009 (0.534) |
| Cohabiting | 0.045 (2.390) | 0.046 (1.885) | 0.005 (0.297) | 0.012 (0.527) |
| Full-time experience in 1991 $* 10^{-3}$ | 0.153 (1.862) | 0.168 (1.523) | -0.049 (0.664) | 0.090 (0.090) |
| Professional | 0.244 (9.765) | 0.281 (9.039) | 0.220 (6.467) | 0.230 (5.500) |
| Managerial | 0.233 (12.21) | 0.253 (10.88) | 0.247 (14.06) | 0.252 (11.57) |
| Non-manual | 0.210 (10.28) | 0.225 (8.822) | 0.138 (8.483) | 0.154 (7.590) |
| Skilled manual | 0.105 (5.922) | 0.127 (6.176) | 0.116 (5.342) | 0.131 (5.128) |
| *Highest educational qualification* | | | | |
| First or higher degree | 0.210 (9.047) | 0.262 (7.822) | 0.135 (5.988) | 0.167 (5.457) |
| Other higher qualifications | 0.214 (11.40) | 0.263 (9.978) | 0.186 (10.17) | 0.213 (8.877) |
| A-level | 0.143 (6.954) | 0.180 (6.184) | 0.115 (5.463) | 0.132 (4.613) |
| 0-level | 0.110 (5.763) | 0.143 (5.183) | 0.056 (3.257) | 0.071 (3.033) |
| Apprenticeship | 0.134 (3.460) | 0.161 (2.727) | | |
| CSE | 0.050 (1.836) | 0.073 (1.838) | 0.001 (0.057) | 0.015 (0.513) |
| *Employer attributes* | | | | |
| Charity sector | 0.100 (2.492) | 0.103 (2.210) | 0.116 (4.005) | 0.107 (3.152) |
| 25-49 employees | 0.070 (3.596) | 0.080 (3.256) | 0.083 (4.129) | 0.083 (3.522) |
| 50-99 employees | 0.081 (4.093) | 0.092 (3.840) | 0.055 (2.525) | 0.058 (2.267) |
| 100-199 employees | 0.098 (4.823) | 0.120 (4.802) | 0.087 (3.930) | 0.102 (4.130) |
| 200-499 employees | 0.115 (5.883) | 0.125 (5.056) | 0.139 (6.648) | 0.152 (5.996) |
| 500-999 employees | 0.144 (5.907) | 0.157 (5.103) | 0.145 (4.828) | 0.152 (4.076) |

| | | | | |
|---|---|---|---|---|
| 1000+ employees | 0.162 (7.028) | 0.179 (6.020) | 0.158 (5.433) | 0.171 (5.044) |
| Public sector | 0.175 (5.505) | 0.194 (5.082) | 0.163 (7.045) | 0.175 (6.371) |
| Public sector, 25-49 employees | -0.056 (1.248) | -0.084 (1.488) | -0.033 (1.054) | -0.044 (1.197) |
| Public sector, 50-99 employees | -0.060 (1.457) | -0.074 (1.482) | -0.059 (1.719) | -0.040 (0.989) |
| Public sector, 100-199 employees | -0.175 (3.986) | -0.188 (3.423) | -0.068 (1.874) | -0.072 (1.694) |
| Public sector, 200-499 employees | -0.176 (4.351) | -0.180 (3.678) | -0.135 (3.769) | -0.139 (3.181) |
| Public sector, 500-999 employees | -0.235 (4.861) | -0.246 (4.044) | -0.164 (3.753) | -0.174 (3.244) |
| Public sector, 1000+ employees | -0.191 (4.513) | -0.193 (3.542) | -0.202 (5.383) | -0.207 (4.706) |
| | | | | |
| Industry dummy variables | Yes | Yes | Yes | Yes |
| Region of residence dummy variables | Yes | Yes | Yes | Yes |
| | | | | |
| Estimated Rho | n/a | 0.359 (19.30) | n/a | 0.330 (17.88) |
| | | | | |
| Maximised value of the log likelihood | -5577.788 | -5333.192 | -5334.615 | -5140.857 |
| Log likelihood at the constant | -6292.583 | | -6285.626 | |
| | | | | |
| Number of observations | 9659 | 9659 | 9904 | 9904 |

**Note:**
(i)     Absolute t-ratios in parentheses.
(ii)    See also notes to Table 1.

*Insecurity of employment*
We first consider the impact on training of the variables that proxy insecure employment, in order to investigate the extent to which flexibility of employment affects training in 1990s Britain. The first variable under this heading is "seasonal/temporary/casual/fixed term". The type of labour contract under which an individual is employed is likely to affect work related training. Individuals on temporary or fixed-term contracts are less likely to receive work-related training, because of the expected shorter post-training period over which the investment can be amortised. We find that, for both men and women on insecure contracts, the expected probability of receiving work-related training is significantly reduced, relative to workers on permanent contracts. The reported marginal effects for Model 2 show that men are 19% less likely to be trained if they are employed on flexible contracts than they are on permanent contracts ceteris paribus, while women are

nearly 14% less likely. While it is a rational response for firms not to train such workers if they are not expected to remain long at the firm, it does raise the issue of how work-related skills can be imparted to workers on flexible contracts.

The second variable proxying insecure forms of employment is "part-time job". A priori, we would expect that part time workers will receive less training, since they are likely to have a shorter post-training period in which the returns from training can be enjoyed. Even if the total expected number of hours remaining in a part-time job were the same as for a full-time job (for example, if the part-time job were to last for a longer calendar period of time), the returns to training for part-time workers would still be lower because of discounting. We find that the training probability for part-time workers is significantly lower than that of full-time workers. For men, the training probability falls by 8% if they switch from full-time to part-time, while for women the training probability falls by 10%. Yet, as already noted, the average elapsed duration of part-time jobs is quite high.

The third variable used to proxy labour market flexibility is "not covered by a trade union". According to orthodox theory it might be expected that unions, in their monopoly role, use their power over labour supply to extract a larger share of the surplus, and thereby induce dead-weight losses. Higher union wages, restrictive work practices, and any union resistance to the introduction of new skill-intensive technologies, may therefore be expected to reduce employer incentives to provide training. On the other hand, unions are in some circumstances co-operative and instrumental in improving worker morale and organisation at the work place (Freeman and Medoff, 1984), and may thereby increase training and productivity, especially in monopsonistic labour markets (Booth and Chatterji, 1998).[34] Unions may also push for the inclusion on the bargaining agenda of training as well as wages. Previous empirical studies using British data have found a positive correlation between work-related training incidence, and measures of union presence such as union coverage for collective bargaining or union density (Booth, 1991; Claydon and Green, 1994; Green et al, 1996; Groot, 1996). The increasing weakness of trade unions in British establishments over the past two decades has been well documented (Disney et al, 1996; Arulampalam and Booth, 1997). Two interesting questions are the extent to which trade union presence remains associated with a higher level of work related training, and whether or not the decline in union coverage over the period 1991-5 has had an adverse impact on training investment.

Our estimates in Table 3 show that men and women who are not covered by unions have a significantly lower probability of receiving work-related training to increase or improve their skills in their current job. A man in a non-union job is 9% less likely to receive training than an otherwise identical man in a union-covered job, while a woman a non-union covered job is 11% less likely to receive training than her counterpart in a union-covered job. This finding is of particular interest, given that between 1991 and 1995 (Waves 1 and 5 of the BHPS), the percentage of male

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[34]     Garonna and Ryan (1991) note the important role of unions in the administration of certain government-backed training schemes, such as the Youth Training Scheme (YTS).

workers who were not covered by a union grew from 44% to 51%, while for women the percentage of uncovered workers increased from 47% to 50 %.

*TTWA Unemployment to Vacancy Ratio*

Uncertainty about future incomes and opportunities will affect both individual workers' decisions to train and firms' decisions to offer training. The demand by workers for vocational training is likely to be influenced by the probability of unemployment in the future. For this reason, the travel-to-work area (TTWA) unemployment/vacancy rate is included in the estimation, since expectations of future unemployment may be extrapolated from current unemployment rates. This variable also proxies labour market "tightness": when demand is buoyant and unemployment is low, firms may find it easier to improve the skills of their current workforce rather than hire new workers, and hence training may increase (assuming that increased labour mobility in a boom does not deter such investment). Conversely, when demand is slack and unemployment relative to vacancies is high, firms may substitute quantity for quality, and reduce training expenditures in view of the relatively low price of hiring workers. Alternatively, to the extent that firms retain workers in a trough, the opportunity cost of lost production will be lower, and these firms may increase training in a downturn. Ultimately it is an empirical question as to which effect dominates. We find here that the TTWA unemployment to vacancy variable has an insignificant impact on the training probability across all specifications. This suggests that training is unresponsive to demand-side factors, at least for our sample over the period 1991-5.

*Individual Attributes*

According to human capital theory, agents will invest in training if the present discounted value of training benefits exceeds training costs (see for example Becker (1962), and Oi, (1962). Irrespective of whether training is general or specific, the amount of any training investment should be greater the longer is the post-training period over which the investment can be amortised. Thus training is more likely to be offered to, or undertaken by, workers with a strong attachment to the labour market or who are younger. Our estimates of the impact of age are consistent with this hypothesis, although the impact of age is insignificant for women.[35]

We also control for ethnic origin, since workers of non-white ethnic origin may experience poorer quality schooling, which increases the costs of acquiring subsequent training (Duncan and Hoffman, 1979). Our estimates for both men and women show that white workers are more likely to receive work-related training, although this variable is not significant for women. Marital status may proxy an individual's attachment to the labour market and motivation to invest in human capital. Our estimates show that marriage and cohabitation are associated with a significantly higher training probability for men, but not for women.

Past work experience may be used by employers to make inferences about individual's future work commitment (Duncan and Hoffman, 1979). Full-time work experience is therefore included as an explanatory variable; this may also proxy unmeasured on-the-job training. We find that, although more experienced male

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[35] We also experimented with the inclusion of job tenure as an explanatory variable, and found that the coefficients of the job insecurity variables were robust to the inclusion or exclusion of this variable. We do not report these estimates, since tenure may be endogenously determined with training.

workers have a significantly higher training probability, experience has an insignificant effect on female training.

Individuals in particular occupational groups in 1991 may be more likely to experience training, through complementarity in production of particular occupational groups and training, or because occupational classification may proxy individual ability and motivation. We find that, for both men and women, training incidence is significantly higher for higher occupational classifications, with the coefficients increasing with the higher occupational categories. This effect is particularly large for the professional and managerial occupational groups, whose training probability is some 23-25 % higher than for the base of unskilled workers for women, and 25-28% higher for men.

*Highest Educational Qualification*
Altonji and Spletzer (1991) note that the positive correlation between education and training observed in many empirical studies may reflect complementarity in production or the presence of factors that influence investment in both forms of human capital. For example, firms will prefer to train individuals most able to benefit from training and perhaps faster to learn. The cost of work-related training will be lower for higher ability workers, and for better-educated workers, ceteris paribus, since they will learn faster than their less able colleagues.

Highest educational qualification is measured in our study by six dummy variables, which can change across waves, and which indicate the highest qualification attained by the respondent at time t. These variables are First or higher degree (the highest qualification was a university degree); Other higher qualifications (nursing/teaching/ other); A-level (one or more advanced-level qualifications representing university entrance-level qualifications usually taken at or around the age of 18); O-level (one or more ordinary-level qualifications obtained at or around the minimum school-leaving age of 16); CSE (a vocational qualification - one or more business, technical or industrial vocational qualifications); and Apprenticeship (a trade apprenticeship typically achieved after a 3-5 year indenture period begun at age 16). Since the cell size for apprenticeship is very small for women, we combined them with the base category.

We find that, for both men and women, there is a large and statistically significant positive correlation between training and most of the highest educational qualification variables. This finding is consistent with the human capital prediction that the costs of training are lower for more highly educated workers, or that training and education are complements in production. Workers with less general training may also have higher discount rates, and hence be less willing to invest in training through lower earnings.

*Employer Attributes*
There are a number of hypotheses about the relationship between the incidence of work-related training courses and firm size, sector or industry. Larger firms and public sector firms may be more likely to train workers because they are more forward looking or better placed to bear any risk associated with training. Large firms may also benefit from economies of scale in training provision, or they may

face more regulations and bureaucracy and so provide more training in the nature of meeting safety regulations etc. (Felstead and Green (1996)). Moreover, since particular industries may by their nature require more training, or may have a past legacy of training provision through the old Industry Training Boards, we include industry controls in all specifications.[36]

Our estimates show that in general, for both men and women, the likelihood of receiving work-related training increases significantly with establishment size, relative to the base of establishments with fewer than 25 employees.[37] Now consider the impact of the public sector on the training probability for workers in different size establishments. Relative to the base, a man in a public sector workplace of 1,000 or more employees will have an 18% higher training probability {calculated as 0.179 (1,000+ employees) + 0.194 (public sector) - 0.193 (public sector*1,000+ employees) = 0.180}. Similar calculations can be made with each of the other size categories for the public sector, and show that in general the training probability does not vary substantially across establishment size in the public sector, ceteris paribus.

Finally, note that the training probability is higher in the non-profit-making sector ("charity") than in the base of the smallest private sector establishment, an effect that has not been investigated before in any training studies, to our knowledge. The non-profit-making sector includes charities and co-operatives.

