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A PICTURE OF JOB INSECURITY FACING BRITISH MEN*

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This paper considers three aspects of the job insecurity facing British men in the last two decades. The probability of becoming unemployed, the costs of unemployment in terms of real wage losses and the probability that the continuously employed will experience substantial real wage losses. The first of these has not risen in the last two decades, the second has risen by around 40% and the third has risen, particularly for the top skill groups.

It is now a commonplace view in Britain that job insecurity has risen significantly over the last two decades. Yet providing evidence of substantial changes in the job market which support this view has not proved easy. Data on job tenure, for example, exhibit no dramatic changes. Burgess and Rees (1996) examine various aspects of job tenure using the UK General Household Survey and find that average elapsed tenure for men fell from around 10.5 years in the mid 1970s to around 9.4 years in the early 1990s. There has been no noticeable change for women over the same period. Furthermore, a similar picture emerges *within* age bands (ie a slight decline for men, no change for women, see Burgess and Rees (1996) Fig. 3). This picture is consistent with that reported by Gregg *et al.* (1997) using the UK Labour Force Survey who find that median elapsed job tenure for men has fallen slowly but steadily from 1975 to 1995 with the overall fall being of the order of 20% over the whole period. Again, for women, the change is much less significant, in part because of the increasing number of women who do not take a formal job break when having children.

How do these apparently rather small shifts compare with the opinions of the workers themselves? In the OECD's systematic analysis of this question in Chapter 5 of the 1997 *Employment Outlook*, they report a significant rise in the proportion of both men and women who are not completely satisfied with job security from 61.7% in 1991 to 78.4% in 1995, with all the increase coming

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between 1991 and 1992. These numbers from the British Household Panel Study appear, in fact, to be a statistical artefact arising from a change in the 'showcard' used when asking the relevant question (see Green *et al.* (1998) p. 6, for precise details). However, the OECD also reports a massive fall of 22 percentage points in the proportion of employees who respond favourably on the job security aspects of their work between 1985 and 1995. Green *et al.* (1998) are also sceptical about this result, pointing out that the data on which it is based, collected by International Survey Research (ISR) Ltd., are not generated by anything close to a random sample but are based on the workforces of ISR clients in any particular year. Green *et al.* (1998) then report, on the basis of data collected by the ESRC Social Change and Economic Life Initiative in 1986 and the Skills Survey in 1997, that the average reported expected risk of job loss has changed little over the relevant period, although it has risen for professional workers.

At present, therefore, the overall picture of changes in job security is somewhat cloudy. This is, in part, due to the fact that the objective data on job tenure are not very informative about insecurity. The problem is that most jobs do not end via layoffs but via voluntary quits. Furthermore, the latter are strongly procyclical and dominate separations over the cycle so that these are also procyclical. This implies that average tenure tends to fall when the economy is more buoyant.

So in order to pursue the issue of changes in insecurity we shall first discuss precisely what insecurity at work actually means and what drives it. We basically conclude that individuals feel insecure at work when there is a significant probability that they will become substantially worse off. This may occur in a variety of ways. They may feel insecure because there is a high probability that they will lose their job. However, this feeling of insecurity will be exacerbated if the cost of losing their job is also high. Thus we know, for example, that the quality of re-entry jobs after unemployment has fallen substantially from the 1970s to the 1990s (see Gregg and Wadsworth (1996)), so it is possible that the cost of job loss has risen over the same period.[1] But feelings of insecurity may not only be related to job loss. Such feelings can also be engendered by a high probability that real wages will fall substantially in a continuing job. Indeed insecurity can rise in a world where jobs remain secure precisely because wages have become more 'flexible'. Our purpose in what follows is therefore to discuss what job insecurity means and then to present a picture of what has happened over the last two decades (basically from 1982–97).[2] We do not provide much in the way of hard evidence on why the changes we document have occurred, confining ourselves to brief speculations. We feel that it is important to start by simply setting out clearly what has happened.

[1] The decline in quality of re-entry jobs does not necessarily indicate a rise in the cost of job loss because exit jobs may also have declined in quality in precisely the same fashion.

[2] We only take the data up to 1997 in this paper because we do not have the New Earnings Survey data merged with JUVOS (unemployment information) beyond this date. This is not a great problem because the issue of job insecurity came to the fore in the early 1990s, so the period we investigate should be informative on the substantive questions.

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The remainder of the paper consists first of a discussion of the meaning and measurement of insecurity (Section 1) followed by a picture of recent changes in the chances of becoming unemployed (Section 2), in the wage consequences of becoming unemployed (Section 3) and in the chances of significant real wage falls in continuing jobs (Section 4). We focus exclusively on men, essentially because existing evidence suggests that men are likely to have seen more substantial changes in job insecurity than women over the last two decades (for example, the wages of women have risen and their unemployment rate has fallen relative to men). Our findings are summarised in the Conclusions.

1. The Meaning and Measurement of Job Insecurity

What does job insecurity mean? The obvious idea is that people feel more insecure at work if there is a rise in the probability that they will lose their job tomorrow. But perhaps it goes a little deeper than this. For example, suppose a firm guarantees its employees' jobs if they will accept a substantial wage cut when there is an economic downturn. Does this reduce insecurity? Perhaps not. This example suggests that insecurity is not just about job loss. Instead it leads to the view that people feel insecure at work if there is a significant probability that their income tomorrow will be substantially lower than income today, whether or not they lose their job.

To state this more formally, suppose real income today is w and real income tomorrow is a random variable, $\tilde{w}$. Then insecurity is concerned both with the probability that income falls, $\text{prob}(\tilde{w} < w)$, and with the average loss of income should this happen, $w - \text{E}(\tilde{w}|\tilde{w} < w)$. Insecurity arguably rises if either or both of these go up and neither goes down.

These commonsense arguments have a particular implication. Insecurity is not synonymous with uncertainty or the dispersion of $\tilde{w}$. For example, an individual whose real income next period is guaranteed not to fall is probably not going to feel very insecure however uncertain it is. Our view of insecurity is, of course, open to debate, but it does seem to correspond to commonsense perception. So where does insurance come in all this? If people could insure completely against falls in income, insecurity would disappear and nothing more need be said. However, in practice, it is impossible to take out adequate insurance either against falls in earnings or changes in employment status. Both adverse selection and moral hazard ensure that private insurance markets in this area range from extremely thin to non-existent, with the only substantive market based cover being provided against illness and accidents.

1.1. *A Simple Illustrative Model*

To give some more focus to the discussion, consider the following simple example based on an individual who lives for three periods, receives no assets

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at birth and leaves none at death. His period utility is quadratic and his objective in the first period is to maximise

$$\mathrm{E}\sum_{i=1}^{3}\left(a_1 c_i - \frac{a_2}{2}c_i^2\right)$$

where c_i is consumption in period i. This objective is only defined for $0 \leq c < a_1/a_2$ to ensure that marginal utility is positive. Assume that the interest rate is zero and that the individual faces three possible lifetime earnings paths

(i) w, w, w. Prob. $= (1 - \pi_1 - \pi_2)$.
(ii) w, 0, w_1. Prob. $= \pi_1$; $w_1 \leq w$.
(iii) w, w_2, w_2. Prob. $= \pi_2$; $w_2 \leq w$.

The purpose of this illustrative exercise is to consider the level of the individual's insecurity during the first period before his lifetime earnings path is revealed. In this first period, he faces the possibility of unemployment in the second period which leads to income path (ii) as well as the possibility of a fall in earnings while remaining in work leading to income path (iii).

