Consequences, risk factors and geography of young people not in education, employment or training (NEET)

CHILDREN, EDUCATION AND SKILLS

social research

Consequences, risk factors, and geography of young people not in education, employment or training (NEET)

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Executive summary

Objectives

This report presents findings from a study which investigated the consequences, risk factors and geographies of young people not in education, employment or training (NEET) over the past two decades. The study used the Scottish Longitudinal Study (SLS) which links anonymised individual records from the 1991, 2001 and 2011 censuses and a wide range of data from different sources to allow an effective assessment of risk factors and consequences. Scotland's censuses were also used to examine the geographies of NEETs.

This research will be used to inform policies aimed at assisting the Scottish Government to achieve its objectives around supporting young people into post-16 education, training and employment. The research provides new longitudinal evidence which may help to understand past and current policy impacts (such as 'More Choices, More Chances' and 'Opportunities for All') as well as informing future policy development.

Who are NEET?

NEET individuals were defined by the economic activity variables asked in the national census. A NEET individual is thus defined as one who, at the time of the census, is aged between 16 and 19, either unemployed, seeking work and ready to start within 2 weeks, or economically inactive due to looking after home/family, permanently sick/disabled, or other reasons.

Who was studied?

In order to understand the long-term consequences of being a NEET, two cohorts (groups of people within a certain age range followed up over a period of time) were followed over 10 and 20 years:

Cohort 1: SLS members who were aged 16-19 in 2001 and followed up to 2011 when they were aged 26-29;

Cohort 2: SLS members who were aged 16-19 in 1991 and followed up to 2011 when they were aged 36-39.

In order to help understand what factors might lead to a young person being NEET, two further cohorts were examined, one born in the 1980s and the other in the 1990s:

Cohort 3: SLS members aged 6-9 in 1991 followed up to 2001 when they were aged 16-19;

Cohort 4: SLS members aged 6-9 in 2001 followed up to 2011 when they were aged 16-19.

Key findings - Consequences

There is robust evidence that there is a scarring effect of NEET status in relation to long-term socioeconomic and health outcomes in the 20 years' follow-up. NEET young people remained disadvantaged in their level of educational qualifications.

- The NEET group remains disadvantaged in their educational attainment 10 and 20 years later. More than one in five of NEET young people in 2001 had no qualifications by 2011 compared with only one in twenty five of non-NEETs.
- There is a scarring effect in economic activity. In comparison with their non-NEET peers NEET young people in 2001 were 2.8 times as likely to be unemployed or economically inactive 10 years later.
- The scarring effect is also evident in the occupational positions that NEET young people entered. For example, NEET young people in 2001 were 2.5 times as likely as their non-NEET peers to work in a low status occupation in 2011.
- NEET experiences are associated with a higher risk of poor physical health after 10 and 20 years. The risk for the NEET group was 1.6 – 2.5 times that for the non-NEET group varying with different health outcomes.
- NEET experiences are associated with a higher risk of poor mental health after 10 and 20 years. The risk of depression and anxiety prescription for the NEET group is over 50% higher than that for the non-NEET group.
- Young people who were NEET in 1991 and remained economically inactive in 2001 consistently demonstrated significantly poorer outcomes by 2011 than those who were non-NEET in 1991 and economically active in 2001 and those who were engaged with employment or education in either 1991 or 2001. This suggests that there is a cumulative effect of being out of employment or education on later life chances and this group is the most disadvantaged that need continuing support.
- Young people who changed from NEET status in 1991 to employment or education in 2001 have lower risks of poor life outcomes compared with those who were consistently in disadvantaged positions. However, the negative effect of NEET status in 1991 was not fully discounted by the later engagement of employment or education, indicating the long-lasting detrimental effect of NEET experiences.
- Young people who changed from being non-NEET in 1991 to being economically inactive or unemployed in 2001 have higher risks of poor life outcomes compared with those who were consistently in employment or education. This suggests that economic activity in 2001 is also predictive of later labour market and health outcomes regardless of NEET status in 1991.

Key findings – Risk factors

There is strong evidence that being NEET is associated with several demographic and socioeconomic factors. These risk factors seemed to be similar for young people growing-up in the 1990's compared to the 2000's.

Key findings

- Risk factors are consistent across two cohorts and between males and females.
- Educational qualification is the most important factor. No qualifications increased the risk of being NEET by 6 times for males and 8 times for females in Cohort 3. No qualifications at SCQF level 5 or higher obtained by school stage S4 increase the risk of being NEET by 10 times for males and 7 times for females in Cohort 4.
- Other school factors are important including the proportion of time absent from school and the number of exclusions.
- Two factors are especially important for females: being an unpaid carer for more than 20 hours per week and teenage pregnancy.
- Household factors are also important. Living in a social renting household, living in a family that is not headed by a married couple, living in a household with no employed adults, having a large number of siblings all increased the risk of becoming NEET.
- Local NEET rate is an important factor for both cohorts and genders, with the risk of NEET increasing with local NEET rate.
- A risk score derived from the statistical modelling has potential to identify young people who are at risk of becoming NEET.

Key findings – Geographies

Finally, there is geographical patterning to the proportion of NEETs across Scotland. Socio-economically deprived areas were consistently related to a higher proportion of NEET young people over two decades. Some council areas like Glasgow, North Lanarkshire, West Dunbartonshire, Inverclyde and North Ayrshire displayed rates of young people who were NEET that were persistently higher than the national average over the two decades between 1991 and 2011.

Chapter 1 Introduction

This report investigates the consequences, risk factors and geographies of young people not in education, employment or training (NEET) over the past two decades. The research used the Scottish Longitudinal Study (SLS) which links a sample of individual records from the 1991, 2001 and 2011 censuses and a wide range of data from different sources to allow an effective assessment of risk factors and outcomes. Scotland's censuses were also used to examine the geographies of NEETs.

Policy background

This research will be used to inform policies aimed at assisting the Scottish Government achieve its objectives around supporting young people into post-16 education, training and employment. The research provides a longitudinal evidence base which will help policy makers understand past and current policy impacts (such as 'More Choices, More Chances' and 'Opportunities for All') as well as informing future policy development.

The proportion of 16-19 year olds who are NEET is a key measure which feeds into the Scottish Government's 'Opportunities for All' policy, which is the Scottish Government's commitment to an offer of a place in learning or training for every 16-19 year old (up to their 20th birthday), with a specific focus on young people not in education, employment or training. It brings together a range of existing national and local policies and strategies, including More Choices More Chances and 16+ Learning Choices, as a single focus to improve young people's participation in post-16 learning or training.

What we know about the NEET group?

The size of NEETs in Scotland

The emergence of the NEET group as a focus of social concern can be traced to the publication of the Social Exclusion Unit's (SEU) report "Bridging the Gap" (SEU, 1999).

In Scotland, as in the rest of the UK, the Annual Population Survey (APS, formerly the Labour Force Survey) has been used to monitor the size of the NEET group at the national level. Based on the APS, the size of NEETs was consistently around 30,000 in Scotland between 1996 and 2013, accounting for 11%-15% of young people aged 16-19 (Scottish Executive 2006; Scottish Government 2015). The latest statistics, however, show that the number of NEETs in 2014 has dropped to around 21,000 young people, accounting for only 8% of young people (Scottish Government, 2015). A proportion of the NEET group choose to be NEET such as those on a gap year, and this subgroup is less likely to experience negative outcomes. The size of this group is difficult to estimate due to the fact that this group is usually NEET only in the short-term, varies with age and gender, some young people may not actually return to education and there may be other reasons why they are NEET.

Factors associated with NEET status

To prevent individuals becoming, or remaining, part of the NEET group, it is essential to understand why young people become NEET. Low educational attainment at age 16 is the most powerful predictor of being NEET (Payne, 1998; Croxford and Raffe, 2003). Disaffection with school is also an important predictor. Studies using the Scottish School Leavers Survey (SSLS) and Youth Cohort Study (YCS) reported that those who have been regular truants or expelled by school were more likely to be NEET (Furlong, 2006; Croxford and Raffe, 2003; Coles et al, 2002).

Additionally, low socioeconomic status of parents (Bynner and Parsons, 2002), living in a household where neither parents worked full-time (Robson, 2008), teenage pregnancy (Yates et al, 2010), having a health problem or disability (Robson, 2008), being a carer (Scottish Government, 2006; Audit Commission, 2010), having a record of substance abuse (Audit Commission, 2010), being an offender (Audit Commission, 2010) have all been mentioned as factors leading to NEET status. Bynner and Parsons (2002) also found that low birth weight is a significant predictor of NEET status at age 16-18.

Young people from Caribbean, Pakistani and Bangladeshi minority ethnic groups were found to be over-represented in the NEET group in England (Coles et al 2010). Not all ethnic minorities show a higher risk of becoming NEET. 'Other Asian' and Indian are two ethnic groups who outperform other ethnic groups in terms of engagement with education or employment (DfE, 2011).

However there is not a consensus, in the literature, on what factors may increase a younger person's risk of becoming NEET. For example, some studies have found no relationship between family disadvantage and poverty and the risk of being a NEET (Croxford and Raffe, 2003).

The proportion of young people who are NEET differs from one region of the country to another and the composition of the NEET group also varies between localities (Sachdev et al., 2006). In Scotland, the government has identified local authority NEET 'hotspots' that were defined as such because they have a high NEET rate and scored highly on geographical measures which are known to relate to a high NEET rate (Scottish Executive 2006).

Area deprivation is identified as a potential risk factor in Bynner and Parsons (2002) where they found that the young who lived in inner cities were at high risk of being NEET. In contrast, Croxford and Raffe (2000) did not find that living in a deprived area or in an area of high unemployment is related to higher risks of becoming NEET.

Census data have also been used in identifying the scale, social and geographical patterns of NEETs (Scottish Executive 2004). The analysis of 2001 census data

showed that the rate of NEETs was higher for males and increased with age. The NEET group was described by gender, age, economic status, long-term illness, and distribution among local authorities.

The effects of being NEET

So far most research cited has examined the effects of youth unemployment while a small number of works have looked at the effects of being NEET. The majority of studies focus on labour market prospects while a small number look at the effects on health and well-being, social life, and the public spending.

Some research on the effects of being NEET or unemployed has demonstrated that there is a scarring effect on labour market prospects. Bynner and Parson (2002) found that NEET experiences between ages 16 and 18 were associated with disengagement from employment and education at age 21, the most consistent and significant finding from their research using the 1970 British Cohort Study (BCS). The impact of NEET experiences however varied with gender. Those that had been NEET for a spell of six months between ages 16 and 18 were over four and seven times as likely to become NEET at age 21 for men and women respectively (Bynner and Parson, 2002). Youth unemployment is found to be associated with between a 8% and 15% lower income in mid-career for previously NEET individuals (Gregg and Tominey, 2005).

Furlong et al (2003) used the West of Scotland Twenty-07 study to investigate transitions from school to work for the young. The sample of 15 year olds in 1987 in the Glasgow area was followed-up at ages 16, 18, 21, and 23. Non-linear transitions were defined as sequences that did not involve straightforward routes through education or training to employment. They showed that, for young people, non-linear transitions were associated with a significant reduction in the chances of stable employment by age 23.

Although many studies support the negative impact of NEET on employment prospects at a later stage, not all research supports this conclusion. Gardecki and Neumark (1997) used the Longitudinal Survey of Youth in the US examining the consequences of 'churning' or 'floundering about' in the labour market for the young age group to assess whether faster transitions to stable labour market relationships would lead to improved adult labour market outcomes. They concluded that outcomes at the ages of late twenties and early thirties were largely unrelated to early labour market experiences for both males and females.

A few studies have examined the impact of being NEET on health. Bynner and Parson (2002) investigated the impact of NEET status on general health and psychological well-being. They found that women who were NEET were more likely to report lack of control over life and dissatisfaction with life at age 21 while the effect on men disappeared when early experience factors were included. Their study did not find a negative effect of NEET status on self-reported general health for men or women.

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Research by the Prince's Trust (2012) found that the emotional health of young people can suffer if they are unemployed, compared to those who are in work or education. For example, their survey results revealed that individuals who are NEET are more likely to report feeling "always" or "often" stressed, down and depressed and less likely to "always" or "often" feel loved and hopeful. In addition, they are less happy with all areas of their lives and less confident about their future.

Bell and Blanchflower (2010) examined four well-being outcomes: life satisfaction, health status, depression and job satisfaction using the 1958 National Child Development Study (NCDS). They found that spells of unemployment while young were strong predictors of lower happiness, poorer self-reported general health, higher level of depression, and a lower level of job satisfaction, more than two decades later.

Being outside education, employment or training is also associated with early motherhood for women. It has been shown that the group of women who were mothers in their teens were over-represented among the NEET population at age 16-19. At age 21 nearly 40 per cent of women who had been NEET at age 16-18 had two or more children compared with less than five per cent of those in education, employment or training at that age (Coles et al 2002).

Being NEET may have impacts on the next generation. Educational qualifications, social status or earnings of a generation have long lasting influences on the next generation. Analysis of the NCDS showed that during the 1980s, young men (aged between 23 and 33) were twice as likely to be unemployed for at least one year if their father had been unemployed at age 16 (SEU, 1999).

NEET experiences may be costly for NEET individuals because of their exclusion from employment, low earnings and poor health in later life. Furthermore, it is also costly for the whole society. Research undertaken by York University (Coles et al, 2010) found that a young person who was NEET in 2008 would incur an average of £56,000 in public finance costs before retirement age. This reflects the public finance costs of welfare payments, health and justice-related costs and lower tax and national insurance revenue. On the basis of this estimate, the Scottish Government (2012) estimated the lifetime cost of a single cohort of young people failing to make the transition into regular employment to be in the region of £2 billion.

Although there have been studies on the NEET group, few studies so far have incorporated individual, family and geographical factors in a single analytical framework. Indeed, the majority of studies are descriptive and qualitative.

From the life course perspective, disaffection with education and employment can result from early childhood experiences, and the shadow of NEET status may be cast over a long period after youth. Longitudinal data analysis is thus required

to explore the NEET phenomenon, to provide evidence for policy making and also to evaluate the effectiveness of policy interventions.

Relatively little research has taken the quantitative route and used longitudinal data. Studies using the 1958 NCDS and the 1970 BCS were prominent in examining life course factors and the subsequent impact of NEET experiences. However, the experience of young people in the past decade is likely to be significantly different from that of the 1958 and 1970 birth cohorts because economic, social and policy circumstances have changed considerably. Studies using BCS 70 and SSLS only follow young people up to their early 20s and thus are only able to demonstrate the effect of NEET status in the short term rather than the longer term. In previous studies on the health effects of NEET experiences, self-reported indicators were often used instead of objective measures.

Study aims and objectives

This study aims to comprehensively examine the consequences, risk factors and geographies of being NEET for the young generation in the past two decades in Scotland. Our objectives are to address three key questions:

1. To what extent does NEET status affect outcomes in later life?

2. What individual, family, educational and geographical factors are related to risks of becoming NEET?

3. Are there geographic patterns of NEETs? And, have these patterns changed over time?

The remainder of this report is structured as follows. Chapter 2 introduces the data, the definition of NEET, the samples and analytical methods used in the study. Chapter 3 presents analytical results separately for the three research questions. The final chapter summarises research findings and their implications and suggests future research.

Chapter 2 Methods

Data sources

<u>Scotland's Census</u>

Scotland's Census is carried out every ten years and is designed to cover every resident in the country. A large number of demographic, social and economic questions are included in the census form. A count of NEET young people can be obtained via the derived variable 'economic activity'. The publication of census data at the local area level also permits investigation of NEET prevalence by area deprivation and urban rural categories.

<u>The Scottish Longitudinal Study</u>

The Scottish Longitudinal Study (SLS) is an anonymous dataset. It links information from the 1991, 2001, and 2011 censuses. Anyone whose birthdate falls on one of the 20 birthdates chosen by SLS is included in the sample. The sample members are updated through birth and migration. The SLS covers just over a 5% sample of the Scottish population, and includes about 14,000 members aged 16-19 years old.

One unique feature of SLS is that it links to a wide range of administrative data such as vital events (e.g. birth, death), hospital discharges, and prescribing data. Hospital discharge data include information on inpatients and day cases from NHS hospitals, as well as people admitted to specialist mental health facilities. The prescribing data include information on prescription of antidepressants or antianxiety medications. In addition, the SLS includes school census data which include information on free school meals, exclusions, absences and educational attainment.

NEET definition

The census requires respondents aged 16 and over to answer questions on economic activity in the week before the census. The responses to these questions are used to derive the variable 'economic activity' which we have used to identify NEET individuals. This provides a snapshot definition of NEETs. A NEET individual is thus defined as one who, at the time of the census, is aged between 16 and 19, either unemployed, seeking work and ready to start within 2 weeks, or economically inactive due to looking after home/family, permanently sick/disabled, or other reasons.

As the SLS has data linked from the 1991 to the 2011 census, we are able to look at different cohorts: those that were of age 16-19 at each of the three censuses. We can examine the risk factors of being NEET for those of age 16-19 at the 2001 and 2011 censuses. We can examine 20 and 10 year outcomes for those that were of age 16-19 at the 1991 and 2001 censuses respectively. Thus we can repeat analyses on multiple cohorts and compare results between cohorts.

Sample specifications

Question 1: To what extent does NEET status affect outcomes in later life?

There are two samples available to answer this question:

Cohort 1: SLS members who were aged 16-19 in 2001 and followed up to 2011 when they were 26-29;

Cohort 2: SLS members who were aged 16-19 in 1991 and followed up to 2011 when they were 36-39.

Cohort 1 was used to explore whether being NEET in 2001 was related to higher risks of negative labour market outcomes and poor health in the 10 years period up to 2011 (age 26-29).

Cohort 2 was used to examine the same outcomes in the 20 year follow-up period from 1991 to 2011. Both cohorts were linked to hospital records and prescribing data.

There were 13,218 SLS members who were aged 16-19 in 2001. Between the 2001 census day and the 2011 census day 1,181 people moved out of Scotland and 74 people died. The 1991 16-19 cohort included 14,567 SLS members. 1,234 people left Scotland and 213 died between 1991 and 2001 censuses. About 1,285 people who were present in 2001 were not present at the 2011 census due to unknown reasons. Similarly 1,397 SLS members in 1991 were not present in 2011 for unknown reasons. There are also missing values for some census variables thus the analytical sample is smaller than the full sample.

In reporting the consequences of NEET status we first present and discuss results from Cohort 1 and then results from Cohort 2.

Question 2: What individual, family, educational and geographical factors are related to the risk of becoming NEET?

There are two samples available to answer this question:

Cohort 3: SLS members aged 6-9 in 1991 followed up to 2001 when they were 16-19;

Cohort 4: SLS members aged 6-9 in 2001 followed up to 2011 when they were 16-19.

