Department for Business Innovation & Skills

RESEARCH

Youth transitions to and within the labour market: A literature review

Prepared by: Kirchner Sala L, Nafilyan V, Speckesser S, Tassinari A

INSTITUTE FOR EMPLOYMENT STUDIES
City Gate
185 Dyke Road
Brighton BN3 1TL
UK

Tel: + 44 (0) 1273 763400
Fax: + 44 (0) 1273 763401

www.employment-studies.co.uk

The Institute for Employment Studies

Acknowledgements

Contents

Figures and Tables

1 Introduction

This report presents the findings of a systematic literature review of the quantitative evidence on the changing activity pattern of youth transitions in the UK over the past 40 years. The main aim of this review is to understand the drivers and barriers of transitions into the labour market, their long-term effects on subsequent labour market trajectories, and how empirical data available for the UK has been used in the past 15 years to obtain the evidence. We summarise the available evidence and highlight gaps - in particular regarding the cohorts covered and methods used in the research - before making recommendations about data and methods involved in estimating the long-term outcomes of young people's labour market transitions.

The remainder of the paper is as follows:

1. We introduce the literature review with an analysis of the changing timing of individual transitions over the last 40 years. Based on a pseudo-cohort analysis for cohorts born between 1959 and 1997 using Labour Force Survey (LFS) data, we present the stylised facts of changes in timing of individual transitions, which are supported by the reviewed literature.

2. Based on a systematic literature review on youth (16-24) transitions in the UK we discuss a number of drivers/barriers that are considered to affect school-to-work transitions and medium- and long-term outcomes. This is divided into six themes.

   - **Individual demographic characteristics**, such as gender, ethnicity, disability. The aim is to identify particular at risk groups in the transition into the labour market.

   - The role played by **educational achievement and experience**. We divide this section into early educational experiences and behaviour, experience and performance in secondary school, which summarises the findings of the literature on the effects of primary school and secondary school experiences on later school-to-work transitions.

   - We present the conclusions of the reviewed literature on the effects of **social and family background** in shaping transitions into the labour market.

   - The drivers and barriers created by the **external environment** are presented.

   - We also analyse the **impact of initial transitions in later adult outcomes** in order to understand if there is some sort of scarring effect on later labour market trajectories.

   - Finally we present the evidence found in the reviewed literature on the role of **policy facilitating youth transitions**.

3. The second part of this report presents a review of the methods used in the literature. This section is divided into three subsections. In the first place we make a summary of methodologies found in the reviewed literature by:

   - describing the types of groupings and clustering found in the descriptive statistics

- summarising the complexity of modelling (i.e. the indicators chosen to proxy the explanatory variables) and describing the potential sources of bias found

- describing the modelling of transitions and how unobserved heterogeneity is addressed.

4. Finally, we present a review of the data sources used in the literature and assess the modelling potential. We conclude with data suggestions and empirical designs for further analysis.

1.1   Scope and limitations

Discussion of the impact of young people's transition on adult employment trajectories is limited because – although the review explicitly aimed to cover long-term outcomes – much of the empirical literature is restricted to the end of compulsory education (at age 16), when young people make initial transitions into the labour market. This focus has also been set by the available data for young people which, except for two large cohort studies and the BHPS, do not allow for individual-level analysis beyond the age of 19. This limitation is one of the main reasons why we suggest that an extended database would have to be constructed to achieve both a detailed picture of the time when people make initial transitions and long-term outcomes.

2 Long-term trends affecting the labour market transitions of young people

2.1 Stylised facts

In the context of a changing economy, especially in the second half of the 20th century and the beginning of the 21st century, the British youth labour market has undergone a considerable transformation. During the post-war years and up to the 1970s the United Kingdom had one of the OECD's lowest full-time education enrolment rates among post-compulsory school age individuals and a high youth employment rate relative to most European countries (Cregan, 2001). Given their low qualifications, young people leaving school at the age of 16 tended to be employed in low-skilled sectors and jobs. However this trend started to reverse by the end of the 1970s and transitions to the labour market were steadily delayed. In the last decades we have seen a larger proportion of 16 year-olds engaging in further education (either vocational or general), whilst the overall participation rate in youth employment has declined (Cregan, 2001).

In this section, we present some stylised facts about the changing timing of individual transitions based on the results of a pseudo-cohort analysis using Labour Force Survey data. Then, following a time line, we will review the evidence provided by the existing literature on this prolonged transitions process giving support to our findings, and develop a discussion of the potential contributing factors, such as rising youth unemployment rates and increased returns to higher education. This will provide a broad contextual framework against which the rest of the literature analysing the impact of various factors on the school-to-work transitions of young people can be situated and understood.

2.2 Longitudinal analysis of LFS data

Our analysis is based on five selected cohorts (1959, 1970, 1980, 1990, and 1995) who turned 16 in 1975, 1986, 1996, 2006 and 2011. We use the LFS data to approximate longitudinal data in relation to birth cohorts. This allows us to observe both the labour market conditions for young people based on cross-section data of 16-year olds entering the labour market in different years and also the longer-term labour market outcomes in adult years, based on cross-sections of the population from the same birth years in later life.

This approach centres around 'pseudo-cohorts' as real longitudinal panel data (i.e. providing information for the same individual over time) is limited to particular cohort studies such as the NCDS, BCS or LSYPE or the British Household Panel Survey (BHPS)/Understanding Society, which started data collection only in 1991. Both cohort studies and BHPS are comparatively small data sets, offering data for specific cohorts (NCDS) or for particular time periods limited to recent years (BHPS, LSYPE).

2.2.1   Education participation ratios

Education participation rates (Figure 1) at age 18 increased across cohorts, meaning that young people progressively engaged more in post-16 education and were likely to have higher initial qualifications (see also McIntosh, 2005) when entering the labour market at early stages of life compared to earlier cohorts. Moreover, post-18 education participation rates increased from the 1980s cohort onwards and time spent in education was also extended.

This reveals a progressive delay in entering the labour market resulting in a better qualified labour force over time. Education participation ratios converge as the cohort reached approximately the age of 25.

Figure 1: Education participation rates for selected birth cohorts (% of cohorts)
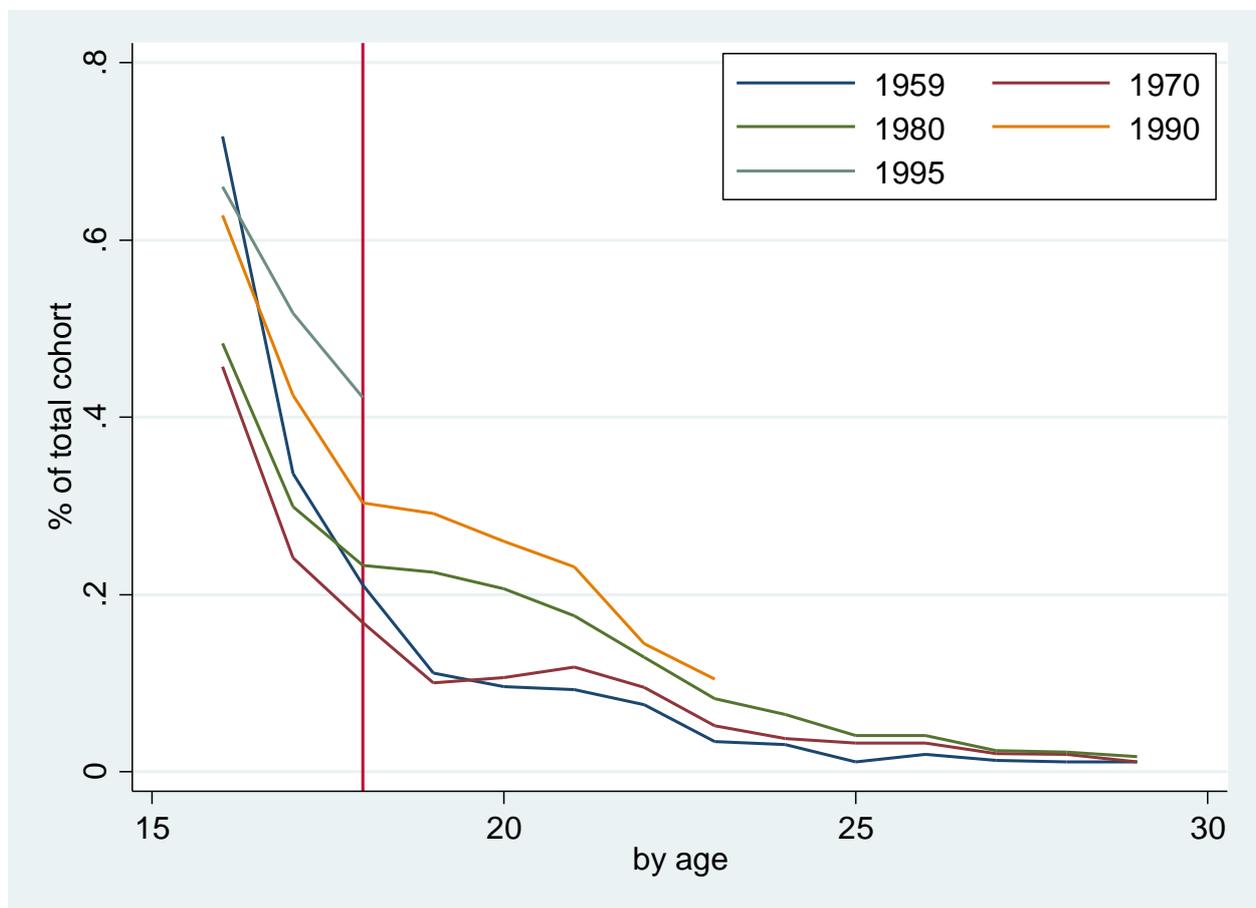
Source: LFS and own calculations

2.2.2   Employment rates

Figure 2 shows the selected cohorts' life cycle employment rates. Consistent with the facts described in the figure above, employment rates at age 18 decreased over time across cohorts (labour market entrance was delayed due to the increase in education participation). The graph also shows the negative effect of the different recessions on the cohorts shown.

The first economic recession in the early 1980s only affected the 1959 cohort and resulted in a sharp reduction of early 20s employment rates. Recovery was slow and by the time the cohort reached pre-recession employment levels at the age of 30, the economic downturn of 1993 reduced employment rates once more, although less intensely. After this second recession, employment rates resumed the upward path until the 2009 recession. Compared to previous recessions, employment declined over a long time period, but remained well above levels after earlier recessions.

Those born in 1970 experienced a fast increase in employment rates after the age of 18 although they reached lower levels than the 1959 cohort at the same age. The recession of 1993 affected this cohort in their early 20s – similar to the 1959 cohort being affected by the 1980s recession. Subsequently employment rates recovered continuously until the 2008/09 recession in their late 30s. However employment rates were far less reduced than for the 1959 cohort.

Employment rates for those from the 1980 cohort increased steadily from an initially lower level during their 20s and reached higher levels than the previous two cohorts before turning 30 when the labour market was hit by the 2008/09 recession. Employment decreased more than for earlier cohorts, the impact was sharp but the recovery resulted in higher employment levels than for any other cohort.

The 1990 cohort turned 18 just before the onset of the recent recession and initially had the low employment rates. Although recovery was fast, employment rates at the age of 23 (latest available data) are still below those of the older cohorts at the same age.

Despite only having three observations for the 1995 cohort, it is possible to see that employment rates are the lowest of all cohorts, a result of the increased education participation rates.

With progressing age, we observe a clear pattern of employment rate convergence in life course trajectories across cohorts, despite very different initial unemployment experiences.

Figure 2: Employment rates for selected birth cohorts (% of cohorts)
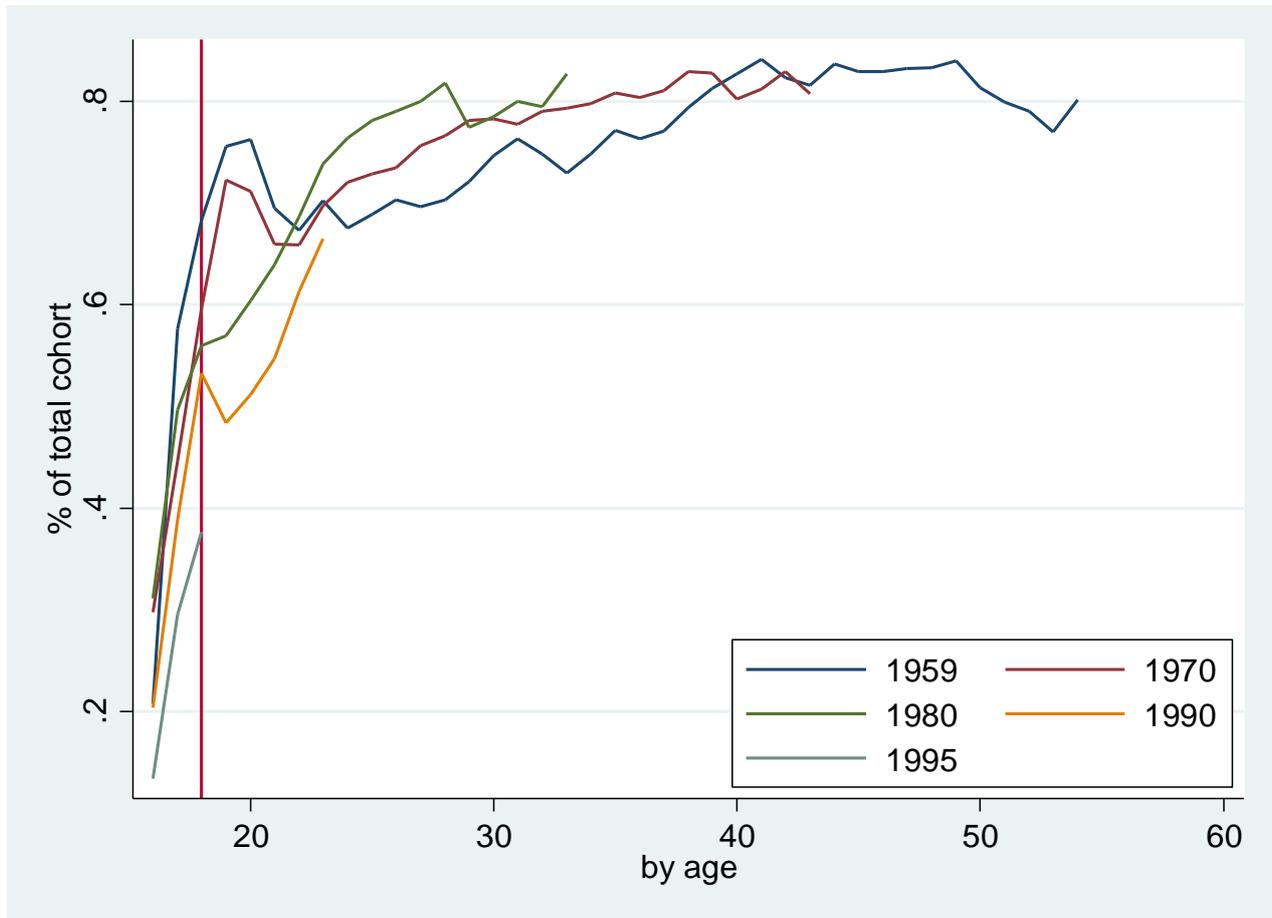
Source: LFS and own calculations

2.2.3   Unemployment ratios

Figure 3 shows age specific unemployment ratios (as a percentage of the total cohort) for each cohort over time. We can observe that the cohort born in 1959 experienced by far the lowest unemployment ratio at age 16. Unemployment increased with the early 1980s economic recession and was reduced close to pre-recession levels just before the onset of the next economic recession of 1992. After these two recession episodes unemployment ratios were reduced to the minimum observable and only experienced a small peak in 2009 due to the recent recession. Nonetheless, the latest increase had a smaller magnitude compared to the previous two recessions.

At ages 16-18 those born in 1970 experienced unemployment ratios twice as high as the 1959 cohort. After a decrease, unemployment for this cohort increased in their 20s because of the 1992 recession. Thereafter unemployment ratios rapidly declined and only suffered a small increase during their 40s due to the 2009 recession.

The 1980 cohort also faced high unemployment ratios at the age of 16 which decreased steadily until they turned 30, becoming the cohort with lowest unemployment ratios during their 20s. In 2009 the latest recession boosted unemployment again although they remained well below 1992 levels.

Those born in 1990 entering the labour market at age 16 experienced the second lowest unemployment ratio of all cohorts initially, which then increased to about 14 per cent due to the 2009 recession. The sharp rise in the unemployment ratio in 2009 started reversing two years later. The pace followed by the 1995 cohort is very similar to the 1990s one.

It is worth pointing out that despite the continuous crises, overall unemployment ratios decrease with age, suggesting that older workers are less affected by adverse economic conditions.

