

The Class of '81: The effects of early-career unemployment on subsequent unemployment experiences

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Abstract

We examine whether unemployment early in an individual's career influences her later employment prospects. We use six years of the LFS to create pseudo-cohorts and exploit cross-cohort variation in unemployment at school-leaving age to identify this. We find heterogeneous responses: for the unskilled, there is evidence of a small enduring adverse effect; for the more skilled, there is a small beneficial effect.

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1. Introduction

In the early 1980s unemployment in Britain more than doubled from 5.8% in 1979 to 13.1% in 1984¹. For young people, the labour market was particularly bad, with unemployment of those under eighteen years reaching 30.8% in July 1981². For the people entering the labour market at that time, prospects must have seemed bleak. Now, nearly two decades on from there, those individuals are in their thirties. How have they fared? This question forms a particular example of the general issue we address in this paper: the role of early career labour market conditions on subsequent unemployment.

There are a number of possibilities. First, it could be that the careers of these people have been permanently blighted by their early unemployment. It is often argued that the transition into the first job is an important one, and if this is compromised, the effects could be very long lasting. A second possibility is that the effects of initial experiences wash out after some interval. If the underlying signal of an individual's ability is strong enough, it may come to outweigh the evidence of an unfavourable past employment record. Third, there may be considerable heterogeneity in outcomes: high ability individuals may be unaffected, but low ability individuals may face considerable adverse consequences.

This paper has two main aims. First, to use the very different experiences of school-leaving cohorts over the last twenty years or so to contribute to the literature on the effects of early career experiences. Our use of cross-cohort variation is a useful complement to within-cohort studies. Second, within that, we describe the unemployment experiences of the cohort of people entering the labour market in the early 1980s and contrast that to the experiences of other groups either side of them. The findings also relate to the question of what sort of market institutions provide "second chances" – that is, the best scope for individuals to recover from early setbacks.

¹ These are official claimant unemployment figures taken from the Employment Gazette.

² Employment Gazette October 1982.

We find that high aggregate unemployment when a cohort is aged 16 – 18 has mixed effects on subsequent unemployment. For low-skilled individuals we find that there is a lasting adverse effect. In this sense, the ‘Class of 81’ have continued to feel the impact of the deep recession that coincided with their entry into the labour market some 18 years ago. However, the effect is rather small: around the order of one percentage point on the cohort unemployment rate. For high and mid-skilled individuals, we actually find a small fall in subsequent unemployment rates. We speculate that the adverse economic climate may have encouraged some individuals to remain out of the labour market and take more, or more advanced, qualifications thus making them more employable later.

The rest of the paper is organised as follows. Section 2 provides the context by briefly reviewing some of the literature in this area, by discussing the sorts of labour market models that would underlie each outcome, and by discussing the econometric issues of identification. Section 3 describes our data, the Labour Force Survey. Section 4 sets out the results and Section 5 concludes the paper.

2. Context

We first review some previous work in this area. Much of this derives from cohort studies, and so contrasts with this study which exploits variation across cohorts. Second, we briefly set out the economics behind the possible outcomes: enduring negative effects, no long run effects, positive effects. Third we set out an empirical model and discuss identification issues.

(a) Literature

A large US literature exists on the impact of youth labour market experiences on short-run employment problems, but only limited attention is paid to the impact of these experiences on longer-run career outcomes. Gardecki and Neumark (1997) provide a brief review of this. A considerable literature exists on the impact of youth unemployment/employment on wages in the short-term. The dominant result is that there is no permanent scarring effect from early unemployment. Moreover, the only persistent effect is that individuals who experience such unemployment accumulate less work experience and as a result may earn less in the future, for example see

Ellwood (1982). Another branch of this research studies the short-term effects of labour market training and education on early labour market experiences, generally finding a positive effect on wages. A small body of literature addresses the issue of early job and employment stability. Klerman and Karoly (1994) use the National Longitudinal Survey of Youth (NLSY) and conclude that by their early twenties most workers have settled in a stable job. However, they do not consider the consequences for later career outcomes. Light and McGarry (1994) examine the impact of job stability among young workers on wages. They find that early job mobility is associated with higher wage growth, which is consistent with job matching. However, mobility that occurs two years after labour market entry is associated with lower wage growth.

The limited literature which considers the impact of early labour market experiences on long-run career outcomes tends to focus on training and education and ignores the other facets, including early unemployment. Gritz and MaCurdy (1992) provide a detailed study of youth labour market experiences and their long-term consequences. They specify a Markov transition model with five possible states; low-wage employment, high-wage employment, combined low-wage and high-wage employment, training, and non-employment. They find that there is significant mobility out of low-wage into high-wage, and relatively little in the opposite direction, that low wage jobs are held for relatively short periods and that early labour market training is associated with marginal increases in employment. Gardecki and Neumark (1997) extend the existing literature by examining the links between early labour market experiences and adult experiences. Specifically, they examine the consequences of initial periods of what they describe as “churning”, “floundering about”, or “mobility” in the labour market to help assess whether faster transitions to stable employment relationships would be likely to lead to improved adult labour market outcomes. Again like the majority of the literature their research is based on a single cohort: the NLSY. They find that adult labour market outcomes, which they define as the late-twenties or early to mid-thirties, are for the most part unrelated to early labour market experiences for both males and females³. We attempt to build on

³ More recently, however, Neumark (1998) has shown using the NLSY that once early labour market experiences are instrumented, early job stability raises future wages.

the existing research by considering the impact of early career unemployment on longer-run unemployment outcomes.

There is less evidence for Britain on the impact of early labour market experiences on future career outcomes. Gregg and Machin (1998) assess the impact of childhood experiences on youth labour market outcomes, using a single cohort - the NCDS (National Child Development Survey). However, they focus on family background, childhood experiences of poverty and the like rather than the impact of early unemployment experiences. A larger literature exists on the scarring effects of early youth unemployment, but much of this literature focuses on the psychological rather than economic impacts, see for example Clark et al (1999). Heckman & Borjas (1980) investigate the impact of past unemployment spells on current labour market status and find no evidence that previous occurrences of unemployment or their duration affect labour market behaviour. More recently Arulampalam et al (1998) use the British Household Panel Survey (BHPS) to show strong evidence of state dependence of unemployment for males. Nickell et al (1999) draw on earlier research to assert that workers who lose their jobs and have a spell of unemployment tend to work at a lower rate of pay and often suffer a permanent pay reduction. They proceed to test the hypothesis that these wage reductions have grown since the early 1980s. That is, that the individual scarring effects of unemployment have become more severe. They split data from the UK New Earnings Survey and the JUVOS unemployment records into three sample periods 1982-86, 1987-91, 1992-97 and test to see if the negative impact of an unemployment spell on earnings has increased in absolute size from the first sample to the last. They estimate that losses in the last period are approximately 50% larger than those in the first period. However, none of these studies focus on youth unemployment experiences, examining the more general picture of unemployment spells during any part of an individual's working life.