In total there were 10,206 SLS members in 1991 who were aged 6-9 and present in the 2001 census (Cohort 3). Of these 10,195 lived in residential properties and 11 in communal establishments. These 11 have been excluded as they may be dissimilar to the rest of the cohort and they have no data for some variables being investigated such as tenure.

Cohort 4 includes a total of 11,615 SLS members. Additional datasets were available for the analysis of Cohort 4 including data from the 2007-2010 school censuses such as whether an individual was registered for free school meals, and

attendance and exclusion records. More details on the school census data are given in Appendix 3. Of this cohort, 10,445 (90%) cases had 2001 census data, 9,732 (84%) cases had school census data and 8,815 (76%) cases had both sources of data. A small number had neither 2001 census nor school census data. The small number resident in communal establishments were again excluded.

Question 3: Are there geographical patterns of NEETs? And, have these patterns changed over time?

1991, 2001 and 2011 censuses were used to describe the geographical distribution of NEET over two decades. Geographies included local government authorities, area deprivation and urban rural categories.

Statistical Methods

Logistic regression was used to explore whether NEET status is independently associated with future economic and health outcomes, and also to explore what individual, household and area level factors are associated with the risk of becoming NEET.

Logistic regression is a statistical technique that allows you to investigate the relationship between an outcome variable (e.g. being NEET or not) and various explanatory variables. The analysis identifies which of the explanatory variables is significantly and independently related to the outcome variable. For example, it could be that the chance of becoming NEET (the binary outcome variable) increases with poor health (explanatory variable). Any other variable that also affects the chance of being NEET and is related to poor health, such as family background, should be included in the analysis. Only when poor health and family background are considered together can the *independent* effect of poor health (or family background) be isolated.

A range of negative outcomes such as unemployment, low status occupation, physical illness, mental illness, or drug misuse in later life were examined for Cohorts 1 and 2 in the study.

In order to assess whether NEET status had an impact that is independent of other socio-economic factors, a range of explanatory variables was included in the model. Explanatory variables were selected on the basis of the literature review. Previous research was used to identify which factors might influence subsequent outcomes. For example, including gender allowed us to explore whether there was a difference between men and women in their probability of experiencing a negative outcome.

The analyses of Cohort 1 (2001 cohort) adjusted for gender, age, educational attainment, Carstairs deprivation, limiting long-term illness and living in a council area NEET 'hotspot' (see Appendix 1 for further details), so it was possible to assess whether being NEET in 2001 had an independent effect in relation to

outcomes in 2011 over and above these demographic and socio-economic characteristics.

For the analyses of Cohort 2 (1991 cohort) we adjusted for the demographic and socio-economic factors mentioned above. In place of the binary NEET/not NEET variable, we included a variable indicating changes between NEET status in 1991 and subsequent economic activity in 2001 to predict the probability of the outcome by 2011. Thus we are able to examine whether being disengaged from employment and education in both 1991 and 2001 had a cumulative, negative effect on future employment or health. We are also able to explore whether moving from 1991 NEET status into employment in 2001, or moving from non-NEET status in 1991 into economically inactive status in 2001, had any effect on later life chances, by 2011.

In the risk factor analysis, we explored the extent to which personal attributes, family background, neighbourhood deprivation and local labour market characteristics are related to NEET status.

Potential risk factors considered for Cohort 3 include individual and family variables from the 1991 Census, Carstairs 1991 quintile, teenage pregnancy, local NEET rate in 2001, and unpaid carer and highest educational qualification from the 2001 Census (see Appendix 4). Potential risk factors for Cohort 4 include birth weight, individual and family variables from the 2001 Census, Carstairs 2001 quintile, teenage birth, school census variables, prescription data, local NEET rate in 2011 and unpaid carer from the 2011 Census (see Appendix 5). Explanatory variables included whether an individual had a limiting long-term illness, as well as household factors including the economic activity and health status of household members and housing tenure. These variables were considered on the basis of previous literature or theory.

The main analysis for Cohort 4 concentrated on school census data. This choice was driven by the fact that this information is known to teachers and careers guidance officers and can therefore be used to identify at risk young people, whereas information relating to an individual's childhood experiences may be unknown. We used the examination results obtained by stage S4 because young people are aged 15-16 at this time and we wish to predict becoming NEET at ages 16-19 (see Appendix 3 for details). A second analysis which included data derived from the 2001 Census was therefore carried out in order to assess whether the census variables were important predictors of being NEET in addition to school census variables.

The model for Cohort 4 was used to develop a risk score to identify the group of young at high risk of becoming NEET.

All the models adjusted for age. As the age of leaving compulsory school education is 16, the NEET rate increases with age as an increasing number of young people leave school. The risk of being NEET is therefore associated with age.

All potential explanatory variables were tested using a manual stepwise procedure, and in the final model only those variables that were significant at the level of 0.05 were included.

Statistical analysis was conducted separately for males and females because of expected differences. For example, it might be expected that teenage birth is likely to be a far more important risk factor for females than for males.

Presentation of results

Model results are presented as odds ratios. An odds ratio is a measure of effect size, measuring the strength of association between two variables. An odds ratio above 1 indicates a positive relationship where an increase in the independent variable is associated with an increased likelihood of the outcome. An odds ratio below 1 indicates a negative relationship where a decrease in the likelihood of the outcome is associated with an increase in the independent variable. Odds ratios and significance levels are presented for the NEET status groups in the consequences analyses and for each significant variable in the risk factor analyses in the tables of this report.

More detail is available in Appendix 2, which contains tables reporting odds ratios and their confidence intervals.

Strengths and Limitations of the analysis

There are at least four advantages of using the SLS:

The SLS is a rich data source which allows research on various outcomes, including those from census and other administrative sources. The sample size and design mean that we can repeat analyses on multiple cohorts and compare results over cohorts.

The prospective, longitudinal design of the SLS enables the analysis of the temporal sequence of lifetime factors before the occurrence of outcomes and ensures the direction of influence from factors to the outcome. For example using the SLS allowed us to identify risk factors leading to NEET status.

Also longitudinal data allows analysis of changes over time and how these changes are related to other factors.

Furthermore, the SLS includes data from 1991 to 2011 and we can analyse long-term effects of NEET experiences.

However, there are some limitations of using the SLS for research on NEETs. The SLS is based on the census which is carried out every ten years. Therefore, it is not possible to follow the cohort in the period between censuses. For example, we cannot examine changes in NEET status or economic activity on a monthly or yearly basis between censuses.

The census definition of NEET is a snapshot measure. However, because many young people take temporary jobs and change their status frequently, some commentators have argued that it is better to define NEETs as those who have been out of education and employment for three or six months continuously (Bynner and Parsons 2002). This information is not available in the census. Moreover, some studies have shown that there was no significant difference between the snap-shot definition and the definition using the continuous measure because these two types of NEET are more similar to each other in their characteristics compared to those non-NEETs (Furlong, 2006).

Chapter 3 Results

This chapter will present analytical results separately for consequences, risk factors and geographies of NEET.

Consequences of NEET status

This section describes the long-term (10 and 20 year) consequences of being NEET for Cohorts 1 and 2. Since these consequences might be attributed to other factors such as deprivation that precede the period of the outcomes being investigated, such factors (limiting long-term illness, educational qualifications and living in a council area known as a NEET 'hotspot') were adjusted for. Thus the effect of NEET status on this range of outcomes from these models can be attributed to the long-term effect of having been NEET.

A number of socioeconomic and health outcomes have been examined in relation to NEET experiences. They include economic inactivity, low status occupations, limiting long-term illness, hospital admission following an A&E visit, hospital admission following an A&E visit due to self-harm, depression and anxiety prescription and drug misuse.

Key findings – Consequences

There is robust evidence that there is a scarring effect of NEET status in relation to long-term socioeconomic and health outcomes in the 20 years' follow-up.

- The NEET group remains disadvantaged in their educational attainment 10 and 20 years later. More than one in five of NEET young people in 2001 had no qualifications by 2011 compared with only one in twenty five of non-NEETs.
- There is a scarring effect in economic activity. In comparison with their non-NEET peers NEET young people in 2001 were 2.8 times as likely to be unemployed or economically inactive 10 years later.
- The scarring effect is also evident in the occupational positions that NEET young people entered. For example, NEET young people in 2001 were 2.5 times as likely as their non-NEET peers to work in a low status occupation in 2011.
- NEET experiences are associated with a higher risk of poor physical health after 10 and 20 years. The risk for the NEET group was 1.6 – 2.5 times that for the non-NEET group varying with different health outcomes.
- NEET experiences are associated with a higher risk of poor mental health after 10 and 20 years. The risk of depression and anxiety prescription for the

NEET group is over 50% higher than that for the non-NEET group.

- Young people who were NEET in 1991 and remained economically inactive in 2001 consistently demonstrated significantly poorer outcomes by 2011 than those who were non-NEET in 1991 and economically active in 2001 and those who were engaged with employment or education in either 1991 or 2001. This suggests that there is a cumulative effect of being out of employment or education on later life chances and this group is the most disadvantaged that need continuing support.

- Young people who changed from NEET status in 1991 to employment or education in 2001 have lower risks of poor life outcomes compared with those who were consistently in disadvantaged positions. However, the negative effect of NEET status in 1991 was not fully discounted by the later engagement of employment or education, indicating the long-lasting detrimental effect of NEET experiences.

- Young people who changed from being non-NEET in 1991 to being economically inactive or unemployed in 2001 have higher risks of poor life outcomes compared with those who were consistently in employment or education. This suggests that economic activity in 2001 is also predictive of later labour market and health outcomes regardless of NEET status in 1991.

Profiles of samples

This section provides summary statistics on NEETs in terms of gender, age and economic activity.

From Table 1 we can see that there were 717 female and 776 male NEETs in 2001 and similarly 1014 female and 958 male NEETs in 1991. Extrapolating to the whole population, this implies that the numbers of female NEET and male NEETs were separately 14340 and 15520 in 2001, and 20280 and 19160 in 1991. Both cohorts are relatively evenly distributed with respect to age. The gender distribution for both cohorts is also fairly even.

The percentage of NEET is higher among males than among females in 2001. This was the reverse of 1991. There was a general trend, with the percentage of NEET increasing with age in both 2001 and 1991.

Table 1 Gender and age profiles of the 16-19 cohorts in 1991 and 2001

2001 (Cohort 1)	Non-NEET (%)	NEET (%)	Row Total (%)
Gender			
Female	5,528 (89%)	717 (11%)	6,245 (51%)
Male	5,315 (87%)	776 (13%)	6,091 (49%)
Age in 2001			
16	2,976 (93%)	227 (7%)	3,203 (26%)
17	2,662 (88%)	346 (12%)	3,008 (24%)
18	2,572 (84%)	477 (16%)	3,049 (25%)
19	2,656 (86%)	448 (14%)	3,104 (25%)
1991 (Cohort 2)	Non-NEET (%)	NEET (%)	Total (%)
Gender			
Female	6,244 (86%)	1,014 (14%)	7,258 (50%)
Male	6,351 (87%)	958 (13%)	7,309 (50%)
Age in 1991			
16	3,237 (93%)	262 (7%)	3,499 (24%)
17	3,204 (89%)	395 (11%)	3,599 (25%)
18	3,056 (83%)	610 (17%)	3,666 (25%)
19	3,098 (81%)	705 (19%)	3,803 (26%)

Source: SLS

The summary for economic activity for both cohorts is presented in Table 2. In 2001, 25% of females and 32% males were employed or self-employed, and 64% of females and 56% of males were studying. For females, 5% were unemployed and an equivalent percentage of them were economically inactive due to looking after home or family, or other reasons. For males, 9% reported being unemployed while only 3% reported being economically inactive due to looking after home or other reasons.

The distribution of economic activity categories for ages 16-19 in 1991 was quite different from that of 2001. The most notable change is that from being working in 1991 to being a student in 2001. The overall proportion working in 2001 was approximately half that in 1991, with this change being slightly higher for females. This trend reflects the increasing level of participation in post-compulsory education since the 1990s, and changes in labour market structure in the 1990s. However, the overall level of NEET was similar at 12-13%.

In both 1991 and 2001, males were more likely to be working or unemployed than females while in contrast, females were more likely to be in education, or looking after home or family. The level of those permanently sick was similar among males and females.

Table 2 Economic activity for Cohorts 1 and 2

Economic activity	2001 (Cohort 1)		1991 (Cohort 2)	
	female (%)	male (%)	female (%)	male (%)
Working	1,553 (25)	1,931 (32)	3,717 (51)	3,911 (54)
Student	3,975 (64)	3,384 (56)	2,527 (35)	2,440 (33)
Unemployed	333 (5)	558 (9)	646 (9)	889 (12)
look after home	341 (5)	168 (3)	319 (4)	16 (0)
Sick	43 (1)	50 (1)	49 (1)	53 (1)
Total	6,245 (100)	6,091 (100)	7,258 (100)	7,309 (100)

Source: SLS

Educational attainment

This section examines whether NEETs remained disadvantaged 10 and 20 years later in terms of educational attainment.

Table 3 breaks down the level of qualification in 2011 by NEET status in 2001 and 1991. It can be seen that two thirds of those who were NEET were in the bottom two categories (Standard Grades and no qualifications) while only one third of non-NEET were in the same groups. For those non-NEET young people in 2001, 41% of them obtained degree level qualifications by 2011 compared with only 9% of NEETs in 2001. For the 2001 cohort, 22% of NEETs did not have any qualifications by 2011, over five times that of non-NEETs. Similarly 33% of 1991 NEETs did not have qualifications compared with 8% of non-NEETs by 2011.

Table 3 Qualification level in 2011 by NEET status 2001 and 1991

Qualification 2011	2001 (Cohort 1)		1991 (Cohort 2)	
	% non-NEET	% NEET	% non-NEET	% NEET
Degree	41	9	36	11
HNC/HND	17	11	15	12
Higher/A-Level	18	13	15	11
S-Grade/O-Level	21	45	27	33
No Qualifications	4	22	8	33
Total	7,945	996	8,980	1,265

Source: SLS

Table 4 highlights the 2011 educational qualification variable dichotomised between those with no qualifications and the rest broken down by the extended NEET classification. Those in NEET categories are more likely to have no qualifications; however, within the NEET categories those reporting permanent sickness appear far more likely than any other category to report having no qualifications.

Permanent sickness here is a category from the census question asked in the context of economic activity. It relates to being out of work due to permanent sickness/disability.

In summary, there was little catch up in educational attainment over the life course for the NEET group (any gap year effect appeared small). In addition, education is a gateway to the labour market and is a protective factor for health. Lack of education qualifications 10 and 20 years later for those who were NEET implies their continued disadvantage in later life.

Table 4 Qualification level in 2011 by extended categories of NEET, 2001 and 1991

Economic activity 2001	% with qualifications, 2011	% with no qualifications, 2011	Total
Non-NEET	96	4	7,945
Unemployed	81	19	809
Permanently Sick	50	50	61
Looking after home/family	74	26	126
Economic activity 1991	% with qualifications, 2011	% with no qualifications, 2011	Total
Non-NEET	92	8	8,980
Unemployed	70	30	984
Permanently Sick	35	65	75
Looking after home/family	66	34	206

Source: SLS

Factors included in the models to control for their effects

Before we describe the analysis results of long-term effects of NEET experiences on life chances in detail we summarise the relationships between the variables which were adjusted for: gender, age, educational attainment, Carstairs deprivation, limiting long-term illness and living in a council area NEET 'hotspot' (see Statistical Methods and Appendix 1 for further details) and the outcome measures.

It should be noted that areas of residence for many young people may have changed over the follow-up period due to migration. For all outcomes there was a noticeable trend for outcomes to improve with a higher level of educational attainment. For all outcomes except drugs misuse and hospital admission following A&E visit for self-harm there was a noticeable trend for outcomes to improve with a lower level of deprivation. For all outcomes except drugs misuse there was an association between limiting long-term illness and a poorer outcome. Males were more likely to have had a hospital admission following a visit to A&E and have a record of drugs misuse whereas females were more likely to be economically inactive and have used antidepressant or antianxiety medication. Older ages were more likely to be in employment or education and more likely to have a higher status occupation. Glasgow, Dundee and North Ayrshire were associated with

several poorer outcomes. This suggests that both individual factors and contextual factors at these aggregated levels were important in influencing outcomes.

Economic inactivity

In this section we examine labour market outcomes in 2011 for those from the 2001 cohort and the 1991 cohort. The labour market outcome in 2011 was derived from the 2011 census. The economic activity variable was used to classify people into those who were unemployed or economically inactive and the rest, consistent with the division between NEET and non-NEET young people. For simplicity, we use the term 'inactive' to refer to people who were either unemployed or economically inactive and the term 'active' to refer to people who were working or studying. People from both cohorts were predominantly either involved in economic activity or were inactive due to non-educational reasons when they were aged 26-29 or 36-39. Only around 2% of the cohorts were in education or training in 2011.

It can be seen for both the 1991 and 2001 cohorts that those who were NEET were more likely to be economically inactive by 2011 (Table 5). For example, those who were NEET in 2001 were more likely to report subsequent economic inactivity in 2011. About 43% of those who were NEET in 2001 did not engage in employment or study in 2011, compared with 11% of those who were non-NEET (Table 5). Similarly 28% of 1991 NEET young people were out of employment or education when they were aged 36-39, close to three times the rate for non-NEET young individuals.

Table 5 Economic activity in 2011 by 2001 and 1991 NEET status

NEET status, 2001	% Economically active	% Not active	Total
Non-NEET	89	11	7,945
NEET	57	43	996
NEET status 1991	% Economically active	% Not active	Total
non-NEET	90	10	8,980
NEET	72	28	1,265

Source: SLS

Percentages of economic activity in 2011 by the extended categories of economic activity in 2001 and 1991 are presented in Table 6. It shows that roughly 70% of those who were permanently sick in 2001 did not work or study in 2011. And over 40% of those who were unemployed in 2001 or looking after family were not in employment or study at the 2011 Census, compared with 11% of those who were non-NEET. The distribution of economic activity in 2011 for the 1991 cohort is similar to that for the 2001 cohort. One difference is that those who were inactive due to looking after home/family were more likely to participate in employment with 64% in employment or education in 2011. In comparison only half of those in the same category in the 2001 cohort were active by 2011. An explanation for this

would be that mothers in the 2001 cohort would be aged 26-29 in 2011 and still likely to be looking after children whereas mothers in the 1991 cohort would be more likely to have returned to work when aged 36-39 in 2011.