### III.3   Sample Selection Estimates for Women

Since not all women participate in the labour market, and those who do participate may be a non-random sample of the adult female population, we carried out some additional estimation for women. In particular (as discussed in section III.1) to test for potential sample-selection biases we estimate five cross-sectional bivariate probits models of participation in employment and in training. The estimates of the marginal effects of the insecurity of employment variables only are reported in Table 4. The employment participation equation (equation (4) in Section III.1) has as explanatory variables an intercept, age, age-squared, white, married, cohabiting, all the highest educational qualification dummies, full-time experience, the TTWA unemployment to vacancy ratio, a dummy variable for poor health limiting work, and a set of dependent children controls as noted under Table 4. Health status and the number of children variables are being used for identification of the parameters. The number of children variables are excluded from the training probit on a priori grounds, while health status was initially included in the training probit but subsequently dropped on the grounds of its insignificance.

Table 4 shows that both the cross-sectional estimates and the sample selection estimates of the impact of job insecurity on the training probability are significantly

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[36]   While we do not report our industry estimates, it is interesting to note that the Energy is associated with the highest levels of training, followed by Banking and Finance.

[37]   The attributes of the job or firm in which the individual received training over the period 1991-1995 may be endogenous: individuals may choose to work in particular occupations or large firms, for example, because these are perceived to offer more training. For this reason, we experimented with specifications with and without these employer attributes, and found little variation across the coefficients of two of our three measures of job insecurity - flexible contract and part-time job. However, there was an increase in the absolute value of the marginal effect of the third variable measuring employment insecurity - the lack of union coverage.

negative, and the magnitude of the coefficients is very similar across estimation methods. However, the sample-selection estimates for the impact of the job insecurity variables are consistently larger than the cross-sectional estimates. Our preferred estimates are the cross-sectional estimates in this comparison, since (with the exception of Wave 5) we found no evidence of sample-selection, as can be seen from the insignificance of rho. The estimated marginal effects are very similar to the results in Table 3.

**Table 4: Comparison of Cross-sectional and Sample Selection Marginal Effect Estimates for Women**

| Variable | Wave 1 | Wave 2 | Wave 3 | Wave 4 | Wave 5 |
|---|---|---|---|---|---|
| *Cross-sectional estimates* | | | | | |
| Temporary | -0.149 | -0.168 | -0.124 | -0.139 | -0.080 |
| | (3.484) | (3.560) | (2.660) | (3.039) | (1.831) |
| Part-time | -0.089 | -0.105 | -0.105 | -0.084 | -0.099 |
| | (3.195) | (3.786) | (3.822) | (3.097) | (3.811) |
| Uncovered | -0.109 | -0.074 | -0.091 | -0.101 | -0.087 |
| | (3.771) | (2.627) | (3.146) | (3.509) | (3.001) |
| | | | | | |
| Number of cases | 2162 | 1974 | 1861 | 1968 | 1939 |
| | | | | | |
| *Sample selection estimates* | | | | | |
| Temporary | -0.148 | -0.169 | -0.122 | -0.137 | -0.079 |
| | (3.321) | (3.426) | (2.582) | (3.039) | (1.833) |
| Part-time | -0.087 | -0.104 | -0.103 | -0.086 | -0.095 |
| | (3.000) | (3.474) | (3.727) | (3.026) | (3.667) |
| Uncovered | -0.110 | -0.074 | -0.089 | -0.099 | -0.084 |
| | (3.778) | (2.640) | (3.096) | (3.525) | (3.026) |
| Rho | -0.426 | -0.274 | 0.714 | 0.830 | 0.981 |
| | (1.157) | (1.614) | (0.900) | (1.593) | (2.253) |
| Number of employed and non-employed cases | 2315 | 2128 | 1998 | 2113 | 2057 |

**Notes:**
(i)    Absolute t-ratios in parentheses.
(ii)    See also notes to Tables 1.
(iii)    The employment equation (eq. 4 in the text) has intercept, age, age-squared, white, married, cohabiting, all the highest educational qualification dummies, full-time experience, TTWA u/v ratio, a dummy for poor health limiting work, number of children under 2 years, number of children aged 3 to 4, number of children aged 5 to 11, number of children aged 12 to 15, number of children aged 16 to 18. The health variable and the number of children variables are being used for identification of the parameters.

# IV.    Summary and Conclusions

This paper explores the nexus between skills acquisition and labour market "flexibility" (which we proxy by contract type, part-time employment, and lack of

union coverage), using the first five waves of the British Household Panel Survey (BHPS) conducted over the period 1991-1995. Our results show that workers on short-term employment contracts, or who are not covered by a union collective agreement, are significantly less likely to be involved in any work-related training to improve or increase their skills. A man on a temporary or fixed term contract is 19% less likely to receive training in his current job than a man on a permanent contract, while a comparable woman is nearly 14% less likely. A man in a non-union job is 9% less likely to receive training than an otherwise identical man in a union-covered job, while a woman a non-union job is 11% less likely to receive training than her counterpart in a union-covered job. In addition, we find that part-time male workers are 8% less likely to receive work-related training than full-time men, while women in part-time work are 10% less likely to receive work-related training than their full-time counterparts.

Our results suggest that there is a trade-off between expanding the more marginal forms of employment, and expanding the proportion of the workforce getting work-related training. Moreover, it is well-documented that workers who receive work-related training also earn higher wages. Thus our analysis of the extent to which there is inequality in access to work-related training in Britain in the 1990s also offers some tentative suggestions as to why earnings inequality is increasing. Expansion of the more marginal forms of employment will exacerbate earnings inequalities in Britain, since these jobs tend to offer less training, and pay lower earnings.

### Table A1: Summary statistics of variables used in analysis - all waves

| Variables | Means | |
|---|---|---|
| | **Men** | **Women** |
| *Training to increase/improve skills in current job* | 0.357 | 0.331 |
| *Insecure employment attributes* | | |
| Seasonal/temporary/casual/fixed term contract | 0.052 | 0.074 |
| Part-time (30 or less hours) | 0.034 | 0.403 |
| Not covered by a trade union for collective bargaining | 0.467 | 0.476 |
| **Demand-side factors** | | |
| Travel-to-work area (TTWA) u/v (unemployment to vacancy) ratio | 19.57 | 19.77 |
| *Individual characteristics* | | |
| Age (years) | 36.120 | 36.66 |
| Age-squared | 1415.000 | 1452.000 |
| White ethnic origin | 0.966 | 0.967 |
| Married | 0.618 | 0.615 |
| Cohabiting | 0.102 | 0.112 |
| Full-time experience in 1991 (months) | 178.200 | 111.400 |
| Professional | 0.084 | 0.025 |
| Managerial | 0.308 | 0.298 |
| Non-manual | 0.141 | 0.390 |
| Skilled manual | 0.309 | 0.087 |
| *Highest educational qualification* | | |
| First or higher degree (holds a university or higher degree) | 0.149 | 0.113 |
| Other higher qualifications (holds a teaching, nursing of other higher qualification ) | 0.251 | 0.212 |
| A-level (one or more Advanced-level qualifications, or equivalent, representing university entrance-level qualifications, typically taken at age 18) | 0.149 | 0.108 |
| 0-level (one or more Ordinary-level qualifications or equivalent, taken at the 16 at end of compulsory schooling, and basis of selection into A-level courses. | 0.212 | 0.279 |
| Apprenticeship | 0.021 | |
| CSE (Commercial or clerical qualifications, CSE grades 2-5) | 0.058 | 0.096 |
| *Employer attributes* | | |
| Charity sector | 0.017 | 0.033 |
| 25-49 employees | 0.129 | 0.139 |
| 50-99 employees | 0.133 | 0.109 |
| 100-199 employees | 0.120 | 0.100 |
| 200-499 employees | 0.151 | 0.110 |
| 500-999 employees | 0.081 | 0.055 |
| 1000+ employees | 0.107 | 0.087 |
| Public sector | 0.217 | 0.352 |
| Public sector, 25-49 employees | 0.024 | 0.057 |

| | | |
|---|---|---|
| Public sector, 50-99 employees | 0.035 | 0.040 |
| Public sector, 100-199 employees | 0.026 | 0.032 |
| Public sector, 200-499 employees | 0.037 | 0.032 |
| Public sector, 500-999 employees | 0.021 | 0.024 |
| Public sector, 1000+ employees | 0.036 | 0.053 |
| *Region of residence dummy variables* | | |
| London (omitted, as base) | 0.099 | 0.111 |
| South-east | 0.192 | 0.191 |
| South-west | 0.094 | 0.080 |
| East Anglia | 0.037 | 0.036 |
| East Midlands | 0.081 | 0.075 |
| West Midlands | 0.090 | 0.089 |
| North-west | 0.108 | 0.108 |
| Yorkshire | 0.096 | 0.098 |
| North | 0.067 | 0.065 |
| Wales | 0.049 | 0.045 |
| Scotland | 0.087 | 0.102 |
| *Industry dummy variables (1-digit Standard Industrial Classification)* | | |
| Agriculture (omitted from sample for women) | 0.016 | |
| Energy (omitted as base for men and women samples) | 0.037 | 0.008 |
| Extraction | 0.050 | 0.019 |
| Engineering | 0.155 | 0.046 |
| Manufacturing | 0.126 | 0.077 |
| Construction | 0.052 | 0.008 |
| Distribution | 0.149 | 0.212 |
| Transport | 0.087 | 0.032 |
| Banking | 0.125 | 0.136 |
| Other | 0.203 | 0.462 |
| | | |
| Number of observations | 9659 | 9904 |

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# Chapter Six: Are British Workers Getting More Skilled?[38]

## Francis Green, David Ashton, Brendan Burchell, Bryn Davies and Alan Felstead

## Abstract

This paper presents first findings from a new study of skills in Britain. The paper is unashamedly empirical, and concentrates on showing what has been happening to skills in British workplaces since the mid-1980s. In particular, it examines: Has the usage of skills been increasing in Britain? If so, have some groups been increasing their work skills faster than others? Are there any identifiable groups whose work skills have been stagnating or even declining? How far are the academic qualifications which workers bring with them to the workplace actually being used at work? What types of work skills are changing? Some of the findings are:

- One measure of the skill needed for a job is the qualification level that new recruits would now be required to have. On this measure, there has also been an unambiguous increase in work skills from 1986 to 1997. Whereas 62% of jobs required at least some qualifications in 1986, by 1997 this had risen to 69%. For 'High Level' qualifications (anything above A-level) the proportion rose from 20% to 24%.
- A measure of skills 'used' in a job is the level of qualification which is both required of new recruits and considered either "essential" or "fairly necessary" to do the job. On this score, there has also been a significant increase in skills: the proportions in jobs 'using' High Level skills rose significantly from 16.0% to 18.5%.
- These skills increases are more pronounced for females than for males. Whereas, for example, 71% of men's jobs now require some qualification, up a little from 69% in 1986, for women the proportions rose dramatically from 51% to 66%. That women's job skills are converging on those of men is consistent with the long-term narrowing of the male/female wage gap.

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- There is no evidence of any substantial increase since 1986 in Britain in "over-education", where "over-education" is defined as being in a job that does not require as high qualifications as those possessed. There is also no evidence of credentialism.
- There has been a notable decrease from 67% to 57% in the proportion of workers whose type of work required only short (less than three months) training, and an increase from 22% to 28% in the proportion with long training requirements (over two years). There has been a fall from 27% to 22% in the proportion of jobs which respondents judge take only a short time (less than a month) to "learn to do well".
- Reflecting technological change, there has been an increasing usage of computers, and at greater levels of complexity, during the 1990s. There has also been increased importance attached to the exercise of several types of communication skills, social skills and problem-solving skills.
- Amongst those remaining in employment, those more likely to lose out on improving their skills are those in part-time jobs, the self-employed, those over 50 years of age, those who remained in one of the lower status occupations and those who remained in the 'Other Community' industry.
- Those in the lowest pay quintile have experienced substantially fewer skill increases than better off workers.

## Introduction: The Importance of Skills

Changing skills are at the heart of explanations and predictions of long-term economic growth in Britain, of conjectures about the reasons for increasing inequality and of discussion about the economic role of education and training. It is often claimed that technological changes, reinforced by changes in work organisation, are in this present age biased towards raising the demand for high-skilled labour relative to low-skilled labour. Information technology, in particular, is pervasive through all industries, both manufacturing and services, requiring masses of workers to acquire relevant skills or miss the economic boat. And, with the reported demise of assembly line "Fordist" production methods in the advanced industrial world, it is commonly stated that greater proportions of workers are required to analyse and resolve problems and to exercise communication skills in their day-to-day work.[39]

At the same time as, and partly driven by, the technological changes, the increasing global integration of the economy is also predicted to have an impact on skills. If British-based firms - or any firms based in the older industrialised countries - are to compete with firms drawing on cheap labour from areas not previously within the capitalist domain, notably China, then this also means that the British workers must become more skilled to keep their productivity advantage. Because of these changes, policies to raise educational standards, which in bygone days might

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[39]   In this paper, references for the various assertions are kept to a minimum. They are limited to cases where specific authors' work is discussed. A general discussion of these issues, with accompanying extensive references, can be found in Ashton and Green (1996).

have been desirable in themselves or for some social or political end, are now in effect economic policies.

These propositions should not, however, be taken as self-evidently true. Consider, for example, the following two issues. First: what exactly does it mean to speak of more or higher skills? One way to measure skills is by the level of educational qualifications held by the population at work. This is not bad as a first approximation, but it may deviate substantially from actual work skills if as often happens the educational qualification is not related to the type of work.