(b) Labour Market Models

Employers often only have imperfect information about the ability of applicants and about their own workers. They acquire information to estimate this from the previous employment records of applicants and from observing workers once employed. It is

likely that both these signals will be only partially correlated with true underlying ability. Employers will therefore rely more on the less noisy signal. The implication of this is that an individual's past employment record will matter more to her future employment chances if true ability is difficult to gauge accurately through other means (qualifications, observations once employed). This in turn influences whether individuals are likely to face a persistent employment penalty from unemployment early in their career.

The second issue is the decision to stay on at school, and the way in which this decision relates to the prevailing labour market conditions. Micklewright et. al. (1989) argue that high unemployment could have three possible effects. First, high unemployment might encourage children to remain in full-time education because of the lower opportunity cost of remaining in school. Second, high unemployment may increase uncertainty about the returns to education, leading risk-averse individuals to reduce their optimal schooling. Third, actual unemployment of other household members and the resultant fall in household income could increase pressures on a child to leave school to get a job. These pull in opposite directions, leaving the overall outcome as an empirical matter.

(c) Empirical Model and Identification

We argue that an individual's probability of being unemployed depends on their age, a , a vector of other characteristics about them, X , and general macroeconomic conditions, t . We are comparing across cohorts and hence we can think of the distribution of X as having components common to all cohorts and mean differences between cohorts. The former are dropped and the latter are labelled c . That is, we assume that individuals are the same in terms of unemployment propensity apart from their age, their cohort and the stage of the business cycle. We denote by $U(a, c, t)$ the unemployment rate of cohort c when it is of age a at time t . Given that age, cohort and time are perfectly linearly dependent, we need to make some identifying assumption to make progress. The assumption we make is that the effect of the business cycle is separable: it impacts on all ages and cohorts in the same proportionate way. To be precise:

$$U(a, c, t) = f(a, c).g(t) \tag{1}$$

and we analyse

$$u(a, c) \circ U(a, c, t)/g(t) = f(a, c) \quad (2)$$

That is, we normalise the unemployment rate of a cohort-age cell by the aggregate unemployment rate at that date: the date that cohort c reached age a . We first investigate the form of this normalised unemployment rate of in a non-parametric way, graphing it out by age and cohort. We then estimate the relationship with age and investigate the hypothesis that the cohort effect includes a relationship to early career unemployment rates, denoted $u16-18c$, the average aggregate unemployment rate when cohort c was aged 16 – 18. This relationship is investigated by both pooled and fixed-effects regression. In the pooled regression we simply regress the normalised unemployment rate on age dummies $h(a)$ and early career unemployment. Formally;

$$u(a, c) = \mathbf{a} + \mathbf{b}_1 h(a) + \mathbf{b}_2 u16-18c + \mathbf{e}_{ac} \quad (3)$$

The fixed-effects analysis, which makes full use of the panel nature of the data by controlling for cohort heterogeneity, follows a two-stage technique. Firstly we estimate the normalised unemployment rate as a function of the time-varying covariate, age. Formally:

$$u(a, c) = \mathbf{a} + \mathbf{b} h(a) + \mathbf{e}_{ac} + \mathbf{h}_c \quad (4)$$

Secondly we extract the computed fixed-effect $\bar{\mathbf{h}}_c$ and regress this against the non time-varying covariate, $u16-18c$. This second stage regression will isolate any component of differences between cohorts that are correlated with early-career unemployment.

3. Data

The data are drawn from the Labour Force Survey (LFS) between 1981 and 1997. The LFS is a survey of households living at private addresses in Great Britain. The

first LFS in the UK was carried out in 1973 and was subsequently conducted biannually until 1983. Between 1984 and 1991 the survey was carried out annually. Since 1992 quarterly publications have become possible due to the increased sample size to cover over 60,000 households every quarter. In order to construct our cohorts we required annual data for the period 1981 to 1997. Therefore we used the 1981 and 1983 biannual, 1984 to 1991 annual, and the 1992 to 1997 spring quarter surveys.

The LFS is intended to be representative of the whole population of the UK. The population covered is all persons resident in private households, all persons resident in National Health Service accommodation, and young people living away from the parental home in a student hall of residence or similar institution during term time. The sample design currently consists of 59,000 responding households in Great Britain every quarter, representing 0.3% of the GB population. A sample of approximately 2,000 responding households in Northern Ireland is added to this, representing 0.4% of the NI population, allowing United Kingdom analyses to be made. Households are interviewed face to face at their first inclusion in the survey and by telephone, if possible, at intervals thereafter. The LFS utilises a two-stage sampling procedure; the first stage is a stratified random sample of areas and the second stage a systematic sample of addresses.

We selected the International Labour Organisation (ILO) definition as our measure of unemployment. An individual is ILO unemployed if they are without a paid job, are available to start work in the next two weeks and have either looked for work at some time during the last four weeks or are waiting to start a job which they have already obtained. This measure is readily available from the LFS for the years 1987 to 1997, through the variables UNIVEC (1987-1991) and INECACA (1991-1997). Similarly, ILO unemployment can be derived for 1984-1986 by combining a number of variables. Specifically, we used the variables SCHEMES, YTS, WORKING and JOBAWAY to determine whether an individual was in paid employment. We then combined this with AGE and STARTNOW to determine whether individuals were without a paid job and available to start work in the next four weeks. Finally, we used LOOKING, LOOKFOUR/LOOK4WKS and NOTLOOK to determine whether individuals had either been looking for work in the last four weeks or were waiting to start a job which they have already obtained. Combining these variables in this way

enabled us to obtain an accurate measure of ILO unemployment. This was confirmed by our exact replication of ILO unemployment figures provided by the Office for National Statistics.

Whilst we were able to obtain an exact measure of ILO unemployment for 1984-1997 the definition itself did not exist until 1984. As a result the 1981 and 1983 surveys do not contain the necessary questions to construct an exact ILO unemployed variable. Therefore, we proceeded to construct as accurate a measure as possible for these years using the same technique as we did for 1984-1986. The 1981 survey does not contain the variable LOOKFOUR/LOOK4WKS, but does have a variable SEEKEMPD (Whether seeking employment last week). Therefore, we constructed a variable, which is identical to the ILO definition with the exception that the individual needed to have been looking for work in the last week rather than the last four weeks. Similarly for 1983 there is no LOOKFOUR/LOOK4WKS variable. However, we were able to construct a variable which went some way to including the requirement to have been looking for work in the last four weeks by using the variable MNMETHIE (Main method of looking for work in the last four weeks). If individuals responded positively to this question we took that as positive indication that they had been looking for work in the last four weeks. We accept that due to the nature of the variables in the 1981 and 1983 surveys our measure of ILO unemployment for these years is not perfect. However, we argue that for 1981 any bias is likely to be downward and result in an underestimate of unemployment, due to the stricter requirement to have been looking for work in the last week rather than the last four weeks⁴.

