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What accounts for changes in the chances of being NEET in the UK?

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Abstract

The number of young people who are not in employment, education and training – NEET, as this group has become widely known as – is a key indicator on the state of youth labour markets and opportunities for young people more generally. The persistence and, in the years following the global financial crisis, growth of this group of young people is a major concern for policy makers in Europe for both its short term and long term consequences. However, it is a diverse group as people can be NEET for many reasons, and so understanding the importance of these reasons is crucial for targeting policy responses. This paper looks at data on young people between the age of 16 and 29 in the UK, tracks how the incidence or chance of being NEET has changed over the period between 1985 and 2015, and highlights which characteristics are associated with a higher chance of being NEET and how the importance of these drivers has changed over time. We show that the overall NEET rate has fallen considerably since the 1980s, but has remained largely the same since 2000. Over the past thirty years, the reduction in young people leaving school with few or no qualifications, fewer young people having children and improvements in the chances for young women to work alongside childcare responsibilities have all put a downward pressure on NEET rates, although penalties for women with childcare are still large. Since 2000, an increase in the incidence of mental ill health has acted in the opposite way, while a slower rate of improved educational attainment and some scarring from the 2008-9 recession has also contributed to the persistence of NEETs. We argue that the current policy focus on skills and work incentives for reducing the number of NEETs in the UK misses two key obstacles – mental ill health and child care. Policies to either tackle increasing mental ill health rates or facilitate (where possible and desirable) some form of labour market participation specific to sufferers of mental ill health could be expected to have some large effects on their own. Moreover, the government could also look to reduce childcare costs and facilitate flexible working for those who want to balance care with work. That said, we find no relationship between the availability of part-time work in a region and NEET rates, so the solution here is unlikely to be as simple as creating more jobs – of any type and quality – which offer a smaller number of hours.

1. Introduction

The number of young people who are not in employment, education and training – NEET, as this group has become widely known as – is a key indicator on the state of youth labour markets and opportunities for young people more generally. The term NEET can be seen as capturing vulnerability among youth, referring to both those who are unemployed and seeking work, as well as those who are economically inactive and hidden by an exclusive focus on unemployment statistics (Furlong, 2006). The persistence and, in the years following the global financial crisis, growth of this group of young people is a major concern for policy makers in Europe (O'Reilly *et al.*, 2015), not least because of fears that periods of unemployment or inactivity early in the working life incur longer term economic and social consequences. These consequences include lower future earnings (Gregg and Tominey, 2005; Ralston *et al.,* 2016), higher chances of being unemployed and dependent on welfare benefits in the future (Kelly and McGuinness, 2015; Gregg, 2001; Arulampalam *et al.*, 2000; ACEVO, 2012), and other well-being and health outcomes (Bell and Blanchflower, 2011; Gutiérrez, García *et al*., 2017).

This paper looks at data on young people between the age of 16 and 29 in the UK, tracks how the incidence or chance of being NEET has changed over the period between 1985 and 2015, and highlights which characteristics are associated with a higher chance of being NEET and how the importance of these drivers has changed over time. Our data show that overall NEET rates have fallen considerably, but that most of this change happened in the 1980s and 1990s, with little progress since then. To understand why the fall in NEET rates across the UK stalled since 2000, we first examine shifts in the composition of individual characteristics of young men and women. Prior studies of NEETs have concentrated on different characteristics which affect young men and women's participation in education and the labour market, but two recurring individual drivers of heightened NEET incidence in the UK and Europe are young people's educational attainment (the role of low qualification attainment) and family formation processes (the role of care responsibility) (Eurofound, 2016).

Our results show that since the 1980s, there has been a marked reduction in the number of men and women with low or no qualifications. However this trend did not occur between 2000 and 2007, hence we would have expected the fall in NEET rates during this period to be muted. In addition, we find that while there are positive effects of a reduced number of young people with no or low qualifications, there is little evidence that the attainment of degree-level qualifications has affected the chances of being NEET over the past three decades. It is also the case that fewer young people in the UK are having children today than in previous years, which has, in part, been linked to the success of England's Teenage Pregnancy Strategy that was implemented between 1999 and 2010 (Skinner and Marino,

2016). This drop in the number of young women with children has led to a fall in NEET rates, as having caring responsibilities has been (and continues to be) an important predictor of economic inactivity.

A striking finding of our study is the recent evolution of the role that young people's mental health plays in determining the chances of being NEET across the UK. Since 2007, the expected fall in NEETs due to the resumption of the trend towards more qualified individuals has (at least in part) been offset by the effect of an increase in self-reported mental ill health. This finding relates to trends observed in other European countries, which have seen a rise in health related risks particularly among younger male cohorts born in the 1980s (Bäckman and Nilsson, 2016). Above other reported health or disability issues, mental health has the largest effect on the chance of being NEET in the UK; and this is especially the case for males.

We show that when NEET rates have fallen significantly (for example, during the 1990s), it has been at a time where general labour market conditions were improving, reducing NEET rates for all young people regardless of their personal characteristics. For women with children, the risk of being NEET has fallen as more young people are able to be in employment or education alongside caring for children. Since 2000, we have seen regional conditions also play a key role – we find evidence of significant differing outcomes for those living in London and outside London, although these trends are different for men and women. Finally, in the period following the global financial crisis, those in their teens and early 20s in 2015 are doing better than older cohorts, pointing to a possible scarring effect from entering the labour market during an economic recession. Overall, the relationship between different individual characteristics and the chance of being NEET has had little overall impact on NEET rates since 2000, with effects largely cancelling each other out. This has, however, meant that the distribution of who is in the NEET group has changed even if the overall number has not. In general, people living in London, those with children, those not living with parents and those under 21 make up a smaller portion of the overall NEET population than we would have expected at the start of the year 2000.

This paper contributes to the literature in a number of ways. Firstly, our data cover a long-time span and a wide age-range. Headline UK NEET rates have been calculated from the 1980s (see DfE, 2013, for example), but these have focused on the relatively narrow 16-18 age range. Secondly, we analyse how different factors are associated with the risk of being NEET in combination, and how these relations change over time, if at all. Data is often presented showing the differences in NEET rates in the UK by one particular characteristic at a single point in time (SEU, 1999a; Audit Commission, 2010[1]; DCSF/ONS 2009, 2011) but

[1] The report of the Audit Commission is not clear on how it estimates effect size for each risk factor – it is not obviously the case that the different factor effect sizes have been estimated jointly. Even if they had, however, our analysis looks at a longer time frame, from a nationally representative survey (rather than careers service data from 11 local councils) and defines NEET beyond the age of 18.

given the correlation between factors such as education, health and family, these are unable to tell us more precisely why some people are more likely to be NEET than others. There are also a number of studies which describe the typical characteristics of the NEET population in order to demonstrate the heterogeneity of the group (House of Commons, 2018; DfE, 2018a; Thompson, 2011). In comparison, there are surprisingly few UK studies which look at multiple risk factors in combination. Bynner and Parsons (2002) look at the chance of being NEET aged 21 for a cohort of individuals born in 1970, and how that relates to socio-economic background and educational outcomes at 16. Feng *et al*. (2015) use the Scottish Longitudinal Study to estimate NEET risks for two cohorts of Scottish young people between the ages of 16 and 19. They find educational qualifications, school absences and exclusions, teenage pregnancy and care responsibilities, alongside childhood socio-economic factors, all have statistically significant relationships with being NEET in the late teenage years. Finally, in a rare example of a UK study focusing on NEETs up to the age of 29, Zuccotti and O'Reilly (2019) analyse the intersections of educational attainment, parental employment and ethnicity as factors predicting the chance of being NEET, specifically considering how they act in combination.

The current analysis makes use of cross-sectional data from the UK Labour Force Surveys, and accordingly has a number of limitations. Two main implications are as follows: firstly, we look at snapshots of the NEET population at particular moments in time, and relate these to particular characteristics of young people. How people's life histories or accumulated disadvantages contribute to being NEET is not covered here. Secondly, our analysis is primarily an individualistic one in that it relates individual characteristics to the likelihood of being NEET, and does not examine broader factors such as class, family background or neighbourhood deprivation (Karyda and Jenkins, 2018). This is an important part of the overall picture of NEETs in the UK (see e.g. Thompson, 2011; Murphy, Holmes and Mayhew, forthcoming) but one which we cannot address with the labour force data.

The paper is set out as follows. In section 2 we describe our data and demonstrate the overall changes in NEET rates for male and female young people separately over time. Section 3 presents our approach for decomposing these overall changes in NEET rates, the results of which are presented in Section 4. Section 5 concludes with some implications for policy.

2. Who are the NEETs?

2.1 Defining NEETs

The term NEET (or 'status zero' as the group was initially labelled) was first applied in the UK to those between the age of 16 and 18 who were not classified as unemployed due to the withdrawal in 1988 of entitlement to unemployment benefit for young people of that age

(Furlong 2006). This age group still receives particular attention – for example, the UK Department for Education (UK DfE) compiles a measure of 16-18 year olds in England who are NEET using administrative data on participation in employment, education and training (see, for example, DfE, 2018b). However, in recent years, the term has come to cover a much wider age range. For instance, the Office for National Statistics' (ONS) quarterly measure of NEETs covers those between the ages of 16 and 24, using Labour Force Survey data rather than less timely administrative data (see ONS, 2019). Outside of the UK, it is common to see discussions cover an even wider age group (Eurofound, 2012) – the EU provides statistics on NEETs up to the age of 29, and a similar indicator is now reported in the OECD's Employment Outlook. We follow this practice in our research and in doing so, we show that problems around participation in the labour force or access to further education and training do not disappear in the latter half of an individual's twenties – if anything, they are considerably more commonplace.

Individuals in this age range in our data are either EET (in employment, education and training) or NEET – the NEET rate figure described in later sections is the number of NEET individuals as a percentage of the total number of young people in the same age range. Figure A1 in the Data Appendix shows the iterative criteria used for determining if someone is NEET or EET. Within the NEET category, we distinguish between the active and the inactive, where the former are all NEETs who are currently searching for a job (i.e. they are the ILO definition of an unemployed individual). This distinction is important as previous research has shown that active and inactive NEETs represent two significantly different groups (Maguire, 2014; Eurofound, 2016; Maguire 2018), which we demonstrate in our analysis. Moreover, the longer-term consequences of being active NEET can be significantly different to those of being inactive NEET (Dorsett and Lucchino, 2018), which makes identifying both separately important for future policy making.

2.2 The dataset

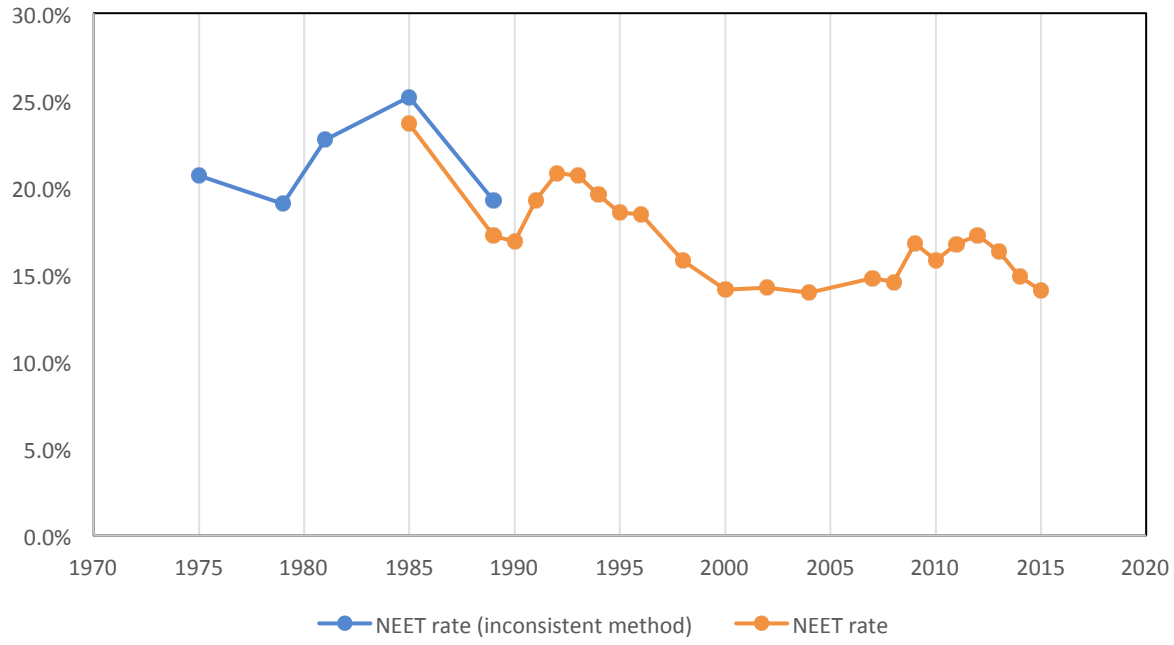
As well as including a wider age group than that found in official UK statistics, our dataset also covers a longer time period than in UK government data series, going back to 1975 before the term NEET had been devised. We do this in order to put recent focus on this group in an historical context. To our knowledge, a dataset covering such a long time period for such an extended age demographic has not been produced or analysed previously in the UK. The UK DfE has in the past reported a longer historical time series, but this has been restricted to 16-18 year olds (see, for example, DfE, 2013).

