

**JUSTICE FOR ALL?
THE PATTERN OF SKILLS IN BRITAIN**

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Abstract

It is frequently alleged that there is a tendency towards polarisation of skills in Britain. This tendency is considered to contribute to the process of social exclusion, about which there is much academic and – since the election of the Labour government – political concern. Previous survey evidence for the 1980s seemed to confirm this position. This paper investigates whether the process has continued into the 1990s among those in work. Our main finding is that there has been no over-riding process of polarisation between 1992 and 1997. On average, individuals who has utilised below average levels of skills in the jobs they held in 1992 experienced above average increments to those skills in the subsequent five years. This finding is hardly suggestive of polarisation within the employed workforce. However, the research also shows that the picture is complex in that certain fissures can be identified. Amongst those remaining in employment, those more likely to lose out on improving their skills were those who: switched from full-time to part-time work; were self-employed; remained in personal and protective service or sales occupations; were downwardly mobile; remained in the community-related industrial sector; and were among the lowest paid in society. In addition, those workers employed in what we term for simplicity ‘traditional’ organisations – ones which were least likely to communicate well with their employees, had appraisal systems in place, were an Investor in People and used Quality Circles – were in jobs which demanded low skill levels, attracted low rates of pay and experienced slow rates of upskilling.

‘The next decade will define the nation’s future. Our aim must be to build a nation which is both *socially cohesive and economically competitive*. The Department for Education and Employment (DfEE) exists to help achieve this, through investing in the knowledge, skills and employability of all our people from their early years and throughout their lives’ (David Blunkett, Secretary of State for Education and Employment, DfEE, 1997: 3, our emphasis).

1. Introduction

The last couple of decades have seen a bewildering amount of change in the field of vocational education and training (VET) in Britain. The institutional structures, delivery mechanisms, qualification framework and training programmes which underpin the British VET system have all undergone considerable change. The formation of Training and Enterprise Councils (TECs) as locally-based and employer-led institutions administering government training programmes, the introduction of work-related qualifications in the form of National Vocational Qualifications (NVQs) and the multitude of changes to government training schemes are among the most obvious. Furthermore, different parts of the VET system have been subject to reviews by policy-makers seeking improvements and modifications. The qualifications framework has been put under the spotlight in recent years with the simultaneous review of qualifications for 16-19 year olds by Dearing and Beaumont’s review of the entire NVQ system (Dearing, 1996; Beaumont, 1996). Higher education, further education and the TEC system have also been put under public scrutiny (Dearing, 1997; Kennedy, 1997; House of Commons, 1996; DfEE, 1998b).

Despite the frequency of these changes and the regularity with which the VET system has been reviewed, the notion that the skills and knowledge of the workforce is a (if not the) key determinant of competitiveness has remained an enduring feature of the debate. Substantial research support can, it is argued, be called upon to justify such a position. A stream of articles from the National Institute for Economic and Social Research (NIESR) in particular have highlighted Britain’s relatively lowly ranking in the

world skills league as measured by qualifications of a comparable standard. This, it is argued, hinders labour productivity and weakens Britain's economic performance (Mason and Finegold, 1995; Mason *et al.*, 1992; Prais *et al.*, 1989; Steedman, 1988; Steedman and Wagner, 1987; Daly *et al.*, 1985). On this basis, policy-makers have latched onto the idea of increasing the qualifications of the workforce. The argument is that a more qualified workforce will increase the competitiveness of companies and thereby raise the competitiveness of the nation as a whole. However, it is by no means clear how these supply side changes translate into the demand for and use of a better-qualified workforce. Instead credentialism and over-education may also result. The Labour government (like its predecessors) tends to ignore such matters choosing instead to place a great deal of emphasis on increasing the qualifications of the workforce as one of its key policy tools.

More broadly, the political rhetoric suggests that education as a whole is now taking centre stage. According to the Prime Minister that 'Education as the best economic policy we have' (DfEE, 1998c: 9). However, this represents a shift in emphasis rather than a radical departure on the position taken by previous Conservative administrations. A series of White Papers on competitiveness, a Skills Audit of Britain against its major international competitors (DfEE and Cabinet Office, 1996) and the launching of the National Targets for Education and Training all bear testimony to the importance they, too, attached to learning. What is new, however, is the Labour government's aim of making Britain 'both more competitive and a fairer and more cohesive society' (NACETT, 1998: 13).

This aim informed the recently revised National Learning Targets. One of the most visible changes here has been the switch in emphasis from the employed workforce to all those in employment or actively seeking work. This broadens the scope of the Targets and includes qualifications held by the unemployed for the first time. The focus of government-funded training has also broadened to give greater emphasis to the inclusion of those disadvantaged in the labour market. The introduction of equal opportunities targets in the TEC comparison tables bears witness to the shift of emphasis (see Management Information and Systems Unit, 1998).

The policy debate has been mirrored by the academic debate surrounding the notion of lifelong learning and especially the 'learning society'. Authors such as Coffield (1997a) and Keep (1997) have argued that the concept should emphasise societal as well as economic considerations and focus on the distribution of learning opportunities as well the extent of provision. Thus, Coffield (1997a) argues that the approach to the learning society which underpins the political analysis of the issues in the UK is essentially a technocratic model, where it is assumed that there is a direct line of causation from the intensification of global competition to the need for new skills which increases the importance of learning at work and hence the emergence of the learning society in which the responsibility for learning rests with the individual. Such a model has close correspondence with the ideological drive by both employers and government to push the costs of learning onto the individual. Such a model is there seen essentially aspirational, indicating what various interest groups think the 'learning society' should be (Coffield, 1997a; Rees *et al.*, 1997).