Second, is it necessarily true that technological change is biased towards high skills? The answer, of course, is no. It cannot simply be *assumed* that skills are on the increase in Britain, or that this is how British business has competed with some success over recent decades. Indeed history tells us that, for many parts of the capitalist world, long stretches of the 20th century have witnessed the decline of craft labour in the face of new methods of "scientific management", involving close control of detailed labour, little discretion, and decreasing skill. Moreover, even global integration does not necessarily call for an upskilling of the entire workforce. A possible scenario is that Western firms maintain their advantage for substantial periods of time by increasing their management efficiency, intensifying the effort but not necessarily the skill of the rank and file workers. Access to markets, political and social stability, and automation can combine to mean that firms do not have to raise continually the skills of their lower-ranked workers. Such a prospect would indeed be worrying from the point of view of equality of opportunity. A major, but contested, explanation of rising inequality in Britain is that the returns to higher-level skills, relative to lower-level skills, have been rising. If lower-skilled workers are not in a position to be raising their skills, their relative pay position is likely to worsen still more.

How then can we come to understand the main skill trends in the modern era? The answer lies in doing detailed theoretically-informed empirical studies. Because of the centrality of skills to our knowledge of modern economies, it is important for a detached scientific analysis to discover as much as possible about the levels and types of skills used by British workers. Unfortunately, this is a field where there is a great deal of conjecture but where the evidence hitherto is uncertain and contested. While sociologists have been studying skills for a long time, their analysis and measurement are also of considerable importance for economists. This paper presents first findings from a major new study of skills in Britain, undertaken as part of a research programme entitled "The Learning Society", which is funded by the UK's Economic and Social Research Council.

The paper is unashamedly empirical, and concentrates on showing what has been happening to skills in British workplaces since the mid-1980s. In particular, it will examine:

- Has the usage of skills been increasing in Britain?
- If so, have some groups been increasing their work skills faster than others? Are there any identifiable groups whose work skills have been stagnating or even declining?
- How far are the qualifications which workers bring with them to the workplace actually being used at work?

- What types of work skills are changing?
- Do changes in skills mirror changes in pay?

## What do We Already Know About Skills in Britain?

While it is not easy to define skills used at work, a common way of measuring the skills of the workforce is by taking a look at their levels of educational qualifications or, simply, the number of years of schooling. For example, Britain's paucity of intermediate-level vocational qualifications has figured strongly in explanations of relatively low productivity. Yet, taking educational attainment as the benchmark, it is easy to conclude that over the last decade or so, as also for much of the last century, the British workforce has been getting more skilled. Most remarkably, the propensity to stay on at school after legal compulsion has ended has risen substantially since the middle of the 1980s: the proportion of 16-18 year olds in full-time education was only one in three in 1985/6, but by 1995/6 it had risen to 57%. Correspondingly the proportions of 19-20 year olds in higher education more than doubled from 12% to 27%. The proportion of the working age population that possesses some sort of qualification rose from 63% to 80%, while the proportion of degree holders went from 7% to 12%[40] - an expansion of the stock of qualifications in the workforce that is sure to continue as qualified cohorts replaced unqualified retirees. Some doubt may be raised as to whether the increase in participation is sufficient for economic purposes, if only because other countries too are raising both standards and participation, arguably faster.

It is also possible to be sceptical, and many are, about how far these new qualifications are always necessary or appropriate for the jobs that people later do. It is far from unusual to find applicants to secretarial jobs in possession of university degrees. While it may be argued that graduates in "non-graduate jobs" may nevertheless transform those jobs, this has yet to be proven on a wide scale. It has been strongly argued that at least part of the skills problem facing Britain has been a deficiency of demand for high-skilled labour, born of strategic decisions (for good or bad) by many sections of British business to concentrate on comparatively low value-added processes and products with accompanying low-skill and low pay (Keep and Mayhew, 1996; Ashton and Green, 1996).

Indeed, Mannocorda and Robinson (1997) have argued persuasively that the rise in qualifications says nothing in itself about movements in job skills, suggesting that employers simply recruit more workers with qualifications if there are more such people available - a process termed "credentialism", or, alternatively, "qualifications inflation". Using data from the Labour Force Survey in 1984 and 1994, they argue that the increased qualifications are not concentrated in particular occupations or sectors which have rising skill requirements; rather the qualifications are spread broadly across the workforce. Moreover, after reviewing a small number of case studies, they could find little evidence of employers consciously raising the qualifications criteria for recruitment to jobs with increasing skill. One problem,

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[40]     Department for Education and Employment, *Education Statistics 1996*, HMSO; and *Training Statistics 1996*, HMSO.

however, with the use of case studies is that they covered only a small proportion of the workforce. Moreover, since a number of technological changes commonly discussed might be expected to pervade almost all areas - for example, information technology or changing work organisation - it is not obvious a priori that one would not expect to see new qualifications quite evenly spread if they were being used to match a rising skills demand. Finally, there are significant measurement problems with the LFS qualifications data on which the Mannacorda and Robinson study is obliged to rely (Bradley *et al*, 1997). For all these reasons, the issue of how much credentialism there has been in Britain remains open.

The second way in which it is proposed that skills have risen is by looking at the changing proportions of employees in different occupations. Rising proportions of non-manual workers or alternatively of "non-production" workers are typically interpreted as indicating increased skill levels. Indeed, it is widely observed that there are increasing proportions of managers in the workforce, and despite the fact that the declines in manual workers come mainly from the skilled groups (that is, craft workers) most advanced industrialised countries appear to experience an upward trend in the average occupational status. Nevertheless this measure of skill trend has been contested by some social scientists, upon observation of the spread of scientific management techniques to non-manual workers. Changes in the nature of non-manual work have rendered many jobs as little more than routine, requiring low skill levels, and resembling traditional manual work in all but the extent of physical strength required. While occupational titles may remain steady for decades the content of each occupation may be radically altered, leading to higher or even lower skills. What, for example, does being a "manager" mean, and has not that meaning changed over the years? It is necessary not only to look at occupational titles but also at changes within each title.

One approach to this task has been to ask individual respondents to a survey whether they thought their work skills had increased or decreased or remained the same, compared to their jobs five years previously (Gallie, 1991). Such a question was asked in a survey, part of a research project entitled the "Social Change and Economic Life Initiative" (SCELI), which was carried out in 1986. While 52% reported an increase in skills, only 9% reported a decrease. It appears that there was widespread upskilling within most occupational classes. The main potential problem with this method is that it requires the individual to judge the change, and there may be a notable impetus from self-esteem to exaggerate increases and downplay any decreases. Moreover, individuals might interpret changes in the type of skills used at work as increases in skill, thereby masking possible skill losses. Other problems are that not all respondents were in work 5 years earlier, and that in any case they are all 5 years older and might for that reason be more skilled. Though Gallie's evidence is strongly suggestive of a genuine upskilling, it needs substantiation from methods less likely to be prone to upward subjective bias.

Analysing a subsequent survey, Gallie (1996) and Gallie and White (1993) reported that there had been a reduction between 1986 and 1992 in the proportions of jobs requiring no training, or less than three months leaning time, or no qualifications. While these reductions were seen as evidence of rising skill, critics have noted that the qualifications required for a job might be raised as a means of

rationing scarce jobs but bear little relation to skill (Lloyd, 1997). This criticism ought also to be a matter for empirical evaluation.

# A New Method for Examining Skill Trends

In early 1997, a major new survey of employed people was conducted in Britain, which was designed to examine the skills actually used at work by all sections of the workforce. This survey - henceforth the "Skills Survey" - had several purposes, one of which was to permit a new method to be used to examine skill trends. Occupation and educational attainment are of course included in the survey. In addition, however, some detailed questions about the skills people use at work enable a much more secure judgement to be made about work skill trends. The judgement is more secure because the measures refer to the skills actually used at work, and because there are a number of alternative measures that together can be used to build up a robust picture of the changes going on in the British economy.

For the examination of skill trends, two approaches were followed. In the first, and major, approach the idea was to ask identical questions on skills to those asked in the SCELI survey of 1986, referred to above. In the second approach the respondents to the Skills Survey were asked to state their use of particular skills both now and also five years ago. By comparing answers for the present with those for five years earlier a qualified judgement can be made about the trend in these particular skills between 1992 and 1997.

Consider first the method of comparing SCELI with the Skills Survey. Three types of question were included word for word identical in the two surveys (see Appendix). The first set were questions on qualifications, including what qualifications respondents *had*, what qualifications they would now require to *get* the same job and how necessary these qualifications are for *doing* the job competently. While qualifications held is a useful measure of the skills brought to the job by the individual, it is rather the level of qualification both required and necessary to do the job that is a closer measure of the actual skill involved in the job. A second type of question was to ask respondents how long a training was necessary for the type of work that they were doing. Third, respondents were asked how long it had taken (or would take) them to learn to do the job well. The presumption here was, simply, that high skill jobs take a lot of learning, while jobs that can be picked up competently after a short time are not likely to be highly skilled. This measure of skill has a certain ambiguity, because it might be argued that a more highly educated person would be able to learn a job of given difficulty more quickly than a less educated person. Hence this skill measure has to be seen in conjunction with the other measures. Nevertheless, it is an important measure if only because of the well-recognised role of job experience in inculcating work skills.

These questions lead to several measures of skill and skill trend (see next section) which can be used to build up a consistent picture, but they are far from perfect. In particular, they do not allow investigation of the types of skills used at work, nor of the competences of the individuals using them. The Skills Survey aimed to investigate many types of skills and competences, but the responses cannot be compared with SCELI which did not ask these questions. However, a subset of sixteen detailed questions was asked about the skills respondents exercised five years previously, assuming they were in employment at that time. This subset focused on the levels of usage of problem-solving skills, of communication and

social skills, of manual skills and of computing skills. In each case respondents ranked on a 5-point scale how "important" each detailed skill was in their work. This method, derived and adapted from standard job analysis procedures, seeks to obtain the workers' analyses of their own jobs quite separate from any judgement about how competent or effective they were at each skill. With each detailed skill, it is therefore possible to say if it has become more or less important in their jobs or remained at the same level. An aggregate picture can then be obtained of how each type of job skill has changed over five years. The picture is, however, incomplete, partly because it was not possible to ask about all kinds of skills and partly because a proportion (15.7%) of respondents were not in work five years earlier.

An important issue concerns whether it is valid to deduce trends about Britain from a comparison of the two surveys. While the Skills Survey was designed to be representative of the whole of Britain, the larger SCELI sample was taken from six major urban areas. Nevertheless, the SCELI sample turns out to be broadly representative of Britain in several key respects, and it can be maintained that comparisons of the two surveys are therefore permissible. In the Appendix, more details are given about the ways that the two surveys were conducted.

## The Findings

### (i)     Skill Trends, Comparing 1997 with 1986
*a.     Qualifications Held*
The first trend to note is that many more or those in work in the Britain of 1997 hold some sort of qualification, compared to those in work eleven years earlier. Whereas in 1986 some 28% of employed workers in the SCELI sample possessed no qualifications, by the time of the 1997 Skills Survey only 19% had no qualifications. This trend parallels the trend in the qualifications of the population at large. Though important, the trend is entirely to be expected, given the increased educational participation of young people compared to that of workers from previous generations who have left the workforce in the intervening period.

*b.     Qualifications Required*
While qualifications held provide one useful measure of skills supplied by the workforce, they do not indicate, except indirectly and with possible inaccuracy, the skills demanded in the workplace. A better measure of the skill demanded is the qualification level that new recruits are required to have. On this measure, there has also been an increase in work skills (Table 1 and Figures 1 and 2). Whereas 62% of jobs required at least some qualifications in 1986, by 1997 this proportion had risen to 69%. For "High Level" qualifications (anything above A-level) the proportion rose from 20% to 24%. In fact, skill requirements rose at all levels of highest qualification except for NVQ3 where they dipped a bit.

## Table 1: Qualifications required in Britain, 1986 and 1997

| Qualification Level* | Highest qualification Now Required To Get Current Job (% of all workers) | | Required qualification is "fairly necessary" or "essential" to do the job (% of workers at each job qualification level)** | |
|---|---|---|---|---|
| | 1986 | 1997 | 1986 | 1997 |
| High Level *Of which:* | 20.2 | 23.8 | 80.5 | 77.3 |
| degree | **9.8** | **13.9** | **77.9** | **75.5** |
| subdegree | **10.5** | **10.0** | **82.8** | **79.7** |
| Level 3 | 15.3 | 13.3 | 77.3 | 73.9 |
| Level 2 | 18.5 | 21.4 | 64.7 | 71.8 |
| Level 1 | 7.7 | 8.9 | 79.4 | 77.0 |
| None | 38.3 | 31.4 | na | na |

**Notes:**

\*       Highest qualification level, ranked as NVQ equivalents. "High Level" means everything above A-level; sub-degree means any of: HNC/HND, or SHNC/SHND, or a nursing qualification (e.g.SRN, SEN), or a teaching or other professional qualification (e.g. law, medicine). Level 3 is roughly equivalent to A-level, Level 2 roughly equivalent to GCSE grades A-C, and Level 1 to GCSE grades D and below. All qualifications were precisely matched between surveys.

\*\*       Where respondents indicated that qualifications were required of recruits to their current job, they assessed whether those qualifications were "essential", "fairly necessary", "not really necessary" or "totally unnecessary" to do the job competently.

In this and subsequent tables, both years' data have been weighted by a factor determined by the number of eligible respondents at each address visited; the SCELI data have also been weighted by a factor that takes account of the slight over-representation of females in the raw sample.