We use data from the UK Labour Force Survey, which were produced annually from 1975 until 1992 and then quarterly thereafter. Table A1 in the Data Appendix summarises the variables used in each year. For the quarterly surveys, we use the second quarter (April to June) data as this is closest to the period when the annual survey data fieldwork was

conducted, which is important because there is a cyclical element to NEET measurement, as shown in Figure A2 in the Data Appendix.

Figure 1 shows the proportion of 16 and 29-year olds that were NEET between 1975 and 2015. As explained in the Data Appendix, the variables available prior to 1985 are less consistent in terms of what questions are asked – we believe we have produced the best possible definition using what was available to us in the LFS, but for clarity we depict this as a different time series. In general, NEET rates have trended downwards since the 1970s and reached a low point in the 2000s before levelling out. Around this trend, the NEET rate has unsurprisingly followed economic cycles, with increases in the early 1980s and early 1990s and then again after the 2008-9 global financial crisis. Putting those cycles to one side, the overall change in NEET rates over forty years seems to be from around 19-20% to approximately 14%.

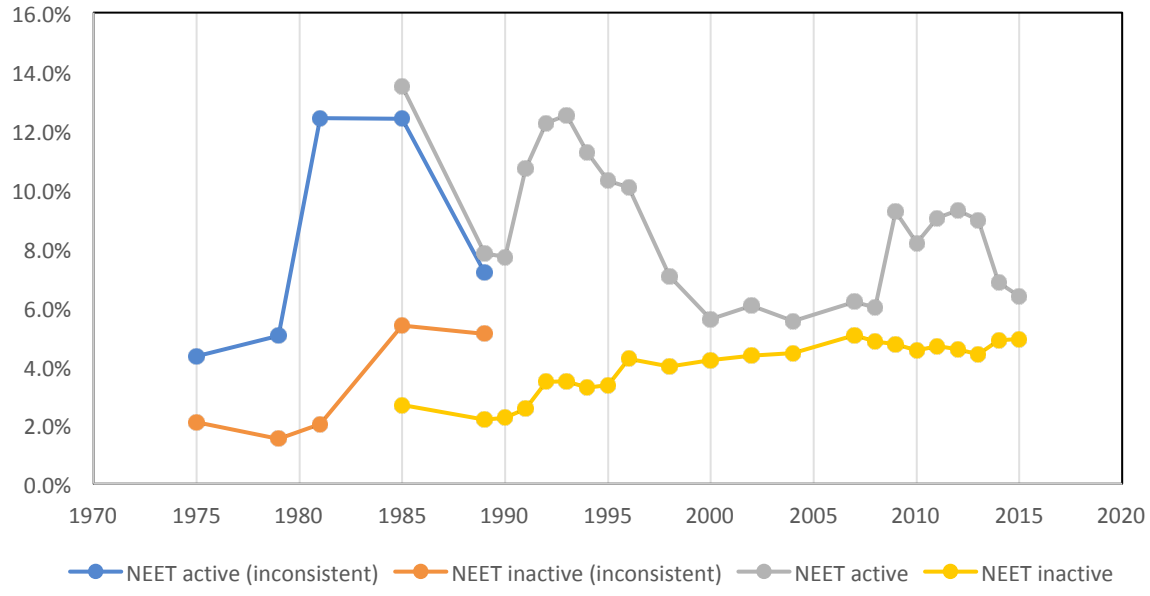
Figure 1: The NEET rate, 1975-2015



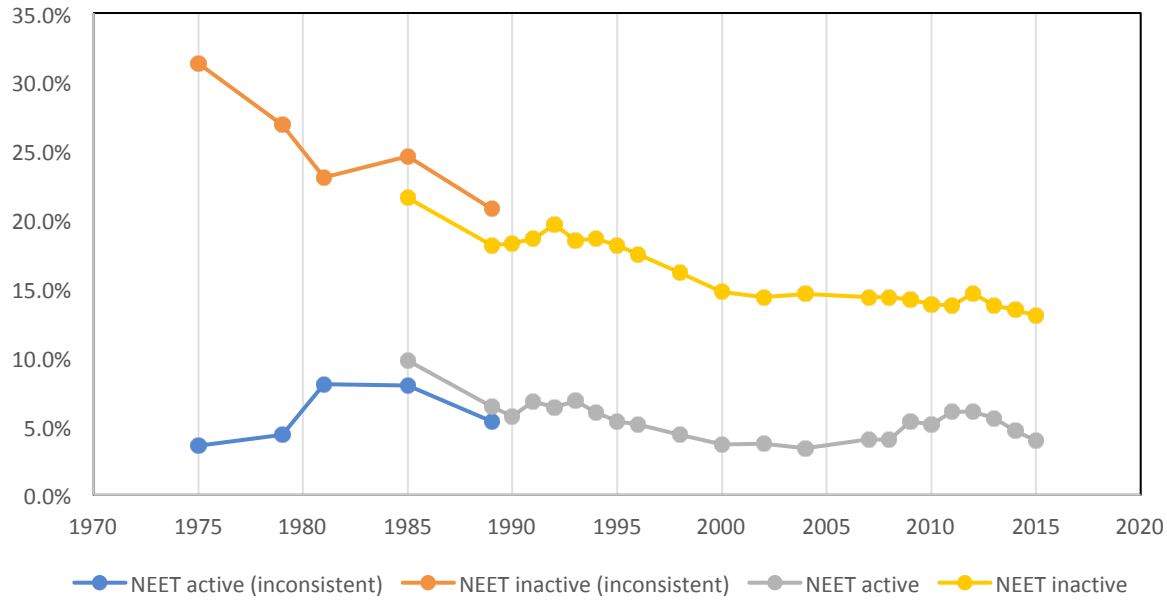
Source: LFS, own calculations.

Figure 2 shows the breakdown of the headline figure by gender and into active and inactive NEETs (i.e. those that are searching for work and those that are not).

Figure 2: Active and inactive NEET rates by gender, 1975-2015



(a) Male



(b) Female

Source: LFS, own calculations.

Over the whole time period, a greater proportion of women than men were NEETs. Prior to 1985, the female NEET rate typically exceeded 30% and was still around 25% in the mid

1990s. However, it declined almost continuously since then and by 2015, it had fallen to under 17%, which is lower than what it was directly prior to the Great Recession. For men, the low point of just under 10% came in 1990. After the early 1990s recession, it gradually returned to this level by the year 2000, before increasing marginally until 2008. Following on from the Great Recession, the proportion of male NEETs had not returned to the level it was in 2007 by 2015, let alone the low point at the turn of the century. As a result, while the NEET population comprises more women than men, the gender gap has narrowed significantly. In 1985, there were twice as many female NEETs as there were males (31.3% as compared to 16.2%), whereas in 2015, that ratio had fallen to a point where there were approximately three female NEETs to every two male NEETs.

For males, active NEETs are a larger component of the total than the inactive. For females, the majority of NEETs are inactive. For both, active NEET rates have fallen over time, albeit with a plateau after the mid 2000s. The male active NEET rate is far more volatile around this trend however, having jumped almost 5 percentage points between 1990 and 1993. Similarly, between 2008 and 2009 the active NEET rate increased by almost 3.5 percentage points for men, but only 1.5 percentage points for women.

For young females, NEET inactivity has been steadily declining over the time period, from 18.3% in 1990, 14.7% in 2000 and under 13% in 2015. In contrast to this, inactivity has been rising for males – around 2% of young males were inactive NEET in 1990, which doubled over the 1990s and continued to increase gradually after 2000. The consequence of this is that compared to the 1980s and early 1990s, where male NEETs were almost always searching for work, today male NEETs are almost evenly split between the active and inactive category. What is most striking about this increase in inactive male NEETs is that it has occurred during a time not only of strong labour market performance, but also at a time when educational opportunities expanded in terms of further and higher educational programmes, and shorter-term training programmes in the workplace.

It is worth pointing out that these trends do not vary much by age. The current near-even split between active and inactive NEETs for males is observed for teenagers as well as those in their late 20s. The decline in female active and inactive rates can be seen across age groups, although it is far more pronounced, particularly in terms of inactivity for those over the age of 21. For women under 21, active NEET rates fell from 10.5% in 1985 to 3.4% in 2015, while inactive NEET rates only dropped from 10.4% to 7.8% during the same time. For those over 25, the fall in active NEET rates was similar, but for inactive NEET rates fell from over 35% in 1985 to 18% in 2015. Later in the paper, we report the fall in the proportion of women with child care responsibilities (which were much more common for women in their mid to late 20s), as well as weakening of the predicted relationship between those responsible for child care and inactivity – both factors are key to explaining these trends.

Crucially for the key question this paper seeks to address, the plateauing of NEET rates since 2000 is common to all age groups, for both genders. For women, there is essentially no change in NEET rates for those under 22 between 2000 and 2015, and only small declines for those over 21. For men, all age groups have higher NEET rates in 2015 than in 2000, and this is not just due to the consequences of the 2008 financial crisis – these rates were increasing between 2000 and 2007 across the board, and most notably for the under 25s.

2.3 Individual drivers of the chances of being NEET in the UK

This subsection shows that while the NEET population is quite diverse, there are certain characteristics which are strongly associated with the incidence of being NEET for young people in each decade.

Success in the labour market is strongly and positively correlated with formal educational attainment – this is shown in countless empirical studies on the returns to education, and may be explained in theory by relating education to the demand for sought-after skills, or by the idea that qualifications allow employers to screen and sort prospective employees for the jobs they offer. In the analysis, we distinguish four categories of qualification – those with a university degree (or higher), those with some form of post-16[2] secondary qualifications (which includes A-Levels, Scottish Highers, level 3 vocational qualifications including apprenticeships, and professional qualifications such as nursing and teaching), GCSEs (including Scottish Standards and level 2 vocational qualifications), and those with lower level qualifications than that (or no qualifications). These distinctions are broad in order to capture the main trends as people progress through different levels of the education system.

We also distinguish three age groups – those between 16 and 21, those between 22 to 25 and those aged 26 to 29. The period of time examined has coincided with a massive expansion of education provision at the post-16 secondary and tertiary level, which should have a bearing on NEET figures for the 16-21 group unless this expansion were to only affect those who would have otherwise been in employment. The second age group captures those who have largely left formal education and are transitioning into work, while the third age group captures those who are typically expected to have moved towards stable employment. This third group covers those who are not considered NEET in UK policy terms, but are included here to demonstrate that problems of inactivity and unemployment do not simply disappear at the age of 25.

Several studies have previously shown that care responsibilities, specifically time away from the labour market to have a family, impact the chance of being NEET, and this impact is

[2] This paper uses the term 'post-16' to refer to educational qualifications that have typically been undertaken after the age of 16, which until recently was the compulsory school leaving age.

particularly pronounced for women (e.g. Feng *et al.*, 2015; Audit Commission, 2010). We use LFS household composition responses (available from 1996 onwards) to examine the impacts of having a child (including step-children) on the incidence of being NEET.

Using those same data, we also examine the impact of being over 16 and still living with parents (including step-parents or parents-in-law). There has been significant media coverage of the 'failure to launch' phenomenon, where increasing numbers of the most recent generations of young people have remained in their parental home, been unable to find a job and delayed the transition from childhood to adulthood. That said, the theoretical relationship between continuing to live with parents and NEET rates is ambiguous – living in the parental home reduces living costs that might make the need to find an income less pressing; for those with care responsibilities, the presence of grandparents may make it easier to continue to work alongside having a child. Moreover, a positive correlation between living at home and being NEET might have the causal effect running in both directions, for example if an event such as job loss triggers a young person's return to the family home (Berrington *et al.,* 2010). Hence, we include living with parents in an analysis to see if it relates to NEET status when combined with other variables, but stress that any effects cannot be interpreted as causal.

