Do young people not in education, employment or training experience long-term occupational scarring? A longitudinal analysis over 20 years of follow-up

Do young people not in education, employment or training (NEET) experience long term occupational scarring? A longitudinal analysis over 20 years of follow up.

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Abstract

NEET is a contested concept in the literature. However, it is consistently used by policy makers and shown in research to be associated with negative outcomes. In this paper we examine whether NEET status is associated with subsequent occupational scarring using the Scottish Longitudinal Study which provides a 5.3% sample of Scotland, based on the censuses of 1991, 2001 and 2011. We model occupational position, using CAMSIS, controlling for the influence of sex, limiting long term illness, educational attainment and geographical deprivation. We find the NEET categorization to be a strong marker of subsequent negative outcomes at the aggregate level. This appears to be redolent of a Matthew effect, whereby disadvantage accumulates to the already disadvantaged. Our results also show that negative NEET effects are variable when stratifying by educational attainment and are different for men and women. These findings confirm that there are negative effects on occupational position associated with prior NEET status but that outcomes are heterogeneous depending on levels of education and gender.

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Introduction

The concept of NEET (not in employment, education or training) originated in the official reclassification of unemployment and definitions of economic activity in the United Kingdom (Reiter & Schlimbach, 2015). It has since been widely applied by policy makers around the world (see, Gaston & Kishi, 2005; Genda, 2007; Mascherini, Salvatore, Meierkord, & Jungblut, 2012; Statistics New Zealand 2011; Tamesberger, Leitgöb, & Bacher, 2014; Toivonen, 2011). The category of NEET refers to those who are neither in paid employment nor formal education, at a point in time, or for a continuous period. It merges categories including those recorded as unemployed, looking after home or family and permanently sick/disabled. The classification of NEET has been questioned on this basis, for instance it has been criticised as an administrative category with little substantive merit beyond that (Lunsing, 2007). In a UK context Croxford & Raffe (2000) found NEET young people not to be disengaged but to be actively seeking employment, Smeaton, Hudson, Radu & Vowden (2010) similarly refer to 'churn' in young people's employment history, as they inhabit insecure work. As such, a period of unemployment may not necessarily relate to disengagement from the labour market (Furlong, 2006). Roberts (2011) argues that the trajectories that young people take do not fit simply into definitions NEET or non-NEET. In addition, Russell (2014) highlights that young people are sometimes able to access employment informally. It is also the case that the experience of a severe illness, or disability, may make the classification NEET irrelevant (Furlong, 2007) because people have limited control over how they are affected by illness or disability (Statistics New Zealand, 2011). These criticisms have led to the suggestion that the NEET definition should either be narrowed or expanded if it is to be meaningful within a policy context (Furlong, 2006).

Although NEET is a contested concept research findings suggest a spell of NEET status is associated with a range of negative outcomes. For example, unemployment punctuating the transition between school and the labour force has been associated with subsequent erratic participation in paid employment (Bynner & Parsons, 2002; Gregg, 2001). Burgess, Propper, Rees, & Shearer (2003) found that outcomes vary by skill level and Bynner and Parsons (2002) reported additional psychological consequences for women. Research also suggests a relationship between NEET status and income, with youth unemployment related to subsequent unemployment and associated lower income (Gregg & Tominey, 2005). Godfrey, Hutton, Bradshaw, Coales, Craig & Johnson (2002) summarise a range of negative outcomes accompanying NEET, including unemployment, foregone earnings, poor health, drug use and

crime. These findings suggest the consequences of NEET status may be long term and various. In contrast, others have argued that NEET is a transitory phase which is not necessarily damaging (Arnett, 2006; Devine, 2004) and that the relationship between NEET and later life outcomes may be confounded by household poverty and social disadvantage (Gardecki & Neumark, 1997).

The relationship between NEET status and subsequent negative outcomes may be usefully understood as examples of a Matthew effect. This was first elaborated by Merton (1968, 1988) in relation to how advantage disproportionately accrues in the careers of academic scientists. The Matthew effect describes a phenomenon whereby often small differences, between individuals, at the start of a career, widen over the life course, as an initial advantage is magnified by incremental advantage over time, which, develops a gap between individuals. Hillmert (2011) elaborates three concepts related to the process of accumulated dis/advantage. The first is *social closure*, this is the idea that it becomes increasingly difficult over time to bridge any deficit in position. A second is *collective polarisation*, this refers to the chance that an individual occupies a relatively advantaged, or disadvantaged, circumstance and this increases over time. Third is *selective accumulation*, this is the extent whereby difference in the build-up of advantage over time leads to measurable outcomes.