In an attempt to move beyond the confines of such a narrow conceptualisation others have sought to identify the various forms which the learning society could take. Young *et al.* (1997), for example, have identified four models: the 'schooling' model which is defined in terms of achieving high levels of participation in full-time education; the 'credentialist' model which stresses the need to improve the proportion of the population with qualifications; the 'access' model which stresses the need to improve access to education and training throughout working life; and the 'reflexive' model which stresses the importance of seeing learning as a feature of all relationships. Similarly, Rees and Bartlett (1997) make a distinction between three different usages of the concept in the academic debates. The first they call the 'skill growth' model, which emphasises the link between skill formation and economic growth. The second is the 'personal development' model, which is more concerned with facilitating individual growth and the third they call the 'social learning' model which emphasises the embeddedness of the learning process in the social and community context in which people are located. These authors have broadened the debate to include a more explicit concern with non-economic objectives such as social exclusion and personal growth.

Other writers (e.g., Coffield, 1997a and 1997b; Keep and Mayhew, 1996) have extended the debate further by exploring the organisational, labour market and social contexts of learning within the society as a whole. For example, Keep and Mayhew (1996) see the concept of the learning society as one which could move the debate away from the previous preoccupation with the supply of skills and the economic functions of learning to one which addresses the wider political and social issues associated with learning. Similarly, Coffield (1997a) argues that the technocratic model should be replaced by what he refers to as the polarisation model, in which ‘the future shape of the British workforce may well become polarised between a highly skilled elite and a growing army of the (at best) semi-skilled and expendable’ (ibid: 4-5). Here Coffield is keen to highlight the differential opportunities that exist for people to acquire skills in the labour market and the consequential pattern of exclusion that arises. This affects, in particular, the young who leave government-funded training schemes to become unemployed and the growing band of older workers who are forced out the labour market altogether. He also points to the significance of the democratic imperative, the need for education to prepare people for citizenship as well as for work.

The aim of this paper is to contribute to the learning society debate by providing hard, empirical evidence on the polarisation thesis as applied to the *employed* workforce. While polarisation has increasingly become central to both academic and policy debates on the learning society, the empirical evidence has hitherto received scant attention. By reviewing the existing evidence on the distribution of skills and presenting some new empirical findings which challenge existing assumptions, this paper aims to provide the necessary facts and figures to aid, and possibly provoke, further debate.

The paper proceeds as follows. Section 2 reviews existing evidence on the distribution of skills in Britain as revealed by a number of national surveys. These broadly show increased skill polarisation along a number of particular labour market axes. Section 3 introduces a new source of data – the Skills Survey (SS) – from which the bulk of this paper draws. Presentation of the findings are contained in Sections 4 and 5. Section 4 focuses on *broad* measures of skill such as qualifications required to get and

do the job, the length of training, and the time taken to do the job well. Comparison of these findings with evidence drawn from comparable data sets – the Social Change and Economic Life Initiative (SCELI) in particular – begins to cast doubt on the axes on which skill polarisation has previously been thought to be taking place. Section 5 substantiates this point further by examining the *particular* skills demanded from workers in jobs and how these have changed over a five-year period – 1992-1997. Section 6 concludes the paper with some implications for policy-makers and academics.

2. Existing Evidence

Academics in Britain have only started to examine the distribution of skills during the last two decades. In general they have approached the question of defining skill from two slightly different perspectives, seeing it either as an attribute of the person or of the job, although sometimes researchers have combined both perspectives. In general, those with training in psychology and economics tend to perceive it as an attribute of the person, while sociologists perceive it more as a characteristic of the job. However, there is a relative dearth of research from either perspective with regard to the range of skills and their distribution within the labour force. Instead academic research tends to have been informed by the upskilling/deskilling debate and has therefore focused on changes through time. Much of this work is based on two types of data source: cohort studies such as National Child Development Study (NCDS) and the British Cohort Study (BCS); and cross-sectional studies such as SCELI and Employment in Britain (EIB) (Bynner, 1994; Elias and Bynner, 1997; Horrell *et al.*, 1989 and 1994; Gallie, 1991; Gallie and White, 1993; White, 1999). Each is considered in turn.

Many skill-related questions have been asked of the cohorts tracked by studies such as the National Child Development Study (NCDS) and the British Cohort Study (BCS). A total of 15 questions were asked in the most recent sweeps (both carried out in 1991). These included two questions on verbal abilities, four on construction skills, three on caring abilities, two on keyboard skills and four on organising capabilities (Bynner, 1994). However, their focus was on respondents' abilities and hence questions centred

on individual attributes which may or may not be exercised at work. In other words, their measurement of skill was primarily person rather than job-centred.

Using this approach a number of important contributions to the debate have been made, albeit based on a cohort of individuals last surveyed in 1991 (Bynner, 1994). First, a clear link between skills and occupation has been established: the more highly ranked the occupation the greater the variety of skills or personal attributes reported and the more likely that respondents reported themselves good at them. A greater variety of skills were also associated with enhanced personal well being. Second, the under-utilisation of women's skills has been identified. Bynner (1994) argued that this came about because either their domestic situation kept them out of the labour market or they entered jobs in which these skills were not used to the same extent as men's. Third, the jobs women do were themselves found to be a source of female disadvantage. Bynner's (1994) analysis showed that men's skills, more than women's, tend to be associated with the jobs they do. Moreover, men's chances of improving their skills through more active involvement in education and especially work-based training are greater than women's.¹ However, women in high status occupations – such as management, administration and the professions – possess similar skills to men and experience much the same skills improvement during their working life. On the other hand, in the more traditional female occupations – such as clerical work, personal services and sales where female employment is concentrated – women's disadvantages in terms of skill formation are at their greatest. Fourth, the cohort studies suggest that there is a relationship between weak skill formation and poor subsequent labour market experiences, especially for those without basic skills:

‘A poor educational record followed by poor labour market experiences seems to be associated with a downward spiral to the margins of the labour market, with unemployment and casual work being the common experience of men and exit from the labour market to undertake child-care at home, followed often by part-time unskilled work, the common experience of women’ (Elias and Bynner, 1997: 119).