It is straightforward to show that the assets accumulated by the end of period one, A_1, are given by

$$A_1 = \frac{1}{3}[\pi_1(2w - w_1) + 2\pi_2(w - w_2)]. \tag{1}$$

Note that A_1 is zero if income path (i) is guaranteed ($\pi_1 = \pi_2 = 0$). In addition, the ex-post utility of a person whose earnings path follows the pattern given by (i)

$$3\left(a_1 w - \frac{a_2}{2}w^2\right) - \frac{a_2}{4}A_1^2. \tag{2}$$

So we might argue that insecurity in the first period is generated by the possibility that paths (ii) and (iii) might happen and this causes the individual to save an amount A_1. Furthermore, even if neither of these two possibilities comes about, the utility loss associated with their very existence is proportional to A_1^2. This suggests that we might think of insecurity in period one as being an increasing function of A_1 which is, in turn, an increasing function of π_1, π_2 and $(w - w_1)$,$(w - w_2)$. These are respectively (a) the probability of job loss, (b) the probability that earnings will fall without job loss, (c) the earnings loss following an unemployment spell and (d) the earnings loss if continuously employed. In our investigation of job insecurity, these are the issues which we shall pursue. Before looking at the data, however, we first discuss the economic forces underlying the four factors listed as (a) to (d) above.

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1.2. *Entering Unemployment and the Consequent Earnings Losses*

In our illustrative example, we simply take the probability of entering unemployment and the consequent earnings loss as given. In reality, of course, things are more complicated. Looking first at entry into unemployment, while most such entry is involuntary, there are some individuals who quit into unemployment. We must, therefore, ensure that the existence of voluntary exit from employment into unemployment is not distorting any results we present.

Perhaps more important for interpreting our findings is the question of why individuals become unemployed and then return to work at a lower level of earnings. First, it is important to recognise that employed individuals do not become unemployed on a random basis. Typically there is some degree of selection mainly on the part of the employer. Much empirical effort has been devoted to ascertaining the earnings losses of a randomly selected person were they to lose their job. This implies trying to isolate individuals who become unemployed randomly, typically by focusing on plant closures (see, for example, Jacobson *et al.* (1993) or Ruhm (1991)). Two points are worth making on this issue. A minor point is that, at least in the United Kingdom, plant closures do not mean random selection of individuals for unemployment. In practice, it often happens that the firm offers selected individuals alternative employment in other plants.[3] However, the important point in our context is that this whole issue of selection is not relevant. Even if all involuntary separations into unemployment are selected by employers, the possibility of such separation certainly contributes to insecurity. In order to clarify this point, let us consider some simple models

(i) *The competent and the incompetent.* Suppose workers live for two periods and are either competent or incompetent. During the first period neither firms nor workers know which is which (even about themselves), though everyone knows the proportion of incompetents. After the first period, competence is revealed and the firms sack the incompetents. In the first period, pay is equal to the average productivity of competents and incompetents. In the second period, competents and incompetents are paid commensurately with their productivity. The labour market is competitive throughout and there is no insurance.[4] Despite all being paid what they deserve in the second period, the workers will certainly suffer from insecurity in the first period. Furthermore, insecurity is going to be higher the greater the number of incompetents and the greater the difference between incompetents and competents, since the former will raise the probability of job loss and the latter will raise the consequent earnings loss. The fact that

[3] As it happens the results reported in Gibbons and Katz (1991) indicate that the wage losses of job losers due to 'slack work' are only a fraction larger than those of job losers due to 'plant closure' and Farber (1998) reports that his own analysis of this issue indicates that the relationships of the wage loss with pre-displacement tenure are similar across job-loss categories.

[4] We could rule out insurance by assuming that the competent could assume the productivity of the incompetent by working a lot less hard. Without insurance, it does not pay them to do this because the fall in pay is not offset by the rise in on-the-job leisure. If they were able to insure against incompetence, then they would have the incentive to cheat and the insurance market collapses.

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the firm selects only the incompetent for unemployment is not relevant for the analysis of insecurity.

(ii) *Some workers have rents.* Suppose for some reason (eg union pressure or for legal reasons) individuals in a firm are paid the same wage even though some are more productive than others. The firm faces fluctuating demand for its product and when demand falls, the firm lays off the less productive workers who enter unemployment and then find a job at a wage commensurate with their productivity. Workers will still suffer from insecurity depending on the frequency and depth of demand falls. Here, however, the less productive workers will feel more insecure.

So, in both these models, we see that despite the fact that entry into unemployment is based on selection by the employer, we would still argue that insecurity depends on the probability of entry into unemployment and the consequent wage loss. Finally, it is worth noting that there are other mechanisms which may be at work as well as those noted in the above models. For example, it is obvious that the existence of specific human capital will give rise to earnings losses for those who are laid off and again insecurity will depend on the chances of entering unemployment and the extent of the earnings loss. Furthermore, in any model, earnings losses will be exacerbated if there is labour market discrimination against the unemployed. These models cover the situation where individuals face job loss. What about the alternative where there are earnings losses for the continuously employed?

1.3. *Earnings Fluctuations for the Employed*

It is well known that falls in real and even nominal earnings for the continuously employed are not uncommon (see Smith (2000) or Nickell and Quintini (2000) for UK evidence). When firms face hard times, they may attempt to negotiate lower pay for their employees to avoid redundancies or pay may fall more or less automatically if workers are paid partly on the basis of performance (eg salespersons on commission). The possibility of a significant pay reduction will contribute to insecurity and this remains important even if the pay reduction is an accurate reflection of the decline in marginal revenue. It is, therefore, important that we pursue the issue of pay reduction for the continuously employed as well as studying the consequences of job loss.

1.4. *Summary*

Our purpose here has been to justify our concern in what follows with three issues, the probability of entry into unemployment, the size of the consequent earnings loss and the probability of substantial reductions in real pay for the continuously employed. These are all crucial aspects of insecurity for those at work. Furthermore, our measures of earnings losses reflect, at least in part, the fact that the individuals have been selected. For example, the less productive (relative to their current pay) are generally selected for lay off in

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bad times. However, when considering insecurity this is not really relevant and the measured earnings loss appropriately reflects an important aspect of the story.

2. The Chances of Becoming Unemployed

One of the main fears of the employed is that of losing their job. But not everyone who leaves a job and becomes unemployed does so involuntarily. Some people resign their jobs to enter unemployment and, presumably, they feel they are better off by doing so.[5] Since we wish to interpret a rise in the chances of an employee becoming unemployed as corresponding to a rise in insecurity, we must first check to see if the proportion who leave their jobs and become unemployed voluntarily has been subject to any systematic shifts, for such shifts might corrupt our desired interpretation of the numbers. Luckily, as Fig. 1 makes clear, the proportion of the unemployed who resigned from their previous jobs exhibits no trend,[6] at least since 1981. In particular, we find that for the three periods considered subsequently, namely 1982–6, 1987–91, 1992–7, the proportion of unemployed who resigned is 10.1, 11.2 and 10.0% respectively. So looking at all the unemployed is not going to generate misleading results when we are concentrating on changes over time.

2.1. *Unemployment Entry Probabilities*

Since the 1960s, unemployment rates among men in Britain have risen dramatically and even in the late 1990s, when unemployment is lower than it has been for many years, it is still more than twice what it was in the late 1960s (see Fig. 2*a*). Despite this, the probability of an employed man in Britain entering unemployment is actually lower in the late 1990s than in the late 1960s (see Fig. 2*b*), although earlier in the 1990s this probability had attained unprecedented heights. So while there is no obvious secular trend in the chances of a working man becoming unemployed, there is some evidence that when the economy is entering a serious slump as in the mid 1970s, the early 1980s and the early 1990s, the chances of becoming unemployed have tended to be higher in the most recent episode. The fact that the probability of entering unemployment in the United Kingdom exhibits no secular trend is well known and we re-emphasise it here simply for completeness of the picture (see, for example, Layard *et al.* (1991) Chapter 5, Fig. 3*b*). It also, of course, implies that the large secular increase in unemployment in the United Kingdom since the 1960s corresponds to an equally large secular rise in

[5] Of course, even individuals who resign may have effectively been sacked. Employees who antagonise their bosses are often asked to resign or placed in a position where they have no alternative but to resign.

[6] There are other categories where individuals leave their jobs and enter unemployment without any necessary interference from the employer; for example, leaving because of sickness or for family reasons. In fact, these proportions have also remained stable. In any evident, it is arguable that entering unemployment for these reasons is part of job insecurity.