The Matthew effect may be a particularly useful way to understand outcomes of NEET status. NEET is a point on a life course trajectory which, at an individual level, for some, could represent the start of a process of cumulative disadvantage in comparison to peers who are non-NEET. For others, it is also likely to be a stage on a pathway in which disadvantage has already begun to accrue. A subsequent, negative, occupational outcome would represent the measurable extent of the difference in cumulative advantage, associated with the different NEET and non-NEET trajectories.

The long term negative consequences related to NEET status are also indicative of scarring. There is a large literature examining scarring (e.g. Arulampalam, Gregg, & Gregory, 2001; Gregory & Jukes, 2001; Knabe & RÄTzel, 2011), much of it concerned with the effect of a period of unemployment on subsequent wage level or employment (Nilsen & Reiso, 2011), there has been little engagement, within this literature, with the concept of NEET per se. Knabe and RÄTzel (2011) examine the psychology of scarring and show a negative psychological scar related to past unemployment that manifests itself in a fear of future unemployment. Arulampalam, Gregg, & Gregory, (2001) synthesise findings on scarring which show it to be

evident for men, in terms of persistent unemployment, but that there is only evidence of a minor effect for women. Furthermore, scarring of the wage level was not found to occur for workers who experience a break in employment whilst young, but had an increasing effect for those who experienced unemployment during what would otherwise be prime years of employment. Gregory and Jukes (2001) found a spell of unemployment to reduce wages by 10% with this penalty diminishing over time, but that a long spell of unemployment had a lasting outcome that increased for those of prime age and with higher pay.

The research in this paper aims to assess the evidence for occupational scarring, for those aged 36-39 at 2011, who were recorded as NEET aged 16-19 in 1991. The analysis uses the Scottish Longitudinal Study (SLS) where NEET status is recorded at the 1991 census. Whether an individual is economically active by the 2001 census is known and subsequent economic activity and occupational position is captured in the 2011 census. This enables an examination of whether occupational scarring may be associated with previous NEET status and at what level. The analyses are further stratified by level of educational attainment, as the relationship between NEET, and occupational position, may be different for people with different skills (see, Burgess*, et al.*, 2003). This approach engages with discussion over the meaning NEET may have for different educational groups, and separately for men and women. In this context a substantive effect associated with NEET status would provide evidence that the concept is useful as a policy construct (at least as a marker of disadvantage), despite theoretical and substantive deficiencies. It also examines whether any observed effects are consistent at different skill (educational) levels.

The concept of NEET originated in the UK. Scotland is a devolved region of the UK responsible for education and employment policy. Therefore, this is a policy level at which NEET is relevant. The group to which the NEET label is applied varies between countries. For example, in Europe NEET has been applied to 15 to 24 year olds (Mascherini*, et al.*, 2012), in Japan the status is applied to individuals aged 15 to 34 years olds (Toivonen, 2011). However, in Scotland the NEET definition is usually applied to 16-19 year olds only. It had also been the case that the level of NEET in Scotland was consistently recorded as higher than in England and Wales across the period of this analysis. For instance, Furlong (2007) reports a NEET rate of 14% in Scotland compared to 9% in England and Wales.

The research questions are: is NEET status associated with occupational scarring? Do people who were NEET experience worse occupational outcomes within levels of education? We put forward the following hypotheses:

> Hypothesis 1, NEET status is associated with a disadvantaged occupational position in 2011 by comparison to non-NEET status.
>
> Hypothesis 2, NEET status (at 1991) and subsequently being as not in education employment and training, when next observed (2001), is an indication of accumulating disadvantage and is associated with a relatively worse occupational outcome at 2011 than NEET, but subsequently active (at 2001).
>
> Hypothesis 3, scarring is evident within levels of education.