Table 6 Economic activity in 2011 by 2001 and 1991 extended categories of NEET

2001 economic activity	% economically active	% economically inactive
Non-NEET	89	11
Unemployed	59	41
Permanently Sick	32	68
Looking after home/family	50	50
Total	7,601	1,340
1991 economic activity	% economically active	% economically inactive
Non-NEET	87	13
Unemployed	61	39
Permanently Sick	32	68
Looking after home/family	64	36
Total	8,530	1,715

Source: SLS

Linking 1991, 2001 and 2011 records allowed us to examine the dynamics of movement into and out of employment or education in the 20 years follow-up. Table 7 shows that those who were NEET in 1991 were more likely to report subsequent economic inactivity in 2001 and/or 2011. Over 50% of those who were NEET in 1991 were not economically active at either or both subsequent censuses, compared with 21% of those who were non-NEET in 1991 (Table 7). Nearly 30% of 1991 NEETs were economically inactive in both 2001 and 2011, compared to only 6% of their non-NEET counterparts. This suggests that this group was the most disadvantaged and would need most assistance to gain employment.

If the estimate is extended to the Scotland population, this indicates that, in total, more than 5,500 (5% SLS sample, 958*29%*20) young people who were NEET in 1991 remained out of employment or education in both 2001 and 2011. Making up only 12% of the 1991 cohort, NEET young people accounted for over 38% of those who remained out of employment or education in both years. Although some of them may be out of employment for family reasons or due to illness, the impact on the size of the workforce was substantial as this group was aged between 16 and 39 in the follow-up period when most could be expected to contribute to the economy. This implies a significant negative impact on the economy through lost output, higher welfare payments and lower tax returns.

Table 7 Economic activity in 2001 and 2011 by 1991 NEET status

Economic activity, 2001 & 2011	% non-NEET 1991	% NEET 1991
Active both 2001 and 2011	79	44
Active 2001, not active 2011	7	10
Not Active 2001, active 2011	8	17
Inactive both 2001 and 2011	6	29
Total	7,306	958

Source: SLS

Table 8 shows the results from models of being economically inactive versus being active at Census 2011. The results in Table 8 show a substantial NEET effect, independent of the other factors in the model. Young people who were NEET in 2001 were nearly three times as likely as their non-NEET counterparts to be out of employment or education in 2011.

The last column in Table 8 shows results from the model for the 1991 cohort of being economically inactive versus economically active in 2011. We used a variable indicating the NEET status in 1991 and economic activity in 2001 as described in the Statistical Methods.

Table 8 Odds ratios of economic inactivity in 2011 from logistic regression

2001 cohort (Cohort 1)			1991 cohort (Cohort 2)		
NEET status	Odds ratio	Significance level	NEET 1991 and economic activity 2001	Odds Ratio	Significance level
No	1				
Yes	2.77	***			
			Non-NEET 91 & active 2001	1	
			Non-NEET 91 & inactive 2001	5.75	***
			NEET 91 & active 2001	1.91	***
			NEET 91 & inactive 2001	9.38	***
N	7,917			8,073	

*P<0.10 **p<0.05 ***p<0.01, Source: SLS

The results demonstrate the longer term negative effect of NEET status. Those who were NEET in 1991 and out of work or education in 2001 were 9 times as likely not to be economically active in 2011 compared with their non-NEET and subsequently economically active peers. For those young people who were NEET in 1991, economic activity in 2001 did not cancel out the negative effect of having been NEET as they were still significantly more likely to be economically inactive in 2011 compared with the non-NEET/economically active group. This is suggestive of an ongoing 'scarring effect' due to previous NEET experiences.

<u>Low status occupations</u>

The occupational position of those in work is examined in this section. The occupational positions in 2011 and 2001 by 1991 NEET status are shown in Table 9. The outcome variable was based on National Statistics Socio-Economic Classification (NS-SEC), a derived variable from the census (see Appendix 3). It can be seen that 44% of people who were non-NEET in 2001 were in the Higher Professional and Lower Professional categories by 2011, compared to 20% of those who were NEET. Over half of NEET young people in 2001 were in the Semi-Routine or Routine occupational category by 2011 in contrast to only about one fifth of their non-NEET peers.

The distribution of occupation categories in 2011 by 1991 NEET status is similar to that by 2001 NEET status, which again shows the persistence of a negative effect of NEET status after a 20 year period. Ending up in low status occupations is another indicator of a scarring effect associated with NEETs.

Table 9 2011 National Statistics-Socio-Economic Classification categories by 2001 and 1991 NEET status

NS-SEC 2011	2001 cohort (Cohort 1)		1991 cohort (Cohort 2)	
	non-NEET (%)	NEET (%)	non-NEET (%)	NEET (%)
Higher Professional	13	3	15	5
Lower Professional	31	17	31	19
Intermediate	20	12	16	13
Own-account workers	5	6	9	9
Lower-Tech	10	12	9	9
Semi-Routine	13	32	11	25
Routine	9	19	8	19
N	6,647	519	7,640	732

Source: SLS

Models were fitted to examine the likelihood of working in low status occupations as defined by NS-SEC categories: Semi-Routine and Routine occupations (Rose and O'Reilly, 1997). As expected, being NEET in 2001 is associated with a higher (more than twice as likely) risk of working in low status occupations by 2011 (Table 10).

The results show that the negative effect of NEET status was enduring even 20 years after the experience. Being NEET in 1991 was associated with a higher risk of working in low status occupations no matter whether the individual was or was not economically active in 2001. However, not being economically active in 2001 was also a significant predictor of low occupational status in 2011, even for those who were non-NEET in 1991.

Table 10 Odds ratio of low status occupations in 2011 from logistic regression

2001 cohort (Cohort 1)			1991 cohort (Cohort 2)		
NEET status	Odds ratio	Significance level	NEET 1991 and economic activity 2001	Odds Ratio	Significance level
No	1				
Yes	2.04	***			
			Non-NEET 91 & active 2001	1	
			Non-NEET 91 & inactive 2001	2.64	***
			NEET 91 & active 2001	1.79	***
			NEET 91 & inactive 2001	3.40	***
N	7,792			7654	

*P<0.10 **p<0.05 ***p<0.01, Source: SLS

Limiting long-term illness

Whether an individual has a limiting long-term illness (LLTI) is a question that has been asked in the census since 1991. Table 11 shows LLTI status in 2011 by 2001 and 1991 NEET status. It is clear that being NEET in 2001 was associated with higher risks of reporting LLTI in 2011. About 18% of NEET people reported limiting long-term illness in 2011, while by contrast only 6% of non-NEET reported such a condition. There was an increase in the proportion of people who reported LLTI in 2011 for the 1991 cohort, which is likely associated with their older ages as this cohort was aged between 36 and 39 by 2011. Nevertheless, those who were NEET in 1991 were again more likely to report LLTI in 2011 than their non-NEET counterparts, with a rate more than double that among non-NEETs.

Proportions of people reporting LLTI in 2011 by extended NEET categories are presented in Table 12. As expected, the highest proportion reporting limiting long-term illness in 2011 were those who were permanently sick in 2001, the percentage being 67%. A similar proportion of those who were unemployed and those who were looking after family reported LLTI in 2011. Likewise, among people who reported being permanently sick in 1991, over 40% reported LLTI 20 years later.

Based on the 1991 cohort from Table 11 it can be estimated that for the Scotland population, around 6,000 (1265*24%*20) NEET young people would have limiting long-term illness by 2011. The scale of this long-term health effect of being NEET is substantial as this contributed to over 27% of those who reported having illness aged 36-39 while making up only 12% of the total in this age cohort.

Table 11 Limiting long-term illness in 2011 by 2001 and 1991 NEET status

NEET status, 2001	% no LLTI	% with LLTI	Total
Non-NEET	94	6	7,945
NEET	82	18	996
NEET status 1991	**% no LLTI**	**% with LLTI**	**Total**
non-NEET	91	9	8,980
NEET	76	24	1,265

Source: SLS

Table 12 Limiting long-term illness in 2011 by extended categories of NEET in 2001 and 1991

NEET status, 2001	% no LLTI	% with LLTI	Total
Non-NEET	94	6	7,945
Unemployed	85	15	597
Permanently Sick	33	67	61
Looking after home/family	85	15	338
NEET status, 1991	**% no LLTI**	**% with LLTI**	**Total**
Non-NEET	91	9	8,980
Unemployed	77	23	965
Permanently Sick	56	44	75
Looking after home/family	75	25	225

Source: SLS

The model results for the LLTI are presented in Table 13. These show an independent effect of being NEET in 2001 on the outcome, net of the other factors controlled in the model including having reported having LLTI in previous censuses. Young people who were NEET in 2001 were over 70% more likely than their non-NEET peers to report limiting long-term illness in 2011.

NEET status is also associated with LLTI 20 years later. Disengagement from employment and not being in education at the 1991 and 2001 censuses increases the odds of LLTI by four times in comparison with engagement in employment or education at both time points. Economic activity in 2001 did not fully nullify the effect of NEET experiences in 1991.

Table 13 Odds ratio of having limiting long-term illness in 2011 from logistic regression

2001 cohort (Cohort 1)			1991 cohort (Cohort 2)		
NEET status	**Odds ratio**	**Significance level**	**NEET 1991 and economic activity 2001**	**Odds Ratio**	**Significance level**
No	1				
Yes	1.74	***			
			Non-NEET 91 & active 2001	1	
			Non-NEET 91 & inactive 2001	3.73	***
			NEET 91 & active 2001	1.47	**
			NEET 91 & inactive 2001	4.06	***
N	7,917			8,073	

*P<0.10 **p<0.05 ***p<0.01, Source: SLS

Hospital Admissions

This section looks at whether health outcomes measured as hospitalisation following an accident and emergency (A&E) visit are related to NEET status. The data were provided by Information Services Division (ISD). The outcomes reported in the analysis below identify whether an individual had at least one such hospital admission between 2001 and 2010.

An admission to hospital following a visit to A&E is a negative health outcome. A relationship between NEET status and subsequent hospital admission is therefore an indicator of a health disadvantage. A relationship of this variety might also be considered indicative of an attitude to risk or a lifestyle which includes greater risk. People who have more risky lifestyles are possibly more likely to end up in a hospital A&E, and this is especially so for young people. It is also likely that those admitted to hospital following a visit to A&E were suffering from a more severe health condition than those who merely attended A&E.

The second health outcome is related to hospital admission following a visit to A & E due to deliberate self-harm. This subgroup distinguishes those who are subject to considerable psychological stress from those who have experienced an accident, for example.

Table 14 tabulates the hospital admissions following an A&E visit for the 2001 cohort and the 1991 cohort separately. As with the LLTI outcome it is evident that those who were NEET are disproportionately likely to experience hospital admission following an A&E visit, on both outcomes. For example, for the 2001 NEET group, the percentage of those admitted to hospital following an A&E visit due to self-harm was over three times that of their non-NEET peers (7% vs 2%). For the 1991 and 2001 cohorts, the percentages of those admitted to hospital following an A&E visit were very close although the cohorts are 10 years apart in terms of age.

Table 14 Admitted to hospital following an accident & emergency (A&E) visit between 2001 and 2010 by 2001 and 1991 NEET status

NEET status	A & E		A & E due to self-harm		
2001 cohort (Cohort 1)	%no admission	%any admission	%no admission	%any admission	Total
non-NEET	77	23	98	2	7,445
NEET	64	36	93	7	964
1991 cohort (Cohort 2)	%no admission	%any admission	%no admission	%any admission	N
non-NEET	78	22	99	1	7,582
NEET	66	34	95	5	1,006

Source: SLS and ISD

If the statistics based on the 2001 cohort from Table 14 are applied to the Scotland population, around 6,900 NEET young people have been admitted to hospital following an A&E visit at least once over 10 years between 2001 and 2010. If policy interventions were to be successful in eliminating NEET and its damaging co-determinants among young people, the number of visits to hospital following an A&E visit might be reduced by over 2,500 (964*36%*20-964*23%*20), a 36% reduction.

Tables 15 and 16 show modelling results for the hospital admissions outcomes. Again there is a strong significant association between being NEET and each of the outcomes for the 2001 cohort. NEET young people were 75% more likely than their non-NEET peers to be admitted to hospital following a visit to A&E. Also NEET individuals were more likely to be admitted to hospital following an A&E visit due to deliberate self-harm, with the odds more than double the odds for non-NEETs.

Table 15 Odds ratio (OR) of hospital admission following a visit to accident and emergency between 2001 and 2010 from logistic regression

2001 cohort (Cohort 1)			1991 cohort (Cohort 2)		
NEET status	Odds ratio	Significance level	NEET 1991 and economic activity 2001	Odds Ratio	Significance level
No	1				
Yes	1.75	***			
			Non-NEET 91 & active 2001	1	
			Non-NEET 91 & inactive 2001	1.46	***
			NEET 91 & active 2001	1.29	**
			NEET 91 & inactive 2001	1.83	***
N	7,917			8,073	

*P<0.10 **p<0.05 ***p<0.01, Source: SLS and ISD

Table 16 Odds ratio of hospital admission following a visit to accident and emergency due to self-harm between 2001 and 2010 from logistic regression

2001 cohort (Cohort 1)			1991 cohort (Cohort 2)		
NEET status	Odds ratio	Significance level	NEET 1991 and economic activity 2001	Odds Ratio	Significance level
No	1				
Yes	2.23	***			
			Non-NEET 91 & active 2001	1	
			Non-NEET 91 & inactive 2001	2.92	***
			NEET 91 & active 2001	2.63	***
			NEET 91 & inactive 2001	8.23	***
N	7,917			8050	

*P<0.10 **p<0.05 ***p<0.01, Source: SLS and ISD

From the model for the 1991 cohort we can see that those who were consistently outside employment and education in 1991 and 2001 were nearly twice as likely as those who were engaged in employment or education at both time points to be admitted to hospital following a visit to A&E. The odds differential was much higher with respect to hospital admission due to deliberate self-harm, with those who were NEET in 1991 and economically inactive in 2001 being over 8 times as likely to be hospitalised compared with those who were in employment or education at both time points.

Young adults moving either from non-NEET status in 1991 into being economically inactive in 2001 or NEET status in 1991 into being economically active in 2001 were also at a higher risk of hospital admission following a visit to A&E, both in general and due to self-harm. For example, the odds among young people who moved from being non-NEET in 1991 to being economically inactive in 2001 were 3 times those of the reference group (non-NEET and economically active in 2001) to have a hospital admission following A&E due to self-harm. This is suggestive of the mitigating effect of being in employment or education at some stage but, again, the effect of having been NEET in 1991 was not fully discounted.

NEET status at least 11 years prior to hospital admission predicted a greater likelihood of having at least one hospitalisation following a visit to A&E, suggesting an ongoing or accumulating lifestyle of risk-taking and stress significantly above that of the general population.

Depression and anxiety

Prescribing data from ISD were linked to the SLS. These data provided information on the prescription of antidepressants and antianxiety medications between 2009 and 2012. If an individual was given any prescription of such medications in the period, then the individual was regarded as having suffered from depression or anxiety.

The prescription of antidepressant and antianxiety drugs between 2009 and 2012 by NEET status in 2001 and 1991 is presented in Table 17. Overall, nearly half of young people who were NEET in 2001 were treated for depression or anxiety, while slightly over a quarter of non-NEETs had the same experience.

The incidence of depression and anxiety was slightly higher for the older 1991 cohort than for the 2001 cohort. Over half of those who were NEET in 1991 were prescribed antidepressant or antianxiety medication compared with one third of non-NEETs.

The scale of the effect of being NEET on the prescription of medication for depression and anxiety can be illustrated further based on the summary statistics of the 2001 cohort in Table 17. Overall more than 10,000 prescriptions (1102*48%*20) were dispensed to NEET young people between 2009 and 2012. If these NEET young people had the same level of depression or anxiety as their non-NEET peers, in total only about 6,000 (1102*27%*20) prescriptions would have been dispensed, a reduction of 40% for the NEET group. In other words, reducing the number in the NEET group and their higher mental health risk factors, would have a substantial impact on excess mental ill health in this young group.

Table 17 Prescription of antidepressant and antianxiety drugs between 2009 and 2012 by 2001 and 1991 NEET status

NEET status, 2001	% no	% yes	Total
Non-NEET	72	27	7,468
NEET	52	48	1,102
NEET status, 1991	% no	% yes	Total
Non-NEET	67	33	7,553
NEET	48	52	1,120

Source: SLS and ISD

Logistic regression models were fitted to investigate the relationships between NEET status and the risk of depression and anxiety.

Table 18 shows that being NEET in 2001 was associated with a higher risk of depression and anxiety around a decade later, indicating that this group was over 50% more likely to be treated for depression or anxiety than their counterparts who were non-NEET in 2001.

Having a limiting long-term illness in 2001 was also associated with a higher risk of depression and anxiety, and the size of the effect is similar to that of being NEET (see appendix 2). This is not unexpected as it reflects the long-term nature of some mental health problems, as well as the association between chronic physical conditions and mental health.

From the model for the 1991 cohort, we can see that young adults who were disadvantaged in both 1991 and 2001 (NEET and economically inactive respectively) were 2.8 times as likely as their counterparts who were advantaged at both time points to be treated for depression or anxiety. Those who were non-NEET in 1991 but became economically inactive in 2001 also showed a higher risk of depression or anxiety compared with the reference group, with nearly double the odds of those who were non-NEET in 1991 and economically active in 2001. Young people who moved from NEET status in 1991 to become economically active in 2001 also had higher risks of depression or anxiety, again suggesting the long lasting negative effect of the NEET experience.

Overall, the results show that NEET experiences are associated with increased antidepressants and antianxiety treatment 10 years and 20 years later and that this effect is independent of a number of socio-economic factors at both individual and area levels.

Table 18 Odds ratio of being prescribed with antidepressant or antianxiety drugs between 2009 and 2012 from logistic regression

2001 cohort (Cohort 1)			1991 cohort (Cohort 2)		
NEET status	Odds ratio	Significance level	NEET 1991 and economic activity 2001	Odds Ratio	Significance level
No	1				
Yes	1.56	***			
			Non-NEET 91 & active 2001	1	
			Non-NEET 91 & inactive 2001	1.92	***
			NEET 91 & active 2001	1.56	***
			NEET 91 & inactive 2001	2.76	***
N	7,917			8073	

*P<0.10 **p<0.05 ***p<0.01, Source: SLS and ISD

Drug misuse

Drug misuse usually refers to the illicit use of any opiate or benzodiazepine. Drug misuse data were collected from the Scottish Drug Misuse Database held by ISD. This database contains anonymised data on individuals at the point of first contact with a range of drug services, including non-statutory agencies and general practitioners. The data covers the period between 2006 and 2012. Drug misuse by 2001 and 1991 NEET status is presented in Table 19. Nearly one out of every twenty five of those who were NEET in 2001were recorded as users of illicit substances. In contrast, only one out of one hundred non-NEET young people were recorded as having misused drugs in the same period. For the 1991 cohort, the results were similar: about 4% of NEETs had a record of drug use compared with 1% of non-NEETs.