Figure 3: Unemployment ratios (by years)
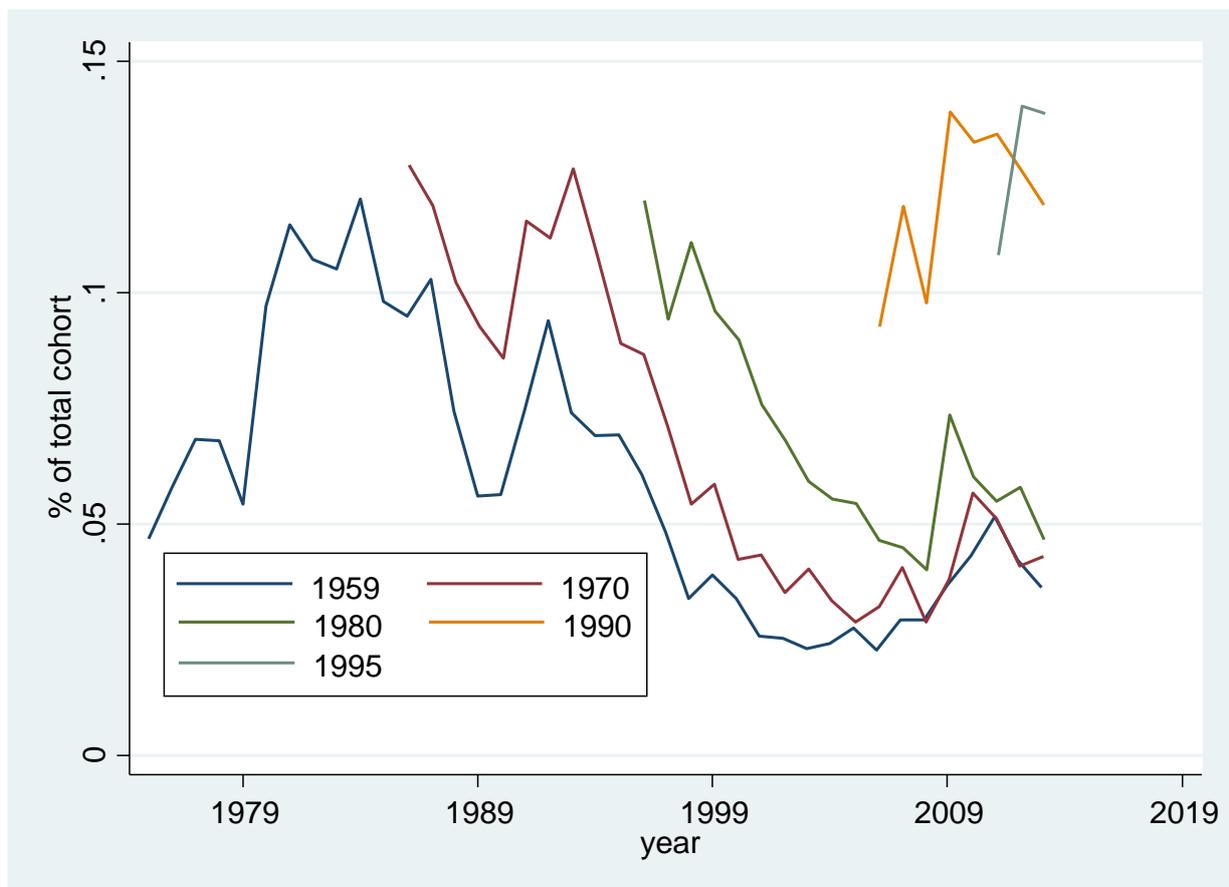
Source: LFS and own calculations

In the light of this, it could be argued that the observed up-skilling process is an answer to persistent youth unemployment, which reduces the opportunity costs of education investment and hence, education participation and outcomes are 'endogenous', in the sense that the labour market outcome itself generates education participation.

2.2.4   Employment rates by qualification level and gender

In order to have a more consistent picture of the development of employment rates Figure 4 shows the employment rates of the five selected cohorts by gender and qualification level. We observe that in the case of men, employment rates are lower and generally much more volatile at lower the qualifications levels. However, the pattern of convergence

with age described before is still very clear: all cohorts converge to a high employment level by age 40/50 but levels of people with high qualifications are generally higher.

The picture for women looks slightly different as more high variation in employment rates is observed across all qualification levels and cohorts. Nevertheless the upward pattern in employment rates followed by their male counterparts is still distinguishable. Moreover, the effect of motherhood is reflected in the low employment rates around age 30, with the exception of the most educated group who postpone parenthood to later life. It is also worth mentioning that despite the fact that the cohort of 1980 had better economic conditions when entering the labour market, women born in 1980 are less likely to be employed than women born in 1970, whereas the opposite occurs for their male counterparts. This suggests that 2000s jobs were more favourable for men.

Figure 4: Employment rates by levels of qualification and gender
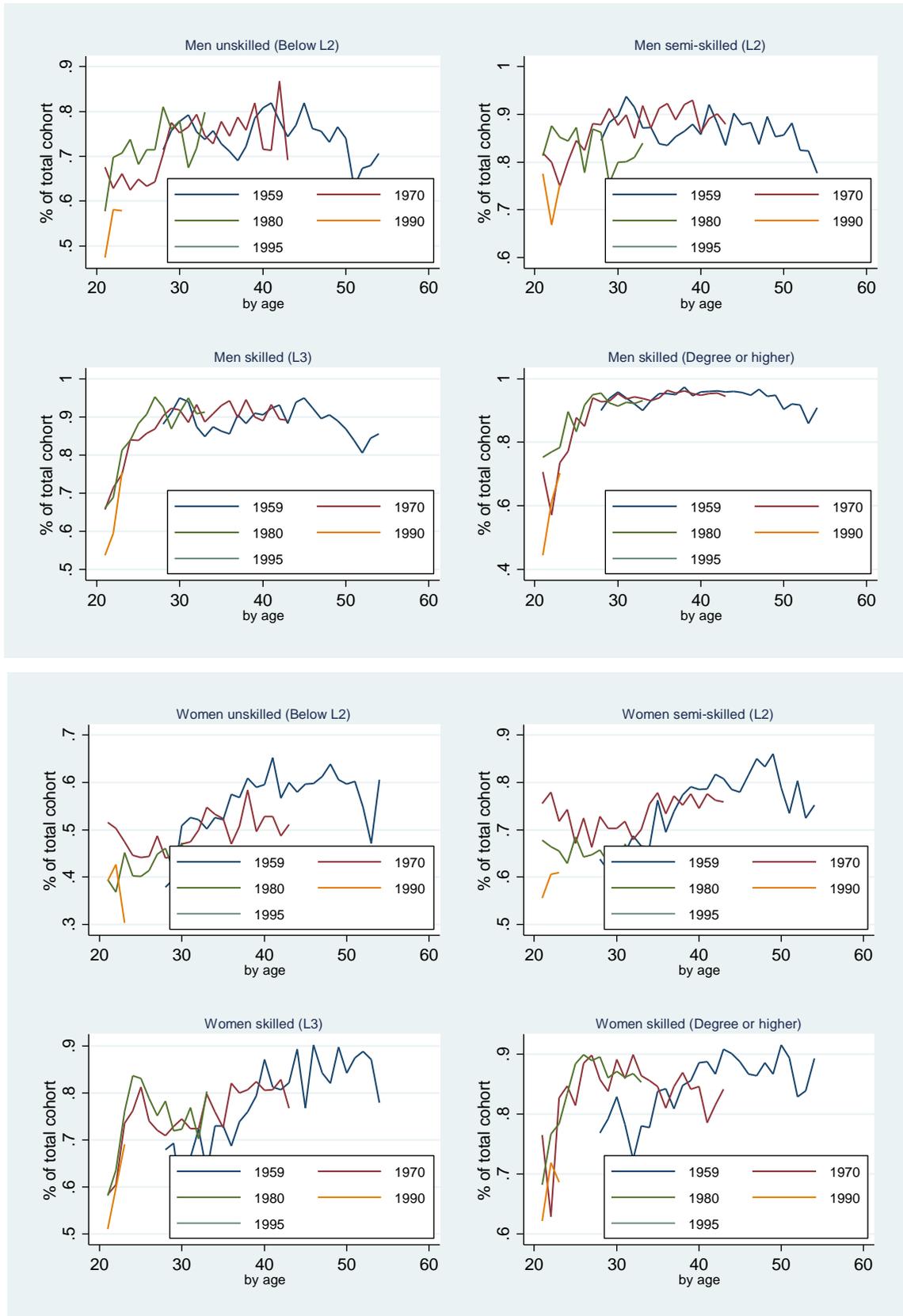
Source: LFS and own calculations

3 Literature review on young people's transitions and outcomes

3.1 Long-term trends

The reviewed literature supports the findings obtained from the pseudo-cohort analysis. Following a time line, we review the evidence provided by the existing literature on this prolonged transitions process.

Lindley (1996) uses the Labour Force Survey and data obtained from the ILO to describe the employment figures of young people aged 16-24 in the period between 1970 and 1994. The statistics presented by the author reveal an increase of 6 per cent in the share of young people in full-time education and a 20 per cent increase in the proportion of those in some form of youth training and work experience scheme without a contract in 1979-80. Furthermore, from the mid-80s the proportion of cohorts participating in youth training programmes declined and the share of young people enrolled in full-time education reached almost 70 per cent in 1992. This was accompanied by a decline in the employment rate among 20-24 year-olds from 80 per cent in 1984 to 77 per cent in 1994, while those aged 16-19 reached the maximum labour market participation rate in 1988, 73 per cent, before this fell to 61 per cent in 1994. The youth unemployment rate presents a U-shaped trend between the early 1980s and mid-1990s, probably driven by the 1980s and 1990s recession. Among 20-24 year-olds, unemployment was 18 per cent of the labour force in 1984, fell to 9 per cent in 1991 and then rose to over 16 per cent in 1993.

Barham et al. (2009) use data from various British household surveys (LFS) to analyse the transition from compulsory school to employment or further education among young people aged 16-24 covering the period from 1992 to 2009. The statistics presented by the authors show an overall increase in participation in post-compulsory education over the period covered in the study. From 1992 to 2009, the proportion of 16 and 17 year-olds in full time education increased from 57 per cent to 74 per cent. Although presenting significantly lower rates, 18-24 year-olds more than doubled their participation rate in full-time education during the same period. Moreover, by 2008, 89 per cent of young people aged 16-17 were in some form of education. Regarding the employment rates of young people, the authors perform a deeper analysis by looking into different sectors. The authors find an increase in the proportion of young people employed in the service sector (73 per cent in 1995 compared to 81 per cent in 2008), which has also seen an increase in part-time work while the proportion employed in the manufacturing sector (traditionally requiring full-time work) has more than halved over the period. The economy has shifted away from manufacturing, which implies a general decline of low-skilled labour, including low-skilled labour carried out by young people. The pessimistic youth unemployment scenario pictured by Lindley (1996) for the previous period has unfortunately not changed during the next two decades; 16 and 17 year-olds experienced the more striking rises in unemployment despite the general improvement in the economy up until the onset of the 2009/10 recession.

Crawford et al. (2011a) use three different British household surveys[1] to assess the transition from compulsory school to further education or into the labour market during the past decade. The authors find that the upward trend in education enrolment has continued even after the recession. Education participation amongst 16- to 17 year-olds increased at a constant pace while that of 18–21 year olds remained fairly unchanged during the recession, suggesting that the barriers to staying in education may be higher for 18 to 21 year-olds than for 16 to 17 year-olds as a response to changing labour market conditions. This result might be counterintuitive given the positive impact of Education Maintenance Allowance (EMA) in post-compulsory education enrolment. Nevertheless, the fact that Crawford et al. analysed those aged 18-21 altogether and EMA targeted 16-19 year-olds, the positive impact of EMA might be diluted by the behaviour of 20-21 year-olds. In line with the results obtained by Barham et al. (2009), rates of full-time work have decreased both for 16-21 year-old girls and boys.

Overall the statistics presented by the above mentioned studies and our own calculations based on LFS pseudo-cohorts for five selected birth cohorts (1959, 1970, 1980, 1990 and 1995) show an increase in education enrolment (Figure 1) – both full-time education and in training programmes – after finishing compulsory school and a decline in the youth employment rate (Figure 2) since the 1980s, confirming a prolongation of the transition from school-to-work during the past four decades. Moreover, the fact that it coincides with a general rise in youth unemployment (Figure 3) suggests a possible correlation between delayed transitions and youth unemployment. An implication of delayed transitions is the acquisition of higher skills.

Thes process of prolonged transitions cannot be treated as an isolated event. The literature on the topic has tried to identify the driving factors behind the decisions to stay in full-time education or engage in training programmes after compulsory school instead of entering the labour market. Britain has traditionally been characterised by a strong working culture, in the sense that up to the 1970s children used to admire the role models of working class men and reject instead the image of educated young men as a desirable one (Bynner, 2001). Before the 1970s/80s this value system was in consonance with the needs of a labour market largely demanding unskilled manual work. Therefore, young people had a tendency to enter jobs right after completing compulsory school (Roberts, Clark and Wallace, 1994).

Two main drivers of the change towards prolonged transitions can be identified, broadly represented as push and pull forces:

1. The economic development and the technological change of the past four decades have increased the demand for high skilled workers. The employment growth has basically concentrated in white collar jobs (higher professional, managerial and associate professional occupations and in the service sector) (Canny, 2001). The low qualifications achieved by post-compulsory school leavers and the fact that British firms trained their young employees for their own benefit rather for the general interest of the labour market has resulted in an overall shortage of skills (Roberts, Clark and Wallace, 1994). As a consequence, the size of the youth labour market has sensitively been

---

[1] LFS, BHPS, and LSYPE

reduced and youth unemployment has dramatically increased over time. Given the low prospects of finding a job after post-compulsory school, increasing numbers of young people decided to enrol in further education (Cregan, 2001). This trend continued throughout the last decades of the twentieth century and even after the 2009/10 recession (Crawford et al., 2011a). Cregan (2001) suggests that, given the high youth unemployment rates, education has become a substitute for youth employment.

2. Changes in attitudes towards education have been identified as the pull factor (Cregan, 2001). Given the shift in the demand for high-skilled workers, returns to education have risen in the past decades. Education credentials are perceived as an insurance mechanism against the risk of unemployment (Canny, 2001). Furthermore, as the size of the middle class increases so does the general education level, and educational aspirations also rise (Canny, 2001).

The findings presented in the reviewed articles suggest that such prolonged transitions fit in a broader economic trend, which not only fosters the demand for high-skilled workers but is also driven by increasing household disposable income. Demand for education, which can be seen both as an investment and a consumption good, has thus increased. Some of the long-term consequences of these prolonged transitions are already perceived, for instance delayed markers of adulthood, such as stable and permanent employment among the young population. Some other effects, such as a more stable adulthood are assessed in various studies that will be reviewed later.

Nevertheless the deeply-rooted British work culture, in a sense that 'far more British young people will be found at work than their counterparts in other northern European countries' as expressed by Bynner (2001), still translates into a high incidence of vocational education, thus still maintaining a closer relationship with the labour market.

3.2 Role of individual characteristics in young people's transitions

The literature focuses on the role of various factors – demographic/individual variables, educational factors and socio-economic factors – in shaping the school-to-work transitions of young people. Disentangling the effect of individual-level as opposed to meso-level factors[1] is often difficult, due to issues of endogeneity and multicollinearity, i.e. individual- and meso-level factors can be highly correlated and there might not be a clear direction of causality. In this section, we consider those works which look at, amongst other factors, the impact of personal and individual demographic characteristics – such as gender, ethnic group and disability – on young people's outcomes in the transition from school-to-work.

3.2.1 Gender

Considering the evolution of the impact of gender over time and across cohorts, the literature is unanimous in finding that the educational opportunities for girls have expanded over time while evidence on the expansion of labour market opportunities for girls is less conclusive. On the one hand, Duckworth and Schoon (2012) find that girls born in 1989/90 were less likely to become NEET at age 18 than boys but still failed to achieve the same employment levels. Andrews and Bradley (1997), Isengard (2010) and Crawford (2011b)

---

[1] Such as factors associated with community or local areas.

also find that for the most recent cohorts (born in late 1980s and 1990) men are at higher risk of entering a NEET status after leaving education. However Dorsett and Lucchino (2013a) find that female school leavers are at higher risk of following a 'problematic' labour market trajectory. Finally, Howieson and Iannelli (2008) argue that girls with bad education outcomes are more likely to be unemployed or out of the labour force than their male counterparts with low attainment levels. According to our findings from the pseudo-cohort analysis, we do observe an expansion in female education participation since the 1980s but employment levels are consistently lower, especially among those with lower qualification levels.

Duckworth and Schoon (2012) find that for the cohort of young people covered in the British Cohort Study (BCS) born in 1970, girls were more likely to be NEET than their male counterparts at age 18, and less likely to be employed. Conversely, when considering the cohort of young people covered in LSYPE born in 1989/90, they found that girls were less likely to be NEET, more likely to be in full time education but still less likely to be in employment than their male counterparts.

Crawford et al. (2011b) in their analysis of the LSYPE cohort also find that girls are more likely to stay on in full-time education than their male counterparts, and especially more often to progress on to higher education by age 18-19. Tumino and Taylor (2012), looking at successive cohorts of young people in BHPS also find that young men are more likely to leave school at age 16 than young women.

These findings find consonance with the trends already identified by Andrews and Bradley (1997) for the early 1990s, who analysed the post-16 destinations of a cohort of school leavers in Lancashire in 1991 and found that males were less likely than females to stay on in education post-16 (50 per cent compared to 66 per cent of female cohort members).

They also found that females were considerably more likely than their male counterparts to choose a non-vocational educational track post-16, and displayed a marked preference against embarking on government-sponsored training schemes. Payne (2001) also found that females were less likely than males to undertake work-based training at the end of compulsory education. There is thus some evidence of a gender-based division in post-16 educational and occupational preferences, although this is situated in the context of a generally improved landscape of educational and labour market opportunities for young girls. Bynner (2001) argues that the expansion of white-collar work and of the service industry throughout the 1980s and 1990s is one of the main reasons for the enhancement of female labour market prospects over time. Indeed, girls' education and achievement appear to have steadily improved over the last 30 years; far more than in previous cohorts stay on in full-time education beyond 16, especially on non-vocational tracks, and eventually progress into higher education. This is likely to have a positive impact, at least on their short-term outcomes post-compulsory education.

In contrast, young men are often identified as being at higher risk of being unemployed or NEET after the end of compulsory education than their female counterparts. Andrews and Bradley (1997) whose work only studies school leavers in Lancashire in 1991 finds that males were more likely than females to become unemployed after the end of compulsory schooling. Isengard (2010) also finds that, for the cohort of young people aged 16-24 in 1996, gender also constituted a significant risk factor for entry into unemployment, as young males are at significant greater risk of becoming unemployed. For the current

LSYPE cohort, Crawford et al. (2011b) also find that young men are more likely to be NEET at age 18-19 than their female counterparts.

Whilst at first glance it appears that, at least for the cohorts of young people reaching school-leaving age in the 1990s and beyond, female school leavers fare better in terms of continued educational trajectories and are less at risk of entering a NEET trajectory than their male counterparts, this may disregard other dimensions of more complex gender-specific disadvantage facing young people.

For example, Dorsett and Lucchino (2013a) use BHPS data on successive cohorts of young people leaving compulsory education between 1991 and 2008 to identify common trajectories in school-to-work transitions in the five years following school-leaving age. They identify three most common 'pathways' of school-to-work transition ('Express transition to the labour market' – those who experience a smooth transition into the labour market, 'Human capital accumulation' – describes individuals who stay in education throughout, and possible 'Cause for concern' – referring to young people who have recurrent spells of unemployment or NEET status), and use a multinomial logit model to identify factors that can act as predictors of unsuccessful trajectories in the labour market at age 16. Their models include a wide number of individual demographic characteristics, such as ethnicity, year and month of birth and health conditions, alongside other factors as potential predictors of unsuccessful labour market trajectories post-16.