For our analysis we required a measure of the level of education attained by individuals. The LFS has a wealth of education variables to choose from, but again we were confronted by the problem that the LFS does not have a single consistent education variable which runs from 1981 to 1997. This is primarily due to changes in the UK education system, for instance the introduction of vocational qualifications. Since all that we required was a broad measure of an individuals education, we decided to adapt a classification from Haynes & Sessions (1998). We used the

⁴ Further details of the methods employed and relevant codes for each variable are available on request.

variables HIQUAL and QUALS to create an education/qualifications variable with four categories, high, mid, low and no qualifications. Those individuals with degree level qualifications were classified as having high level qualifications, those with A level and equivalent qualifications as mid level, those with GCSE/O level and equivalent as low level, finally leaving those with no formal qualifications⁵.

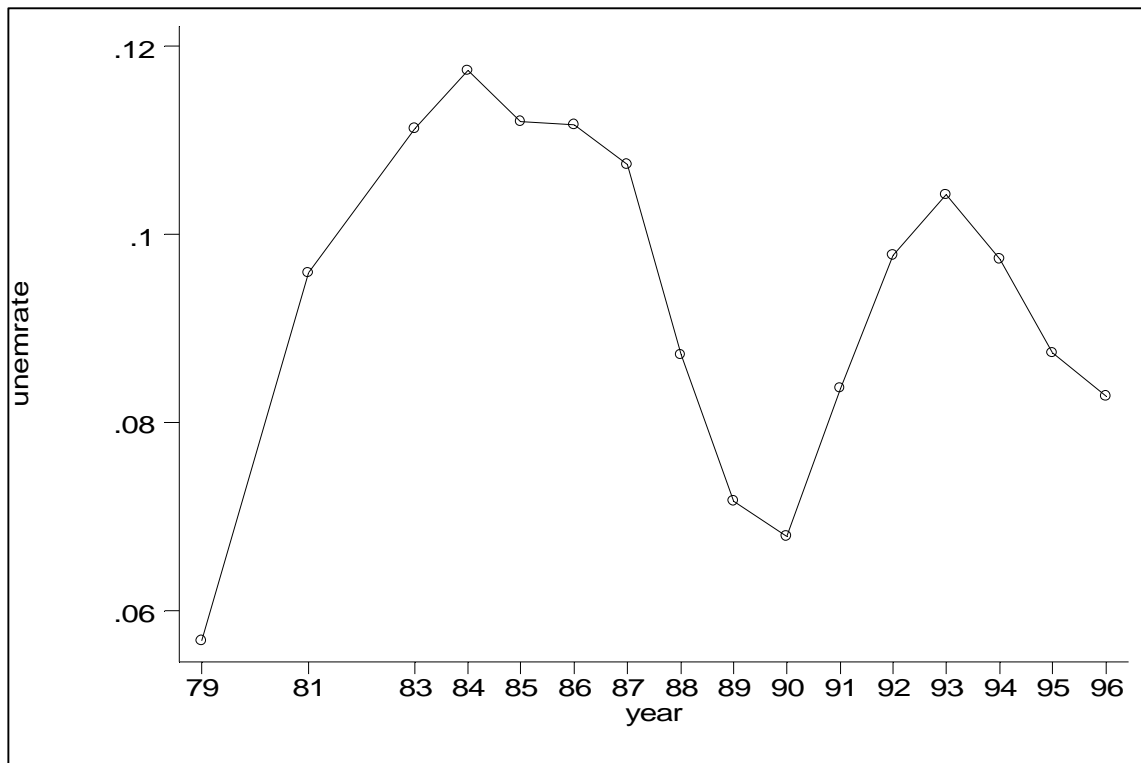
The appropriate selection of cohort size was another important consideration. There is clearly a trade off between the number of cohorts and cohort size. We decided that four-year age-band cohorts would be too large relative to the time scale on which unemployment can change dramatically (see Figure 1 below). We choose to work with three-year age-band cohorts. So for example, the 'class of '81' cohort would include individuals who were aged between 16 and 18 in 1981. The construction of the cohorts was simple - the study uses data from the years 1981, 1984, 1987, 1990, 1993 and 1996. For each of these years individuals who were in the age bands 16-18, 19-21, 22-24 and so on up to the age band 64-66 were grouped together to compute unemployment rates and these groupings are then assigned to cohorts. Cohort 1 is aged 16-18 in 1984, 19-21 in 1987, 22-24 in 1990, 25-27 in 1993 and 28-30 in 1996. Cohort 2 is similarly defined with ages 16-18 in 1981, 19-21 in 1984 etc.. The process was repeated to create a total of fourteen three-year age-band cohorts. Details of sample size by cohort and age-category are presented in Appendix 1 for all individuals aged 16-70.

4. Results

As a preliminary, Figure 1 graphs out the aggregate ILO unemployment rate for the years 1979 to 1996. The most striking feature from this graph is the huge increase in unemployment between 1979 and 1981. This serves to illustrate the issue for those entering the labour market at this time. Unemployment continues to rise until 1984, but at a slower rate and then begins a rapid fall until 1990. Where once more it begins to climb, reaching a second peak in 1993 and finally drops off during the remaining years.

⁵ Again further details are available on request.

Figure 1: Aggregate ILO Unemployment 1979 to 1996



Figures 2a and 2b plot the normalised ILO unemployment rate, on the vertical axis, against three-year age categories for each cohort group separately for males and females. It is useful to focus on the point where normalised unemployment equals unity, since at this point there is no difference between the individual cohort unemployment rate and the aggregate rate. So when the normalised rate is greater (less) than unity the cohort is experiencing higher (lower) unemployment than the economy wide average.

The first point to note is that male normalised unemployment follows the familiar (for Britain) U shaped pattern, that is, unemployment falls rapidly with age before levelling off during the thirties and then it begins to increase as individuals approach retirement age. Whilst the U shape also holds for females it is considerably less marked than for males. The initial fall in female normalised unemployment is at a slower rate than for males and, unlike the males, it continues decreasing until the late forties whereby it begins to increase, but to a far lesser extent than for the males.