One final factor that has been repeatedly identified as a driver of being NEET is health status, with a recent emphasis on mental ill health (Scott *et al.*, 2013; Gutiérrez-García *et al*, 2017). We use LFS responses on self-reported health conditions to examine the differences between those suffering from ill health and those who are not. We categorise conditions into five groups: mental ill health[3]; physical mobility limitations[4]; hearing, sight and speech impediments; learning difficulties and other health conditions (which largely covers diseases and chronic conditions from allergies, respiratory conditions, cardiovascular conditions, digestives conditions, diabetes and others that are not classified elsewhere) We create an indicator variable for each of these categories, which each take a value of one if the respondent mentions suffering from that condition.

Alongside these individual drivers of being NEET, there are also external factors that are likely to matter. Employment prospects are driven by the national economic climate, thus when the economy is doing well and lots of new jobs are being created, active NEET rates could be expected to fall. Figure 2 shows spikes in NEET rates in the early 1990s and after 2008, both of which correspond to a recessionary period. In addition, being a new labour market entrant during an economic recession can have longer term consequences on employment rates (Raaum and Røed, 2006; Rothstein, 2019), although some studies have

[3] The LFS health variables have two relevant categories – we define someone who suffers from mental ill health as anyone reporting "depression, bad nerves or anxiety" or "mental illness, or suffer from phobia, panics or other nervous disorders".

[4] We define someone as having physical mobility limitations if they report health problems relating to the 'arms or hands', 'legs or feet or 'backs or necks'.

found that the probability of employment has not been affected, while pay and type of occupation have been (Kahn, 2010, Van den Berge and Brouwers, 2017). If there is a scarring effect of entering during a recession, we would expect to see increased NEET rates for older individuals in the years after the downturn. Finally, around national trends there is regional variation, both in terms of the magnitude of economic shocks, as well as other structural changes to the local labour market – for example, growing or declining industries concentrated heavily in one region. In our analysis, we indicate controls for English regions as well as Scotland, Wales and Northern Ireland. In section 4, we try to relate regional differences to particular regional labour market measures.

To establish the overall role played by all of these factors, we estimate a linear probability model of the form in equation (1):

$$NEET_{it} = \alpha + \beta X_{it} + \gamma Z_t + \varepsilon_{it} \quad (1)$$

where $NEET_{it}$ is an indicator variable that takes the value of one if individual *i* is NEET at time *t* and zero otherwise, X_{it} is the set of explanatory variables which predict NEET status, including age, qualifications, family and health variables as well as regional dummies, Z_t, is a set of year dummies and α, β and δ are the coefficients which relate these characteristics to the probability of being NEET. We estimate this equation for males and female separately. Tables 1 and 2 shows the results of these regressions for males and females respectively.

Table 1: Factors associated with being NEET among men, 1985-2015

	Male				
	1985-2015	1992-2015	1992-2015	1996-2015	1996-2015
Low qualifications	**0.1566**	**0.1581**	**0.1583**	**0.1490**	**0.1270**
	(0.002)	*(0.002)*	*(0.002)*	*(0.002)*	*(0.002)*
GCSEs	**0.0375**	**0.0457**	**0.0471**	**0.0486**	**0.0424**
	(0.002)	*(0.002)*	*(0.002)*	*(0.002)*	*(0.002)*
Degree	**-0.0224**	**-0.0200**	**-0.0195**	**-0.0120**	-0.0040
	(0.002)	*(0.003)*	*(0.003)*	*(0.003)*	*(0.003)*
Age: 22-25	**0.0413**	**0.0449**	**0.0446**	**0.0483**	**0.0398**
	(0.002)	*(0.002)*	*(0.002)*	*(0.002)*	*(0.002)*
Age: 26-29	**0.0183**	**0.0217**	**0.0220**	**0.0272**	**0.0160**
	(0.002)	*(0.002)*	*(0.002)*	*(0.003)*	*(0.003)*
Has child				**0.0390**	**0.0426**
				(0.003)	*(0.003)*
Lives with parent				**0.0230**	**0.0215**
				(0.002)	*(0.002)*
Has child x Lives with parent				-0.0222	-0.0241
				(0.013)	*(0.013)*
Mental ill health					0.3820
					(0.006)
Physical mobility limitations					**0.1189**
					(0.005)
Hearing, sight or speech impediment					**0.0467**
					(0.007)
Other health conditions					**0.0390**
					(0.003)
Learning difficulties					**0.0568**
					(0.006)
Constant	**0.0800**	**0.0830**	**0.0863**	**0.0439**	**0.0472**
	(0.003)	*(0.003)*	*(0.004)*	*(0.004)*	(0.005)
Year control	Yes	Yes	Yes	Yes	Yes
Region controls	No	No	Yes	Yes	Yes
Observations	243,001	180,649	180,649	125,332	125,332
R^2	4.6%	4.4%	4.8%	4.5%	9.1%

Notes: Dependent variable in each model is indicator for being NEET. Standard errors reported in parentheses. Effects statistically significant at the 1% level indicate in **bold**.

Table 2: Factors associated with being NEET among women, 1985-2015

	Female				
	1985-2015	1992-2015	1992-2015	1996-2015	1996-2015
Low qualifications	**0.2792**	**0.2807**	**0.2806**	**0.2070**	**0.1939**
	(0.002)	*(0.002)*	*(0.002)*	*(0.003)*	*(0.003)*
GCSEs	**0.0905**	**0.1027**	**0.1036**	**0.0809**	**0.0681**
	(0.002)	*(0.002)*	*(0.002)*	*(0.003)*	*(0.002)*
Degree	**-0.1059**	**-0.0989**	**-0.0979**	-0.0017	**0.0117**
	(0.003)	*(0.003)*	*(0.003)*	*(0.003)*	*(0.003)*
Age: 22-25	**0.1523**	**0.1519**	**0.1514**	**0.0303**	**0.0135**
	(0.002)	*(0.002)*	*(0.002)*	*(0.003)*	*(0.003)*
Age: 26-29	**0.1833**	**0.1707**	**0.1705**	**-0.0270**	**-0.0471**
	(0.002)	*(0.002)*	*(0.002)*	*(0.003)*	*(0.003)*
Has child				**0.3428**	**0.3632**
				(0.003)	*(0.003)*
Lives with parent				**-0.0354**	**-0.0398**
				(0.003)	*(0.003)*
Has child x Lives with parent				0.0096	0.0166
				(0.009)	*(0.007)*
Mental ill health					**0.2402**
					(0.006)
Physical mobility limitations					**0.0662**
					(0.005)
Hearing, sight or speech impediment					**0.0450**
					(0.009)
Other health conditions					**0.0370**
					(0.003)
Learning difficulties					**0.1025**
					(0.009)
Constant	**0.0845**	**0.0467**	**0.0456**	**0.0525**	**0.0535**
	(0.003)	*(0.003)*	*(0.004)*	*(0.005)*	(0.005)
Year control	Yes	Yes	Yes	Yes	Yes
Region controls	No	No	Yes	Yes	Yes
Observations	258,230	193,663	193,663	134,765	134,765
R^2	12.4%	11.9%	12.1%	25.3%	27.1%

Notes: Dependent variable in each model is indicator for being NEET. Standard errors reported in parentheses. Effects statistically significant at the 1% level indicate in **bold**.

The table confirms that during the past 30 years, the incidence of NEET is far higher for those with few qualifications, especially for females. Specifically, and depending on the specification, low or no qualifications is associated with NEET rates approximately 20-28 pp higher for women and 13-16 pp higher for men. Those with higher qualifications than GCSEs have lower NEET rates, but there is little difference between males with A-Levels and males with a degree. Having a degree appears to have a stronger relationship with lower NEET rates for women, but this disappears once we control for having a child, which suggests that qualification effects have a lot to do with the differences by educational level in the propensity to start a family before the age of 30.

In this paper we do not distinguish between qualifications being academic or vocational at each level, as subject information is not available in the LFS. However, the LFS data does have information of whether an individual reports that they had completed a trade apprenticeship, including advanced and foundation modern apprenticeships – on average, approximately 12% of males and 4% of females included in our analysis have completed one, although for males this figure has dropped from 16% in 1985 to 7% today. We recalculated the final estimates in Table 1 and 2 including a variable for completion of a trade apprenticeship alongside the other educational measures, which showed that between 1996 and 2015, having a trade apprenticeship was associated with a 1.0 pp fall in the chance of being NEET for males and 2.3 pp increase in the chance of being NEET for females – the latter points to the fact that unless we have the unlikely situation that a trade apprenticeship is actively taking away skills, there is an element of selection in the decision to focus on a work-based training route into the labour market that is being picked up by this variable.

NEET rates increased among men and women after the age of 22, which holds true throughout their 20s. However, once care and living arrangements are included, we see that the massively higher NEET rates for women in their mid to late 20s are almost entirely due to having a child. Indeed, NEET rates are lower in their late 20s for women as compared to late teenage years once having a child is controlled for. For males, those living with parents have higher NEET rates, but only if they don't have children. For women, this relationship is reversed – those living with parents have lower risks NEET rates than those living elsewhere. What isn't examined here is whether those women who are not living with their parents are instead living with a partner, and if so whether these women are more likely to be NEET due taking on more domestic and household work (which may be less necessary for those still living with parents).

This analysis would seem to suggest that two popular conceptions of the NEET group are not correct – that there is a large effect caused by teenage mothers[5] and young people delaying adulthood by remaining in their parental home well into their 20s.[6] Firstly, while being a parent increases NEET risks for women of all ages, this effect seems to be most relevant for those over 21. Since 1996, the proportion of females under 22 who have a child has fallen from 8.2% to 5.6% in 2015. By comparison, in 2015, the proportion of those between 22 and 25 who had a child was 28.3% and for those between 26 and 29, it is 45.4%. Secondly, while living with parents is associated with higher NEET risks for young men, the opposite is true for young women. Moreover, the effect is small – an expected 2.3

[5] The 1999 SEU report on teenage pregnancy describes the UK's poor record on teenage pregnancy and makes explicit links between teenage parents and social disadvantage and economic inactivity, leading to two main objectives for policy – a reduction of teen pregnancy rates, and an increase in teen parent employment. Strikingly, no such equivalent policy objectives exists for young people who pregnant in their 20s.

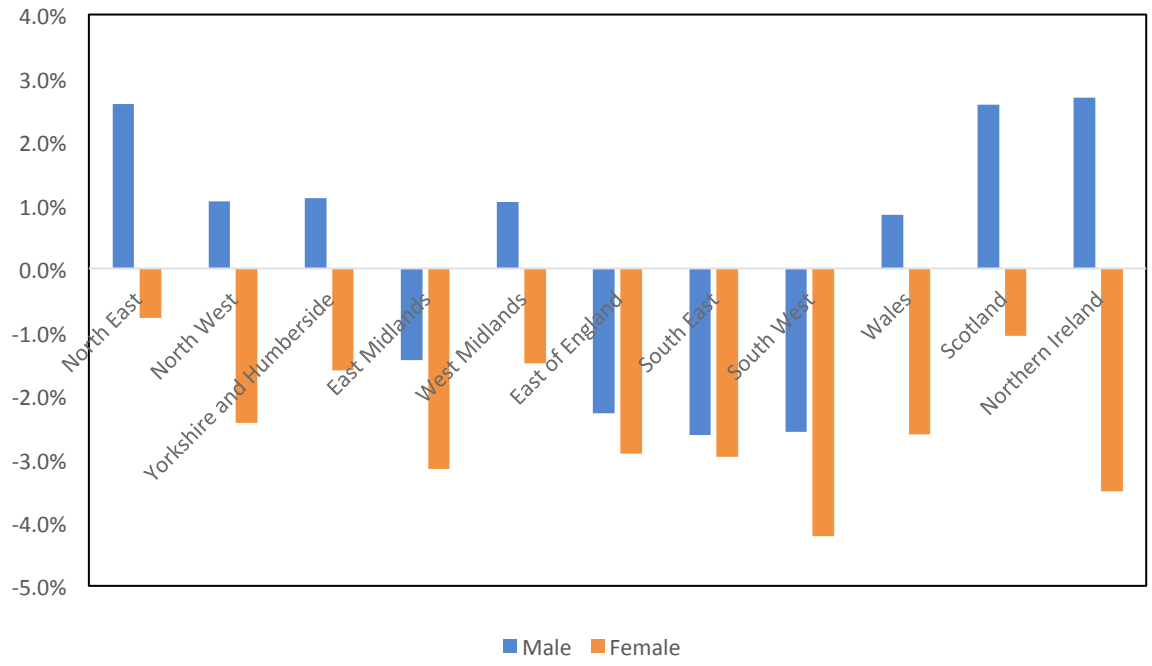
[6] See, for example, the New York Times Magazine, June 20, 2014: https://www.nytimes.com/2014/06/22/magazine/its-official-the-boomerang-kids-wont-leave.html

percentage points holding everything else constant - as compared to other variables like having less than A-Level qualifications.