In contrast to the findings described above, they identify gender as one of the strongest predictors of post-16 pathways and find that female school leavers are much more likely to enter a problematic trajectory at age 16 than their male counterparts. Early pregnancy for young women emerges in particular as a factor which is strongly associated with unsuccessful STW transitions and can explain female disadvantage. Other factors increasing the risk of unsuccessful transitions are low educational attainment and self-confidence; and disadvantaged family background. (Dorsett and Lucchino, 2013a). This suggests that whilst overall the educational opportunities for girls have expanded, forms of gender-specific disadvantage facing girls, in particular early pregnancy, persist to the current day.

Looking at an earlier cohort of Scottish school leavers in 1991/1992, Howieson and Iannelli (2008) also highlight that the effect of low attainment at school on medium-term labour market outcomes is much more negative on girls than on boys. In their model, they look specifically at the role of low attainment in shaping outcomes at age 22-23, and find that low attainment is a much stronger determinant of 'bad outcomes' for girls rather than boys in the later life course. Indeed, only 37 per cent of women low attainers were in work aged 22-23, compared to 55 per cent of men; 25 per cent of women low attainers were neither in the labour force nor in education aged 22-23, compared to 2 per cent of males. The gap between men and women in this respect was found to have widened by 9 percentage points between the ages of 18-19 and 22-23. In their models, low attainment significantly increased women's likelihood of being unemployed or out of the labour force altogether at age 22-23.

Therefore, it appears that whilst girls are on average more likely than boys to continue full-time education, those who drop out of school at 16 or enter the labour market early with poor or no qualifications are likely to face worse labour market outcomes than their male counterparts with similar characteristics, and are likely to pursue a rapid exit from the

labour market, usually to have children (Bynner and Parsons, 2002; Howeson and Iannelli, 2008; Dorsett and Lucchino, 2013a). The results of the pseudo-cohort analysis show that in general women have lower employment levels than their male counterparts, although the gap narrows for those with higher qualifications. Our analysis also showed that inactivity levels associated to motherhood faded away for the recent cohorts.

3.2.2 Ethnicity

There are relatively few studies considering the specific role of ethnicity in shaping young people's outcomes, both in the short and medium-term. The few studies considering ethnicity as a predictor of youth transitions (Dorsett and Lucchino, 2013a; Bradley and Lenton, 2007; Payne, 2001) coincide in finding that non-white 16 year-olds are more likely to engage in FE after finishing compulsory education than their white counterparts.

In their analysis of determinants of entry into different school-to-work trajectories at age 16, Dorsett and Lucchino (2013a) find that non-white youths are more likely to enter a 'human capital accumulation' trajectory over the five years after completing school than their white counterparts.

Bradley and Lenton (2007) use data from five cohorts of YCS (two to six) to consider the determinants of early dropping out from school for successive cohorts of young people reaching age 16 between 1985 and 1994. They also find that young people from ethnic minority backgrounds were, overall, more likely to enrol in academic courses at the end of compulsory schooling, and that their risk of dropping out from school at age 16 was lower than their white counterparts. The authors attribute this tendency for ethnic minorities to remain in education to a desire to close the qualification gap which is observed at age 16 and reduce the possibility of discrimination once in the labour market. It is also possible that cultural differences may play a role in shaping decisions. Variations in this respect exist however between different ethnic minority groups, with Indians and Bangladeshi pupils more likely to enrol in 'high' academic courses post-16 and Afro-Caribbeans more likely to enter 'low' academic courses.

In her analysis of YCS cohort 9 (young people aged 16 in 1997), Payne (2001) also finds that young people from ethnic minorities were more likely to stay on in full-time education than the white majority, with 86 per cent of non-whites being in full-time education at age 16/17 compared to 68 per cent of whites, with a stay-on rate high for all minority groups. Conversely, ethnic minority youths were under-represented in post-16 work-based training routes, especially Advanced Modern Apprenticeships.

Isengard (2010) considers predictors of entry into unemployment for a cross-section of young people aged 16-24 in 1996, and finds that factors such as an individual's nationality – which can act as a proxy of ethnic origin – is not a significant predictor of labour market outcomes, in particular not of entry into unemployment.

The available evidence therefore seems to suggest that ethnicity has an impact on young people's early educational trajectory, with Black and minority ethnic (BME) youths more likely to stay on in education after the end of compulsory schooling than their white counterparts and less likely to pursue work-based vocational training.

3.2.3 Disability

In a study of post-16 destinations of 1991 school leavers in Lancashire, Andrews and Bradley (1997) find that young people with a health condition were more likely to choose a non-vocational path in post-compulsory education, and considerably less likely to undertake government-sponsored youth training. In the more recent LSYPE cohort, individuals with life-limiting health conditions or disabilities are much less likely to be in a predominantly educational trajectory, but, perhaps surprisingly, appear more likely to make an 'Express' transition into work (Dorsett and Lucchino, 2013a).

3.3 Role of educational achievement and experience

Amongst the works included in this literature review, a large proportion focus on the impact of educational experiences and achievement at different stages (primary, secondary, post-compulsory education) on young people's subsequent outcomes – both in the short term (immediately after leaving school, 16-18) and medium run (early 20s), and both in terms of further educational trajectories and early labour market outcomes.

3.3.1 Early educational experiences

The impact of early educational experiences in shaping the school-to-work transition of young people is another important area of interest for the body of literature under consideration, although it is usually analysed to a lesser extent than educational experiences at later stages in life. In this section we will describe the literature findings on the effect of age and timing of school, the type of school attended and the attainment at earlier stages.

Age and timing of school intake

Regarding the impact of timing of school intake, Dorsett and Lucchino (2013b) find that those born between September and December, i.e. the oldest children in their school years, have more successful transitions into employment and fewer experiences of unsuccessful trajectories. It is likely that this is mediated by a positive effect of timing on school intake on educational achievement. These findings are confirmed by Crawford et al. (2013), who find large differences in educational attainment between children born at the start and at the end of the academic year in England (largely driven by differences in the ages at which pupils sit tests). Whilst these are largest at earlier stages of school careers, the gap remains significant up until the end of compulsory schooling, and is thus likely to affect future transitions. Nonetheless, Crawford et al. (2013) do not find extensive evidence that these detrimental effects persist into adulthood, except that individuals born at the end of the academic year are slightly more likely to be unemployed as adults.

Type of school attended

In their study of predictors of entry and permanence into NEET status for two successive cohorts of young people (BCS and LSYPE), Duckworth and Schoon (2012) find that the social composition of the school attended (measured at age 10 for the BCS cohort and at age 14 for LSYPE on the basis of free school meal eligibility and proportion of pupils from low families with low socio-economic status) can act as a protective factor against socio-economic disadvantage. Indeed, a more socio-economically advantaged school intake

decreases the chances of disadvantaged young people becoming NEET at age 18, by counterbalancing some of the disadvantage factors experienced by young people in the family context and promoting the development of individual capabilities and competencies. Conversely, young people in schools with a high proportion of intake from lower income households tend to do less well and be less protected from social risks arising from their family background than their peers in schools with more advantaged intakes (Duckworth and Schoon, 2012).

Attainment at early stages/role of educational trajectories since primary school

Attainment at early stages of school education/in mid-childhood – i.e. prior to entry into secondary school – also emerges from the literature as an important factor shaping outcomes later on in young people's trajectories upon entry in the labour market. In particular, some studies consider the impact of achievement at KS2 on later trajectories. These are reviewed below, distinguishing between short-term and medium-term impacts.

Impact on short-term educational and labour market outcomes

Duckworth and Schoon (2012) compare two cohorts (BCS, young people born in 1970, and LSYPE, young people born in 1989/90) to assess what the role of socio-economic risks is in affecting young people's employment status and educational destinations at age 18. Whilst their main focus is thus on the role of family background and socio-economic factors, they also consider which individual protective factors can enable young people coming from situations of social disadvantage to avoid 'bad outcomes' when leaving school. They include as potential 'protective' factors from 'bad outcomes' cohort members' reading/English scores and mathematics scores, measured through a specific test at age 10 for the BCS cohort and using results at KS2 (age 11) taken from the NPD for the LSYPE cohort. According to their findings, these measures of prior achievements are positively correlated with a likelihood of avoiding entrance into NEET status at age 18 for young people experiencing one or multiple forms of socio-economic disadvantage. Interestingly, they also find that prior attainment in mathematics has a stronger protective role for the LSYPE cohort than for the BCS, where attainment in reading and English language was more important. This reflects how, over time, the role of different educational and cognitive competencies has shifted towards a greater importance of numeracy skills – possibly reflecting, according to the authors, how mathematics skills are more valued in the current knowledge economy.

Crawford et al. (2011b), also using data from LSYPE, model the predictors of young people's destinations at age 17-18 and age 18-19. They include KS2 average points score as one of the predictors of short-term outcomes. Their descriptive findings highlight that, up to age 17-18, the KS2 scores of young people who are in full-time education without work, jobs with or without training, part-time study and NEET status are broadly similar. The only group with significantly higher KS2 scores than all these other groups is that of young people who combine full-time education and work, who really stand out as the group of high-performing, high-achieving young people. More differentiation according to scores at KS2 emerges however for outcomes at age 18-19: at this stage, those in university have the highest KS2 scores, as it may be expected, whilst young people in full-time study which is not university have lower KS2 scores than other groups not in full-time education – suggesting that 'is not uniformly the case that those who stay in education longer have higher prior achievement'. Finally, and most interestingly, those who are

NEETs at age 18-19 have the lowest KS2 scores of all other groups – whilst this was not the case for NEETs at age 17-18. Whilst these are cross-sectional snapshots of NEET status, Crawford et al (2011b) also point out that permanence in NEET status is cumulative and persistent; hence, this result may be explained by the fact that those observed as being in NEET status at age 18-19 are more likely to be 'long-term' NEETs, with possibly more disadvantaged backgrounds and more problematic educational trajectories than those who are observed as NEETs at age 17-18, who may instead be going through a transitional NEET stage.

Impact on medium-term outcomes

Bynner and Parsons (2002) analyse data for the BCS cohort (born in 1970) to identify predictors of entry into NEET status after leaving school at 16, and then of employment or unemployment in later life – at age 21 – for those cohort members who experience NEET status upon leaving school. They include in their model a measure of cohort members' cognitive ability in both reading and maths measured at age 10, but find it to have no statistically significant impact on the likelihood of entering NEET status after leaving school at 16, possibly due to the multicollinearity of achievement at early stages with later educational achievement, which appears instead as a very powerful predictor of post-school outcomes.

In relation to an even earlier cohort Narendranathan and Elias (1993), using data from NCDS (cohort of young people born in 1958), find that male cohort members who left school at the minimum age possible (in 1974) tended to score below average on a set of reading and maths tests undertaken at age 11. Below average reading and maths scores at age 11 were also significant predictors of unemployment at age 21, even when other individual and socio-economic characteristics were controlled for.

3.3.2   Behaviour, experience and performance in secondary school

In this section we will review the effects that experiences in secondary school have on transitions and subsequent labour market trajectories. Specifically we will focus on attainment (its effects on the short and medium-term), type of secondary school attended, additional qualifications obtained, 'motivation, attitudes, expectations and intended destinations at the end of secondary school' and the role of further experiences.

Attainment

As evidenced above, educational achievement at KS2 and in mid-childhood is identified in some studies as a significant predictor of outcomes post-16. Some studies, however (cf. Bynner and Parsons, 2002) find that educational achievement at earlier stages is not significant when achievement at later stages, such as at GCSEs/O-levels, is taken into consideration. We now move on to consider studies that look therefore at performance and attainment in secondary school as a predictor of post-16 outcomes.

Impact on short-term outcomes

GCSE results have a clear impact on the trajectories taken by young people when they reach the end of compulsory schooling at age 16. Dorsett and Lucchino (2013a) find that school attainment at GCSE level is, alongside family background and gender, the

strongest predictor of pathways taken by young people at age 16. In particular, young people with 1-4 GCSEs at grades A*-C are significantly more likely to take an 'Express' route into the labour market and considerably less likely to pursue an 'accumulation of human capital' route than their peers with 5 or more GCSEs at grades A*-C, but not significantly more likely to enter a 'cause for concern' trajectory. The same results hold broadly for young people with GCSEs at grades D-G who are, however, also slightly more likely than their high-achieving peers to enter a 'cause for concern' trajectory. Finally, young people who leave secondary school with no qualifications are considerably more likely to enter a 'cause for concern' trajectory than their high-achieving peers. Indeed, the authors note that whilst here is considerable heterogeneity amongst individuals who do not make successful school-to-work transitions, low educational attainment is a factor which is present in almost all of these unsuccessful trajectories, alongside early pregnancy and low self-confidence (Dorsett and Lucchino, 2013a).

Crawford et al. (2011b) also find that low attainment at GCSE level is, for the LSYPE cohort, a defining characteristic of young people in NEET status at 18-19. Sissons and Jones (2012) also note, using LFS data from 2007 and 2011, that the majority of the young NEET population has low (fewer than five GCSEs A*-C) or no qualifications. The impact of the 2009/10 recession, however, also appears to have affected the labour market chances of those with higher qualifications. Indeed, the proportion of NEETs with qualifications at A-level or above increased from around 20 per cent in 2007 to over 25 per cent in 2011. This, however, does not necessarily imply that low qualifications are no longer a significant predictor of NEET status during the recession, but rather, that the role of qualifications as a 'protective factor' from entry into NEET status may be slightly reduced for the current cohort of young people in comparison to early cohorts by the negative macro-economic circumstances and relative lack of job opportunities in the post 2008 recession context (cf. Duckworth and Schoon, 2012).

These findings are also echoed for previous cohorts by Bynner and Parsons (2002), who, analysing BCS data for young people born in 1970, find that for both boys and girls the highest qualification held was by far the strongest predictor of likelihood of entering NEET status between age 16 and age 18, and that young people without qualifications were six times more likely to be NEET than their peers with qualifications at 'O-level' and above. These findings suggest that educational achievement plays a central role in determining young people's life chances.

Isengard (2010), in her comparison of predictors of unemployment risk for a cross-section of young people aged 16-24 in the UK and Germany, found that the risk of being unemployed decreased significantly as the level of individuals' educational attainment increased. Andrews and Bradley (1997) also find that young people who enter the labour market with no formal qualifications at age 16 are the most likely to be unemployed six months later.

Attainment at GCSE level is a strong predictor not only of potential entry into NEET status, but also of how young people are sorted into different tracks of post-compulsory education, and of whether they decide to stay on in post-compulsory education or not.

Tumino and Taylor (2012) find that there are very large and significant differences between school leavers who decide to stay on at school post-16 and those who leave in

the number of GCSEs obtained at grades A*-C, as young people with more good GCSE passes are considerably less likely to leave education at 16.

Andrews and Bradley (1997), looking at school leavers in Lancashire in 1991, also highlight how GCSE results have the strongest explanatory power in accounting for differences in first destinations at 16. Young people with four or more GCSEs A-C are much more likely to choose to stay on in full-time education in a non-vocational track. Those with low GCSEs and no GCSEs are, on the other hand, considerably less likely to stay on post-16. For both sets of findings, however, it is important to point out that there is partial endogeneity as well as reverse causality between GCSE attainment and decision to drop out or continue in post-compulsory education, so that the estimates are likely to be biased towards over-estimating the impact of GCSE attainment on the decision to stay on at school in either a vocational or non-vocational track or drop out at 16.

Payne (2001), in her study on young people from YCS cohort 9 who undertake vocational and work-based training at the end of compulsory schooling, finds that, on average, young people on work-based routes had poorer GCSE results than those who stayed in full-time education post-16. Young people in Advanced Modern Apprenticeships, however, had on average higher GCSE results than those in other forms of government-sponsored training. Within the group of young people in work-based training, better GCSE results were significantly associated with a greater likelihood of receiving high quality off-the-job training – suggesting that even for young people who do not pursue an academic route, better attainment at GCSE level is still associated with better chances of accumulating human capital and developing high level skills in the short run.

Bradley and Lenton (2007), considering successive cohorts of YCS, show that prior attainment largely determines how young people are sorted into different levels (high or low) and types (academic or vocational) of courses in post-compulsory education. The most qualified school leavers enter 'high' academic courses and are less likely to drop out, whilst the least qualified are more likely to enrol in 'low' level courses but also more likely to drop out. This indicates that whilst there are optimal matches between the educational capabilities and the post-16 educational options pursued by high attainers, the matches are sub-optimal for young people with low GCSE attainment. Those who are least qualified and do drop out appear however more likely to end up in employment. Whilst this is not a negative outcome in itself, the authors note nonetheless that these are likely to be insecure or low-paid jobs without a training component and many opportunities for progression.

Medium-term outcomes

In their analysis of Scottish school leavers, Howieson and Iannelli (2008) consider the role of low attainment in high school (defined as leaving high school with no GCSEs grades A*-C) in shaping outcomes at ages 18-19 and at ages 22-23 for a cohort of Scottish school leavers in 1991.They find, perhaps unsurprisingly, that low attainment is associated with socio-economic disadvantage arising from family background. In terms of labour market outcomes, at age 22-23, they find that low attainers (around 25 per cent of the relevant cohort) had poorer labour market outcomes than the rest of the cohort – as they were more likely to be unemployed or in part-time employment, or out of the labour force altogether. This suggests that the early disadvantage caused by low attainment at school persists over time, at least up to six years after leaving school. As we have emphasised

above in our discussion of the impact of gender, low attainment appears to have a disproportionately negative effect on the labour market outcomes of women in comparison to men. This appears to be significantly correlated with early experiences of pregnancy for women with low educational attainment, which in turn are associated with higher likelihood of entering economic inactivity. It is interesting to note, however, that this gender-specific form of disadvantage applies specifically to low attainers and is not generalizable to the cohort as a whole, in which the employment situation of women and men at age 22-23 was found to be broadly similar (Howieson and Iannelli, 2008, p. 279).

The study also considers the weekly earnings at age 22-23 for those individuals who were in employment at that age. They found that low attainment at age 16 was associated with significantly lower average wages even when controlling for gender, stage that young people left school and parental employment status. Further qualifications did not cancel out the negative effect of low attainment at age 16 on earnings, with the exception of professional qualifications, which attracted significant positive monetary benefits. Low attainment at age 16 was also associated with lower occupational status at age 22-23, although this was partly mitigated by the effect of further qualifications achieved post age 16. This was only the case for certain types of qualifications, however, i.e. Highers, a degree or professional qualifications (cf. Howieson and Iannelli, 2008, p. 285). Overall, therefore, it appears that low attainment at the end of compulsory schooling has both a direct and an indirect negative effect on medium-term outcomes – with the indirect effect being mediated by the impact of low attainment on educational destinations and labour market status at age 18-19.

