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Economic inactivity, not in employment, education or training (NEET) and scarring

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Economic Inactivity, not in Employment, Education or Training (NEET) and Scarring: The Importance of NEET as a Marker Long-term Disadvantage

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Abstract

The category of not in employment, education or training (NEET) refers to young people who are recorded as neither in paid employment nor formal education either at one time point, or for a continuous period. This article assesses levels of employment scarring for those aged 36-39, at Census 2011 (prime employment years) who were recorded as NEET when aged 16-19 at Census 1991 in Scotland. Outcomes are compared for those who moved from NEET into economic activity and by gender. We find evidence that NEET status leads to long-term scarring associated with economic inactivity and unemployment and that this is only partially offset for those who moved from NEET in 1991 to be economically active in 2001. The results also highlight gendering of NEET outcomes. NEET may be a category borne of administrative convenience, rather than sociological consistency, but as intended, it captures a group who experience disadvantage.

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Introduction

The category of not in employment, education or training (NEET) refers to young people who are recorded as neither in paid employment nor formal education either at one time point, or for a period. The concept of NEET originated in an official redefinition of the classification of unemployment and economic activity in the United Kingdom (Cole, 2008; Reiter and Schlimbach, 2015). The NEET group was created for the category of young people who were otherwise not classified as in education or employment and has since been widely applied by policy makers around the world (Statistics New Zealand, 2011; Mascherini et al., 2012; Tamesberger et al., 2014). Yet the validity of the NEET label has been widely questioned, both within the sociological literature, and more generally (Roberts, 2011; MacDonald, 2011; Furlong, 2006).

This article aims to assess levels of unemployment scarring for those aged 36-39 at Census 2011 (prime employment years) who were recorded as NEET when aged 16-19 at Census 1991. These analyses make several key contributions to the debates over NEET. The study has over twenty years of follow up, other longitudinal studies in the field have tended to be over considerably shorter time frames (e.g. Dickens and Marx, 2018; Gutiérrez-García et al., 2017; Selenko and Pils, 2016; Bäckman et al., 2015; Crawford et al., 2011). Analysis is undertaken on men and women separately. This enables understanding as to the potential long-term consequences of NEET status by gender.

One contention around the issue of NEET is the idea that the status is not necessarily damaging (Arnett, 2006; Devine, 2004). These analyses compare NEETs and non-NEETs. Outcomes, between those who move from NEET to be recorded economically active are compared with those who were NEET and remain inactive. This enables assessment of levels of scarring experienced by different groups, including whether scarring is offset for those who move from NEET to economic activity. A second aspect of debate over NEET is the apparent lack of sociological coherence of the concept (Furlong, 2006; MacDonald, 2011). The analysis presented controls for factors ordinarily found to influence employment outcomes such as deprivation background, limiting illness and educational attainment. A demonstration of a 'NEET effect' over and above these factors and for those who move from NEET to economic activity, would re-enforce the importance of the concept as a marker of disadvantage.

The research setting is Scotland. Scotland is a devolved nation of the UK responsible for education and employment policy (Keating, 2002). It is also the case that some aspects of the

context are particular to Scotland. Scotland's economy exhibits structural differences compared to other areas of the UK and elsewhere (see, Gilmartin and Korobilis, 2012; Lee, 2014; Mason et al., 2015). Historically, Scotland has had a higher NEET rate than the rest of Great Britain. For instance, Furlong (2007) reported a NEET rate of 14% in Scotland compared to 9% in England and Wales. It is also the case that youth unemployment levels in Scotland were slightly lower than the UK average by the end of the period of analysis (Bell and Blanchflower, 2010). Despite this contextual exceptionalism there is very little research on NEET in Scotland. Overall, although Scotland is a distinctive context, the issue of NEET is constructed as a policy problem in a similar manner to elsewhere (e.g. Scottish Government, 2003). In this respect Scotland is an advanced economy wrestling with similar challenges to other advanced economies.

The article begins by outlining discussion over the definition and utility of the NEET classification. This foregrounds key criticisms made of the classification and culminates by touching upon the policy implications of individual versus structural understandings of NEET. The research evidence that NEET is associated with negative employment and mental health outcomes (scarring) is then outlined, with a summary of evidence of gendering of NEET outcomes. The objectives, to unpack and establish any long-term association between NEET and economic inactivity, comparing differing groups of NEETs and non-NEETs, are then defined. An introduction to the rich longitudinal data source used in this work is followed by a section providing results. In conclusion, the long-term consequences of NEET are discussed in relation to the utility of NEET as a marker of disadvantage.

The problematic concept of NEET

NEET is a problematic concept in its measurement, construction and its application in policy. A commonly cited weakness of the NEET classification is that it fails to effectively measure disengagement from the labour market (Furlong, 2006; MacDonald, 2011). For example, Croxford and Raffe (2000) found NEET young people engaged in seeking work denoting a level of attachment to paid employment. Some young people are also able to access employment informally, a circumstance which is not captured by a NEET/non-NEET divide (Russell, 2014; Watts, 2010). Smeaton *et al.* (2010) reported that young people were likely to occupy insecure employment and therefore to inhabit the NEET category periodically. These types of result led Roberts (2011) to make the argument that the trajectories that young people take do not fit simply into definitions NEET or non-NEET. This indicates that the NEET

classification cannot necessarily be used to denote clear division between groups of young people.

It has also been argued that NEET is a transitory phase that may not lead to damaging consequences (MacDonald, 2011; Devine, 2004; Arnett, 2006). For example, Gregory and Jukes (2001) found that workers who experienced a short break in employment whilst young did not suffer from reduced subsequent earnings, but that those who experienced unemployment during prime years of employment did (especially over-45 years of age). They reported that a spell of unemployment reduced wages by ten percent with this penalty diminishing over time, and that a long spell of unemployment had a lasting outcome. Here, negative consequences were found to increase over time, for those who experienced unemployment during prime years of earnings, and who had initially received higher pay prior to their redundancy.