¹ However, analysis of the Labour Force Survey (LFS) suggests otherwise – if anything, women are more likely recipients of training than men (DfEE, 1998a: Table 3.3).

Adults reporting difficulties with basic numeracy and literacy also had depressed job-related skills such as reading, keyboard, computing, calculating and finance. Finally, Bynner's (1994) analysis of the cohort studies suggests that those who were occupationally mobile were more likely to have spent longer in education, possess certain employment skills – computing, organising and finance and so on – and, in the case of women, to have received more work-based training. The downward mobile, on the other hand, were more likely to have had patchy labour market experience, and possess traditional manual skills such as using tools, constructing things and, for women, caring skills.

As far as the distribution of skills is concerned three features emerge: the division which exists between the non-manual, white collar, professional and skilled manual occupations, on the one hand, and the unskilled and unemployed, on the other; the under-utilisation of women's skills; and the possession of certain skills by those who were occupationally mobile.

Our understanding of the distribution of skills has been taken a step further by cross-sectional data such as SCELLI. Using a mixture of personal attributes and job characteristics Horrell *et al.* (1994) explored the diversity of skills and job content between males and females, both in terms of the level of skill and the similarities and differences in the components of men's and women's skills. When they examined the diversity between men and women's jobs their results were, at first sight, surprising. The results indicated that main difference in the quality or skill level of jobs was not between all-male and all-female jobs, but between full-time and part-time jobs. The suggestion was that the growth of part-time jobs was likely to result in the polarisation of skill levels among the female labour force. Secondly, although men's and women's jobs involve different skills or attributes with women more likely to stress the personal and social relationships, the main difference was not one of gender but of working time. Finally, they found that there were very few significant differences between males and females with regard to the degree of autonomy and discretion they exercised in their jobs or between those in full-time jobs and those in part-time jobs.

The most extensive work on *changes* in the distribution of skills has been based on comparisons of cross-sectional data sets – SCEL I in 1986 and EIB in 1992 (Gallie, 1991 and 1996; Gallie and White, 1993; Gallie *et al.*, 1998; White, 1999). This work has led to talk of a skills revolution, the results undermining the deskilling thesis but at the same time pointing to an increasing polarisation of the skills base, with lower status occupations falling behind as the most rapid skill increases were concentrated in the higher status occupations. In this respect they provide support for Coffield's (1997a) polarisation thesis outlined earlier. The evidence in support of the thesis rests on a combination of a self-reported measure of skills increase/decrease coupled with questions about the characteristics of the job.

Using questions on self-reported skills change between 1981 and 1986, the analysis of SCEL I revealed a high proportion of respondents reporting a skill increase (52%), with only a small proportion experiencing a decrease (9%). The main fissure in this self-reported increase in skills was between the non-skilled manual and the intermediate classes. Gallie (1991) also found that the use of advanced technology was related to the perception of skill increase. He also found strong gender differences: with women reporting a smaller increase in skills than men, partly linked to their less frequent use of advanced technology and their concentration in feminised occupations and in part-time work. However, while noting the concentration of women in low skilled part-time jobs Gallie (1991) came to the conclusion that the main process of change was the polarisation of work skills between the classes.

Similar questions on skills were asked in the Employment in Britain survey in 1992 (Gallie and White, 1993; Gallie, 1996; Gallie *et al.*, 1998). Using three measures from the previous SCEL I survey, Gallie and White (1993) found that there had been a significant increase in the qualifications, training and learning time required of all employees with the exception of the semi- and non-skilled manual workers. Again this suggested increasing polarisation, a large part of which was found to be associated with changes in the demands of their jobs.

With regard to the process of upskilling this was reported to have spread to a wider section of the labour force, 63% in 1992 reported an increase while the proportion reporting a decrease remained the same at 9%. Hence, the skills revolution. The increase was particularly sharp among the lower non-manual, technician supervisory and skilled manual groups. Moreover, the increase was among those who had stayed in the same job as well as among those who were upwardly mobile. Further analysis suggested that the sources of this change included an increase in the task discretion, the introduction and development of computer technology and for men increased levels of responsibility i.e. it was related to changes in the organisation of jobs.

In analysing the gender dimension Gallie and White (1993) found that over the 1986-1992 period there was a significant decline in gender disadvantage with respect to skill but not with regard to task discretion. They also found that over time disadvantages for part-time workers had fallen in terms of the qualifications they reported as necessary for the job, the length of training and on-the-job experience required and the self-reported pattern of skill change.

In many respects analyses of training mirrors the patterns discerned for skills. According to the Labour Force Survey (LFS), for example, women have been catching up on men, both in terms of their participation rate and the amount of training they receive. In Spring 1986 11.4% of male employees and 10.0% of female employees reported undertaking job-related training in the four weeks prior to interview compared to 14.3% and 16.7% respectively in Spring 1997 (DfEE, 1998a: Table 3.3). The raw data also suggest that women today receive roughly the same amount of training per employee as men, whereas a decade ago they were at a considerable disadvantage. For example, in 1985 women employees on average reported receiving 12 minutes less off-the-job training in the week before interview than men, while ten years later the gap between men and women on this score had virtually disappeared – both reported receiving around 47 minutes (Green and Zanchi, 1997: Table 1; Felstead *et al.*, 1999).

However, while one can point with a reasonable degree of surety to more equitable treatment for men and women in the training market, this is one of the few bright spots. Elsewhere, there is evidence of persistent inequality between the ‘haves’ and the ‘have nots’. A consistent feature in the training literature, for example, is the finding that the highly educated are significantly more likely to receive training than workers with lower qualifications. Similarly, training incidence is closely related to an individual’s position in the wage distribution – the higher pay, the greater the likelihood of their being in receipt of training. Training also appears to be related to employer characteristics, such that working for a relatively small employer markedly reduces the likelihood of receiving training, as does working for an employer who does not recognise trade unions for collective bargaining. Other features of labour market flexibility such as temporary or part-time working similarly weaken an individual’s chances of receiving training (Machin and Wilkinson, 1995; Arulampalam and Booth, 1997a). The same story can be repeated for training intensity (see Green, 1999: Table 1).