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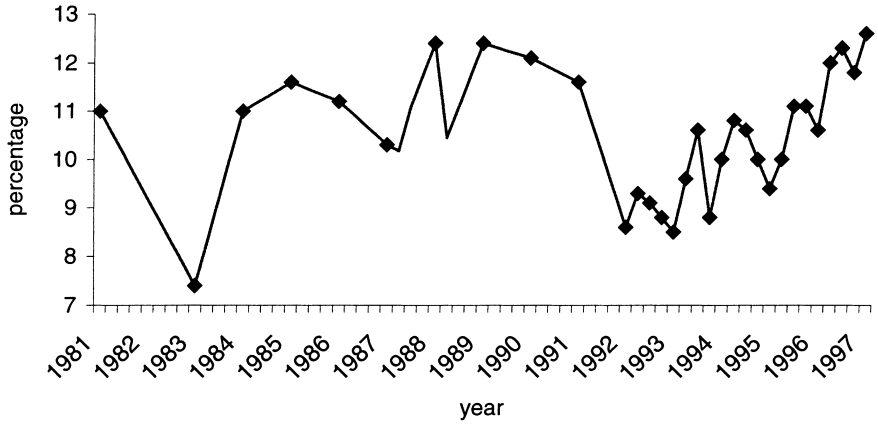

Fig. 1. *The Percentage of the Unemployed who Resigned from their Last Job*
Source: *UK Labour Force Survey*

average duration (see Fig. 2*c*), although there has been no secular trend over the sample period in which we are particularly interested (1982–97). Unfortunately, it is not possible to break down the unemployment inflow data by any variable of interest, notably by occupation and skill group. In the light of this we next pursue the issue of entry probabilities by looking at the probability of a worker being unemployed twelve months later.

2.2. *The Chances of a Male Worker being Unemployed Twelve Months Hence*

An alternative measure of insecurity related to job loss is to ask the question, what are the chances of an employed man being unemployed twelve months later? This depends on both the probability of entry *and* the duration of the unemployment spell. It is obviously true that even if there is no secular increase in the probability of entering unemployment, a systematically higher average spell duration will raise insecurity because of the additional time spent looking for work. So the expected length of the unemployment spell is a part of the cost of job loss.[7] Following on from this, we can see from Fig. 2*c* that changes in average duration cannot have contributed directly to any secular increase in insecurity since the early 1980s because the trend level of unemployment duration has not increased since that time, indeed if anything it has declined.

[7] Of course, it may be argued that if the increased expected spell duration comes about because of a rise in the level of unemployment benefit, this will not be associated with a rise in the cost of job loss. As it happens, using the OECD summary measure of the benefit replacement ration (see OECD Jobs Study (1994) Table 8.1), we find that this has been falling in Britain since the late 1970s basically because over most of this period, benefits have been indexed to prices and have therefore grown systematically more slowly than earnings as real wages have risen (see Nickell and van Ours (1999), Figure 9, for the precise numbers).

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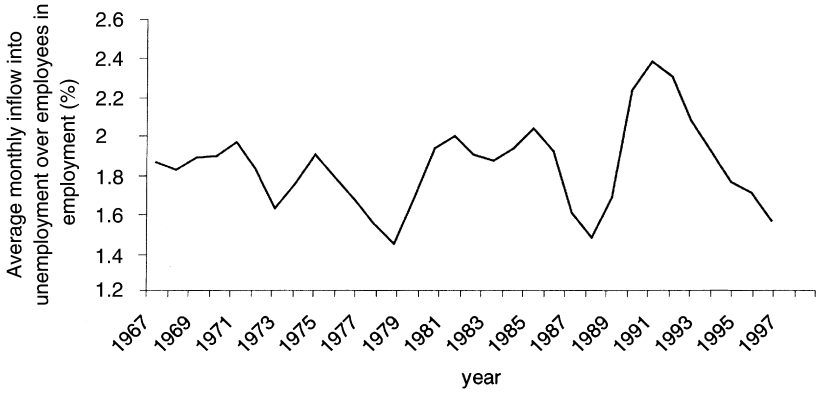
(a) The Unemployment Rate of Men in the UK (Claimant Count)

(b) UK Monthly Percentage Probability of Male Employees Entering Unemployment



(c) UK Steady State Unemployment Duration for Men

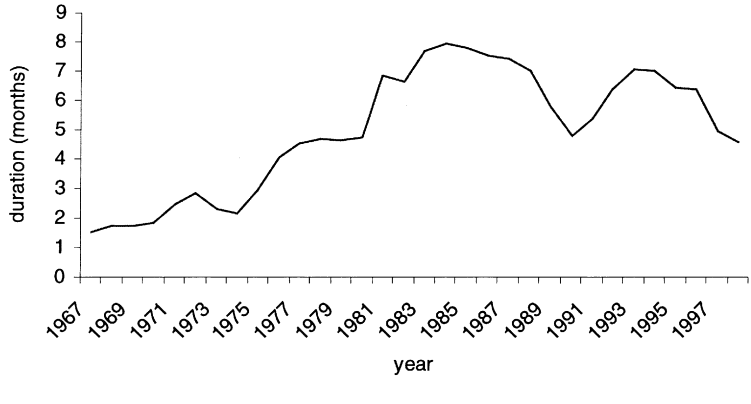


Fig. 2. *Unemployment Rate, Inflow and Duration of Men*
Note: The duration data are computed by dividing the unemployed stock (Fig. 2*a*) by the monthly inflows (Fig. 2*b*)

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So what we are interested in here is whether there is any evidence that, either overall or for certain groups, the probability of an employee being out of work in twelve months time has risen systematically, once we control for the direct impact of the average duration of unemployment.

To pursue this issue, we make use of the UK Labour Force Survey and create a pseudo panel based on occupation, since this is the variable we consider to be of greatest interest. The sample is not large enough to withstand a finer division (eg, by age as well). For each year of the survey, t, we compute the probability that a man who was employed in a particular socioeconomic group (SEG),[8] i, at a certain time in year $t-1$ was unemployed twelve months later. We measure this probability, p_{it} say, by taking the sample proportion. Each year the Survey contains around 70,000 employed men divided into 7 SEGs. So our measured probabilities, which are typically around 4%, have a relatively small average sampling standard error of around 0.2% age points in the case of SEGs,[9] using the standard formula $\left([\,p(1-p)/\text{sample size}]^{1/2}\right)$.

We then take these sample probabilities and using SEG groups over time as the unit of observation, we use them to run (fixed effects) panel regressions of the form:

$$p_{it} = \alpha_0 + \gamma D_t + \sum_{i=2}^{n} \alpha_i d_i + \delta age_{it} + \sum_{i=1}^{n} \beta_1 d_i f(t) + \varepsilon_{it} \qquad (3)$$
$$i = 1 \ldots n(\text{SEG}), \quad t = 1 \ldots T(79, 81\ 83, 84{-}98)$$

p_{it} = probability that a man in the i^{th} SEG who was unemployed in $t-1$ is unemployed 12 months later
D_t = average aggregate unemployment duration,
d_i = SEG dummies,
$f(t)$ = linear trend or grouped time dummies,
age_{it} = average age of occupation group i.

The idea here is to see if there have been significant increases over time in the probability of ending up unemployed for men in any particular occupation groups.[10]

In Table 1 we present two regressions based on socio-economic groups. In the first, we make no attempt to control for average unemployment duration whereas in the second this variable is included. As we can see, fluctuations in aggregate duration have a strong impact on the probability of an employee being unemployed a year later. Furthermore, there is some indication that the chances of entering unemployment have been rising

[8] The SEGs are reported in Table 1.

[9] Of course, the SEGs are not of uniform size but even the proportion in the smallest group has a sampling standard error which is only around one tenth of its size. Overall, given the proportions are used as the dependent variable, there is easily enough 'true' variation in these data to be able to detect important trends if they are present in reality.

[10] If (3) is estimated using the log odds ratio, $\ln[p_{it}/(1-p_{it})]$, as the dependent variable, the pattern of results is identical.

