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Young People and Recession: A Lost Generation?

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Young people and recession. A lost generation?

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Summary

This article reviews the effects of the Great Recession on youth labour markets. We argue that young people aged 16-24 continue to suffer suffered disproportionately. Using the USA and UK as case studies, we analyse youth unemployment using micro-data. We argue that there is convincing evidence that the young are particularly susceptible to the negative effects of spells of unemployment well after their initial experience of worklessness. Because the current youth cohort is relatively large, the longer-term outlook for youth unemployment is quite good, but there is a strong case for policy intervention now to address the difficulties that the current cohort is having in accessing employment.

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1. Introduction

Youth joblessness has been a problem in many OECD countries for several decades. It has been the subject of a wide range of policy interventions. Hundreds of different policies to deal with youth unemployment have been designed and implemented: many of these have been carefully evaluated.

Yet the accumulated wealth of policy experience failed to prevent a rapid rise in youth unemployment during the Great Recession. This must surely raise serious questions about the relevance of past policy lessons to the present predicament of the youth labour market. Should we discount these past lessons, and what can we learn about future policy formation from recent experience? These issues are the subject of this paper. We also discuss the longer-term implications of youth unemployment and its effects on the well-being of the young, arguing that these findings reinforce the need to identify new policies to address youth unemployment.

We begin by setting the background context of longer-run trends in youth unemployment. Using evidence across a range of developed countries, we then describe the dynamics of youth unemployment during the Great Recession; next, we look at some micro-econometric evidence on the effects of unemployment from the UK and the USA; finally we take a controversial line on policy, arguing that the conventional wisdom on youth employment policy has turned out to be largely irrelevant during this recession. The solution to the youth unemployment problem is simply put – more jobs for young people.

2. Background

The worsening labour market performance of youths became apparent in the 1970s. Freeman (1979), Welch (1979) and Berger (1984) argued that its genesis lay with the substantial increase in supply associated with the entry of the baby boomers into the labour market in the 1970s. But instead of improving as cohort size declined, the relative labour market performance of young people worsened during the 1980s and 1990s. Higher unemployment was accompanied by an increase in the wage gap between adults and youths, particularly during the 1980s and early 1990s. There was some recovery in the late 1990s, but not to the levels of the early 1970s. As we shall see, the performance during the 2000s of the youth labour market in most countries has further deteriorated.

There are a number of explanations why youth unemployment rates may be higher than adult rates. In the internal labour market, youths will generally have less specific human capital relevant to the particular firm for whom they work and also less general work skills. Even without a formal last-in first-out (LIFO) policy, firms may take the view that the future benefit of further investment in young workers is outweighed by its current costs. Further, liquidity concerns may cause firms to seek layoffs among younger workers first, particularly where statutory redundancy payments are seniority weighted, as is the case in most countries.

In the external labour market, young workers may be less efficient in job search activities than adults. Younger workers are likely to have fewer contacts and less experience of finding work, placing them at a relative disadvantage compared to adults. They may also

find themselves in an experience trap, where employers select workers with more experience, and as a result labour market entrants cannot increase their own experience.

On the supply side, youths are less likely to have significant responsibilities than their elders. And their parents may be willing to support them should they not find work. Such factors may create an incentive to restrict their job search activity, leading to higher rates of unemployment. Whatever the particular source of the labour market failure, the outcome is that youths experience considerably higher rates of unemployment than adults.

In response to the substantial increases in youth unemployment during the 1980s and early 1990s, there was a significant increase in policy initiatives targeted at the youth labour market. These culminated in the OECD Jobs Study (1994), which argued that policies to improve the working of the labour market were critical for reducing high levels of youth unemployment. Thus, it suggested that:

“A progressive shift of resources is needed from passive income support to active measures. Active labour market policies improve access to the labour market and jobs; develop job-related skills; and promote more efficient labour markets.” (OECD Jobs Study 1994)

With OECD encouragement, many member countries introduced active labour market policies (ALMPs). However, detailed evaluations of their impact have not shown them to be an unqualified success. For example, Heckman and Smith (1999a, 1999b) examined the US Job Training Partnership Act (JTPA), which provided job-training services for economically disadvantaged adults and youth, dislocated workers and those facing significant employment barriers. They found that the estimates of the returns to training were sensitive to a) the set of training centers included in the evaluation b) how outliers in the earnings data are handled c) the construction of the earnings data d) control group substitution d) treatment group dropping out. Even after these adjustments they conclude that their results for youth “fit comfortably into the pattern of several decades of research that finds very limited earnings effects for the types of services offered by JTPA”.

Boone and van Ours (2004), using aggregate data, suggest that spending on labour market training is the most effective form of intervention. They argue that the contrast between their result and those of micro studies result from increased training reducing the *inflow* into unemployment. This is an important point because most evaluations are partial in the sense that they focus solely on *outflows* from unemployment. Kluve (2006) conducts a meta-analysis of some 95 European evaluations studies and concludes that private sector incentive programs and policies that enhance job search, with possible sanctions for non-compliance, are the most effective forms of intervention. Nevertheless, his general argument is that, although there has been a great deal of policy experimentation and evaluation, there are no forms of ALMP the have been found to consistently promote youth employment.

Card, Kluve and Weber (2009) carry out a further meta-analysis of ALMPs. They examined 199 programmes drawn from 97 studies over the period 1995 to 2007. The

programmes themselves are very heterogeneous covering classroom and work experience, job search assistance, subsidized public and private employment programs, and combined programs. In the short run, the number of programs with a significantly positive outcome only exceeds those with a significantly negative outcome by a small margin. However, over the medium and long term, the balance is more in favour of positive outcomes. There are also significant differences between countries in the types of programs, which succeed or fail. And, somewhat disappointingly, there is no upward trend over time in positive outcomes. The evaluations contain little information on costs, making it difficult to establish how affordable large-scale expansion of successful programs might be. In relation to our particular interest in youth, the Card et al. study also confirms Grubb and Martin's (2001) conclusion that, "one of the most disappointing conclusions from the evaluation literature is that almost all evaluations show that special measures are not effective for disadvantaged youths."

The evidence on ALMPs is clearly mixed. The programs vary widely and it is difficult to make any general statements on their value. Some interventions lead to positive labour market outcomes, though more probably over the medium to long term. The programmes tend to change over time, increasing the complexity of evaluation. In respect of our key concern, younger people, positive results for ALMPs appear to be less common than for those ALMPs that target older people.

3. Youth Labour Markets in the Great Recession

The ages between 15 and 24 are generally associated with transition from education into work. The age of transition is usually conditioned by the highest level of education attained. But individuals may also move between work and education more than once, or may simultaneously combine work and education. A broad definition of youth unemployment includes students who express a desire to find work as well as those that seek work, having completed their education.

Table 1 contains estimated youth unemployment rates for OECD countries from 1970 to 2009.¹ From 1970 to 2004, the data are averaged over five-year periods, then over the period 2005-07 and then followed by the most recent data. They show that youth unemployment rates are typically high and have generally increased since the beginning of the recession. In 2009, among the larger industrial economies, Spain (37.4%), Sweden (25%), France (22.8%), Belgium (21.9%), the UK (18.9%) and the USA (17.6%) were experiencing very high absolute rates of youth unemployment. For the OECD as a whole it increased from 12% to 16.7% over the same period, the highest recorded level since 1970. Only in Japan, Korea, and the Netherlands were youth unemployment rates in single digits at the beginning of 2010 and only Germany experienced a reduction in the rate of youth unemployment between 2007 and 2009.

In the USA, the increase in youth unemployment has been more concentrated among young men. Data from BLS indicate that, the unemployment rate for males aged 16 to 24 in the USA increased from 12.7% in 2008Q1 to 22.0% in 2009Q4: for females the

¹ Data drawn from OECD Statistical Extracts: LFS by sex and age – indicators. Latest data from Eurostat.

equivalent increase was only from 10.2% to 15.9%. In the EU, the increase has been more balanced across the sexes, with Eurostat data indicating an increase from 15% to 21.1% for men, and from 14.8% to 19.5% for women, aged 15 to 24 from 2008Q1 to 2009Q3.

Most OECD member states had previously experienced high rates of youth unemployment. But in Sweden and the USA, youth unemployment in 2009 was at a historically high rate. In the UK, it reached levels not experienced since the early 1980s, while in Canada, France and Italy, it rose to levels not encountered during the last decade. In most other OECD countries, youth unemployment increased during the recession, but only to levels that were typical of the first half of the decade. One important exception was Germany, where youth unemployment rates in 2009 were slightly below their pre-recession value. **Table 1** thus establishes that youth unemployment rates have generally trended upwards between 1970 and 2009, but that particularly rapid increases took place during 2008 and 2009. In addition, increases in youth unemployment by country have varied widely since the onset of recession.

Young workers are consistently more likely to be unemployed than adults (Bell and Blanchflower, 2009, 2010a, 2011). One way to establish this is to calculate the ratio of youth to adult unemployment rates. This is a useful shorthand measure, but must be treated with caution. If a country starts with adult rates of 5% and a youth rate of 15% and then both rates increase by 5%, the youth adult rate falls from 3 to 2, which indicates a *relative* improvement in the labour market situation of the young, but conceals an *absolute* deterioration in their job prospects. Bell and Blanchflower (2010b) establish that in the UK at least, the young are underemployed, more likely to be in part-time jobs even though they prefer full-time and in temporary jobs rather than permanent ones as well as being out-of-the labour force but preferring to have a job. They also establish that young workers would prefer more hours while older workers prefer fewer.