Hypotheses 1 relates directly to subsequent scarring and disadvantage associated with NEET status. Hypotheses 2 relates to possible additional cumulative disadvantage, hypothesising a worse occupational outcome for those NEET in 1991 then inactive in 2001. With hypothesis 3 we assess whether any accumulating disadvantage associated with NEET status is consistent within levels of education. We might expect differences to be smaller within level of educational attainment, as opposed to the aggregate level. Higher levels of education indicate higher levels of skills and greater underlying ability (Barro & Lee, 2013), which may enable an individual to offset an occupational disadvantage (Machin, 2006). Alternative mechanisms are also plausible. For instance, scarring, associated with NEET status, might be more evident at higher levels of educational attainment, because failure to engage in employment early could lead to less opportunity to attain an occupational level commensurate with a higher level of education, leading to accumulating disadvantage and greater difference within levels of educational attainment.

Data and methods

The SLS provides a representative 5.3% pseudo-random sample of the population of Scotland, based on 20 birth dates. Records of young people 16-19 years old at census 1991 were extracted (this is the age range to which the NEET category is applied in Scotland). This provides a baseline sample of 14,567. This sample is followed up at census 2001 with outcomes measured at the 2011 census.[2] The analytic sample measures occupation position (n=7895). The

[2] There is >44% attrition in the baseline 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

association between NEET status and subsequent outcomes is measured over a 20 year period. NEET classification is based upon an economic activity variable included in the 1991 census. Those who are in employment are coded as non-NEET, as are those who are students, those on training schemes and waiting to start a job. The unemployed, permanently sick, retired[3], looking after home/family and other inactive are coded as NEET. There are 1,972 individuals coded as NEET, giving a NEET rate of ≈13.5% which matches official census releases of full population aggregated data[4].

The CAMSIS (Cambridge Social Interaction and Stratification Scale) measure of occupational position is included as an outcome (Prandy & Jones, 2001). CAMSIS is a measure of the occupational structure based upon social interaction patterns. The theoretical basis is that the social distance between occupations, that is revealed by analysing social interaction patterns, represents an important dimension of social stratification, or relative social advantage (Prandy & Lambert, 2003). Applied to individuals, the measure is constructed as a scale based upon the occupation held by a person, with scores having a range from 1 (least advantaged) to 99 (most advantaged) with a mean of 50 and a standard deviation of 15 in the national population. The variable here is constructed from SOC2010 using the 2011 census (Lambert, 2012).

[Table 1 about here]

The analysis is split by gender. Women may have different occupational trajectories to men related to the types of occupations they enter, child caring roles and levels of educational attainment (Blau, Brummund, & Liu, 2013). Indeed, CAMSIS is scored differently for women and men, reflecting the relative advantage of occupations by gender (Prandy & Lambert, 2003) (see Table 1). A composite variable measuring NEET status in 1991 is constructed with the equivalent variable measuring economic activity at 2001 (see Table 2). This composite variable of NEET status in 1991 and the equivalent status in 2001 gives a variable with 4 levels. The reference category is those who are non-NEET and who are economically active at 2001 (i.e. the most advantaged group). This contrasts with those who are NEET at 1991 and subsequently economically inactive. There are also two 'switcher' categories, one comprising those who are

attrition or item missing most likely to come from the less advantaged groups, including NEET. If this is the case the analysis here will be likely to underestimate the NEET effects outlined and could therefore be interpreted as conservative estimates.

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

[4] We calculated the rate from full population data downloaded from CASWEB, replicating the method of the Scottish Executive (2006)

NEET at 1991 and active at 2001 and then those who are non-NEET at 1991 and economically inactive at 2001[5]. A disadvantage of this dataset is that there are 10 years between the measurement points. Some of those 16-19 at 1991 who were measured non-NEET at census will experience a period of NEET, and some who were measured NEET may move back into education or training. Nevertheless, it is reasonable to hypothesise that those NEET, and subsequently inactive, are more likely to be in a less advantaged occupation, if in work, than those recorded non-NEET at 1991 census and economically active at 2001. This allows us to assess hypotheses 1 and 2, in relation to the concept of accumulating disadvantage.