Table 19 Drug misuse between 2006 and 2012 by NEET status in 2001 and 1991

NEET status, 2001	% no	% yes	Total
Non-NEET	99	1	7,945
NEET	96	4	996
NEET status, 1991	% no	% yes	Total
Non-NEET	99	1	8,980
NEET	96	4	1,265

Source: SLS and ISD

We used logistic regression to examine the relationship between NEET status and drug misuse (Table 20). Being NEET in 2001 is found to be associated with a higher risk of drug misuse between 2006 and 2012, with this NEET group being more than 2 times likely to use these drugs than their non-NEET counterparts.

For the 1991 cohort, analytical results showed that young adults who were excluded from employment and education in both 1991 and 2001 were more than 9 times as likely as their counterparts who were advantaged at both time points to be involved in drug misuse. For those who were non-NEET in 1991 but moved to being economically inactive in 2001 the risk of drug misuse was four times that of the reference group who were non-NEET in 1991 and economically active in 2001. Young people who had moved from NEET status in 1991 to being economically active in 2001 did not show a higher risk of drug misuse. This suggests that while being NEET has long-term negative effects, moving into employment substantially mitigates the risk of drug misuse.

Table 20 Odds ratio of drug misuse between 2006 and 2012 from logistic regression

2001 cohort (Cohort 1)			1991 cohort (Cohort 2)		
NEET status	Odds ratio	Significance level	NEET 1991 and economic activity 2001	Odds Ratio	Significance level
No	1				
Yes	2.47	***			
			Non-NEET 91 & active 2001	1	
			Non-NEET 91 & inactive 2001	3.91	***
			NEET 91 & active 2001	0.35	
			NEET 91 & inactive 2001	9.18	***
N	7,917			8,073	

*P<0.10 **p<0.05 ***p<0.01, Source: SLS and ISD

Risk factors of becoming NEET

This section describes the characteristics of Cohorts 3 and 4 and the results of modelling the risk of being NEET. Lists of the independent variables considered for Cohorts 3 and 4 are given in Appendices 5 and 6.

Key Findings – Risk Factors

There is strong evidence that being NEET is associated with the following demographic and socioeconomic factors. These risk factors seemed to be similar for young people growing-up in the 1990's compared to the 2000's.

- Risk factors are consistent across two cohorts and between males and females.
- Educational qualification is the most important factor. No qualifications increased the risk of being NEET by 6 times for males and 8 times for females in Cohort 3. No qualifications at SCQF level 5 or higher obtained by school stage S4 increase the risk of being NEET by 10 times for males and 7 times for females in Cohort 4.
- Other school factors are important including the proportion of time absent from school and the number of exclusions.
- Two factors are especially important for females: being an unpaid carer for more than 20 hours per week and teenage pregnancy.
- Household factors are also important. Living in a social renting household, living in a family that is not headed by a married couple, living in a household with no employed adults, having a large number of siblings all increased the risk of becoming NEET.
- Local NEET rate is an important factor for both cohorts and genders, with the risk of NEET increasing with local NEET rate.
- A risk score derived from the statistical modelling has potential to identify young people who are at risk of becoming NEET.

The 2001 NEETs

This sample consists of all SLS members aged 16-19 in 2001 who were also present in the 1991 census (Cohort 3).

There are slightly more females than males in the sample. The NEET rate is slightly higher for males than for females. The NEET rate is lowest for 16 year olds, increasing for ages 17 and 18, with age 19 being approximately the same as age 18. Younger ages are more likely to still be in education or training, the minimum

age for leaving education is usually 16 in Scotland, and there will be further numbers leaving school education as age increases, with very few remaining beyond age 18. The overall NEET proportion is 12.5% which is consistent with previously published data.

Table 21 NEET status 2001 by gender and age for Cohort 3

	Non-NEET (%)	NEET (%)	Total (%)
Gender			
Male	4,362 (86.9%)	659 (13.1%)	5,021 (49.3%)
Female	4,561 (88.2%)	613 (11.9%)	5,174 (50.8%)
Age in 2001			
16	2,552 (93.0%)	191 (7.0%)	2,743 (26.9%)
17	2,294 (88.7%)	293 (11.3%)	2,587 (25.4%)
18	2,074 (83.9%)	399 (16.1%)	2,473 (24.3%)
19	2,003 (83.7%)	389 (16.3%)	2,392 (23.5%)

Source: SLS

The 1991 Census variables, teenage pregnancy before 2002, local NEET rate in 2001, highest educational qualification and unpaid carer in 2001 were considered as potential risk factors (see Appendix 4 for details). Modelling results are shown in tables 22 and 23.

The likelihood of being male NEET is increased if the childhood home was rented, all economically active adults in the childhood home were unemployed, the childhood household type was not 'married couple' or the young person had a higher number of siblings, a lower level of educational qualification, was a teenage parent or lived in an area with a high local NEET rate.

The likelihood of being female NEET is increased by the same factors although there is an extra factor (being an unpaid carer of at least 20 hours per week) and the household type does not quite reach significance. Not surprisingly, being a teenage parent is a more important factor for females than for males.

Teenage pregnancy is the most significant factor for females, however having a baby when a teenager is a relatively uncommon factor - only 6.7% of females had a teenage birth.

This contrasts with 15% of the sample that recorded no qualifications (or were missing these data) which increases the risk of NEET by approximately 6 and 8 times for males and females respectively compared with those having a degree, HNC or Higher qualification. For around 20% of SLS members who lived in an area where the local NEET rate is over 19.5%, the risk increases by approximately 2.5 times for males and 2 times for females. There are trends with both these variables with the risk of being NEET decreasing with higher levels of education and lower local NEET rates.

Table 22 Odds ratio of being NEET in 2001 from logistic regression for males

Variable	Odds ratio	Significance level	N
Tenure, 1991			
Owner occupied	1.00		2,951
Social Renting	2.03	****	1,957
Private Renting	1.91	**	113
Employment of household, 1991			
2 persons, both employed	1.00		2,288
1 person, employed	1.04		1,532
Some economically active persons are unemployed	1.18		367
All economically active persons are unemployed	1.89	****	296
No economically active & employed persons	1.26		538
Household type, 1991			
Married couple	1.00		3,997
Other households	3.91	**	21
Lone parent	1.46	***	832
Cohabiting couples	1.66	**	171
Number of siblings, 1991			
0	1.00		621
1	1.24		2,528
2	1.46	**	1,365
3 or more	1.90	****	507
Qualification, 2001			
Degree\HNC\Higher	1.0		1,705
Standard grade	2.64	****	2,455
None\missing	6.06	****	861
Proportion NEET, 2001			
Lowest proportion, <=6.5	1.0		1,163
>6.5 &= <13	1.58	***	1,687
>13 & =<19.5	1.85	****	1,229
Highest proportion, >19.5	2.52	****	942
Teenage father			
No	1.0		4,938
Yes	1.75	**	83

N=5021, **P<0.05, ***P<0.01, ****P<0.001, Source: SLS

Table 23 Odds ratio of being NEET in 2001 from logistic regression for females

Variable	Odds ratio	Significance level	Number
Tenure, 1991			
Owner occupied	1.00		3,064
Social Renting	1.60	****	2,015
Private Renting	1.54		95
Employment of household, 1991			
2 persons, both employed	1.00		2,316
1 person, employed	1.45	***	1,613
Some economically active persons are unemployed	1.58	**	383
All economically active persons are unemployed	2.14	****	324
No economically active & employed persons	2.00	****	538
Number of siblings, 1991			
0	1.00		575
1	1.36		2,552
2	1.56	**	1,459
3 or more	2.42	****	588
Being an unpaid carer, 20+ hours per week, 2001			
No	1.00		5,120
Yes	2.42	**	54
Qualification, 2001			
Degree\HNC\Higher	1.00		2,151
Standard grade	3.36	****	2,325
None	7.74	****	698
Proportion NEET, 2001			
Lowest proportion, <=6.5	1.00		1,162
>6.5 &= <13	1.41		1,712
>13 & =<19.5	1.55	**	1,255
Highest proportion, >19.5	2.05	****	1,045
Teenage pregnancy			
No	1.0		4,826
Yes	12.52	****	348

N=5174, **P<0.05, ***P<0.01, ****P<0.001, Source: SLS

This contrasts with 15% of the sample that recorded no qualifications (or were missing these data) which increases the risk of NEET by approximately 6 and 8

times for males and females respectively compared with those having a degree, HNC or Higher qualification. For around 20% of SLS members who lived in an area where the local NEET rate is over 19.5%, the risk increases by approximately 2.5 times for males and 2 times for females. There are trends with both these variables with the risk of being NEET decreasing with higher levels of education and lower local NEET rates.

A higher local NEET rate might reflect fewer opportunities for an individual actively engaged in trying to find employment. There may also be other factors at play which relate to geographies of NEET: there may be local cultures where it is more acceptable to be unemployed (because a relatively high proportion of the working age population are unemployed) leading to a lack of engagement, a peer effect (the number of close friends and siblings who are NEET), and areas where services are not sufficiently resourced to deal with the problem.

The parents' education levels measured in the 1991 Census recorded only whether or not a post 18 years old qualification was gained and so it is not possible to differentiate between those with no qualifications at all and those with a school level qualification. Most of these parents would have reached the age of 16 in the 1970s and early 1980s when post-18 qualifications were less common. In 1981, only 18% entered a higher education course by the age of 21 (Paterson, 1997). The parental qualification variables are therefore unlikely to show a strong relationship with NEET status.

Tenure and the number of employed adults in the childhood home have been included in these models. These variables are more important in predicting the risk of being NEET than other variables related to deprivation such as Carstairs quintile and overcrowding (see Statistical Methods for further details on the model selection procedure).

The 2011 NEETs

School Census Multivariate models

This sample consists of all SLS members aged 16-19 in 2011 with economic activity recorded in the 2011 Census (Cohort 4) and school census data available at school stage S4. The restriction of using only those with school stage S4 data is to avoid the problem described in Appendix 3, namely that in this sample we do not have complete school census data at all ages.

There are slightly more male than female SLS members in the cohort. The proportion of male NEETs is higher than the proportion of female NEETs. There are very few sample members aged 19 as most pupils of this age would have been beyond school stage S4 when the linked school census data begins in 2007. The proportion of NEETs increases with age, with younger ages more likely to still be in education or training.

Table 24 Proportion NEET for school census analysis by gender and age for Cohort 4

Variable	Non-NEET (%)	NEET (%)	Total (%)
Gender			
Male	3,624 (86.8%)	549 (13.2%)	4,173 (51.6%)
Female	3,543 (90.7%)	613 (9.3%)	3,908 (48.4%)
Age in 2001			
16	2,434 (93.7%)	163 (6.3%)	2,597 (32.1%)
17	2,283 (88.9%)	285 (11.1%)	2,568 (31.8%)
18	2,166 (84.6%)	394 (15.4%)	2,560 (31.7%)
19	284 (79.8%)	72 (20.2%)	356 (4.4%)

Source: SLS

The overall NEET rate is 11.3%, which is below the usually reported rate of about 13%. This is most likely due to the fact that we are only including those with S4 school census data who are in the younger age groups and attending state schools (school census data does not include independent schools).

The school census variables, teenage birth before 2010 and local NEET rate were considered as potential risk factors (see Appendix 5 for details).

The variables selected were the same for the male and female models, with the exception that the male model did not include teenage birth before 2010 or urban-rural area in 2011. The number of births in this particular sample is small - 19 to males (see Appendix 3 for further explanation) and is therefore unlikely to be significant. Although teenage birth is a significant risk factor for females, there were only 62 and so this only explains a small proportion of the female NEET group.

The number of passes at SCQF level 5 or higher obtained by school stage S4 is an important predictor for both males and females showing a clear trend. Males and females with no passes were 10 and 7 times respectively more likely to be NEET than those with at least 6 passes. The numbers with no passes at S4 are large: 32% of males and 26% of females. There appears to be benefit to having at least 6 passes over having 3-5 passes, suggesting that relatively small differences in early attainment might change the likelihood of being NEET.

The proportion of time absent from school also shows a clear trend. Males and females who were absent for at least 20% of the time are 4 and 7 times respectively more likely to be NEET than those absent for less than 5% of the time. The numbers absent for at least 20% of the time are sizeable: 12% of males and 13% of females. The group who were absent for at least 20% of the time are about twice as likely to have had a limiting long-term illness or have been an unpaid carer for a least 19 hours per week (data not shown). However these groups only account for 16% and 11% of the male and female high absentee group.

The proportion that were excluded from school is lower (14% and 5% for males and females respectively) than the proportion with no qualification or >20% time absent from school. This variable may capture those with more disruptive behaviour that also affects others (compared to school qualification and absences which only affect the individual themselves). Males and females who had at least 4 exclusions are about 3 times more likely to be NEET than those with no exclusions. It is intuitive that this group would be less likely to find employment or wish to remain in education.

Being registered for free school meals is predictive of becoming NEET with those registered being over 30% more likely to become NEET for males and females. The local NEET rate may be important, because in some areas, the labour market could be so competitive that pupils exhibiting none of the other risk factors cannot find employment.

Table 25 Odds ratio of being NEET in 2011 from logistic regression for males

School Census factors	Odds ratio	Significance level	N
Registered for free school meals			
No	1.00		3,556
Yes	1.32	**	617
Proportion of time absent from school			
<5%	1.00		1,424
>=5% & <10%	1.32		1,351
>=10% & <20%	2.34	****	898
>=20%	3.92	****	500
Number of exclusions			
0	1.00		3,583
1	1.85	****	298
2-3	1.97	***	142
4 or more	3.30	****	150
Number of passes at SCQF level 5 or higher obtained by school stage S4			
>=6	1.0		799
3 -5	2.54	***	745
1-2	5.19	****	1,308
0	10.36	****	1,321
Local NEET rate			
<7.5%	1.00		863
>=7.5% & <13%	1.53	**	1,177
>=13% & <19%	1.77	***	1,068
>=19%	1.76	***	1,065

N=4, 173, **P<0.05, ***P<0.01, ****P<0.001, Source: SLS

Table 26 Odds ratio of being NEET in 2011 from logistic regression for females

School Census factors	Odds ratio	Significance level	N
Registered for free school meals			
No	1.00		3,358
Yes	1.45	**	550
Proportion of time absent from school			
<5%	1.00	--	1,141
>=5% & <10%	1.73	**	1,263
>=10% & <20%	3.46	****	983
>=20%	7.12	****	521
Number of exclusions			
0	1.00	--	3,707
1	1.30		111
2-3	2.15	***	49
4 or more	2.66	***	41
Number of passes at SCQF level 5 or higher obtained by school stage S4			
>=6	1.00	--	996
3 -5	2.61	***	846
1-2	3.12	***	1,057
0	7.27	****	1,009
Teenage birth before 2010			
No	1.00	--	3,846
Yes	11.06	****	62
Local NEET rate			
<7.5%	1.00	--	834
>=7.5% & <13%	1.40		1,080
>=13% & <19%	1.87	***	903
>=19%	2.02	***	1,091
Urban Rural			
Rural	1.00	--	605
Urban	1.66	**	3303

N=3, 908, **P<0.05, ***P<0.01, ****P<0.001, Source: SLS

Risk scores for becoming NEET

It is an inefficient use of resources to apply an intervention to the whole population as this will include individuals who will not benefit from the intervention. Identification of a subset of the population which is most at risk and which can be targeted for intervention will be more cost-effective. For a model that predicts the probability of being NEET, we can consider the subgroup to be most at risk as those that have a predicted probability in excess of a certain cut-off value, for example we could look at the subgroup that has a predicted probability which is at least 90%.

The ability to correctly identify such a subgroup will depend on data quality and the number of important risk factors which can be measured and are available to users of the risk score. Since there is always measurement error, there will inevitably be some individuals predicted to be at low risk who would benefit from an intervention and some predicted to be high risk who would not benefit from the intervention (false negatives and false positives). As the cut-off value of the predicted probability increases, there is a trade-off between reducing the size of the intervention group and increasing the number of young people at risk of being NEET that do not receive the intervention (the false negatives).

The models shown in Tables 25 and 26 use school census risk factors, published local NEET rate and teenage birth for females. As these data are available to careers guidance officers, we use these models as our risk score models. The predicted probability takes a value between 0 and 1. This can also be thought of as a risk score ranging from 0 - 100 if we multiple the probability by 100. These probabilities have been grouped into risk groups (as shown in Table 27), and the observed number of NEETs and non-NEETs in our sample are reported for each category. Five risk groups have been chosen so that the middle category is centred on 13% - the Scottish NEET rate.

Table 27 Distribution of NEET and non-NEET by risk score group

Gender	Risk score group	NEET	% NEET	Non-NEET	% Non-NEET	Total
Male	0 – < 3	11	0.9	1,169	99.1	1,180
	3 - < 7.5	46	4.9	886	95.1	932
	7.5 - < 20	146	13.0	976	87.0	1,122
	20 < 40	187	29.9	439	70.1	626
	>=40	159	50.8	154	49.2	313
Female	0 – < 3	17	1.0	1,732	99.0	1,760
	3 - < 7.5	52	5.9	837	94.2	852
	7.5 - < 20	95	12.6	659	87.4	782
	20 < 40	85	28.2	217	71.9	320
	>=40	116	54.2	98	45.8	194

Source: SLS

For the data in Table 27, the overall male and female NEET proportions are 13% and 9% respectively. Table 27 shows that there is an increasing trend in the proportion who are NEET as the risk score increases with the highest risk group (scores of at least 40), having a NEET rate of approximately 51% and 54% for the males and females respectively.

If this group with scores of at least 40 were targeted for an intervention, only 29% and 32% (159/549 and 116/365) of male and female NEETs would receive an intervention. This is known as the sensitivity of a score. The majority of those at risk of becoming NEET would not be targeted.

To increase the proportion of NEETs that are targeted, the threshold would have to be reduced. If a threshold score of at least 20 is used (the two highest risk groups in Table 27) then the sensitivity is increased to 63% for males and 55% for females (346/549 and 201/365). The increase in sensitivity comes at the cost of about a threefold increase in the size of the intervention: for males, this increase is from 7.5% (313/4173) to 22.5% (939/4173) and for females, this increase is from 5.0% to 13.2%.

Our figures of 63% and 55% are considerably better than if interventions were given at random (i.e. 13% and 9%) but to target a higher proportion of those likely to be NEET would require an even larger intervention.

The better results for females may be because the model for the females includes more factors. It cannot be attributed only to the fact that having a birth before 2010 is a strong predictor for being female NEET because this is a relatively uncommon event in this cohort.