A third criticism of NEET is that the classification merges sociologically distinct categories (MacDonald, 2011; Escott, 2012; Holte, 2017). NEET classifies young people in relation to employment and educational participation when, for some young people, there could be no realistic expectation that they could engage with these systems, for reasons related to health or caring responsibilities. NEET includes those recorded as unemployed, looking after home or family and permanently sick/disabled. The inclusion of those ill in the category is a case in point. People may have limited control over how they are affected by illness or disability. Defining someone who is limited by illness, by their labour market status, makes little sense (Statistics New Zealand, 2011). For these young people meaningful participation in the workplace or education may not be possible (Furlong, 2007). This exemplifies a criticism that NEET is an arbitrary mixture of administrative categories of little substantive or theoretical merit (Lunsing, 2007).

NEET and Policy

The policy response to the NEET issue varies depending on whether NEET is characterised as an individual deficit or a structural problem. In Japan there has been a movement to define NEET as an individual social-psychological process of social withdrawal (known as the hikikomori phenomenon) (Ishii and Uchida, 2015; Li et al., 2017). In a similar vein Gaspani (2018), researching NEET in Italy, pointed to young people's difficulties in managing time. The logic of individual deficit suggests a need for policy, such as that put forward by Pemberton (2008), who argues that the issue of NEET can be tackled with the removal of barriers to

employment and encouragement to pursue education. This is intended to provide young people with alternative choices to becoming NEET.

Furlong (2008) strongly rebutted the idea of 'voluntary' NEETs resulting from agency and choice. He argued that NEET is an anomic response to the collapse of the youth labour market. Atkins (2013) reasoned the assertion that young people experience skills deficits is an intrinsic part of their marginalisation, arguing that policy is not set up to generate real transferrable skills redolent of high-pay, high skill work in the knowledge economy. In this case the language of youth in deficit is seen as part of a narrative supporting supply side solutions rather than systemic explanations for NEET. These alternative framings of NEET in relation to policy in part reflects its genesis as a political construct serving a discourse (Avis, 2014).

Scarring

Although the concept of NEET is argued to be problematic the classification is widely used internationally (Statistics New Zealand, 2011; Mascherini et al., 2012; Tamesberger et al., 2014). One reason for this is that NEET is associated with a range of negative outcomes. Godfrey *et al.* (2002) provide a summary of adverse circumstances related to NEET status, these include unemployment, foregone earnings, poor health, drug use and participation in criminal activity. Ongoing negative outcomes, related to NEET status, have been characterised as indicative of scarring (Kelly and McGuinness, 2015; O'Reilly et al., 2015; Sissons and Jones, 2012; Zuccotti and O'Reilly, 2017). Scarring is an enduring negative consequence associated with an event or state. Literature examining the concept is often concerned with the effect of a period of unemployment on subsequent wage level, or likelihood of later employment (Knabe and RÄTzel, 2011; Nilsen and Reiso, 2011).

The focus of the present article is the relationship between NEET status and later economic inactivity. While there is research to suggest minimal consequences to a period of unemployment for young people (noted above), there is an alternative view that connects unemployment in the transition between school and the labour force with subsequent erratic participation in paid employment (e.g. Burgess et al., 2003; Selenko and Pils, 2016). An unsuccessful transition may be compounded by a lack of pathways into employment for the long-term unemployed (Russell, 2016; Beck, 2017). Recent trends also suggest a narrowing in the opportunity for young people to move into their first employment (Murphy and Oesch, 2017).

Examples of research into scarring include Helbling and Sacchi (2014) who studied young people in Switzerland with vocational degrees. They showed that those who had been NEET were likely to earn less and be more dissatisfied with career progress than a similar group who had experienced smooth transitions. Zuccotti and O'Reilly (2017) investigated the connection between unemployment scarring and ethnicity in England and Wales. They found NEET status to predict subsequent unemployment (ten years later) and that the experience varied by gender and ethnicity. Kelly and McGuinness (2015) have reported a reduced level of unemployment scarring for people who had been NEET in Ireland. This seems to fit with findings that a period of NEET may not necessarily lead enduring negative consequences. They described an increased risk of experiencing NEET status following the Great Recession of 2008. The reduction in scarring seems likely to relate to the context where the recession increased the numbers of those experiencing unemployment overall, resulting in a diminution of the average negative influence of a spell of unemployment.

General work on scarring also includes research into the mental challenges of unemployment (e.g Basta et al., 2019; Gariépy and Iyer, 2019; Gutiérrez-García et al., 2017). Knabe and Rätzel (2011) show that those who were unemployed in Germany experienced a psychological 'scar', which manifested itself in a fear of future unemployment. This is echoed by O'Dea et al. (2016) who noted an association between NEET and mental illness on a sample of young people who had been under treatment for depression in Australia. They posited as scarring their finding that those of NEET status were more likely to experience subsequent 'functional disability' than non-NEETs.

Gendering of NEET

Several studies report gender to be a factor in the experience and outcomes of NEET (e.g. Zuccotti and O'Reilly, 2018a, 2017; Bynner and Parsons, 2002). There are structural issues facing young women around caring responsibilities, occupational segregation and also health, which affects attachment to employment (Escott, 2012). Arulampalam et al. (2001) synthesised findings on unemployment scarring which show that previous unemployment predicts future unemployment. They suggest that outcomes are gendered, and that women experienced only a minor effect by comparison to men. Ralston et al. (2016) reported occupational scarring associated with prior NEET status which was both gendered and stratified by level of education. Overall this showed that those who were NEET tend to end up in lower status occupations than the non-NEET group. Women who had been NEET showed continuing

disadvantage at specific levels of educational attainment where there was no equivalent relationship evident for men. Gendering has also been reported in the mental consequences of NEET status (e.g. Bynner and Parsons, 2002).