With this proviso, youth-adult ratios for a number of countries are shown in **Table 2**. These are drawn from the OECD database used in Table 1 and are aggregated on the same basis. Some countries, such as Sweden and Italy, have experienced youth-adult ratios well above the international average, while others, such as Germany, Canada and Japan, have kept youth-adult ratios relatively low since 1970. The US ratio is also low, largely because of the high rate of unemployment among older workers. Youth-adult ratios in some countries, such as Italy, Australia and France, have fallen over time, while in others, such as the UK and Sweden, the young have tended to comprise an increasing share of total unemployment.

We now try to establish whether youth unemployment rose more quickly relative to adult unemployment during the Great Recession than in previous recessions. We estimate a simple relationship between youth and adult unemployment rates over time and over countries. Using the same 1970-2009 OECD data, we regress the youth unemployment rate on the adult unemployment rate and both time and country dummies – a complete fixed-effects model. We include one further right-hand side variable – the ratio of the labour force aged 16-24 to that aged 25-64. This is intended to capture effects of changes in cohort size following Freeman (1979). This is not intended as a structural model, but

rather as a useful way of describing the data. The pattern of time dummies then gives a broad indication of how far individual years differ from the underlying relationship between youth and adult unemployment rates, while the country dummies indicate which countries are performing better or worse than the international average. Clearly one could take this further by interacting country and time effects, but we restrict ourselves to a simple analysis here². The coefficients imply that youth rates change by 1.79% for each 1% change in adult rates and that increases in the relative size of the youth labour force are associated with small increases in youth unemployment. The result provides a useful metric of the cyclical sensitivity of youth unemployment rates and confirms that increased cohort size is associated with higher youth unemployment rates. However, the cohort size effect is small. Specifically, a 10% increase in the youth to adult labour force ratio at its mean value (28.5%) is associated with only a 0.5% increase in youth unemployment.

Values of the time and country dummy variables are shown in [Figures 1 and 2](#) respectively. The time dummies show that the major increase in youth rates relative to those of adults took place between 1970 and 1981. Thereafter there was a significant improvement in youth rates, which ended in 1989. From then until 2007 there was a steady upward trend, reflecting more difficult labour market conditions for young people seeking a job. This coincided with a period when labour markets were generally benign. Since the onset of the Great Recession, youth rates have further increased relative to adults. Thus, in 2009, conditional on adult rates, youth unemployment rates were 8% above their 1970 value and at a level not previously experienced.

The country dummies show a very clear pattern, with Mediterranean countries having significantly higher rates of youth unemployment than most of those in Northern Europe and other parts of the developed world. These differences may reflect rigidities in Mediterranean labour markets, such as high levels of job protection afforded to permanent contract workers in Spain or greater willingness of parents to continue to support children at home in Mediterranean countries. Distinguishing between such explanations would require more detailed analysis.

To confirm the view that youth unemployment during the Great Recession has been relatively high, we present some further micro-econometric evidence from an entirely different data source. In [Table 3](#) we show how the incidence of unemployment has changed since the start of the Great Recession in the 27 member countries of the European Union. We make use of micro data from three *Eurobarometer* surveys from February 2008 (#69.1; #69.2 and #70.1) and compare them with the most recent data files available from two surveys from the latter half of 2009 (#72.1 & #72.2) through to February 2010 (#73.1). For the EU27 the overall unemployment rate was 8.6% in February 2010 compared with 6.7% in February 2008. In total we have approximately

² The estimated equation is:

$$\text{Youth rate} = -0.07 + 1.79 \text{ adult rate} + 0.20 \text{ labour force ratio} + \text{time and country dummies}$$

(-4.25) (40.05) (5.96) (t-ratios in brackets)

N = 760, R² = 0.9177

88,000 observations.

We estimate the probability an individual is employed with the sample set equal to the labour force. We include age, schooling and gender along with country and year dummies. Column 1 restricts the sample to 2008 while column 2 is for 2009 and 2010 pooled, while the final column pools all data files. First, it is apparent from the country dummies that, controlling for characteristics, unemployment is especially high in Bulgaria Hungary, Latvia, Lithuania, Poland and Spain and lowest in Austria. Second, the incidence of unemployment among the most educated has fallen, shown by the decline in the size of the coefficient on those who left school at age twenty or higher. Third, it is apparent from the change in the coefficient of the under 25 dummy that the share of unemployment accounted for by the young has risen during the recession. This is confirmed by the significant interaction terms in the final column which pools all three years and which shows the incidence of unemployment increasingly falling on the young during this recession, confirming our analysis with the OECD data.

The ratio between adult and youth unemployment rates may be influenced by participation rates. For younger age groups, these were negatively correlated with unemployment rates during the Great Recession, suggesting a discouraged worker effect. Using OECD participation data, a simple regression of changes in participation rates between 2007 and 2009 for those aged 16-24 on changes in unemployment rates for the same age group yielded a coefficient of -0.65, which was significant at the 5% level. The increase in youth unemployment has been accompanied by a decline in participation. One symptom of this is the increase in applications for tertiary education from young people. In both the UK and the USA, college applications increased significantly during 2010. This is consistent with the evidence of Clark(forthcoming) that student enrolment rises during recessions.

Ireland and Spain experienced reductions in participation much lower than would have been predicted from the relationship between changes in unemployment and changes in participation. But the reduction in participation in Ireland may have been attenuated by another adjustment mechanism - emigration. In 2009, Ireland experienced its first net emigration since 1995 (Central Statistics Office Ireland, 2010). During 2009, after the onset of recession, net migration from Ireland of those in the 15-24 age group exceeded total net migration – there was still net immigration in other age groups. Thus, age-selective emigration may have reduced the youth-adult unemployment ratio in Ireland. The recession also had a dramatic effect on flows of migrants into and out of Spain. In 2008 and 2009, the number of workers in Spain on permanent contracts declined by 52,000, while the number on permanent contracts fell by 1.33 million³. Scarpetta et al (2010) argue that many of those on temporary contracts were either migrants or young people:

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http://extranjeros.mtas.es/es/ObservatorioPermanenteInmigracion/Publicaciones/archivos/Inmigracion_Mercado_de_Trabajo_OPI25.pdf

“The incidence of temporary contracts differs a lot across countries. At least half of all young workers have a temporary contract in Poland, Spain, Sweden, Portugal, France, Germany and Switzerland. But this proportion falls to 20% or less in Hungary, the Czech Republic, the Slovak Republic, Turkey and the United Kingdom.”

Another dimension of youth unemployment is the extent to which it is correlated with educational attainment. **Table 4** contains information on changes in youth unemployment by educational qualification in the EU. Three categories of education are defined: those with primary or more secondary qualifications; those with upper secondary or some form of non-tertiary education and those with tertiary level qualifications. Where available, data are shown for 2008 Q1 and 2009 Q3.

A more complex picture emerges. First, it is not clear that increases in youth unemployment have been concentrated on the poorly educated. In the EU as a whole, rates of unemployment among those with a tertiary education qualification have risen more sharply than have those with primary or secondary qualifications, albeit from a lower base. Thus in Belgium, Italy and a number of eastern European states, unemployment rates among graduates are higher than those with a secondary qualification. One possible explanation is a genuine oversupply of graduates with relatively high reservation wages. But an alternative relates to differences in labour market experience. Within the 16-24 years age group, graduates have less experience of full-time work due to their longer period of study. If employers' immediate reaction to a recession is to stop hiring, then graduates may be in a more difficult position than those with lower qualifications, who already have jobs in which they have built up some experience.

When considering the position across *all* age groups, those with higher qualifications do experience lower unemployment rates. According to the *Eurobarometer* #73.1, which surveyed respondents in the EU27 between January and February 2010, the weighted EU27 average unemployment rates by education attainment suggested unemployment rates of 7.2% for individuals who left school at age 20 or above; 15.2% for those who left between 16 and 19 and 20.8% for those who left school earlier.

Many policy debates on youth employment focus on supply-side issues and pay little attention to the demand side of the labour market. Our contention is that much of the difficulties that youth now face has to do with a lack of employment opportunities and, in particular, with a labour market in which opportunities for young workers are declining more rapidly than those for older employees. To illustrate, consider **Table 5**, which shows how employment by age group changed since the start of the recession. We consider three age groups: those between 15 and 24; those of prime working age between 25 and 49 and older workers aged 50 and above. Eurostat data on employment by age are available for the period 2008Q1 to 2009Q3 for most EU countries.

There is a clear contrast in almost all countries between the experience of younger and older workers in this recession. Youth employment has fallen sharply in many countries

but especially in Estonia, Ireland, Latvia, Lithuania and Spain. The experience of older workers has been quite different: in many countries there has been an *increase* in the employment of older workers during this recession. This is a dramatic shift. Thus, for example, in Germany, employment among young people fell by 5.6%, while the employment of workers aged 50 and over increased by 6.5%. In Spain employment of the young fell by 23.9%, of the middle-aged by 7.6%, but there was no change in employment of older workers. This pattern was replicated in several other countries including the UK, Italy, Poland, Portugal, and Ireland. For the European Union as a whole, employment of the young fell by 5% while there was a 3.9% increase in older workers' employment.

4. What Do We Know About Youth Unemployment?

There is a large literature on youth unemployment. In what follows we attempt to answer six questions regarding the workings of the youth labour market.

1) Is youth unemployment cyclical or structural?