Britton et. al. (2011) described a score to measure at ages 13-14 years whether a young person would become NEET. There is some overlap between the factors in their model and those included in our model. For their selected threshold of low KS2 score plus at least 5 characteristics, the expected probability of being NEET is 20%. This is equivalent to our score being at least 20. A lower proportion of the population would be targeted – 8%. However no data is given about the number of NEETs and non-NEETs in this group. Pseudo R^2 statistics provided for their model suggest that their model has a poorer fit than ours (0.15 compared to 0.22 and 0.27 for our male and female models respectively). This may be because we have included variables measured later than age 13-14 such as school qualifications and teenage pregnancy.

It may be that the risk score given here can either be the starting point for developing a final risk score or used as a screening tool to clarify cases where there is doubt. We do not have access to other data that careers guidance officers have that would alter their estimation of risk - such as an individual being involved in crime, being in care, having health issues or having to cope with exceptional circumstances. The personality of an individual including their motivation and

resilience could also be considered (Bynner and Parsons, 2002; Yates, et al 2010). The risk score from the model could therefore be modified by the user by including their knowledge of these other factors.

It should also be remembered that the model identifies only the most significant factors at a population level. It may be possible to build on this risk score using feedback from users to incorporate factors that are either relatively uncommon or not available to us by giving these factors a score, as agreed by the users.

Extension of model to include 2011 Census factors

The number of risk factors considered was extended to include 2001 Census factors, birth weight, prescription data, being an unpaid carer in 2011 Census and urban/rural status of local area in 2011 (see Appendix 6 for final models).

The sample size reduces slightly as not all individual records include 2001 Census data. The model for females includes the same factors shown in Table 26 with two new additions replacing being registered for free school meals: the school census variable of 'ever attended a special school' and the 2001 Census variable of the number of employed adults in the household. These two factors are of only marginal significance, the number of pupils ever attending a special school was small (32) and therefore the significance of this factor varies more with changes to the model and sample used.

The model for males includes the same factors shown in Table 25 with two new additions replacing being registered for free school meals: tenure and the number of siblings. The likelihood of being NEET increases if the childhood home was rented from a public landlord and with increasing numbers of siblings. The 2001 Census variables that are significant were also found to be significant in the analysis of the earlier cohort who were NEET in 2001.

Comparison of two cohorts

The two cohorts show consistent results, both showing that the level of school qualification, local NEET rate and teenage pregnancy are strong predictors for an individual being NEET. These factors are recorded at the time or at most a few years before NEET status being measured. The model for the later cohort considered a number of additional factors, and found that school census variables such as the number of exclusions and proportion of time absent were highly predictive. Some variables measured 10 years previously were also important: namely tenure, number of employed adults in the household, household type and number of siblings for the earlier cohort, and a subset of these was significant for the later cohort.

Geographies of NEET

We used Censuses from 1991, 2001 and 2011 to describe how the proportion of NEETs in Scotland varied by urban rural category, deprivation category and local authority. In 1991, students in full time education were enumerated at their home address whereas in 2001 and 2011 they were enumerated at their term time address. This may affect the comparisons shown here.

Local authority

There is considerable variation between the local authorities with the highest rates being more than two times the lowest rates, in 2011 the rates varied between 18.9% in West Dunbartonshire and 8.0% in Aberdeen City, in 2001 the rates varied between 19.0% in Glasgow and 6.5% in East Renfrewshire and in 1991 the rates varied between 25.2% in Glasgow and 7.0% in Aberdeenshire (Figure 1). In general, the males and females show similar distributions, charts showing the distribution by gender can be seen in Appendix 7. In 2011 and to a lesser extent 2001, the male NEET rate for Falkirk was higher than the female rate. This is most likely due to Polmont, the young offender institution for males. Since 2003 all male young offenders (approximately 400-500) have been placed here (previously there were another two institutions in Dumfries and Clackmannanshire). The male NEET rate for Falkirk is below the Scotland male rate if the figures are adjusted to remove the effect of Polmont.

Scottish Government proposed seven NEET hotspot areas in 2006: Glasgow, West Dunbartonshire, North Ayrshire, East Ayrshire, Clackmannanshire, Inverclyde and Dundee (Scottish Executive, 2006). These hotspots were selected based on several factors: percentage NEET (census data), benefit claimant rates, school leavers' destinations, attendance rates and exclusion rates. The local authorities with a NEET rate consistently more than 1% higher than the national average in 1991, 2001 and 2011 were West Dunbartonshire, North Lanarkshire, North Ayrshire, Inverclyde and Glasgow. These are all the NEET hotspot areas except for North Lanarkshire.

Carstairs deprivation

There is a striking trend of a decreasing proportion of 16-19 year olds that were NEET as deprivation decreases, seen for both males and females (Figure 2). The proportion that were NEET in the most deprived quintile is approximately four times that seen in the least deprived quintile. This pattern can be seen for Census 1991, 2001 and 2011 data however the trend is stronger in 1991 and 2011 when Scotland was experiencing a recession. More information on this measure of deprivation is available in Appendix 1.

<u>Urban Rural Category</u>

The six-fold categories are those defined by the Scottish government. They are:
1 - Large urban areas
2 - Other urban areas
3 - Accessible small towns
4 - Remote small towns
5 - Accessible rural
6 - Remote rural

Urban Rural categories were first produced after the 2001 Census. The 1991 graph has been produced using the earliest (2003) output area urban rural classifications to approximate the urban rural distribution in 1991. This graph is therefore to be used only as a general guide and is less accurate than the graphs for 2001 and 2011. It will be more usual for areas to become more urban over time due to new building and improved roads although this is not always the case. In addition, students were enumerated at their home address in 1991, which should result in the not NEET category being enumerated in the less urban areas and the most urban areas having an inflated rate compared to 2001 and 2011.

There is a trend for the proportion of young people that were NEET to decrease as the categories become more rural for both males and females (Figure 3). This trend appears to be less marked over time. One exception to this trend is the 'remote small towns' group which has the highest female rate in 1991 and second highest female rate after the most urban category in 2001. These rates exceed the corresponding male rates. This high rate is not so evident in the 2011 graph. Category 4 is the smallest category, accounting for less than 3% of the population however the small numbers do not explain this feature.

Figure 1 Proportion NEET by local authority, 1991, 2001 and 2011 Census
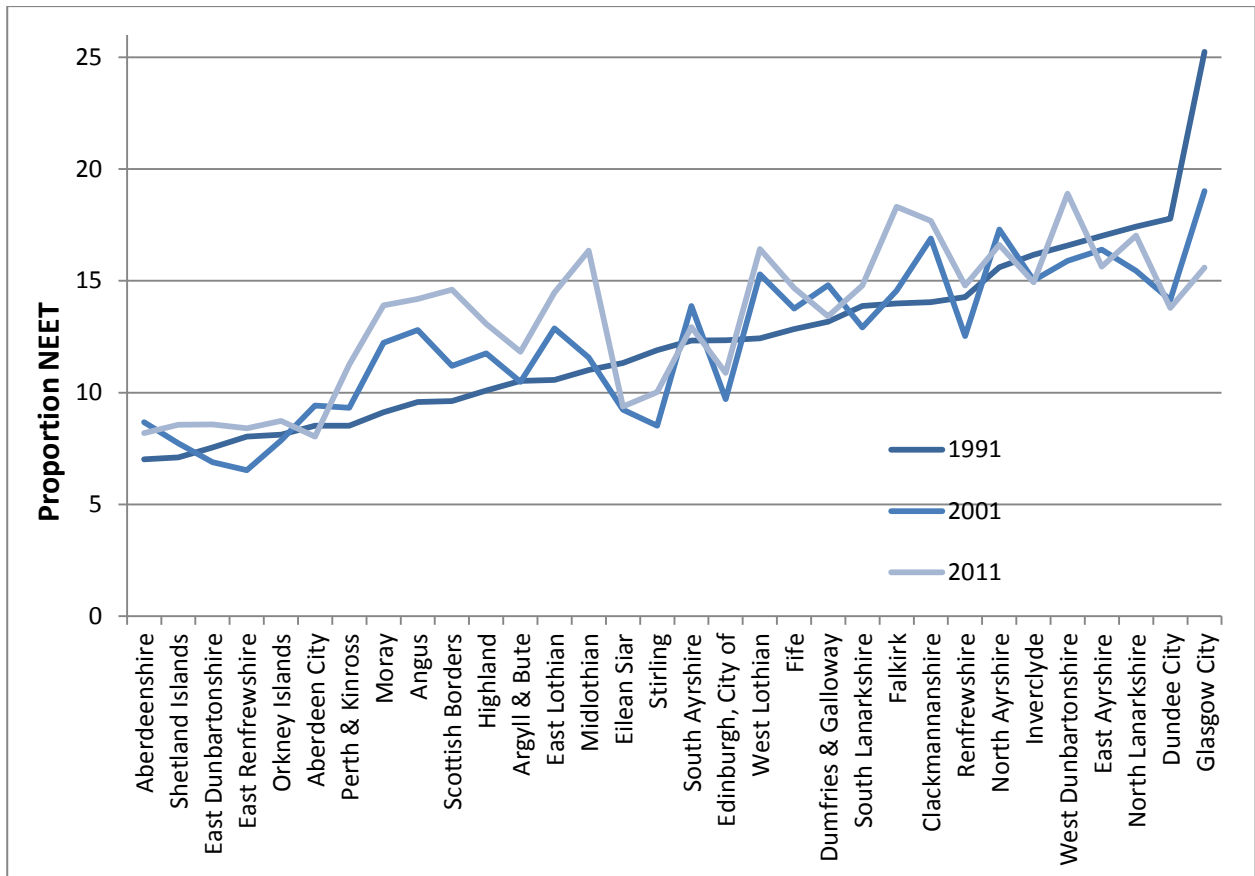
Source: National Records of Scotland, Scotland Census 1991, 2001, 2011

Figure 2 Proportion of NEET by gender and Carstairs deprivation quintile
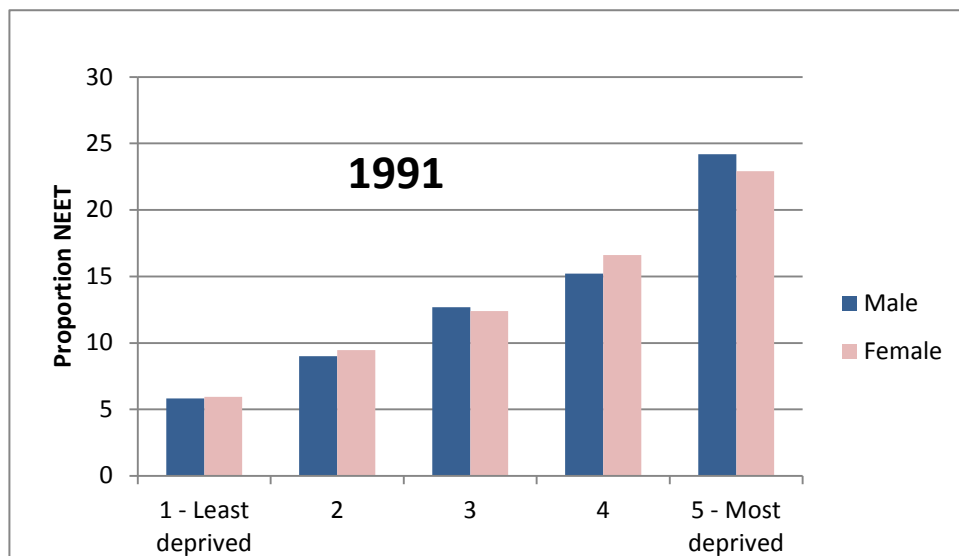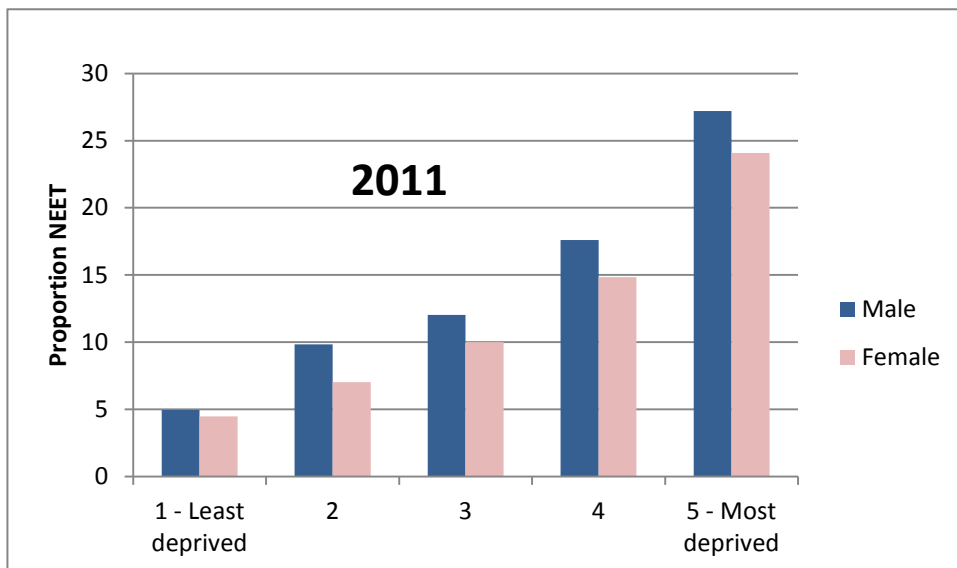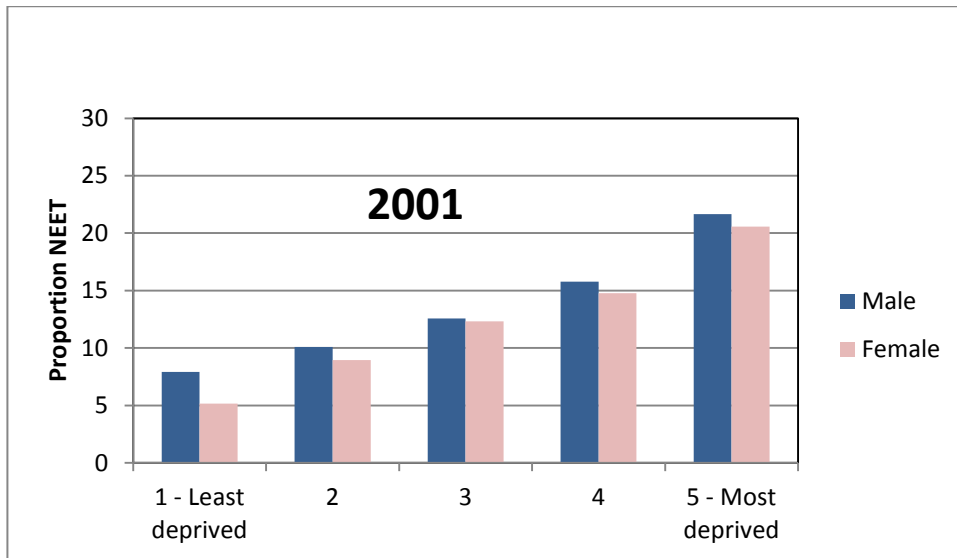
Source: National Records of Scotland, Scottish Census 1991, 2001, 2011

Figure 3. Proportion NEET by gender and 6-fold urban rural classification
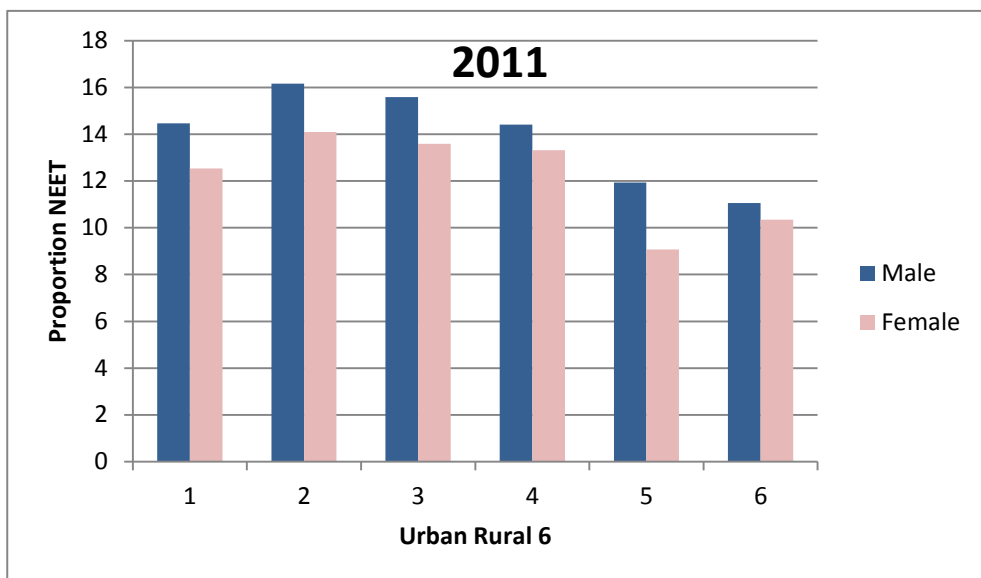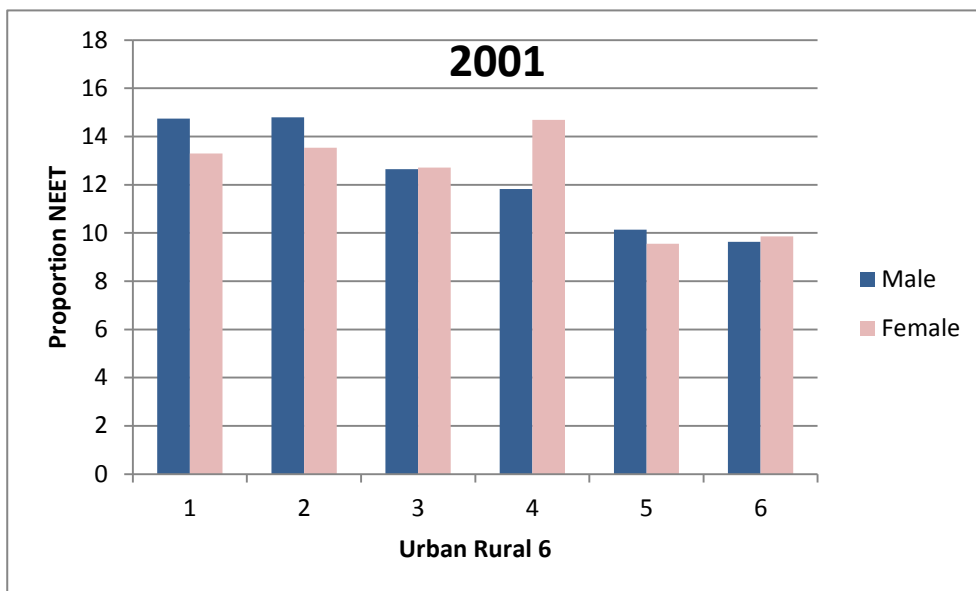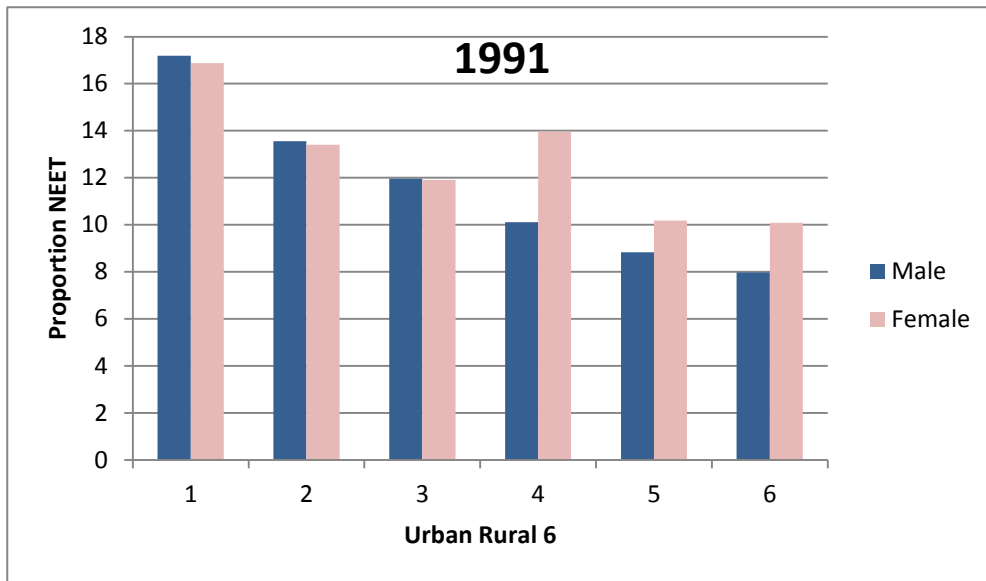
Source: National Records of Scotland, Scottish Census 1991, 2001, 2011

Chapter 4 Conclusions

As discussed in the introduction to this report, policy makers in Scotland are concerned about the persistently high level of young people who are not in employment, education or training over the past few decades. It is important to conduct research into the phenomenon of NEETs, and to understand the causes and consequences of being NEET. The research findings in this report provide evidence to help target future policy interventions designed to reverse the increase of NEET among young people and to mitigate the often long-term negative effects of NEET experiences.