**Source:** *Social Change and Economic Life Initiative, 1986 and Skills Survey, 1997.*

## Figure 1: Qualifications Required, 1986 and 1997



## Figure 2: Required Qualifications Necessary, 1986 and 1997
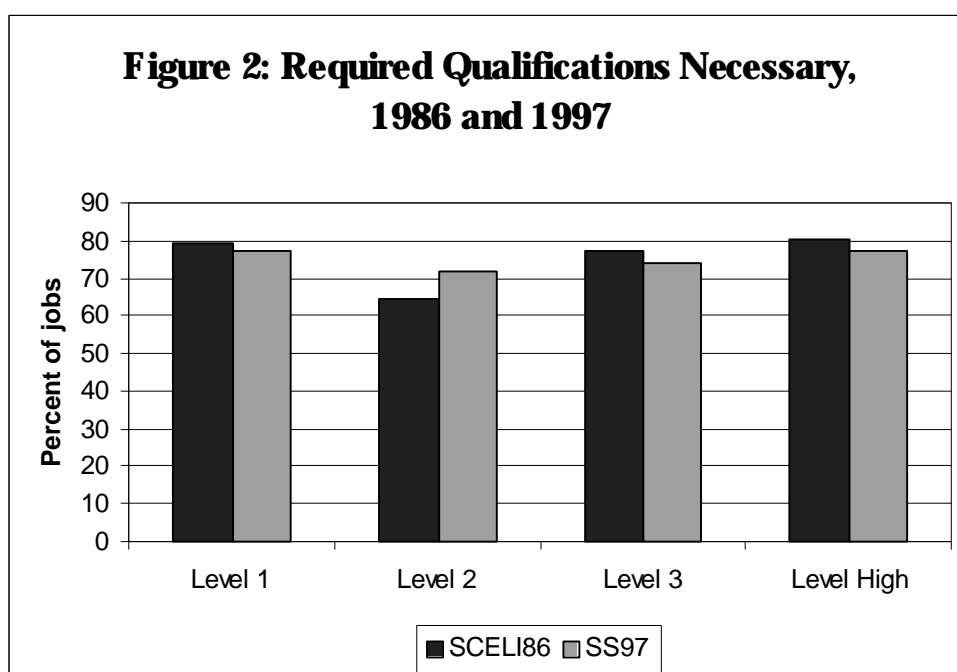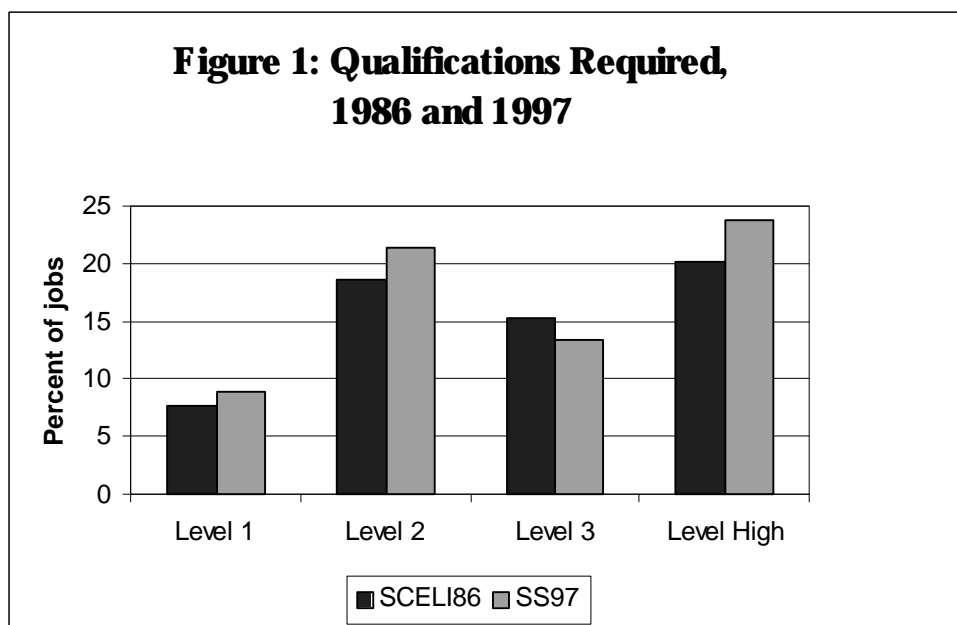


*c.     Credentialism and Qualifications "Used"*

Yet some employers might raise the qualification levels they ask for simply as a means of rationing the numbers of job applicants, without altering the nature of the job specifications so that the increased qualifications become needed to do the job. This artificial "qualifications inflation" might be a response to an increasing supply of qualifications on the labour market, just as price inflation can result from excessively increasing supplies of money. To investigate this possibility, respondents were asked to respond on a 4-point scale as to how necessary were the qualifications, which were required of recruits, for doing the job.

The trend differs according to position in the qualifications spectrum. For those jobs recruiting at level 2 - the equivalent of GCSE grades A to C - the extent to which that qualification is judged "fairly necessary" or "essential" has substantially

increased, from 65% to 72% of job holders at that level (Table 1). At other levels, the perceived necessity for qualifications has slightly decreased. Thus, among those in "high level" jobs the proportion who judged the qualification requirement to be "not really necessary" or "totally unnecessary" for actually doing the job rose from 19% to 22%.

A good measure of skills "used" in a job, therefore, is the level of qualification which is both required of new recruits (now) and either "essential" or "fairly necessary" to do the job. On this score, there has also been a significant increase in skills: the proportions in jobs using (in the sense just described) High Level skills rose significantly from 16.2% to 18.4% (see Table 2, last row, and Figure 3). This change suggests that the changes in the qualifications requirements are not just a case of pure credentialism by employers.



Figure 3: High Level Qualifications 'Used' in Job
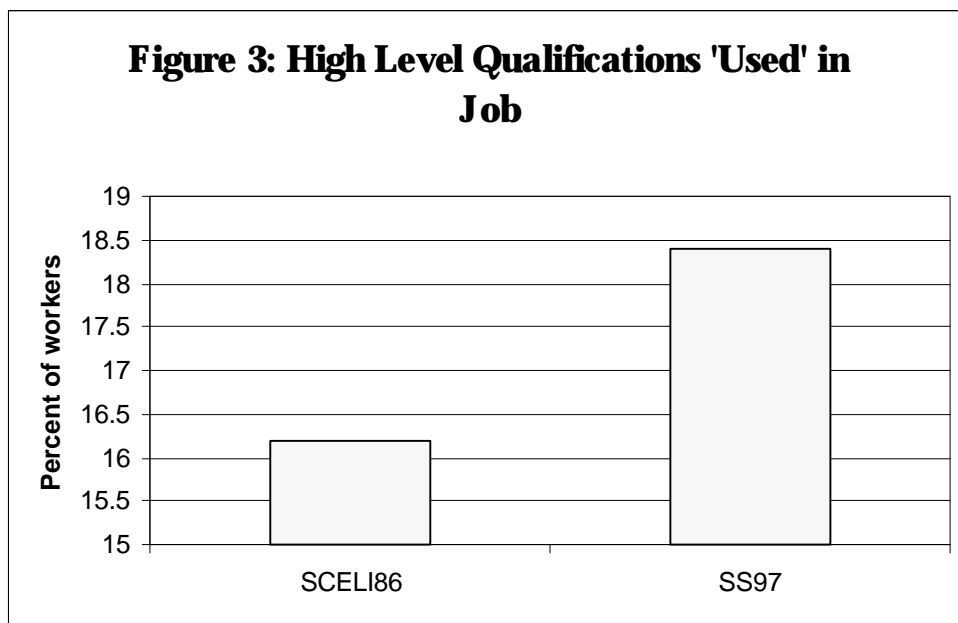
**Table 2: The Demand for Qualifications in Britain, 1986 and 1997**

| Qualifications Required | All | | Males | | Females | |
|---|---|---|---|---|---|---|
| | 1986 | 1997 | 1986 | 1997 | 1986 | 1997 |
| Percent of all workers in jobs where some qualifications are required to get job now | 61.7 | 68.6 | 69.0 | 71.3 | 51.5 | 65.9 |
| Percent of such workers for whom "those"** qualifications are seen as fairly necessary or essential to do job | 74.8 | 74.9 | 75.3 | 73.8 | 73.8 | 76.2 |
| Percent of all workers in jobs where "High Level"* qualifications are required to get job now | 20.2 | 23.8 | 23.4 | 26.2 | 15.7 | 21.3 |
| Percent of such workers for whom those "High level" qualifications seen as fairly necessary or essential to do job* | 80.5 | 77.2 | 77.4 | 73.7 | 86.8 | 81.8 |
| Percent of all workers in jobs where "High Level" qualifications are both required and either fairly necessary or essential to do job* | 16.2 | 18.4 | 18.0 | 19.3 | 13.5 | 17.4 |

**Notes:**
\*     See Table 1.
\*\*     by "those" is meant those qualifications named by each respondent as currently required of recruits.
**Source:** *Social Change and Economic Life Initiative, 1986 and Skills Survey, 1997.*

*d.     Gender Differentiation*
The skills increases are much more pronounced for females than for males (Figure 4 and Table 2). Although women remain behind men in terms of both qualifications required and qualifications "used", they have caught up substantially. Whereas, for example, 71% of men's jobs now require some qualification, up a little from 69% in 1986, for women the proportions rose dramatically from 51% to 66%. That women's

job skills appear to be converging on those of men is consistent with the long-term narrowing of the male/female wage differential, and is further evidence of increasing integration of women in the modern economy.

**Figure 4: Some Qualifications Required to Get Job**
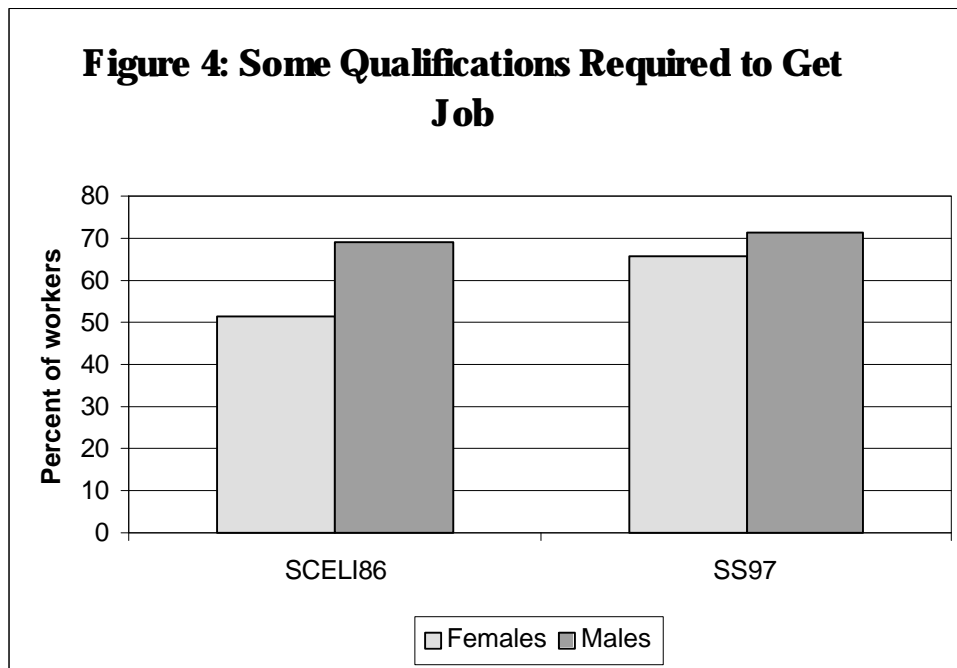


*e.* "Over-Education"

Although work skills as measured by qualifications required by employers have been rising, there has simultaneously been a general increase in the qualifications held by the workforce. Since 1986, an older cohort with fewer qualifications has been replaced by a more highly educated younger cohort. If the rise in qualifications held fails to keep up with qualifications demanded, there will result a period of skills shortage. But if the supply of qualifications rises 'too fast', we are likely to observe more individuals in jobs for which they are over-qualified, commonly termed 'over-educated' workers.

Table 3 and Figure 5 throw light on this trend. Row 1 shows the unsurprising finding that the proportion of workers with degrees has risen substantially. Row 2 shows, however, that there has been a reasonably good match between supply and demand. There has been only a small (statistically insignificant) rise in over-education for degree holders. This is a notable finding, which is relevant for consideration of the Dearing Commission's proposals to expand participation in higher education. While the finding is not a forecast of future skills usage, it would have been hard to justify any further expansion of higher education participation on economic grounds, if the expansion of the last decade was being insufficiently taken up by industry.

## Table 3: "Over-Education" of Workers in Britain, 1986 and 1997

|  | 1986 | 1997 |
|---|---|---|
| Percent of all workers who have a degree | 7.2 | 12.5 |
| Percent of degree-holders in jobs where degrees are NOT required of recruits | 30.2 | 32.0 |
| Percent of all workers who have a sub-degree* but no degree | 13.3 | 12.4 |
| Percent of sub-degree holders in jobs where neither their qualification nor a degree is required of recruits | 32.1 | 30.6 |
| Percent of workers who have no qualifications | 28.2 | 18.7 |
| Percent of qualification-holding workers in jobs where no qualification is required | 25.6 | 22.4 |

**Note:**
\* By a sub-degree qualification is meant any of: HNC/HND, or SHNC/SHND, or any nursing qualification (e.g.SRN, SEN), or a teaching or other professional qualification (e.g. law, medicine).
**Source:** *Social Change and Economic Life Initiative, 1986 and Skills Survey, 1997.*

There is also interest in the further expansion of further education in Britain. Row 3 indicates that there has been no expansion in the proportions of workers holding highest qualifications just below degree level (but above A-level). Unsurprisingly, there has also not been a rise in the over-education of this group (Row 4). This finding is at the very least re-assuring if there is to be an expansion of further education as recommended in the recent Kennedy Report.