In sum, NEET is a problematic concept in its measurement of disengagement, its substantive construction and its implications for policy. Although there is a body of literature which argues that a period of NEET may not be damaging, NEET status has also been found to be associated with a range of undesirable consequences, including unemployment scarring (Helbling and Sacchi, 2014; Zuccotti and O'Reilly, 2017). These outcomes have been found to vary for different groups with gender and ethnicity suggested to impact the influence of NEET (e.g. Arulampalam et al., 2001; Zuccotti and O'Reilly, 2017). In this respect it can be argued that NEET is a meaningful construct at least insofar as it is associated with negative outcomes (Bäckman et al., 2015).

Objectives

Drawing upon data from the Scottish Longitudinal Study (SLS) these analyses examine levels of long-term economic inactivity/unemployment scarring associated with NEET. Levels of scarring in 2011 between those who were NEET and non-NEET in 1991 is compared. Scarring between those who were NEET, but who subsequently became economically active and those who remained inactive is also compared. It may be expected that a spell of NEET would lead to scarring, however most research examines outcomes of NEET over far shorter follow up periods (e.g. Dickens and Marx, 2018; Selenko and Pils, 2016; Bäckman et al., 2015; Crawford et al., 2011). Twenty years of follow up captures people during prime employment years. Economic inactivity at these prime years of earning would be a damaging outcome, implying major repercussion for lifetime earnings (Guvenen et al., 2015; Luong and Hébert, 2009).

This would demonstrate that NEET is an important maker of *long-term* disadvantage, despite the weaknesses of the category. In this case, although the experience may be transitory or sporadic for some, the outcome would be generally negative for most. Factors known to be associated with employment outcomes are controlled, including whether an individual has limiting long term illness, educational attainment and deprivation background. A 'NEET effect' in the context of these wider controls indicates whether NEET has an influence over and above these factors (Gutiérrez-García et al., 2017). Patterning of NEET outcomes are compared by gender. This engages with discussion over whether differences between men and women are only minor (e.g. Arulampalam et al., 2001), or whether there are substantive

differences of experience (Escott, 2012). Establishing variation in outcomes experienced by different groups (e.g. men/women or NEETs who become economically active and those who remain inactive) reveals the structural, rather than individual, characteristics of NEET.

The research questions guiding these analyses are:

1) What association is there between NEET and employment status twenty years later, net of educational attainment, illness and deprivation background?

2) How does a move from NEET to economic activity affect the chances of subsequent economic inactivity/unemployment?

3) How does gender relate to any pattern of association between NEET and scarring, considering a move from NEET to economic activity?

Data and methods

[Table 1 about here]

These analyses use the SLS which provides a representative 5.3% pseudo-random sample of the population of Scotland, based on 20 birth dates. The age at which the NEET label is applied varies between countries. In Scotland the NEET definition is usually applied to 16-19 year olds only (e.g. Feng *et al.*, 2015). Records of young people 16-19 years old at Census 1991 were extracted from the SLS providing a baseline sample of 14,567. The analytic sample is n=8073[1].

NEET classification is based upon an economic activity variable derived from 1991 Census questions. Those who were in employment are coded as non-NEET, as are those who were students, those on training schemes and those waiting to start a job. The unemployed, permanently sick, retired[2], looking after home/family and other inactive categories were coded as NEET. There were 1,972 individuals coded as NEET at base line, giving a NEET rate of ≈13.5%, which matches official Census releases of full population aggregated data[3]. Whether an individual was economically active in 2001 and 2011 is known from the corresponding economic activity variables from the 2001 and 2011 Censuses.

Economic inactivity in 2011 is the outcome variable. For consistency this outcome variable was coded in the same manner as the NEET classification described above and those economically active can be compared to those economically inactive (Table 1). This defines those in employment or education as active and those unemployed, retired, looking after home or family, long-term sick and disabled and economically inactive 'other', as inactive. A composite variable of NEET status in 1991 and the equivalent status in 2001 was created,

giving a variable with four levels (see Table 1). The first category is those who are non-NEET and who were economically active at 2001 (i.e. the notionally most advantaged group). This contrasts with those who were NEET at 1991 and subsequently economically inactive in 2001 (the notionally most disadvantaged group). There are also two 'switcher' categories. One comprising those who were NEET at 1991 and economically active at 2001, and one non-NEET at 1991 and economically inactive at 2001.

Whether people were economically inactive at 2011 was modelled using logistic regression. Models estimated as log-odds are reported, along with quasi-variance confidence intervals (Gayle and Lambert, 2007) and marginal estimates (Norton and Dowd, 2018). Categorical variables are included using dummy category coding. When modelling dummy categories, the results formally assess the relationship between the category omitted as the reference category and the other categories of the variable. They do not formally allow assessment of differences between the non-reference categories. Quasi-variance comparison confidence intervals do allow this (Gayle and Lambert, 2007). Margins provide the predicted probability of economic inactivity at 2011 at different levels of the NEET economic activity variable (Williams, 2012). Additional analyses and discussion are available in Appendix 1. This approach thoroughly examines the robustness of the association and the nuanced relationship between NEET status at 1991 and economic activity at 2011.