Key Research findings

In this report we used Scotland's census data and the Scottish Longitudinal Study (SLS) to examine long-term effects, risk factors and geographies of being NEET.

We found evidence that being NEET is associated with several long-term negative outcomes:

Consequences

- The NEET group remains disadvantaged in their educational attainment 10 and 20 years later. More than one in five of NEET young people in 2001 had no qualifications by 2011 compared with only one in twenty five of non-NEETs.
- There is a scarring effect in economic activity. In comparison with their non-NEET peers NEET young people in 2001 were 2.8 times as likely to be unemployed or economically inactive 10 years later.
- The scarring effect is also evident in the occupational positions that NEET young people entered. For example, NEET young people in 2001 were 2.5 times as likely as their non-NEET peers to work in a low status occupation in 2011.
- NEET experiences are associated with a higher risk of poor physical health after 10 and 20 years. The risk for the NEET group was 1.6 – 2.5 times that for the non-NEET group varying with different health outcomes.
- NEET experiences are associated with a higher risk of poor mental health after 10 and 20 years. The risk of depression and anxiety prescription for the NEET group is over 50% higher than that for the non-NEET group.
- Young people who were NEET in 1991 and remained economically inactive in 2001 consistently demonstrated significantly poorer outcomes by 2011 than those who were non-NEET in 1991 and economically active in 2001 and those who were engaged with employment or education in either 1991 or 2001. This suggests that there is a cumulative effect of being out of

employment or education on later life chances and this group is the most disadvantaged that need continuing support.

- Young people who changed from NEET status in 1991 to employment or education in 2001 have lower risks of poor life outcomes compared with those who were consistently in disadvantaged positions. However, the negative effect of NEET status in 1991 was not fully discounted by the later engagement of employment or education, indicating the long-lasting detrimental effect of NEET experiences.
- Young people who changed from being non-NEET in 1991 to being economically inactive or unemployed in 2001 have higher risks of poor life outcomes compared with those who were consistently in employment or education. This suggests that economic activity in 2001 is also predictive of later labour market and health outcomes regardless of NEET status in 1991.

We found evidence that being NEET is associated with several demographic and socioeconomic factors:

Risk Factors

- Risk factors are consistent across two cohorts and between males and females.
- Educational qualification is the most important factor. No qualifications increased the risk of being NEET by 6 times for males and 8 times for females in Cohort 3. No qualifications at SCQF level 5 or higher obtained by school stage S4 increase the risk of being NEET by 10 times for males and 7 times for females in Cohort 4.
- Other school factors are important including the proportion of time absent from school and the number of exclusions.
- Two factors are especially important for females: being an unpaid carer for more than 20 hours per week and teenage pregnancy.
- Household factors are also important. Living in a social renting household, living in a family that is not headed by a married couple, living in a household with no employed adults, having a large number of siblings all increased the risk of becoming NEET.
- Local NEET rate is an important factor for both cohorts and genders, with the risk of NEET increasing with local NEET rate.
- A risk score derived from the statistical modelling has potential to identify young people who are at risk of becoming NEET.

Deprived areas are found to have a consistently higher proportion of NEET young people over two decades. The majority of NEET hotspot council areas like Glasgow, West Dunbartonshire, Inverclyde and North Ayrshire display higher than the national average in the proportion of young people who were NEET persistently over the two decades between 1991 and 2011.

These findings provide further evidence that NEET status should be an important policy concern and that young people not in employment, education or training should be a target group in terms of policy intervention.

Policy implications

Our research has a number of policy implications.
- Disengagement from employment and education when young can lead to long-term consequences in employment, occupations and health. The social and economic costs can be considerable not only for individuals but also for society. Tackling the NEET issue remains a policy concern and represents a serious economic and social challenge.

- The NEET problem should be tackled as part of wider strategies for social inclusion because causes of NEET are complex and result from the interplay between many individual, household and local factors.

- Young people who have been disaffected with education are at greatest risk of becoming NEET. Measures to increase school attendance and to boost attainment may help young people to avoid becoming NEET later on.

- School factors also provide potentials for identifying those 'at-risk' and for targeting interventions.

- Being consistently detached from employment, education or training exacerbates the long-term negative effect for NEET young people. Continuing support is needed for people who are excluded persistently from employment or education.

- In addition, area-based interventions and local coordination may be useful as NEET young people appear to be concentrated in more deprived areas and in some councils.

Future research

The research outlined in this report provides well-validated, robust estimates of risk factors for and the long-term consequences of not being in education, employment or training at ages 16-19. At this point, the available data does not include some important risk factors, some factors are not found in administrative data but might be available to careers guidance officers such as the personality of a young person and whether they are influenced by their peers. Others might in future become available to the SLS such as crime and justice data. The risk score developed here could be improved if it were supplemented with such extra information using retrospective data and/or prospective data. For example, this might show that young people with a police record should always be considered as being in the

highest risk category or that the presence of a good role model should move a young person down one risk category regardless of any other data. The risk score would therefore evolve and improve with use. More subtle processes whereby some young people with the same 'up-stream' risk factors do not become NEET in youth might require more detailed qualitative research into the complex set of factors implicated in a child's development. Future research might therefore build on the findings in this report to investigate the pre-school, school and career pathways of those 'at risk' and explore how different trajectories are associated with individual characteristics, family backgrounds, and socioeconomic structures in the local labour market. This might help to identify the most effective interventions and the points at which they should be applied.

Evaluation of policies that may impact NEET in youth is clearly important given our and others' findings on the long-term negative consequences on young people. The benefit of establishing a valid national dataset for examining outcomes in youth, is that it will allow the investigation of differential outcomes that may result from different policies or interventions as they are enacted across the country. This then provides the opportunity to explore the impact of different policies within a 'quasi-experimental' context. Analysis could examine similar groups of young people who have or have not been exposed to the intervention, with exposure being dependent on their geographical location and not on a characteristic that may be related to the risk of them being NEET in youth. Because the dataset used in this report can examine the NEET context over the last 20 years, it is also possible to use it to examine historic spatial or temporal differences in approaches.

Linking other administrative records to the SLS will extend the range of issues that can be examined. For example, linking individuals' work lives data from The Department of Work and Pensions to the SLS may be very useful in tracing peoples movement into and out of the labour market. Other administrative data sources - for example training schemes for the NEET group or unemployed people in general - are also crucial and, if linked to the SLS, will be a powerful source to evaluate a policy intervention. So a more general aim, to support research in this area, should be linking new datasets into the SLS. In addition, it would also be possible to look more closely at specific subgroups. For example, those who were NEET but who then go on to relatively advantaged occupations or risk factors for those NEET and economically inactive 10 years later.

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Appendix 1 Selection of explanatory variables for analyses of consequences of NEET

Educational attainment
Several explanatory variables were included in the models on the basis of previous research. Educational attainment measured when sample individuals were aged between 26 and 29 were included. The majority of the sample would therefore have passed through the education system by this point. Education is understood as the largest influence in a successful transition from school to work (Bynner and Parsons, 2002, Croll, 2009). The reference category was set as those with no qualifications, who were compared with those with Standard Grade qualifications (lower high school level), those with Highers and equivalent (university entrance level) qualifications, those with college level qualifications and those with degrees.

Deprivation
Carstairs deprivation measures were included in the model. The Carstairs index was developed to measure area deprivation (Carstairs and Morris, 1990). The Carstairs deprivation index is defined as the sum of four standardised percentage variables from the census: male residents in unemployment, residents in overcrowded households (more than one person per room), residents in households with no car, and residents in lower social classes (partly skilled and unskilled occupations).These were included as quintiles, with those in the least deprived areas as the reference category. This enabled measurement of any association between deprivation background and subsequent outcomes.

Limiting long-term illness
Limiting long-term illness (LLTI) in the model was measured at the Census prior to that for outcome. It may be expected that people reporting LLTI would experience a negative effect in relation to life chances. Experiencing a limiting or chronic health condition may be related to poorer educational performance and more precarious attachment to the labour force. Mechanisms like these could affect subsequent outcomes such as employment or health. The LLTI measures were dichotomised so that we compared those reporting illness with those reporting no LLTI.

Council area – NEET hotspots
In Scotland seven councils have been noted as NEET hotspots where action should be targeted (Scottish Executive 2006). The 'hotspots' were defined as such because they scored highly on five geographical measures which are known to relate to or influence the rate of NEET, including the NEET rate itself. The reference category is all other council areas.

Appendix 2 Results of analyses of consequences of being NEET

Table 8a Odds ratios (OR) and 95% confidence intervals (CI) of economic inactivity in 2011 from logistic regression

2001 cohort (Cohort 1)		1991 cohort (Cohort 2)	
Variables	**OR (95% CI)**	**Variables**	**OR (95% CI)**
Gender		Gender	
Female	1	Women	1
Male	0.78***(0.68-0.90)	Men	0.68*** (0.59- 0.78)
Age	0.93* (0.87-0.99)	Age	0.94** (0.88- 1.00)
Qualification, 2011		Qualification, 2011	
No qualification	1	No qualification	1
Standard grade	0.35*** (0.28-0.45)	Standard grade	0.48*** (0.39-0.58)
Higher grade	0.15***(0.12-0.20)	Higher grade	0.40*** (0.32- 0.51)
HNC/HND	0.13***(0.10-0.17)	HNC/HND	0.35*** (0.26- 0.46)
Degree	0.07*** (0.05-0.09)	Degree	0.26*** (0.20- 0.34)
Long-term illness 2001		Long-term illness 1991	
No	1	No	1
Yes	2.28***(1.75-2.97)	Yes	2.05*** (1.49- 2.82)
Carstairs quintile, 2001		Carstairs quintile, 1991	
1- least deprived	1	1- least deprived	1
2	0.92 (0.72-1.21)	2	0.97 (0.77- 1.22)
3	1.03(0.81-1.33)	3	0.99 (0.79- 1.25)
4	1.23 (0.96-1.56)	4	1.07 (0.85- 1.34)
5- most deprived	1.45** (1.14-1.84)	5- most deprived	1.21 (0.96- 1.53)
Council, 2001		Council, 1991	
Other councils	1	Other councils	1
Clackmannanshire	1.06 (0.48-2.36)	Clackmannanshire	1.16 (0.62- 2.17)
West Dunbartonshire	1.11 (0.68-1.78)	West Dunbartonshire	0.88 (0.52- 1.48)
Dundee	1.67** (1.16-2.40)	Dundee	0.85 (0.55- 1.31)
East Ayrshire	1.13 (0.73-1.73)	East Ayrshire	0.90 (0.60- 1.34)
Glasgow	1.42** (1.15-1.76)	Glasgow	1.30** (1.04- 1.62)
Inverclyde	1.02 (0.58-1.77)	Inverclyde	1.09 (0.65- 1.81)
North Ayrshire	1.42* (1.00-2.03)	North Ayrshire	1.40* (0.97- 2.02)
NEET 2001			
No	1		
Yes	2.77*** (2.32-3.29)		
		NEET 1991 and economic activity 2001	
		Non-NEET 91 & active 2001	1
		Non-NEET 91 & inactive 2001	5.75*** (4.87- 6.79)

		NEET 91 & active 2001	1.91*** (1.47- 2.46)
		NEET 91 & inactive 2001	9.38*** (7.35-11.97)
N	7,917		8,073

*P<0.10 **p<0.05 ***p<0.01, Source: SLS

Table 10a Odds ratio (OR) and 95% confidence intervals (CI) of low status occupations in 2011 from logistic regression

2001 (Cohort 1)		1991 (Cohort 2)	
Variable	OR (95% CI)	Variable	OR (95% CI)
Gender		Gender	
Female	1	Women	
Male	1.03(0.92 - 1.15)	Men	1.10(0.97-1.24)
Age	0.87*** (0.83 - 0.92)	Age	0.93***(0.88-0.98)
Qualification, 2011		Qualification, 2001	
No qualification	1	No qualification	1
Standard grade	0.47*** (0.36-0.62)	Standard grade	0.44***(0.36-0.53)
Higher grade	0.19*** (0.14 -.0 25)	Higher grade	0.20*** (0.16-0.25)
HNC/HND	0.18*** (0.14 -0.24)	HNC/HND	0.14*** (0.11-0.18)
Degree	0.06*** (0.04 -0.08)	Degree	0.05*** (0.04-0.06)
Long-term illness 2001		Long-term illness 1991	
No	1	No	1
Yes	1.35** (1.01 - 1.79)	Yes	0.84(0.57-1.24)
Carstairs quintile, 2001		Carstairs quintile, 1991	
1- least deprived	1	1- least deprived	1
2	1.06 (0.93 - 1.37)	2	1.29**(1.05-1.58)
3	1.39*** (1.24 - 1.81)	3	1.54*** (1.26-1.88)
4	1.60*** (1.40 - 1.93)	4	1.70*** (1.39-2.07)
5- most deprived	2.08*** (1.74 - 2.55)	5- most deprived	1.88*** (1.52-2.31)
Council, 2001		Council, 1991	
Other councils	1	Other councils	1
Clackmannanshire	0.72 (0.39 - 1.33)	Clackmannanshire	2.04*** (1.22-3.4)
West Dunbartonshire	0.61* (0.40 - 0.93)	West Dunbartonshire	1.10(0.72-1.68)
Dundee	1.11 (0.80 - 1.54)	Dundee	0.86(0.58-1.27)
East Ayrshire	1.30 (0.91 - 1.86)	East Ayrshire	1.09(0.77-1.53)
Glasgow	0.75 (0.61 - 0.91)	Glasgow	1.00(0.81-1.24)
Inverclyde	0.82 (0.52 - 1.29)	Inverclyde	1.46**(0.94-2.27)
North Ayrshire	0.79 (0.57 - 1.10)	North Ayrshire	1.16(0.84-1.6)
NEET 2001			
no	1		
Yes	2.04*** (1.70 - 2.43)		
		NEET 1991 and economic activity 2001	
		Non-NEET 91 & active 2001	1
		Non-NEET 91 & inactive 2001	2.64*** (2.23-3.12)
		NEET 91 & active 2001	1.79*** (1.44-2.22)

		NEET 91 & inactive 2001	3.40*** (2.56-4.52)
N	7,792	N	7654

Table 13a Odds ratio (OR) and 95% confidence intervals (CI) of having limiting long-term illness in 2011 from logistic regression

2001 cohort (Cohort 1)		1991 cohort (Cohort 2)	
Variable	**OR (95% CI)**	**Variable**	**OR (95% CI)**
Gender		Gender	
Female	1	Women	1
Male	0.84 (0.69-1.01)	Men	1.09 (0.93- 1.27)
Age	0.95 (0.86-1.02)	Age	0.98 (0.92- 1.05)
Qualification, 2011		Qualification, 2001	
No qualification	1	No qualification	1
Standard grade	0.34*** (0.25-0.46)	Standard grade	0.61*** (0.49- 0.77)
Higher grade	0.30*** (0.21-0.43)	Higher grade	0.65*** (0.50- 0.85)
HNC/HND	0.31***(0.22-0.43)	HNC/HND	0.59*** (0.43- 0.80)
Degree	0.22***(0.15-0.30)	Degree	0.46*** (0.34- 0.61)
Carstairs quintile, 2001		Carstairs quintile, 1991	
1- least deprived	1	1- least deprived	1
2	1.11 (0.79-1.55)	2	1.32** (1.02- 1.72)
3	1.02 (0.72-1.42)	3	1.15 (0.88- 1.50)
4	1.54** (1.11-2.11)	4	1.44*** (1.11- 1.87)
5- most deprived	1.42* (1.02-1.97)	5- most deprived	1.35*** (1.02- 1.77)
Long-term illness 2001		Long-term illness 1991	
No	1	No	1
Yes	11.53***(8.98-14.8)	Yes	6.02*** (4.50- 8.04)
Council, 2001		Council, 1991	
Other councils	1	Other councils	1
Clackmannanshire	0.78 (0.23-2.60)	Clackmannanshire	0.66 (0.29- 1.52)
West Dunbartonshire	2.06**(1.21-3.49)	West Dunbartonshire	1.05 (0.60- 1.83)
Dundee	1.64*(1.03-2.58)	Dundee	0.79 (0.48- 1.33)
East Ayrshire	0.65 (0.32-1.28)	East Ayrshire	1.03 (0.66- 1.59)
Glasgow	0.98 (0.72-1.34)	Glasgow	1.55*** (1.22- 1.97)
Inverclyde	0.79 (0.37-1.71)	Inverclyde	1.35 (0.79- 2.32)
North Ayrshire	1.04 (0.62-1.72)	North Ayrshire	1.15 (0.75- 1.77)
NEET 2001			
No	1		
Yes	1.74***(1.36-2.22)		
		NEET 1991 and economic activity 2001	
		Non-NEET 91 & active 2001	1
		Non-NEET 91 & inactive 2001	3.73*** (3.07- 4.53)