The tables confirm that mental ill health has a substantial effect on the risk of being NEET. It is associated with an increase in NEET rates of 38.2 pp for males and 24.0 pp for females. A key point to note is that the effects of mental ill health on the chances of being NEET are much higher than those associated with other health conditions, for both men and women. In the next section, where we look at the reasons NEET rates have changed over time, we focus only on mental ill health and omit the other health variables. We do this to simplify the analysis, and because there has been little change in the incidence of these variables over the time period (unlike for mental ill health which has become much more common since 2000, see Table 3).

Finally, the introduction of regional controls has some explanatory power in and of itself, but does not affect the relationship between individual characteristics and NEET variables. Figure 3 shows the predicted effects of living in different parts of the UK (relative to London) – in general, women with similar characteristics have lower NEET rates in all parts of the UK as compared to London, while for men this is only true in the east and south of England. The effect sizes vary, but are non-negligible and all except two are statistically significant at the 5% level.

Figure 3: Predicted regional effects on NEET rates, 1998-2015



Source: LFS, own calculations.

This analysis shows overall predictors of being NEET, and confirms that there are differences in the chances of being NEET associated with qualification level, family structure, health and region. In the next section, we turn our attention to explaining why NEET rates fell over the 1980s and 1990s, and why they have remained relatively unchanged since around 2000.

3. Accounting for changes in NEET rates

One explanation for this evolution in NEET rates would be that until 2000, there were increasing numbers of young people with the sorts of characteristics that are associated with a lower chance of being NEET, but that after 2000 this stopped being the case. A second explanation is that the relationship between those characteristics and being NEET has changed in such a way that we would now expect someone with one of those characteristics to be more likely to be NEET today than in the past. The third potential explanation is that there are structural factors outside of an individual's control which have an effect – for example, the impact of deindustrialisation, or the tightness of local labour markets. In order to evaluate these different explanations, we re-estimate equation (1) for each year, *t*:

$$NEET_{it} = \alpha_t + \beta_t X_{it} + \varepsilon_{it} \quad (2)$$

Taking mean averages of the dependent and explanatory variables gives that the NEET rate (the mean of the NEET variable at any point in time) can be expressed as a function of the mean average characteristics of the population at that point in time. We are interested in the change in the NEET rate between time *t* and time *t+1*, so by subtracting one from the other and rearranging terms we get that:

$$\begin{aligned} \overline{NEET_{t+1}} - \overline{NEET_t} &= (\alpha_{t+1} + \beta_{t+1}\overline{X_{t+1}}) - (\alpha_t + \beta_t \overline{X_t}) \\ &= \beta_t(\overline{X_{t+1}} - \overline{X_t}) + (\alpha_{t+1} - \alpha_t) + \overline{X_{t+1}}(\beta_{t+1} - \beta_t) \quad (3) \end{aligned}$$

The change in the NEET rate between two periods can therefore be broken down into two parts, which we refer to as the composition effect and the coefficient effect.[7] The composition effect is given by the first term in equation (3), which captures the change in the NEET rate that would be expected if the characteristics of the population between the two time periods changed but the way those characteristics related to the chance of being NEET stayed the same. Table 3 shows how the individual characteristics of the young people in our dataset have changed over time. It demonstrates that this age group is considerably more educated, with the growth in higher educational attainment particularly high for women, which we would expect to lead to fewer NEETs. Similarly, the fall in the proportion of young people with a child would suggest less people being NEET in 2015 than in 1985. The number who are living with parents has increased, but our initial analysis

[7] This is the standard Blinder-Oaxaca decomposition method.

suggested this would have a small effect, and it is not clear in which direction. On the other hand, mental ill health problems (which are not recorded in 1985) were reported by less than 2% of both men and women in 2000 and increased almost four-fold by 2015, which would be expected to increase the number of NEETs.

Table 3: Descriptive statistics

		1985	2000	2015
Male	Age	22.3	22.5	22.3
	Low qualifications	39.6%	25.0%	17.3%
	GCSEs	24.5%	29.4%	28.3%
	A-Levels	29.6%	32.9%	36.6%
	Degree (and higher)	6.3%	12.8%	17.9%
	Has child		10.8%	9.9%
	Lives with parents		57.0%	61.2%
	Has mental ill health		1.2%	4.6%
	Mental ill health is main health problem		0.7%	3.1%
Female	Age	22.4	22.7	22.7
	Low qualifications	40.6%	22.8%	13.6%
	GCSEs	33.6%	34.3%	27.1%
	A-Levels	20.8%	30.2%	36.1%
	Degree (and higher)	5.0%	12.8%	23.2%
	Has child		26.6%	24.5%
	Lives with parents		42.9%	50.5%
	Has mental ill health		1.8%	7.1%
	Mental ill health is main health problem		1.0%	5.3%

Source: Labour Force Survey, own calculations. Mean values are shown for each year.

The second term in equation (3) gives the shift in the intercept variable, α_t – when all the variables *X* are defined relative to a reference characteristic (for example, the effect of having a degree compared to someone with post-16 secondary schooling qualifications), what is happening to people with all the reference characteristics (the reference group) is captured in this shift. We refer to this as a reference group effect throughout the rest of this paper. The final part of equation (3) captures the change in the way each characteristic relates to the chance of being NEET – for example, if the penalty to having low qualifications (in terms of being more likely to be NEET) compared to having post-16 secondary schooling qualifications gets worse, then we would expect the NEET rate to go up, everything else being equal, because the people that have that characteristic at the end of time period are more likely to be NEET than that same group would have been at the beginning of the time period.

General effects – such as increases or decreases in the overall demand for labour during an economic upturn or recession, or systemic changes in the incentives to participate in employment or education, for example, through reform in the welfare state – would show up if the reference group effect explained most of the change. This means that the likelihood of being NEET has changed for the reference group, while the relative benefit of having certain characteristics (like qualifications) has not changed compared to this group; consequently, the absolute chance of being NEET has shifted for everyone. We include

regional variables in our analysis, where regional effects are given relative to those living in London. The choice of London as reference group is deliberate here - if variability of regional effects is low but the total effect of regions on the national NEET rate is high, this indicates a divergence between London and elsewhere, which is relevant to ongoing debates about the extent of London's economic and political dominance in the UK.

We conduct our analysis on the overall NEET rates separately for men and women, and then make a further distinction between active and inactive NEETS – these results are presented in Appendix B. We do this primarily to illustrate how these two groups are not all that similar and that policy to reduce NEET risks needs to treat these subgroups of the NEET population as distinct. The next section presents the results for male and female overall NEET rates.

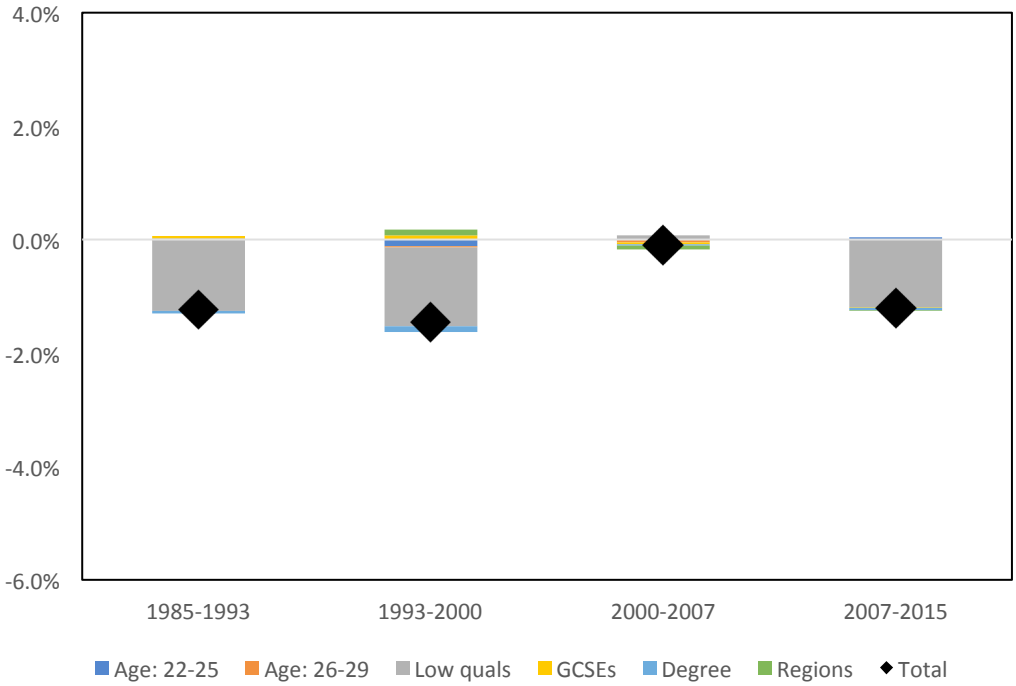
4. Results

4.1 Qualifications and age

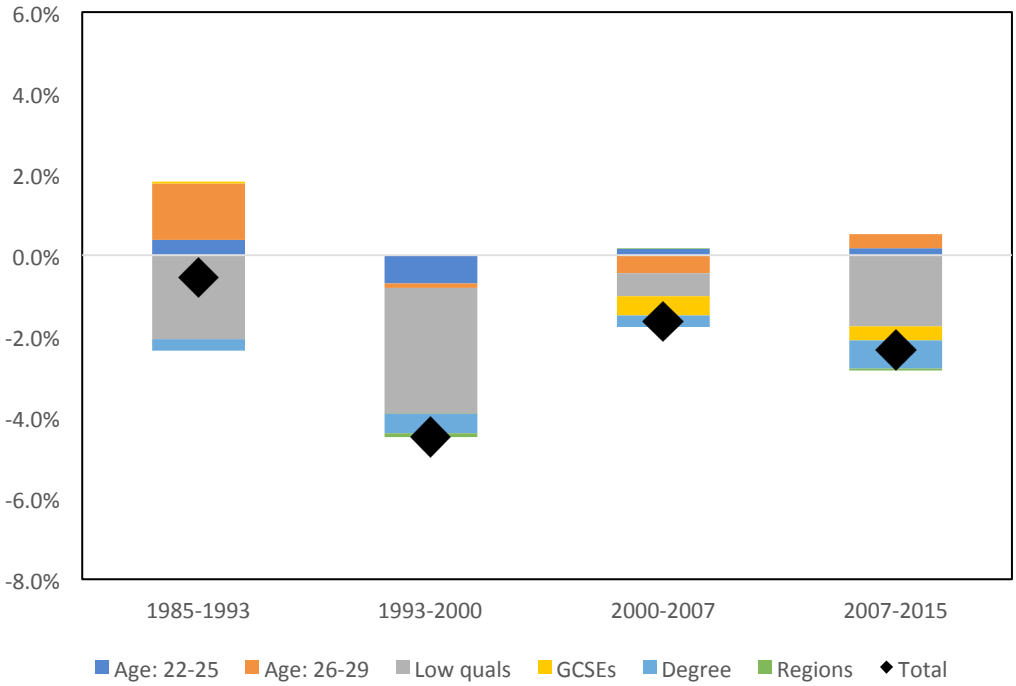
We start with estimating a simple version of equation (3), which just includes qualifications, age and regional variables, for four time-periods: 1985-1993, 1993-2000, 2000-2007 and 2007-2015. We do this to look at the longer-term trends as variables on mental health and household structure are not available in these earlier time periods – those are considered for the final two time periods in section 4.3.

Figure 4 shows that for both males and females, there was an increase in educational attainment in all of the time periods except 2000-2007, particularly the fall in those who have no or low qualifications. This would have pushed NEET rates down if nothing else had changed about the relationship between qualifications and the risk of being NEET.

Figure 4: Compositional effects on NEET rates by gender, 1985-2015



(a) Male



(b) Female

Source: LFS, own calculations.