Clark and Summers (1982), in their classic study of the dynamics of youth joblessness argue that the problem of teenage unemployment arises from a shortage of jobs. "Aggregate demand has a potent impact on the job prospects and market experience of teenagers" (1982, p.230). Freeman and Wise (1982), for example, found in their study of youth joblessness in the 1970s that it was concentrated, by and large, among a small group who lacked work for extended periods of time. Over half of the male teenage unemployment they examined was among those who were out of work for over six months, a group constituting less than 10% of the youth labor force and only 7% of the youth population. Freeman and Wise reported that the youths who make up the relatively small group that was chronically without work had distinctive characteristics, They were disproportionately black; disproportionately high school dropouts, and disproportionately residents of poverty areas. #

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Blanchflower and Freeman (2000) identified one basic pattern in the job market for young workers: the disproportionately large response of youth employment or unemployment to changes in overall unemployment. They argued that the sensitivity of youth employment and unemployment to the overall rate of unemployment dominate sizable demographic and structural changes favorable to youth in determining how youths fare in the job market. Recently OECD (2008a) confirmed this conclusion "Youth unemployment rates are more sensitive to business-cycle conditions than the adult unemployment rate and this high-sensitivity tends to decline progressively with age". Our estimate for many of the major OECD countries is that youth unemployment rates are almost twice as sensitive to the cycle as are adult rates.#

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There is also evidence that young people do especially well in booms. Freeman and Rodgers (2000) analyzed the 1990s boom in the United States and found that it substantially improved the position of non-college educated young men, especially young African Americans who are the most disadvantaged and troubled group in the US. Young men in tight labor markets experienced a substantial boost in both employment and earnings. Adult men had no gains and their earnings barely changed even in areas

where unemployment rates were below 4%. #

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There is evidence of state dependence in youth unemployment. In this context, state dependence means that the experience of one spell of unemployment of itself increases the probability of further spells. This may be because on the demand side, employers are less willing to hire those with a record of unemployment or that, on the supply side, the experience of unemployment discourages individuals from job search activity.

State dependence would imply extended or repeated unemployment spells. These might attenuate the apparent cyclical sensitivity of youth unemployment in aggregate data, leading to the conclusion that youth unemployment is partially structural. And it is clear that some aggregate changes in youth unemployment are not directly linked to cyclical movements. Thus the ILO (2008) noted that recently there had been a *declining trend* in youth unemployment, suggesting that the world rate of youth unemployment rose from 10.9% in 1999 to a peak in 2004 of 12.6% and subsequently declined to 11.9 per cent by 2007. This is not a very large reduction and came at a time when there was a substantial policy effort to combat youth unemployment. This relatively small improvement was swiftly overtaken by events after the onset of recession.

2) *How has changed school enrolment impacted on youth unemployment?*

Most OECD countries have tried to extend the duration of formal schooling in recent decades. This delays entrance into full-time employment, but not necessarily part-time work. For example, the proportion of the young in the UK in full-time education increased from 26% in 1993 to 38% in 2007. Recent OECD data suggests that the proportion of the young who are in school is considerably higher in, for example, Belgium (60%); Finland (56%); France (61%), Italy (57%); Luxembourg (69%) and Sweden (57%). These increases reflect a common belief in most industrial countries that greater investment in human capital is required to maintain competitiveness, but also may reflect lowering costs of education as average family sizes fall. Yet again, it may be a defensive strategy, with enrollment increasing when the labour market deteriorates. For example, in 2010, applications to UK universities increased by 22 per cent over the previous year⁴, reflecting the fall in labour market opportunities for youth.

One effect of the increased participation in further education is that the 16-24 cohort is now better qualified than in previous recessions. The UK Labour Force Survey indicates that 5.8 per cent of 16-24 year olds were graduates in 1993, while that share had risen to 13.2 per cent by 2008. The improvement in qualifications is more concentrated among females than males. By 2008, the proportion of females aged 18-24 with no qualifications had fallen to 4.6 per cent, but for males was still over 7 per cent.

Changes in attainment by gender, reflect changes in schooling rates. For example, in the US, the proportion of 16 to 19 year old enrolled in either high school or college increased

⁴ See UCAS (UK Universities Admission Service)

http://www.ucas.ac.uk/about_us/media_enquiries/media_releases/2010/080210

by 8.9% between 1979 and 2003. But female enrolment increased by 14.1%, much more rapidly (Congressional Budget Office 2004).

Increased schooling affects youth unemployment in two ways. First, so long as increased educational attainment is increasing the “employability” of the young, it should increase the success rate of their job search activity. On the other hand, delayed entry to the jobs market caused by additional schooling may reduce the average “employability” of those that are economically active, since those selected into additional schooling are likely to be more able. This effect may be difficult to disentangle within aggregate statistics, since many of those taking additional schooling may also be seeking work and thus are still be classified as unemployed.

3) Has youth unemployment increased because of competition from migrants?

One potential cause of increases in youth unemployment is competition from migrants. In the UK, there is some evidence that suggests that the influx of immigrants from the A8 Accession countries from 2004 onward had some negative impact on the employment of the least skilled young people (Blanchflower and Shadforth 2009). But these effects are usually insignificant or when significant, quite small. Card (2009) can find no compelling evidence of a causal impact running from immigration to youth unemployment, though he does argue that competition between unskilled youth and immigrants in the lower tail of the earnings distribution may have increased inequality. There is little empirical support for the notion that increased migration is a root cause of higher rates of youth unemployment.

4) Are co-habitation decisions influenced by youth unemployment?

The time when older children leave home is influenced by, and influences, labour market status. Children who remain with their parents gain from intra-household transfers and reduced housing costs. The decision to cohabit is also a form of insurance against unemployment risk. This may affect labour supply decisions. Card and Lemieux (2000) find that when the labour market is performing poorly, the fraction of youth living with parents increases. But, in addition to labour market effects, cohabitation decisions are also significantly impacted, by welfare systems, housing markets and culture (Chiuri and Del Boca 2008). The welfare costs of high youth unemployment may be lower in cultures where there is widespread social acceptance of children staying with their parents well beyond completion of high school. This may be an important effect in Mediterranean countries, where cohabitation with adult children is more common than in Northern Europe. This is consistent with our evidence that, *ceteris paribus*, youth unemployment rates are higher in Mediterranean countries.

5) Have youth wages been too high, so increasing youth unemployment?

Recent movements in the ratio of youth to adult wages in the UK and USA are shown in Figure 3. Both show a secular decline from the early part of this century, some recovery around 2007-2008 followed by further decline during the recession. Employment among older workers has increased during the recession, even though these data suggest that their relative wages have been increasing compared with those of young people in the UK and USA. There is no *prima facie* evidence of younger workers pricing themselves out of

jobs. In the UK, this finding is confirmed by analyses of the effect of the minimum wage on employment. A minimum wage was introduced to the UK in 1997 but there is little or no evidence to sustain the argument that they have had an adverse effect on employment (see e.g. Metcalf, 2008). Even if this effect were strong, it could not explain the sudden increase in youth unemployment during this recession.

High levels of unionisation among younger workers might raise their relative pay, but reduce their employment prospects. Unions generally operate rates for the job, which would have the effect of raising the relative wage of the young, making them relatively less attractive to employers. But, although the UK, for example, has relatively high youth unemployment rates, it has especially low union membership rates among the young. Blanchflower (2007) shows, using data from the UK Labour Force Survey, that union density rates for 16-19 year olds in 2004 were 4.3%. In 2007 the union density rate for 16-24 year olds was 9.8% (Mercer and Notley, 2008, Table 25). It does not appear that youths are pricing themselves out of work, unless their relative productivity is falling especially sharply, but there is no evidence to suggest this.

6) Have young workers been adversely affected by changes in the demand for skills?

The changing structure of *labour* demand may also be adversely affect young people's labour market prospects. A common explanation put forward to support this view is that of *skill biased technical change*. Technical change increased the skill requirements of production, leaving the unskilled, and particularly the young unskilled, at a significant disadvantage in the labour market (see e.g. Berman et al. 1994).

In the US, it is argued that industrial change has led to a significant change in the demand for skills (Autor, Levy, and Murnane 2003). Rather than additions to labour demand being entirely focused on high-skilled jobs, there has been some increase in demand for low-skilled workers. Many such jobs involve non-routine, or interactive, tasks that cannot be easily automated. In contrast, the demand for skilled workers whose work can be routinized (and therefore automated) has fallen, mainly as a result of automation. Such workers might typically have expected to earn wages close to the central deciles of the earnings distribution. The loss of these jobs means that the earnings distribution has been "hollowed out", making the progression from low to high skilled work more difficult.

Machin (2008) surveys this literature and argues that there is evidence of the "hollowing out" of the wage structure in countries such as Germany where this phenomenon has not been previously observed. Although one might expect that such changes in the structure of employment would affect the demand for youth employment in the medium to long term, we have already shown that there have been quite dramatic changes in employment structure in some European countries over the last decade.

In the next section, we investigate the effects of youth unemployment, both at the personal and societal level.