Schmelzer (2011), using BHPS data, considers how the risk of unemployment in the early career of young labour market entrants differs according to their prior level of educational attainment. Considering successive cohorts of young people aged 16-28 who left education at some point between 1980 and 2007, she finds that people with low levels of educational attainment have more difficulties in exiting spells of unemployment in their early careers, and face higher risks of long-term unemployment if they fail to exit unemployment in the first few months of a spell. Workers with low levels of prior educational attainment also suffer considerably from the scar effect of unemployment spells when re-entering the labour market in terms of occupational status, whilst this is not the case for workers with higher levels of educational attainment.

Similar findings also emerge from Korpi et al. (2003), who, using data from a sample of UK school leavers who left compulsory education between 1975 and 1992, find that there is a clear inverse relationship between the level of educational attainment of individual workers and their risk of facing unemployment in their early careers.

Type of secondary school attended

Andrews and Bradley (1997) find that variables concerning characteristics of the school attended by young people also act as significant determinants of their chosen post-16 destination. When controlling for a young person's own academic achievement, the average exam performance in the school attended by cohort members positively affects the likelihood of a young person staying on in education post-16, in either a vocational or non-vocational track. The size of fifth-form in the school attended, which acts as a proxy for both school-size and cohort-size, also matters: indeed, young people from schools with a larger fifth form were less likely to stay on post-16, especially in non-vocational

education, but were more likely to enter government sponsored youth training schemes or jobs with a component of general skills training. School type is also, in some cases, a significant predictor of post-16 outcomes, even after controlling for other factors pertaining to individual characteristics and socio-economic background. Indeed, young people from voluntary or grant-maintained schools, or from schools with an admission policy, were more likely to choose non-vocational education post-16 and less likely to choose youth training. Conversely, young people from special schools were more likely to enter youth training. Overall, the evidence suggests that the bigger the school and the lower its academic performance, the more likely it is for a young person to leave school at the minimum possible age.

Additional qualifications obtained

Over the last two decades, participation of young people in post-compulsory education has consistently increased in the UK. Indeed, the proportion of 16 and 17 year-olds in post-compulsory full time education has increased from 57 per cent in 1992 to 74 per cent in 2008 (Barham et al, 2009). At the end of 2013, 85.9 per cent of 16 year-olds and 70 per cent of 16-18 year-olds were participating in full-time education, the highest level ever since records began (DfE, 2014). Participation in post-compulsory education is beneficial insofar as it leads to the acquisition of further educational qualifications beyond GCSE level. In turn, obtaining higher qualifications post-16 – either A-levels, vocational qualifications or degrees – is usually identified as a beneficial factor which increases the chances of positive labour market transitions, good occupational outcomes and returns in earnings. It is thus important to consider where the positive impact of obtaining additional qualifications on young people's transitions is reflected in the available evidence, and whether these effects vary by level of qualification.

Howieson and Iannelli (2008) find that many young people who were low attainers at age 16 (i.e. who left compulsory education with no GCSEs at grade A*-C or equivalent) go on to attain further formal qualifications at later stages. Between the ages of 18-19 and the age of 22-23, the proportion of low attainers at age 16 who are still without a formal qualification decreases from 29 per cent to 16 per cent. Low attainers who continue at school beyond the compulsory stage are more likely to gain an additional qualifications – as only 2 per cent still have no formal qualification at age 22-23 compared to 14 per cent of early school leavers. Low attainers who stay on at school, however, are more likely to come from more advantaged backgrounds than low attaining early leavers – suggesting that the likelihood of staying on at school to pursue further qualifications may be connected with socio-economic advantage. The likelihood of low attainers achieving intermediate or advanced level qualifications is also related to the duration of their parents' education. Regarding the impact of obtaining additional qualifications, they find that the (negative) impact of low attainment at age 16 on young people's labour market outcomes at age 22-23 in terms of likelihood of being unemployed appears no longer statistically significant once variables capturing the highest academic and vocational qualifications achieved after the end of compulsory education are added into the model.

This shows that the attainment of further qualifications after the compulsory school leaving age can mitigate some of the negative impact of low attainment at earlier stages in the educational career. This positive effect of additional qualifications however is mitigated by gender and only observed for men, whilst women who were low attainers at age 16 continue to be more likely to be unemployed at age 22-23 even when additional

qualifications are accounted for. This reinstates the presence of specific forms of gender-specific disadvantage which affect women with low attainment at age 16. They also find that having additional qualifications makes very little difference to average earnings for those cohort members who are in employment at age 22-23, with the exception of professional qualifications, which are found to have a positive wage effect. Concerning occupational status, low attainment at age 16 continues to have a negative impact on the occupational level of those employed at age 22-23, although acquisition of further qualifications mitigates its impact.

Lenton and McIntosh (2008) use data from the YCS cohort 11 to specifically assess the impact of acquiring a BTEC qualification on further educational trajectories and labour market outcomes. They find that acquiring a BTEC (at both level 2 or level 3) is strongly associated with progression in education, as individuals who acquire a BTEC qualification are 32 to 37 percentage points more likely to still be in education at age 19, compared to those cohort members whose highest qualification lies below Level 2. By age 20, however, the impact of earlier achievement is no longer apparent, as individuals with a BTEC First Diploma or First Certificate are no more likely to be in full-time education at this age than those with qualifications below Level 2. Acquisition of a National Diploma, however, did significantly increase the likelihood of participating in education at age 20 as well, probably due to the fact that by this point in time, participation in full-time education equates to participation in Higher Education, and rates of progression from BTEC National Diploma into HE are quite high. Amongst those individuals who leave education by age 19, the acquisition of a BTEC National Diploma qualification (at Level 3) significantly increases their chances of finding a job, at least as much as any other qualification at the same level. BTEC qualifications at lower levels do not display such strong positive employment effects, although they do increase the likelihood of young people's being on an apprenticeship placement by the age of 19.

Using BHPS data and considering successive cohorts of young people leaving education between 1980 and 2007, Schmelzer (2011) also finds that holding A-levels or being educated to tertiary level significantly reduces the risk of becoming unemployed during early careers. Individuals with tertiary education also display better chances of re-entering the labour market after a spell of unemployment, with their hazard rates for exiting from unemployment into employment peaking at around the third month spent in unemployment compared to the sixth month for individuals who only have primary education[1]. Upon entry into the labour market, individuals who are better educated also start their first jobs in much better occupational positions than low educated individuals, and are able to considerably improve their occupational status in the first few years of their careers. High qualified workers are also protected from the potentially negative scarring effect of an unemployment spell. Indeed, for individuals educated at tertiary level the experience of an early unemployment spell serves as a bridge to find a higher status occupation - possibly because, according to the authors, job mismatches at the beginning of careers are more common for high qualified individuals than low qualified ones.

---

[1] See Box in Chapter 4 with a description of the methodology of estimating duration models using hazard rates.

Whilst the positive impact of obtaining additional qualifications after the compulsory school leaving age appears clear, the recession which unfolded from 2008 onwards may have decreased the 'protective' role of holding additional qualifications. The penalty attached to having no qualifications has grown over time (Sissons and Jones, 2012) due to a better skilled and distinctively more competitive labour market. Indeed, Sissons and Jones (2012) note that over a quarter of the young NEET population in the UK in 2011 had degrees, A-levels or vocational qualifications such as NVQs and BTECs, compared to a proportion of less than 20 per cent in 2007. This, however, is a snapshot view which does not provide sufficient evidence to elaborate on whether the recession has significantly changed the dynamics of labour market transitions for young people by reducing the importance of qualifications altogether, or whether it is simply a symptom of prolonged transitions in the context of a more difficult labour market. However, it does point to the fact that it is important to pay attention not only to the risks faced by school leavers, but also to those who go on to do additional education or training post-16, as the pursuit of additional human capital accumulation may not necessarily protect them from unsuccessful transition at later stages.

Motivation, attitudes, expectations and intended destinations at the end of secondary school

Motivational attitudes towards school, expressed through behaviours such as truancy, as well as young people's occupational and educational aspirations and those of their families have been identified in the literature as predictors of post-16 outcomes, as they are likely to affect educational performance as well as indicate differing predispositions and preferences towards school and work.

Dorsett and Lucchino (2013a) find that regular truancy, acting as a proxy of low educational motivation, is significantly associated with a lower probability of entering a 'human capital' trajectory at age 16 and a higher probability of an 'Express' transition into work. Self-confidence and motivation problems in adolescence also show lasting associations with future outcomes, significantly increasing the probability of individuals following a 'Possible cause for concern' or 'Accumulating human capital' trajectory but reducing the probability of them being in the 'Express' category.

Furlong et al. (2012) in their analysis of YCS cohort 11 also find that young people who report being 'regular truants' at school are very unlikely to still be in full-time education at age 19-20.

Tumino and Taylor (2012) consider the decisions to stay on in school or drop out at age 16 and include in their model a variable capturing preferences for leaving school at age 16 reported when the child was aged 12. Clear positive correlations emerge from the literature between educational attitudes, aspirations and expectations of children and their subsequent attainment and education-related behaviour. This is substantiated in their findings, which highlight how preferences for staying on at school expressed at age 12 are highly correlated with outcomes post-16. Their results also suggest that there might be a socio-economic gradient in the educational aspirations expressed by young people, as intentions to stay on at school post-16 are correlated with family's home ownership status.

Yates et al. (2011) use data from BCS70 to consider the link between individuals' occupational aspirations expressed at age 14 and permanence in NEET status at age 18

(defined as having spent a combined total of six months NEET between the ages of 16 and 18). In particular, they investigate impact of uncertainty in young people's aspirations and of misalignment between occupational aspirations and their educational expectations.

They find that uncertain or misaligned expectations are considerably more widespread amongst young people from low socio-economic backgrounds. For male teenagers from a low socio-economic background the risk of becoming NEETs increases by 90 per cent (for misaligned expectations) and 300 per cent (for uncertain expectations). This points to the fact that 'raising aspirations' of young people per se is not likely to improve their post-16 trajectories, as it is mainly the difference between occupational aspirations and educational expectations which has the most problematic impact in causing entry into NEET status. Clarity of aspirations is thus very important in shaping the life trajectories of young people. In this respect, the authors point out how the individualisation of the responsibility for negotiating one's transition from school-to-work in post-industrial modernity has created pressures for individual choice and engagement which can be problematic for the most vulnerable and disadvantaged segments of the population. Indeed, those from more disadvantaged backgrounds who are less prepared or able to make 'good decisions' and investments about post-16 options are more likely to do poorly in their transitions to employment.

It is possible that careers advice may help mitigate this risk factor. For example, in a study from 1998 of 1,432 Year 12 students who were in post-compulsory education (FE, school sixth form and sixth form colleges) at age 16, NFER (1998) identified a need for more information and advice for young people on careers and post-16 options, with 40 per cent of respondents stating that they would have liked more help in making decisions. In a study based on the evaluation of the Education Maintenance Allowance (EMA) carried out by Ashworth et al (2001), Maguire and Rennison (2006) report that those young people who were NEET at age 17 or 18 were more likely to not have drawn on any sources of advice and guidance on post-16 destinations than their peers who were in education or employment. In particular, 8.3 per cent of young people who were NEET and active reported not having drawn on any source of advice and support in Year 11, whilst this proportion increased to 16.5 per cent for those who were NEET and inactive. By way of comparison, only 1.6 and 3.9 per cent of young people who had progressed, respectively, onto full-time education and employment reported not having drawn of any source of support and guidance. This provides some evidence that availability of multiple sources of support, advice and guidance before the age of 16 could be associated with more successful post-16 transitions. However, we did not find in the body of evidence reviewed any econometric studies specifically evaluating the impact of the availability of careers information, advice and guidance on post-16 transitions.

Crawford et al. (2011b) consider the impact of expressed educational preferences at age 14 (whether the young person wants to stay in education after 16 and their expressed likelihood of applying to HE) for the LSYPE cohort. They find that those individuals who stay on in full-time education post-16 (regardless of whether this is combined with work or not) exhibited more positive educational attitudes and aspirations whilst at school. The authors also find evidence that attitudes expressed at 14 still matter on outcomes up to the age of 18-19.

Parental attitudes towards their children's education also seem to matter. Indeed, Crawford et al. (2011b) find that at age 17-18 the attitudes of parents are significantly

associated with the transitions made by young people. Young people whose parents think it is important to get a job with a 'trade' or moving into an apprenticeship or vocational training are much more likely to take a job with training post-16 than those whose parents do not attribute importance to this factor.

The importance of parental preferences and engagement with their children's education is also highlighted by Bynner and Parsons (2002), who find that pupils whose parents express low or no interest in their education are considerably more likely to become NEET post-16 than their counterparts whose parents are engaged in their educational experiences.

Andrews and Bradley (1997) also find that the preferences for occupation (and thus expected lifetime earnings) expressed by young people before leaving school are important determinants of first post-school destinations. In their study on school leavers in Lancashire in 1991, higher occupational aspirations are associated with higher likelihood of being in non-vocational education post-16, and with a much lower likelihood of being in vocational education or youth training.

Duckworth and Schoon (2012) highlight that individual aspirations and educational engagement (captured by absence of truancy and expressed intention to stay on at school post-16) act as protective factors against the odds of becoming NEET for individuals coming from situations of socio-economic disadvantage. In line with Crawford et al. (2011b), they find that at age 17-18 the attitudes of parents are associated with the transitions made by young people. Interestingly, for the LSYPE cohort, educational aspirations, school engagement and motivation are, alongside school characteristics, even more important than prior academic attainment in determining disadvantaged young people's chances of avoiding NEET status.

Impact of further experiences

Besides educational trajectories and attainment, other experiences of young people in their teenage years are identified in the literature as having an impact on their short- and medium-term outcomes post-age 16.

For example, early pregnancy is identified by Dorsett and Lucchino (2013a) as a very significant predictor of negative outcomes in the trajectory from school-to-work, as it is associated with much a higher chance of entering a 'potential cause for concern' trajectory for female cohort members. In another paper considering the role of early experiences in the five years post-16, the same authors also find that when young women have children, their transitions into inactivity status (Not in Education or Active, conceptually distinct from unemployment) are increased from all original states (whether they were in education, employment or unemployed) (Dorsett and Lucchino, 2013b). Yates et al. (2011) also find that females who are teenage parents have much higher probabilities of becoming NEET aged 18, whilst this is not the case for males. Whilst some of these women may return to education or employment at later stages, the evidence also suggests that NEET status tends to be persistent and that it tends to have significant scarring effects on individuals' subsequent chances for successfully re-integrating in the labour market.

Early labour market experiences, such as having a part-time job whilst at school, are also examined in the literature as factors with a potential effect on post-16 outcomes.

Duckworth and Schoon (2012) find that having a part-time job whilst at school can act as a potential 'protective factor' against socio-economic disadvantage, by increasing the likelihood of disadvantaged young people avoiding becoming NEET post-16. The protective effect of having a part-time job whilst at school, however, appears to be stronger for the BCS cohort in comparison to the most recent LSYPE cohort. The authors attribute this to macro-changes in economic circumstances.

Crawford et al. (2011b), in their analysis of the LSYPE cohort, also find that those individuals who have work experience before they are 16 are more likely to be in work post-16. However, this may also be related to the fact that they live in areas with better local labour market conditions. They also find that doing some work alongside full-time education at age 17-18 is associated with a considerably lower risk of becoming NEET in future.

Dorsett and Lucchino (2013b) also find that accumulated employment experience in the five years post-16 reduces young people's transitions out of employment and increases transitions from unemployment and 'Not in Education or Activity' (NEA) status into employment. Conversely, cumulative unemployment experience in the five years after leaving school reduces the rate of transitions out of unemployment into education or work – suggesting that unemployment can be a particularly sticky status for young people, with potential scarring effects, and that extended periods of job search for this demographic are unlikely to improve match quality.

The high degree of persistence in the activity status of young people in the years immediately following the school-leaving age is also emphasised by Crawford et al. (2011b), who find that, even when controlling for individual characteristics and factors, young people who were NEET at age 16-17 were significantly more likely to be NEET at age 17-18. This points to the fact that the persistence of NEET status cannot solely be attributed to individuals' characteristics, but is likely to be caused by specific barriers which young people face when they dis-engage from education or the labour market at an early stage.

Early experiences of unemployment in the years following school-leaving are also identified as having a negative impact on medium-term labour market outcomes by Howieson and Iannelli (2008), who find that having been unemployed or out of the labour force for a significant period of time (i.e. six months) between the ages of 16 and 18-19 considerably increase the chances of being unemployed subsequently or inactive at age 22-23.

3.4   Role of the social and family background

The impact of family background and social class on young people's trajectories and life chances is an issue which is central to much policy debate in the UK and lies at the core of the question of social mobility. The extent to which young people's opportunities and chances are influenced or determined by their socio-economic and parental background is examined widely in the literature, and we now proceed to review this evidence. Regarding parental occupation, education and socio-economic status, Furlong et al. (2012), Crawford et al. (2011b), Thompson (2009), Howeson and Iannelli (2008), Duckworth and Schoon (2012), Bynner and Parsons (2002) and Tumino and Taylor (2012) all agree that higher levels of parental education are positively correlated with the likelihood of staying in

education after post-compulsory education. High socio-economic status, apart from proving to be a strong predictor of the likelihood of continuing in education after the age of 16, is also associated with a smaller risk of becoming NEET after leaving education. Moreover, Dorsett and Lucchino (2013a) find that young people coming from disadvantaged families are more likely to fall into a 'cause of concern' trajectory'.

In their analysis of destinations at age 19-20 for a cohort of British young people aged 16-17 in 2002 (YCS), Furlong et al. (2012) find that both parental occupation and parental education are associated with destinations at age 19-20. Cohort members with middle-class fathers (i.e. working in managerial and professional occupations) or well-educated fathers (i.e. holding a degree) are twice as likely as those with unskilled working-class parents to be in full-time education. Parental education and social class appear thus as strong predictors of the likelihood of staying on in education post-16. Conversely, individuals from unskilled working-class families (i.e. those working in routine and semi routine occupations) are far more likely to be employed at age 19-20 than their counterparts, and moderately more likely to be NEET.