Figure 2a: Male Normalised ILO Unemployment Rate by Age and Cohort

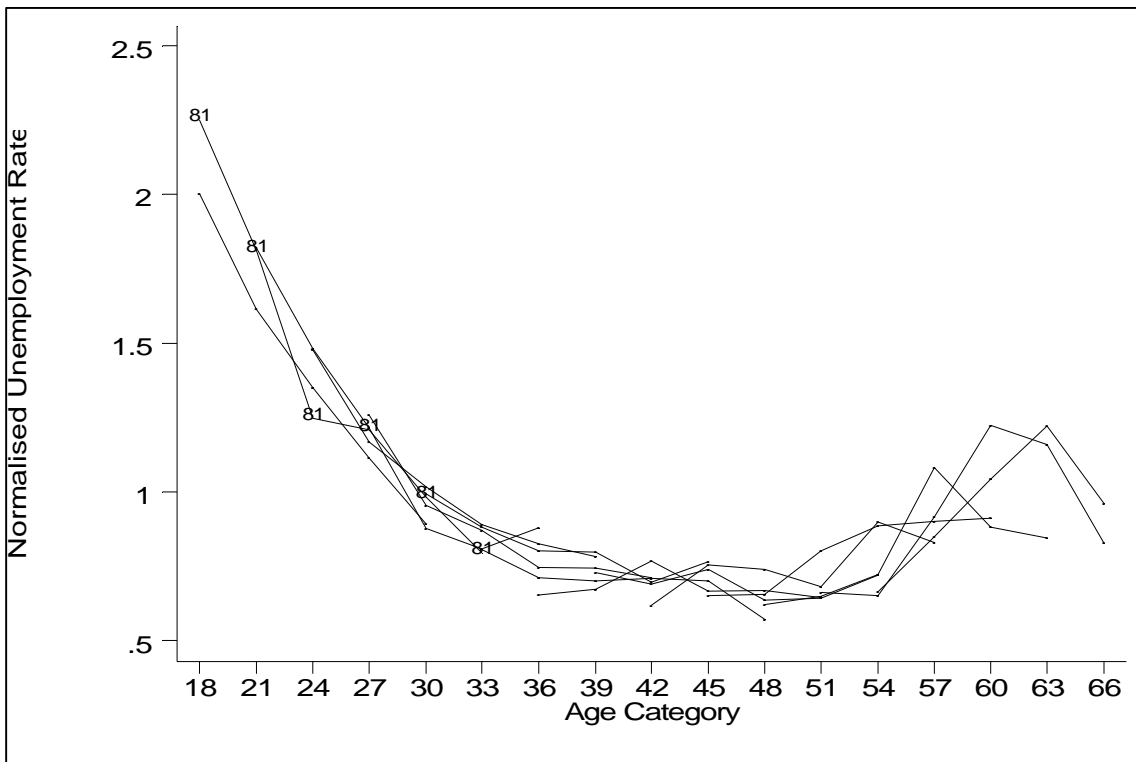


Figure 2b: Female Normalised ILO Unemployment Rate by Age and Cohort

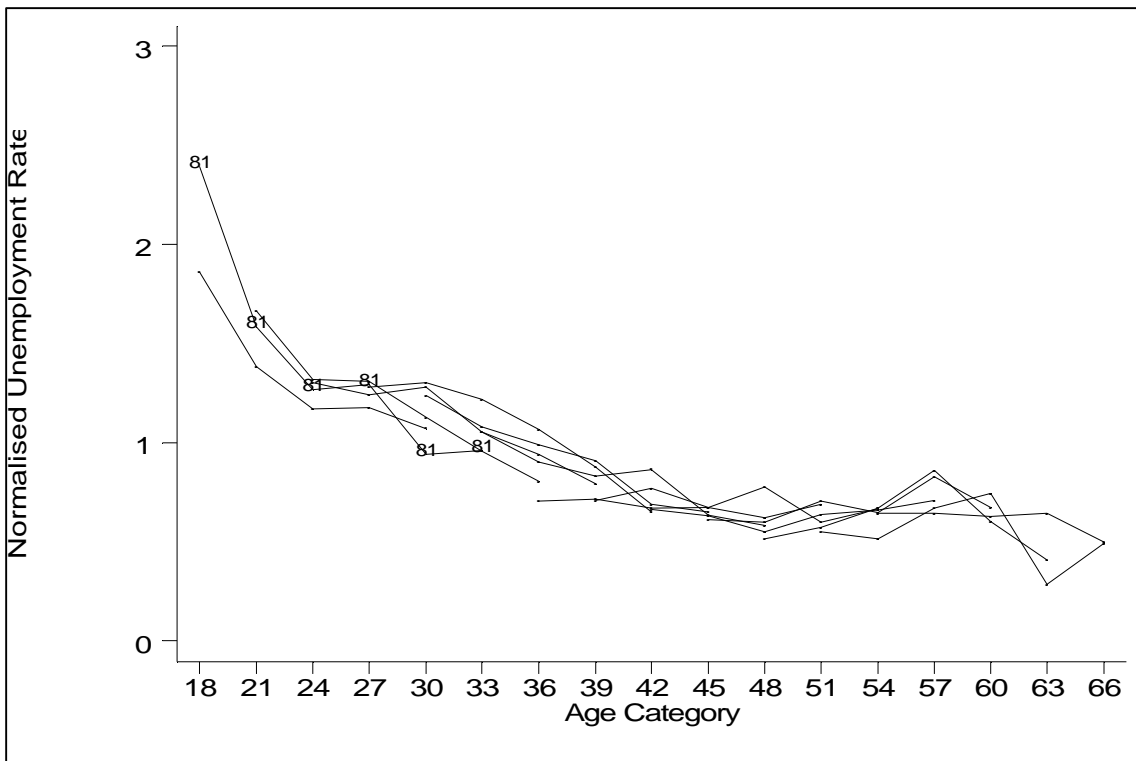


Figure 3a: Male Normalised Employment Rate by Age and Cohort