5. What impact does youth unemployment have?

There is a wealth of literature showing that unemployment is a stressful life event that directly makes reduces individual wellbeing. This applies not just to the unemployed, but also may affect the employed due to increased anxiety over job security. Unemployment increases susceptibility to malnutrition, illness, mental stress, and loss of self-esteem, and increases the risk of depression. The unemployed also appear to be at higher risk of committing suicide, and of poor physical health outcomes later in life. Low levels of happiness and health have predictive power for subsequent outcomes. For example, happy people heal faster, have longer life expectancies, are less likely to get coronary heart disease and, from lab experiments, have higher productivity (Oswald, Proto and Sgroi, 2010) and creativity (Amabile et al, 2005). Knabe and Ratzel (forthcoming) argue that past unemployment affects individuals' future expectations negatively and that it is this insecurity about future prospects that reduces their present well-being. However, drawing the distinction between *experienced* utility and well-being, Knabe et al.(forthcoming) argue that the unemployed feel sadder than the employed when engaged in similar activities, but can compensate by taking part in more enjoyable activities when the employed are at work.

Youth unemployment also has adverse social impacts. Higher unemployment is associated with increases in burglaries, thefts and drug offences. Unemployment is often part of the cycle where involvement in crime reduces subsequent employment prospects and consequently increases the probability of participating in crime.

There is new evidence that even youngsters who choose to go to college or university are hurt if they enter the labour market during a recession. Kahn (2010) has recently shown that the labour market consequences of graduating from college in a bad economy have large, negative and *persistent* effects on wages. Lifetime earnings are substantially lower than they would have been if the graduate had entered the labour market in good times. Furthermore, cohorts who graduate in worse national economies tend to end up in lower-level occupations.

Work by Giuliano and Spilimbergo (2009) suggests that the period of early adulthood (between 18 and 25) seems to be the age range during which people are more sensitive to macroeconomic conditions. They found that being exposed to a recession before age 17 or after age 25 has no impact on beliefs about life chances. However, youngsters growing up during recessions tend to believe that success in life depends more on luck than on effort; they support more government redistribution, but have less confidence in public institutions. Recessions seem to adversely effect youngsters' beliefs.

There is also recent evidence on the consequences of rising unemployment on young people from the UK. The Prince's Trust, which was established by the Prince of Wales, conducted three surveys of young people in 2009 and 2010. In comparison with other young people the young unemployed were found to be significantly more likely to feel ashamed, rejected, lost, anxious, insecure, down and depressed, isolated and unloved. They were also significantly less happy with their health, friendships and family life than those in work or studying, much less confident of the future and more likely to say that they had turned to drugs, that they had nothing to look forward to and that their life had no direction. And many reported having suicidal thoughts. (Blanchflower, 2010).

Worryingly, unemployment while young, especially of long duration, appears to be associated with permanent scars rather than the temporary blemishes that result for older workers (Ellwood, 1984). The majority of older workers get over spells of unemployment reasonably quickly while youngsters do not as they struggle to find a toe-hold in the labour market. The scarring effect of youth unemployment has two components: first, for the young, a spell of unemployment does not end with that spell; it raises the probability of being unemployed in later years. Second early spells of unemployment also carry a wage penalty. These effects are much larger than for older people experiencing unemployment. Mroz and Savage (2006) find that a six month spell of unemployment at age 22 results in an 8 per cent lower wage at 23 and even at ages 30 and 31, wages are 2-3 per cent lower than they otherwise would have been.

We can now update the evidence on the scarring effects of youth unemployment in the UK. We find new evidence that spells of youth unemployment have harmful impacts on a number of outcomes - unemployment, happiness, health and job satisfaction - many years later. This builds on earlier work by Clark and Oswald (1994) and Winkelmann and Winkelmann (1998) who showed that unemployment lowers happiness.

In order to explore the impact of unemployment while young on subsequent outcomes we examined data from the 1958 birth cohort, the National Child Development Study (NCDS). The NCDS has followed a cohort of people who were born in one week - the 3rd to the 9th March 1958. The details of all of those born during that week, including all infant deaths, is contained in the Perinatal Mortality Study (PMS). The National Child Development Study (NCDS) is a continuing longitudinal study that seeks to follow the lives of all those living in Great Britain who were born in one particular week in 1958.

To date there have been eight attempts to trace all members of the birth cohort in order to monitor their physical, educational and social development. The first three follow-up sweeps were carried out by the National Children's Bureau, in 1965, when respondents were aged 7, in 1969 (NCDS1), aged 11 (NCDS2), in 1974, aged 16 (NCDS3). The fourth sweep, NCDS4, was conducted in 1981, when respondents were aged 23. The fifth sweep was carried out in 1991, when respondents were aged 33 (NCDS5). For the sixth wave, conducted in 1999-2000, when respondents were aged 41-42 (NCDS6), fieldwork was combined with the 1999-2000 wave of the 1970 Birth Cohort Study (BCS70). The seventh sweep of NCDS was conducted in 2004-2005, when respondents were aged 46-47 years (NCDS7). The latest sweep (NCDS8) was conducted between August 2008 and May 2009 that included the failure of Lehman Brothers and the onset of the Great Recession.

We have information available to us at age 23 in 1981 on the number of months the respondent had been unemployed since the age of 16. This is obtained from reports of the duration of up to four spells of unemployment. Unemployment rates in the UK had risen from 5.4% in 1979 to 6.8% in 1980 and 9.6% in 1981, when the UK had moved into recession. Unemployment would eventually peak at 11.4% in the spring of 1984. In the sample, 44.6% reported that at some time in their working lives they had been

unemployed. For those who had been unemployed, the mean number of months they had been unemployed was 7.8 (SD=8.4).

The question is to what extent unemployment when young impacts outcomes later in life. We build on earlier work in Bell and Blanchflower (2009), which examined outcomes in using NCDS7 taken in 2004/5 when respondents were aged 46.

Here we examine four outcomes in 2008/9 when the respondents were aged 50; a) life satisfaction b) self-reported health status c) whether the individual reports being 'miserable and depressed', plus for workers only d) job satisfaction. We also make use of data on whether the respondent was unemployed at age 33 in NCDS5 in 1991 and from NCDS6 in 2000 as well as data on birth weight taken directly from the PMS at birth and the IQ score provided in NCDS2 from a test taken by the respondents at age eleven. All children at age eleven, including the authors took the eleven plus exam to determine what type of high school - good or bad - they would go on to. We find evidence, for the first time to our knowledge, that birth weight and IQ score impacts adults years later.

The issue is whether a period of unemployment when young has lasting effects; it turns out that it does on a number of outcomes. In [Table 7](#) we examine whether spells of unemployment while young (over the period when the respondents were ages 16-23) impact the probability of being unemployed at age 50. These are based upon responses provided by the respondents in 1981. The method of estimation is dprobit, which reports the marginal effect, that is the change in the probability for an infinitesimal change in each independent, continuous variable and the discrete change in the probability for dummy variables. For an analysis of unemployment before the age of 23 and work histories of the NCDS birth cohort see Elias and Blanchflower (1989).

In each equation we include a set of controls identifying region and highest qualification at age fifty along with gender. In columns 1-3 the dependent variable is set to one if unemployed zero otherwise, while in columns 4-6 those out of the labour force (OLF) are excluded. In columns 2 and 4 we include verbal and non-verbal test scores reported at age 11 in NCDS2 in 1969. We experimented with the form of the unemployment variable and found that a variable indicating whether the individual had ever been unemployed and the number of spells of unemployment by age twenty three all entered significantly and positively. However, the variable indicating the number of months unemployed worked best indicating that the longer the unemployment duration while young the higher the probability at age fifty that the individual would be unemployed. This was true whether or not the sample was restricted to those individuals in the labour force. That result also remained when we added in controls for whether the respondent reported they were unemployed at age 33 (NCDS5) or at age 40 (NCDS6). Sample sizes fell by approximately 1000 in each case because of non-response but the results are little changed.

We then turn to examine measures of wellbeing, also using responses obtained from NCDS8 when the respondents were age 50. In addition to the controls for region, education and gender included in [Table 7](#) we also included a standard set of controls for

well-being equations (Blanchflower and Oswald, 2004, 2011), which include labour market status, marital status, smoker status and whether the respondent exercises. In addition to the months of unemployment variable we also include an indicator variable on mental health at age 23 measured by the malaise score (indicating a tendency towards depression). For a study using the NCDS Malaise scores at ages 23 and 33, see Cheung and Buchanan (1997). We also include birth weight, obtained at the time of the respondent's birth, and which remarkably impacts life satisfaction half a century later.

The results show that youth unemployment continues to hurt two decades later for the four 2008/9 outcome variables listed above. In all four cases we also included controls for whether the individual was unemployed at age 33 when interviewed in NCDS5, but these variables were everywhere insignificant and as they reduced sample sizes were excluded. As we will see, there are permanent scars from youth unemployment.

Results are reported in [Table 8](#). We look at the four outcomes in turn.

i) Life satisfaction. Respondents in NCDS8 were asked *"On a scale from 0 to 10, where '0' means that you are completely dissatisfied and '10' means that you are completely satisfied, what number corresponds with how satisfied or dissatisfied you are with the way life has turned out so far?"* The mean life satisfaction score was 7.29 and 7.45 if the respondent had not been unemployed at all by age 23 or before and 7.12 if they had. Column 1 reports the results of estimating an ordered logit. Most of the results are standard; life satisfaction is higher for married people, the educated, workers, especially those who work full-time, and those who are not disabled or sick or depressed (a low malaise score at age 23). Those currently unemployed are less happy; there are enduring effects from spells of unemployment while young, which continues to lower happiness more than two decades later. Clark et al (2001) also found, using panel data for Germany from the GSOEP that past unemployment lowers life satisfaction.