Between 2000 and 2007, there was little change in the number of people with low or no qualifications, and given that young people in this group continue to have a much higher risk of being NEET, this is a key reason why NEET rates did not fall as much in the years after 2000. It is not immediately obvious why this should have been the case – the share of people with low qualifications fell again in the period after this. However, one reason for this is due to migration – in particular, an increase in new migrants with few qualifications (or, potentially, qualifications that are not recognised in the qualification framework used to gain information of education in the Labour Force Survey).

Table 4: Migrants and low qualified young people

	1993	2000	2007	2015
Foreign born	6.6%	8.3%	13.2%	13.9%
Share of foreign born with low qualifications	46.7%	47.6%	50.3%	28.8%
Share of UK-born with low qualifications	32.4%	21.7%	18.9%	13.2%
Foreign born share of low qualified	**9.2%**	**16.6%**	**28.7%**	**26.2%**

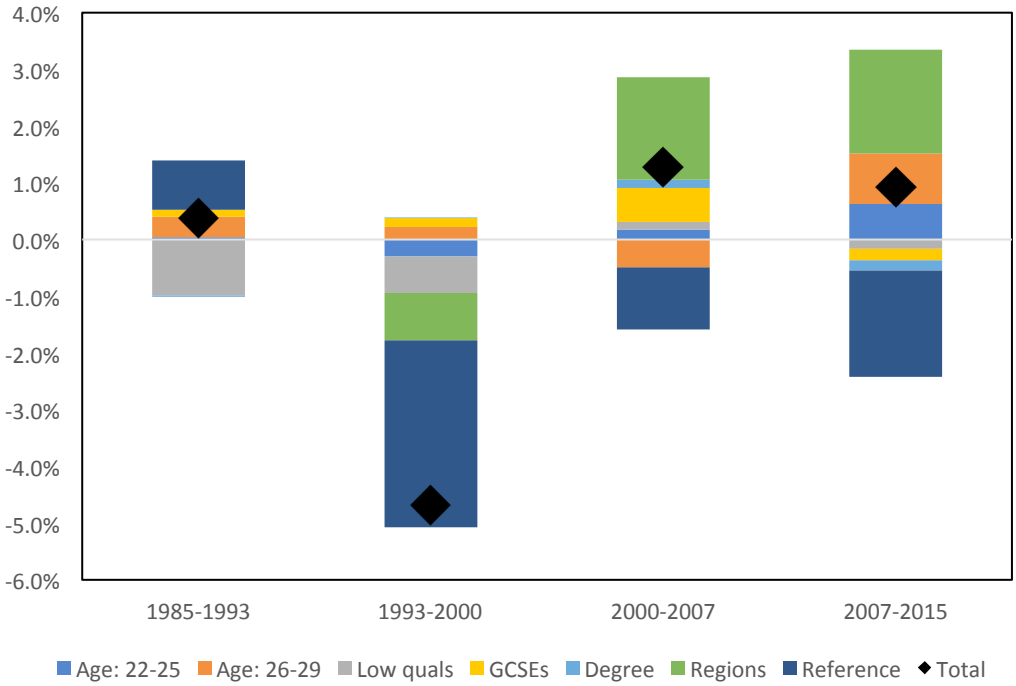
Table 4 shows that the share of foreign-born individuals between the age of 16 and 29 jumped from 8% to 13% between 2000 and 2007. Of these individuals, the proportion with low or no qualifications increased slightly during that time period, while for UK born young people, those with no qualifications continued to fall. The result of both the increase in the number of migrants and the relative fall of those who were born in the UK who had no or low qualifications was that between 2000 and 2007, the proportion of foreign-born individuals in the low-qualified group almost doubled, from 16.6% to 28.7%.

Given that migrants, particular recent migrants, are likely to have a greater need to work on account of visa conditions (for non-EU migrants) or less access to other income sources to support themselves, then we might expect the effect of having low qualifications to be understated by the changing composition of that group. To check this, we include a variable for being foreign-born as well as a variable for being a recent migrant (which refers to foreign born individuals who arrived in the UK within the previous five years) into our previously estimate regressions. We find that for men, all else equal, the probability that a recent migrant was NEET was 4.5 percentage points lower than an otherwise identical UK-born young male in 2000. This increased to 6.6 percentage points by 2007, and then fell to less than 1 percentage point in 2015. For women, the migration variables were not significant (at the 5% level) in 2000 and 2007, but in 2015, recent migrants were 6.1 percentage points more likely to be NEET than another identical UK-born young female. In all the cases, the other coefficients on individual characteristics and regional dummies remained essentially the same as in the earlier analysis. As these effects are not huge, and the group itself is small, the overall impact of migrants on NEET rates in the UK is not important.

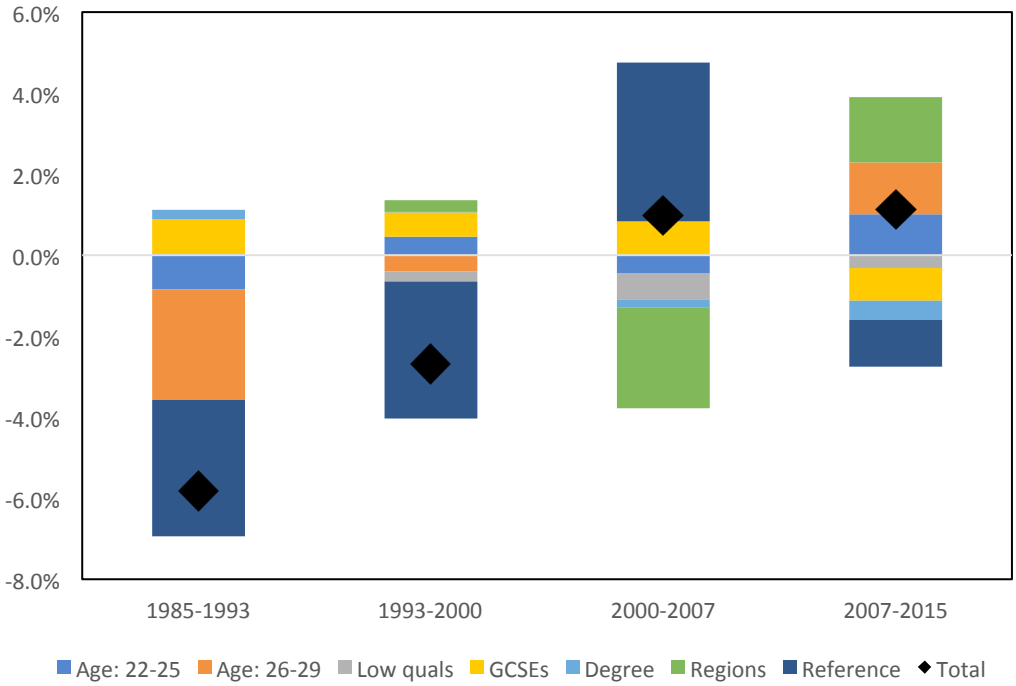
The compositional effects shown in Figure 4 only give us a counterfactual, which tells us what we would have expected to have happened if nothing changed in the relationship between key individual characteristics and the likelihood of being NEET. Figure 5 shows the effect of changes in the relationship between these characteristics and the likelihood of being NEET. It shows that before 2000, the chance of being NEET fell even once the compositional effects were taken into account – that is, the relationship between the likelihood of being NEET and a person's qualifications, age and region improved even as more people had the characteristics associated with a lower NEET incidence. After 2000, this has not been the case.

Figure 5 shows that before 2000, the reference group effect is large, suggesting there is a general trend towards lower risk of being NEET for all young people. In the first period, female labour force participation increased, an effect which was even stronger for those in their mid and late 20s. This age effect is largely for inactive NEETs (see Appendix B), and seem likely to be related to changing gender roles around work and family (although this is speculative as we cannot control for having a child in these earlier periods). The reference group effect for men in the first period is smaller and positive – 1993 was at the end of the early 1990s recession, so the labour market situation for everyone was difficult. There may also be some effect of the end of 1980s programmes like the Youth Training Scheme, which moved unemployed males into training schemes and out of the NEET statistics. The figure also shows that the penalty to low qualifications in 1993 fell as compared to 1985, so NEET risk for this group doesn't worsen as much as for those with higher qualifications.

Figure 5: Coefficient effects on NEET rates by gender, 1985-2015.



(a) Male



(b) Female

Source: LFS, own calculations.

In the 1990s until the year 2000, the reference group effect is even larger for both males and females and accounts for almost all of the overall coefficient effect. NEET rates continued to fall during this period. This effect is particularly associated with a decline in active NEETs rates for both men and women, which points to improvements in labour market conditions after the early 1990s recession as the main driver here.

After 2000, coefficient effects largely offset any compositional changes that would otherwise have been expected to reduce NEET rates. In particular, regional variation plays a large role. For the period between 2000 and 2007, where in general the economy continued to perform as well as it had in the previous period, these regional effects related to inactive NEET rather than active NEETs – for women, there was increase in the chance of being NEET and inactive in London compared to elsewhere and for men a decrease in the chance of being NEET for those in London as compared to most other regions around the UK.

The period following the global financial crisis and recession in 2008-9, and subsequent imposition of austerity measures by the Coalition government saw two main effects. Firstly, there were regional effects for men and women and these were nearly identical overall – outside of London, NEET rates increased compared to being in London. This related to an increase in inactive NEETs outside of London rather than an increase in NEETs seeking work. The second effect we see relates to age – specifically, the position of NEETs over 22 worsened during this period as compared to those under 22. This mostly affected active NEET rates, which is consistent with the notion that those who enter the labour market after completing education during a downturn face some longer-term scarring effects that can still be observed in their mid and late 20s. However, it is worth remembering that during this time period, a number of policies were introduced to increase participation in education amongst 16-17 year olds, not least an increase in the participation age (House of Commons, 2018). The age effects could therefore simply be reflecting an increase in the number of young people staying in education while they are 16 and 17 (who would otherwise have been looking for work), rather than worsening employment outcomes for older workers. To test this, we estimated the same decomposition as above, but excluded those between 16 and 17, so now age effects would be comparing those aged 18-21 (who are outside of the effects of these participation policies) to those who are older. The results show a mixed picture. For men, the age effect disappears, suggesting that males in their late 20s (who entered the labour market during the recession) are in no worse a position in terms of employment than those who entered some years later when the economy began to recover, and that the previous age effects relate to educational participation. For women, however, the age effect remains, suggesting that there are genuine worsening employment opportunities for women in their mid to late 20s as compared to women in their teens.

4.2 The role of labour market characteristics

Section 4.1 points to the importance of regional effects as a key driver of the risk of being NEET. In this subsection, we look to see if there are any labour market characteristics which might help us understand this further.

Using the LFS, we collect four regional level variables which are related to the labour market: the unemployment rate for those between 35 and 60 (to avoid endogeneity between this variable and NEET rates), the share of workers between the age of 16 and 59 in part-time jobs, the share of workers between the age of 16 and 59 in lower skilled service jobs (specifically SOC groups 6 and 7, which covers personal care occupations and retail service occupations) and the share of workers between the age of 16 and 59 in professional jobs (specifically SOC group 2, which covers the traditional professional occupations such as doctor, lawyer, teacher, and so on). As they were being used to explain regional differences as compared to London, we included them in the analysis in terms of their percentage point difference from the equivalent London figure. The measure of part-time work is included as a proxy for more flexible, less secure working arrangements. More flexible working arrangements may reduce barriers to entering the labour market among youth populations (O'Reilly *et al*. 2015). Though the evidence on relations between low-quality 'flexible' work and gender inequalities in the ease of working in the UK is open to question (Warren and Lyonette, 2018), the ability to work part-time given societal norms around responsibility for child care may help young women in particular leave NEET status. On the other hand, less secure employment may be seen as too risky to be worth disrupting the certainty of welfare payments for (Maguire, 2018) as well as lower paid and hence less attractive given the costs of find alternative child care arrangements. The overall expected effect is therefore theoretically ambiguous and could vary by gender as well as by active or inactive NEET status. The two measures which capture the type of jobs available could potentially pick up a number of effects, and the direction of the effect is theoretically ambiguous. Having a larger share of low-skilled service jobs with fewer entry requirements in the region could potentially make it easier for less qualified individuals (who have higher NEET risks typically) to find employment. On the other hand, relative size of occupations might be a proxy for some currently unobservable individual characteristics related to being NEET – for example, individuals with a higher attachment to pursuing a career may self-select into regions with a higher share of professional occupations. The inclusion of a measure of general unemployment conditions should need no explanation.