Analyses are presented split by gender. Several independent variables are controlled in the models. Success in education is well known to relate to successful transitions from school to work (Croll, 2009; Riddell and Song, 2011; Kelly and McGuinness, 2015). Educational attainment was measured at 2001 Census when the sample was aged between 26 and 29. Most of the sample will have passed through the education system by this point, although it is assumed that the majority will have gained the qualification substantially prior to this. In modelling, the reference category is set as those with no qualifications contrasted with those with Standard Grade qualifications (lower high school level), those with Highers and equivalent (university entrance level qualifications), those with further/college level qualifications (Higher National Certificate –HNC, Higher National Diploma –HND) and finally those with university degrees.

Geographical deprivation is shown to influence employment chances (Murphy and Wallace, 2010) and it is suggested that location influences young people's aspirations (White and Green, 2015). This wider disadvantage background may explain later economic inactivity, rather than

NEET status (Gutiérrez-García et al., 2017; Gardecki and Neumark, 1997). Carstairs score (Carstairs and Morris, 1990) is a measure of areal deprivation constructed from four Census variables at the level of Census output area (average population 150). Carstairs deprivation index is included in the model as quintiles with those in the least deprived as the reference category.

Finally, the models also include age and measures of limiting long-term illness (LLTI). The age of the cohort is relatively homogenous. LLTI measured at both the 1991 and 2001 Censuses are included in the model. It may be expected that people reporting LLTI would experience a negative relationship to employment outcomes because illness is associated with poorer educational performance and more precarious attachment to the labour force (Sleed et al., 2005). The LLTI measures are dichotomised with those reporting no LLTI set as the reference category.

A weakness of these analyses is that it depends on data at three time points each of which are ten years apart, the 1991, 2001 and 2011 Censuses. Therefore, those coded NEET will contain people who move in and out of employment as well as those who were NEET for considerable durations. However, this may be likely to move results closer to the average than if we could remove anyone with only a short spell of NEET. In this respect the results underestimate the scale of disadvantage. Data attrition over a long follow up period is an additional limitation. This may also lead to conservative bias in estimates. It is more likely that those who were NEET in 1991 (also those economically inactive in 2001) will have been lost to analysis. A multiple imputation of the missing cases, that produces very similar results to those in the main article, is presented in the Appendix.

Results

Tables 2 and 3 report the results of logistic regressions for men and women controlling for educational attainment, Carstairs quintile at 1991, age, LLTI at 1991 and 2001 and the NEET economic activity composite variable. The outcome measures the log-odds that an individual is in the economically inactive category at Census 2011, aged 36-39.

[Tables 2 & 3 about here]

For men, the NEET composite variable shows that the group who were NEET in 1991 and economically inactive in 2001 are around 10 times more likely to report being economically inactive/unemployed at 2011 (a log-odds (LO) of ≈2.3 - 95% Confidence Intervals (CIs): 1.9,

2.8) compared to the reference category (non-NEET 1991, economically active 2001. Those who were non-NEET in 1991, and subsequently economically inactive in 2001 have LO of 2.1 (CIs 1.7, 2.4) and are around eight times more likely to report economic inactivity/unemployment at 2011. Those NEET in 1991 and economically active in 2001 are around three times (LO 1.0, CIs .61, 1.4) more likely to report economic inactivity at 2011.

The pattern is the same for women, although the differences measured are less extreme. Women NEET in 1991 and economically inactive in 2001 are around six times more likely to report inactivity/unemployment at 2011 (LO 1.8, CIs 1.5, 2.1) as those non-NEET in 1991 and economically active in 2001. The switcher categories, and the NEET then economically inactive category, are significantly more likely than the non-NEET/active reference category to report being inactive/unemployed at 2011. These results suggest a penalty associated with being NEET itself. The 'NEET effect' appears offset somewhat for those who are recorded as economically active 10 years later, but appears compounded, by comparison, for those NEET who are recorded inactive when next observed (see Figures 1 and 2). This is indicative of a long-lasting association between NEET and economic inactivity.

[Figures 1 – 2 about here]

The models suggest a gradient related to educational attainment. A higher level of educational attainment is generally associated with a reduced odds of economic inactivity at 2011. Areal deprivation quintiles based on Carstairs index shows an approximate gradient for men, but not for women. There are no significant coefficients associated with those who reported LLTI at 1991, whereas those who reported LLTI at 2001 are more likely to be economically inactive at 2011.

Marginal and quasi-variance estimates

Central to the modelling strategy is the capture of the substantive relationship between NEET status at 1991 and economic activity at 2001, and how a shift from NEET to active, or inactive, relates to subsequent inactivity. This section examines this in different ways. Firstly, marginal probabilities are reported and then quasi-variance confidence intervals (see Appendix for alternative parameterisation of the models).

[Figures 3 – 4 about here]

Tables 2 and 3 provide marginal results that add nuance to the understanding of the relationship between NEET status and economic inactivity (see also Figures 3 and 4). It is shown above

that the odds of later unemployment are higher for NEET men in comparison to the reference category (non-NEET men). Examining the pattern, the difference seems more extreme for men than women as the comparison between the non-NEET reference category and the NEET-inactive group is larger for men than for women. This story is refined by examination of the marginal estimates. It can be seen in the marginal probability estimates that the predicted probability of economic inactivity at 2011 is greater for NEET women than for men. For men, the NEET 1991, non-active 2001 category has the highest probability of inactivity at 2011 (marginal probability –MP .36, CIs .28, .45). The non-NEET 1991, active 2001 has the lowest probability of inactivity (MP .07, CIs .06, .08). For women NEET 1991, non-active 2001 there is a predicted probability of inactivity at 2011 of .44 (CIs .38, .51) and the non-NEET/active category has a predicted probability of inactivity of .12 (CIs.11, .13). Both higher than men.