Reliance on cross-sectional data, though, can be misleading since they are all snapshot measures. While they tell us that a certain proportion of employees are in receipt of training during a particular period, they do not tell us whether the ‘non-trainees’ according to this measure take their turn at other times. Data sets that include a panel element in their design allow researchers to address such a question. Data sets used in this fashion include the Labour Force Survey which samples individuals for five successive quarters (Machin and Wilkinson, 1995), the British Household Panel Study which annually tracks some 12,000 individuals (Green, 1999) and the National Child Development Study which periodically surveys a cohort of individuals born in a particular week in 1958 (Arulampalam and Booth, 1997b). What emerges from these studies is a remarkably consistent picture of training being concentrated among more or less the same group of recipients from period to period. So that those already privileged in the labour market – in terms of qualifications and pay, for example – are more likely to receive a *succession* of training episodes than those occupying less privileged positions. In other words, the distribution of training in Britain serves to accentuate rather than diminish patterns of inequality. Policies simply designed to enhance the volume of training are, therefore, likely to strengthen still further the polarisation tendency.

3. The Skills Survey

While data on training and qualifications are widely available and have been collected over a number of years – notably via the LFS – skills data are more difficult to come by. However, a new source of data on these matters – the Skills Survey (SS) – offers the prospect of analysing skill from a wide variety of perspectives. The remainder of this paper reports on two of these job-based measures. The first *broadly* measures the abilities and capacities of those in employment by focusing on the attributes required for the job. The second measures the *particularities* of people’s jobs by asking job-holders to assess how important particular activities are in their work.

SS contains data on 2,467 individuals aged 20-60 who were in employment in Britain 1997. The survey was carried out in the months of January-May of that year and was supported by a grant secured under the Economic and Social Research Council’s ‘Learning Society’ Initiative.² A number of steps were taken to ensure that SS contained a representative sample of the employed British workforce. However, after completion of the fieldwork a weight was calculated to account for the greater probability individuals in smaller households stood of being selected for interview and vice versa. A further weight was also calculated in order to correct for the over-representation of women in the sample as compared to the Spring 1997 Quarterly Labour Force Survey. In the descriptive findings which follow the data set has been weighted to correct for these sample selection biases. Further checks have also been made to confirm that the weighted sample is representative of the employed British workforce in other ways – by age, industry, occupation and ethnicity, for example (see Ashton *et al.*, 1999 for more detail).

The learning society debate highlights both the possibilities and limitations of these data. The possibilities are that, using what Rees and Bartlett (1997) refer to as the skill formation model, we can explore the extent to which different groups within the

² The financial support of the ESRC is gratefully acknowledged (L123251032).

labour market have access to experiences which will enable them to develop their skills at work. Here, we can explore the extent to which there is a polarisation of experiences of those in employment and the factors which are reproducing it. However, our contribution is limited by the fact that our data exclude all those out of the labour force – the unemployed, the sick and those involved full-time in domestic work. It is within these parameters that we seek to contribute to today's policy debate on lifelong learning and social exclusion.

4. Broad Measures of Skills at Work

Comparing our data with that obtained from SCEL I in 1986 we find the expected increase in the proportions of those with qualifications, especially those with degrees and a decrease in those with no qualifications at all. For example, the proportion with no qualifications showed a significant decline from 28% in 1986 to 19% of SS respondents in 1997 (for more detail on all the findings reported in this section see Felstead *et al.*, 1999; Green *et al.*, 1999). This increase was reflected in an increase in the qualifications required for entry to jobs. In 1986 52% of jobs required some qualification, a figure that had risen to 69% by 1997. However, it should be noted that this still leaves 31% of jobs not requiring any qualifications for entry. Nevertheless, this does represent a significant increase in the proportion of jobs demanding qualifications for entry.

While these results suggest continuous improvement in the supply of skills and to a certain extent in the demand for them, this picture needs to be qualified by other findings. Thus, we also investigated over-education where individuals are in jobs where they hold qualifications in excess of those demanded by employers. Here, we found little change over the last decade as qualifications held have risen more or less in line with demand. The converse of over-education is under-education. This refers to a worker who is in a job which now demands a qualification that he or she does not possess. For jobs now requiring a degree, this fell from 47% in 1986 to 39% in 1997.

The length of time respondents indicated that it took them to learn to do their jobs

well also suggests an upward shift in skill demands. Thus, over the period 1986 and 1997 the proportion reporting a 'long' time (over two years) to train for their job rose from 22% to 28% and the proportion reporting 'short' times (less than three months) decreased from 66% to 57%. A similar trend was evident for the time it took respondents to do the job well. With regard to the gender dimension, the pattern of decreasing inequality identified by comparisons of SCEL and EIB was supported by our results. The proportion of women who reported short training times fell faster than it did among their male counterparts and those reporting long training time rose faster.

It may have been expected that the rise in skill levels was function of the young people who have just moved into the labour market with their higher levels of qualification. However, when we compared younger and older workers (those aged under and over 35 years, we found that the older workers, had higher levels of skill, in that proportions reporting short learning times fell from 29% in 1986 to 21% by 1997, while for younger workers it fell less dramatically, from 25% to 22%. This again suggests that the increase is linked to changes in demand not in supply.

When we examined training and learning times by occupation we found they increased in all occupations, for 'Managers and Administrators' where it was indicated by longer learning times to 'Plant and Machine Operatives' where it was indicated by longer training times. Surprisingly, the highest level of skill rise, with statistically significant increases across five of our six indirect measures was 'Personal and Protective Services'. Of the others, 'Associate Professionals and Technical', 'Clerical and Secretarial', 'Craft and Related' and 'Sales' all had statistically significant increases in three of the six variables (Green *et al.*, 1999: Table 7).