Finally, Row 5 shows that there has been an overall fall in the proportions of workers holding no qualifications at all. This fall broadly matches the fall in jobs demanding no qualifications recorded above (Table 1). The result is a small but statistically significant decrease in the overall extent of over-education amongst those with any qualifications. In 1986, 25.6 of those with a qualification were in jobs for which no qualification at all was demanded. By 1997 this proportion had fallen to 22.4%. This fall is accounted for mainly by increased demand for qualified females, for whom over-education declined from 32.4% to 24.0%, while male over-education declined only by a statistically insignificant amount from 21.2% to 20.8%.

It is necessary to add a minor health warning to these results concerning over-education. The SCELI data on qualifications held were collected in a manner different both from that used by the Skills Survey, and from the methods used by the Labour Force Survey in 1986 and 1997. The figures are more reliable at either end of the skills spectrum; within the middle ranges, the levels of qualifications are

sometimes fuzzy, and the grades and qualifications achieved are in most surveys of this nature, including the Labour Force Survey (LFS), less accurately reported. These matters are discussed in the appendix. For this reason, Table 3 presents no figures concerning over-education at intermediate levels.



**Figure 5: Over-education**
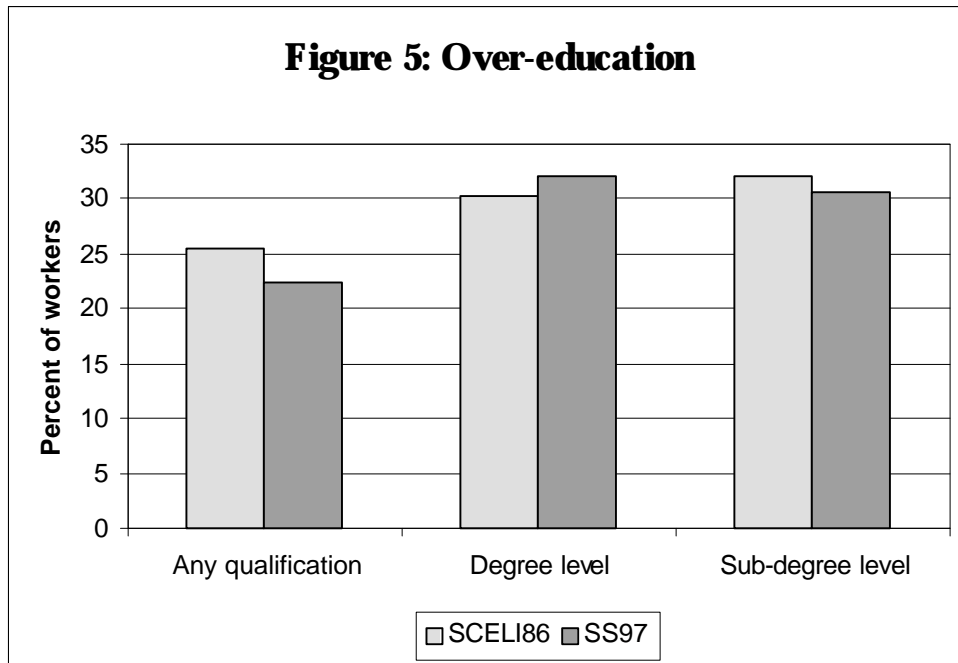
*f.        Training Time and Learning Time Measures*

Let us consider now whether the upward trend in skill identified from the qualifications measures can be corroborated using other measures of skill. Table 4 and Figures 6 to 9 show that indeed they can. There has been a notable decrease from 66% to 57% in the proportion of workers whose type of work required only short (less than three months) training, and an increase from 22% to 28% in the proportion with long training requirements (over two years). Similarly there has been a fall from 26% to 22% in the proportion of jobs which respondents judge take only a short time (less than a month) to "learn to do well". The proportion taking more than two years did not significantly change overall, but for women there was a rise and for men a fall. In respect of all these measures, the skill levels of female workers have been catching up with those of male workers but still lag behind.

**Table 4: Further Measures of Job Skill Trends**

| | All | | Males | | Females | |
|---|---|---|---|---|---|---|
| | **1986** | **1997** | **1986** | **1997** | **1986** | **1997** |
| *Length of training for the type of work* | | | | | | |
| Less than 3 months | 65.9 | 57.3 | 58.5 | 53.9 | 76.3 | 60.9 |
| More than 2 years | 22.5 | 28.5 | 30.0 | 33.6 | 11.9 | 23.2 |
| *Time taken to learn to do job well (employees only)* | | | | | | |
| Less than 1 month | 27.0 | 22.0 | 18.2 | 15.5 | 38.4 | 28.0 |
| More than 2 years | 24.4 | 23.7 | 34.3 | 30.9 | 11.7 | 16.9 |

**Source:** *Social Change and Economic Life Initiative, 1986 and Skills Survey, 1997.*



**Figure 6: Under Three Month's Training Required**
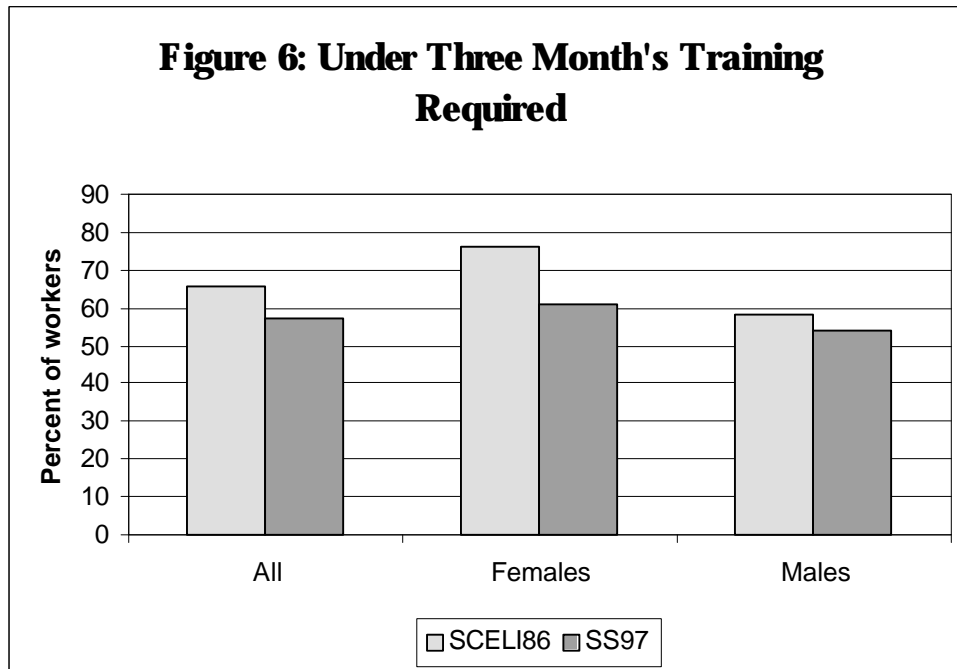
**Figure 7: Over 2 Years Training Required**

Percent of workers

All — Females — Males

Legend: SCELI86, SS97

**Figure 8: Under One Month's Learning Time**

Percent of workers

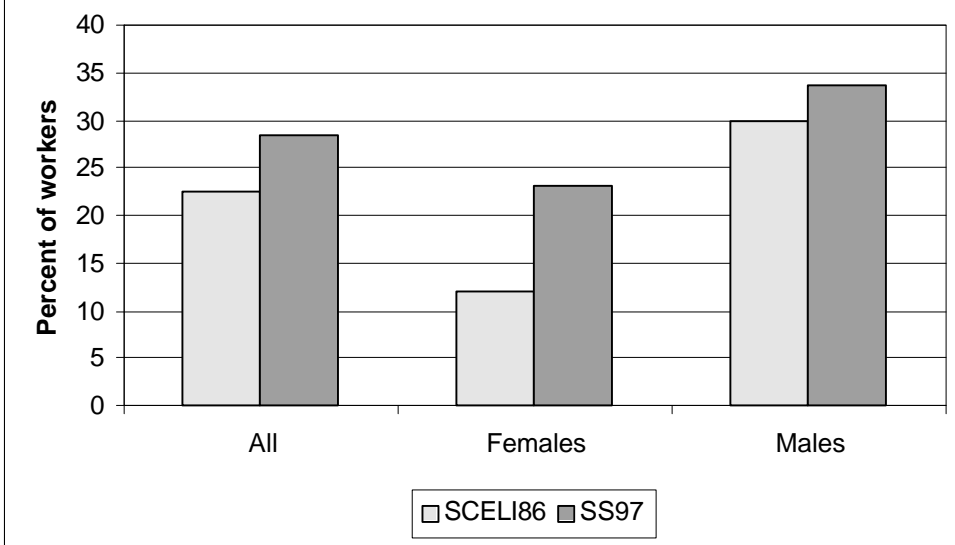All — Females — Males

Legend: SCELI86, SS97

**Figure 9: Over Two Year's Learning Time**
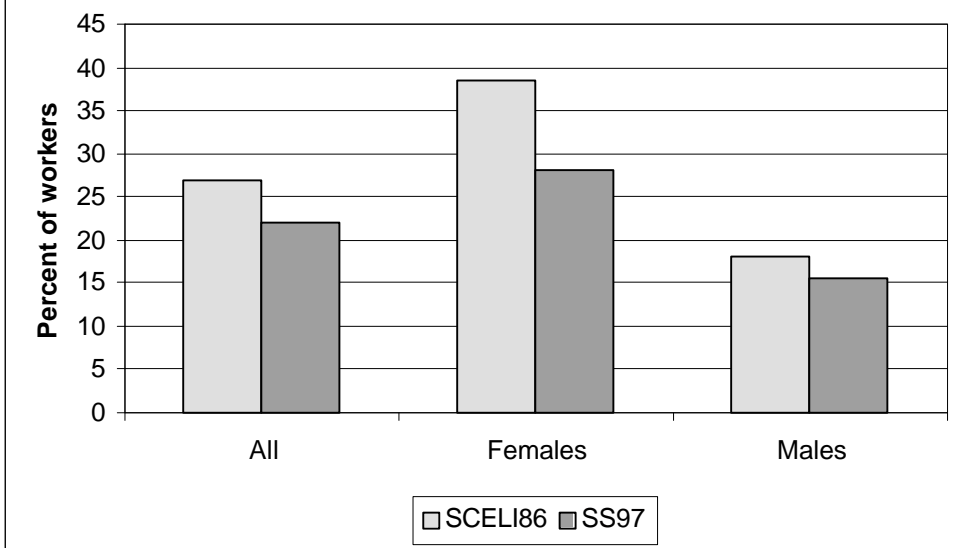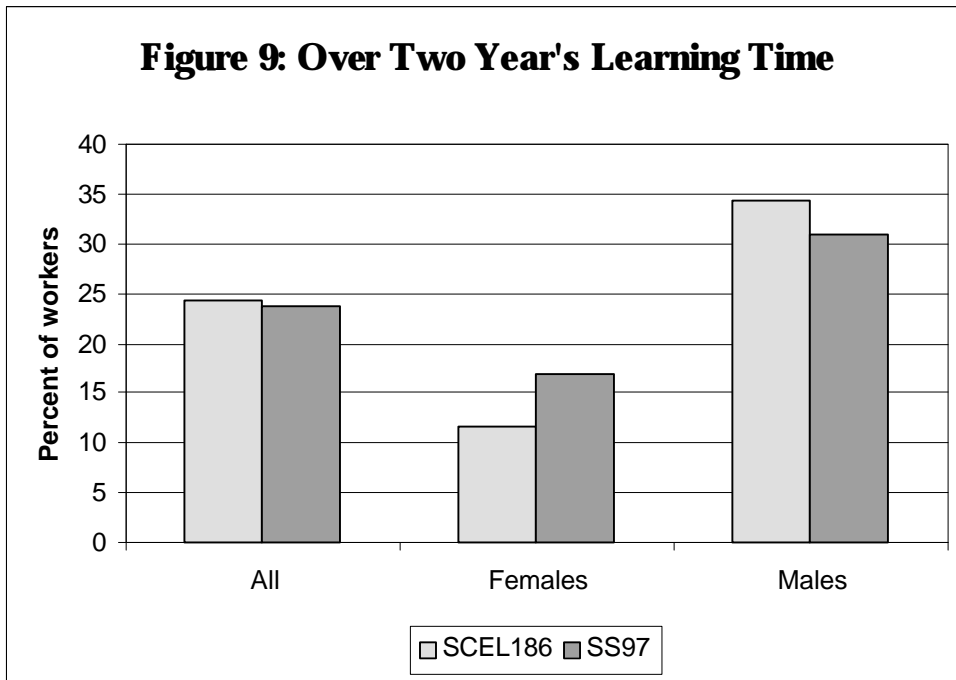


*g.    Taking Stock*

Hence, across almost all the measures of skill there is a consistent picture of aggregate upskilling, with females' skills rising more than males'. The fact that different measures present a similar picture is reassuring, given the difficulties of precisely and uniquely defining what skill is. In subsequent tables, findings will be presented for six skill measures, as described so far: two each for the training time requirement and the learning time requirement, one for the extent to which any qualifications are required for recruits, and one for the extent to which high level qualifications are "used" by (both required of current recruits and judged "fairly necessary" or "essential" for) workers in their jobs. An important advantage of these measures is that they apply to the jobs rather than to the individuals themselves.