There is also a substantive difference for women between NEET 1991, non-active 2001 category (MP .44, CIs .38, .51) and the non-NEET 1991, non-active 2001 category (MP .33, CIs .29, .36). For men these categories overlap in the 95% confidence intervals, for women they do not. This is confirmed in the quasi-variance estimates. Quasi-variances suggest a clear overlap in the estimates of the relationship between the non-NEET in 1991, economically inactive category 2001 for men (LO- 2.1, 95% quasi-variance confidence intervals -qvCIs-1.78, 2.33[4]) and the NEET in 1991, non-active 2001 for men (LO 2.32, qvCIs 1.88, 2.27), but not for women (non-NEET in 1991, economically inactive LO 1.3, qvCIs 1.15, 1.49; NEET in 1991, non-active 2001 LO 1.8 qvCIs 1.55, 2.13). The quasi-variances highlight substantive differences that would not otherwise be apparent. The marginals refine the interpretation of the gendered patterning observed.

Conclusions

This article highlights long-term scarring experienced by different groups of NEET young people. It has been suggested that a phase of NEET is not necessarily damaging (Arnett, 2006; Devine, 2004). The results presented here show long-term scarring associated with NEET status. This is seen in the higher likelihood that someone NEET will be economically inactive during their prime working years of 36-39 years old, twenty years after being recorded NEET. A move from NEET to being economically active seems to somewhat mitigate the risk of economic inactivity by 36-39 years old, but there is still a significantly greater risk of unemployment/inactivity at this point for this group, compared to the non-NEET/active group. The NEET/inactive group report the highest odds of inactivity at 36-39 years old. This suggests

additional, accumulating disadvantage for those who did not transition to be economically active, a Matthew effect (Merton, 1988). The results show that on average negative outcomes of NEET are not transitory, there is an ongoing penalty associated with NEET status.

There is a body of literature which questions the NEET classification on the basis that it is heterogeneous and therefore has little substantive sociological meaning (e.g. Furlong, 2006, 2007; Lunsing, 2007; MacDonald, 2011). Diversity of NEET is noted here in differential outcomes experienced by different groups. More widely, NEET status has been found to be a factor related to subsequent unemployment, foregone earnings, poor health, drug use or participation in criminal activity (Godfrey et al., 2002). NEET may be a category borne of administrative convenience, but it nevertheless captures those who experience long-term disadvantage. In this sense NEET does what it is intended to do, in capturing disengagement (Maguire, 2015). There is nothing intrinsic about measuring disadvantage in this manner that should then lead to a conclusion that all NEETs are the same.

There is also research which examines the extent to which NEET itself (Schoon, 2014) and outcomes of NEET are explained by wider social disadvantage (Gardecki and Neumark, 1997; Gutiérrez-García et al., 2017). The results presented show that NEET is associated with economic inactivity when also controlling for deprivation background, education and limiting long-term illness. This is especially important in respect of illness, which is controlled in the model but is also a category of NEET. This indicates the importance of NEET as a marker of disadvantage that has an influence over and above the influence of other factors which may ordinarily be considered to explain employment outcomes. This is clear evidence that NEET status is likely to lead to long-term scarring, associated with economic inactivity and unemployment and which remains a problem even for those who have transitioned to be economically active.

Gendering of subsequent economic inactivity in relation to NEET is also suggested. Escott (2012) indicates that young women face specific structural barriers to employment, Reeskens and Oorschot (2012) suggest women are more negative about their prospects and Zuccotti and O'Reilly (2018a) found women experience a different risk of NEET status. They also show women are differentially affected by having been NEET (Zuccotti and O'Reilly, 2018). Our results likewise imply that women are differentially affected over the longer-term. Although the odds of later unemployment are higher for NEET men in comparison to the non-NEET group, the probability of economic inactivity overall is higher for women. Part of this is likely

to relate to family and caring responsibilities that women disproportionately undertake, and which impacts their attachment to the labour market (Crespo, 2006; Sipila et al., 2010). Where NEET turns into long-term economic inactivity is likely to have a negative influence on material circumstances for individuals and their families. In this respect it is still sensible to interpret this as a substantial disadvantage for women.

The long-term influence of NEET is likely to remain of policy concern. The impact of the great recession of 2008 for those NEET during the period remains to be seen. Heyes (2012) points out that, in the UK, austerity resulted in a withdrawal of policy initiatives intended to help young people into work and that the recession increased levels of NEET and employment 'churn'. Duckworth and Schoon (2012) showed that the risk of NEET was higher for the 2008 recession compared to the recession of 1980s, while Chung et al. (2012) pointed to similar deteriorating prospects for young people at a European level. The UK currently faces economic uncertainty associated with leaving the European Union (Born et al., 2017), while at the same time experiencing record high levels of employment (Clegg, 2018) along with increasing absolute poverty (Tinson et al., 2016). Whether these trends lessen or exacerbate the long-term consequences of NEET remains to be seen.

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[1] There is >44% attrition between the baseline sample and the analytic sample. Causes for this are death, emigration, item missing and case missing. An analysis of missing suggests a slight bias towards the more advantaged categories, with those lost to attrition or item missing most likely to come from less advantaged groups, including NEET. On this basis it may be the case that the analysis here underestimates the level of scarring associated with NEET and could therefore be interpreted as conservative. We have undertaken a multiple imputation (mi) that is reported in the Appendix. The results based on mi are very similar to those reported in the non-imputed models.

[2] A small number of individuals in the data are recorded as retired. Given the age range of NEET, this may be a recording error.

[3] We calculated the rate from full population data downloaded from CASWEB, replicating the method of the Scottish Government (2004)

[4] The quasi-variance confidence intervals are reported at two decimal places because this is necessary to see the contrast. All other estimates are reported at one decimal place or to two relevant numbers.