Table 4 shows how these variables evolved over the period 2000 to 2015. As well as being a politically salient comparison given concerns about regional divergence with London, using the capital as a reference point is also analytically convenient in our case because it is almost always the outlier along all four metrics listed – London has a higher unemployment rate, a higher share of higher skilled occupations, a lower share of lower skilled occupations and a lower share of part-time employment.

Table 4: Mean regional differences in key labour market indicators

	2000	2007	2015
Unemployment rate (relative to London)	-1.0%	-2.1%	-1.2%
Part-time work share (relative to London)	3.4%	3.6%	3.2%
Service occupation share (relative to London)	2.4%	2.4%	2.3%
Professional occupations share (relative to London)	-1.5%	-1.8%	-1.3%

Source: Labour Force Survey, own calculations

We re-estimate regression (1) for the period 2000-2015 including regional dummies as well as these regional labour market variables. Table 5 shows the coefficients on each of these (for space, we omit reporting the other explanatory variables included in Tables 1 and 2, but they are essentially unchanged by the inclusion of regional labour market variables). The table shows that for males, regional variation in unemployment has a significant effect on NEET rates, through a reduction in active NEETs, which is what we would expect. We could not reject the hypothesis that the coefficient is one – implying a one percentage point increase in unemployment rates corresponds to an identically sized increase in NEET rates. There is some suggestion (although the effect is only significant at the 10% level) that areas with a higher share of higher skilled professional jobs have lower NEET rates for men, but no such effect for women.

Table 5: Effects of regional labour market variables on probability of being NEET

		Male	Female
All NEET	Unemployment rate	0.742***	-0.128
		(0.205)	*(0.217)*
	Part time share	0.070	0.213
		(0.160)	*(0.167)*
	Service occupation share	0.045	-0.491**
		(0.222)	*(0.235)*
	Professional occupation share	-0.357*	-0.188
		(0.211)	*(0.223)*
Active	Unemployment rate	0.859***	0.116
		(0.172)	*(0.135)*
	Part time share	0.245*	0.146
		(0.134)	*(0.104)*
	Service occupation share	0.234	0.141
		(0.186)	*(0.146)*
	Professional occupation share	-0.241	0.003
		(0.177)	*(0.139)*
Inactive	Unemployment rate	-0.116	-0.245
		(0.128)	*(0.191)*
	Part time share	-0.175*	0.067
		(0.100)	*(0.147)*
	Service occupation share	-0.189	-0.633***
		(0.138)	*(0.208)*
	Professional occupation share	-0.117	-0.191
		(0.131)	*(0.197)*

Notes: Dependent variable in each model is indicator for being NEET, active NEET or inactive NEET. Explanatory variables are measured in decimal form, so on the same scale as the dependent variable. Full regression includes all variables from Tables 1 and 2, as well as year and region dummies, coefficients are omitted here for space. Standard errors reported below each coefficient in parentheses. *$p<0.1$; **$p<0.05$; *** $p<0.01$

However, areas with a higher share of lower skilled service occupations have lower female NEET rates for women (which is achieved by a reduction in inactive female NEET rather than active female NEETs), but there is no relationship between the number of lower skilled service occupations and male NEET rates. Finally, there is weaker evidence about the relationship with part-time work – specifically, more part-time work has no bearing on female NEET rates, and no overall effect for men (although there are lower inactive NEET rates and higher active NEET rates in areas with a larger part-time share).

However, these effects only help understand a small amount of regional divergence in NEET rates between 2000 and 2015. As shown in Table 4, regions outside of London on average saw falling unemployment relative to London, which should imply falling NEET rates in these regions relative to London – in reality, we observe greater NEET risks outside of London, everything else being equal. Part-time share of employment did not change all that much, and as such, cannot explain why NEET rates fell outside of London between 2000 and 2007, nor why they increased compared to London after 2007. The end result is that substantial regional variation still remains even after including indicators for the state of regional labour markets.

4.3 The full specification after 2000

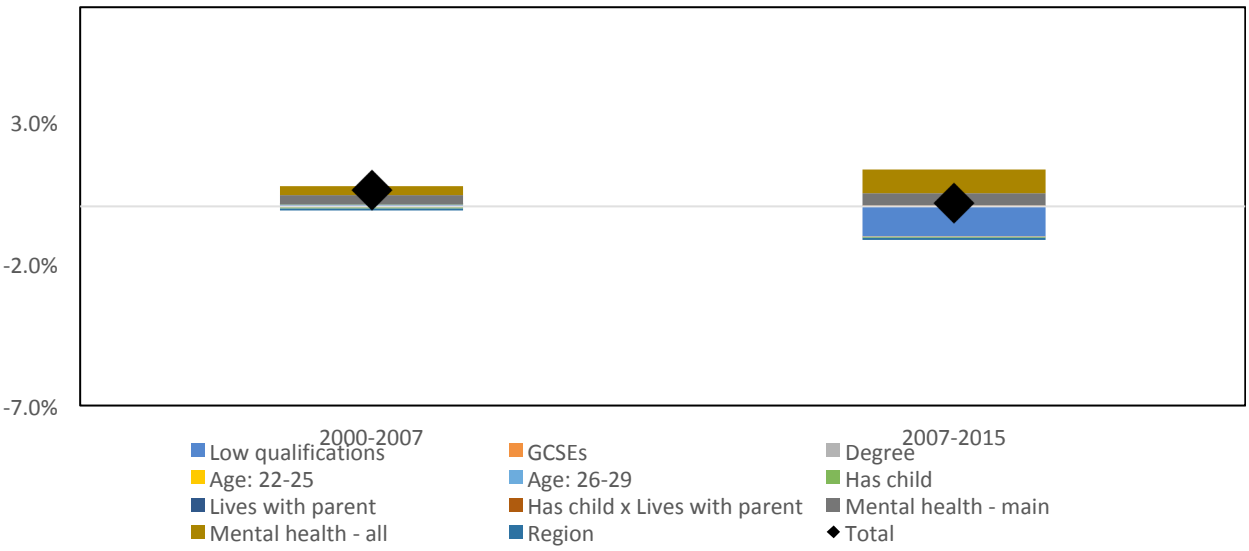
As noted at the beginning of this section, the analysis in section 4.1 uses only the education, age and region variables as these are available over the entire time period examined. However, mental ill health, having a child and/or living with parents are correlated with qualifications and age, so in this simple analysis, changes in the number of people these characteristics apply to is not entirely detected in the compositional effects (in Figure 4) and would end up entering the analysis as part of the coefficient effects (in Figure 5).[8]

When we include mental health and family structure variables, a slightly different picture emerges, as shown in Figures 6 and 7 (which repeat Figures 4 and 5, but for the full set of variables from 2000 onwards). Figure 6 shows that for males, the increase in reported mental ill health would have pushed up NEET rates, everything else being equal, in both periods, but particularly after 2007. The implication of this is that in terms of compositional

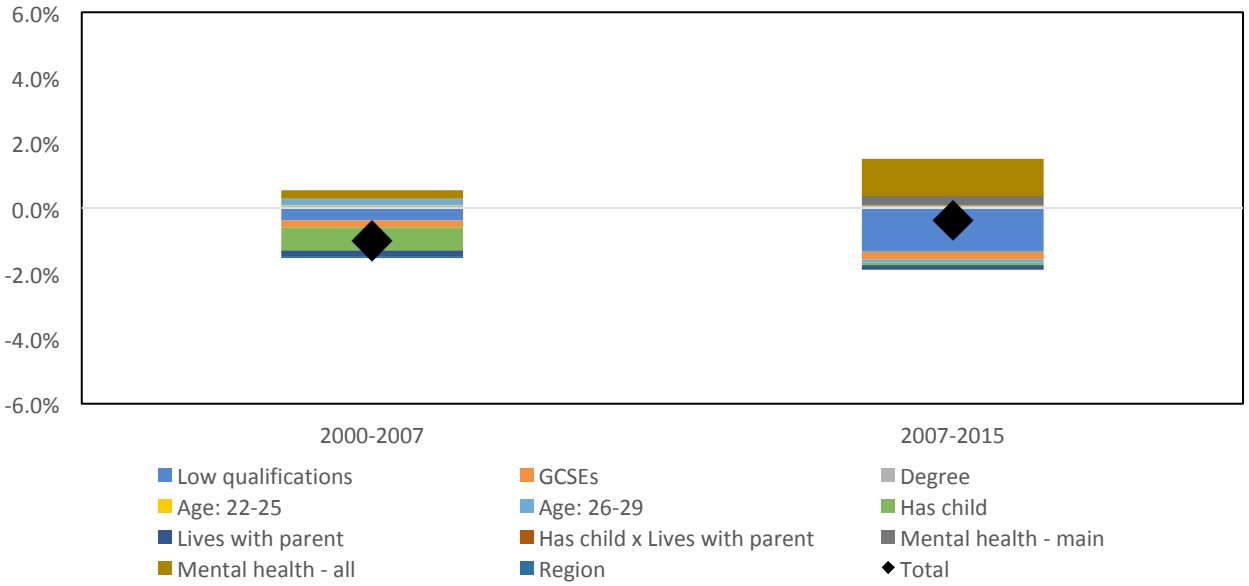
[8] For example, if having a child has been associated with having low qualifications, and the number of people with low qualifications falls (but fertility patterns do not change), this means there would now be more people with higher qualifications who have a child than we would have expected in the past. The coefficient on higher qualifications would then change due to a change in the composition of people with those qualifications, rather than a change in any causal relationship between having a particular qualification and NEET risk.

effects, Figure 4 overstates how much NEET rates were expected to fall because it doesn't account for mental ill health, which has largely offset any compositional effects relating to better educated individuals. Moreover, for women, the effect of education on the chance of being NEET is smaller when having a child is controlled for – hence the compositional effects for women are much more about the fall in the share of young women who have a child than about changes in educational attainment.