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Table 1

Explaining the Percentage Probability of an Employee being Unemployed Twelve Months Later

Dependent Variable: p_{it}

Variable	Coefficient	
Constant	−12.39	4.59
Age_{it}	−0.26 (2.5)	−0.18 (1.9)
D_t		0.61 (5.0)
SEG 2	−1.25 (0.9)	−0.91 (0.7)
SEG 3	−0.98 (0.6)	−0.47 (0.3)
SEG 4	5.83 (4.2)	6.05 (4.5)
SEG 5	3.13 (2.3)	3.11 (2.5)
SEG 6	2.79 (2.0)	3.13 (2.4)
SEG 7	7.44 (5.5)	7.39 (6.0)
(*SEG* 1) *t*	−0.019 (0.3)	0.031 (0.5)
(*SEG* 2) *t*	0.065 (1.0)	0.098 (1.6)
(*SEG* 3) *t*	0.087 (1.3)	0.121 (2.0)
(*SEG* 4) *t*	−0.084 (1.3)	−0.033 (0.5)
(*SEG* 5) *t*	−0.112 (1.3)	−0.052 (0.8)
(*SEG* 6) *t*	−0.011 (0.2)	0.030 (0.5)
(*SEG* 7) *t*	−0.081 (1.2)	−0.024 (0.4)
NT	126	126
$\overline{R}^2$	0.71	0.76

Notes:
age_{it} is the average age in *SEG i* at time *t*.
p_{it} is the proportion of men working in *SEG i* in *t*−1 who are unemployed twelve months later.
D_{it} is average unemployment duration.
SEG i is a dummy variable taking the value one if they were working in *SEG i*, zero otherwise.
(*SEG i*) *t* is the interaction between *SEG i* and a time trend.
SEG 1 = Employers, managers, professionals; *SEG* 2 = Intermediate non-manual; *SEG* 3 = Junior non-manual; *SEG* 4 = Personal service workers; *SEG* 5 = Foreman, supervisors, skilled manual; *SEG* 6 = Semi-skilled manual; *SEG* 7 = Unskilled manual.
The unit of observation is the *SEG* for the years 79, 81, 83, 84–98, so there are $7 \times 18 = 126$ observations.
The regression is estimated by OLS with *SEG* dummies (ie a fixed effects model) and the absolute t ratios are in parentheses.

systematically for low-level non-manual workers (SEG 3). There are no other significant trends.

2.3. *Summary*

If the insecurity of male employees in Britain has risen across the board over the last eighteen years it has not done so because they are more likely to become unemployed. There has been no systematic increase, on average, in the chances of becoming unemployed. The only significant overall change is that during the recession of the early 1990s, the probability of unemployment entry rose to a significantly higher level than its maximum during the previous two recessions. However, there is some indication that low-level non-manual workers have faced a small but steady rise in the chances of their becoming unemployment. Our next step will be to pursue the issue of the costs of job loss.

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3. The Wage Losses Consequent on Unemployment

Following our discussion in Section 1, we would expect workers who lose their jobs and have a spell of unemployment tend to return to work at a lower rate of pay and perhaps even suffer a permanent pay reduction. There is a great deal of evidence that this happens (see, for example, Chowdhury and Nickell (1985); Addison and Portugal (1989); Swaim and Podgursky (1991); Ruhm (1991); Jacobson *et al.* (1993) for the United States; Gregory and Jukes (1997) for the United Kingdom).[11] Our aim in this section is to investigate the hypothesis that these wage reductions have got bigger since the early 1980s. Furthermore, we would like to interpret any such increase as signifying that individuals who become unemployed have become worse off, thereby corresponding to an increase in insecurity even though the chances of becoming unemployed have not risen.

Our method of investigation is to use fixed effects earnings regressions over three sample periods 1982–6, 1987–91, 1992–7 and see if the *ceteris paribus* (negative) impact of an unemployment spell on earnings has increased in absolute size from the first sample period to the last. Although we use fixed effects regressions, some care is required in the interpretation of our results. First, all we observe is that the individuals concerned pass through an unemployment spell. While we know the length of the spell, we have no information as to why they became unemployed. Indeed, some may have chosen to resign their job and enter unemployment. So the earnings losses we observe are averaged over individuals who enter unemployment for different reasons. Presumably individuals who resign from their previous job to become unemployed are likely to suffer smaller earnings losses than those who lose their previous job involuntarily. This we see as less of a problem than it might be because the proportion of the unemployed who resign from their previous jobs is both small and trendless (see Fig. 1).

A second issue concerns whether or not an increased earnings loss genuinely corresponds to an increase in insecurity. In Section 1 we concluded that prospective earnings losses following unemployment generate insecurity even if these losses are the consequence of selection on the part of employers. Since we are going to find that these losses have increased since the 1980s, we feel that it is worth speculating briefly why this might have happened. Suppose the earnings losses arise because of discrimination against the unempoyed[12] and they increase because of increased discrimination, this obviously corresponds to a rise in insecurity. Suppose, however, that the earnings losses increase because human capital is becoming more specific. Given a constant probability of entry into unemployment, this would represent

[11] By contrast pay reductions following displacement tend to be rather small in France and Germany (see Bender *et al.* (1999)) although less so if individuals remain out of work for a long period.

[12] Evidence of systematic labour market discrimination against the unemployed is not readily available although we know from survey evidence that around half of all employers regard unemployment as an undesirable attribute, *per se*, and that the long-term unemployed are systematically disfavoured by, for example, not being selected for interview irrespective of their other characteristics (see Meager and Metcalf (1986)).

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a rise in insecurity which we would expect to be more marked at higher skill levels, where specific human capital is more likely to be important.

Alternatively earnings losses can arise as firms weed out incompetent employees who, because of wage uniformity on specific jobs or imperfect information, are earning 'too much'. The earnings losses then reflect the extent of this excess pay as their subsequent wages are, on average, closer to the correct level. Then if firms get better at identifying incompetents, average earnings losses following unemployment will tend to rise. Does this correspond to an increase in insecurity? The argument here is less clear-cut. The competent may feel more secure because they are less likely to be unfairly labelled as incompetent and suffer an earnings loss. Overall the outcome is hard to judge. However, this argument would seem to imply that the unemployed should be systematically falling in quality relative to the employed as the firms get better at identifying the incompetent and retaining the competent. In fact, there is no evidence, at least on the basis of observables, that this is happening. For example, the proportion of high education (UK A levels+) relative to low education (no qualifications) among the employed has actually fallen relative to that among the unemployed from the late 1970s to the early 1990s in the UK (see Nickell and Bell (1996) Table 1). So this explanation is perhaps less persuasive than the others.

Overall, therefore, we feel that in the light of the above discussion it is not unreasonable to supposes that a *ceteris paribus* rise in the earnings losses due to unemployment reflects a rise in general insecurity at work.

3.1. *The Data*

The earnings and unemployment data are taken from the UK New Earnings Survey (NES) which has been merged with information from the Joint Unemployment and Vacancy Operating System (JUVOS). The NES is a large sample survey of employees in employment. The sampling frame is based on all individuals whose National Insurance (NI) number ends in a given pair of digits. Since NI numbers are issued to every individual prior to starting work and are retained for life, there is a large panel element in the data.

Complete data on earnings are provided for each individual and cover a specific week in April for each year. These data are provided by employers who are legally bound to comply. The data cover hourly and weekly earnings plus detailed information on hours, overtime, age, occupation, industry, region and whether or not the individual was in the same job as in the previous year. (Note, he can be in a different job with the same employer.) The measure of wages which we use throughout is the weekly pay of those whose pay is unaffected by absence excluding overtime pay divided by weekly hours excluding overtime hours. The idea is to obtain a measure of hourly pay which excludes the overtime element in order to try and eliminate that part of pay which is explicitly sensitive to the business cycle. The alternative is simply to use weekly pay divided by weekly hours but because of the overtime premium, this will vary with hours worked even

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when the pay schedule is unchanged. Such variation would make the results harder to interpret.

The data on earnings are only available if the individual is in employment on the relevant date and his employer located. Note that while it is possible and relatively commonplace for an individual's earnings to be unavailable for a given year because he does not have any or his employer is not located, it is very difficult for an individual to disappear completely from the sample unless he dies, emigrates or exits permanently from the labour force because of disability or prison, for example. Merged into these earnings data are the administrative records on unemployment benefits claims (from JUVOS) throughout the previous year. We divide the occupational data into four skill groups along the lines suggested by Elias (1995), the details being provided in Table 2.