		NEET 91 & active 2001	1.47** (1.09- 2.00)
		NEET 91 & inactive 2001	4.06*** (3.10- 5.33)
N	7,917		8,073

*P<0.10 **p<0.05 ***p<0.01, Source: SLS

Table 15a Odds ratio (OR) and 95% confidence intervals (CI) of hospital admission following a visit to accident and emergency between 2001 and 2010 from logistic regression

2001 cohort (Cohort 1)		1991 cohort (Cohort 2)	
Variable	**OR (95% CI)**	**variable**	**OR (95% CI)**
Gender		Gender	
Female	1	Women	
Male	1.16*** (1.05-1.29)	Men	0.83***(0.75- 0.93)
Age	0.99 (0.95-1.04)	Age	0.96(0.92- 1.01)
Long-term illness 2001		Long-term illness 1991	
No	1	No	1
Yes	1.75***(1.41-2.18)	Yes	1.40**(1.06- 1.85)
Qualification 2011		Qualification 2001	
No qualification	1	No qualification	1
Standard grade	0.95 (0.76-1.19)	Standard grade	0.82**(0.69- 0.98)
Higher grade	0.77**(0.61-0.98)	Higher grade	0.77**(0.62- 0.94)
HNC/HND	0.75** (0.59-0.96)	HNC/HND	0.72***(0.57- 0.90)
Degree	0.56*** (0.44-0.71)	Degree	0.54***(0.44- 0.67)
Carstairs quintile, 2001		Carstairs quintile, 1991	
1- least deprived	1	1- least deprived	1
2	1.17* (0.99-1.38)	2	1.09(0.92- 1.29)
3	1.12(0.95-1.33)	3	1.06(0.88- 1.21)
4	1.10 (0.93-1.31)	4	1.23**(1.04- 1.47)
5- most deprived	1.25**(1.05-1.48)	5- most deprived	1.07(0.92- 1.3)
Council, 2001		Council, 1991	
Other councils	1	Other councils	1
Clackmannanshire	0.76(0.42-1.37)	Clackmannanshire	0.75(0.45- 1.24)
West Dunbartonshire	0.75(0.51-1.12)	West Dunbartonshire	0.93(0.65- 1.32)
Dundee	1.16 (0.87-1.54)	Dundee	0.78(0.57- 1.07)
East Ayrshire	0.89 (0.63-1.24)	East Ayrshire	0.97(0.72- 1.31)
Glasgow	0.78*** (0.66-0.94)	Glasgow	1.17*(0.99- 1.39)
Inverclyde	1.02 (0.69-1.51)	Inverclyde	1.3(0.92- 1.83)
North Ayrshire	1.18 (0.90-1.57)	North Ayrshire	0.98(0.74- 1.31)
NEET 2001			
No	1		
Yes	1.75***(1.41-2.18)		
		NEET 1991 and economic activity 2001	
		Non-NEET 91 & active 2001	1
		Non-NEET 91 & inactive 2001	1.46***(1.25- 1.71)
		NEET 91 & active 2001	1.29**(1.04- 1.59)

		NEET 91 & inactive 2001	1.83***(1.45- 2.30)
N	7,917		8,073

*P<0.10 **p<0.05 ***p<0.01, Source: SLS and ISD

Table 16a Odds ratio (OR) and 95% confidence intervals (CI) of hospital admission following a visit to accident and emergency due to self-harm between 2001 and 2010 from logistic regression

2001 cohort (Cohort 1)		1991 cohort (Cohort 2)	
Variable	**OR (95% CI)**	**Variable**	**OR (95% CI)**
Gender		Gender	
Female	1	Women	1
Male	0.76* (0.58-1.05)	Men	0.83(0.56- 1.23)
Age	0.92 (0.81-1.05)	Age	0.95(0.80- 1.12)
Long-term illness 2001		Long-term illness 1991	
No	1	No	1
Yes	1.68**(1.01-2.78)	Yes	0.94(0.43- 2.02)
Qualification, 2001		Qualification 2001	
No qualification	1	No qualification	1
Standard grade	1.02 (0.60-1.70)	Standard grade	0.76(0.45- 1.16)
Higher grade	0.86 (0.48-1.56)	Higher grade	0.77(0.39- 1.34)
HNC/HND	0.76 (0.41-1.39)	HNC/HND	0.37**(0.15- 0.93)
Degree	0.41*** (0.22-0.77)	Degree	0.37**(0.17- 0.83)
Carstairs quintile, 2001		Carstairs quintile, 1991	
1- least deprived	1	1- least deprived	1
2	1.13 (0.72-2.06)	2	1.27(0.58- 2.81)
3	1.10 (0.70-1.99)	3	1.80(0.85- 3.63
4	1.23 (0.74-2.07)	4	1.86*(0.99- 4.12)
5- most deprived	1.30 (0.80-2.24)	5- most deprived	1.51(0.75- 3.33)
Council, 2001		Council, 1991	
Other councils	1	Other councils	1
Clackmannanshire	0.64 (0.06-3.49)	Clackmannanshire	n/a
West Dunbartonshire	0.27 (0.25-1.95)	West Dunbartonshire	0.76(0.18- 3.08)
Dundee	1.67 (0.99-3.02)	Dundee	0.80(0.23- 2.51)
East Ayrshire	0.62 (0.13-1.39)	East Ayrshire	0.98(0.34- 2.63)
Glasgow	0.80 (0.55-1.31)	Glasgow	1.14(0.59- 1.85)
Inverclyde	0.90 (0.47-2.99)	Inverclyde	0.47(0.06- 3.39)
North Ayrshire	1.92** (0.79-2.67)	North Ayrshire	1.74(0.72- 3.99)
NEET 2001			
No	1		
Yes	2.23***(1.55-3.21)		
		NEET 1991 and economic activity 2001	
		Non-NEET 91 & active 2001	1
		Non-NEET 91 & inactive 2001	2.92***(1.76- 4.86)
		NEET 91 & active 2001	2.63***(1.35- 5.14)

		NEET 91 & inactive 2001	8.23***(4.75- 14.25)
N	7,917		8,050

*P<0.10 **p<0.05 ***p<0.01, Source: SLS and ISD

Table 18a Odds ratio (OR) and 95% confidence intervals (CI) of being prescribed with antidepressant or anxiety drugs from logistic regression

2001 cohort (Cohort 1)		1991 cohort (Cohort 2)	
Variable	**OR (95% CI)**	**Variable**	**OR (95% CI)**
Gender		Gender	
Female	1	Women	1
Male	0.45***(0.41-0.51)	Men	0.53*** (0.48- 0.59)
Age	1.02(0.98-1.08)	Age	0.97(0.73- 1.27)
Limiting long-term illness, 2001		Limiting long-term illness, 1991	
No	1	No	1
Yes	1.40***(1.10-1.78)	Yes	0.97(0.73- 1.28)
Qualification, 2001		Qualification, 2001	
No qualification	1	No qualification	1
Standard grade	0.76**(0.60-.96)	Standard grade	0.90(0.75- 1.08)
Higher grade	0.65***(0.51-0.83)	Higher grade	0.76*** (0.62- 0.93)
HNC/HND	0.65**(0.51-0.84)	HNC/HND	0.85(0.68- 1.05)
Degree	0.41***(0.32-0.52)	Degree	0.54*** (0.44- 0.66)
Carstairs quintile, 2001		Carstairs quintile, 1991	
1- least deprived	1	1- least deprived	1
2	1.14(0.96-1.36)	2	1.13*(0.98- 1.32)
3	1.11(0.93-1.32)	3	1.11(0.95- 1.30)
4	1.36***(1.14-1.62)	4	1.16(0.99- 1.36)
5- most deprived	1.58***(1.32-1.90)	5- most deprived	1.16(0.96- 1.36)
Council, 2001		Council, 1991	
Other councils	1	Other councils	1
Clackmannanshire	1.23(0.71-2.15)	Clackmannanshire	1.29(0.82- 2.04)
West Dunbartonshire	1.20(0.83-1.73)	West Dunbartonshire	0.89(0.61- 1.31)
Dundee	1.21(0.91-1.63)	Dundee	1.37**(1.00- 1.86)
East Ayrshire	0.95(0.68-1.34)	East Ayrshire	1.05(0.79- 1.39)
Glasgow	0.89(0.74-1.06)	Glasgow	1.33***(1.11- 1.59)
Inverclyde	0.84(0.54-1.29)	Inverclyde	1.14(0.78- 1.66)
North Ayrshire	1.14(0.85-1.53)	North Ayrshire	1.14(0.86- 1.53)
NEET 2001			
No	1		
Yes	1.56***(1.32-1.85)		
		NEET 1991 and economic activity 2001	
		Non-NEET 91 & active 2001	1
		Non-NEET 91 & in 2001	1.92*** (1.65- 2.22)
		NEET 91 & active 2001	1.56*** (1.28- 1.91)

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		NEET 91 & in active 2001	2.76*** (2.19- 3.47)
N	7,917		8,073

*P<0.10 **p<0.05 ***p<0.01, Source: SLS and ISD

*P<0.10 **p<0.05 ***p<0.01, Source: SLS and ISD

Table 20a Odds ratio and 95% confidence intervals (CI) of drug misuse between 2006 and 2012 from logistic regression

2001 cohort (Cohort 1)		1991 cohort (Cohort 2)	
Variable	**OR (95% CI)**	**variable**	**OR (95% CI)**
Gender		Gender	
Female	1	Women	1
Male	3.00***(1.69-5.32)	Men	2.20***(1.34- 3.58)
Age	0.95(0.75-1.20)	Age	0.80*(0.64- 1.00)
Limiting long-term illness, 2001		Limiting long-term illness, 2001	
No	1	No	1
Yes	1.49(0.66-3.37)	Yes	0.26*(0.06- 1.01)
Qualification, 2001		Qualification, 2001	
No qualification	1	No qualification	1
Standard grade	0.33***(0.17-0.63)	Standard grade	0.52**(0.29- 0.93)
Higher grade	0.24***(0.10-0.55)	Higher grade	0.36**(0.13- 0.89)
HNC/HND	0.10*** (0.32-0.32)	HNC/HND	0.56(0.23- 1.39)
Degree	0.07*** (0.02-0.21)	Degree+	0.11***(0.02- 0.51)
Carstairs quintile, 2001		Carstairs quintile, 2001	
1- least deprived	1	1- least deprived	1
2	1.65(0.63-4.32)	2	1.51(0.49- 4.68)
3	0.92(0.31-2.61)	3	0.95(0.34- 3.34)
4	1.47(0.59-3.69)	4	1.57(0.63- 5.03)
5- most deprived	0.85(0.32-2.26)	5- most deprived	2.53*(0.91- 7.01)
Council, 2001		Council, 2001	
Other councils	1	Other councils	1
Clackmannanshire	n/a	Clackmannanshire	n/a
West Dunbartonshire	1.10(0.15-8.21)	West Dunbartonshire	n/a
Dundee	5.15***(2.17-12.20)	Dundee	1.08(0.32- 3.65)
East Ayrshire	3.41**(1.16-9.98)	East Ayrshire	1.18(0.28- 5.01)
Glasgow	0.85(0.32-2.26)	Glasgow	1.73*(0.95- 3.15)
Inverclyde	1.20(0.16-9.29)	Inverclyde	3.65***(1.69- 11.05)
North Ayrshire	3.57**(1.36-9.37)	North Ayrshire	2.78*(0.95- 8.14)
NEET 2001			
No	1		
Yes	2.47***(1.35-4.52)		
		NEET 1991 and economic activity 2001	
		Non-NEET 91 & working 2001	1
		Non-NEET 91 & not working 2001	3.91***(2.16- 7.44)

		NEET 91 & working 2001	0.35(0.04- 2.42)
		NEET 91 & not working 2001	9.18***(4.52- 17.19)
N	7,917		8,073

*P<0.10 **p<0.05 ***p<0.01, Source: SLS and ISD

Table 22a Odds ratio and Confidence Intervals (CI) of being NEET in 2001 from logistic regression for males

Variable	Odds ratio	95% CI	N
Tenure, 1991			
Owner occupied	1.00	--	2,951
Social Renting	2.03****	(1.62, 2.55)	1,957
Private Renting	1.91*	(1.09, 3.36)	113
Employment of household, 1991			
2 persons, both employed	1.00	--	2,288
1 person, employed	1.04	(0.81, 1.32)	1,532
Some economically active persons are unemployed	1.18	(0.83, 1.69)	367
All economically active persons are unemployed	1.89****	(1.35, 2.66)	296
No economically active & employed persons	1.26	(0.89, 1.79)	538
Household type, 1991			
Married couple	1.00	--	3,997
Other households	3.91**	(1.35, 11.32)	21
Lone parent	1.46***	(1.11, 1.92)	832
Cohabiting couples	1.66**	(1.10, 2.53)	171
Number of siblings, 1991			
0	1.00	--	621
1	1.24	(0.92, 1.68)	2,528
2	1.46**	(1.06, 2.01)	1,365
3 or more	1.90****	(1.33, 2.73)	507
Highest qualification, 2001			
Degree\HNC\Higher	1.0	--	1,705
Standard grade	2.64****	(2.04, 3.42)	2,455
None	6.06****	(4.51, 8.15)	861
Proportion NEET, 2001			
Lowest proportion, <=6.5	1.0	--	1,163
>6.5 &= <13	1.58***	(1.13, 2.20)	1,687
>13 & =<19.5	1.85****	(1.32, 2.59)	1,229
Highest proportion, >19.5	2.52****	(1.78, 3.56)	942
Teenage pregnancy			
No	1.0	--	4,938
Yes	1.75**	(1.05, 2.92)	83

N=5021, **P<0.05, ***P<0.01, ****P<0.001, Source: SLS

Table 23a Odds ratio and Confidence Intervals (CI) of being NEET in 2001 from logistic regression for females

Variable	Odds ratio	95% CI	Number
Tenure, 1991			
Owner occupied	1.00	--	3,064
Social Renting	1.60****	(1.24, 2.06)	2,015
Private Renting	1.54	(0.76, 3.11)	95
Employment of household, 1991			
2 persons, both employed	1.00	--	2,316
1 person, employed	1.45***	(1.11, 1.90)	1,613
Some economically active persons are unemployed	1.58**	(1.07, 2.34)	383
All economically active persons are unemployed	2.14****	(1.46, 3.11)	324
No economically active & employed persons	2.00****	(1.44, 2.79)	538
Number of siblings, 1991			
0	1.00	--	575
1	1.36	(0.94, 1.96)	2,552
2	1.56**	(1.07, 2.28)	1,459
3 or more	2.42****	(1.60, 3.66)	588
Being an unpaid carer, 20+ hours per week, 2001			
No	1.00	--	5,120
Yes	2.42**	(1.20, 4.85)	54
Qualification, 2001			
Degree\HNC\Higher	1.00	--	2,151
Standard grade	3.36****	(2.55, 4.44)	2,325
None	7.74****	(5.54, 10.80)	698
Proportion NEET, 2001			
Lowest proportion, <=6.5	1.00	--	1,162
>6.5 &= <13	1.41	(0.97, 2.04)	1,712
>13 & =<19.5	1.55**	(1.06, 2.27)	1,255
Highest proportion, >19.5	2.05****	(1.40, 3.01)	1,045
Teenage pregnancy			
No	1.0	--	4,826
Yes	12.52****	(9.40, 16.69)	348

N=5174, **P<0.05, ***P<0.01, ****P<0.001, Source: SLS

Table 25a Odds ratio and Confidence Intervals (CI) of being NEET in 2011 from logistic regression for males

School Census factors	Odds ratio	95% CI	N
Registered for free school meals			
No	1.00	--	3,556
Yes	1.32**	(1.04, 1.69)	617
Proportion of time absent from school			
<5%	1.00	--	1,424
>=5% & <10%	1.32	(0.95, 1.85)	1,351
>=10% & <20%	2.34****	(1.68, 3.24)	898
>=20%	3.92****	(2.75, 5.57)	500
Number of exclusions			
0	1.00	--	3,583
1	1.85****	(1.35, 2.53)	298
2-3	1.97***	(1.31, 2.96)	142
4 or more	3.30****	(2.25, 4.84)	150
Number of passes at SCQF level 5 or higher obtained by school stage S4			
>=6	1.0	--	799
3 -5	2.54***	(1.26, 5.11)	745
1-2	5.19****	(2.76, 9.79)	1,308
0	10.36****	(5.50, 19.49)	1,321
Local NEET rate			
<7.5%	1.00	--	863
>=7.5% & <13%	1.53**	(1.05, 2.24)	1,177
>=13% & <19%	1.77***	(1.21, 2.57)	1,068
>=19%	1.76***	(1.21, 2.56)	1,065

N=4, 173, **P<0.05, ***P<0.01, ****P<0.001, Source: SLS

Table 26a Odds ratio and Confidence Intervals (CI) of being NEET in 2011 from logistic regression for females

School Census factors	Odds ratio	95% CI	N
Registered for free school meals			
No	1.00	--	3,358
Yes	1.45**	(1.08, 1.94)	550
Proportion of time absent from school			
<5%	1.00	--	1,141
>=5% & <10%	1.73**	(1.02, 2.94)	1,263
>=10% & <20%	3.46****	(2.09, 5.72)	983
>=20%	7.12****	(4.24, 11.95)	521
Number of exclusions			
0	1.00	--	3,707
1	1.30	(0.75, 2.25)	111
2-3	2.15***	(1.08, 4.27)	49
4 or more	2.66***	(1.29, 5.47)	41
Number of passes at SCQF level 5 or higher obtained by school stage S4			
>=6	1.00	--	996
3 -5	2.61***	(1.29, 5.27)	846
1-2	3.12***	(1.61, 6.07)	1,057
0	7.27****	(3.78, 14.00)	1,009
Teenage birth before 2010			
No	1.00	--	3,846
Yes	11.06****	(5.61, 21.82)	62
Local NEET rate			
<7.5%	1.00	--	834
>=7.5% & <13%	1.40	(0.86, 2.27)	1,080
>=13% & <19%	1.87***	(1.17, 3.01)	903
>=19%	2.02***	(1.28, 3.19)	1,091
Urban Rural area			
Rural	1.00	--	605
Urban	1.66**	(1.07, 2.58)	3303

N=3, 908, **P<0.05, ***P<0.01, ****P<0.001, Source: SLS

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Appendix 3 – Data used in risk factor analyses

Area measures

At the local area level, we included youth unemployment rate, deprivation, and urban-rural category. Neighbourhood characteristics can be measured at different scales. We used census output areas (OA) as proxies for neighbourhood. The Carstairs index was used to measure deprivation (Carstairs and Morris, 1990). The Carstairs deprivation index is defined as the sum of four standardised percentage variables from the census: male residents in unemployment, residents in overcrowded households (more than one person per room), residents in households with no car, and residents in lower social classes (partly skilled and unskilled occupations). It was used in the form of quintiles with the least deprived as the reference group. NEET rates at the intermediate zone (N=1000) level for young people were also included.