Similar findings emerge from Crawford et al. (2011b) in their analysis of LSYPE cohort members. They find that socio-economically more advantaged pupils are more likely to pursue full-time education options at age 17-18 than to take other transitions, and more likely to get jobs (with or without training) than become NEET. Different levels of parental education also act as predictors of different post-16 pathways. Indeed, parental education at GCSE level is positively correlated with likelihood of being in full-time education with work or in a job with training rather than in full-time education without work. Controlling for prior achievement, young people whose parents have degrees are more likely to remain in full-time education and less likely to take a job or become NEET; the same results hold for young people from higher income families. Young people from intermediate socio-economic backgrounds are instead more likely to combine education with work and to pursue jobs (with or without training) rather than engage in full-time education alone. Finally, young people whose parents have vocational qualifications are less likely to be in full-time education at age 17-18 than to be doing anything else.

Considering outcomes at age 18-19, they find that young people whose parents have degrees are more likely to continue in education (which, at this stage, is likely to be higher education) rather than take a job (with or without training). Young people whose families are from intermediate socio-economic backgrounds are instead more likely to take up jobs with training. Unsurprisingly, young people who do not progress to university are more likely to come from areas with high levels of socio-economic deprivation.

Tumino and Taylor (2012) use BHPS data to analyse determinants of decisions to stay on at school post-16 or to drop out for successive cohorts of YP reaching the age of 16 between 1991 and 2008. They find a high and significant correlation between parental education and young people's decision to participate in post-compulsory education. Indeed, children of highly educated parents are the least likely to leave school at 16, while those of parents with few educational qualifications are the most likely to do so. Overall the reviewed literature suggests that children of highly educated parents have access to better learning resources, role models, occupational knowledge and informal networks than those with less educated parents, and this heavily shapes their educational decisions post-16.

Young people who drop out of school at age 16 are also significantly more likely than those who remain in full-time education to have an unemployed parent or to be in a lower household income decile. However, when controlling for factors such as home ownership, parental education and prevailing labour market conditions, they find that the relationship between household income and the decision to drop out is not statistically significant – suggesting that environmental background factors may be more important than income alone.

Finally, considering the impact of home ownership and credit constraints, they observe that 41 per cent of young people who drop out of school at 16 have parents who are not home owners compared to 22 per cent of those who remain in full-time education. Living in rented accommodation is significantly associated with a higher likelihood of dropping out of school at age 16, however this relationship disappears when school attainment is controlled for – suggesting that GCSE performance is highly correlated with housing tenure. This seems to point to the fact that individuals whose parents are not home owners (and are thus credit constrained) tend to under-invest in education, given the higher opportunity costs they face, and thus attain fewer GCSE passes. They also find that those who live in rented accommodation (and who potentially face credit constraints) are more sensitive to the prevailing macro-economic labour market conditions when shaping their schooling decisions than individuals who live in home-owner families.

Bynner and Parsons (2002) use BCS data to analyse the determinants of entry into NEET status after leaving school at 16. At a descriptive level, they find that cohort members who enter into NEET status after dropping out of school at age 16 are likely to have grown up in inner city public housing estates, in homes marked by poverty (free school meals and state benefits), and in household characterised by a lack of cultural capital (with parents not reading to the children and lacking interest in their children's education). In their models, they find that whilst prior educational attainment is the strongest predictor of entry into NEET status post-16 (as discussed above), lack of parental interest in education (for both boys and girls), inner city living (for boys) and family poverty (measured by entitlement to free school meals) (for girls) are also important and significant risk factors for entry into NEET status, independent of educational qualifications.

Analysing data from YCS cohort 11, Thompson (2009) finds that social class, as captured by the National Statistics Socio-economic Classification (NS-SEC, based on parental occupation), is significantly associated with participation in education and training at age 16-17. Young people in the lowest social classes are considerably less likely to be in full-time education at that age than those in the two highest classes.

Social class also appears to be significantly associated not only with the decision to stay on at school or drop out post-16, but also with the specific type of educational trajectory pursued by those who stay on post-16. For the YCS 11 cohort, individuals from lower social classes are more likely to be in a further education college at age 16-17 than in a sixth-form college, state school or independent school. Whilst this is of course related to the educational qualifications achieved by young people from lower social classes, even amongst those young people who are high achievers (with five or more GCSE passes A*-C) those from lower social classes are twice as likely to attend an FE college than their counterparts from higher social class backgrounds (Thompson, 2009). Overall, Thompson's (2009) findings suggest that there are forms of class-based stratification/divisions operating in the British post-compulsory education system, with

young people from middle-class backgrounds actively self-excluding from FE colleges and being much less likely than their working class peers to attend FE, especially when previous academic achievement is taken into account. At the same time, however, low achievers from middle class backgrounds are more likely to attend FE than low achievers from the working class, for whom academic failure is instead likely to lead to complete (self-) exclusion from the education system. These findings are similar to Howeson and Iannelli's (2008) (discussed above), who highlighted how, amongst young people who were low attainers at age 16, those from middle class backgrounds were much more likely than their more disadvantaged peers to stay on in post-compulsory education in an attempt to gain further qualifications.

Duckworth and Schoon (2012) compare the BCS and LSYPE cohort and consider the role of socio-economic risks in determining young people's outcomes at age 18. They find that low parental education and living in social housing are positively associated with likelihood of being NEET at 18 for both cohorts and negatively associated with likelihood of being in FT education. In this respect, the negative effect is stronger for the BCS than for the LSYPE cohort. The effect of living in social housing changes quite considerably between the two cohorts: whilst it increased likelihood of NEET status by 40 per cent for BCS cohort, this effect is much stronger for the LSYPE cohort, increasing likelihood of NEET status at 18 by 90 per cent. This shows that what it means to live in social housing, in terms of socio-economic disadvantage, has substantially changed between the two cohorts.

For the LSYPE cohort, low parental education is not significantly associated with educational participation at age 18, which is an encouraging sign of increased educational mobility across the two cohorts. Contrary to their hypotheses, parental education does not emerge from their analysis as more important than parental social class in predicting young people's transitions at age 18.

Living in a workless family is positively associated with the likelihood of being NEET (for both cohorts) and not being in full-time education (LSYPE), but does not have a significant impact on the likelihood of being employed (in either cohort). The positive effect of this social risk on the likelihood of being NEET remains significant even when controlling for low social class, other social risk factors, gender, income, ethnicity and region. Growing up in a lone parent family is positively associated with being NEET and not being in full-time education (LSYPE), and negatively associated with being in full-time employment (BCS).

The authors also note how social risks relating to family and socio-economic background do not occur in isolation but are often inter-related with each other, and consider thus the effect of cumulative risks on young people's outcomes. Controlling for gender, income, ethnicity and region, in both cohorts they find a consistently increasing relationship between the number of social risks experienced by a young person and their likelihood of becoming and remaining NEET. Overall, the LSYPE cohort is subject to a higher risk of being NEET at age 18, and shows a stronger relationship between the experience of socio-economic risks and the likelihood of being NEET (and especially of being in persistent a NEET status, i.e. for six months or more between the ages of 16 and 18). In general, therefore, young people in the LSYPE cohort who are exposed to socio-demographic risks have relatively more adverse outcomes than those in the BCS cohort, and are less likely than BCS cohort members to avoid entering NEET status than young people in older cohorts, even in the presence of potentially 'protective' factors. This is an

indication of increasing polarisation of socio-economic adversity over time, and of the fact that the negative impact of socio-economic disadvantage has aggravated over time.

In their analysis of determinants of post-16 trajectories, Dorsett and Lucchino (2013a) also find that family background (as measured by level of parental educational qualifications and housing tenure) is, alongside school attainment and gender, one of the strongest predictors of pathways at age 16. Individuals from disadvantaged family backgrounds are considerably more likely than their peers to enter a potential 'cause for concern' trajectory after age 16, even when other individual and educational factors are controlled for. Interestingly, their analysis suggests that family income has no predictive power when considered alongside background and environmental characteristics (Dorsett and Lucchino, 2013a). Unsuccessful trajectories are less likely when the head of household is in employment, suggesting a degree of inter-generational transmission of labour market attachment. Like Duckworth and Schoon (2012), the authors emphasise that individuals usually display more than one 'risk factor' at a time, so the actual degree of polarisation in opportunities and the chances of entering problematic pathways post-16 are higher than would be inferred by looking at factors individually. For example, an individual with a good education record (at least five GCSEs A*-C) and highly educated and employed parents, has virtually no probability of entering a 'cause of concern' trajectory. On the other hand, a third of those with no GCSEs at age 16 and living with unemployed parents with low qualifications will follow a 'cause of concern' trajectory. (Dorsett and Lucchino, 2013a).

3.5   Drivers and barriers created by the external environment

Transitions can be evaluated on the basis of the type of outcomes under analysis (short-term, medium-term and duration/permanence in different status) in relation to the factors considered. In this section we present, divided by short-, medium- and long-term outcomes (i.e. time immediately after leaving education, early 20s and later life years), a review of the findings in the existing literature on the impact of macroeconomic and labour market factors, such as unemployment rates on transitions and labour market trajectories. In the short-term, Clark (2011), Bradley and Lenton (2007) and Tumino and Taylor (2012) agree that high youth unemployment increases the likelihood of the decision to stay in education. Regarding the effect of macroeconomic conditions on becoming unemployed for those who leave education, Kalwij (2004) and Taylor (2013) find that high unemployment rates increase the probability of becoming unemployed after leaving education. Moreover Dorsett and Lucchino (2013a) argue that initial spells of unemployment increase the likelihood of entering a 'cause of concern' trajectory. Furthermore, the results presented by Kalwij (2004), Bradley and Taylor (1992) and Taylor (2013) show that negative economic conditions increase the duration of unemployment spells.

3.5.1   Short-term outcomes

Macroeconomic factors appear to have a substantial effect on post-16 educational choices. Some of the most relevant findings point out that the youth unemployment rate increases the likelihood of post-16 education enrolment (Clark, 2011; Bradley and Lenton, 2007; Tumino and Taylor, 2012; Andrews and Bradley, 1997). However this effect may vary across income groups, gender or age.

Clark (2011) uses LFS and GHS longitudinal surveys covering the period 1975-2005 to analyse the impact of youth unemployment on enrolment in post-compulsory education in

England. The author finds that youth unemployment has a significant positive effect on boys' enrolment. Moreover, the results also show a positive impact of adult unemployment on boys' school enrolment. This is contrary to what the existing literature on the topic points to, which suggests that adult unemployment should reduce school enrolment due to increased financial pressures for households. The same model was estimated for a sample of girls, and the results are roughly the same as for boys. Furthermore, the results indicate that unemployment at national level in comparison with regional unemployment rates has a larger effect in shaping young people's decisions to stay in education. On the other hand, several time dummies were included aimed to capture the time dimension, which capture a large part of aggregate enrolment increase, suggesting that educational policy changes happening at a particular point in time are the main determinants of the education enrolment decisions of young people.

Bradley and Lenton (2007) study the determinants for 16-19 year-olds decisions to drop out of post-compulsory school between 1985 and 1994 using data obtained from the Youth Cohort Survey. The results show that a high local unemployment rate has a negative effect on the probabilities of dropping out of post-compulsory education.

Tumino and Taylor (2012) assess the impact of local labour market conditions on decisions to leave school using BHPS data covering the period from 1991 to 2008. They obtain similar results to the previously mentioned studies: a one percentage point increase in youth unemployment rate translates into a 0.4 percentage points decline in the dropout probability. Moreover, they try to associate the labour market impact with household income level. The results show that the negative impact in dropout rates is only significant for potentially credit-constrained families: a one percentage point increase in youth unemployment implies a reduction in the probabilities of leaving school of between 1.1 and 1.8 percentage points for different groups of young people. The authors also find that the adult unemployment rate is associated with an increase in the probability of young people dropping out of education.

Andrew and Bradley (1997) analyse the choices and outcomes of post-compulsory schooling for young people aged 16 in 1991. The authors find that young people living in high unemployment areas in 1991 were more likely to choose non-vocational education, suggesting that the demand for non-vocational education is procyclical.

A second set of studies estimate the effect of macroeconomic and labour market conditions on prospective young people's labour market statuses. A predicable result is that high youth unemployment rates increase the odds of young people being unemployed when first leaving education, especially for those with lower qualifications.

Kalwij (2004) models 18-year-olds' hazards for entering and leaving unemployment during 1982 and 1999 using the Joint Unemployment and Vacancy Operating System (JUVOS) Longitudinal database. The author reports that during periods of limited economic growth, young people have a 30 per cent higher chance of becoming unemployed for the first time.

Taylor (2013) analyses the impacts of leaving education when unemployment is high on labour market outcomes using longitudinal data from BHPS, covering the period from 1991 to 2008. The author finds that the unemployment rate at time of leaving full-time education exerts a negative impact on the probability of young men being unemployed when they are first surveyed after leaving school (short-term). They also have a positive probability of

being NEET when first interviewed. However, he finds the opposite result is true for young women. The authors report that a one point increase in unemployment rate at the time of leaving education reduces the odds of being in full-time employment by four percentage points.

3.5.2 Medium-term outcomes

There are fewer studies assessing the impact of labour market conditions or macroeconomic factors on medium and long-term outcomes. Taylor (2013) also analyses the impact of labour market conditions when first leaving full-time education on a medium-term outcome (last time observed in the survey). The results show a negative impact of the initial unemployment rate on employment status, suggesting that the effect persists over time: a one point increase in the unemployment rate raises the likelihood of unemployment in the ten years after leaving full-time education by almost 0.5 points.

Dorsett and Lucchino (2013a) try to identify the factors determining the type of transition or professional trajectory followed by young people reaching school-leaving age between 1991 and 2003. The latter of the three types of trajectories identified based on the performances of young people ('express', 'human capital' and 'cause of concern' trajectory) refers to those individuals who constantly return to unemployment. The results of their analysis show that young people aged 16 living in regions suffering from high unemployment rates are more likely to enter a 'cause of concern' trajectory.

3.5.3 Effect on duration

Finally, there are some studies analysing the effect of macroeconomic conditions on the duration of employment and unemployment spells. Bradley and Taylor (1991) perform an empirical analysis of the unemployment duration of school leavers using Career Service data covering the period from 1970 to 1981. After controlling for several socio-economic variables, as well as attitudes towards education, the authors find good economic conditions, expressed as a low unemployment rate, and reduced unemployment periods both for boys and girls. Kalwij (2004) also estimates the hazards of remaining in unemployment. The results show that in periods of low economic growth a young individual has a 30 per cent lower chance of leaving unemployment. Taylor (2013) finds that leaving full-time education in a period of high unemployment increases the number of weeks spent in unemployment and the unemployment episodes experienced in the short and longer term.

3.6 Impact of initial transitions on outcomes in adult life

The long-term consequences of initial transitions are a recurrent analysis in the literature review. In this section we are going to summarise the findings for the effects of initial transitions on long-term outcomes. Specifically, the effects of early employment status and post-16 education on long-term employment and personal outcomes will be discussed. Overall, the reviewed studies (Dorsett and Lucchino, 2013b; Kalwij, 2004; Narendranathan and Elias, 1993; Gregg, 2001) find that unsuccessful transitions into the labour market represent a burden for future career development. Schmelzer (2011) goes one step further and allows for differences in qualification levels. The findings show that those with higher education levels are less affected by initial unsuccessful transitions. Furthermore, Gregg

and Tominey (2005) study the scarring effect of initial unemployment on long-term wages and they find a significant wage penalty as a result of early unsuccessful transitions.

A number of studies assess the effect of early labour market experiences on adult labour market outcomes. Dorsett and Lucchino (2013b) study the role of early experiences on young people's labour market transitions using data obtained from the BHPS survey covering the period 1991 to 2008. The authors identify four types of initial states (employment, unemployment, Not in Education or Activity – NEA – and education) that shape young people's future labour market experiences.

Role of employment experience: the results show that having been employed in the preceding state increases the rate of transitions from unemployment to employment by 37.6 per cent compared to having been enrolled in education before being unemployed. Eighty per cent of unemployment exits are into employment. Moreover, a longer employment experience reduces transitions out of employment.

Role of unemployment and NEA experience: having been unemployed in the preceding status increased the rate at which workers become unemployed by 58 per cent compared to a previous spell in education. This suggests a negative duration dependence of unemployment. Similar to the unemployment experience results, the rate at which individuals become NEA is increased when previous spell was NEA.

Role of education: Education has a positive effect, although very small – around 1 per cent - on the rate of entry into employment from all states.

From the results it is concluded that having experienced unemployment or NEA represents a burden for future career development, since it significantly reduces the probability of re-entering the labour market. By contrast, accumulated experience in employment and education reduce the risk of becoming unemployed, with a previous employment status exerting a somewhat larger effect than having been previously enrolled in education.

Kalwij (2004) uses data from the Joint Unemployment and Vacancy Operating System (JUVOS) Longitudinal database to follow the career experiences of young men who turned 18 during the years 1982 and 1998 who were unemployed at least once in the first 16 years of their working life. The aim is to determine if past unemployment experiences have lasting effects on young men in professional careers. The results show that having been in unemployment for just one quarter actually increases the hazard rate of leaving unemployment by 15 per cent. In other words, the probabilities of leaving unemployment are 15 per cent higher for those who spent just one quarter unemployed *compared to the base category of 'no previous spell of unemployment'*. However, the longer the duration of the previous spell of unemployment, the lower the odds of becoming employed, suggesting a negative lagged duration dependence. The author takes the analysis one step further by estimating the effects for high- and low-skilled men separately. The results show that a high-skilled man is 64 per cent less likely to become unemployed for the first time and a 14 per cent higher hazard of leaving unemployment compared to a low-skilled man. At the same time, once he re-enters the labour market, the high-skilled man is 65 per cent less likely to become unemployed again.

Narendranathan and Elias (1993) try to estimate the influences of past history on the incidence of youth unemployment. For that purpose they use data from the National Child

Development Study of the 1958 birth cohort. The results from an autoregressive model estimating the effects of the last and second to last unemployment status on current employment status show a strong first order effect. This means that those who were unemployed last year are more likely to be unemployed in the present year compared to those who were not unemployed last year. However the authors cannot find a second order effect.

Similarly, Gregg (2001) also assesses the effect that youth unemployment exerts on adult unemployment. The author's hypothesis is that early unemployment experiences have a scarring effect once background characteristics have been taken into account. In order to test the hypothesis, longitudinal information of young people aged 23 in 1981 up to 1991 (aged 33) is obtained from the National Child Development Survey. The results from a dynamic panel data model show that young men who experienced an extra three-month spell of unemployment before age 23 will spend another extra two months in unemployment or inactivity when they are 28-33 compared to those who did not experience youth unemployment. After controlling for individual characteristics, the effect is still observable, nevertheless the magnitude is reduced: An extra three-month spell of youth unemployment will cause an extra 1.33 months out of work in the adult phase (28-33). In the case of women, unemployment also has a scarring effect, although about half the size.