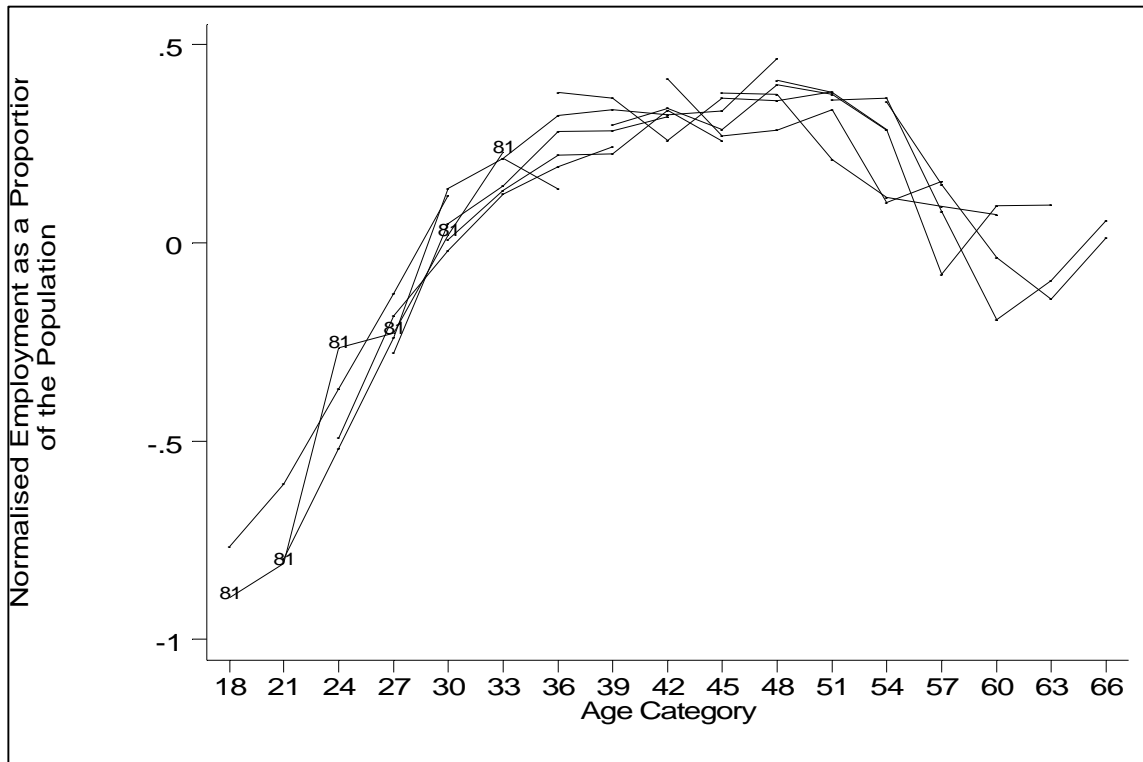


Figure 3b: Female Normalised Employment Rate by Age and Cohort

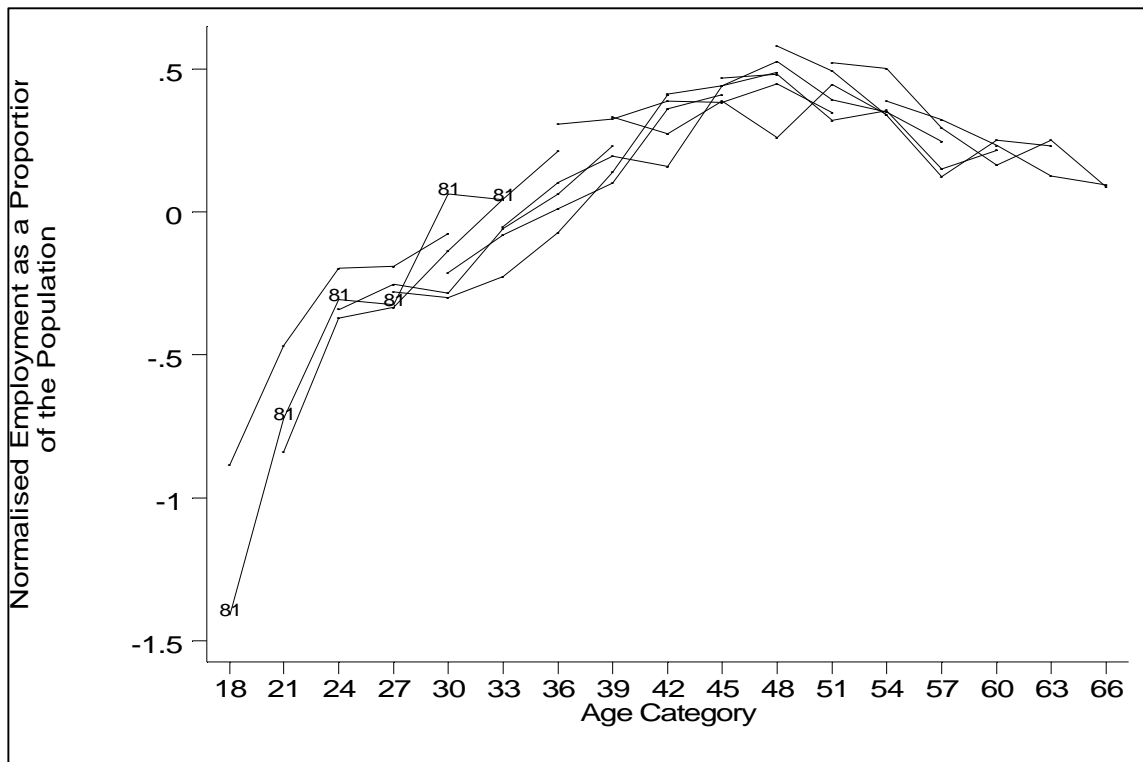


Figure 4: Male Normalised ILO Unemployment Category and Cohort and Education sub-groups