Figure 6: Compositional effects on NEET rates by gender, 2000-2015



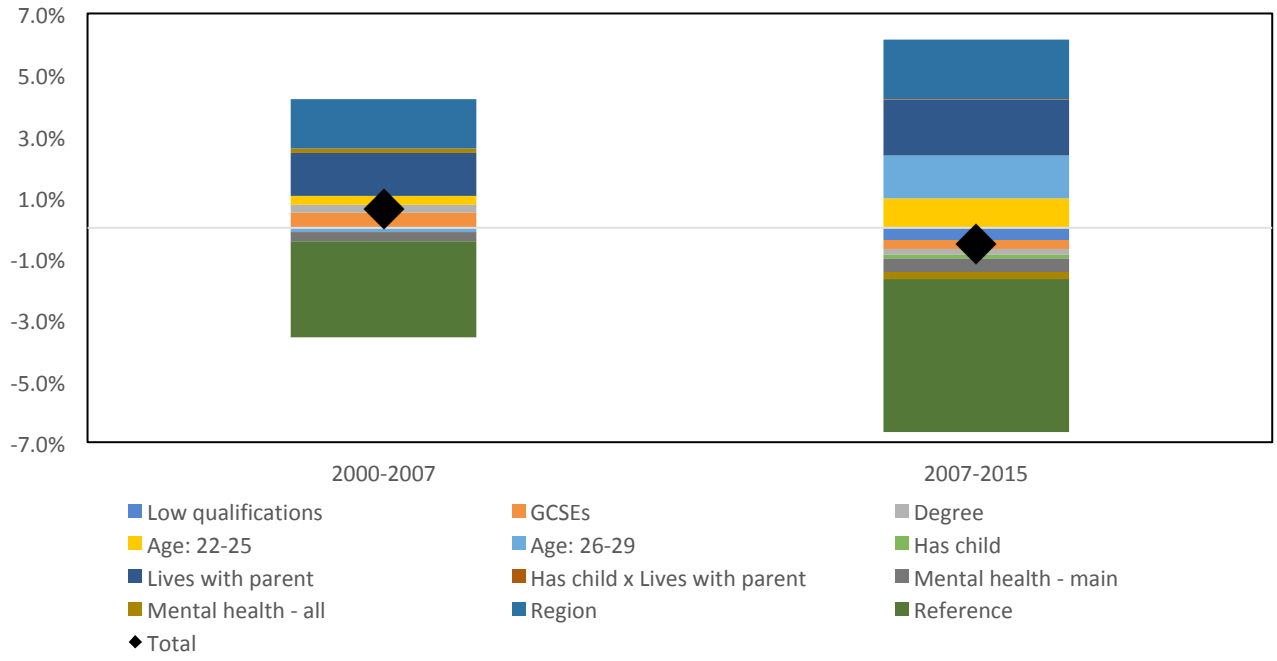
a) Male



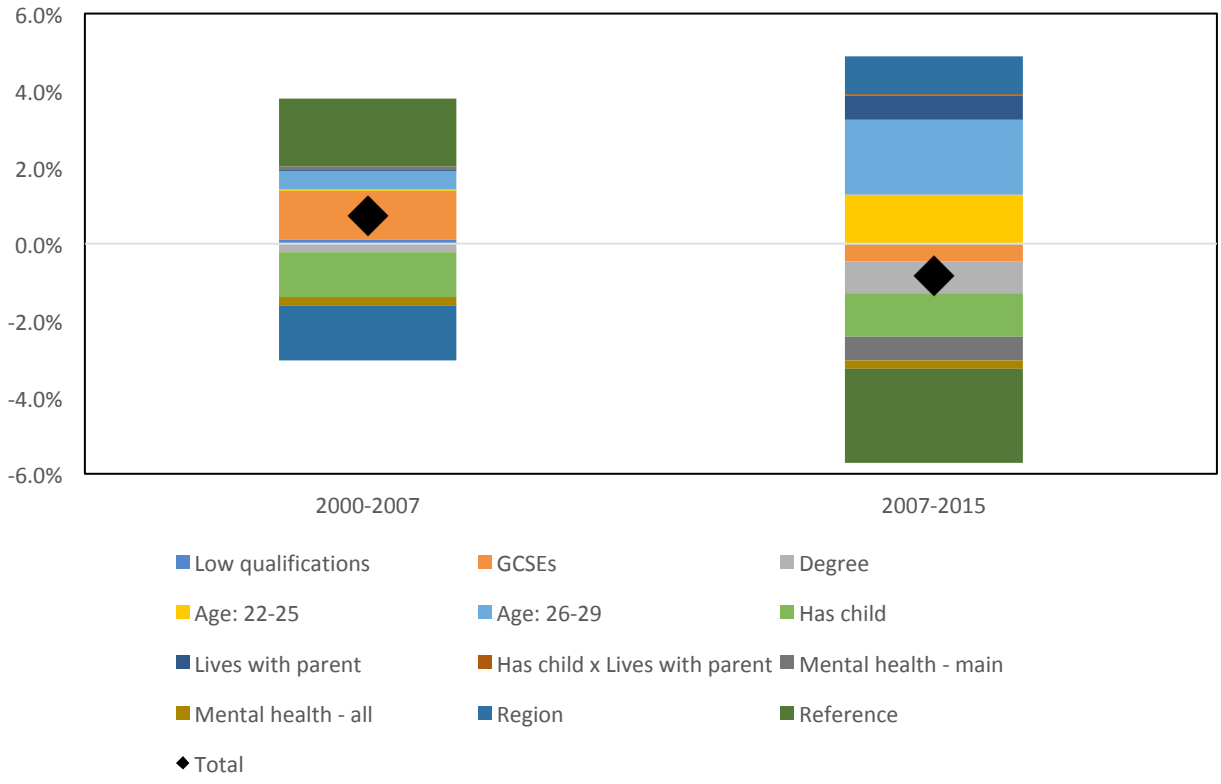
b) Female

Source: LFS, own calculations.

Figure 7: Coefficient effects on NEET rates by gender, 2000-2015



a) Male



b) Female

Source: LFS, own calculations.

When family structure and mental ill health variables are included, the coefficient effects shown in Figure 7 imply a smaller push towards higher NEET rates than was estimated in Figure 5.[9] We still observe an age effect for those over 21 after 2007. We also continue to see regional effects, as before. In addition, the risk of being NEET amongst those living with parents, as compared to those not living with parents, increased.

5. Conclusion

The main question this paper seeks to address is why so little progress on the chance of being NEET has been made since 2000 – despite a continued policy push towards greater educational attainment and other interventions specifically targeting the NEET group since the late 1990s. Our analysis shows that a key reason for this is the composition of young NEETs over this time period. The proportion of individuals with low or no qualifications changed little in the first part of the 2000s, whereas it had decreased sizeably in the previous 15 years. Yet we do not interpret falling NEET rates during the 1980s and 1990s as there being a causal effect of young people having more qualifications; supply or demand side mechanisms could be responsible – for example, it might have been the case that more people having higher qualifications drove opportunities to leave NEET status, but equally on the demand side there could have been more opportunities in the labour market anyway with those having higher qualifications just better placed to take up those opportunities. We do however show that the relative advantage of having at least GCSE level qualifications and above on the chances of being NEET in the UK has largely held up over this time period – the exception being for women during the years 2000-2007. After 2007, qualification levels again increased, but at the same time so did self-reported mental ill health, which we show offset any of the expected reduction in NEET rates from having better qualifications.

A key contribution this study makes to the literature is to illustrate the relative importance of a varied set of NEET predictors over time. Our analysis clearly demonstrates that coefficient effects – which capture how changes in the relationship between individual characteristics and the chance of being NEET affect overall NEET rates – are large. These related factors mostly lowered overall NEET rates in the years prior to 2000, but since 2000 have essentially cancelled each other out. As such, what we find is a change in the distribution of who becomes NEET today as compared to 20 years ago. In general, people living in London, those with children and those not living with parents make up a smaller part of the overall NEET population than we would have expected at the start of the year 2000 (and before). Once the effect of having children is accounted for, we find evidence that those under the age of 21 now make up a smaller share of the NEET group than they

[9] This is related to the effects of increased self-reports of mental ill health not being picked up in the simpler analysis in Section 4.1. Specifically, the reference group effect is more negative, as in Figure 5 this was picking up most of the effect of worsening mental health (i.e. it was picking up the fact that as mental ill health was more prevalent, the NEET risks across all qualification and age groups should be increasing). Around this, however, the coefficients for other variables changed in similar ways as compared to Figure 5.

did before 2007. We can interpret this as signalling that this group's NEET risks have not worsened as much as compared to the older cohorts.

The strength of the UK labour market as a whole has been a key factor – we show that NEET risks fell in the 1990s, which accompanied falling rates of unemployment and increased rates of labour market participation across the entire economy. Greater labour market opportunities have aided women's employment, with those in their mid to late 20s who have children in particular being less likely to be economically inactive in recent years than they were historically. Moreover, differences in regional unemployment conditions explain a little of male NEET rate differences across the country, but not for women. In addition to this, being a young person entering the labour market during a downturn can have long-term consequences – we find for women, those in their mid to late 20s were in a relatively worse position in 2015 as compared to those entering the labour market several years after the downturn. Finally, the type of jobs available is potentially relevant: we find the proportion of lower skilled service occupations in a region is also correlated with lower NEET rates, although this should not be immediately interpreted as a causal effect – it is possible that another factor which pushed inactive NEETs back into work would cause an increase in this form of employment, rather than these jobs being the driver of NEET rates themselves.

Our analysis points to a number of policy recommendations. The first point is that further reductions in those without GCSE level qualifications may help reduce NEET numbers[10] but we have little evidence that increased education beyond that point is associated with dramatically lower NEET rates. One area we do not explore in great detail in this paper is around the balance between general and vocational education, due to data limitations. Dolphin (2014) argues that for those not going through a university route into the labour force, vocational options in the UK are lower quality, less connected to employer needs and couple with insufficient careers advice and guidance than in neighbouring European countries where youth unemployment rates are smaller. Although vocational education is broader than recognised trade apprenticeships, we did show in section 2.3 that the existing system of apprenticeships has offered young people little additional advantage over the past two decades in terms of reducing their chances of being NEET. It is possible that there are reforms to vocational education in the UK which could enable more young people to find employment, although the UK has a long history of attempting to do this (City and Guilds, 2014) and yet these problems persist (Wolf, 2011).

In the context of a UK policy narrative entrenched in solving a simplified vision of skill formation and vocational learning (Keep, 2009) however, policy recommendations which target skills and the employability of young people, or which seek to encourage employment or further training through incentives in the welfare system and guarantees of

[10] Presuming, as always with these sort of inferences, that the effect of gaining qualification on the chances of being NEET rates stays similar to what is has been in recent history.

work placements (e.g. Cooke, 2013), are missing two key obstacles: mental ill health and childcare. Rather than focusing on work incentives and skill deficits, policies to either tackle increasing mental ill health rates or facilitate (where possible and desirable) some form of labour market participation specific to sufferers of mental ill health could be expected to have some large effects on their own. Our analysis showed that mental health problems have a far larger effect on the chance of being NEET than any other category of health problem. These results align with recent research in Switzerland a causal relationship between men with mental health issues and NEET (Baggio *et al.*, 2015).

In terms of care, NEET rates have been pushed down over this time period by the reduction in the number of women who have children in their teens and 20s. Previous research has linked this to the success of England's Teenage Pregnancy Strategy that was implemented between 1999 and 2010 (Skinner and Marino, 2016), and renewing this approach to minimise unplanned pregnancies could reduce NEET rates further. Moreover, while the relationship between having a child and being NEET has become less strong over the time period, the effect is still large. This would seem to point to policies that reduce child care costs and facilitate flexible working for those who want to balance care with work. That said, we find no relationship between the availability of part-time work in a region and NEET rates, so the solution here is perhaps not as simple as creating jobs with less hours. Perhaps one reason for this is that such jobs tend to be less secure and attract lower wages, which shifts the trade-off between work and care responsibilities significantly in favour of the latter.

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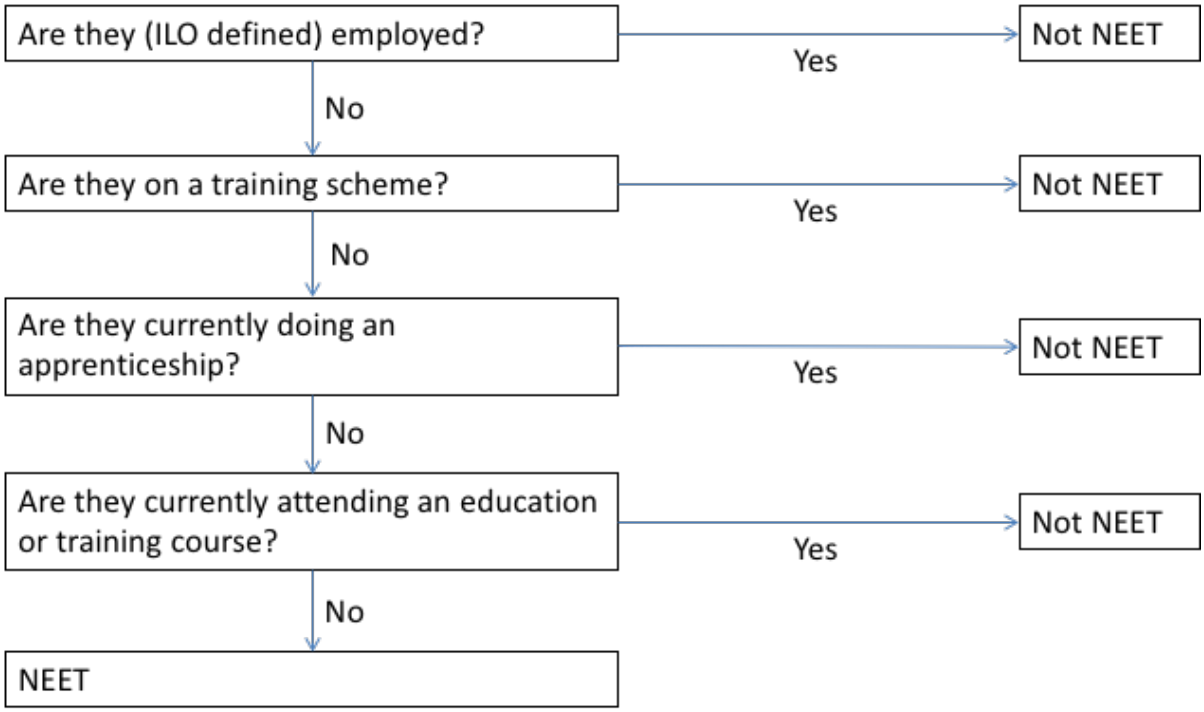
Appendix A: Data appendix

Figure A1 shows a flow diagram which captures the process for defined EETs (i.e. not NEET) and NEETs.