3.2. *Empirical Strategy*

Taking our panel data set, we divide it into three periods 1982–6, 1987–91, 1992–7 and analyse the following equation,

$$w_{it} = \alpha_i + \alpha_t - \sum_{j=1}^{4} \beta_j D_{ijt} - \beta D_{it} + \sum_k X_{ikt}\alpha_k + \varepsilon_{it} \tag{4}$$

The variables are as follows: $\alpha_i =$ individual dummy, $\alpha_t =$ time dummy, w_{it} is ln (hourly earnings), $D_{ijt} = 1$ if the individual completed his first unemployment spell in the sample period up to 3 months ago ($j = 1$), 4–6 months ago ($j = 2$), 7–9 months ago ($j = 3$), 10–12 months ago ($j = 4$); zero otherwise. $D_{it} = 1$ if the first unemployment spell was completed more than 12 months ago; zero otherwise. The X variables include age dummies and region dummies. In practice we also include the consequences of a second spell of

Table 2

Skill Levels Based on the Standard Occupational Classification

Skill level	Major groups	Constituent minor groups (2 digit)
Level 4	Managers and administrators (excluding office managers and managers/proprietors in agriculture and services). Professional occupations	10, 11, 12, 15, 19, 20–27, 29
Level 3	Office managers and managers/proprietors in agriculture and services	13, 14, 16, 17
	Associated professional and technical occupations	30–39
	Craft and related occupations	50–59
	Buyers, brokers, sales reps	70, 71
Level 2	Clerical, secretarial occupations	40–46, 49
	Personal and protective service occupations	60–67, 69
	Sales occupations (except buyers, brokers, sales reps)	72, 73, 79
	Plant and machine operatives	80–89
	Other occupations in agriculture, forestry, fishing	90
Level 1	Other elementary occupations	91–95, 99

Source: Elias (1995).

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unemployment with the same structure as the first but, after investigation, we do not include the third or subsequent spells because the numbers are too small to obtain useful results. It is worth emphasising that our specification implies that we are measuring the time from the end of the first unemployment spell in each sample period and the time from the end of the second unemployment spell but we ignore completely the third and subsequent unemployment spells. This has no serious impact on the results because of the very small number of individuals with three or more spells in the five year sample periods and because our investigations indicate that additional earnings losses appear to be rather small for these extra spells. Further, because we include time dummies, the earnings loss can be taken to refer to real earnings.

Given the sampling frame individuals exit and enter the sample quite frequently so, despite using a fixed effects estimator, we decide to make further efforts to deal with potential sample selection problems. So for each year we run a year specific probit explaining the availability of earnings data and then use this to construct Heckman's λ for each sample member for each year. This is included in the estimated equation. The variables included in the probit are age dummies, skill level at the onset of the period and cumulated spells of unemployment. The latter two variables plus the non-linearity serve to identify the λ variable. Finally, the equation standard errors are corrected for heteroscedasticity.

Our ultimate aim is to see whether there is any systematic tendency for the β_j and β parameters in (4) to become larger in the later periods. Because the sample is so large ($N > 70$ K), we should be able to generate precise estimates of the parameters and to pick up relatively small changes. Furthermore, we can divide the sample by age and skill groups to see if these exhibit any significant changes.

3.3. *Results*

The average earnings losses for men due to unemployment, as generated by the estimated version of (2), are reported in Table 3. The overall pattern is familiar from the results reported in Gregory and Jukes (1997). After the first unemployment spell within the sample period, we see an immediate loss in hourly earnings of somewhere between 10 and 20% which is sustained throughout the first year, although there is some tendency for the loss to diminish towards the end of the first year back at work. However, the permanent losses remain quite substantial although it should be borne in mind that since each sample period is only five years long, the 'permanent' effect is, in fact, an average of the earnings loss during the period between one and four years after the end of the unemployment spell.

Because the sample size is so large, we have quite precise estimates of the earnings losses and if we make comparisons across periods, we see that the temporary losses in the last period are, on average, around one-third higher

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Table 3

The Impact of Unemployment on the Hourly Pay of Men

Hourly Earnings Loss (%)

	1982–6	1987–91	1992–7
Impact of 1st unemployment spell			
After 1–3 months	12.3 (0.98)	18.0 (1.22)	15.4 (1.76)
4–6 months	13.0 (0.77)	20.1 (0.86)	19.3 (0.96)
7–9 months	13.5 (0.72)	20.5 (0.80)	19.5 (0.83)
10–12 months	10.8 (0.70)	10.3 (0.78)	18.2 (0.80)
Permanent	7.8 (0.48)	13.9 (0.61)	15.5 (0.61)
Impact of 2nd unemployment spell			
After 1–3 months	0.02 (1.63)	5.7 (1.57)	7.7 (2.02)
4–6 months	3.0 (1.13)	9.3 (1.29)	7.5 (1.07)
7–9 months	4.6 (1.07)	8.4 (1.16)	8.2 (0.89)
10–12 months	2.0 (1.06)	5.8 (1.15)	6.8 (0.93)
Permanent	0.8 (0.72)	4.9 (0.86)	5.1 (0.67)
NT	387,571	386,472	415,991
R^2	0.194	0.165	0.105

Notes: These results are based on regressions which include fixed individual effects (i.e. the regressions are within groups), time dummies, region dummies, age dummies, Heckman's λ.
Standard errors in parentheses.
Only unemployment spells in excess of ten days are counted.

than those in the first period, this being a gap of about 6 standard errors. The permanent loss is nearly 100% bigger in the last period relative to the first, which represents some 12 standard errors. On this basis there seems no doubt that there has been a significant rise in the average earnings losses due to unemployment from the early 1980s to the early 1990s. The additional losses arising from the second spell are much smaller than the first spell losses but overall they exhibit the same temporal pattern with at least a 50% increase from the first period to last period. In nearly all cases most of the jump occurs from the first to the second period remaining more stable thereafter.

There is no obvious macroeconomic reason for this pattern since average claimant count percentage unemployment in the three periods is 12.8, 9.7, 11.5 respectively and unemployment duration exhibits no secular trend. In any event, the costs of becoming unemployed in terms of earnings losses seem to have risen quite sharply over the last two decades. Two other features of these results are worth noting. First, the earnings losses are computed from an equation excluding job tenure. So these earnings losses are relative to those of an individual with the same fixed effect, the same time effect and the same value of all the other variables excluding job tenure, ie our comparison individual does not start a new job at the same time as the individual exiting from unemployment. If we include tenure variables, the earnings losses are similar and have exactly the same overall pattern. Second, it is striking that the pattern of temporary losses exhibits a slight increase over the first nine months before starting to decline. This suggests that

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Table 4

The Impact of Unemployment Spells on the Hourly Pay of Men Analysis of Spell Duration

Hourly Earnings Loss (%)

	1982–6	1987–91	1992–7
Impact of 1st spell of unemployment			
After 1–3 months	11.7 (1.12)	17.8 (0.92)	10.6 (2.07)
4–6 months	11.7 (0.89)	20.1 (0.68)	18.0 (1.08)
7–9 months	12.7 (0.86)	20.8 (0.60)	17.4 (0.95)
10–12 months	9.6 (0.84)	16.7 (0.61)	15.7 (0.91)
Permanent	6.1 (0.53)	12.7 (0.42)	13.3 (0.65)
Additional earnings loss if spell exceeds 6 months (%)			
After 1–3 months	3.0 (2.12)	8.4 (1.87)	17.7 (3.65)
4–6 months	5.5 (1.65)	7.7 (1.39)	7.6 (1.95)
7–9 months	3.9 (1.46)	7.2 (1.27)	10.1 (1.54)
10–12 months	5.1 (1.43)	9.7 (1.28)	11.2 (1.56)
Permanent	6.8 (1.03)	10.6 (1.03)	9.9 (1.01)

Notes: See Table 3.

relative to individuals who do not experience an unemployment spell, the rise in earnings is somewhat slower for the first nine months leading to an increase in losses over this period.