These results tend to cast doubt on the polarisation thesis as previously conceived. However, when we analyse these broad measures of skill by industry the picture becomes more varied still. Two industry groupings indicated a mixed pattern of response which suggest little skill enhancement over the 1986-1992 period. In 'Wholesale and Retail' there was a statistically significant fall in the proportions who took over two years to

learn their jobs, while other indicators such as qualifications required showed only small or insignificant movements. Similarly, 'Health and Social Work' provided a mixed pattern with the proportion of jobs requiring a short training time falling, while those requiring a long training time also fell. 'Finance', while moving in the direction of skill increases in percentage terms across all variables, only achieved statistically significant increases in the percentage using degrees. Other industries all produced statistically significant increases across at least three measures with 'Education' and 'Other Community' experiencing statistically significant increases across all six measures (Green *et al.*, 1999: Table 8). This suggests that there may be parts of the economy where these broad skill measures suggest we may not be witnessing sustained upskilling, and that skill polarisation may therefore be taking a different form to that previously identified.

We can develop this theme by examining where our broad indicators suggest that skill levels appear to be remaining static or showing little increase over this period. Of the total sample, 32% report that their current jobs require no qualifications. If we take a closer look we find these respondents concentrated in certain occupational and industry groups. First, we look at those occupations where respondents with no qualifications are concentrated. 'Other' occupations top the list with 51% having no qualifications, next come 'Plant and Machine Operatives' with 38%, 'Sales' have 29% and 'Personal and Protective Services', in spite of their high level of upskilling, have 23% with no qualifications. If we now contrast this with the distribution of those who report the highest qualification required to get the current job, we find that in the 'Other' category 80% report that no qualifications are required to get their present job, among 'Plant and Machine Operatives' the figure is 57%, in 'Sales' it is 62% and in 'Personal and Protective Services' falls to 41% (Ashton *et al.*, 1999). This suggests considerable over-supply of qualified personnel in these occupations.

If we look at those industries which employ people with no qualifications, we find that the 'Hotels and Restaurants' industry have 33% and the 'Wholesale and Retail' trade have 29% reporting no qualifications compared to an all industry average figure of 19%.

Similarly, when we look at the highest qualifications required to get that job now, then 'Wholesale and Retail' come out top with 57% reporting that no qualifications are required for their current jobs, followed by 'Hotels and Restaurants' with 43%. All this suggests that there remain large parts of the labour market where skill demands as measured by these indices remain low. It also suggests the persistence of large numbers of jobs where educational qualifications are irrelevant for entry i.e., relatively low skilled jobs. However, as we have seen, some of our broad measures suggest that this upskilling has reached the semi-skilled and unskilled occupations which the polarisation thesis suggests have hitherto been excluded from the process. The questions which remain are: where are the jobs that are low skilled and which jobs have benefited least from the skills revolution? We turn to these questions through an examination of the specific skills held by members of our sample and the changes which are taking place in them.

5. Measures of Particular Work Skills

While it is true that other surveys have made attempts to go beyond collecting broad based measures of work skills, their capacity to do so has often been limited. There is, then, comparatively little hard data which measures the particular abilities demanded of jobholders. The SCCLI evidence relates to one area and is based on just six questions (13 in the case of the employer survey), EIB is based on five questions and the cohort studies measure skills from an entirely different perspective albeit with more questions (Horrell *et al.*, 1989 and 1994; Burchell *et al.*, 1994; Gallie and White, 1993: 25; White, 1999: 49-51). In addition, the scope for comparison over time is, by definition, limited. It is in both of these respects that this paper hopes to make a contribution.

The abilities demanded by different jobs vary enormously. To capture this diversity the SS questionnaire included a broad range of different job activities. Respondents were asked: 'in your job, how important is [a particular job activity]'. Examples of the activities included 'caring for others', 'dealing with people', 'using a computer', 'analysing complex problems' and 'planning the activities of others'. The

questionnaire covered on 36 activities designed to span the tasks carried out in a wide range of jobs. The response scale ranged from ‘essential’ to ‘not at all important’, with ‘very important’, ‘fairly important’ and ‘not very important’ in between. Since these job activities and the measurement scale adopted were drawn from the Job Analysis (JA) literature, we denote these questions as such in the subsequent discussion. It is also worth pointing out that those respondents who reported that their job involved ‘using a computer, PC or other types of computerised equipment’ were asked to indicate their level of computer usage. The response options were ‘straightforward’, ‘moderate’, ‘complex’ and ‘advanced’. Each option was accompanied by a set of examples.

Before presenting the results of the analysis it is worth considering the suitability of the research instrument by posing the question: do the responses to the JA questions suggest variation in job demands? An ill-specified set of questions would fail to generate much variation at all, whereas a wide range of responses would suggest an instrument that is sensitive to the different demands placed on jobholders. One way of making such an assessment is to analyse the frequency with which respondents reported that job activities were ‘essential’ to their jobs. Adopting this approach we find that ‘dealing with people’ tops the list with almost two-thirds of respondents (66%) regarding it as an ‘essential’ component of their jobs, while only one in fourteen (7%) gave a similarly high rating to ‘instructing, training or teaching people’. Responses to the remaining JA questions are reasonably spread out between these extremes. An alternative approach is to award scores according to how important each activity is in an individual’s job – the higher the score, the more important the skill. Scores of 4, 3, 2, 1 and 0 respectively are allocated according to an individual’s response, so that those responding ‘not at all important’ score 0 whereas those reporting the activity to be ‘essential’ score 4. The figures reported here refer to the average Skill Scores and hence they summarise the entire distribution of responses to each activity question. Apart from some minor changes in the overall ranking of job activities, a similar picture emerges from such an exercise. Scores range from 3.52 for ‘dealing with people’ to 1.07 for ‘calculations using more advanced mathematical or statistical procedures’. Unless otherwise specified this approach is the one adopted in the remainder of the paper.