Another set of studies analyse the effect of education on long-term outcomes. Schmelzer (2011) studies the effect of early unemployment on future career prospects, conditional on education level, using BHPS data covering the period 1980 to 2008. In first place she estimates the chances of leaving unemployment for different educational groups. The results show that the hazards of leaving unemployment for individuals with tertiary education is highest at the third month in unemployment while for those with only primary education this peaks in the sixth month of unemployment. This means that the chances of re-integration in the labour market are higher for highly-educated individuals. Moreover, young people with the lowest level of education who remain in unemployment after the first few months are at higher risk of long-term unemployment.

The authors also argue that individuals with higher levels of education achieve a better position in their first job than those with lower levels of education and will improve their occupational status within the early years of their professional career. Moreover, only those with tertiary education improve their occupational level with each change of employer.

Gregg and Tominey (2005) assess the scarring effect of youth unemployment on adult wages. Using data from the National Child Development Survey, the authors find that early unemployment experiences result in a wage penalty at ages 23, 33 and 42. This effect is non-linear, meaning that it increases from age 23 to 33 but is reduced at age 42. After controlling for individual and family characteristics, the results show a wage penalty of youth unemployment of a magnitude of 13-21 per cent at age 42. Nevertheless, this penalty is reduced, 9-11 per cent, if individuals succeed in avoiding further unemployment.

Overall it can be concluded that those who experience early unemployment spells have a less stable professional career. Moreover, the level of qualifications achieved improves the professional prospects of young people.

3.7   Impact of policy facilitating youth transitions

Policy interventions, such as the provision of active labour market support or work experience programmes for young people, or changes in the funding and availability of further education places, can have a direct or indirect impact on the timing of and on the type of transitions made by young people upon leaving school. We find two strands of studies in the revised literature. The first set analyses the impact of policy changes on overall changes in timing of school-to-work transitions (Cregan, 2001; Clark, 2011 and Furlong et al., 2012). Altogether these studies point to an increase in post-compulsory education participation caused by recent changes in policy. The second strand of studies analyse the effect of such policies at micro-level, i.e. on the employment prospects of individual participants. Main and Shelly (1990) and Dolton et al. (1994) both assess the impact of the Youth Training Scheme (YTS) on participants' labour market outcomes. The former find a significantly positive but small employment effect of YTS. On the other hand, Dolton et al. (1994) find that participation in the YTS lowered the employment opportunities for men but not for women, compared to non-participants. However these results are potentially biased since the treatment and control group are not homogeneous. Finally Dorsett and Lucchino (2013b) find that moving the point in the unemployment spell at which programme participation becomes compulsory (the 'onset') and its duration, thus achieving better targeting of participants, appears to increase programme participation impacts, although the pattern in this respect is not linear.

Historically, Britain has had some of the lowest rates of educational participation post-16 amongst OECD countries (cf. Cregan, 2001; Canny, 2001), although, as it has been noted in the sections above, young people's rates of participation in post-compulsory education has steadily increased over the last three decades. Whilst the upward trend in enrolment in post-compulsory education is related and driven by macro-economic factors and changing labour market conditions, government policy also has had a very significant impact in influencing the landscape of available opportunities and the post-16 destinations of young people.

Cregan (2001) argues that the reduction in available places in government-sponsored training schemes over the 1980s, the removal of state unemployment benefits for 16 and 17 years old in 1988 and the eventual suppression of the Youth Training Scheme (YTS) in 1989 (subsequently replaced by the Youth Training initiative) is directly responsible for driving up the rates of enrolment in post-compulsory schooling, as the available alternatives routes for young people were considerably reduced.

Clark (2011), in his study on the impact of unemployment rates on enrolment in post-compulsory schooling in England, finds that the inclusion of a time dummy variable in the models, acting as a proxy for time-dependent changes in the regulatory and policy environment, captures a large part of the increase in aggregate enrolment rates. This suggests that policy changes, beyond macro-economic circumstances alone, play an important part in driving macro-changes in enrolment rates. Specifically, the author suggests that the expansion of higher education in the 1990s and the move to GCSEs in 1988 might be identified as important policy changes driving up enrolment rates in post-compulsory schooling since the early 1990s onwards.

Furlong et al. (2012) also note that successive governments plans to rise the compulsory participation age in learning (which was recently increased from 16 to 17 in 2013 and will

further increase to 18 from the coming academic year) have also clearly changed the opportunity scenarios for young people and driven up participation in post-compulsory education. Furlong et al. (2012) however point out that despite the immediately apparent benefits deriving from a reduction in early school leaving rates, the increase in the compulsory participation rate through legislation may have potentially adverse consequences on young people who struggle to engage with formal education, as it may lead to an increase in behaviours, such as truancy, which are symptoms of educational disengagement and are clearly associated with negative labour market outcomes at later stages, as well as to an increasing 'stigmatisation' of early leavers as 'drop outs' on the part of employers.

Overall, what appears from these studies is that policy changes in the provision of ALMPs and further education places and in the regulatory environment governing compulsory participation in education can impact youth transitions at a macro-level, shaping the overall trends in post-16 choices made by young people.

However, the impact of policy also has to be considered at the micro-level. In this respect, some studies consider the impact of participation in specific government-sponsored training initiatives and labour market programmes on the employment prospects of individual participants.

Main and Shelly (1990) and Dolton et al. (1994) both assess the impact of the Youth Training Scheme (YTS) on participants' labour market outcomes. The YTS was introduced in 1983, targeted at 16-17 year-olds, and it offered access to subsidised training provided by firms, complemented by a component of off-the-job training.

Main and Shelly (1990) evaluate the impact of the Youth Training Scheme on transitions into employment and on the earning power of participants in employment in 1986, two years after leaving school, using data obtained from the Scottish Young People's Survey. The results show a significantly positive but small employment effect of YTS; the effect of YTS on employment outcomes appears particularly small if compared with the much larger impact of personal and demographic characteristics, such as educational credentials or parental unemployment. Furthermore, the positive effect of YTS participation appears to be larger for advantaged school leavers, whose employment probabilities increase by 17 per cent compared to disadvantaged school leavers whose probability of employment increased by only 11 per cent. On the other hand, YTS participation does not appear to have a significant effect on wages of those participants in employment in 1986. The small negative effect found (7 per cent decrease) is likely to be driven by the fact that YTS participant are on an apprenticeship when they stay with their employers and therefore they receive more training and lower wages.

Dolton et al. (1994) also assess the effect of the YTS for school leavers on the time it takes to move into their first job and time taken to move into their first 'good job', using data from the Youth Cohort study. Overall the authors find that participation in the YTS lowered the employment opportunities for men but not for women, compared to non-participants. Moreover, YTS participation improved the likelihood of women finding a 'good job'. However the results are not directly comparable, even when taking into consideration selection effects, since both groups (participants and non-participants) are not homogeneous in their unobservable characteristics.

Finally, Dorsett and Lucchino (2013b) in their study on their impact of early experiences on young people's labour market outcomes, estimate the impact on subsequent outcomes of a hypothetical work experience programme which increases the employment experience of young people but does not increase their unemployment experience whilst they are on the programme.

They simulate different programme features, such as different start times for programmes – ie after how many months of unemployment the programmes start - and different programme durations. Overall, their simulation exercise shows that the treatment effects associated with interventions targeting individuals with longer unemployment spells are greater – both one year and five years later - than those for interventions targeting individuals with shorter unemployment spells. Longer duration interventions also have larger effects and, very importantly, have a significant effect on both reducing chances of people becoming unemployed and increasing employment opportunities, but not on chances of entering education or a NEA status.

4 Review of methodologies and data used to analyse young people's transitions

In this section we provide an overall review of the methodologies used in the reviewed literature that study school-to-work transitions in England. First, in the summary of methodologies, we describe the types of grouping and clustering found in the descriptive statistics of the different studies. Then we explain the different models used to analyse transitions and we summarise the complexity of modelling (i.e. the indicators chosen to proxy the explanatory variables). Next we describe the potential sources of bias found and how unobserved heterogeneity is addressed. Second, we present a review of the data availability and modelling potential.

4.1 Summary of methodologies

4.1.1 Descriptive methods (description/grouping/clustering)

In the literature reviewed we found that models were estimated for different groups of people as well as descriptive statistics for different subsamples. The criterion for dividing the sample by particular observable characteristics varies across analyses and depends on the purpose of study. The rationale for grouping/clustering lies in the aim of identifying the different patterns by subgroups and providing a more accurate description of youth transitions. Moreover, the complexity of grouping also varies across studies, from the simplest differentiation between genders to the implementation of optimal matching techniques used to identify common trends in transitions.

The majority of studies present descriptive and/or empirical results divided by gender (Bradley and Lenton, 2007; Bynner and Parsons, 2002; Yates et al., 2011; Bradley and Taylor, 1992; Dolton et al. 1994). Division by gender is simple and straightforward, nevertheless it provides a useful insight into a number of factors affecting female and male transitions differently. Indeed most of these studies find significant differences in the outcomes for men and women.

The second most used criterion is to divide by employment status or education level achieved. Duckworth and Schoon (2012), Crawford et al. (2011a), Furlong et al. (2012) and Main and Shelly (1990) present descriptive statistics and empirical results for different employment status. Korpi et al. (2003) Schmelzer (2011) and Howieson and Iannelli (2008) estimate their models and present descriptive statistics distinguishing between different education levels.

There are a number of studies that group their sample according to social class/income, age and cohorts (Furlong et al., 2012; Main and Shelly, 1990; Duckworth and Schoon, 2012; Crawford et al., 2011a and 2011b).

Finally Dorsett and Lucchino (2013a) and Quintini and Manfredi (2009) use optimal matching methods to cluster individuals. The former identify three trajectories based on the

post-16 transition patterns of young British individuals over the period 1991-2008: express, human capital and cause of concern. The aim of the study is to identify the characteristics that determine who a young person falls into one specific trajectory.

Quintini and Manfredi (2009) follow the same approach to provide a more detailed picture of youth transitions in Europe and the United States of America. Based on the same technique the authors identify 13 different career pathways covering a wide range of trajectories, from the 'express' pathway (young people sending on average 90 per cent of their time in employment) to the 'failure' pathway (youth who spend over 80 per cent of the period covered in unemployment). The purpose of the study is to assess the impact of individual and early labour market characteristics on the likelihood of belonging to any of the 13 pathways. Data is obtained from the European Community Household Panel (ECHP) survey (waves 1994-2000) with information on monthly activity statuses of school leavers for at least 60 months. Moreover the authors stress the importance of apprenticeships and incidence of temporary contracts in shaping school-to-work pathways.

4.1.2   Multivariate analysis of the duration of transitions

Main approaches

In the reviewed literature on school-to-work transitions, despite mainly finding descriptive approaches, we encounter different types of duration models: single-risk models (Kleinert and Jacob, 2013; Kalwij, 2004; Sironi and Fustenberg, 2012 and Schmelzer, 2011), independent competing risk models (Bradley and Lenton, 2007 and Dorsett and Lucchino, 2013a), proportional hazard models (Dorsett and Lucchino, 2013b), accelerated failure time models (Schmelzer, 2011 and Dolton et al., 1994) and discrete time models (Kalwij, 2004 and Kleinert and Jacob, 2013). Duration analysis – or survival analysis – is a branch of statistics that models the analysis of time until an event happens, for instance a transition from unemployment to employment.

> **Box 1 Duration Analysis**
>
> In duration Analysis – or survival analysis – we are interested in some event occurring. We observe an individual (institution or country) in a particular state over time. During the period observed there is 'a risk' of experiencing an event, i.e. a transition to another state, for example we observe an individual who is unemployed until she finds a job. After this transition the individual is no longer observed. The length of time spent in a particular state is named 'spell'.
>
> The key question in this type of analysis is: given that the event has not yet occurred, what is the risk (i.e. what are the chances) that it happens? In this case we might want to ask, given that she has been unemployed for three months, what is the risk of leaving unemployment?
>
> The risk of an event happening is expressed by the following formula:
>
> $$Risk = \frac{Probability\ of\ something\ happening}{Probability\ that\ it\ hasn't\ happened\ yet} = \frac{P(Failure)}{P(Survival)}$$
>
> In duration analysis, the risk of an event happening is also called 'hazard ratio'.

We might also be interested in testing whether some independent variables affect such risk based on the theory. For instance, we might be interested in finding whether the level of qualifications has an effect on the risk of leaving unemployment. Duration analysis allows modelling that risk as a function of the independent variables.

Source: https://files.nyu.edu/mrg217/public/introduction.pdf

Explaining young people's transitions

Duration models are used for two different – but not mutually exclusive – purposes: some studies mainly use duration models to estimate the effect of individual characteristics on specific transitions (Dolton et al., 1996; Kleinert and Jacob, 2013) while others are primarily interested in measuring the degree of duration dependence, i.e. to what extent duration in a particular state depends on the state itself, for instance the longer you are unemployed the lower the probabilities of leaving unemployment. This is an example of negative duration dependence (Kalwij, 2004; Bradley and Lenton, 2007; Schmelzer, 2011).

A number of studies only focus on particular aspects of transitions and therefore use single risk models. For instance, Kleinert and Jacob (2013) examine transition from school to post-compulsory education, while Sironi and Fustenberg (2012) analyse transition to self-sufficiency. It is not rare that several types of transitions are examined in the same paper: For instance, Schmelzer (2011) analyses the transition from the first period of employment into unemployment and the subsequent transition from unemployment into re-employment using two separate single spell models, while Kalwij (2004) uses multi-spell models to examine the unemployment experience of young men in the UK. Identification of a multi-spell model relies on weaker assumptions than a single spell model[1] and therefore is deemed to be superior, although it requires more data.

Transitions from states that can be exited to several destinations are analysed using independent competing risks models, for example, an individual leaving unemployment to enter one among several mutually-exclusive states like education, a fixed-term contract, part-time employment, etc. Bradley and Lenton (2007) use competing risks models to examine dropout from post-compulsory education, distinguishing between those moving to employment and those becoming unemployed. Multi-spell competing risks models can be used to analyse complex patterns of transitions, and are well suited to analyse early life trajectories, since young people are likely to move several times between education, work and unemployment.

Dorsett and Lucchino (2013b) use a multi-spell mixed proportional hazard model (MPH) to examine transitions between four different states (work, unemployment, education, inactivity). In this study the authors use the multi-spell dimension of the data to identify dynamic dependence by including the type and length of the preceding spell, as well as the total duration spent in each state, in the model. More generally, multi-spell models offer opportunities to deal with issues that are difficult to study with single spells (such as

---

[1] Honoré B (1993) 'Identification Results for Duration Models with Multiple Spells', *Review of Economic Studies*, 60(1), 241-246.

occurrence dependence, lagged duration dependence and serially correlated unobserved heterogeneity).

Kalwij (2004), examines the unemployment experiences of young men in the UK over the period 1982.IV – 1998.I by estimating a multi-spelled mixed proportional hazard model. The study is restricted by the limited information provided by the JUVOS longitudinal database, particularly on skills-related characteristics. Thus they use the approach developed by Heckman and Singer (1984) and use a non-parametric technique to control for unobserved heterogeneity.

The literature about youth transitions widely uses continuous time models with various functional forms for the baseline hazard. In proportional hazard models differences in individual characteristics imply a scaling of the baseline hazard. In parametric proportional hazard models, the baseline hazard is specified parametrically and is assumed to follow a particular distribution. A semi parametric model, the Cox proportional hazards model is commonly used in the literature (Dolton et al., 1994; Korpi et al., 2003), because in this semi-parametric approach the baseline hazard is left unspecified. However, this is also its main limitation, as duration dependence cannot be measured since the baseline hazard is not specified. Proportional hazard models are commonly used when an exit is possible to a number of competing states (Dorsett and Lucchino, 2013b).

Accelerated failure time models (AFT) assume that the effect of a covariate is to accelerate or decelerate the life course of the risk by some constant. Therefore, AFT models allow for the modelling of non-monotonic hazard functions, and are used because of this property by Schmelzer (2011) and as an alternative specification by Dolton et al. (1994).

An alternative approach is to use discrete time models (or discrete time representation of a continuous time proportional hazards model) in which the hazard function is piecewise constant, i.e. the hazard differs across groups of months/quarters. Such specification can be estimated using complementary mixed proportional hazards models (complementary log-log model) as in Kalwij (2004) or by a logistic function as in Kleinert and Jacob (2013). The main advantage of these models is that they allow duration dependence to be modelled flexibly without any parametric assumption on the function form of the baseline hazard.

4.1.3 Variables explaining young people's transitions

Individual and family characteristics

As described in previous sections, the set of observable characteristics included in the models is wide and varied. We reviewed the effects of these characteristics on different transitional outcomes in the existing literature. Equally important is to understand how they are modelled or proxied. In this section we review the complexity of modelling of observable characteristics included in the analyses.

Some observable individual characteristics, such as gender and ethnicity, are straightforward to measure. Gender enters the equation in the form of a gender-specific dummy variable. Ethnicity is usually captured either by a dummy variable indicating whether the individual is white or not (Dorsett and Lucchino 2013a) or a categorical

variable accounting for different ethnicities (Bradley and Lenton, 2007). The variable age is usually represented as a variable taking only integer values. We can find, however, that some studies use age-groups. For instance Dorsett and Lucchino (2013a) estimate the effect of age by whether the individual is below 18, over 18 or over 21 years-old. Crawford et al. (2011a) include age as a quadratic polynomial of the number of weeks away young people are from their 18th birthday at the time of observation, with the parameters allowed to differ either side of the threshold. The authors consider that young people are more likely to enter the labour market as they get older, thus it is important to properly account for such a non-linear relationship in order to obtain unbiased estimates.

Education

A usual set of observable characteristics included in the models are those related to education. The studies reviewed assess a wide range of effects caused by different education-related factors. For instance attainment and qualifications obtained, type of school or attitudes towards education. The measurement of these variables is usually not harmonised in the academic community. Thus we find a large variety of educational indicators trying to proxy the same education variable.

School attainment and qualifications obtained are one of the most commonly used variables to determine youth transitions from compulsory school into the labour market or A-levels/Further education. These are usually measured by the number of GCSEs A*-C obtained (Dorsett and Lucchino, 2013a and 2013b; Tumino and Taylor, 2012; Bradley and Lenton, 2007; Howieson and Iannelli, 2008). These enter the equation either as a dummy variable (above or below a certain number of GCSEs A*-C obtained) or as a discrete variable. Isengard (2010) uses the CASMIN scale of educational qualifications. Some other studies use grades obtained in specific standardised exams in primary or secondary education level (Duckworth and Schoon, 2012 and Narendranathan and Elias, 1993).