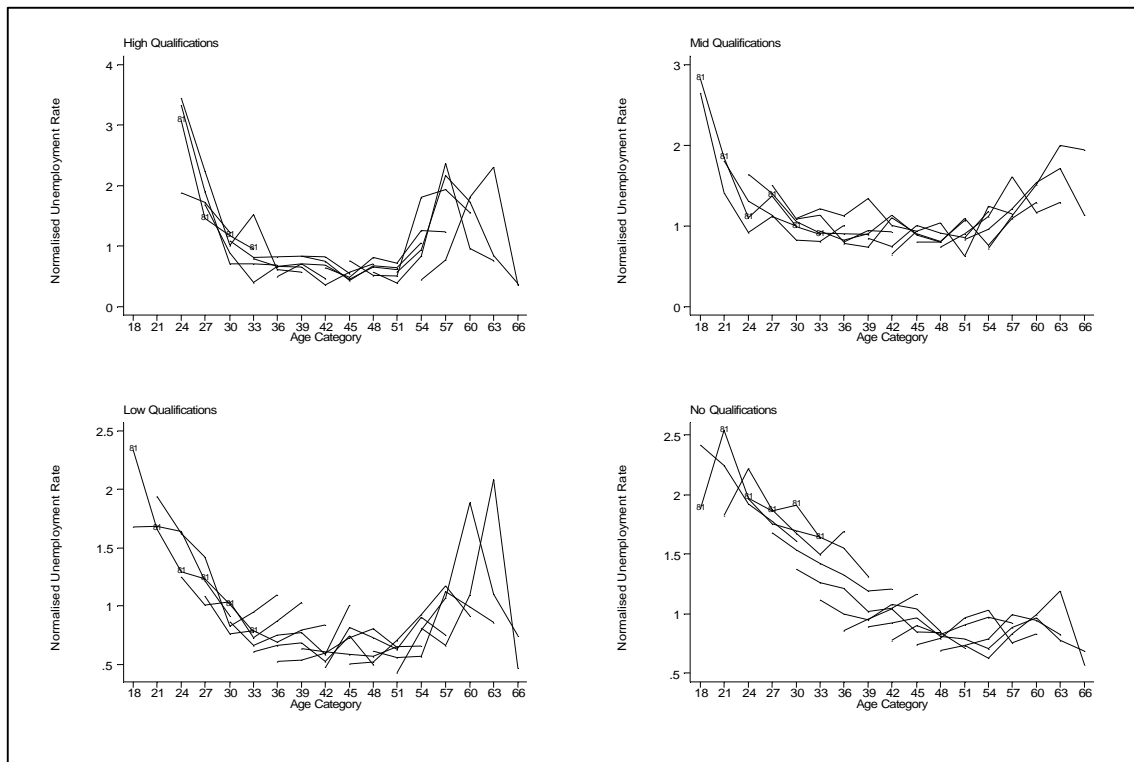
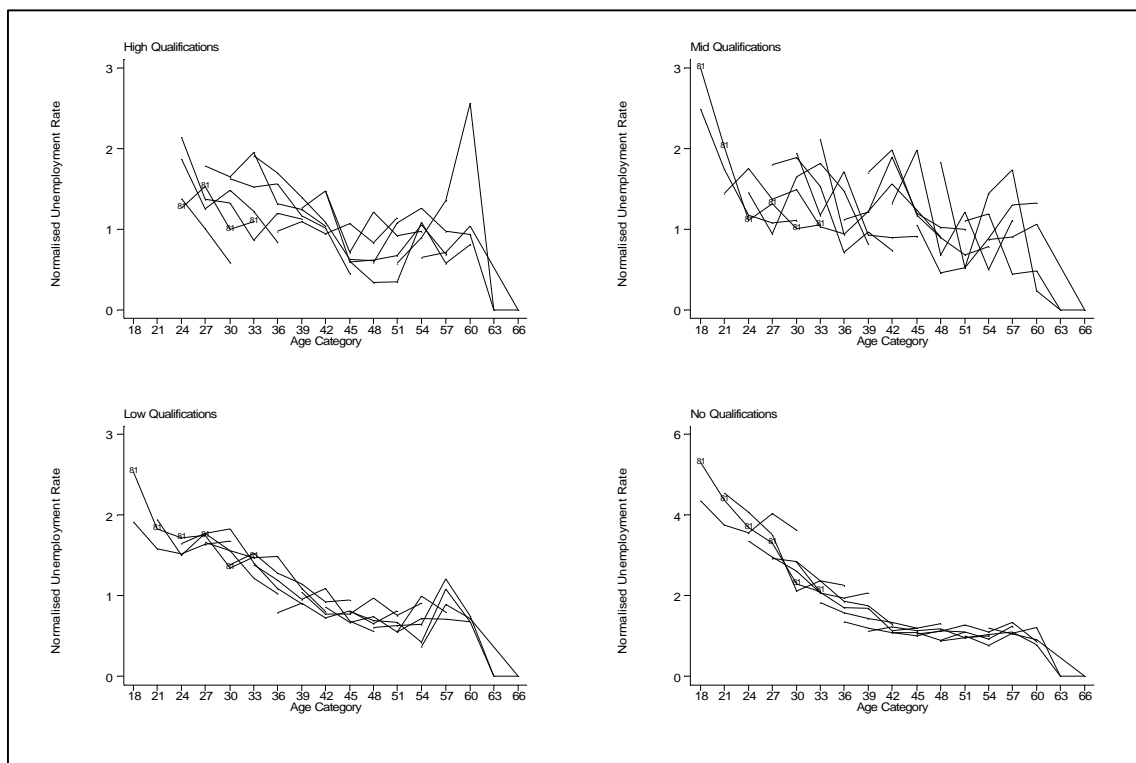


Figure 5: Female Normalised ILO Unemployment Category and Cohort and Education sub-groups



Perhaps the most striking feature is that the 1981 cohort (marked in the Figures as 81), those individuals who were aged 16 to 18 in 1981, appears to be no different to any other. We know that these individuals were entering the labour market at a time when unemployment was increasing at a rapid rate and therefore, as expected, their normalised unemployment rate when they were aged 16 to 18 is relatively high. However, for both males and females, by the time they had reached their mid-twenties their experience of unemployment is no different to any of the other cohorts. The graphs do show a much wider spread of cohort unemployment rates for women than men in the age range 27- 39. This may be due to cohort differences in labour supply behaviour around child rearing.

In order to check that our results were not sensitive to window length, the figures were replicated using 2-year age category cohorts and the results were the same.

It could be that part of the effect of early unemployment is to weaken individual's attachment to the labour force, and hence they disappear from the unemployment count. We therefore also investigated the employment to (working age) population ratio. Figures 3a and 3b address this issue by plotting the normalised employment rates by age and cohort. We see the same pattern as before for both men and women. For men in the 1981 cohort, the employment rate is indeed very low, but by the time this cohort is in its late twenties or early thirties, it is indistinguishable from other cohort groups. Note that the employment rate for those in the subsequent cohort (leaving school in 1984) at age 18 is much higher – by this time, a variety of government schemes were in place to respond to high youth unemployment, and so more individuals were in employment.

There is no reason to expect a uniform effect of adverse early-career labour market conditions on all workers. We might expect heterogeneity by ability; one measure of this is qualifications. We can investigate this by replicating our normalised unemployment graphs for each of our four education categories. Figure 4 plots the normalised ILO unemployment rate against three-year age categories by cohort group for males with high, mid, low and no qualifications. When comparing these with figure 2a it is clear that the U shaped relationship between normalised unemployment and age persists, but is considerably less marked for those with no qualifications. The

figures for those with a qualification of any type follow a very similar pattern with high but falling unemployment in the early years of their working lives and rising unemployment as they approach retirement. One interesting feature is that those with high level qualifications experience relatively high unemployment on entering the labour market. This perhaps reflects the phenomenon of high graduate unemployment. However, the most significant point to note from these three graphs is that the class of '81 cohort, as with the earlier graphs, appears to be no different to any other cohort. This is not the case for males with no qualifications. Here the class of '81 cohort does appear to have a higher normalised unemployment rate than the other cohorts, even by the time they reach their mid-thirties. Perhaps for this group there is some evidence of scarring.

Figure 5 plots the normalised ILO unemployment rate against three-year age categories by cohort group for females with high, mid, low and no qualifications. The first point to note is that the graphs for high and mid qualifications appear rather noisy, though like figure 2b they do show a general downward slope, and there is no distinguishable difference between the class of '81 cohort and the others. However, it is clear from the graph of high qualifications that, unlike the males, females do not appear to suffer from high graduate unemployment. In fact females with high level qualifications actually enter the labour market with lower normalised unemployment rates than females with lower level qualifications. The graphs of low and no qualifications are rather less noisy, but again appear to reinforce the general points drawn from figure 2b. The most interesting feature of this set of figures is that, unlike the males, females from the class of '81 cohort do not appear to have suffered any scarring. Another point worth noting is that all females with no qualifications enter the labour market with far higher normalised unemployment rates than both males and all other education sub-groups.