Patterns of inequality in training, qualifications and skills have often centred around the personal characteristics of jobholders. Indeed, segmentation theory is based on the notion that the labour market fails to treat everyone equally and in particular fails to recognise and reward the most disadvantaged in society. It is appropriate to examine the distribution of particular skills by sex since this is one of the main axes on which inequality in the labour market is said to exist (e.g., Rees, 1992). Table 1 compares the skill content of men's and women's jobs (columns 1 and 2). However, previous analyses (e.g., Horrell *et al.*, 1994) have suggested that women who work part-time face a set of additional barriers. The skill content of male full-time jobs is, therefore, compared to that of their female counterparts (columns 3 and 4). This comparison is based on 96% of men in the sample and 57% of women; the remainder worked part-time. The skills demanded of women full-timers are, then, compared to the skills of women part-timers (columns 4 and 5).

The findings are notable in several respects. First, there are seven job activities which play a significantly more important role in women's jobs overall than in men's and vice versa. These include 'dealing with people', 'counselling, advising or caring', 'listening carefully to colleagues' and 'using a PC or computer'. However, men significantly out-score women in 23 areas of activity. Second, the gap between men and women shrinks sharply when the analysis is restricted to full-timers only. Male full-timers record significantly higher scores than female full-timers in 10 activities, while women out-score men in 17. Third, while greater similarity in skill content exists between men's and women's full-time jobs, comparison of women's jobs by hours of work suggests a gulf between the skill content of full-time and part-time jobs. Our analysis shows that women part-timers are in jobs which demand significantly lower skills than women full-timers in all but two areas of activity (see Table 1).

For presentational purposes we have grouped job activities into eleven categories. These are shown as headings in the column 'Skill Content of Jobs' (see Table 1). At this stage, we have chosen to present the data in full in order to reveal the richness of the data at our disposal. However, subsequent analysis requires that we reduce the data to more

manageable proportions. We do so by calculating an average skills score for each respondent. This is derived by adding the scores for each of the 36 job activities and then taking an average. Tests of reliability were carried out on the resulting scale. Correlations between the individual questions which make up the scale and those which remain (i.e., corrected item-total correlation) and/or the extent to which responses to individual questions can be predicted from responses to those remaining (i.e., squared multiple correlation) suggest *against* dropping any of the questions from the construction of the scale. In summary, a Cronbach's Alpha (standardised) of 0.93 suggests that our 36-item scale is a reliable measure of the underlying skills content of jobs.

Using the average skills scores reinforces the findings outlined previously. Overall, women's jobs are significantly lower skilled than men's – women record an average skills score of 2.33 compared to a figure of 2.48 for men. When full-time jobs are compared, the gender gap disappears. However, significant differences reappear when women are divided into full-time and part-time workers. Here, women working part-time are in jobs which are significantly less skilled than those occupied by women full-timers (see Table 1, last row).

'Put Table 1 about here'

As a summary measure, the average skills score also allows us to compare the skills content of jobs against a range of other characteristics. Table 2 presents the results. Significant differences can be detected between permanent and temporary workers with the latter occupying lower skilled positions. We can also assess the extent to which this measure tallies with other skill-based categories. The broad groups in the Standard Occupational Classification (SOC) hierarchy are, for example, based on 'skill levels' as measured by either the level of formal qualifications required for a person to get a particular job or the duration of training and/or work experience normally required for occupational competence (OPCS, 1990: 3; Elias, 1995: 43-45). How closely, then, does the SOC hierarchy reflect the skill content of jobs as measured using more direct indices? The short answer is surprisingly well. There is a relatively consistent upward gradient in

the skills demanded of respondents as we move up the occupational hierarchy. In addition, the differences between each of the broad occupational groupings and its neighbour is significant on all but two occasions (between 'Clerical' and 'Craft', and 'Personal' and 'Sales'). According to this data at least, the broad SOC groups provide a reasonable indication of the skills demanded of its constituents. This attribute will be used later in the paper. Differences by industry are more modest. 'Finance' and 'Education' come out on top, while 'Construction' also does well (the sector scores highly on the manual skills its jobs demand). On the other hand, average skill levels in 'Hotels and Restaurants' and 'Transport' are relatively low.

Although data were collected at an individual level, SS does contain information on the nature of the organisation for which the individual works in addition to the standard information on size, ownership and industrial sector. SS respondents were asked a total of six questions which, in combination and singularly, provide pointers as to the style of work organisation adopted. These include whether: respondents belong to a Quality Circle (QC); their organisation is committed or recognised as an Investor in People (IiP); there is a formal appraisal system at their workplace³; management organises meetings to inform the workforce of organisational developments; management holds meetings where workers can express their views and opinions; and respondents have made more than one suggestion to improve work performance over the last twelve months. By awarding one point for each of these factors an organisational index is derived. Those scoring 0 or 1 are deemed as 'traditional' organisations, those scoring 5 or 6 are 'modern' organisations, while those with 2-4 points are referred to as 'middling' organisations. This procedure follows the notion of 'bundling' human resource management techniques (MacDuffie, 1995; MacDuffie and Kochan, 1995). For ease of presentation, the main results reported in this paper use this three-way organisational comparison – those with most, some and few 'new' organisational characteristics. The

³ Respondents were also asked, if there was a formal appraisal system in their workplace, whether they had been appraised during the twelve months before interview. Information from this question arguably double counts appraisal practice and so it has been excluded from our analysis.

average skills score rises in line with the move from 'traditional' through 'middling' to 'modern' organisational forms (see Table 2).