Aspirations, expectations and attitudes of young people and parents

Some studies consider behaviour during compulsory schooling as a potential determinant of future transitions. Measuring behaviour becomes more complicated since it is determined by a set of actions and especially because not all household surveys record such a variable. The most common proxy for behaviour is truancy – i.e. school absenteeism (Dorsett and Lucchino, 2013a; Furlong et al., 2012; Crawford et al. 2011b; Bradley and Taylor, 1992). The information on truancy usually comes from specific questions asked in some surveys and is represented by a dummy variable. A major disadvantage associated with this measure is the limited comparable data between different surveys (Furlong et al., 2012).

Young people's future career expectations and aspirations are also considered important for youth transitions. These are captured by a wide set of indicators. Yates et al. (2011) considers a categorical variable measuring the match between career expectations and educational expectations (high-high, low-high, low-low, high-low). 'High educational expectations' (high-high) is the reference category and 'misaligned expectations' and 'low aspiration and expectations' the other two categories. Crawford et al. (2011a) capture young people's and the main parent's aspirations with a set of dummy variables responding to 'YP wants to stay in education after 16', 'Main parent wants YP to stay in education post-16' and 'Main parent wants YP to do an apprenticeship/learn a trade'.

Family background

Another major determinant of school-to-work transitions is parental or household background. Parental background refers to parents' education or occupation. Parental education is usually measured as the educational level achieved and represented by dummy or categorical variables (Furlong et al., 2012; Duckworth and Schoon, 2012; Tumino and Taylor, 2012; Taylor, 2013). Parental occupation is usually measured by their job skill-level. Again it is represented either with a dummy or a categorical variable.

Family background is also considered by some authors to play a determinant role in youth transitions. This covers a wide set of indicators such as single parent family, teen parents, workless family members, number of siblings and even if parents used to read to their children. These usually enter the equation in the form of dummy or categorical variables (Duckworth and Schoon, 2012; Yates et al., 2011; Taylor, 2013; Tumimo and Taylor, 2012).

Household income level

The household or family income level is also being included with relative assiduity. This is proxied by a wide range of variables depending on the information available in each survey. These are usually dummy variables: social housing, family material hardship, families in receipt of benefits, children who are eligible for free school meals, residence in owner-occupied households, household income quartile/decile, social class (captured through household NS-SEC classification), etc.

Macro-economic circumstances

As seen in previous sections, a number of studies also include macro-level variables in their models. Unemployment rate – both youth and total – is the most commonly macro variable included but it appears in different forms. It is measured as the local or national unemployment rate, sometimes it appears as the local area claimant count rate (Dorsett and Lucchino, 2013a) or as a deviation of the local unemployment rate from the national rate (Dorsett and Lucchino, 2013b). Andrews and Bradley (1997) calculate the industrial structure of the local labour market by measuring the proportion of employees in employment in primary industries, manufacturing industries, construction industries, service industries and transport and distribution industries. Crawford et al. (2011a) include the Income Deprivation Affecting Children Index (IDACI) score, which is the percentage of children in each Super Output Area who live in families who are income deprived.

The study by Kalwij (2004) includes regional dummies and a de-trended series of the logarithm of the GDP in order to account for business cycles.

4.1.4   Modelling and specification issues from the literature

Addressing potential sources of bias in model estimations

A common problem encountered in causal estimations is the endogeneity of some explanatory variables, in particular education attainment or participation in post-compulsory education. Since individuals expect particular transitions, education attainment may itself be an outcome of expected destinations and hence, will be upward or

downward-biased for people making particular transitions. Any estimated coefficient in relation to such variables would therefore be biased. In order to address the potential bias caused by endogeneity, a wide range of solutions has been implemented. The most common strategies are:

- adding exogenous variables to avoid the main explanatory variable capturing part of the unobserved effects

- two-stage models (i.e. using instrumental variables so that the main explanatory variable does not capture part of the unobserved effects) or compare different model specifications.

In this section we will discuss whether potential sources of endogeneity have been correctly addressed and review some of these techniques found in the literature.

Adding informative covariates

Dorsett and Lucchino (2013b), Gregg (2001), Schmelzer (2011), Kalwij (2004) and Narendranathan and Elias (1993) also emphasise the importance of unobserved characteristics and suggest different approaches to solve this. These studies include rich sets of observable characteristics to reduce the impact of the omitted variable bias. Some of the included variables are age, parental education, a dummy for workless household at age 16, month of birth (evidence suggests that younger peers tend to be less successful in school-to-work transitions), qualifications, household income and unemployment rate.

However, Dorsett and Lucchino (2013b) also allow for unobserved heterogeneity in individuals' decisions about when to leave school and consider 'education' as one of the states of interest. Modelling transitions after leaving school would require treating the age at which young people leave school as exogenous, which is an unrealistic assumption.

Narendranathan and Elias (1993) analyse whether past unemployment experiences increase the likelihood of future unemployment experiences. The authors estimate an autoregressive model (unemployment as a dependent variable). However, their results are likely to be biased since the potential endogeneity created by the inclusion of the lagged dependent variable is not addressed.

Exogenous variation and the use of instruments

Taylor (2013) estimates the effect of leaving education when unemployment is high on labour market outcomes using a probit model. The author considers that the main explanatory variable (the regional unemployment rate) is potentially endogenous. The argument is that young people may relocate after leaving compulsory education to low unemployment areas or they might decide to delay their exit from full-time education. To address this issue the regional unemployment rate is instrumented with the unemployment rate when respondent was aged 15 in region of residence when leaving FT education for first time and a variable measuring whether individuals changed address between age 16 and first leaving full-timed education.

Heckman-type and other selection-bias modelling

Main and Shelly (1990) assess the effectiveness of the Youth Training Scheme. The study faces a major sample-selection bias, since participation in the Scheme is not random. The authors deal with it by re-estimating models allowing for non-random selection in YTS participation. They estimate the probability of participating in YTS based on a set of individual characteristics and control for unobserved heterogeneity using a parametric approach.

Tumino and Taylor (2012) assess the impact of local labour market conditions on school leaving decisions. Two of the explanatory variables in the model are the number of GCSEs obtained and intentions to leave school at age 12. However these are likely to be biased, given that those who have already decided to leave school at 16 are likely to exert less effort in their GCSE performance. Same is true for school leaving aspirations at age 12, which might be influenced by the expected unemployment rate (rather unlikely). The authors deal with such potential sources of endogeneity in the following way. First they estimate models that both include and exclude number of GCSEs obtained at grades A*-C and apply a Heckman Selection model procedure.

Remaining sources of bias

It is arguable whether the exogenous variables included (individual characteristics, macroeconomic variables) or Instrumentation and Heckman-type correction models are adequate proxies for unobserved variables. This is the case of innate ability. There is an open debate regarding the measurement of innate ability, which is usually proxied by exams scores at early stages (Duckworth and Schoon, 2012; Narendranathan and Elias, 1993; Crawford et al. 2011a, etc.) or qualifications attainment when tests scores are not available.

The suitability of qualifications attainment to proxy ability is addressed by Conlon (2002), who finds a strong correlation between innate ability (measured by tests scores at earlier stages of schooling) and subsequent qualifications attainment. However, Galindo-Rueda and Vignoles (2004) argue that tests scores at earlier stages might not genuinely capture innate ability but could also be influenced by family circumstances for instance. In the event that fixed effects cannot be applied, qualifications are a reasonable proxy for ability.

Unobserved heterogeneity in duration modelling

In addition to endogeneity of regressors, ignoring unobserved heterogeneity in hazard rate models introduces another source of bias and leads to overestimating the degree of negative duration dependence. In addition, the proportionate response of the hazard to a marginal change in covariates is no longer constant (i.e. independent of survival time) in the presence of unobserved heterogeneity. Modelling unobserved heterogeneity is therefore important even if one is not interested in duration dependence.

Duration models that model unobserved heterogeneity rely on the assumption that unobserved heterogeneity is distributed independently of observed characteristics. There is no technique to account for unobserved heterogeneity that is correlated with observed characteristics.

Schmelzer (2011) does not model unobserved heterogeneity, which implies that the estimated hazard rates cannot be interpreted as reflecting duration dependence, since it is not possible to distinguish between the effects of unobserved heterogeneity and duration dependence. Kleinert and Jacob (2013) do not model unobserved heterogeneity but compute and report average marginal effect (AME) instead of odd ratios, arguing that AME are hardly biased by unobserved heterogeneity (as long as it is not correlated with independent variables).

Two main approaches have been used in the survival analysis literature to account for unobserved heterogeneity.

- The first approach is to assume a specific parametric distribution for the heterogeneity term. As a robustness check, Dolton et al. (1994) estimate a Weibull model with gamma distributed heterogeneity and find some evidence of unobserved heterogeneity but assume that it is unlikely to threaten the validity of their results.

- The second approach is based on Heckman and Singer (1984) and uses a non-parametric technique to control for unobserved heterogeneity, which is commonly referred to as the mass point technique. The mass point technique consists of approximating the continuous distribution of unobserved heterogeneity by a finite discrete distribution of unrestricted form. This approach is used by Bradley and Lenton (2007) as well as Dorsett and Lucchino (2013b). An alternative for some complementary logistic models is to use a random effects estimator (Sinori and Furstenberg, 2012).

Problems with variables modelling the business cycle

The use of the unemployment rate as a proxy for business cycles or general economic conditions is also susceptible of raising concerns. A number of studies use the level of unemployment in a region or a country not only to control for general macroeconomic conditions but also because it is correlated with the probability of becoming unemployed. Dorsett and Lucchino (2013b) argue that individuals living in areas with high unemployment rates are more likely to become unemployed and that the transition from unemployment into employment takes longer than average. Alternatively, in order to control for general macroeconomic conditions Kalwij (2004) use a de-trended series of the logarithm of the GDP.

It is a priori not clear which variables are the most suitable to control for recessions and expansions, but general output levels rather than labour market indicators could be misleading, for example if these point towards structural weaknesses in the labour market, high levels of unemployment despite improvements in the economy, for example for most of the 1980s. Local unemployment, too, could be a difficult variable to control for the business cycle, for example if the labour market is much affected by mismatch and an expanding labour demand would not be matched by adequate labour supply (e.g. skills do not match).

4.2   Data availability and modelling potential

Tables 1-3 summarise the main micro data sets available for the analysis of youth transitions from administrative and survey data, which have been used in the empirical evidence presented before. In the following section, we discuss these data sets in terms of their potential to understand both the drivers of/barriers to particular youth transitions and the long-term outcomes, which could be analysed in relation to these.

Starting with data allowing us to understand the long-term trends for school-to-work transitions and subsequent labour market trajectories, Table 1 shows that such an analysis would have to be primarily based on LFS and Annual Population Survey (APS) data, which can show their development over a long time series of about 40 years. As in the introduction to this paper, these data could be used for the consistent description of long-term patterns in young people's labour market transitions and longitudinal outcomes, including the potential impact of difficult initial transitions on the trajectories of cohorts. However, the limited panel element of the annual cross-sections would not allow for estimating the individual-level impact of early transition patterns on long-term labour market trajectories. Other sources of cross-section data, which could be used to analyse long-term trends and outcomes include the Annual Survey of Hours and Earnings (ASHE), which could be used to estimate the wage levels of young people in the labour market and their subsequent trajectories. However, without qualification variables, the modelling potential of this data set is limited.

All cohort studies (Table 2) offer rich variables of young people's characteristics in their teenage years as well as family circumstances, which are important variables for modelling the complexity of the initial transition from education to employment. In addition, NCDS and BCS provide long-term outcomes at individual level, which could show the long-term outcomes of particular transitions. Gregg's (2001) paper is based on the NCDS, and a similar analysis of long-term outcomes of early transitions could be undertaken with the BCS. However, the major limitation is the restriction in particular cohorts, which – in addition to the NCDS study by Gregg (2001) – would only allow for estimating similar long-term effects of transitions in early age for the cohort born in 1970.

In contrast, there is a great potential for further analysing the available YCS and LSYPE data. These surveys include important variables which could be used to understand the initial transition of people at the end of compulsory education such as achievement in school, behaviour and the family situation. However, the period of outcomes is restricted until people are 19, which would not permit any analysis of the long-term impact of young people's transitions. However, due to the sampling of LSYPE and YCS from School Census Data, potentially other resources could be merged to provide the long-term employment and wage outcomes, for example the WPLS.

Finally, Table 3 describes data and modelling potential of data sets allowing for individual-level tracking. The major resource used for such studies and indeed much of the evidence presented above is the BHPS, which collected continuous labour market data for all people included in the study after their 16th birthday. Due to the rich household data and an additional youth questionnaire, these data would be suitable for empirical estimates on the impact of drivers and barriers to individual transitions, as well as long-term outcomes when people are in their mid-20s. However, similar to the work undertaken in Dorsett and Lucchino (2013 a and b), the size of the data set would require the pooling of various

waves as annual cohorts of people 'ageing in' to the study are fairly small. While further long-term outcomes can be obtained from the new Understand Society study, which incorporates the BHPS, the detailed status history from BHPS is no longer available for later cohorts.

Finally, merged administrative data have a great potential for understanding the situation in school (from the NPD) and post-16 destinations of young people until the age of 19 (from NCCIS data). Merged data, available for the last five years, have a more detailed activity status than any of the other studies, including the LFS, but are principally limited to the outcomes until age 19 (NCCIS provides further long-term outcomes until the age of 25 only for people with disabilities). While the NPD data provide some potential for transition modelling because of parental background information and further variables surrounding individual decision making in the final years of compulsory education (class and school effects, peers, local areas), they are limited to education achievement outcomes and do not represent much in the way of attitudinal or behavioural variables, which can be obtained from scientific studies like the BHPS or specific youth cohort surveys.

Table 1: Micro data for the analysis of long-term time trends of school-to-work transitions (pseudo-cohort/time trends)

	Size/main research method	Young people	Modelling potential
Labour Force Survey	Micro data (individuals in private households in UK) Size 150,000 households p.a. (37,000 per quarter) Aggregation to time-series/pseudo-cohorts Panel data methods (young people's transitions over the period covered in five quarters)	Cross-sectional: 1975 – present Earliest 'cohort' of 16-24 year-olds born 1959/60 (aged 16 in 1975), most recent the 1998 (16 in 2014). Longitudinal: 1992 – present Five-quarter panel data sets (Observations pertaining to the age group likely to be small)	(+) Consistent long-term data on education, labour market experiences and occupational destinations: • Economic activity over time/economic cycle and longer-term trends (education/HE participation/youth unemployment) • Educational outcomes/destinations of young people • Average age of exit from education • Average duration of unemployment spells over time and across cohorts. (-) • Discontinuities in educational qualifications (1996, 2004, 2011) • Panel element limited
Annual Population Survey	LFS booster to facilitate local analyses 170,000 households/350,000 individuals Aggregation to time-series/pseudo-cohorts	Cross-sectional: 2004 – present Repeated cross-section allows for analysis of pseudo-cohorts. Earliest 'cohort' of 16-24 year-olds born 1988 (aged 16 in 2004), most recent the 1998 (16 in 2014)	As Labour Force Survey, no individual-level longitudinal analysis
Annual Survey of Hours and earnings (ASHE)	Micro data (employees)	Cross-sectional: 1997-2012 Earliest 'cohort' of 16-24 year-olds born 1981 (aged 16 in 1997), most recent in 1996 (16 in 2012).	(+) • Detailed information about earnings (-) • No information on educational qualification • Restricted to employees

Source: IES

Youth transitions to and within the labour market: A literature review

Table 2: Analysis of key drivers/barriers to educational and labour market engagement using individual biographical data

	Size/main research method	Young people	Modelling potential
National Child Development Study	Cohort born in a week in 1958 (17,000) Eight sweeps (in 1965, respondents aged 7, 1969/11, 1974/16, 1981/23, 1991/33, 1999-2000/41-42, 2004-5/46-47, 2008-9/50). Schools attendance and examinations Individual-level modelling (eg hazard rates)	Cohort aged 16 in 1974	(+) Detailed individual level data - Educational histories, school-to-work and labour market transitions and employment outcomes - Family background, other socio-economic and individual factors shaping them (at age 16: IQ; medical and co-ordination tests; educational background; home environment etc.) (-) Cohort can be used for historical comparison only 1978 Public Examination Results too dissimilar Role of qualifications and other factors in shaping early labour market transitions and employment outcomes of people from this cohort not informative for the current generation
British Cohort Study	Cohort born in a week in 1970 (17,000) Nine data collection exercises (aged 1975/5, 1980/10, 1986/16, 1996/26, 1999-2000/30, 2004-2005/35, 2008-2009/38, 2012/42) Individual-level modelling (e.g. hazard rates)	Cohort aged 16 in 1986	(+) Detailed individual level data, broad scope (physical, educational, social, economic) - Life-course data on educational progress/qualifications, education and training, employment and earnings, unemployment and periods out of the labour market in later waves - Chronological employment histories updated to cover 1986-2008 - Allows for controlling for family background, other socio-economic and individual factors (-) Same as NCDS (cohort can only be used for historical comparison)
Youth Cohort Study	Individual-level cohorts reaching school-leaving age Initial sample size 7,525 (2007, decreasing for later sweeps) Cohort 2007 linked to LSYPE and NPD Individual-level modelling (e.g. hazard rates) Cohort/time effects (13 cohorts to date)	Cohorts aged 16 in 1986 until aged 16 in 2007	(+) Consistent long-term data on education and labour market experiences of young people: - Education achievement, activity history, qualifications sought, information on Higher Education background information about families and attitudes at Sweep 1 - Economic activity over time/economic cycle and longer-term trends from sweeps 2-4 (focus on activities, jobs and training, activity history and further life circumstances) (-) Limitation: Time period covered allows analysis only until age 20

	Size/main research method	Young people	Modelling potential
Longitudinal Study of Young People in England	Sample of young people aged 13/14 in 2004 (initially in 15,770 households) Seven waves, including four waves with parental questionnaires, linked to NPD (secure access) Individual-level modelling (e.g. hazard rates with unobserved heterogeneity)	Cohort aged 16 in 2005/06	(+) Detailed individual level data from waves 1-4 • Family background, parental socio-economic status, personal characteristics, attitudes, experiences and behaviours, educational attainment, parental employment, income and family environment as well as local deprivation, the school(s) attended, the young person's post-16 plans from waves 1-4 • 'Monthly Main Activity' from September 2006 until May 2010, coupled with information from the earlier waves, provides very detailed information of young people's transitions in and out of education and employment. • Linked to NPD and family socio-economic circumstances to model drivers of/barriers to educational achievement and labour market outcomes (-) Limitation: Time period covered allows analysis only until age 20

Source: IES

Table 3: Longitudinal data sets for individual level tracking during and after compulsory schooling

	Size/main research method	Young people	Modelling potential
British Household Panel Survey	Panel data (1991-2009) annual waves of individuals aged 16 years and over 5,000 households/10,000 individual interviews, From 2009: 30,169 households/50,994 adults and 4,899 young people aged 10-15 years. Special youth questionnaire Individual-level modelling	Annual cohorts aged 16 (1991-2009) and individual-level longitudinal information on labour market outcomes	(+) Detailed individual level data • Family background/status, **personal** characteristics, attitudes, experiences and behaviours, educational attainment, parental employment, income, etc. • Calendar information on activity/labour market status outcomes • Retrospective questions about previous employment spells • Module on intended educational choices (Understanding society) (-) • BHPS needs to be pooled for many years to track young people (small sample size) • Longitudinal dimension in Understanding Society limited (survey launched recently)

	Size/main research method	Young people			Modelling potential
National Pupil Data (NPD)	Key Stage attainment	**Key Stages covered**	**Standard age**	**Cohorts** 2010-13	(+) • Census-level individual data/educational trajectories • Further data on special education needs (SEN), attendance, exclusions and a history of schools attended • Allows for further analysis of class/local aggregate effects
		Key Stage 4	16		
merged to…					(-) • Demographics limited (low-income marker, postcodes, potentially siblings) • Earliest cohort 26 (in 2012), outcomes from other data not yet merged
National Client Caseload Information System (NCCIS)	Census of 16-19 year-olds' activity (monthly panel) in England since 2009, with limitations in some areas) Individual-level modelling • Pattern of transitions • Hazard rates Age, cohort and time effects	Annual cohorts aged 16 (from 2009) May not be entirely consistent in early years because of differences in local data generation			(+) • Census-level individual data on post-16 destinations • Monthly activities, transitions and duration of NEET (subject to further data improvements). (-) • NCCIS limited until age of 19 • Accuracy of activity status and timing of activities limited • Link to other record systems incomplete

Source: IES

5 Summary and recommendations for further research

5.1 Summary of the evidence

Although the literature review explicitly aimed to a) obtain quantitative evidence on the long-term outcomes of young people's labour market transitions and b) include transitions from non-compulsory education, the great majority of the studies are restricted to the analysis of post-16 destinations.