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Table 1, Descriptive statistics for men and women

Variable	Categories	% (n) Men	% (n) Women
Educational attainment	**No qualifications**	11 (388)	9 (413)
	Standard Grade 1	33 (1197)	33 (1466)
	Highers 2	18 (674)	18 (815)
	HNC/HND 3	13 (483)	12 (518)
	Degree+ 4	25 (911)	27 (1208)
Carstairs deprivation quintiles	**Carstairs 1 – least deprived**	24 (893)	21 (941)
	Carstairs 2	21 (758)	20 (897)
	Carstairs 3	19 (683)	20 (871)
	Carstairs 4	19 (680)	19 (860)
	Carstairs 5 – most deprived	17 (639)	19 (851)
Age	**16**	24 (870)	23 (1002)
	17	26 (950)	24 (1059)
	18	25 (909)	26 (1144)
	19	25 (924)	27 (1215)
Limiting long term illness 2001	**LLTI 01- no**	92 (3379)	92 (4087)
	LLTI 01- yes	8 (274)	8 (333)
Limiting long term illness 1991	**LLTI 91- no**	97 (3541)	97 (4287)
	LLTI 91- yes	3 (112)	3 (133)
NEET 1991 economic inactivity 2001 composite variable	**Non-NEET/Active2001**	82 (2978)	72 (3193)
	Non-NEET/Inactive2001	8 (307)	16 (686)
	NEET/Active2001	6 (229)	6 (272)
	NEET/Inactive2001	4 (139)	6 (269)
Economically inactive 2011 outcome variable	**Active 2011**	88 (3227)	82 (3607)
	Inactive 2011	12 (426)	18 (813)
	n	3653	4420

1,These are high school graduate level qualification in Scotland
2,These are high school qualifications usually used to gain university entrance
3,College level qualifications
4, Degree and higher degrees
Reference categories used in the models in bold
Source: SLS

Table 2, Log-odds of men being economically inactive at 2011, including 95% confidence intervals, quasi-variance confidence intervals, margin estimates and their confidence intervals

		Log-odds	95% confidence intervals	Quasi-variance, 95% confidence intervals	Margin	95% confidence intervals
Educational attainment	No qualifications	-	-			
	Standard Grade	-.89***	-1.2, -.56			
	Highers	-.74***	-1.1, -.36			
	HNC/HND	-1.3***	-1.8, -.85			
	Degree+	-1.6***	-2.0, -1.1			
Carstairs deprivation quintiles	Carstairs 1 – least deprived	-	-			
	Carstairs 2	.21	-.22, .65			
	Carstairs 3	.30	-.13, .74			
	Carstairs 4	.50*	.08, .92			
	Carstairs 5- Most deprived	.83***	.42, 1.2			
Age	Age	.08	-.19, .03			
Limiting long term illness 1991	No LTI 91	-	-			
	LTI 91	.30	-.26, .86			
Limiting long term illness 2001	No LTI 01	-	-			
	LTI 01	1.19***	.83, 1.55			
NEET 1991 economic inactivity 2001 composite variable	Non-NEET91/Active01	-	-	-.20, .20	.07	.06, .08
	Non-NEET91/Inactive01	2.1***	1.7, 2.4	1.8, 2.3	.31	.26, .36
	NEET91/Active01	1.0***	.61, 1.4	.62, 1.4	.15	.11, .19
	NEET91/Inactive01	2.3***	1.9, 2.8	1.9, 2.8	.36	.28, .45
	Constant	-.99	-3.0, 1.0			
	Log likelihood	-939				
	n	3653				

Source: SLS, ***p=0.001, **p=0.01, *p=0.05
The composite NEET variable 95% confidence intervals and quasi-variance confidence intervals are reported here at two decimal places.
This is necessary to assess the contrasts. Ordinarily values have been reported with only two relevant number values

Table 3, Log-odds of women being economically inactive at 2011, including 95% confidence intervals, quasi-variance confidence intervals, margin estimates and their confidence intervals

		Log-odds	95% confidence intervals	Quasi-variance, 95% confidence intervals	Margin	95% confidence intervals
Educational attainment	No qualifications	-	-			
	Standard Grade	-.53***	-.79, -.27			
	Highers	-.93***	-1.2, -.62			
	HNC/HND	-.86***	-1.2, -.50			
	Degree+	-1.2***	-1.5, -.86			
Carstairs deprivation quintiles	Carstairs 1 – least deprived	-	-			
	Carstairs 2	-.18	-.47, .10			
	Carstairs 3	-.13	-.41, .15			
	Carstairs 4	-.17	-.45, .11			
	Carstairs 5- Most deprived	-.04	-.31, .24			
	Age	.07	-.15, .00			
Limiting long term illness 1991	No LTI 91	-	-			
	LTI 91	.22	-.22, .66			
Limiting long term illness 2001	No LTI 01	-	-			
	LTI 01	.89***	.62, 1.2			
NEET 1991 economic inactivity 2001 composite variable	Non-NEET91/Active01	-	-	-0.155, 0.155	.12	.11, .13
	Non-NEET91/Inactive01	1.3***	1.11, 1.53	1.15, 1.49	.33	.29, .36
	NEET91/Active01	.42*	.073, .76	.07, 0.76	.17	.13, .21
	NEET91/Inactive01	1.8***	1.53, 2.14	1.55, 2.13	.44	.38, .51
	Constant	.03	-1.3, 1.4			
	Log likelihood	-1793.17				
	n	4420				