Similarly, the average skills score can be measured according to the distribution of pay. Here, we divide the distribution into quintiles. This reveals that significant differences exist between the skill levels of individuals' jobs and the pay they receive. The more skilled jobs are rewarded with more pay. However, it is beyond the scope of this paper to examine the impact of intervening variables in this process since our focus here is on the distribution of skills rather than their consequences. Nevertheless, the evidence suggests that men earn significantly more than women even when the skill content of their jobs is similar to that of women.⁴

'Put Table 2 about here'

We built into the questionnaire the opportunity to address the question of how job demands have changed over recent years. Towards the end of the questionnaire survey respondents were asked a number of repeat questions about the job they held five years before the date of the survey. A total of 15 JA questions were asked, 12 of which focused on skills relating to problem solving, communication and social interaction, team working, and computing. The level of computer usage question was also repeated. Not only are these skills said to be of growing importance as we near the twenty-first century but they form part of what the British government refers to as 'Key Skills' i.e., the ability to operate in a workplace, alone or with others (see Dench *et al.*, 1998: 2-6). For the purposes of this paper we will refer to these collectively as 'new skills'⁵. From information respondents gave on their current jobs allied to information they gave on their job five years ago we are able to track trends in these 'new skills' for those in work over a five year period. This is achieved by subtracting the skills scores for jobs in 1992 from each of the repeat questions on jobs held in 1997.

⁴ For example, men and women whose average skills scores range between 2.31 and 2.51 receive significantly different hourly rates of pay ($p < 0.10$).

⁵ It should be noted that this differs slightly from the way 'new skills' are used elsewhere (Ashton and Felstead, 1998). There, 'new skills' exclude computing, here they are included.

Given the nature of the questioning and hence the data, the analysis has to be limited to those in work five years ago (this excludes 15% of the sample). Aside from the rather obvious point that one is relying on respondents' powers of recall (see Dex and McCulloch, 1998), the nature of the data itself presents problems which make analysis less than straightforward. The most notable of these is that the data may be subject to biases simply because the cohort has grown older and their job demands have risen as a result. For example, individuals may have more responsibilities placed upon them as they grow older and gain more experience. However, according to the 1997 data in only 2 cases out of 12 are skill demands significantly and positively correlated with the age of the respondent, and as far as the computing variables are concerned the relationship appears to be reversed entirely with older people *less* rather than more likely to be using computing skills in their jobs. The cohort effect, therefore, appears rather weak. This objection is also blunted by the fact that here we are less concerned with the *overall direction* of change than with patterns of *differential* experience.

Of particular interest for this paper is whether the work skills of some groups of individuals are growing faster or slower than others since this will have a major bearing on changes in the distribution of skills in Britain. We, therefore, return to the issue of gender and working time since the findings outlined above suggest that women part-timers are in the least skilled jobs. If it can be shown that they also experienced slower increases in their skills over the previous five years, then there are grounds to suggest that the gap between the work skills of women part-timers and the rest may be widening.

Table 3 shows how the 'new skills' content of jobs changed over the 1992-1997 period. We present data for the changes in each of the 'new skills' as well as a summary measure.⁶ Several points emerge. First, whereas the picture for 1997 suggested that significant differences exist between the 'new skills' content of men's and women's jobs,

⁶ Tests of reliability suggest that this 12-item scale is a reliable measure of the underlying 'new skills' content of jobs (Cronbach's Alpha (standardised) = 0.85). The change in 'new skills' is calculated by adding up for every respondent the Change in Skills Score for each of the 12 job activities (excluding the level of computer usage) and then taking an average.

both sexes appear to have benefited equally from the upward movement in these skills. Second, restricting the analysis to those who were in a full-time job in both years reveals that both men and women experienced similar fortunes. However, the third point to note is that women who were in part-time work in both 1992 and 1997 saw their ‘new skills’ increase at a significantly slower rate than other groups. This, therefore, suggests that while work skills overall have increased in recent years, their growth among women who remain in part-time jobs is failing to keeping pace with other groups in the labour market. As a result, the skills gulf between full-time and part-time work may be widening.

‘Put Table 3 about here’

Data presented in Table 4 provides further confirmation for this finding. The first panel tracks the movement in ‘new skills’ according to the employment status of respondents in the two years (see Table 4). This shows that while movement from full-time to part-time jobs is associated with stagnation in work skills, those switching from part-time to full-time jobs experience a rapid increase in the skills demanded of them. This holds whether the focus is on communication and social skills, team working, problem-solving or computing skills. It is also significantly ($p < 0.01$) different from the experience of those who remain in either part-time or full-time jobs. The table also investigates whether being in other ‘non-standard’ forms of employment has a detrimental effect on the acquisition of work skills (for a discussion of ‘non-standard’ forms see Felstead and Jewson, 1999). While the data is far from ideal since it refers to the situation in 1997 and hence does not allow one to control for changes in employment status, the evidence suggests that the self-employed have gained rather less than their employed counterparts from the skills revolution (on all but communication skills $p < 0.01$). The differences between permanent and temporary workers, on the other hand, display no clear pattern – temporary workers, for example, report more significant ($p < 0.05$) increases in computer usage than permanent workers but for communication skills the position is reversed ($p < 0.10$).

‘Put Table 4 about here’

The data also allow us to test the argument that the skills-poor are getting *relatively* poorer, while the skills-rich are getting *relatively* richer. By isolating individuals who remained in the same occupation between 1992 and 1997 we can begin to investigate this proposition since the occupational hierarchy broadly reflects the skills content of jobs (cf. Table 1). Evidence which shows the top (bottom) occupations benefiting most (least) from increases in ‘new skills’ would support this hypothesis. In the event, the picture is rather unclear (see second panel, Table 4). As far as the ‘new skills’ in their entirety are concerned no one occupational grouping appears to be stealing a march on the others. However, those at the higher echelons of the occupational hierarchy are increasing their computing skills at a faster rate than those at the bottom. Inequalities in computing skills may, therefore, be widening over time.

The importance of comparing respondents in the same occupational grouping with one another is emphasised in the third panel in Table 4. This shows the effect moving occupations can have on the skills jobs demand. The downwardly mobile, for example, report a stagnation in the skills they use at work, while in contrast the upwardly mobile record significant increases in their job skills.