In Table 4, we repeat the exercise but in this case we allow the losses to be influenced by spell duration. Again we see the same picture. Not surprisingly, longer duration unemployment spells are associated with significantly greater earnings losses but, for both short and long unemployment spells, the losses in the 1992–7 period tend to be around 50% higher than those in the 1982–6 period. In Table 5, we look at how earnings losses vary with age dividing the sample into three age groups, using the age at the beginning of each period. The most notable feature of the results is that there is very little increase in earnings losses for the young which are, not unexpectedly, much smaller than the earnings losses for older workers in any event. By contrast, the rise in earnings losses for prime age men is really substantial being of the order of 50% with a slightly smaller rise in earnings losses for older men.

When we divide up the sample into the four skill levels *at the beginning of each period*, we find a number of results worth noting in Table 6. First, the earnings losses tend to be higher, the higher the skill level which is consistent with a specific human capital explanation.[13] Second, the increase in earnings losses as we move into the later periods is more obvious for the two higher

[13] In the US displacement literature, there tends to be very little difference in earnings losses between education levels. For example, Farber (1997) Table 13 reveals that the earnings losses from displacement are roughly the same for all education groups. By contrast Abbring *et al.* (1998) Table 20 presents some evidence that more highly educated individuals in the Netherlands lose more, although the differences are not well determined because the sample size is so tiny. Whether or not these results would be more definitive for those who face unemployment spells is not clear, in particular because the high education group are less likely to face unemployment.

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Table 5

The Impact of Unemployment Spells on the Hourly Pay of Men Analysis by Age
Hourly Earnings Loss (%)

	1982–6	1987–91	1992–7
Age ≤ 30			
Impact of 1st spell of unemployment			
After 1–3 months	9.9 (1.56)	14.9 (1.79)	5.7 (2.31)
4–6 months	8.6 (1.14)	14.8 (1.39)	8.6 (1.44)
7–9 months	9.7 (1.08)	14.7 (1.23)	10.2 (1.20)
10–12 months	4.7 (1.07)	11.7 (1.25)	5.8 (1.16)
Permanent	3.1 (0.78)	8.5 (1.02)	6.5 (0.97)
31 ≤ Age ≤ 50			
Impact of 1st spell of unemployment			
After 1–3 months	15.2 (1.66)	17.6 (2.23)	19.8 (2.97)
4–6 months	16.9 (1.32)	20.5 (1.38)	24.9 (1.58)
7–9 months	13.8 (1.23)	22.4 (1.31)	21.1 (1.32)
10–12 months	13.6 (1.13)	18.2 (1.29)	21.6 (1.29)
Permanent	10.3 (0.78)	15.0 (1.02)	18.2 (1.00)
51 ≤ Age			
Impact of 1st spell of unemployment			
After 1–3 months	23.1 (2.46)	21.4 (3.22)	28.0 (6.40)
4–6 months	23.7 (2.49)	28.7 (2.32)	26.7 (3.39)
7–9 months	21.8 (1.87)	29.0 (2.47)	29.6 (3.25)
10–12 months	23.4 (2.21)	28.6 (2.10)	33.5 (3.20)
Permanent	18.7 (1.38)	25.9 (1.67)	29.0 (2.27)

Notes: See Table 3.

skill groups than for the two lower skill groups. Concentrating on the permanent effects, the bottom skill group (level 1) exhibits no systematic increase in income loss, which is relatively small in any event. The next level skill group (level 2) also exhibits little secular increase over the three periods although overall the losses are somewhat larger than in the bottom group. By contrast, the top two skill groups suffer wage losses due to unemployment which are substantially larger in the last period than in the first. The temporary losses are over 40% larger in the last period than in the first and the permanent losses tend to be around 100% bigger. So in the final period, the permanent losses suffered by the top skill group correspond to a wage fall in excess of 25%.[14] In the light of these facts, it is worth reporting that the percentage of each skill group suffering one or more unemployment spells in the three periods are on average around 17, 16, 15 and 11 going from skill level 1 up to skill level 4. Furthermore there is no significant tendency for this to increase over time, which is consistent with the analysis in the previous section. As a final experiment we decided to investigate these skill effects for those aged 31 to 50. The idea here is to try and rule out the possibility that, despite our attempts to control for selection, somehow our results are being

[14] Of course, for high skill workers, part of the earnings loss may well correspond to a fall in the skill level associated with their new job. These changes in occupation are simply part of the mechanism by which earnings decline.

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Table 6

The Impact of Unemployment Spells on the Hourly Pay of Men Analysis by Skill Level
Hourly Earnings Loss (%)

	1982–6	1987–91	1992–7
Skill level 1 (low skill)			
Impact of 1st spell of unemployment			
After 1–3 months	12.4 (5.00)	6.9 (4.25)	12.7 (8.86)
4–6 months	6.0 (3.38)	16.3 (2.90)	17.8 (5.19)
7–9 months	12.0 (3.34)	12.5 (2.75)	2.2 (3.66)
10–12 months	9.4 (3.19)	10.5 (2.72)	14.9 (4.71)
Permanent	4.1 (2.10)	9.7 (2.12)	4.5 (2.40)
Skill level 2 (low intermediate)			
Impact of 1st spell of unemployment			
After 1–3 months	10.6 (2.65)	17.5 (2.07)	15.6 (4.17)
4–6 months	11.3 (1.54)	18.8 (1.43)	14.1 (2.08)
7–9 months	11.6 (1.47)	17.5 (1.29)	11.2 (1.88)
10–12 months	11.5 (1.45)	16.1 (1.17)	11.4 (1.88)
Permanent	8.0 (0.86)	11.9 (0.94)	10.1 (1.10)
Skill level 3 (high intermediate)			
Impact of 1st spell of unemployment			
After 1–3 months	8.6 (2.37)	20.1 (2.26)	14.0 (3.65)
4–6 months	11.6 (1.64)	20.3 (1.52)	19.7 (2.06)
7–9 months	10.3 (1.44)	21.3 (1.53)	17.5 (2.09)
10–12 months	8.4 (1.40)	18.3 (1.49)	18.9 (2.13)
Permanent	7.8 (0.83)	15.1 (1.09)	17.2 (1.22)
Skill level 4 (high skill)			
Impact of 1st spell of unemployment			
After 1–3 months	17.2 (5.54)	25.1 (4.66)	27.3 (7.28)
4–6 months	20.3 (3.67)	21.4 (2.8)	33.0 (4.48)
7–9 months	17.2 (2.92)	26.2 (2.60)	26.3 (3.45)
10–12 months	21.5 (3.80)	22.3 (2.71)	29.0 (3.40)
Permanent	13.4 (1.68)	21.1 (2.04)	26.9 (2.14)

Notes: See Table 3 for precise definitions of skill levels, see main text and Table 2.

generated because of systematic changes in the characteristics of male participants in the labour force as the male participation rate falls. The participation rates of prime age males have been very high throughout, so focusing on this group should help to eliminate any potential problems. In fact, the overall pattern of the results is very much the same, with top skill groups suffering substantially larger increased in earnings losses than the lower skill groups.

3.4. *Summary*

While in the previous section we found no serious evidence of any systematic increase in the chances of becoming unemployed, we find here that there has been a strong tendency for the costs of unemployment to increase particularly for those in the older age groups and the higher skill groups. The losses in hourly earnings consequent on unemployment for men outside the bottom skill group and the youngest age group have risen by 30% or more from the

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early 1980s to the early 1990s with the largest losses affecting the higher skill groups. In the next section we turn to the pattern of earnings for those who remain in the same job.

4. How Common are Falls in Real Wages?

Individual real wages are subject to substantial fluctuations, year on year, even for people who are employed continuously in the same job. For example, in a typical year, at least 7% of continuously employed people will experience a real wage fall of more than 10%, and around 40% of these will experience a decline of over 30%. As we have noted in our discussion of insecurity in Section 1, an increased probability of a substantial fall in real wages will increase insecurity. So in this section we focus on the wage falls of those continuously employed in the same job.