Most of these studies use static methods to explain particular choices or dynamic (duration) modelling to estimate the effect of particular characteristics on the time it takes to make post-16 transitions. In modelling transitions, there is an emphasis on using rich data sets to cover the individual and family and educational circumstances driving particular destinations, while acknowledging further sources of unobserved heterogeneity.

The number of studies focusing on longer-term outcomes, which extend beyond purely descriptive papers, is limited. While education and other variables at early ages are important characteristics included in models explaining labour market outcomes, these studies emphasise the role of labour market experience (Dorsett and Lucchino 2013b) or unemployment (Gregg 2001, Kalwij 2004) on subsequent transitions into employment.

Policy conclusions from the studies focusing on long-term outcomes consistently emphasise the importance of programmes generating labour market experience for young people to help them avoid the negative long-term consequences of joblessness.

5.2 Recommendations for further research

The evidence on long-term outcomes is based on selected populations from survey or administrative data, as summarised in Figure 5, mainly based on the analysis of the BHPS (in most cases young people who turned 16 between 1991 and 2008). In addition, Figure 5 shows the numerous other studies identified in this systematic review focusing on early years in the labour market. These all show an evidence-base exploiting most available data sources for the analysis of young people's labour market transitions.

Based on the literature review, an extension of the research evidence would seek to exploit further data sources or extend the period of outcomes of young people transitions by:

- Exploiting the longitudinal dimension of the LFS: different pseudo-cohorts affected by initially different levels of unemployment would show long-term outcomes of unemployment experiences in early years compared to cohorts starting with positive cohort effects.

- LFS data could be combined with the 'Ad Hoc' module from the European Labour Force Survey of 2009, which provides further detail on the particular nature of the transition from education to employment.

- BCS and NCDS cohorts could be used to examine the impact of post-16 choices/ transitions on long-term outcomes.

- The existing BHPS analysis, in particular on the patterns of school-to-work transitions, could be related to longer-term outcomes.

- NPD/NCCIS could be used to identify 'problem groups' with precarious transition patterns after the end of compulsory schooling. Although not resulting in long-term estimates of outcomes from initial transitions, this analysis would help to identify key drivers for early labour market trajectories and identify target groups for work experience programmes, such as traineeships.

- Lastly, the use of further merged data could be made available, for example by merging WPLS employment and unemployment data to youth cohorts, could be used to estimate the long-term impact of particular transitions of young people to the labour market, essentially updating the evidence presented in Gregg's (2001) study with a much more recent cohort.

Methodologically, any analysis of labour market outcomes at later ages would have to make use of data tracking individuals over a long period of time. Because of the dynamic nature of employment and unemployment as outcomes of individual transitions, an analysis based on duration models using high-frequency panel data, as suggested by the indicative studies (Dorsett and Lucchino 2013b, Kalwij 2004) allowing for individual heterogeneity and state-dependence in transition dynamics would be a preferred econometric approach.

Figure 5: Review of data sources, methods and cohorts of young people studied
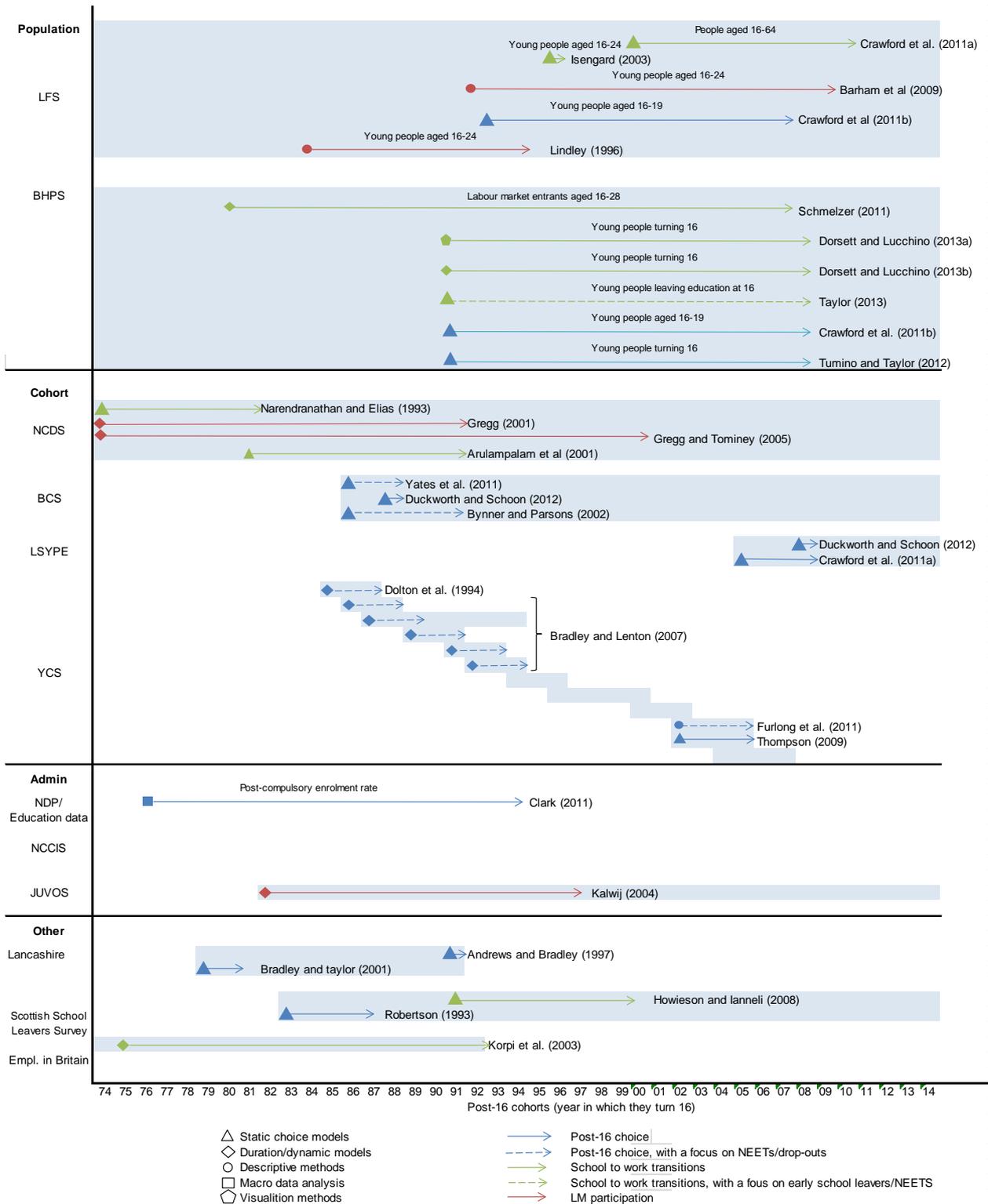
Note: The marker indicates the earliest cohort studied while the arrow refers to the time window in which outcomes were observed. Papers using other data sources (or none) are not referenced in this chart.

Bibliography

Andrews M, Bradley S (1997), 'Modelling the Transition from School and the Demand for Training in the United Kingdom', *Economica*, 64 (255), 387-413.

Arulampalam W, Booth A (2001), 'Learning and Earning: Do Multiple Training Events Pay? A Decade of Evidence from a Cohort of Young British Men', *Economica*, 68 (271), 379-400.

Ashworth K, Hardman J, Woon-Chia L, Maguire S, Middleton S, Dearden L, Emmerson C, Frayne C, Goodman A, Ichimura H, Meghir C (2001), *Education Maintenance Allowance: The First Year. A Quantitative Evaluation*, Department for Education and Employment, Nottingham, DfEE RR257

Barham C, Walling A, Clancy G, Hicks S, Conn S (2009), 'Young people and the labour market', *Economic & Labour Market Review*, 3 (4), 17-29.

Bernhardt A, Morris M, Handcock M, Scott M (1999), 'Trends in Job Instability and Wages for Young Adult Men', *Journal of Labor Economics*, 17 (S4), S65-S90.

Blanchard O and Fisher S (1989), *Lectures on macroeconomics*, MIT Press.

Bradley S, Lenton P (2007), 'Dropping out of post-compulsory education in the UK: an analysis of determinants and outcomes', *Journal of Population Economics*, 20 (2), 299-328.

Bradley S, Taylor J (1992), 'An empirical analysis of the unemployment duration of school-leavers', *Applied Economics*, 24 (1), 89-101.

Bynner J (2001), 'British youth transitions in Comparative Perspective', *Journal of Youth Studies*, 4 (1), 5-23

Bynner J, Parsons S (2002), 'Social Exclusion and the transition from school to work: The Case of young People Not in education, employment, or training (NEET)', *Journal of Vocational Behavior*, 60 (2), 289-309.

Canny A (2001), 'The transition from school to work: An Irish and English Comparison', *Journal of Youth Studies*, 4 (2), 133-154.

Clark D (2011), 'Do Recessions Keep Students in School? The Impact of Youth Unemployment on Enrolment in Post-compulsory education in England', *Economica*, 78 (311), 523-545.

Conlon G (2002), *The determinants of undertaking academic or vocational education in the UK*, Center for the Economics of Education Discussion Papers, 20.

Crawford C, Dearden L, Greaves E (2013), *When you are born matters: Evidence for England*, IFS Report R80.

Crawford C, Greaves E, Jin W, Swaffield J, Vignoles A (2011a), *The impact of the minimum wage regime on the education and labour market choices of young people*, report to the Low Pay Commission.

Crawford C, Duckworth K, Vignoles A, Wyness G (2011b), *Young people's education and labour market choices aged 16/17 to 18/19*, Research Report DFE-RR182, Department for Education.

Cregan C (2001), 'What's happened to the labour market for early school-leavers in Britain?', *Industrial relations journal*, 32 (2), 126-135.

DfE (2014), *Statistical First Release. Participation in Education, Training and Employment by 16-18 year olds in England: End 2013*.

Dolton P, Makepeace G, Treble J (1994), 'The Youth Training Scheme and the School-to-Work Transition', *Oxford Economic Papers*, 46 (4), 629-657.

Dorsett R, Lucchino P (2013a), *Visualising the school-to-work transition: an analysis using optimal matching*, NIESR Discussion Paper, 414.

Dorsett R, Lucchino P (2013b), *Young people's labour market transitions: the role of early experiences*, NIESR Discussion Paper, 419.

Duckworth K, Schoon I (2012), 'Beating the Odds: Exploring the Impact of Social Risk on Young People's school-to-Work Transitions during Recession in the UK', *National Institute Economic Review*, 222 (1), R38-R51.

Franz W (1991), *Arbeitsmarktoekonomik*, Springer-Verlag.

Furlong A, Inui A, Nishimura T, Kojima Y (2012), 'Accounting for the early labour market destinations of 19/20-year-olds in England and Wales and Japan', *Journal of Youth Studies*, 15 (1), Jan-15

Galindo-Rueda F and Vignoles A (2004), *The Heterogeneous Effect of Selection in Secondary Schools: Understanding the Changing Role of Ability*, IZA Discussion Papers 1245, Institute for the Study of Labor (IZA).

Gregg P, (2001), 'The impact of youth unemployment on adult unemployment in the NCDS', *The Economic Journal*, 111, F626-F653.

Gregg P, Tominey E (2005), 'The wage scar from male youth unemployment', *Labour Economics*, 12, 487-509.

Heckman J and Singer B (1984), 'A Method for Minimizing the Impact of Distributional Assumptions in Econometric Models for Duration Data', *Econometrica*, vol. 52(2), pages 271-320.

Honoré B (1993) 'Identification Results for Duration Models with Multiple Spells', *Review of Economic Studies*, 60(1), 241-246.

Howieson C, Iannelli C (2008), 'The effects of low attainment on young people's outcomes at age 22-23 in Scotland', *British Educational Research Journal*, 34 (2), 269-290.

Isengard B (2010), 'Youth Unemployment: Individual Risk Factors and Institutional determinants. A Case Study of Germany and the United Kingdom', *Journal of Youth Studies*, 6 (4), 357-376.

Kalwij A (2004), 'Unemployment Experiences of Young Men: on the Road to Stable employment?', *Oxford Bulletin of Economics & Statistics*, 66 (2), 205-237.

Kleinert C, Jacob M (2013), 'Demographic changes, labor markets and their consequences on post-school-transitions in West Germany 1975-2005', *Research in Social Stratification and Mobility*, 32, 65-83.

Korpi T, Graaf P, Hendrickx J, Layte R (2003), 'Vocational Training and Career Employment Precariousness in Great Britain, the Netherlands and Sweden', *Acta Sociologica*, 46 (1), 17-30.

Lenton P and McIntosh S (2008), *Achievement, Progression and Labour Market Impact of BTEC Qualifications: An Analysis Using the Eleventh Youth Cohort Study*, Sheffield: Department of Economics, University of Sheffield.

Lindley R (1996), 'The school-to-work transition in the United Kingdom', *International Labour Review*, 135 (2), 159.

Maguire S and Rennison J (2006), 'Two years on: the destinations of young people who are not in Education, Employment or Training at 16', *Journal of Youth Studies*, 8:2, pp. 187-201.

Main B, Shelly M (1990), 'The Effectiveness of the Youth Training Scheme as a Manpower Policy', *Economica*, 57 (228), 495-514.

McIntosh S, (2005), *Using pseudo-cohorts to track changes in the qualifications of national populations,* Department for Education and Skills Research Report.

Narendranathan W, Elias P (1993), 'Influences of Past History on the Incidence of Youth Unemployment: Empirical Findings for the UK', *Oxford Bulletin of Economics & Statistics*, 55 (2), 161-185.

National Foundation for Educational Research (1998), *Staying on. A study on young people's decisions about school sixth forms, sixth-form colleges and colleges of further education*.

Payne J (2001), *Work-Based Training for Young People, Data from the England and Wales Youth Cohort Study*, Policy Studies Institute.

Quintini G, Manfredi T, (2009), 'Going separate ways? School-to work transitions in the United States and Europe', *OECD Social, Employment and Migration Working Papers*, 90.

Roberts K, Clark S, Wallace C (1994), 'Flexibility and individualisation: a comparison of transitions into employment in England and Germany', *Sociology*, 28 (1), 31-54.

Robertson C (1993), 'Participation in Post-Compulsory Education in Scotland', *Journal of the Royal Statistical Society. Series A (Statistics in Society),* 156 (3), 423-442.

Schmelzer P (2011), 'Unemployment in early career in the UK: A trap or a stepping stone?', *Acta Sociologica*, 54 (3), 251-265.

Sironi M, Furstenberg F (2012), 'Trends in the Economic Independence of Young Adults in the United States: 1973-2007', *Population and Development Review*, 38 (4), 609-630.

Sissons P and Jones K (2012), *Lost in transition? The changing labour market and young people not in employment, education or training*, The Work Foundation.

Taylor M (2013), 'The labour market impacts of leaving education when unemployment is high: evidence from Britain', *ISER Working Paper Series*, 2013-12.

Thomson R (2009), 'Social Class and Participation in Further Education: Evidence from the Youth Cohort Study of England and Wales.' *British Journal of Sociology of Education*, 30 (1), 29-42.

Tumino A, Taylor M (2012), *The impact of local labour market conditions on school leaving decisions*, conference paper, Work Pensions and Labour Economics (WPEG) conference 2012.

Yates S, Harris A, Sabates R, Staff J (2011), 'Early Occupational Aspirations and Fractured Transitions: A Study of Entry into 'NEET' Status in the UK', *Journal of Social Policy*, 40 (3), 513-534.

This publication available from www.gov.uk/bis

Any enquiries regarding this publication should be sent to:

Department for Business, Innovation and Skills
1 Victoria Street
London SW1H 0ET
Tel: 020 7215 5000

If you require this publication in an alternative format, email enquiries@bis.gsi.gov.uk, or call 020 7215 5000.

BIS/15/613