A more precise approach is to monitor the rate of change at various points in the skills hierarchy as measured by the importance of ‘new skills’ in jobs held five years ago. To control for those who move up or down the occupational hierarchy this analysis focuses on those who remain in the same broad occupational category in 1992 and 1997. The fourth panel in Table 4 shows the results. Instead of revealing increased polarisation these data suggest that those with the lowest skills in 1992 reported the greatest skills increase over the five year period, while those with the highest skills reported the lowest upward movement. This applies to communication, team working and problem-solving skills. In other words, there is evidence of skill convergence. However, the story for computing skills is less clear-cut. Although even here those at the *top* of the skills hierarchy in 1992 saw their computing skills rise *less* rapidly than those whose jobs demanded less of them.

One objection to the suggestion that work skills are in fact converging is that the evidence itself may be an artefact of the measurement instrument. After all, those with high skills in 1992 have less scope to exhibit skill increase than those lower down the skills hierarchy simply because of their different starting points. Respondent's perceptions of overall skill change lends some support to this objection. However, while this challenges the notion of skill convergence, it is insufficient to support the polarisation thesis (see below and bottom panel of Table 5).

Analysis by industry reveals a similarly mixed picture. However, a clearer picture emerges by type of organisational structure. Those working in more progressive organisations (i.e., 'modern' organisations) experience significantly ($p < 0.01$) greater increases in their skills than those working elsewhere. Since we have no data on the organisational characteristics of those employing respondents in 1992 we have restricted our analysis here to those who remained with the same employer over the 1992-1997 period. The data also suggest that the low paid – and in particular those falling within the lowest quintile of the pay distribution – had more limited access to skill development over the period.

Some of the early analysis of skill trends in Britain (e.g., Gallie, 1991) focused on respondents' views of skill change over the five years before interview. With successive data sets – such as EIB in 1992 and SS in 1997 – the measurement of skill trends has gradually shifted towards a comparison of the responses given to identically worded questions posed at different points in time, albeit based on broad measures of skill (see section 4.1 above). However, arguments in favour of the skill polarisation thesis continue to rest on evidence that those already in possession of relatively high skill levels were also more likely to say that their skill levels had increased over the five years before interview than those who were relatively lowly skilled (Gallie, 1991: 349; Gallie *et al.*, 1998: 56). Table 5 suggests that were we to rely solely on perceptions of skill change, we would arrive at a similar conclusion. The data show that those higher up the occupational ranking are more likely to report that their skill levels have risen over the previous five years than those lower down. This holds whether we focus on the

occupation the respondent held when interviewed in 1997, the position they occupied in 1992 or whether they remained in a similar job throughout the five-year period. From this comes the suggestion that work skills are becoming more polarised in Britain. However, this is notably at odds with measures of particular skill change which are far less emphatic about growing inequality among the skills-rich and skills-poor. The final panel of Table 5 suggests that perceptions of skill change may also be more evenly spread throughout the skills distribution than has hitherto been realised.

‘Put Table 5 about here’

The evidence presented in these tables suggests that some groups are experiencing less rapid increases in skills than others. However, the picture is not a simple one since most groups – even those traditionally disadvantaged in the labour market such as women and those in low skilled jobs generally – appear to be benefiting from the upskilling of work as much as those traditionally regarded as advantaged. Nevertheless, pockets of cumulative disadvantage remain, especially among part-time and other ‘non-standard’ workers. The data suggest that other sources of inequality may be more important in the distribution of skills, especially those relating to the type of employing organisation. Those who work for more ‘progressive’ organisations are in jobs which demand higher levels of skill, are associated with higher rates of pay and are upskilled at a faster rate than average.

6. Conclusion

In both policy circles and among academics interested in lifelong learning the emphasis has shifted towards widening participation and preventing exclusion. This paper has aimed to contribute to this debate by providing hard, empirical evidence on the distribution of work skills in Britain. We have focused, in particular, on testing the proposition – suggested by some writers – that work skills are becoming more polarised. Drawing on data collected by the Skills Survey in 1997, the paper has challenged the polarisation thesis by analysing changes in the particular abilities demanded of job-

holders in 1997 compared to jobs held in 1992. Little evidence is found to support the notion that those with the least demanding jobs experienced the slowest rate of skill increase, while those in more demanding jobs saw their skills rise the most. If anything, the paper has provided limited support for the notion that the skills of those in work may be converging. However, it must also be remembered that the data reviewed and analysed here are primarily focused on those employed, and may therefore be disguising polarisation among the workforce as a whole and in the population generally.

Skill change like any other change produces winners and losers. The paper has identified both groups. Among the winners are those who: switched from part-time to full-time work; remained in intermediate occupations; moved up the occupational hierarchy; were in the manufacturing or financial sectors; were employed in 'modern' organisations; and were among the better paid. The losers, on the other hand, include those who: switched from full-time to part-time work; were self-employed; remained in personal and protective service or sales occupations; were downwardly mobile; remained in the community-related industrial sector (e.g., sewage and refuse disposal, recreational activities, and health and beauty services); and were among the lowest paid in society. Skill change is, therefore, having a differential impact on different groups in society. Yet, this is not necessarily to the detriment of those who start at the bottom of the skill distribution.

The paper has also cast doubt on the reliability of self-perception measures of skill change. Reliance on this measure alone suggests skill polarisation in Britain between 1997 and 1992 as it has on other occasions such as in SCCLI and EIB (Gallie, 1991; Gallie *et al.*, 1998). However, an examination of the particular abilities demanded of individuals in jobs provides a contrary picture.

The findings of this paper coupled with the keen policy interest in the issue of social inclusion, therefore, provides further support to our argument that a regular survey which examines the abilities and capabilities demanded of individuals at work be carried out. This would do much to inform the learning society debate as well as provide policy

makers with a clear indication of how Britain measures up and where policy might usefully be directed. We hope that this advice is heeded and that the opportunity to track patterns of skill change in future years is not missed.

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