*h.    The Young and the Old*

An interesting question is whether the rapid expansion in the supply of well-educated young people joining the workforce in the last decade has been a very important driving factor in the upskilling of the workforce. If it were, one might expect to find upskilling concentrated mainly in the younger part of the workforce. Accordingly, Table 5 takes the six skill measures and split the samples according to whether respondents are above or below 35 years of age. They show that skills have increased as much or more in the older part of the workforce as in the young: for example, amongst older workers the proportions needing only a short time to learn their jobs fell from 29% to 21%, whereas for younger workers it fell from 25% to 23%. This finding is suggestive of the importance of demand-side changes being important, as these are likely to have had an impact on all age groups.

**Table 5: Skill Trends by Age**

| | Under 35 Years | | 35 Years and Older | |
|---|---|---|---|---|
| | **1986** | **1997** | **1986** | **1997** |
| % Requiring Some Qualifications[a] | 64.4 | 69.0 | 59.7 | 68.4 |
| % Using "High Level" Qualifications[b] | 15.0 | 15.8 | 17.0 | 20.0 |
| % With Low Prior Training[c] | 62.7 | 55.6 | 68.3 | 58.4 |
| % With High Prior Training[d] | 24.4 | 28.1 | 21.1 | 28.7 |
| % With Short Time To Learn Job[e] | 24.8 | 22.9 | 28.6 | 21.3 |
| % With Long Time To Learn Job[f] | 21.8 | 18.9 | 26.4 | 27.0 |

**Notes:**
a.	At least some qualifications required currently for new recruits to job.
b.	"High Level" qualifications (above A-level) both required and "fairly necessary" or "essential" to do job.
c.	Type of work requires less than 3 months prior training.
d.	Type of work requires more than 2 years prior training.
e.	Job requires less than a month to learn to do it well; employees only.
f.	Job requires more than 2 years to learn to do it well; employees only.
**Source:** *Social Change and Economic Life Initiative, 1986 and Skills Survey, 1997.*

*i.	Occupations*
As before mentioned, a traditional way of measuring skill changes is through the changing proportions of higher-status (usually non-manual) occupations. The samples here are no exception, in that there is an increasing proportion of non-manual workers, especially managers and administrators who rose from 10.6% to 14.0% of the workforce (Table 6). Nevertheless a key question is whether skills have increased *within* each occupational group. Table 7 presents the relevant data for all the six skill measures. Within every group the broad picture is for an increase in skills, although this does not apply for every measure and every occupation. Also, the sample size in several of the cells is quite small, and so for this table we also show results of tests of statistical significance for the differences between 1986 and 1987. Several of the differences do not establish statistically significant differences in the employed population. Nevertheless, there is a statistically significant rise in skill

for every occupation according to at least one measure. Thus, for managers and administrators skills increase is signalled by longer learning times, while for plant and machine operators skills increase is signalled by lengthier prior training. Further analysis of plant and machine operators showed that there was also a significant increase from 3.7% to 10.3% in the proportions "using" qualifications at the NVQ2 level. Thus it is remarkable that there is no occupational group which in aggregate is being left completely behind in the skill race.

| Table 6: Occupational Structure in Britain, 1986 and 1997 | | |
|---|---|---|
| | **1986** | **1997** |
| Managers and Administrators | 10.6 | 14.0 |
| Professionals | 10.3 | 10.0 |
| Associate Professionals and Technicians | 8.1 | 10.1 |
| Clerical and Secretarial Occupations | 16.8 | 17.6 |
| Craft and Related | 17.9 | 12.1 |
| Personal & Protective Service | 10.4 | 11.0 |
| Sales | 6.8 | 7.5 |
| Plant and Machine Operatives | 10.6 | 10.5 |
| Other Occupations | 8.2 | 6.9 |

**Source:** *Social Change and Economic Life Initiative, 1986 and Skills Survey, 1997.*

| Occupation | % Requiring Any Qualificat- ions | % Using High Level Qualifica t-ions | % With Low Prior Trainin g | % With High Prior Training | % With Short Time To Learn Job | % With Long Time To Learn Job |
|---|---|---|---|---|---|---|
| Managers and Administrators |  |  |  |  | ** | * |
| 1986 | 78.9 | 24.5 | 55.9 | 28.9 | 14.4 | 32.2 |
| 1997 | 78.9 | 27.1 | 51.7 | 32.3 | 6.0 | 39.5 |
| Professionals |  |  | ** | ** |  |  |
| 1986 | 97.2 | 71.4 | 46.4 | 36.7 | 6.7 | 49.9 |
| 1997 | 98.8 | 71.1 | 32.1 | 54.1 | 5.9 | 51.0 |
| Associate Professionals and Technicians |  |  | * |  | ** |  |
| 1986 | 86.3 | 45.5 | 41.3 | 41.1 | 13.0 | 39.7 |
| 1997 | 89.8 | 43.1 | 33.7 | 44.8 | 5.8 | 36.8 |
| Clerical and Secretarial Occupations |  |  | ** | ** |  |  |
| 1986 | 78.3 | 4.6 | 72.0 | 11.4 | 21.1 | 10.1 |
| 1997 | 82.2 | 6.8 | 65.1 | 17.0 | 19.6 | 9.3 |
| Craft and Related |  | * | ** | ** | ** |  |
| 1986 | 68.1 | 4.6 | 54.1 | 36.2 | 15.2 | 39.8 |
| 1997 | 71.9 | 7.2 | 42.7 | 44.9 | 7.5 | 40.5 |
| Personal and Protective Service |  |  |  |  |  |  |
| 1986 | ** |  | ** | ** | ** |  |
| 1997 | 33.4 | 5.7 | 76.8 | 14.1 | 47.8 | 16.6 |
|  | 59.5 | 5.3 | 55.8 | 22.9 | 30.5 | 14.0 |
| Sales Occupations |  |  |  |  |  |  |
| 1986 |  |  | ** | * |  | * |
| 1997 | 31.8 | 2.7 | 88.9 | 6.4 | 48.9 | 7.8 |
|  | 37.7 | 2.3 | 82.4 | 11.4 | 45.0 | 3.2 |
| Plant and Machine Operatives |  |  |  |  |  |  |
| 1986 |  |  |  | * |  |  |
| 1997 | 41.9 | 2.2 | 80.9 | 10.1 | 36.1 | 16.7 |
|  | 42.4 | 1.4 | 78.2 | 15.1 | 38.6 | 13.0 |
| Other Occupations |  |  |  |  |  |  |
| 1986 |  |  |  |  |  | ** |
| 1997 | 16.2 | 0.9 | 92.9 | 4.2 | 63.0 | 1.9 |
|  | 20.1 | 0.0 | 90.1 | 6.7 | 60.6 | 5.4 |

**Notes:** See Table 5; significance levels for difference between 1986 and 1997: * =10%, **=5% (referring to pair of observations below).

*j.        Industries*

The same cannot be said of every industrial sector. Table 8 examines the same skills measures according to industry, and finds that in most industries there is clear upskilling. There are, however, some notable exceptions. In the Wholesale industry there is a statistically significant fall in the proportions of workers in jobs that take over two years to learn. Other indicators for the Wholesale industry show only small and insignificant movements in skills. Another exception is the Health sector, where there is an increase in skill in that there are lower proportions requiring at most short training, but a decrease in skill in that there is a substantial and significant fall in the proportion of workers "using" high level qualifications and also a significant drop in the proportions of workers in jobs that take over two years to learn. Neither of these industries are directly exposed to the forces of global economic integration. If the latter is driving the skill increases in internationally exposed industries, it would be predicted that the less-exposed industries would have a smaller skills increase or even a decrease in skills as a result of displaced unskilled workers moving to those sectors. Nevertheless, other industries partly protected from trade also had skills increases - for example, Education. The stagnating or even falling skills in the Wholesale industry and the mixed picture in Health can only be fully explained by a more detailed industry analysis, taking into account, for example, the transformation of contractual arrangements in the National Health Service. The fall in the demand for high-level qualifications does not imply deskilling of, say, doctors or nurses: rather it reflects the increased deployment of personal service workers in the Health Sector (from 31% to 37%) and the increased use for them of short training periods rather than educational qualifications.

Anther point to note in relation to Table 8 is that, while in the Finance industry the skill changes are all in the upward direction, none of them quite achieve statistical significance.

**Table 8: Skill Trends by Industry**

| Industry | % Requiring Any Qualifica- tions | % Using High Level Qualifica- tions | % With Low Prior Training | % With High Prior Training | % With Short Time To Learn Job | % With Long Time To Learn Job |
|---|---|---|---|---|---|---|
| Manufacturing | | ** | ** | ** | | |
| 1986 | 60.7 | 10.3 | 66.0 | 23.0 | 23.5 | 24.4 |
| 1997 | 64.3 | 17.4 | 57.5 | 29.2 | 20.0 | 25.3 |
| Construction | ** | | ** | | ** | |
| 1986 | 67.8 | 7.9 | 52.9 | 39.7 | 25.0 | 44.6 |
| 1997 | 77.3 | 12.3 | 42.3 | 46.2 | 6.0 | 51.0 |
| Wholesale | | | | | | ** |
| 1986 | 46.2 | 3.7 | 80.2 | 14.0 | 33.9 | 16.3 |
| 1997 | 43.4 | 3.2 | 78.1 | 13.8 | 35.0 | 10.8 |
| **Hotels** | ** | * | ** | ** | | |
| 1986 | 24.7 | 2.4 | 86.3 | 4.0 | 53.4 | 9.6 |
| 1997 | 56.6 | 7.9 | 70.4 | 14.5 | 43.9 | 15.9 |
| Transport | | | | ** | ** | |
| 1986 | 63.2 | 9.2 | 70.9 | 12.5 | 27.8 | 14.3 |
| 1997 | 67.4 | 10.7 | 68.5 | 20.9 | 18.6 | 20.1 |
| Finance | | | | | | |
| 1986 | 82.1 | 15.7 | 53.2 | 30.2 | 11.8 | 20.3 |
| 1997 | 87.1 | 15.7 | 43.8 | 38.8 | 11.4 | 24.0 |
| Real Estate | ** | | ** | ** | ** | |
| 1986 | 66.4 | 25.4 | 64.8 | 24.1 | 31.1 | 24.4 |
| 1997 | 79.2 | 29.4 | 52.4 | 34.1 | 21.5 | 25.6 |
| Public Administration | ** | | ** | | 17.4 | ** |
| 1986 | 74.3 | 14.6 | 59.7 | 24.6 | 14.4 | 36.7 |
| 1997 | 85.4 | 14.2 | 48.9 | 31.8 | | 17.6 |
| Education | ** | | ** | ** | ** | ** |
| 1986 | 69.5 | 46.6 | 61.6 | 21.3 | 29.8 | 31.0 |
| 1997 | 86.1 | 53.6 | 52.0 | 31.0 | 16.6 | 37.5 |
| Health | | ** | * | | | * |
| 1986 | 68.3 | 38.3 | 53.3 | 32.2 | 21.9 | 28.2 |
| 1997 | 71.8 | 23.6 | 45.2 | 34.3 | 24.4 | 21.7 |
| Other Community | ** | ** | ** | ** | ** | ** |
| 1986 | 49.8 | 6.2 | 71.2 | 20.0 | 52.7 | 9.4 |
| 1997 | 65.7 | 18.2 | 50.8 | 30.9 | 23.9 | 34.3 |

**Notes:** Industries with less than 100 valid observations have been excluded from the analysis. Also, see Table 5; significance levels for difference between 1986 and 1997: * =10%, **=5% (referring to pair of observations below).
**Source:** *Social Change and Economic Life Initiative, 1986 and Skills Survey, 1997.*

*k.*      *Pockets of credentialism*

Earlier we showed that, in aggregate, the rise in required qualifications could not be dismissed simply as credentialism with no changes in skills used. Further confirmation of this conclusion derives from the finding that the other measures of skills also showed increases in aggregate and the same pattern according to gender. These other measures capture different aspects of skill which are nevertheless related to qualifications requirements. Thus, the Spearman rank correlation coefficient between required qualification level and learning time works out at 0.52 for 1986 and 0.46 for 1997. The correlation coefficients of qualifications level required with the training time requirement were 0.45 for 1986 and 0.43 for 1997. All these correlations were highly significant (p=0.00). There was also a positive correlation observed at the industry level, between the change in average qualification requirement and either the change in learning time or the change in training time requirement. In other words, those industries which had a greater than average increase in qualifications required tended to have above average skills increases according to the other measures. Together, these findings lead us to reject the notion that all the qualifications rise in Britain has done is to feed a pure qualifications inflation.

Nevertheless, this conclusion does not exclude there being some sectors in which credentialism is important. We analysed the data by sector and by occupation in search of patterns consistent with the case studies discussed by Manacorda and Robinson (1997) and for other possible areas of credentialism.

One area brought forth as evidence of credentialism by Manacorda and Robinson is sales assistants. In respect of sales occupations in our data there is a tendency for qualifications held to outrun demand. As a result, amongst those in sales occupations holding any qualifications in 1986, 61 per cent were in jobs with some sort of qualification requirement; by 1997 this figure had fallen significantly to 52 per cent. Nevertheless, there was no significant change in the level of necessity with which these qualifications were regarded. Hence, for this group we conclude that there was an element of increasing over-education, but there is no evidence of qualification inflation by employers as perceived by employees.