The local NEET rate was calculated using data on the economic activity of 16-19 year olds at intermediate zone level for all of Scotland. Intermediate zones were selected as the use of more detailed geographies would have meant too few 16-19 year olds in each area, while using larger areas would have resulted in greater variation in the NEET rate within the area. Cut-offs were determined such that the population was divided into four groups of approximately equal size. SLS members are classified as being in an area with a lower, below average, higher than average and higher NEET rate.

School Census data

There are a number of issues with the school data that need to be considered for analysis and interpretation.

Missing data

Firstly, school census data are not available for independent schools. Approximately 5% of pupils attend independent schools per year. If it is assumed that pupils at independent schools have a lower NEET rate then the number of NEETs lost to analysis will be relatively small. In addition, it is more likely that these pupils are not long-term NEET requiring intervention, but are short term NEET, opting to take time out eg for a gap year or to make decisions about their future career\education. In general, the bias caused by not including pupils who attend independent schools should be small. Furthermore, if the independent school pupils either do not differ or display less risky behaviour than pupils at state schools with a similar NEET rate then this would lead to an under estimate of the risk factor.

Secondly, the school census data is recorded for each year, so we have varying amounts of data depending on the age of the individual and the age at which they leave compulsory education. For example, an individual aged 19 at Census 2011 who left school at age 16 may have only one record whereas most individuals aged 16 at Census 2011 will have 4 years of data. This becomes more problematic for those variables that change with age, for example the number of exclusions depends on the number of years of data and the age of the pupil, with exclusions increasing from school stage S1 to S3 and then decreasing. There are also years that are less reliable as the total possible attendance may only be for a part year. This may occur if a pupil decides to leave school part way through a school year after age 16 or if they emigrate or move to an independent school.

Choice of factors for models

Sensitivity analyses were carried out to compare different measures of exclusion: proportion of time excluded, total time excluded and number of times excluded. There was found to be little difference between these measures, possibly because most pupils are not excluded, and most of those who have been, were excluded for a small number of times and days. The simplest measure therefore was included in the model: number of exclusions.

Absence is recorded by reason, and intuitively unauthorised absences, especially truancy should be more closely associated with risk of being NEET than authorised absences such as family holidays. However, differences in data recording between local authorities and schools, as well as changes over time, can lead to sub- categories of absences being unreliable. These analyses include total absences as recommended by Scottish Government. The proportion of time absent is used to take account of the varying periods of time for which individuals have school census data.

There are also issues with the exam results: younger members of the cohort would not have progressed through all the exams that they would sit while some older members of the cohort would have left school before these data were collected. There is no measure of exam results that is sufficiently complete for all ages 16 to 19. Examinations are not always sat at the same age or stage, for example some pupils will sit intermediate exams rather than standard grade exams.

The exam result variable included in the regression model is the number of passes achieved at SQA level 5 or higher by school stage S4. Standard grade 1 or 2 and intermediate 2 pass are deemed to be SQA level 5, whilst Highers are SQA level 6 and advanced Highers SQA level. Only a small number of individuals had passed a Higher or advanced Higher by stage S4 (<1%). Very few 19 year olds had this data, consequently the schools census analysis sample is mainly those aged 16-18.

Teenage birth/pregnancy

The vital events data was used to determine whether the SLS member had a teenage pregnancy. The father is only recorded on the birth registration if the parents are married or under certain other. In the years 1996-2001, the proportion of births registered solely in the mother's name to mothers aged less than 20 was between 25.4% and 29.2%. Although we were not be able to identify a sizeable proportion of male SLS members who fathered a child whilst still a teenager, it is likely that this subgroup would be least affected by the birth as they had not attended the registration of the birth or made a declaration of being the father. By extension, the birth is less likely to impact on their decisions regarding education, training and employment.

We have included all births up to the end of 2001 for the analysis of Cohort 3 because an impending birth may impact on NEET status at the time of the Census in April 2001. At the time of the analysis, new births only up to the end of 2010 were available for linking to SLS members. This means that we are missing a small proportion of births before and all those pregnant at the time of the 2011 Census for the analysis of Cohort 4. In addition, the analysis of Cohort 4 is restricted to those who have school census data at school stage at S4. These are mainly those aged 16-18 at the 2011 Census and this group will have recorded fewer births than those aged 16-19. This will lead to an underestimation of the effect of this factor.

We only have data on births, we do not have abortion or miscarriage data due to the sensitivity of these data. It is likely that such events could disrupt a young persons' plans for education, training or employment.

Appendix 4 List of variables considered as a possible risk factor for Cohort 3

Variable	Grouping
1991 Census variables	
Fathers educational qualification	Degree Other post 18 years old qualification None/Missing
Mothers educational qualification	Degree Other post 18 years old qualification None/Missing
Limiting long-term illness	No Yes
Household type	Married couple Other Lone parent Cohabiting couple
Household with a resident with a limiting long-term illness	No Yes
Number of siblings	0 1 2 3 or more
Number of unpaid carers in household	0 1 2 or more
Number of employed adults in household	No economically active persons No employed (economically active) persons A proportion of persons employed One economically active person who is employed Two or more economically active persons who are all employed
Overcrowding – persons per room	<0.75 persons per room <1 & >=0.75 persons per room 1 person per room >1 person per room
Tenure	Owner occupier Social renting Private renting
Having other dependent children (age <16) non siblings in household	No Yes
Having other adults (age >16) non parents in household	No Yes
1991 Census area measure	
Carstairs quintile	1 – least deprived 2 3 4 5 – most deprived

2011 Census	
Highest educational qualification	None Standard Higher HNC\degree
Unpaid carer	0-19 hours per week 19 or more hours per week
2011 area measure	
Urban/rural	Rural (Urban rural categories 1-4) Urban (Urban rural categories 5-6)
Local NEET rate	<7.5% >=7.5% & <13% >=13% & <19% >=19%
Life event data	
Teenage birth before end of 2001	No Yes

Appendix 5 List of variables considered as a possible risk factor for Cohort 4

Variable	Grouping
Birth weight group	<2,900 >=2, 900 & <3, 200 >=3, 200 & <3, 500 >=3, 500 & <3, 800 >=3,800
2001 Census variables	
Birth order	First born Second born Third born Fourth or later
Fathers educational qualification	Absent Degree/professional qualification HNC/HND/SVQ level 4 or 5 Higher grade/CSYS/'A' level Standard grade/'O' Grade/GCSE/CSE None Missing
Mothers educational qualification	Absent Degree/professional qualification HNC/HND/SVQ level 4 or 5 Higher grade/CSYS/'A' level Standard grade/'O' Grade/GCSE/CSE None Missing
Limiting long-term illness	No Yes
Household type	Married couple Other Lone parent Cohabiting couple
Household with a resident with a limiting long-term illness	No Yes
Self-reported health	Good Fairly good/Not good
Number of siblings	0 1 2 3 or more
Number of unpaid carers in household	0 1 2 or more
Number of employed adults in household	0 1 2 or more
Overcrowding	>= 3 rooms more than required 2 rooms more than required 1 room more than required 0 rooms more than required Less rooms than required

Tenure	Owner occupier Social renting Private renting
2001 Census area measure	
Carstairs quintile	1 – least deprived 2 3 4 5 – most deprived
2011 Census	
Unpaid carer	0-19 hours per week 19 or more hours per week
2011 area measure	
Local NEET rate	<7.5% >=7.5% & <13% >=13% & <19% >=19%
School Census data	
Life event data	
Teenage birth before end of 2010	No Yes
Registered for free school meals	No Yes
English as a second language	No Yes
Attendance at special school	No Yes
Main difficulty in learning	No Yes
Proportion of attendance time recorded as absent	<5% >= 5% & <10% >=10% & <20% >=20%
Number of exclusions	0 1 2-3 >=4
Number of exam passes by school stage S4 at SCQF level 5 or above	0 1-3 4-6 >=7
Prescription Information Scotland	
Prescription for antianxiety, depression	No Yes
Prescription for dependency (drug, alcohol, nicotine)	No Yes
Prescription for drug dependency	No Yes

Appendix 6 Odds ratio and Confidence Intervals (CI) of being NEET in 2011 from logistic regression of 2001 Census, School Census factors and local area NEET rate adjusted for age for those with school stage S4 data

Males	Odds ratio	95% CI	Number
2001 Census factors			
Tenure			
Owner occupied	1.0		2,492
Social renting	1.44***	(1.12, 1.83)	926
Private renting	0.81	(0.47, 1.39)	161
No of siblings			
0	1.0		643
1	1.18	(0.87, 1.60)	1,815
2	1.33	(0.95, 1.86)	856
>=3	1.71**	(1.12, 2.62)	265
School Census factors			
Proportion of time absent from school			
<5%	1.0		1,282
>=5% & <10%	1.29	(0.90, 1.86)	1,149
>=10% & <20%	2.39****	(1.68, 3.42)	749
>=20%	3.99****	(2.70, 5.88)	399
Number of exclusions			
0	1.0	--	3,103
1	2.17****	(1.54, 3.04)	254
2-3	2.02***	(1.26, 3.23)	105
4 or more	3.59****	(2.32, 5.55)	117
Number of passes at SCQF level 5 or higher obtained by school stage S4			
>=6	1.0	--	730
3 -5	2.77***	(1.33, 5.75)	640
1-2	4.93****	(2.53, 9.62)	1,135
0	9.34****	(4.79, 18.23)	1,074
2011 Census factors			
Local NEET rate			
<7.5%	1.0		762
>=7.5% & <13%	1.76***	(1.16, 2.68)	1,035
>=13% & <19%	1.92***	(1.26, 2.92)	909
>=19%	1.84***	(1.21, 2.80)	873

N=3, 579, *P<0.05, **P<0.01, ***P<0.001, Source: SLS

Females	Odds ratio	95% CI	Number
2001 Census factors			
Number of adults employed in childhood home			
>1	1.0		1,773
1	1.41**	(1.01, 1.96)	1,053
0	1.62**	(1.12, 2.32)	487
School Census factors			
Attend special school			
No	1.0		3,371
Yes	2.50**	(1.04, 6.03)	32
Proportion of time absent from school			
<5%	1.0		1,045
>=5% & <10%	2.09**	(1.17, 3.73)	1,122
>=10% & <20%	3.66****	(2.09, 6.40)	829
>=20%	9.13****	(5.12, 16.26)	408
Number of exclusions			
0	1.0	--	3,243
1	0.95	(0.49, 1.85)	88
2-3	1.79***	(0.78, 4.07)	38
4 or more	2.29***	(1.01, 5.15)	35
Number of passes at SCQF level 5 or higher obtained by school stage S4			
>=6	1.0	--	898
3 -5	2.99***	(1.39, 6.43)	757
1-2	3.30***	(1.59, 6.86)	915
0	7.03****	(3.40, 14.54)	834
Vital event factor			
Teenage birth before 2010			
No	1.0		3,352
Yes	10.36****	(4.90, 21.90)	52
2011 Census factor			
Local NEET rate			
<7.5%	1.0		736
>=7.5% & <13%	1.33	(0.79, 2.23)	964
>=13% & <19%	1.73**	(1.04, 2.89)	793
>=19%	1.98***	(1.21, 3.24)	911

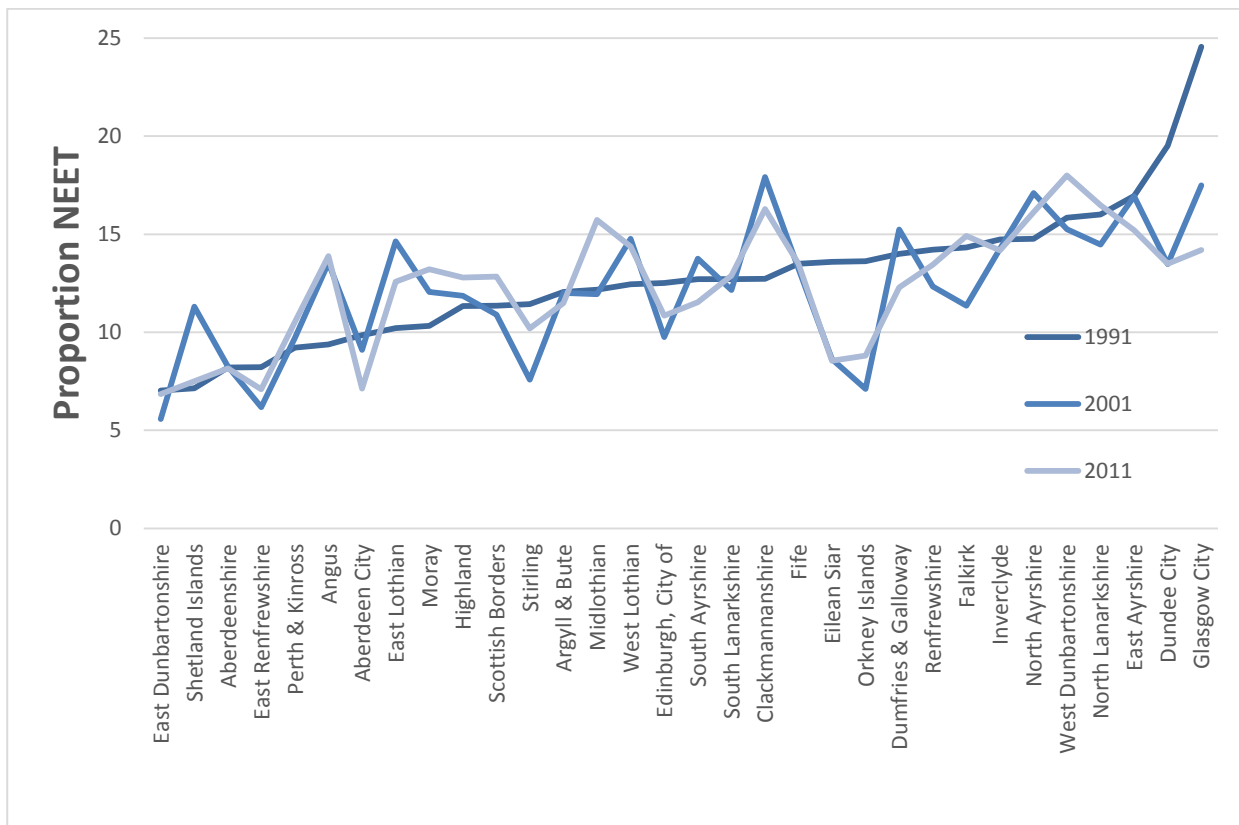N=3, 313, **P<0.05, ***P<0.01, ****P<0.001, Source: SLS

Appendix 7 Proportion male and female NEET by local authority, 1991, 2001 and 2011 Census

Figure 4. Males - ordered by 1991 male rates
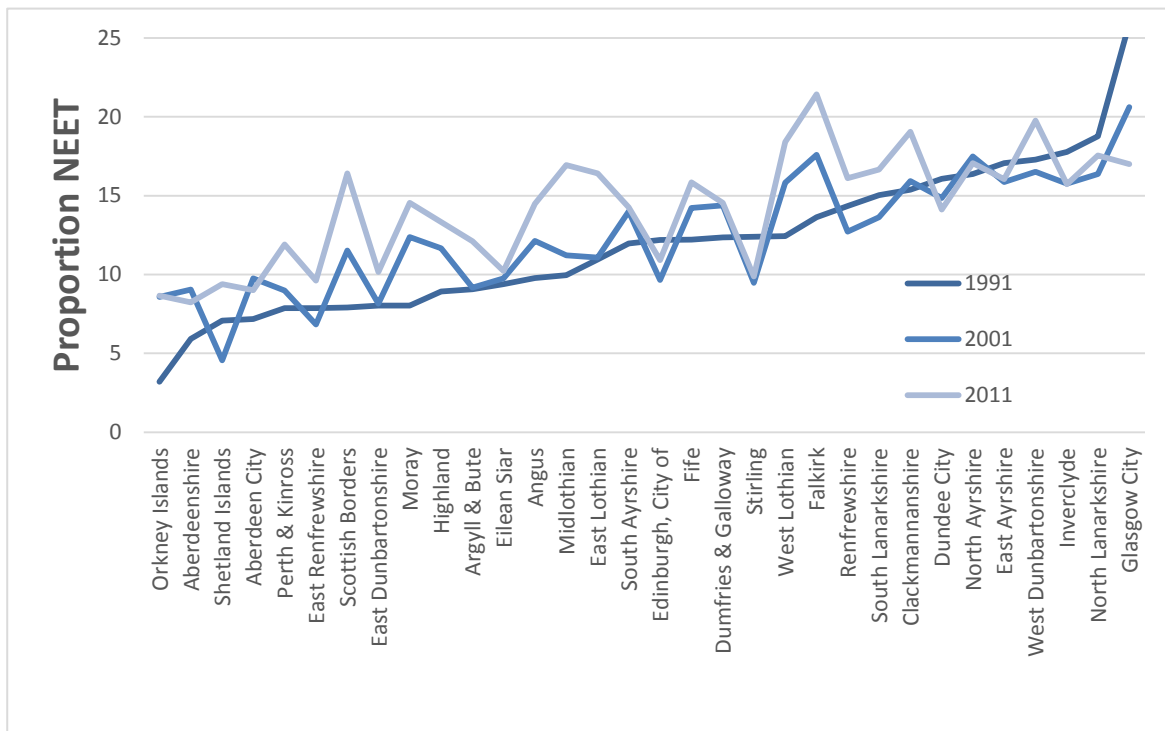
Source: National Records of Scotland, Scottish Census 1991, 2001, 2011

Figure 5. Females - ordered by 1991 female rates

Source: National Records of Scotland, Scottish Census 1991, 2001, 2011

How to access background or source data
☒ cannot be made available by Scottish Government for further analysis as Scottish Government is not the data controller.

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