In order to pursue this issue, our strategy is to run a probit for each year explaining the probability that an individual's real wage has fallen by more than a certain percentage. The explanatory variables are age, skill level, industry (one-digit) and region. Then we use this to generate the 'fitted' probability of the real wage falling by more than the given percentage for a person of a given type. Initially we use the average type, that is the person with the age, skill level, industry and regions averaged across all individuals across all time periods.[15] The idea is to purge the raw data average probabilities of the composition effects. Subsequently, we look at how these fitted probabilities change over time for given skill levels, or age categories, for example. To do this, we compute the fitted probabilities at the appropriate skill or age level, setting the remaining variables at their sample averages.

So what has happened to real wage fluctuations in recent years? In Table 7, we record the percentage of men who have faced one year falls in real hourly pay exceeding 10% and 30% respectively where we use the same definition of pay as in the previous section and normalise on the retail price index. It is worth recalling that this measure of pay is independent of hours worked, so our results are not corrupted by changes in labour supply. For comparison, we also consider the percentages facing one year increases in real hourly pay of the same magnitude. We consider two groups of men, those employed in the same job and those who changed jobs *without* an intervening spell of unemployment.[16] Those who had a spell of unemployment have already been dealt with in the previous section.

Turning first to those continually employed in the same job, we see from the first two columns of Table 7 that there has been a slow but steady

[15] Thus the fitted probability is computed using the sample average age, skill level, industry and region. For example, each skill dummy takes the average value of this dummy across the whole sample. This is simply the proportion of the whole sample in this skill category. Of course, such a person cannot exist, but the key is that the values of the variables remain fixed through time.

[16] It is worth recalling that a job change does not necessarily mean a change of employer since a significant change of post within the firm is counted as a job change.

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Table 7

Percentage of Men Facing Significant Falls and Rises in Real Hourly Pay over One Year

	No job change				Job change, no unemployment			
	Down >10%	Down >30%	Up >10%	Up >30%	Down >10%	Down >30%	Up >10%	Up >30%
1982	6.4	2.5	23.9	9.5	9.4	1.6	45.6	24.3
1983	7.5	3.0	19.0	8.6	10.4	3.3	45.7	27.6
1984	8.2	2.9	17.4	7.9	12.1	6.5	41.1	23.1
1985	6.2	2.4	24.7	10.5	10.2	4.9	50.8	30.3
1986	7.0	2.8	21.6	9.8	11.5	5.9	45.6	27.3
1987	7.3	3.1	25.0	11.3	11.6	3.9	50.4	31.0
1988	8.9	3.8	20.9	9.7	13.3	7.2	44.6	26.4
1989	9.5	3.9	17.7	8.4	13.8	7.6	38.5	22.8
1990	8.0	3.5	23.8	9.8	10.5	5.6	45.8	24.6
1991	7.5	3.2	19.9	8.7	11.3	5.9	39.7	21.6
1992	7.1	3.1	19.2	8.9	11.9	3.0	41.4	23.9
1993	9.1	3.8	15.4	7.4	13.4	6.4	34.2	20.7
1994	10.7	4.5	16.9	8.7	14.1	7.2	38.9	23.1
1995	10.8	4.7	18.5	9.8	14.3	7.6	41.0	25.5
1996	9.7	4.0	18.7	12.0	14.7	9.1	41.6	27.1
Approx se (%)	0.12	0.08	0.18	0.15	0.47	0.32	0.71	0.62
Averages								
1982–6	7.1	2.7	21.3	9.2	10.7	4.5	45.1	27.7
1987–91	8.2	3.5	21.5	9.6	12.1	6.0	44.2	26.9
1992–6	9.5	4.0	17.8	9.4	13.7	6.7	39.4	24.1
Average sample sizes								
1982–6				51,379				3,982
1987–91				50,420				6,421
1992–6				48,951				4,779

Notes: Source, the UK New Earnings Survey. Real hourly pay refers to weekly pay in given week in April excluding overtime pay divided by weekly hours excluding overtime hours, all normalised on the retail price index.
The percentage probabilities are computed for a man of fixed characteristics throughout based on a series of probit regressions.
The approximate standard errors are based on the formula $[\hat{p}(1-\hat{p})/n]^{\frac{1}{2}}$ where $\hat{p}$ is the proportion and n is the sample size.

increase in the percentage of men facing substantial real pay cuts from the early 1980s to the early 1990s. In the period 1982–6, 7.1 (2.7)% of men suffered a real pay cut of 10 (30)% and this rose in 1992–6 to 9.5 (4.0)%. These are highly significant increases. For the same group, the percentages receiving substantial real pay *increases* tended to fall over the same period. Exactly the same pattern of real wage changes applies to the group of men who moved jobs without unemployment, although in all cases the numbers are larger suggesting a considerably greater dispersion of real pay changes for this group, which is only to be expected.

The overall picture for both groups is that over the particular period we are investigating (1982–96), the distribution of real pay changes has shifted to the left with no apparent increase in dispersion. This, despite the fact that

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the earnings distribution in levels has become more dispersed over the same period.[17] Just to check that this secular increase in the chances of a substantial fall in real pay is not solely a function of the fact that these declines are simply transitory, we repeat the exercise using three year time periods. Thus to define a pay change in period *t*, we look at the difference between the average hourly pay over the three years following *t* and that over the three years preceding *t*. Using this measure, the chances of a 10 (30)% fall in the period 1992–5 is 4.6 (1.3)% compared with 2.5 (0.3)% in 1982–6. So again we see a substantial rise in the chances of a large 'long-run' real pay cut.

The fact that the distribution of real pay changes has shifted to the left over this period suggests that our findings can be 'explained' by a secular fall in the median real pay increase over this period. To pursue this, we repeat the analysis reported in Table 7 but first, we subtract off the median rise in real hourly pay each year from all the observations.[18] The consequences are reported in Table 8, where we focus on 10% decreases or increases, and on the more important group of no job changers. So controlling for the aggregate average median real pay rise, we see that the percentage probability of a 10% increase is almost unchanged from the first to the last period and the probability of a 10% pay cut has risen but only by 0.8 percentage points compared with 2.4 percentage points for the same group in Table 7. So the majority, but by no means all, of the secular shifts over this period can be 'explained' by the fall in median real pay increases.

Before going on to look at age, skill and industry, it is worth reflecting on our findings. In the early 1990s, continuously employed men were significantly more likely to face substantial real pay cuts than they were in the early 1980s. As we have already argued, this represents an increase in insecurity. Does it make any difference that the majority of this increase arose because median real pay rises were lower in the later period and the distribution of real pay changes simply shifted to the left? Arguably not. For the individuals concerned, life became more insecure because the chances of a substantial pay cut went up. However, what it does reveal is that the majority of this change did not come about because of any deep underlying shift in the workings in the labour market due to more flexibility, say. And we might expect the situation to reverse if median real pay growth rose again because of increased productivity growth, for example.

Our next step is to investigate whether increasing probabilities of substantial real wage cuts are concentrated in specific age, skill or industry groups. In each case we consider only those continuing in the same job and we present results without and with correction for annual median real pay increase. In Table 9 we present the results for age groups. Two features of

[17] Of course it is quite possible for the distribution of annual changes to remain stable while the distribution of levels becomes more dispersed simply by allowing the changes of each individual to exhibit some positive correlation with their initial level over the relevant period.

[18] We use the median rather than the mean because there are some very extreme real wage changes, particularly increases, which we feel tend to distort the measure of the simple average change.

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Table 8

Percentage of Men Facing a 10% Real Pay Change After Controlling for the Median Pay Rise

	No job change	
	Down > 10%	Up > 10%
Averages		
1982–6	9.1	16.6
1987–91	9.9	17.5
1992–6	9.9	16.8
Approx se (%)	0.13	0.17

Notes: As in Table 7, except that for each year we subtract the median real pay increase form each observation before proceeding.