We now turn to regression analysis to test for any significant patterns in the data. For each education sub-group, for both males and females, we regress the normalised unemployment rate on a set of age dummies and the early-career unemployment rate⁶

⁶ A consistent annual claimant unemployment series was taken from the Employment Gazette and the average unemployment rate when each cohort was aged 16 to 18 was calculated.

experienced by each of the ten youngest cohorts⁷. This relation was estimated by both pooled and fixed-effects regression: these are equations 3 and 4 respectively. The results are presented in Tables 1 and 2 for males and females respectively.

The first point to note is that the coefficients on the age category variables support our earlier findings. Specifically, for males normalised unemployment and age follow the familiar U shaped relationship and this relationship becomes less marked as we move down through the education subgroups. This feature holds true for both the pooled and fixed-effects results. Similarly for females, the downward relationship is repeated and becomes stronger as we move down the education sub-groups.

The table suggests that the impact of early-career unemployment on the normalised unemployment rate does indeed vary by skill level. For males with both high and mid level qualifications, we find weak evidence that early career unemployment has a small negative impact, which is significant at the 5% level for both the pooled and fixed-effects estimation. This means that for these sub-groups higher early career unemployment leads to lower normalised unemployment rates during their lifetime, but it should be noted that the coefficients are very small. The opposite is true for males with low and no qualifications. For these sub-groups the coefficients are small and positive and again significant at the 5% level. So there is evidence for males that early-career unemployment affects lifetime normalised unemployment differently depending on which education group they belong to. It is worth noting that both the pooled and the fixed-effects estimation techniques yield the same conclusions. However, the fixed-effects results suggest a weaker effect on the high- and mid- level qualification sub-groups and a stronger effect on the low and no qualification sub-groups. A final point to note is that the R^2 is consistently high for each of the models.

The impact of early career unemployment on the normalised unemployment rate for females is very similar to that of the males. However, for the females the relationship is also negative for the low qualification sub-group, but is insignificant. Moreover, the female fixed-effects results present a stronger case than that of the males, with the

⁷ We only include the youngest ten cohorts because reliable early career unemployment rates are not available for the oldest four cohorts. Note also that we exclude the two data points we have for an age

exception of the low qualification sub-group all of the coefficients are larger in magnitude and are now significant at the 1% level. Additionally, the R^2 for both the pooled and fixed-effects estimation of the high and mid level qualification sub-groups are relatively low. This comes as no surprise when recalling the lack of precision in the graphs of these sub-groups.

To interpret the size of these effects we focussed on four groups at age 28 – 30: men and women with mid-level and with no qualifications. We computed the change in the unemployment rate for each of these, deriving from a one standard deviation difference in $u16-18_c$ (about two percentage points). The results are in Table 3. Both positive and negative numbers are greater for women. A one percentage point increase on an average unemployment rate of 13 percentage points is not insignificant (unskilled men), but it does not appear to support claims of a ‘blighted generation’.

To summarise, we have found evidence that early-career unemployment rates do have a small effect on later unemployment records, and that this effect is different for high and low-skilled individuals. We must also point out the reasons for interpreting these results with caution. First, we were forced to make a separability assumption for identification – this may not be valid; that is, the business cycle may impact on all ages and cohorts in different ways. Second, it should also be noted that the pooled and first-stage fixed-effects regressions had just 51 observations and that the fixed-effects second-stage used only 10 cohort observations. Third, cohorts may differ in many ways and we are simply aiming to pick up one. But one potentially confounding factor is the general secular change in the labour market in favour of the skilled and against the unskilled. Note that to the extent that this is positively correlated with our unemployment at age 16 – 18 variable, this will tend to overstate our results. That is, our results should be interpreted as an upper bound on ‘scarring’.

5. Conclusion

The recessions in Britain in the early 1980s and early 1990s involved a huge loss in output and a large drop in income for the workers involved. This grim picture would

16-18 cell, as the normalised unemployment rate for that group would be highly correlated with the $u16-18_c$ variable on the right hand side.

be magnified further if it were the case that adverse labour market conditions around the time an individual started her career had an enduring impact on employment prospects. In this paper we exploit cross-cohort variation in early-career unemployment rates to ask whether this is so. By taking cohort averages, and assuming the same distribution of unobservables in each cohort, this approach side-steps the issue of heterogeneity *versus* event-dependence.

We do not find that all individuals were scarred. Indeed, there is evidence of heterogeneity in responses. We find small positive effects on later unemployment of early-career unemployment for the unskilled, and small negative effects for the more skilled. One implication of this is that the unemployment experiences of cohorts coming of age in poor labour market conditions are more unequal within the cohort than those of luckier cohorts.

An interpretation of these results has to focus on two things. First, the relative importance of different sources of information in the labour market is important. The issue is whether an individual's underlying ability sooner or later outweighs the adverse signal of a poor employment record. Alternatively, it may be that employers generally judge applicants' employment records in a sophisticated way and condition on general labour market conditions at the time. Second, the impact of the macro environment on an individual's decision when to leave school matters. Evidence for Britain on this matter is mixed⁸, with no consensus view on the effect of unemployment rates on school-leaving rates.

⁸ See for example, Micklewright *et. al.* (1989), Rice (1987) and Pissarides (1981).

Table 1: Pooled & Fixed-Effects Estimation of Normalised Unemployment Rate for Males by Education category

	Men							
Estimation by:	Pooled				Fixed Effects			
Education Category:	High	Mid	Low	No	High	Mid	Low	No
Age band: 19-21	3.369 (0.426)	1.024 (0.139)	0.952 (0.129)	1.172 (0.162)	3.044 (0.46)	0.912 (0.149)	0.729 (0.11)	0.811 (0.114)
Age band: 22-24	2.64 (0.382)	0.538 (0.125)	0.671 (0.116)	1.031 (0.145)	2.317 (0.427)	0.421 (0.138)	0.445 (0.102)	0.642 (0.105)
Age band: 25-27	1.451 (0.356)	0.577 (0.116)	0.432 (0.108)	0.82 (0.135)	1.201 (0.401)	0.456 (0.13)	0.218 (0.096)	0.45 (0.099)
Age band: 28-30	0.613 (0.336)	0.257 (0.11)	0.157 (0.097)	0.686 (0.128)	0.38 (0.381)	0.115 (0.123)	-0.047 (0.091)	0.35 (0.094)
Age band: 31-33	0.325 (0.319)	0.17 (0.104)	0.046 (0.097)	0.533 (0.121)	0.093 (0.361)	0.041 (0.117)	-0.138 (0.087)	0.217 (0.089)
Age band: 34-36	0.049 (0.314)	0.064 (0.102)	0.084 (0.095)	0.403 (0.119)	-0.056 (0.343)	-0.039 (0.111)	-0.073 (0.082)	0.172 (0.085)
Age band: 37-39	0.06 (0.312)	0.078 (0.102)	0.073 (0.094)	0.204 (0.119)	-0.01 (0.327)	-0.011 (0.106)	-0.013 (0.078)	0.04 (0.081)
Age band: 40-42	-0.062 (0.311)	0.053 (0.102)	-0.055 (0.094)	0.171 (0.118)	-0.08 (0.313)	-0.01 (0.101)	-0.108 (0.075)	0.094 (0.077)
Age band: 43-45	-0.21 (0.323)	0.051 (0.105)	0.122 (0.098)	0.148 (0.123)	-0.24 (0.32)	0.003 (0.104)	0.091 (0.077)	0.115 (0.079)
Unem16-18	-0.075 (0.031)	-0.032 (0.01)	0.023 (0.009)	0.028 (0.012)	-	-	-	-
Constant	0.833 (0.246)	0.939 (0.08)	0.613 (0.074)	0.785 (0.093)	0.684 (0.279)	0.904 (0.090)	0.839 (0.067)	1.121 (0.069)
N	51	51	51	51	51	51	51	51
R ²	0.8164	0.7119	0.8605	0.8652	0.7877	0.6306	0.7475	0.8
Unem16-18	-	-	-	-	-0.056 (0.024)	-0.025 (0.008)	0.037 (0.011)	0.054 (0.018)
Constant	-	-	-	-	0.211 (0.125)	0.089 (0.089)	-0.162 (0.060)	-0.24 (0.096)
N	-	-	-	-	10	10	10	10
R ²	-	-	-	-	0.4101	0.5519	0.5690	0.5292