***p=0.001, **p=0.01, *p=0.05

Source: SLS, the composite NEET variable 95% confidence intervals and quasi-variance confidence intervals are reported here at two decimal places. This is necessary to assess the contrasts. Ordinarily values have been reported with only two relevant number values
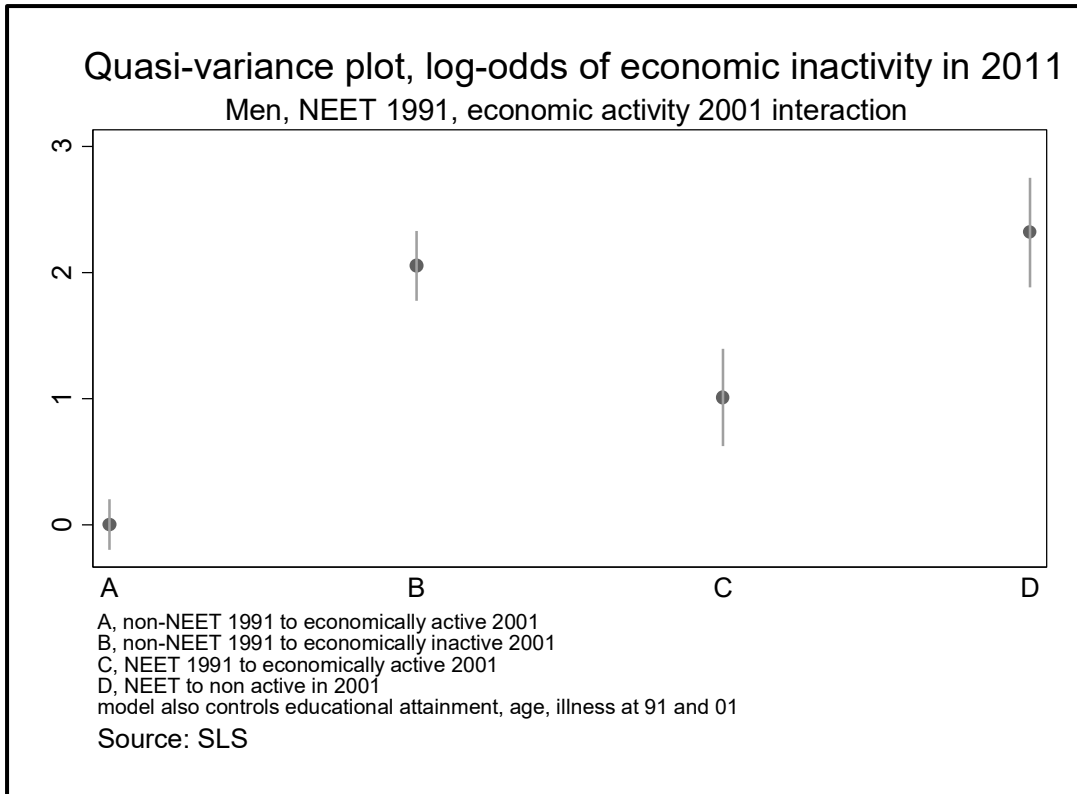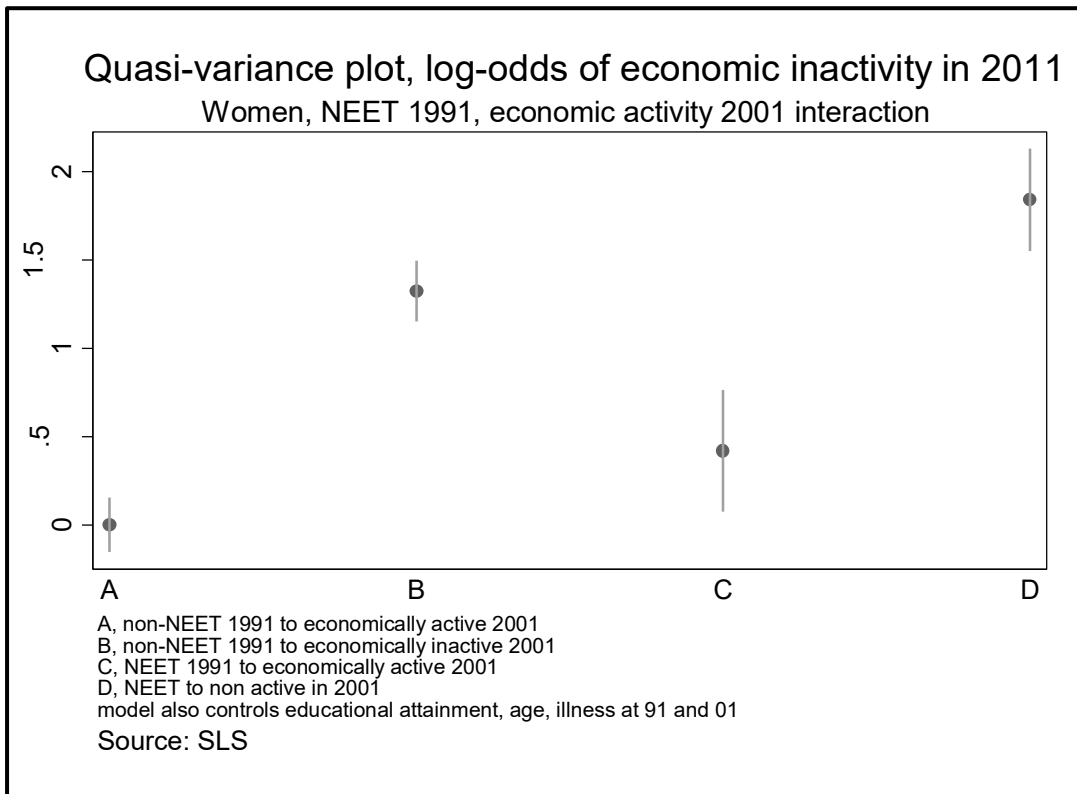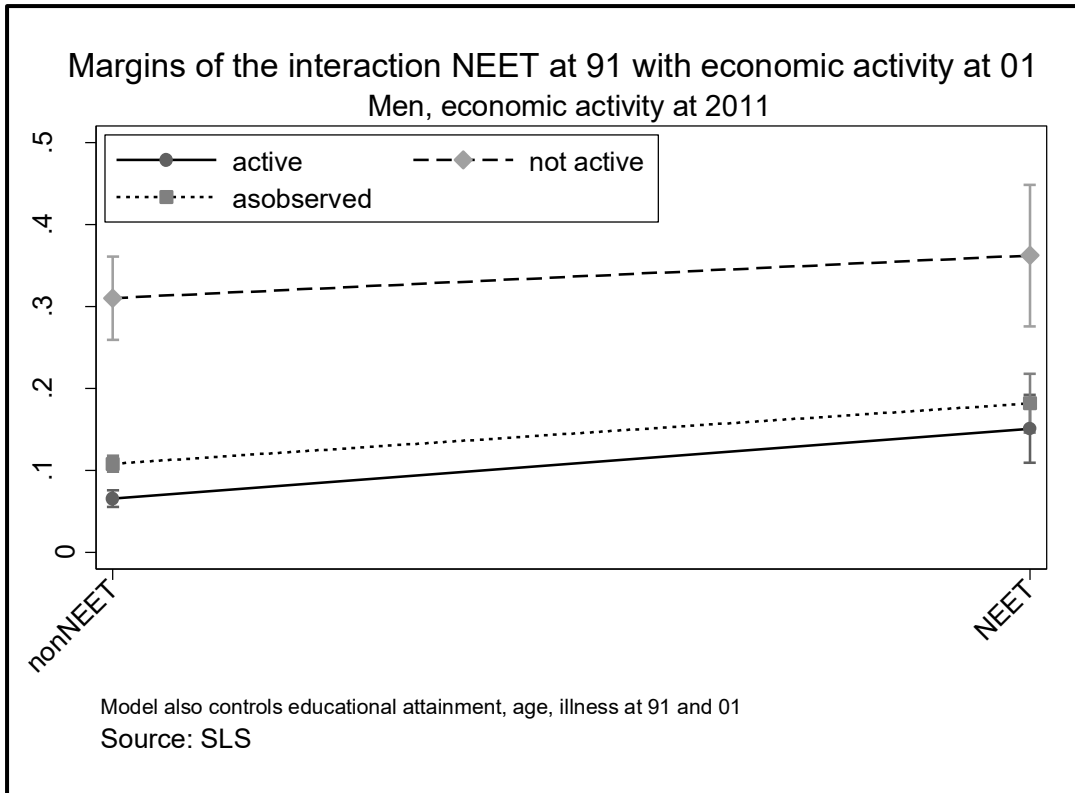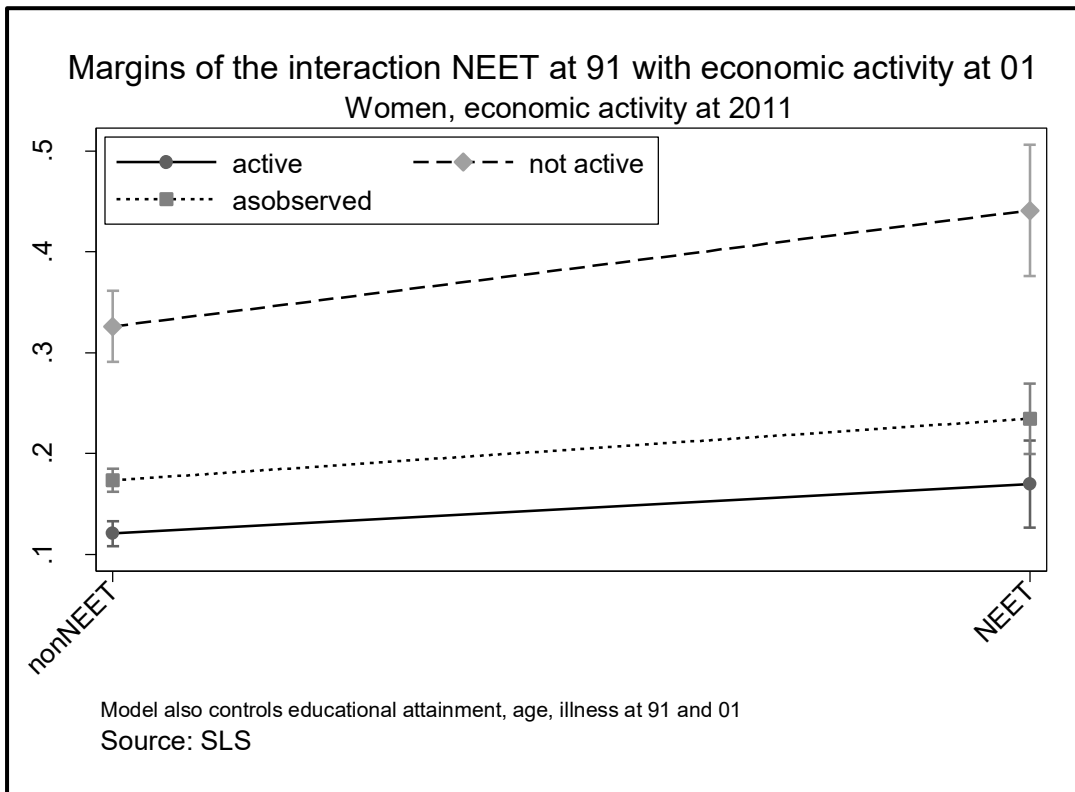
Figure 1

Figure 2

Figure 3

Figure 4