In column 1 it is apparent that, as is consistently found in all happiness equations, the current unemployed are less happy. Also, the longer the spell of unemployment before the age of twenty-three, the lower is happiness nearly thirty years later at age 50. Astonishingly, birth weight is positively correlated with happiness many years later even in the presence of all the controls. To our knowledge this finding has not been reported before.

ii) Health status. Respondents in NCDS8 were asked *in general would you say your health is' - 1=excellent; 2=good; 3=fair; 4=poor or 5= very poor?"* Of those who had been unemployed in NCDS4 23.5% said they were in poor or fair health compared with 14.1% of those who had not been unemployed. Column 2 of [Table 8](#) estimates an ordered logit with self-reported health as the dependent variable. Once again the youth unemployment variable enters significantly and negative, whereas being unemployed at age 33 did not have a significant impact on health (not reported). The Malaise score is strongly negative also. The currently unemployed are less healthy than full-time employees. The longer the spell of unemployment while young the lower the happiness when they are older. Birth weight is positive and weakly significant.

iii) Respondents were also asked to answer yes or no in answer to the question 'Do you often feel miserable or depressed?' We use this as the dependent variable in column three of the table and estimate using dprobit once again. Once again spells of unemployment increase depression years later and more so the longer the spell.

iv) Job satisfaction. Workers were asked for their degree of satisfaction with their current job. Possible answers were “very dissatisfied; somewhat dissatisfied; neither; somewhat satisfied and very satisfied”. Column 4 reports the results of estimating an ordered logit. Controls are also included to reflect the degree of job security the individual has. Job insecurity lowers job satisfaction (Blanchflower and Oswald, 2011) Youth unemployment lowers job satisfaction whereas middle-age unemployment did not.

How large are the effects implied by these results? We calculate some examples using the probability of unemployment relationship shown in Column 6 of Table 6. Consider individuals with no qualifications from the West Midlands who were unemployed in 1991 and 2000. We calculate differences in the probability of unemployment for males and females who also experienced 0, 12 and 24 months of unemployment before the age of 23. We contrast this with individuals from the South-East with two A-levels who were not unemployed in 1991 and 2000. We again calculate unemployment probabilities by gender and length of unemployment before age 23. Results are shown in [Table 9](#). Differences in education, region, qualification and experience of unemployment in 1991 and 2000 cause substantial differences in the probability of unemployment. But in addition, two years' experience of unemployment before age 23 increases the probability of unemployment at age 50 by around 2%, around four times as large as the effect of gender. While other factors may have a larger effect on the probability of unemployment at age 50, an extended spell of unemployment before age 23 still has a sizeable impact on the probability of unemployment. Such an extended spell of youth unemployment also reduces wellbeing at age 50 by a small, but significant amount. Twelve months unemployment before age 23 reduces the well-being score by 0.1 points.

People are impacted adversely, in terms of reduced wellbeing, by increases in unemployment. The unemployed themselves lose their jobs but there is a much wider loss of wellbeing. High national unemployment lowers wellbeing especially of the unemployed. It turns out that spells of unemployment are especially harmful to the individual - and to society - when young people become unemployed. A spell of unemployment when young continues to have a negative impact in later life. And the longer the spell the bigger the impact is.

Youth unemployment is especially harmful. As we noted above there is scant evidence to suggest that increases in unemployment are attributable to the introduction of the minimum wage or to the presence of temporary workers from Eastern Europe or that the young have priced themselves out of work. The onset of recession, at a time when the size of the youth cohort has temporarily increased, has made matters considerably worse as youths are especially vulnerable to movements in the business cycle.

The danger is that the biggest fall-out from the credit crisis is the creation of a lost generation of young people, who never successfully make the transition from school-to-work. That would be bad for everyone.

To summarize, there is now a convincing range of evidence on the negative personal and social impacts of unemployment. We have shown that the negative impacts on the young may persist for long periods and include life satisfaction, physical and mental health and job satisfaction.

6. Conclusion

The Great Recession has had an extremely adverse effect on youth unemployment. Some countries, particularly those that have been affected by sovereign debt crises, such as Greece, Ireland and Spain have seen very large increases in the rate of youth unemployment. It appears that the increase in youth unemployment, conditional on increases in adult rates, rose to a level not experienced since 1981. The youth unemployment rate in most OECD countries remains unacceptably high. We would argue that this issue is a top policy priority.

We have introduced new evidence to support this recommendation. Our analysis of international trends in youth and adult unemployment suggests that the relative gap between youth and adult rates has been growing for more a decade and that it is moderately sensitive to differences in the relative size of the youth cohort. There are also wide inter-country differences in youth unemployment rates which may reflect country-specific structural factors, such as the use of temporary contracts. They may also reflect differences in supply conditions such as the extent to which households are prepared to insure family members against the adverse consequences of unemployment.

In our paper, we have also extended our understanding of the long lasting implications of spells of unemployment among the young. Even controlling for a large number of other variables, having a spell of unemployment when young is a good predictor of unemployment at the age of 50. It also partly explains lower self-esteem, poorer health outcomes, higher scores on the misery index and lowered job satisfaction at age 50.

The evidence suggests that older employees have fared rather better than younger ones during the Great Recession. In almost all developed countries, there has been a relative decline in the employment of the young and an increase in employment among those aged 50+. This change has taken place very quickly and therefore is unlikely to be a response to factors that evolve slowly – such as relative wages or technological change.

Such a rapid change is however consistent with industry specific demand shocks. Industries where output dropped during the recession tended to have an above average share of young workers. Nevertheless, even within industries that have experienced sharp declines in output, such as manufacturing and construction, we have found that young workers have fared badly. This may be the result of institutional factors such as a LIFO

layoff policy. It may also have resulted from the relative costs of making younger workers redundant compared with older employees.

Before the recession, policy interventions focused on ALMPs. The latest evidence gives them a somewhat mixed report. This is partly because ALMPs are extremely heterogeneous. They tend to evolve which means that their success or otherwise may change over time. They do not seem to do particularly well with youths, and it is clear that the interventions during this period have not been sufficient to even narrow the gap between adult and youth unemployment. We are not in a position to draw up a counterfactual, so it is possible that without ALMPs in place, youth unemployment would have been even higher. However, it does seem clear that they have not led to a narrowing of the gap between youth and adult rates.

Fiscal tightening as a response to increased government indebtedness caused by the Great Recession will inevitably lead to reduced spending on education and training budgets. This may mean that the gap between youth and adult rates grows even further. Instead what is needed is some fiscal rebalancing in favour of youth. This may mean a continuation, and even an extension of ALMPs carefully targeted on youth. But recent experience suggests that these will not be sufficient to narrow the unemployment gap. Hence changes to taxes may be necessary to encourage employers to hire young workers. These might include lower payroll taxes, income taxes, and potentially payments to employers to hire and retain young workers. In addition, more alternatives to jobs including education and training may be required in the short run, a policy recommendation recently endorsed by the OECD (OECD 2010). This essentially means buying time until the recession is over and more jobs become available.

Spells of unemployment, while young, create permanent scars. Unemployment is higher in the years ahead if a young person doesn't gain a successful toe-hold in the labour market early in their lives. Solving youth unemployment is one of the most pressing problems governments are facing today. Not dealing with the problem of high, and rising levels of youth unemployment hurts the youngsters themselves and has potentially severe social consequences for many years to come on the rest of us. This is a particular concern given the very large cohort size: the situation is worsened by the fact that there are lots of them. Youth must be the priority. Don't give up on them now because there is a very real danger that they will become a lost generation. And that would be bad for all of us.

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Table 1: Youth (those aged 16-24) Unemployment Rates 1970-2010

	1970-74	1975-79	1980-84	1985-89	1990-94	1995-99	2000-04	2005-07	2008	2009	Jul-10
Australia	3.4%	11.3%	14.6%	13.9%	17.1%	15.0%	12.3%	10.0%	8.9%	11.6%	
Austria					5.0%	5.7%	6.7%	9.4%	8.1%	10.0%	9.1%
Belgium			24.5%	19.9%	16.4%	21.2%	18.3%	20.3%	18.0%	21.9%	25.3%
Canada		13.2%	16.1%	13.3%	15.7%	15.1%	13.2%	11.7%	11.6%	15.3%	
Denmark			16.4%	9.7%	12.0%	9.1%	8.0%	8.1%	7.6%	11.2%	11.6%
Finland	4.3%	10.5%	10.2%	9.2%	22.1%	23.5%	19.7%	17.4%	15.7%	20.5%	21.4%
France	3.9%	10.8%	19.1%	22.5%	22.3%	26.5%	19.5%	20.1%	18.1%	22.8%	22.3%
Germany	1.2%	5.1%	8.3%	7.4%	6.4%	9.1%	9.9%	13.5%	10.4%	11.0%	9.2%
Greece			23.5%	24.9%	25.9%	30.3%	27.6%	24.7%	22.1%	25.8%	
Ireland	9.1%	12.2%	19.1%	23.7%	22.4%	15.2%	8.7%	9.8%	12.5%	25.9%	28.9%
Italy	11.4%	20.3%	28.5%	34.4%	30.8%	31.9%	26.6%	22.0%	21.3%	25.4%	26.8%
Japan	2.3%	3.4%	4.2%	4.9%	4.7%	7.3%	9.7%	8.1%	7.2%	9.1%	
Korea			9.9%	8.1%	7.6%	10.0%	10.0%	9.7%	9.3%	9.8%	
Luxembourg			6.1%	5.1%	4.4%	7.4%	9.5%	15.0%	17.9%	17.2%	16.2%
Netherlands	2.7%	7.3%	18.3%	16.7%	9.9%	9.8%	6.4%	7.3%	5.6%	7.3%	8.1%
New Zealand			0.0%	0.1%	17.2%	13.5%	11.5%	9.9%	11.4%	16.6%	
Norway	5.4%	6.2%	6.9%	7.2%	13.0%	10.7%	11.1%	9.3%	7.5%	9.2%	
Portugal	3.2%	14.8%	16.7%	15.2%	10.8%	13.1%	11.9%	16.3%	16.5%	20.0%	20.6%
Spain	4.9%	12.8%	34.0%	39.2%	35.1%	35.9%	22.6%	18.6%	24.6%	37.9%	41.5%
Sweden	4.7%	5.2%	8.3%	5.5%	14.3%	18.6%	13.5%	20.9%	19.4%	25.0%	25.3%
United Kingdom			19.7%	14.9%	14.5%	13.6%	11.1%	13.5%	14.1%	18.9%	
United States	11.6%	13.7%	15.5%	12.2%	12.9%	11.1%	11.2%	10.8%	12.8%	17.6%	19.7%
Europe	4.6%	11.1%	19.1%	19.8%	18.1%	18.5%	17.4%	17.1%	15.7%	20.1%	18.6%
OECD countries	6.9%	11.2%	15.4%	14.7%	13.6%	13.5%	0.1%	0.1%	0.1%	0.2%	