Table 9

Percentage of Men in the Same Job Facing One Year Falls in Real Hourly Pay in Excess of 10%

Analysis by Age

Age	16–20	21–30	31–40	41–50	51–60	60+
Average						
1982–6	4.4	7.0	7.6	7.7	6.7	6.6
1987–91	5.0	8.1	8.9	8.9	8.1	8.0
1992–6	6.0	8.7	9.8	10.1	10.0	9.9
Approx se (%)	0.43	0.26	0.24	0.25	0.29	0.71
Controlling for Median Pay Rise						
Average						
1982–6	5.6	8.9	9.8	9.8	8.7	8.7
1987–91	6.0	9.7	10.7	10.7	9.9	9.6
1992–6	6.3	9.1	10.3	10.5	10.4	10.4
Approx se (%)	0.46	0.28	0.26	0.27	0.31	0.77

Notes: See Table 7.

these results stand out. First, the chances of a large real pay cut have increased for all age groups. Second, and more importantly, these increases are larger for the over 50s and remain significant even when we control for the median pay rise. So there is evidence here that older men have been harder hit by an increase in this type of earnings insecurity than their younger counterparts.

Perhaps the most interesting breakdown of these data is generated by looking at skill levels in Table 10. Whether or not we subtract off the median pay rise, the following features stand out. First, the bottom skill group always has the highest, and the top skill group always has the lowest, chance of a fall in real pay in excess of 10%. This is despite the fact that their respective pay levels are already relatively low and relatively high in the first place. Second, the chances of a 10% fall in real pay has gone up for all groups over the relevant period. Third, and most interesting, we see that the top skill group

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Table 10

Percentage of Men in the Same Job Facing One Year Falls in Real Hourly Pay in Excess of 10%

Analysis by Skill Group

Skill Group	Level 1 (low skill)	Level 2 (low intermediate)	Level 3 (high intermediate)	Level 4 (high skill)
Average				
1982–6	8.1	7.7	6.9	5.4
1987–91	10.8	8.4	8.2	7.1
1992–6	11.4	9.2	9.3	8.6
Approx se (%)	0.50	0.20	0.20	0.26

Controlling for Median Pay Rise

Skill	Level 1	Level 2	Level 3	Level 4
Average				
1982–6	10.4	9.9	8.8	6.9
1987–91	12.9	10.2	9.8	8.5
1992–6	11.8	9.6	9.7	9.1
Approx se (%)	0.53	0.22	0.22	0.28

Notes: See Table 7.

has had the biggest increase in the probability of a 10% fall in real pay and is catching up with the other groups. So, the relative position of the top skill group has worsened since the early 1980s in this regard, just as the top skill group has come out relatively badly when it comes to the increasing earnings losses due to unemployment. This is reinforced if we consider long-run real pay movements (3 year averages) where again the high skill groups lose out more than the low skill groups in terms of their increase in the chances of a large real pay cut.

Finally, we analyse the data by industry to see if there is any relationship between increases in the chances of a substantial pay cut and industry decline. In Table 11, we report the changes in the probability of a large pay cut and the absolute and proportional shifts in employment. Once we control for the overall annual median pay rise, we see that the four industries with the biggest rise in earnings insecurity are Agriculture, Energy, Distribution and Financial Services. The first two have had large proportional falls in employment, the second two have had large proportional rises in employment. There is no evidence here that these increases in earnings insecurity bear any simple relationship to industry contraction. The only thing that does stand out is that construction workers face more earnings insecurity than those in any other industry.

4.1. *Summary*

For men who are continuously employed and for men who change jobs, we see a clear and significant increase in the chances of a substantial year-on-year decline (10% or more) in real hourly wages over the period from the

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Table 11

Percentage of Men in the Same Job Facing One Year Falls in Real Hourly Pay in Excess of 10%: Analysis by Industry

(First column, median corrected; second column, uncorrected)

Industry	Agriculture		Energy		Extractions		Metal goods		Other manuf.	
Average										
1982–6	6.9	6.0	8.5	6.6	9.6	7.5	8.8	7.1	9.1	7.0
1987–91	8.0	7.1	10.5	8.9	11.6	9.5	9.7	8.3	10.9	9.1
1992–6	9.0	9.2	12.0	12.3	9.7	10	8.8	9.1	9.9	10.2
Approx se (%)	1.03	0.99	0.68	0.64	0.55	0.52	0.31	0.29	0.40	0.38
Change in employment	−0.24	(−21.1)	−1.83	(−48.8)	−0.36	(−8.3)	−4.20	(−31.9)	−1.53	(−14.3)
Industry	Construction		Distribution		Transport		Banking		Other services	
Average										
1982–6	13.4	10.8	10.0	7.9	10.8	8.5	7.4	5.7	8.0	6.3
1987–91	14.1	12.1	12.0	10.1	12.0	10.3	9.6	8.0	7.0	6.0
1992–6	12.9	13.3	11.3	11.6	11.5	11.9	9.8	10.3	7.6	7.9
Approx se (%)	0.61	0.58	0.41	0.39	0.44	0.42	0.39	0.37	0.26	0.25
Change in employment	−1.59	(−32.0)	2.51	(16.0)	−0.64	(−8.8)	5.26	(60.0)	2.62	(8.7)

Notes: See Table 7.
The change in employment gives the percentage point (percent) change in the proportion employed in each industry from the first period to the last.

early 1980s until the mid 1990s. Over this period, the probability of a 10% real wage decline has risen by around 30% for continuously employed men and by around 20% for job changers. These changes are not due to an overall increase in the dispersion of wage changes and they show up just as strongly if we consider 'long-run' changes (3-year averages). However, a majority of this overall change is due to the decline in the median rate of real pay rises over the relevant period. Older workers and the top skill group have seen a worsening of their relative position in this regard with those men in the top skill group who are continuously employed seeing a 60% rise in their chances of a 10% fall in real wages, year-on-year. Furthermore, only a half of this particular rise is due to the overall fall in the median rate of real pay rises. Despite this, men in the lower skill groups remain more insecure and in the most recent period men continuously employed in the same job in the bottom skill group are still nearly 30% more likely to experience a 10% year-on-year drop in real hourly pay than similar men in the top skill group. Finally, looking across industries we find that the increase in earnings insecurity is not concentrated in declining sectors.

5. Conclusions

We have looked at three aspects of the job insecurity facing British men in the last two decades. The probability of becoming unemployed, the cost of unemployment in terms of real wage falls and the probability that the

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continuously employed will experience substantial real wage declines. The following facts emerge.

(i) There is little or no evidence of any trend increase in the average chances of men becoming unemployed over the last 20 years. However, lower level non-manual workers do appear to have faced a secular rise.

(ii) There has been a strong tendency for the costs of unemployment in terms of wage losses to increase for all men except perhaps those in the lowest skill group. The losses in hourly earnings consequent on unemployment for men outside the bottom skill group have risen by around 40% or more from the early 1980s to the early 1990s, with the largest losses affecting the two highest skill groups.

(iii) For men who are continuously employed in the same job and for those who change jobs, the chances of a substantial year-on-year decline (10% or more) in real hourly pay have increased by 20 to 30% from the early 1980s to the mid 1990s. Older workers and those in the top skill group have seen a worsening of their relative position in this regard. Despite this, those in the bottom skill group are still far more likely to experience a substantial year-on-year drop in real wages than those in the top skill group. A similar pattern holds for longer term (3 year average) changes in real hourly pay.

(iv) The overall changes in (iii) are not due to an increase in the dispersion of wage changes but mostly to the fact that the median annual rise in real pay in the 1990s is smaller than that in the mid 1980s. This suffices to shift the whole distribution of wage changes to the left, thereby increasing the chances of a 10% decline. However this does not explain the changes for the old and the high skilled.

(v) The increase in earnings insecurity are not concentrated among workers in declining industries. Indeed, financial services has seen one of the largest increases in both earnings insecurity and employment.

Overall, therefore, there has been a rise in job insecurity for British men since the early 1980s. This has come about not because of a rise in the chances of losing their jobs but because the cost of job loss has risen and, for the continuously employed, the probability of a substantial year-on-year fall in real wages has gone up. Finally, insecurity has gone up by more for those in the higher skill groups.

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