Another area to which Manacorda and Robinson draw attention is the deployment of clerical workers, especially in the financial sector. However, we could find no evidence of increasing overeducation or of credentialism for clerical workers. A slightly higher proportion of workers in clerical occupations with degrees were in jobs for which degrees were not required (46 per cent in 1997 compared with 40 per cent in 1986). However, the difference is not statistically significant owing to the small numbers in the cell. Therein lies a salient point: even if this difference were confirmed with a larger sample, the particular group of clerical workers with unnecessary degrees, though seen as an instance of under-use of skills, remains only a small fraction of the labour force. It is unsafe to make general conclusions from the experience of this group.

One sector where credentialism is apparent is in the Real Estate industry. There were significant falls in the extent to which required qualification were deemed necessary or essential, at NVQ levels 1 and 3, and at degree level. The figures were: from 74 per cent to 39 per cent at NVQ1, from 85 per cent to 58 per cent at NVQ3 and

from 83 per cent to 56 per cent at degree level. These declines do not mean that skills were falling in the Real Estate industry. As Table 8 shows, skills were increasing according to the other measures. Rather it suggests that there was a parallel process of formalisation of qualification requirements by employers in this industry which exceeded those judged necessary by many job-holders.

While our data showed no other industries with significant declines in the necessity of qualifications requirements, it must be noted that, especially in the less numerically important industries, the relatively small numbers in each cell do not permit strong tests for significant differences between 1986 and 1997: there are some other cases where necessity levels fell, but insignificantly given the small numbers. No strong argument can be made in these instances.

It may be noted that qualifications requirements in the Real Estate industry did rise slightly more than average, at levels 3 and 5. This latter observation suggests a more general hypothesis arising from the credentialism thesis, namely that in those industries where employers for credentialist reasons increased their qualification requirements more than average, job-holders would (ceteris paribus) be less likely to judge those qualifications as necessary or essential for doing the job well. We tested this hypothesis in a straightforward way with a multivariate analysis, where the dependent variable was the level of necessity attached to the qualification by job holders in the 1997 Skills Survey. The key independent variable under test was the average change in the industry's qualification requirement at each level since 1986, but we also included some control variables, namely: sex, age, age squared, the average level of necessity in 1986, and whether or not the individual actually holds the qualification required. The results of this analysis were not favourable to the credentialist hypothesis. Individuals were likely to regard qualification requirements as more necessary if they actually held the qualification required, and if they were in an industry where the level of necessity attached to that qualification in 1986 had been high; however, the hypothesis that the increase in qualification requirements led to a lower perceived level of necessity was decisively rejected.[41]

We cautiously conclude that, while there are undoubtedly pockets of increasing over-education associated with the rise in qualifications in the British labour force, and while there are areas of qualifications inflation at various levels, neither of these has been an economy-wide phenomenon in the past decade.

*(ii)     Trends In Particular Job Skills, 1992-97*

While this paper has presented a consistent picture of upskilling according to all measures used, the broad character of those measures does not permit any understanding of the sorts of skills which are increasingly in demand. As stated above, it was possible with the Skills Survey to examine such trends over a shorter period of five years, for a selective range of skills. Four categories of skill were selected on the basis of widespread commentary on the changing nature of jobs. First, problem-solving skills and computing skills are both said to be increasingly required by incoming technology. Furthermore, if workers are being increasingly

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[41]     We utilised an ordinal probit analysis. Formal results are available on request from the authors.

given more scope, being empowered, or required to take on multiple tasks, problem-solving again becomes more important. Similarly, with the delayering of management it is frequently argued that workers have to communicate more with other workers, or with clients or suppliers. In all these areas, it is hypothesised that increased skills are required. By contrast, in parallel with the decline in manual occupations, it is arguable that with increasing automation there is a decreasing need for manual skills.

The findings, shown in Table 9, are remarkably consistent with those suggested above. For all problem-solving skills, communication and social skills, as also for computing skills, the proportions of respondents reporting a higher level in 1997 than they reported for their jobs five years previously substantially exceed those reporting lower levels. For example, 32% reported increases in importance of making speeches or presentations, while just 12% reported a decrease. For computing skills, not only is there a balance showing a higher level of importance of computer usage, there is also an increase in the reported level of sophistication of usage.

If each move up or down the skill scale is counted as one, the average change of position can also be calculated (see third column of Table 9). This too is positive for all these skills. By contrast, in the case of all three physical skills there is a significant decrease in their usage, both in terms of the balance of increasing versus decreasing importance and in terms of the average change.

It might be argued that such skill changes merely reflect ageing of the sample rather than a shift in the skills of the workforce as a whole. There is indeed some tendency for most skills to rise between the 20-24 age bracket and the 25-29 age bracket. However, beyond that all the skills showed no significant upward link with age, and some downward link beyond 55. To confirm that the upskilling results are not just a matter of ageing, the same exercise was carried out as shown in Table 9 except for those over 30, thereby excluding those under 25 in 1992. This exercise showed similar upskilling  across problem-solving, communication and social skills and computing skills.

In further analyses not shown here we explored these changes a little further. First, an analysis by gender showed that on average both males and females in the sample had experienced rises in problem-solving skills, in communication and social skills and in computing skills, while manual skills were decreasing in importance. Second, it was found that some of the skill changes were more marked among those who had changed jobs in the course of the five years compared to those who had stayed with the same employer. Nevertheless, the opposite was true for other skills. There was no obvious pattern, and it was evident that skill change happens in general as much within jobs over time as for people moving jobs.

**Table 9: Type of Work Skill Changes in Britain, 1992 to 1997**

| Skill Type | % Increasing* | % Decreasing* | Average Change† | Average Change† For Low Paid‡ |
|---|---|---|---|---|
| *Problem-Solving Skill* | | | | |
| Spotting problems or faults | 34.6 | 20.4 | 0.25 | 0.12 |
| Working out the causes of problems or faults | 36.7 | 20.2 | 0.29 | 0.10 |
| Thinking of solutions of problems or faults | 34.1 | 19.9 | 0.25 | 0.06 |
| Analysing complex problems in depth | 39.3 | 18.6 | 0.37 | 0.04 |
| ***Communication and Social Skills*** | | | | |
| Dealing with people | 34.7 | 12.6 | 0.34 | 0.26 |
| Instructing, training or teaching people | 46.7 | 17.3 | 0.62 | 0.47 |
| Making speeches or presentations | 31.9 | 12.4 | 0.27 | 0.20 |
| Persuading or influencing others | 36.4 | 21.8 | 0.25 | -0.01 |
| Selling a product or servce | 29.4 | 20.1 | 0.20 | 0.04 |
| Counselling, advising or caring for customers or clients | 36.9 | 24.6 | 0.45 | 0.57 |
| Working with a team of people | 34.9 | 27.8 | 0.27 | 0.15 |
| ***Manual Skills*** | | | | |
| Physical strength | 20.7 | 27.3 | -0.12 | 0.10 |
| Physical stamina | 20.2 | 31.0 | -0.20 | -0.24 |
| Skill or accuracy in using hands or fingers | 23.1 | 29.0 | -0.10 | -0.26 |
| ***Computing Skills*** | | | | |
| Using a computer, PC, or other types of computerised equipment | 42.0 | 10.4 | 0.63 | 0.14 |
| Level of computer usage** | 29.2 | 6.1 | 0.27 | -0.01 |

**Notes to Table 9:**

\* Work skills were self-assessed by job-holders against the 5-point scale: "Essential/ Very Important/ Fairly Important/ Not very important/ Not at all important or does not apply". A skill increase (decrease) is defined as a move up (down) one or more points of this scale between 1992 and 1997.

\*\* Assessed on a scale: "Straightforward/Moderate/Complex/Advanced", using examples.

† Calculated as the average number of places moved up or down the skill response scale. A positive means a skill increase, while a negative means a skill decrease.

‡ Bottom quintile of gross hourly pay.

The base is all those who were in employment both in 1997 at the date of interview and five years earlier.

**Source:** *Skills Survey, 1997.*

### (iii)  *Who Is Missing Out?*

While the overall picture of skill change in Britain shows an upward movement, and while most groups have benefited in some way (with the exception of the two industries mentioned - Wholesale and Health), the movement of the average may conceal the possibility that a substantial minority of individuals are losing skills or missing out on the general improvement. Many people lost skills whether or not they were in a different job compared to five years earlier. That these people were in a minority ought not to lessen concern for the issue, in so far as it is a widespread declared policy objective to attempt to develop a 'learning society'. While a learning society has a range of dimensions, and while it has been variously defined, we take it here that a necessary condition for a learning society is that lifelong learning should be universally available and broadly experienced. In that light it will be of interest to see whether those who fail to increase their skills are concentrated in any particular sector of society.

For this purpose we focus on problem-solving skills, communication and social skills and the use of computers (see Table 9), these being the key skills that have been found to be generally increasing. To obtain a simple picture of exclusion from skill change, we devised a straightforward indicator as follows. First, we sum the individual elements of changes in problem-solving skills and communication/social skills, to obtain two measures: the total change in problem-solving skills and the total change in communication/social skills. It is then assumed that an individual participating in a skills transformation must experience an increase in either of these types of skill, or in the importance of computer-usage in their jobs. If none of these skill rises is experienced, the individual is deemed to have been 'excluded from skill rises'. While this is a somewhat crude index of skill exclusion, it is nevertheless quite strong. Any individual caught by this definition is failing to progress on any of several fronts thought to be important in modern industry. Table 10 indicates that nearly sixteen percent of workers in 1997 were excluded according to this definition.[42]

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[42]    But note again that those not in employment five years earlier are not counted in this calculation.

Table 10 also allows us to identify those more likely to lose out. They are those in part-time jobs (especially those who switched from full-time to part-time), those self-employed in 1997, those over 50 years of age, those who remained between 1992 and 1997 in one of the lower status occupations and those who remained in the 'Other Community' industry. Those remaining in Manufacturing were less likely than the average to be excluded. However, the difference between males and females is small and insignificant. These conclusions have also been investigated in a multivariate analysis using a logit specification: all hold as independent effects.

In future work with the Skills Survey, it is intended to identify the important determinants of skills. For the present, it is worth noting an important if unsurprising finding: those respondents who have missed out on lifelong learning to the extent that their skills are not rising are disproportionately concentrated in the lowest quintile group of hourly pay. Another way of seeing this connection focusing on the particular types of skills, is shown in the final column of Table 9. This column indicates that, for all but one of the various problem-solving, communication, social, and computing skills, the average rise in skill is lower for those in the bottom pay quintile than for the rest of the population. One can safely conclude that deprivation of skill increase is a correlate of low pay.

<div align="center">

**Table 10: Exclusion from Skill Rises**

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| | **Proportions Excluded From Skill Rises, 1992-1997*** (%) |
|---|---|
| ALL | 15.9 |
| Male | 15.0 |
| Female | 16.9 |
| Full-Time to Part-Time | 30.3 |
| Part-time to Part-Time | 20.6 |
| Full-Time to Full-Time | 14.3 |
| Part-Time to Full-time | 4.7 |
| Self-Employed in 1997 | 21.9 |
| Employed in 1997 | 15.1 |
| Aged Under 50 | 13.4 |
| Aged 50 and Over | 25.0 |
| Remained in Lower Occupation | 22.3 |
| Remained in Other Community industry | 28.2 |
| Remained in Manufacturing industry | 11.7 |

**Note:**
* To be excluded from a skill rise, an individual must have experienced neither a rise in the sum total of problem-solving skills, nor a rise in the sum total of communication and social skills, nor a rise in the importance of using a computer, PC, or other types of computerised equipment in his/her job. See Tables 9 to 11 for definitions of problem-solving, and of communication and social skills.
**Source:** *Skills Survey, 1997.*

### (iv)  *Low Skills and Low Pay*

Moreover, preliminary analysis confirms that pay and skills as defined in this paper are related in the manner expected by economic theory. Two aspects of the trend in hourly pay bear out this correlation: the convergence of males' and females' pay, and the sharply increasing inequality of pay among females.

According to the SCELI and SS data, the average gross hourly pay of males was 1.55 that of females in 1986, but the gap narrowed to 1.42 by 1997. This trend is consistent with findings from other data sources. It is also consistent with our finding that, according to all measures common to SCELI and SS, women's work skills were catching up on men's skills but still lagged behind in 1997.

The second aspect of the hourly pay trend is increasing inequality within each gender. This finding also mirrors those of many others, based on larger data sets and over a range of periods within recent decades. As measured by the ratio of the 90th to 10th percentiles, inequality in our samples rose between 1986 and 1997 from 3.17 to 3.40 among males, and rose even more sharply from 2.67 to 3.30 among females.

**Table 11: Changing Skills of the Lowest Paid Quintile, Males and Females**

|  | 1986 | 1986 | 1997 | 1997 |
| --- | --- | --- | --- | --- |
|  | **Bottom Quintile** | **All** | **Bottom Quintile** | **All** |
| *Males* |  |  |  |  |
| Percent in jobs requiring no qualifications | 55.3 | 31.0 | 51.5 | 28.7 |
| Percent holding no qualifications | 40.3 | 25.5 | 29.2 | 17.7 |
| Percent with low prior training* | 77.4 | 58.5 | 69.2 | 53.9 |
| Percent with short time to learn job* | 34.7 | 18.2 | 36.8 | 15.5 |
| ***Females*** |  |  |  |  |
| Percent in jobs requiring no qualifications | 75.8 | 48.5 | 65.5 | 34.1 |
| Percent holding no qualifications | 48.8 | 32.0 | 43.6 | 19.8 |
| Percent with low prior training* | 90.5 | 76.3 | 77.1 | 60.9 |
| Percent with short time to learn job* | 61.9 | 38.4 | 55.9 | 28.0 |

**Note:**
* See Table 5 for definitions.
**Source:** *Social Change and Economic Life Initiative, 1986 and Skills Survey, 1997.*

A picture of changing inequality in skills is given in Table 11, which focuses on the experience of the lowest paid quintile compared to the rest of the population. It may be observed that, amongst men, the lowest paid quintile experienced skill rises of orders of magnitude comparable with those gained by the rest of the male

population, according to all the measures used. Amongst women, however, the lowest quintile experienced comparatively smaller skill rises (as measured both by the proportions in jobs with no qualifications required and by the proportions in jobs with short learning times), than the whole population of females. This contrast between men and women is consistent with the observation (above) that inequality increased more for women than men. Nevertheless, this connection is no more than suggestive of a possible explanation for the changing inequality. The question remains as to how much, if any, of the changes in men's and women's pay inequality can be accounted for by changes in the distribution of human capital. This topic is the subject of future research.