Table 2: Ratio of Unemployment Rates of those Aged 16-24 to Unemployment Rates of those Aged 25-64: 1970-2009

	1970-74	1975-79	1980-84	1985-89	1990-94	1995-99	2000-04	2005-07	2008	2009
Australia	2.25	3.26	2.85	2.52	2.28	2.37	2.59	2.76	2.73	2.86
Austria					1.50	1.54	1.84	2.23	2.53	2.31
Belgium			2.67	2.26	2.48	2.70	2.94	2.92	3.04	2.97
Canada		2.30	2.04	1.72	1.71	1.98	2.14	2.16	2.25	2.21
Denmark			2.13	1.54	1.41	1.74	1.82	2.25	2.97	2.54
Finland	2.33	2.64	2.42	2.37	2.41	2.08	2.60	2.74	3.18	2.85
France	2.32	3.11	3.45	2.78	2.49	2.50	2.46	2.79	2.96	2.79
Germany	1.16	1.50	1.60	1.23	0.94	1.02	1.14	1.34	1.43	1.40
Greece			4.18	4.93	4.71	3.99	3.26	3.14	3.31	3.18
Ireland	1.48	1.72	1.66	1.63	1.72	1.79	2.45	2.65	2.71	2.70
Italy	7.50	7.72	7.12	5.29	4.33	3.69	3.65	3.80	3.77	4.06
Japan	2.13	1.80	1.94	2.09	2.32	2.17	2.08	2.05	1.89	2.11
Korea			3.12	3.35	4.37	2.97	3.09	3.06	3.22	2.95
Luxembourg			3.01	3.13	2.41	3.30	3.71	4.28	4.42	4.65
Netherlands	1.40	2.37	2.45	1.92	1.71	2.20	2.15	1.90	2.27	2.16
New Zealand				2.75	2.34	2.49	2.98	3.95	4.14	4.22
Norway	7.12	5.99	3.99	3.62	3.00	3.59	3.84	3.35	4.23	4.13
Portugal	5.79	4.33	3.86	3.13	2.69	2.49	2.60	2.24	2.30	2.18
Spain	3.20	3.35	3.41	2.78	2.23	2.12	2.26	2.47	2.51	2.57
Sweden	2.77	3.76	3.67	3.09	3.01	2.39	2.81	4.04	4.61	4.39
United Kingdom	0.00	0.00	2.07	1.76	1.87	2.24	2.86	3.88	3.79	3.94
United States	3.29	2.79	2.45	2.50	2.42	2.95	2.72	2.83	2.78	2.90

Source: OECD Stat Extracts: LFS by sex and age, indicators

Table 3. Probability of being unemployed, 2008-2010 (dprobit).

	2008	2009-2010	2008-2010
Male	-.0279 (10.66)	-.0071 (2.31)	-.0177 (8.77)
Age<25	.1159 (18.66)	.1646 (22.70)	.1229 (19.30)
Age 25-34	.0330 (8.04)	.0450 (9.58)	.0389 (12.47)
Age 45-54	.0097 (2.56)	.0046 (1.05)	.0071 (2.46)
Age 55-64	.0250 (5.28)	.0065 (1.22)	.0157 (4.40)
Age ≥65	-.0395 (4.26)	-.0741 (6.72)	-.0566 (7.89)
2009		-.0089 (2.76)	.0345 (13.77)
2010			.0435 (13.51)
Austria	-.0553 (8.22)	-.1035 (13.34)	-.0785 (15.24)
Denmark	-.0325 (3.87)	-.0241 (2.24)	-.0303 (4.45)
Finland	-.0334 (3.97)	-.0306 (2.88)	-.0327 (4.80)
France	-.0298 (3.76)	-.0375 (3.76)	-.0336 (5.27)
Germany	-.0095 (1.24)	-.0190 (2.04)	-.0135 (2.23)
Greece	-.0341 (4.22)	-.0576 (5.98)	-.0453 (7.17)
Ireland	-.0484 (6.65)	-.0051 (0.49)	-.0297 (4.68)
Italy	-.0546 (8.02)	-.0926 (11.16)	-.0727 (13.51)
Luxembourg	-.0605 (6.48)	-.0655 (5.37)	-.0640 (8.35)
Netherlands	-.0536 (6.98)	-.0620 (6.38)	-.0583 (9.40)
Portugal	-.0313 (4.16)	-.0388 (4.10)	-.0350 (5.78)
Spain	-.0056 (0.65)	.0327 (2.94)	.0133 (1.88)
Sweden	-.0549 (7.34)	-.0573 (5.73)	-.0574 (9.24)
UK	-.0178 (2.27)	-.0162 (1.65)	-.0168 (2.66)
Cyprus	-.0647 (7.21)	-.0701 (6.08)	-.0683 (9.35)
Czech Republic	-.0454 (6.33)	-.0563 (6.21)	-.0509 (8.80)
Estonia	-.0579 (7.87)	.0045 (0.42)	-.0294 (4.51)
Hungary	.0186 (1.98)	.0291 (2.54)	.0241 (3.25)
Latvia	.0014 (0.17)	.0720 (6.20)	.0351 (4.87)
Lithuania	.0102 (1.15)	.0677 (5.69)	.0376 (5.05)
Malta	-.0449 (4.16)	-.0572 (4.27)	-.0512 (5.93)
Poland	.0283 (2.92)	.0016 (0.15)	.0165 (2.23)
Slovakia	-.0379 (5.22)	-.0393 (4.24)	-.0387 (6.56)
Slovenia	-.0051 (0.57)	-.0168 (1.59)	-.0109 (1.58)
Bulgaria	.0209 (2.32)	.0262 (2.39)	.0245 (3.42)
Romania	-.0180 (2.20)	-.0340 (3.38)	-.0255 (3.92)
ALS 16-19	-.0496 (13.21)	-.0660 (13.82)	-.0577 (19.08)
ALS 20+	-.0944 (24.68)	-.1263 (26.39)	-.1100 (36.01)
No FT education	.0825 (2.94)	-.0045 (0.21)	.0300 (1.80)
Age<25*2009			.0151 (2.09)
Age<25*2010			.0298 (3.12)
N	44,354	44,215	88,569
Adjusted R ²	.0734	.0781	.0759

Source: Eurobarometers #69.1 (February-March 2008); #69-2 (March-May 2008); #70.1 (October-November 2008); #72.1 (August-September-October 2009); #72.2 (September-October 2009); and #73.1 (January-February 2010). Notes; sample consists of the labour force (employed+unemployed). Excluded categories Belgium and ALS<age 15. T-statistics in parentheses.

Table 4. Youth Unemployment and Educational Attainment

	ISCED 1-2			ISCED 3-4			ISCED 5-6		
	2008Q1	2010Q1	Change	2008Q1	2010Q1	Change	2008Q1	2010Q1	Change
European Union	20.1	27.6	7.5	12.6	18.9	6.3	9.7	15.1	5.4
Belgium	30.7	39.6	8.9	13.1	23.7	10.6	9.2	11.6	2.4
Denmark	8.1	15.7	7.6	5.3	11.4	6.1			
Germany	12.8	13.9	1.1	8.8	9.1	0.3			
Ireland	17.7	42.6	24.9	8	25	17	4.4	16.3	11.9
Greece	19.3	27.6	8.3	25.3	29.9	4.6	26	41.8	15.8
Spain	25.8	49	23.2	16.7	32.6	15.9	13.2	27.4	14.2
France	28.4	34.5	6.1	15.2	21.5	6.3	7.9	12.4	4.5
Italy	23.3	32.2	8.9	19.9	27.3	7.4	24.2	20.4	-3.8
Netherlands	7.9	11.1	3.2	3.9	6.6	2.7	0	4.5	4.5
Austria	13.2	12	-1.2	5	8	3			
Poland	22.7	34.4	11.7	19	23.7	4.7	14.1	20.9	6.8
Portugal	16.2	23.2	7	14.2	21	6.8	24.5	25.3	0.8
Finland	27.5	34	6.5	12.6	20.4	7.8			
Sweden	35.1	44.8	9.7	13.3	23	9.7	13	19.3	6.3
United Kingdom	25.3	34.6	9.3	10.2	16.6	6.4	7	11.2	4.2

Source: Eurostat

Notes: International Standard Classification of Education (ISCED) levels are as follows: ISCED 0: pre-primary education; ISCED 1: primary education. ISCED 2; lower-secondary education; ISCED 3; upper-secondary education; ISCED 4: post-secondary non-tertiary level of education; ISCED 5: tertiary education; ISCED 6: second stage of tertiary education. Data for Denmark, Spain and Portugal relate to the 2nd quarter of 2010.