Figure A1: NEET definition flowchart



In each year of the LFS survey used between 1975 and 2015, the challenge was to find the best variables to operationalise the definition of NEET in Figure A1 in such a way that the resulting measures are consistent, despite numerous changes to the format and content of the survey from year to year. In recent years, this is relatively straightforward as many of the key variables are now standard and easily comparable over time – some are revised every few years to include different responses as the world has changed, but they are essentially asking the same questions. From 1985 onwards, we believe we have a consistent measure of being NEET and in addition, the LFS provides population weights which we make use of. We also split the data into active and inactive on the basis of the ILO definition of unemployment, which involves being available for work and actively looking for it in the four weeks previously. From 1992 onwards, this is given in the LFS. Before 1992, we include in the active NEET category all those whose main economic activity is reported as seeking work, or those who have another main economic activity (apart from employment) and who say they have looked for work in the previous four weeks.

Prior to 1985, the data and variables are less consistent in terms of what questions are asked – we believe we have produced the best possible definition using what was available

to us in the LFS, but for clarity we define this as a different time series. The pre-1985 data are shown in the time series graphs in Section 2 for interest, but we do not include these data in the analysis in Section 3. We extend this time series to 1989 to show the effect of two differences between the two time series – the introduction of the ILO definition of unemployment (which affects the split between active and inactive NEETs), and the use of population weights (which affects the overall NEET rate).

Table A1 summarises the variables used in the LFS datasets to operationalise the definition of NEET set out in Figure A1

Table A1: LFS variables used

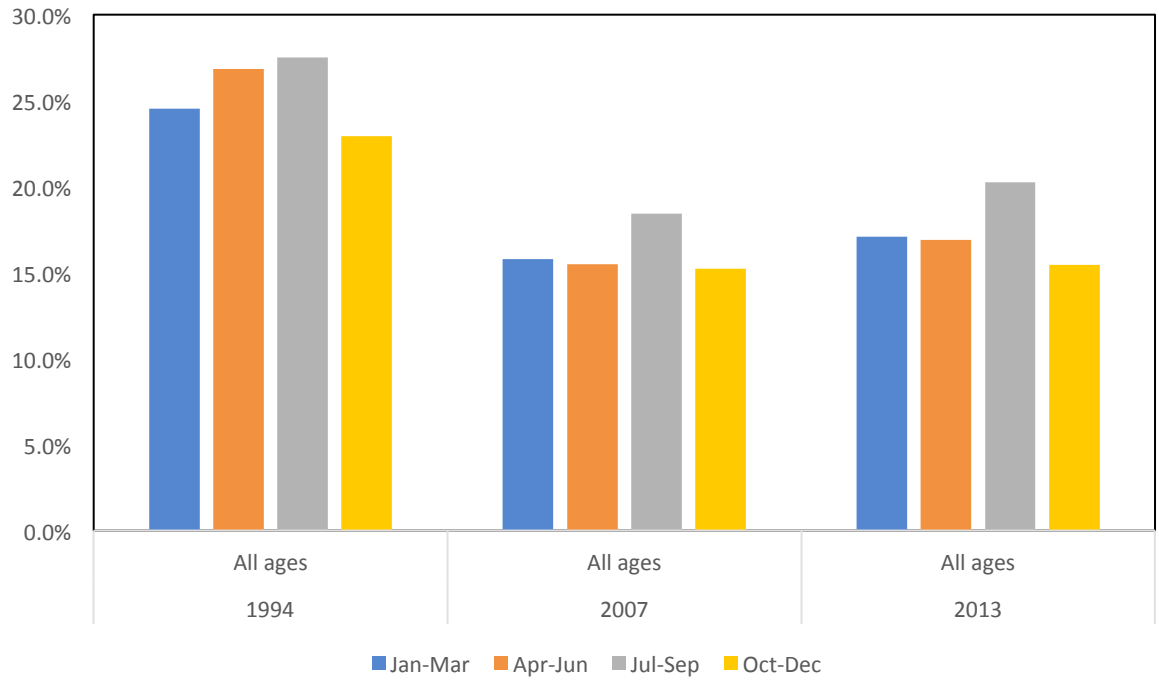
Criteria description	***LFS variable used (name in brackets) with years covered***
In employment or unemployed (ILO definition)	*2002-2015: Economic activity (ILODEFR)* *1992-2000: Economic activity (INECACR)* *1989-1991: Economic activity (ECAR) and looking for work in past four weeks (LOOK4WK)* *1985: Economic activity (ECONACRG) and looking for work in past four weeks (LOOK4WK)* *1981: Economically active in employment (V90), Economically active and seeking work (V81) and looking for work in last week (SEEKEMP)* *1979: Economic position and status (VAR91) and looking for work in last week (VAR104)* *1975: Economic position (VAR37)*
In an apprenticeship	*2012-2015: Recognised trade apprenticeship (APPRCURR)* *2008-2011: Recognised trade apprenticeship (APPR8)* *2004-2007: Recognised trade apprenticeship (APPR4)* *1992-2002: Recognised trade apprenticeship (APPREN)* *1985-1991: Recognised trade apprenticeship (APPRENT)* *1981: Recognised trade apprenticeship (APPRENT)*

	1979: Recognised trade apprenticeship (VAR63) *1975: Type of course organiser (VAR113)*
In a government training scheme	*20012-2015: On government scheme (SCHM12)* *2008-2011: On government scheme (SCHM08)* *2004-2007: On government scheme (SCHM04)* *2000-2002: On government scheme (SCHM99)* *1998: On government scheme (SCHM98A and SCHM98b)* *1989-1996: On government scheme (SCHEME)* *1985: On government scheme (SCHEMES) and On Youth Training Scheme (YTS)* *1981: Usual economic activity (USITEMP)* *1979: Usual economic activity (VAR32)* *1975: No information, possibly included in full-time student from usual economic activity (VAR33)*
On a training course	*2002-2015: Still attending a course (ATTEND)* *1989-2000: Current education received (CURED)* *1985: Current education received (CUREDG)* *1981: Qualifications (QUALONE, QUALTWO and QUALTH)* *1979: Qualifications (VAR65, VAR66 and VAR67) and Type of education and training received (VAR150)* *1975: Type of course organiser (VAR113)*
Still in full time education	*1992-2015: Age left full time education (EDAGE)* *1985-1991: Age left full time education (FTEDAGE)* *1981: Terminal education age (TEREDAG), Usual economic activity (USITEMP) and Economically inactive and student (V91)* *1979: Terminal education age (VAR130), Usual economic activity (VAR32) and*

	Economically inactive and student (V87) *1975: Age left full time education (VAR112), Usual economic activity (VAR33) and Economically inactive and student (VAR37)*

For the quarterly surveys from 1992 onwards, we use the second quarter (April to June) data as this is closest to the period when the annual survey data fieldwork was conducted. Morevoer, looking across the years, data from April to June would seem to provide a measure of the number of NEET individuals that avoids seasonal effects – in particular, NEET rates are high immediately after September as individuals finish some form of formal education and are searching for their next move, and are lower in October to December, which is impacted upon by higher seasonal employment prospects.

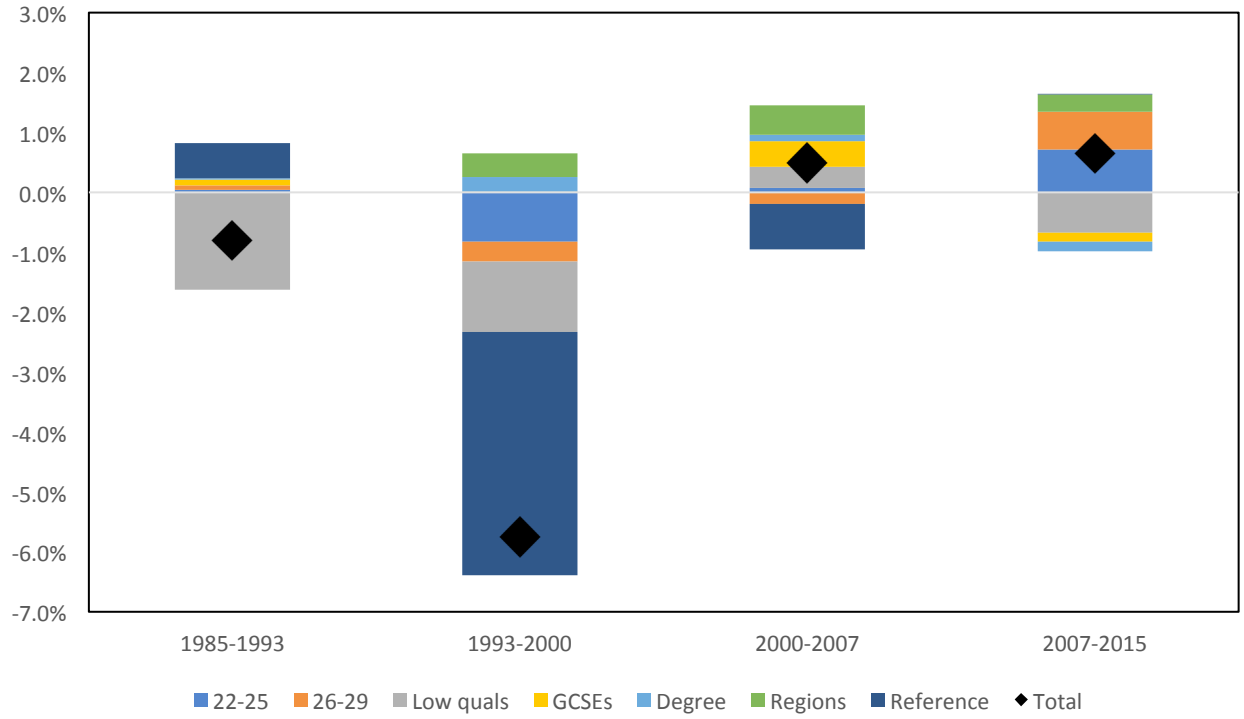
Figure A3 – NEET rates by quarter, 1994-2013



Source: LFS, own calculations.

Appendix B

Figure B1: Male active and inactive coefficient effects



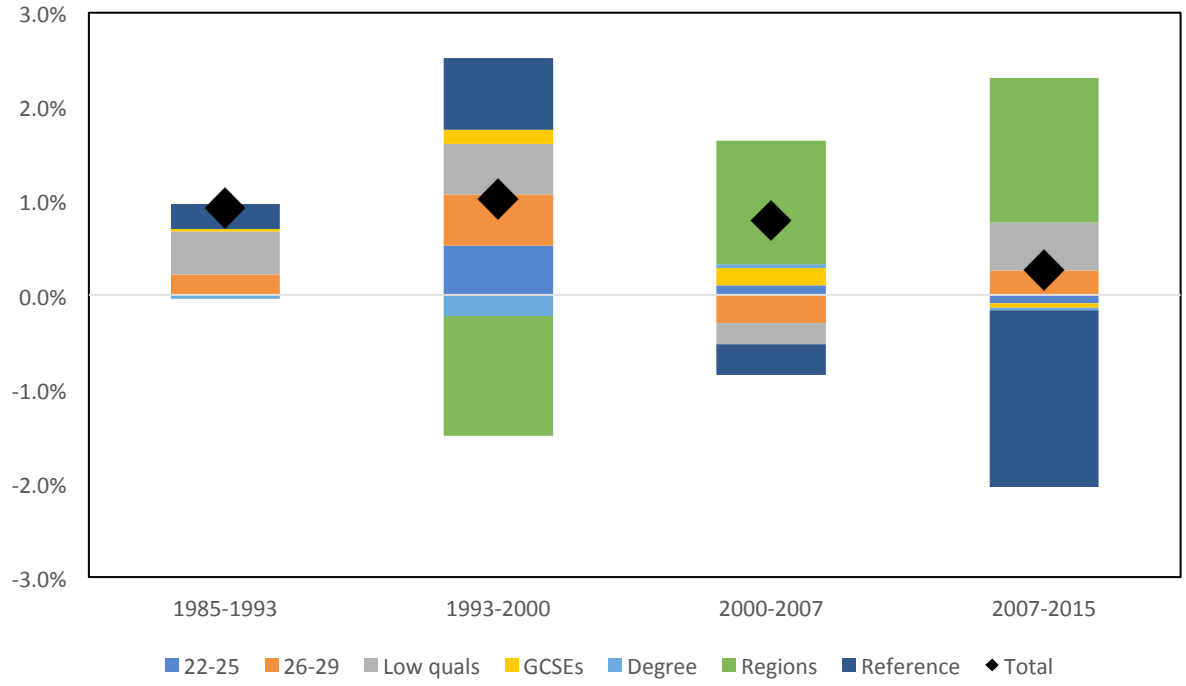


Figure B2: Female active and inactive coefficient effects