## Conclusions

Whether the usage of skills in British industry is increasing or not, and if so by how much and for what kinds of employees, is a matter of fundamental importance both for economic efficiency and for equality of opportunity. This paper has presented some early findings from a study of skill trends, employing a new methodology designed to examine skills actually used at work rather than just the qualifications attained by the population. The findings show a remarkable and consistent pattern of increasing skills used in Britain, deploying several different measures of skills. In the aggregate, jobs in 1997 compared to jobs in 1986 are more likely to require qualifications (including high level qualifications) for recruitment and broadly no less likely to need those qualifications to be used in the work. The 1997 jobs are also less likely to require very short periods of training and more likely to require very long periods of training, less likely to need only a short time to acquire proficiency and more likely to need a very long time to gain proficiency.

One consequence of the rising demand for skills is that there is no evidence of substantially rising 'over-education'. While a greater proportion of the workforce now has a degree or better, so too a greater proportion of jobs are demanding degrees. The pattern does, however, vary somewhat over industries, so that while increasing overeducation is not a general phenomenon it may arise in certain areas.

Moreover, at least in the eyes of the job-holders (who might know best but might show bias) there is no substantial rise in the extent to which employers are demanding qualifications for the sake of it, perhaps just to ration jobs or to screen for other characteristics. In other words, we could find no evidence that artificial qualifications inflation was happening generally, although it did appear to be taking place in the Real Estate industry and we could not rule out that there may be other pockets of credentialism elsewhere in the economy. We hardly need add that these findings are retrospective. Recent increases in educational participation are sure to feed through to further increases in the supply of qualifications, even if there is no further rise in participation; it remains to be seen whether the increased supply will continue to be used by employers.

Equally remarkable is the finding that women are catching up on men. Back in 1986 most measures of skill saw the average female worker lagging some way behind the average male worker. Since then, while males have increased their job

skills by a small amount, females have raised theirs by substantially more and are converging on those of males.

We now also know something about the types of skill change that are taking place. Comparing 1997 with 1992, at least for the large majority of the workforce that have stayed in employment, there has been on balance an increased usage of problem-solving skills, of communication and social skills, and of computing skills, and at the same time a reduction in the use of manual skills.

While there are of course many individuals whose job skills have not improved or even deteriorated, are there any identifiable groups that have lost out? Perhaps surprisingly, there are no major occupational groups that have not experienced skill increases of some sort between 1986 and 1997. At both ends of the occupational spectrum there is evidence of rising skills. To this extent one cannot deduce that there has been a polarisation of the workforce - a conclusion at odds with previous findings based on the analysis of the SCELI survey in 1986. Inclusive access to skills augmentation and the ability to use new skills at work is a necessary (though not sufficient) ingredient of what might be envisaged as a "learning society". The findings here are optimistic in this respect but they apply, it should be remembered, only to those in employment. Nothing has been said about skill acquisition for those out of employment. Moreover, the learning society embraces much more than just the world of work.

Other findings have cast a less optimistic light on changes in the system. There are the Wholesale and the Health industries, both among the industries relatively protected from international competition, which have shown virtual stagnation in skills since 1986.

Second, even among those individuals in employment both in 1992 and 1997, there remains a substantial minority who have not been able to benefit from skill rises. One's chances of exclusion are significantly raised for part-timers, the self-employed, those in their fifties, and those remaining in lower occupations.

Exclusion from increases in skills matters, if only because of the link with pay and other work rewards. Those in the lowest pay quintile have experienced the lowest skill rises and are more likely to have had skill falls. According to our main measures of skill, the link is strong. For example, those in jobs using qualifications beyond A-level currently receive on average some 63% more pay than those in other jobs, while those in jobs where it takes more than two years to learn to do it well are getting 59% more pay than those in jobs learnt more quickly. In terms of particular skills, jobs where computing skills are "very important" or "essential" carry a premium of 44%, and for the skill of "persuading and influencing people" the premium is 52%. These various measures of skill are overlapping, and one line of future research will be to examine the pay impact of each skill when a number of measures are considered simultaneously, and controlling for other influences on pay. A further line of research will focus on the respective roles that education, training and work experience play in determining the levels of particular skills achieved by respondents to the Skills Survey.

# Appendix

Comparing results from one data set with those from another rests on the assumption that both sets are representative of the British population. It is important therefore to note the differences between SCELI and the Skills Survey, and to assess the impact of these differences on the validity of the comparison. To begin with, their aims differed considerably. SCELI's aims were wider, consisting of several surveys only one of which was concerned with work. SCELI also had a wider focus than the Skills Survey in that it sampled the workforce as a whole rather than just those in employment. For the purposes of the comparisons made in the paper, only those in employment between ages 20 and 60 were examined.

The geographical coverage of the two data sets also requires comment. SCELI was based on data from six labour markets - Aberdeen, Coventry, Kirkcaldy, Northampton, Rochdale and Swindon. All, apart from Aberdeen, represented a Travel-To-Work Area, a geographical area in which most of the population worked and lived. The six areas were selected to give a range of patterns of economic change, and were not necessarily designed to be representative of Britain in 1986. The Skills Survey, on the other hand, was indeed designed to be a nationally representative sample survey of the employed population in Britain in 1997. There were also other technical differences, concerning the procedures for selection of addresses for sampling, and the method of data collection. However, in both surveys the main method of data collection for the relevant questions on skills was through face-to-face interview.

Despite these differences, it may be argued that SCELI does provide a broadly representative picture of Britain in 1986 (e.g. Marsh and Vogler, 1994) and that by design the Skills Survey is representative of Britain in 1997. With regard to SCELI, we provide a comparison in Table A1 with figures taken from the Labour Force Survey in 1986. That survey was undertaken in Spring 1986, and using a large sample is normally taken as the most reliable source of labour market information in Britain. The Table indicates that the SCELI sample achieved a broadly representative spread according to gender, age, employment status, social class and ethnicity. There appears to be a small under-representation of those over 50 and of the self-employed in SCELI, and something of an over-representation of the partly-skilled (by just under three percentage points). These differences are unlikely to be large enough to vitiate the trends discussed in the paper, but need to be borne in mind. As regards industrial spread, SCELI has an over-representation of respondents working in the metal goods manufacturing industries. It is not surprising that some degree of unrepresentativeness arises in respect of industry, given the geographical concentration of the sample. Nevertheless, all other industries are represented in proportions quite close to those in the LFS.

Although the Skills Survey was designed from the start to be representative of Britain, it is still intended to carry out a check against the Labour Force Survey. Unfortunately, data from the Spring 1997 survey are somewhat late in appearing in the public domain, so we have not yet been able to make this check. However, preliminary comparisons of the Skills Survey with estimates drawn from recent Quarterly Labour Force Surveys, confirms that a representative sample has been

achieved. The gender, age, occupational and industrial profiles of the respondents are broadly in line with national estimates. One can conclude, therefore, that comparing the responses given to the same questions posed by SCELI in 1986 with the Skills Survey in 1997 can be used as a method to track skills trends over the last decade in Britain. Nevertheless, the omission of London from the SCELI survey might raise doubts as to the reported skill trends. As a check, therefore, the aggregate trends were re-examined after excluding Londoners from the 1997 sample - with the result that the pattern of change was unaltered.

Before the analysis could begin, it was necessary to recode some variables relating to occupation and industry as a result of changes in coding conventions between 1986 and 1997. The SCELI occupational codes were recoded to the Standard Occupational Classification system, and the SCELI industrial codes were recoded from the Standard Industrial Classification 1980 (SIC80) to the new system SIC97 that was used for the Skills Survey.

With regard to the categorisation of qualification levels, Skills Survey respondents were offered the same set of qualifications options in exactly the same order as had SCELI respondents eleven years before. However, the qualification options were amended to include National Vocational Qualifications (NVQs) and General National Vocational Qualifications (GNVQs) which were not available in the mid-1980s. Unfortunately it is not possible to map the responses given exactly onto today's NVQ hierarchy which ranges from Level I to Level V (see Felstead, 1997 for more detail). Instead, the paper uses approximate NVQ levels when reporting qualifications required to get jobs, as described in the notes to Table 1.

It is necessary to record a potential problem concerning the measurement of qualifications held. In the Skills Survey, respondents were asked to name up to three qualifications, starting with the highest - essentially the method used in the Labour Force Survey. In SCELI, however, data on qualifications held was collected as part of the work history part of the survey. They were first asked whether they had gained any qualifications by age 14, and then asked about qualifications gained at subsequent dates. In principle, this should result in accurate information about the highest qualification received but it is possible that it would arrive at a slightly different answer in some cases, compared with the LFS-type procedure. A further complication is that, since the coding of qualification categories differs from that used by the LFS, it is problematic to use the LFS as a check on the accuracy of the SCELI qualifications data. The coding comparisons are simplest at either end of the skills spectrum: for those with degrees or sub-degree qualifications, and for those with no qualifications. For those with middle level qualifications, the classification of categories was difficult to compare.

A recent study has shown, however, that there are notable short-comings in the qualifications data collected by the LFS (Bradley *et al*, 1997). The major problem concerns the prevalence of proxy interviewing: this is most prevalent among young people, and more common among males than females. Many parents were found to under-report their children's qualifications. Fortunately, the Skills Survey did not use proxy interviewing, and hence avoids the main problem. However, an additional problem was that some even of those interviewed in person tended to mis-report the grades achieved, especially for lower level qualifications. For these

reasons, our study in the main text of over-education concentrated on those with higher-level qualifications, and on those with at least some qualifications (where there was no issue about their level).

**Table A1: Comparison of SCELI with LFS 1986**

|  | SCELI (1986) | LFS (Spring 1986) |
|---|---|---|
| *Sex* | | |
| Male | 58.3 | 57.7 |
| Female | 41.7 | 42.3 |
| *Age* | | |
| 20-29 | 28.0 | 28.5 |
| 30-39 | 31.2 | 27.2 |
| 40-49 | 23.6 | 24.3 |
| 50-60 | 17.2 | 19.9 |
| *Employment status* | | |
| Employee | 90.5 | 88.2 |
| Self-employed | 9.5 | 11.8 |
| *Ethnicity* | | |
| White | 97.9 | 96.6 |
| Black | 1.4 | 1.1 |
| Asian | 0.3 | 1.8 |
| Other | 0.3 | 0.5 |
| *Working Time* | | |
| Full-time | 78.8 | 80.2 |
| Part-time | 21.2 | 19.8 |
| *Industry (SIC 80)* | | |
| Agriculture | 1.3 | 2.0 |
| Energy | 3.5 | 2.8 |
| Extraction | 2.5 | 3.5 |
| Metal goods | 15.2 | 10.9 |
| Other manufacturing | 10.2 | 10.1 |
| Construction | 6.1 | 7.2 |
| Distribution | 18.0 | 18.5 |
| Transport | 5.8 | 6.3 |
| Banking | 8.5 | 9.9 |
| Other services | 28.7 | 28.8 |
| *Social class* | | |
| Professional | 4.9 | 5.4 |
| Intermediate | 26.5 | 26.3 |
| Skilled non-manual | 21.5 | 22.5 |
| Skilled manual | 22.9 | 24.1 |
| Partly-skilled | 18.5 | 15.7 |
| Unskilled | 5.7 | 5.1 |
| Armed Forces | - | 0.9 |

**Note:**

For comparison purposes, the LFS86 sample was restricted to 20 to 60-year-olds in employment, located in Great Britain.

As can be seen from Table A.2, compared with the LFS, SCELI under-represents people with degrees by 2.1 percentage points, and also under-represents those with no qualifications by 4.3 percentage points. For the above reasons this comparison does not imply that the SCELI data are inaccurate in this respect. It is possible that the SCELI method of collecting qualifications data is more accurate than the LFS data. In particular, Bradley *et al* (1997) showed that the LFS does tend, because of the proxy interviewing problem, to over-estimate the proportions of workers with no qualifications.

**Table A2: Comparison of Data on Qualifications Held**

| Proportions with: | SCELI (1986) (%) | LFS (Spring 1986) (%) |
|---|---|---|
| **Degrees** | 7.2 | 9.3 |
| Sub-degrees | 13.3 | 13.9 |
| No Qualifications | 28.2 | 32.5 |

**Notes:** see Table 1.

Finally, the relevant skills questions asked with identical wording, emphases and response categories in SCELI and in SS were:

"If they were applying today, what qualifications, if any, would someone need to *get* the type of job you have now?"

"How necessary do you think it is to possess those qualifications to *do* your job competently?"

"Since completing full-time education, have you ever had, or are you currently undertaking, training for the type of work that you currently do?" If YES: "How long, in total, did (or will) that training last?

"How long did it take for you after you first started doing this type of job to learn to do it well?"

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