Table 5 – Percent Change in Employment by Age Group 2008Q1 to 2010Q1

Age Group	15-24	25-49	50+
European Union	-12.0%	-3.3%	4.3%
Belgium	-12.4%	-1.2%	10.0%
Denmark	5.3%	-5.7%	-0.3%
Germany	-6.8%	-1.5%	9.7%
Ireland	-42.8%	-10.6%	-4.8%
Greece	-11.6%	-3.0%	3.3%
Spain	-34.8%	-9.7%	0.6%
France	-4.3%	-2.2%	5.0%
Italy	-14.3%	-3.4%	6.4%
Netherlands	-3.0%	-3.6%	8.4%
Austria	-4.7%	-0.8%	6.0%
Portugal	-21.1%	-3.8%	1.1%
Finland	-15.4%	-3.6%	0.7%
Sweden	-10.8%	-1.7%	0.6%
United Kingdom	-11.3%	-2.0%	1.7%

Source: Eurostat

Notes: Data for Denmark, Spain and Portugal relate to the 2nd quarter of 2010.

Table 6. Probability of being unemployed in 2008/2009 at age 50 (dprobits)

	(1)	(2)	(3)	(4)	(5)	(6)
	All	All	All	Workforce	Workforce	Workforce
Months unemployed \leq age 23	.00097 (5.46)	.00091 (4.78)	.00061 (3.03)	.00119 (5.79)	.00113 (5.07)	.00079 (3.38)
IQ score age 11		-.0004 (3.23)	-.0002 (2.10)		-.0005 (3.55)	-.0003 (2.22)
Unemployed in 1991			.0299 (3.07)			.0433 (3.56)
Unemployed in 2000			.0846 (5.05)			.0875 (4.74)
Male	.0132 (4.28)	.0118 (3.65)	.0073 (2.31)	.0118 (3.41)	.0102 (2.82)	.0058 (1.66)
Other Scottish	-.0081 (1.99)	-.0071 (1.61)	-.0021 (0.44)	-.0111 (2.48)	-.0100 (2.08)	-.0050 (0.92)
GCSE a-c	-.0107 (2.99)	-.0055 (1.34)	.0008 (0.18)	-.0151 (3.70)	-.0089 (1.92)	-.0023 (0.44)
2+ a levels	-.0145 (3.04)	-.0094 (1.55)	-.0051 (0.78)	-.0179 (3.50)	-.0122 (1.87)	-.0081 (1.16)
Diploma	-.0171 (2.79)	-.0143 (2.00)	-.0078 (1.00)	-.0203 (3.10)	-.0172 (2.26)	-.0108 (1.33)
Degree, PGCE, etc.	-.0150 (3.75)	-.0089 (1.68)	-.0022 (0.37)	-.0192 (4.38)	-.0121 (2.10)	-.0053 (0.83)
Higher degree	-.0126 (1.95)	-.0086 (1.01)	-.0080 (0.89)	-.0160 (2.33)	-.0114 (1.26)	-.0106 (1.12)
North East	-.0051 (0.81)	-.0042 (0.60)	-.0016 (0.21)	-.0066 (0.93)	-.0053 (0.67)	-.0021 (0.24)
North West	-.0109 (1.79)	-.0096 (1.41)	-.0015 (0.20)	-.0121 (1.73)	-.0102 (1.30)	-.0015 (0.17)
Yorkshire/Humberside	-.0054 (0.80)	-.0024 (0.32)	-.0007 (0.08)	-.0060 (0.79)	-.0026 (0.30)	-.0005 (0.06)
East Midlands	-.0041 (0.63)	-.0000 (0.00)	.0094 (1.01)	-.0058 (0.79)	-.0007 (0.09)	.0104 (0.99)
West Midlands	-.0092 (1.52)	-.0051 (0.73)	.0052 (0.60)	-.0109 (1.59)	-.0060 (0.77)	.0054 (0.56)
East Anglia	-.0024 (0.34)	.0018 (0.21)	.0139 (1.30)	-.0035 (0.43)	.0016 (0.17)	.0148 (1.23)
South East	-.0107 (1.85)	-.0080 (1.22)	-.0006 (0.09)	-.0129 (1.96)	-.0096 (1.30)	-.0013 (0.16)
South West	-.0080 (1.27)	-.0040 (0.56)	.0025 (0.30)	-.0095 (1.34)	-.0047 (0.58)	.0029 (0.30)
Wales	-.0086 (1.27)	-.0078 (1.05)	-.0011 (0.13)	-.0090 (1.15)	-.0075 (0.85)	.0001 (0.01)
Scotland	-.0096 (1.60)	-.0073 (1.09)	-.0052 (0.70)	-.0115 (1.69)	-.0087 (1.14)	-.0062 (0.74)
Adjusted R ²	.0522	.0564	.0735	.0582	.0644	.0807
N	8247	7237	6236	7253	6368	5521

Source: National Child Development Study,- 1958 birth cohort

Notes: excluded categories - no qualifications and London. T-statistics in parentheses. IQ score from NCDS 3; 1991 unemployment NCDS5; 2000 unemployment NCDS6 and months unemployed \leq 23 NCDS4 from 1981. Columns 4-6 exclude those OLF.

Table 7. Well-being in 2008/2009 at age 50

	Life satisfaction	Health status	Down & depressed	Job satisfaction
Male	-.2940 (6.42)	-.2264 (4.56)	.0023 (0.22)	-.2292 (4.86)
Other Scottish	-.1626 (2.31)	-.0348 (0.46)	.0072 (0.46)	-.1155 (1.39)
GCSE a-c	-.1704 (2.86)	.1841 (2.86)	.0230 (1.72)	-.1947 (2.77)
Intermediate 2AS/1 A level	-.7833 (2.85)	-.0377 (0.13)	.1086 (1.59)	-.3439 (1.07)
≥2 A levels	-.2581 (3.04)	.4003 (4.34)	.0243 (1.22)	-.0485 (0.51)
Diploma	-.2495 (2.40)	.2292 (2.05)	.0722 (2.87)	-.1413 (1.17)
Degree, PGCE, etc.	-.1265 (1.77)	.4533 (5.83)	.0176 (1.06)	-.0798 (0.98)
Higher degree	-.1010 (0.87)	.5772 (4.50)	.0358 (1.24)	.0718 (0.56)
Months unemployed ≤age 23	-.0089 (2.69)	-.0074 (2.00)	.0017 (2.52)	-.0134 (3.25)
Malaise score @ age 23	-.1080 (14.34)	-.1252 (15.04)	.0293 (18.47)	-.0414 (4.55)
Very secure job				1.4708 (18.87)
Fairly secure job				.8303 (11.35)
Part-time paid employee	-.2018 (3.34)	-.1252 (1.92)	.0524 (3.70)	
Full-time self-employed	-.0220 (0.34)	.0656 (0.94)	.0048 (0.32)	
Part-time self-employed	-.0150 (0.12)	-.1334 (0.96)	.0693 (2.23)	
Unemployed and seeking work	-.7449 (5.52)	-.8653 (6.00)	.2298 (6.71)	
Full-time education	.6058 (1.19)	.3116 (0.54)	-.0747 (0.64)	
Government scheme	-.3029 (0.25)	-.7341 (0.61)	.2955 (0.84)	
Temporarily sick/disabled	-1.3095 (4.62)	-2.9032 (9.04)	.3398 (4.63)	
Permanently sick/disabled	-1.4056 (13.98)	-3.2894 (26.62)	.3951 (14.39)	
Looking after home/family	-.2711 (2.87)	-.6154 (5.92)	.0984 (4.33)	
Wholly retired	-.2427 (1.01)	-.6652 (2.41)	.0295 (0.52)	
Other LF	-.1058 (0.60)	-.3595 (1.89)	.0469 (1.14)	
Married	.8647 (12.96)	.1474 (2.02)	-.0502 (3.35)	
Civil partner	.2699 (0.57)	-.2765 (0.50)	.1186 (1.04)	
Separated	-.0630 (0.50)	.1500 (1.09)	.0174 (0.64)	
Divorced	.2387 (3.00)	.0703 (0.81)	.0076 (0.44)	
Widowed	-.5383 (2.99)	-.1741 (0.88)	.1547 (3.52)	
Used to smoke	-.0399 (0.88)	-.1454 (2.95)	.0061 (0.58)	

Smokes occasionally	-.1468 (1.30)	-.1811 (1.50)	.0178 (0.69)	
Smokes every day	-.2645 (4.66)	-.4707 (7.68)	.0157 (1.24)	
No exercise	-.2172 (3.68)	-.6371 (9.88)	.0525 (3.84)	
4-5 days/week	.1608 (2.18)	.1886 (2.36)	-.0051 (0.30)	
2-3 days/week	-.0186 (0.32)	-.0934 (1.47)	.0132 (0.96)	
Exercises once a week	.0333 (0.51)	-.1629 (2.31)	.0172 (1.12)	
Exercises 2-3 times/month	.1175 (1.26)	-.2754 (2.72)	.0065 (0.30)	
Exercises less often	-.0755 (0.49)	-.4838 (2.92)	.0016 (0.04)	
Birth weight (ozs)	.0028 (2.63)	.0019 (1.66)	-.0001 (0.32)	
Constant/Cut1	7.0740	-3.9970		-3.4968
Cut2		-2.1815		-1.9132
Cut3		-.4561		-.8504
Cut4		1.2212		1.0683
Adjusted/Pseudo R ²	.1383	.0904	.1348	.0296
N	7535	7603	7535	7081

Source: National Child Development Study, 1958-2009

Notes: excluded categories: no qualifications, full-time paid employee; single; never smoked and exercises every day. All equations also include 10 region dummies plus a 2009 dummy.