Notes: Standard errors in parentheses.

Table 2: Pooled & Fixed-Effects Estimation of Normalised Unemployment Rate for Females by Education category

	Women							
Estimation by:	Pooled				Fixed Effects			
Education Category:	High	Mid	Low	No	High	Mid	Low	No
Age band: 19-21	1.783 (0.25)	1.33 (0.305)	1.109 (0.131)	2.699 (0.268)	1.976 (0.262)	1.739 (0.33)	1.032 (0.145)	2.431 (0.293)
Age band: 22-24	1.296 (0.224)	0.872 (0.274)	0.908 (0.118)	2.226 (0.24)	1.519 (0.243)	1.285 (0.305)	0.824 (0.134)	1.949 (0.272)
Age band: 25-27	0.961 (0.209)	0.749 (0.255)	1.024 (0.11)	1.95 (0.223)	1.130 (0.228)	1.161 (0.287)	0.931 (0.127)	1.671 (0.256)
Age band: 28-30	0.796 (0.197)	0.92 (0.241)	0.861 (0.104)	1.36 (0.211)	0.952 (0.217)	1.325 (0.272)	0.761 (0.12)	1.087 (0.243)
Age band: 31-33	0.797 (0.187)	0.737 (0.229)	0.697 (0.098)	0.877 (0.20)	0.943 (0.205)	1.123 (0.258)	0.606 (0.114)	0.618 (0.23)
Age band: 34-36	0.559 (0.184)	0.366 (0.225)	0.422 (0.097)	0.573 (0.197)	0.657 (0.195)	0.676 (0.246)	0.364 (0.11)	0.353 (0.219)
Age band: 37-39	0.454 (0.183)	0.315 (0.223)	0.281 (0.096)	0.373 (0.196)	0.504 (0.186)	0.52 (0.234)	0.218 (0.1)	0.225 (0.209)
Age band: 40-42	0.389 (0.183)	0.549 (0.223)	0.134 (0.096)	0.043 (0.195)	0.4 (0.178)	0.678 (0.224)	0.091 (0.099)	-0.047 (0.199)
Age band: 43-45	-0.112 (0.19)	0.435 (0.231)	0.046 (0.01)	-0.014 (0.203)	-0.094 (0.182)	0.509 (0.229)	0.02 (0.1)	-0.062 (0.204)
Unem16-18	-0.08 (0.019)	-0.066 (0.022)	-0.008 (0.009)	0.054 (0.019)	-	-	-	-
Constant	0.944 (0.144)	0.981 (0.176)	0.746 (0.076)	1.047 (0.154)	0.523 (0.159)	0.443 (0.199)	0.776 (0.088)	1.45 (0.178)
N	51	51	51	51	51	51	51	51
R ²	0.6784	0.4002	0.8828	0.9314	0.4841	0.2006	0.8783	0.9126
Unem16-18	-	-	-	-	-0.094 (0.015)	-0.094 (0.02)	-0.003 (0.007)	0.0734 (0.015)
Constant	-	-	-	-	0.385 (0.08)	0.408 (0.109)	0.006 (0.035)	-0.317 (0.081)
N	-	-	-	-	10	10	10	10
R ²	-	-	-	-	0.8307	0.7257	0.0218	0.7438

Notes: Standard errors in parentheses.

Table 3: Impact of different early-career unemployment rates on later Unemployment

Group	Average Unemployment rate (%)	Change (% points)
Men – mid-level qualifications	8.13	-0.46
Men – no qualifications	13.15	1.00
Women – mid-level qualifications	12.10	-1.74
Women – no qualifications	26.92	1.36

The average unemployment rate is computed for the 28-30 age group, using the sample average aggregate unemployment rate (9.28%) as the early-career unemployment rate. The third column quantifies the effect of a one standard deviation difference in $u16-18_c$ (about two percentage points).

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Appendix 1: Sample size by cohort and age-category

Age band:	1	2	3	4	5	6	7	8	9	10	11	12	13	14
18	8078	11789	0	0	0	0	0	0	0	0	0	0	0	0
21	7132	7600	10348	0	0	0	0	0	0	0	0	0	0	0
24	6723	7334	7273	9729	0	0	0	0	0	0	0	0	0	0
27	6827	7357	7150	6884	9499	0	0	0	0	0	0	0	0	0
30	7008	7152	7154	6853	6726	9718	0	0	0	0	0	0	0	0
33	0	7402	6999	6898	6675	6696	10636	0	0	0	0	0	0	0
36	0	0	7070	6597	6454	6605	7501	10324	0	0	0	0	0	0
39	0	0	0	6579	5966	6539	7304	6858	8921	0	0	0	0	0
42	0	0	0	0	6025	6035	7389	7058	6190	8504	0	0	0	0
45	0	0	0	0	0	5993	6508	6833	5945	5674	8301	0	0	0
48	0	0	0	0	0	0	6371	6405	5818	5414	5534	7639	0	0
51	0	0	0	0	0	0	0	6425	5481	5357	5435	5212	8108	0
54	0	0	0	0	0	0	0	0	5452	4712	5274	5135	5312	7591
57	0	0	0	0	0	0	0	0	0	4755	4661	4838	5224	5354
60	0	0	0	0	0	0	0	0	0	0	4579	4504	5059	5291
63	0	0	0	0	0	0	0	0	0	0	0	4313	4525	4941
66	0	0	0	0	0	0	0	0	0	0	0	0	3028	2929
Total	35768	48634	45994	43540	41345	41586	45709	43903	37807	34416	33784	31641	31256	26106