Dependent variables

Column 1. How satisfied are you with the way your life has turned out so far? Range 0-10; mean=7.29; SD=1.85 - estimated as OLS

Column 2. Self-assessment of health 1=poor (5.7%); 2=fair (12.7%); 3=good (29.2%); 4=very good (33.0%); 5=excellent (19.4%) - estimated as an ordered logit. Mean=3.48; SD=.95.

Column 3. Respondent reports often being miserable and depressed (1,0 dummy) - mean=.19; SD=.39 - estimated as a dprobit

Column 4. Degree of satisfaction with current job; 1=very dissatisfied (1.7%); 2=dissatisfied (5.8%); 3=neither(11.2%); 4=satisfied (39.8%) and 5=very satisfied (41.5%) mean=4.14; SD=3.48

Table 9: Simulated Probabilities of Unemployment at Age 50.

No of months of unemployment before age 23		0	12	24
No qualifications, from West Midlands, unemployed in 1991 and 2000	Male	13.6%	14.5%	15.5%
	Female	13.0%	14.0%	14.9%
A levels, from South-East, not unemployed in 1991 and 2000	Male	3.1%	4.0%	5.0%
	Female	2.5%	3.4%	4.4%

Figure 1: Youth Time Dummies 1971-2009

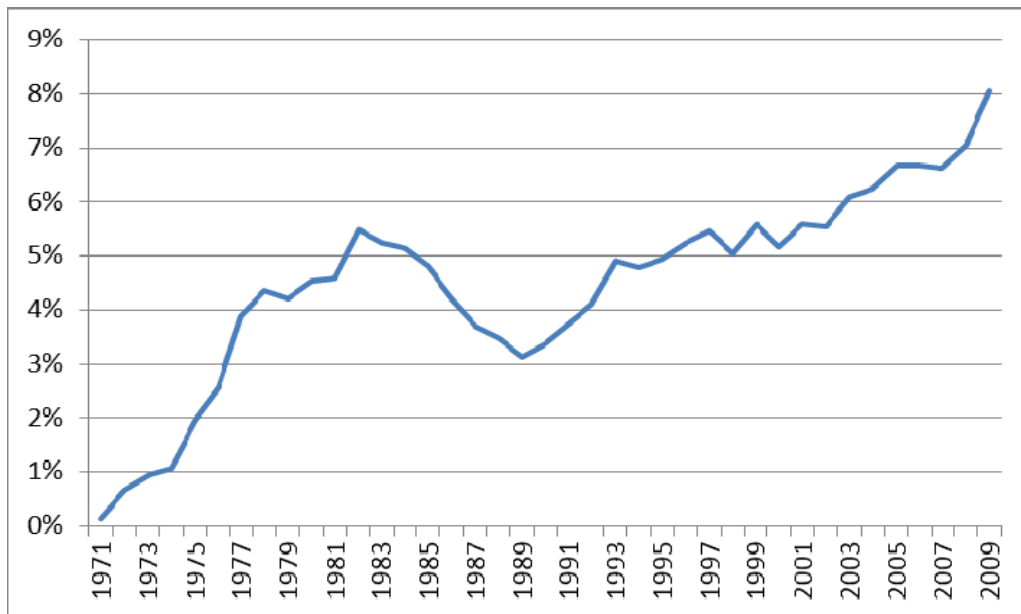
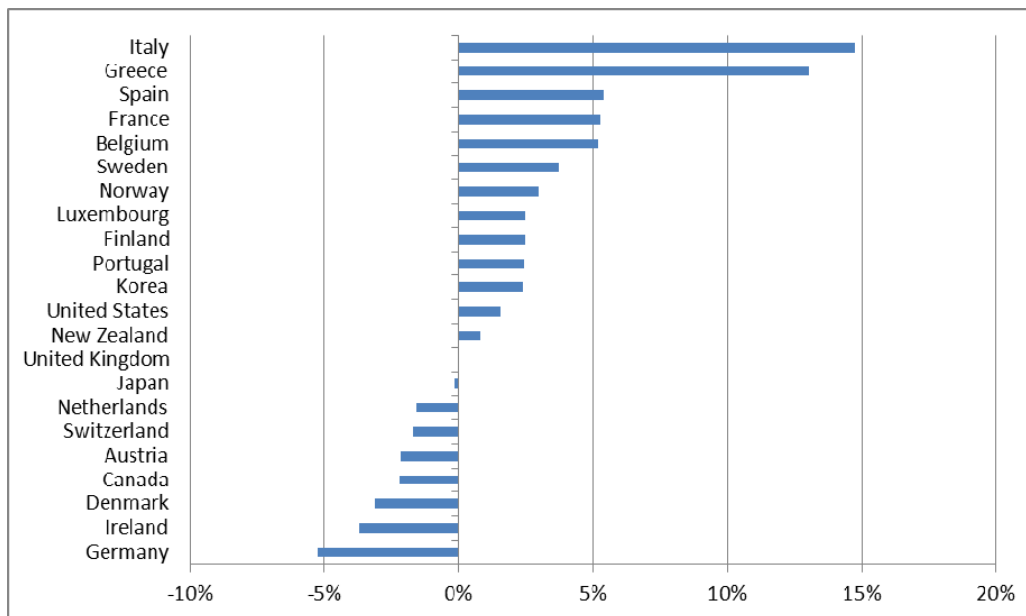


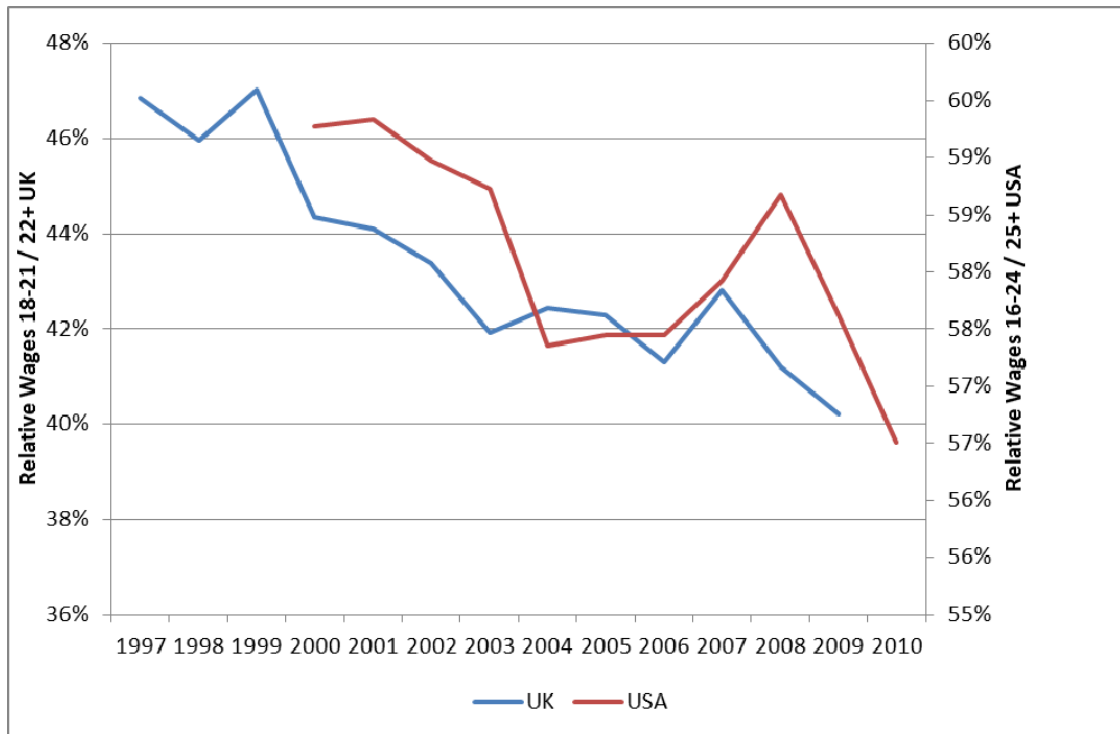
Figure 2: Country Youth Dummies



Notes:

1 Countries included - Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Japan, Korea, Portugal, Spain, Sweden, Switzerland, United Kingdom and United States.

2 OLS Regression, $N = 860$, $F(39, 797) = 92.02$. Coefficient on adult rate = 1.87, t statistic = 45.8. Omitted time dummy = 1970. Omitted country dummy = Australia
 Figure 3: Ratio of Median Youth to Median Adult Wages UK and USA 1997-2010



Source: ONS and BLS

Notes:

UK data from the Annual Survey of Hours and Earnings supplied by the Office of National Statistics. Ratio shown is median earnings of 18 to 21-year-olds divided by median earnings of 25 to 49-year-olds.

US data from the Current Population Survey supplied by the Bureau of Labor Statistics. Ratio shown is median earnings of 16-24 year olds divided by median earnings of those aged 25 and above.