Several independent variables are controlled in the models. Success in education is known to relate to successful transitions from school to work (Bynner & Parsons, 2002; Croll, 2009). Educational attainment is measured at 2001 census when the sample was aged between 26 and 29. The majority of the sample will therefore have passed through the education system. Education is not measured adequately for these purposes at the 1991 census. At this time point the variable measures only whether an individual has a degree or higher degree. None of the cohort would be likely to have completed a degree at this point. The reference category is set as those with no qualifications contrasted with those with Standard Grade (lower high school level) qualifications, those with Highers (university entrance level qualifications) and equivalent, those with further/college level qualifications and those with degrees (see, Table 2 and Appendix 2). 1991 Carstairs deprivation index is included in the model (Carstairs & Morris, 1990). Carstairs is a measure of areal deprivation constructed from four census variables at the level of census output area. This is included in quintiles with those in the least deprived as the reference category. This enables measurement of any association between deprivation background and subsequent occupational status. Given the controls for educational attainment and Carstairs deprivation it is possible to assess any association between NEET and subsequent scarring, net of deprivation background and attainment level.

Finally, the models also include age and measures of long term limiting illness (LLTI). The age of the cohort is relatively homogenous. Several functional forms of age were checked, including interactions with the NEET measure and educational attainment, this sensitivity

[5] This is statistically equivalent to including a multiplicative interaction term. However, we take this non-conventional approach. We do this because we have found the concept, of including a multiplicative interaction term and main terms, the main terms being the association compared to being in category 0 on both the variables, then explaining that we add the interaction term to these to derive the magnitude of different combinations of associations, less effective when communicating with a non-technical audience. It is simpler to compare coefficients to a reference category.

analysis did not find an alternative control that added either substantive or statistical explanation to the model. LLTI measured at both the 1991 and 2001 censuses are controlled. It may be expected that people reporting LLTI would experience a negative relationship to occupational position because of associations like poorer educational performance and more precarious attachment to the labour force (Sleed, Eccleston, Beecham, Knapp, & Jordan, 2005). The LLTI measures are dichotomised with those reporting no LLTI set as the reference category. Again, controlling for LLTI in the models enables us to test whether NEET status has an effect over and above other mechanisms which we may expect to influence outcomes, as illness is one of the categorisations of NEET status.

CAMSIS is modelled using ordinary least squares regression. To check for possible selection bias a two-step selection model is also fitted, selecting on whether people are in work or not at the 2011 time point (Heckman, 1979). This is potentially important because occupational status is observed only if an individual is employed. Individuals select themselves into employment. If unobserved variables are associated with both employment status and occupational positions, then the model, without adjusting the selection process, will bias the relationship between NEET status and occupational status. A variable measuring the employment rate at output area[6] is used as the exclusion restriction.

Results

[Table 2 about here]

A tabulated examination of employment at 2011 suggests disadvantage associated with NEET status. Table 3 provides a tabulation of NEET status and economic activity for men and women. Economic activity at 2011 is constructed in the same manner as NEET is constructed. This shows that NEET status at 1991 is significantly associated with economic inactivity in 2011 for both men (Phi=.21) and women (Phi=.15). Those with NEET status also have a relatively lower position on CAMSIS than those who were non-NEET. This can be seen in Table 2 where NEET status is associated with a point estimate that is around 10 points lower for both men and women on CAMSIS.

[Table 3 about here]

Table 4 reports the results of an OLS regression examining CAMSIS position controlling for educational attainment, Carstairs quintile at 1991, age, LLTI at 1991 and 2001 and the NEET

[6] Small area geography, 42,604 in Scotland (Vickers & Rees, 2006)

economic activity interaction. These models include only those in work in 2011. The NEET economic-activity interaction again shows significant results. Those who are NEET in 1991 and subsequently economically inactive in 2001 score around 4 points lower for men (coefficient (β): -4.36, 95% CIs -6.78 to -1.95) and women (β: -4.08, 95% CIs -5.85 to -2.31) compared to the reference group, net of the variables included in the model. The switcher categories are also negative, with those who were NEET in 1991 but economically active in 2001 scoring -2.4 (95% CIs -4.0 to -.85) points lower for men and -2.7 (95% CIs -4.29 to -1.20) lower for women. Those who move from non-NEET in 1991 to economically inactive in 2001, again, score lower than those recorded economically active in 2001. The results tend to support hypotheses 1 and NEET status at 1991 and economic inactivity at 2001 are both associated with occupational scarring. Moving to economically active by 2001 appears to somewhat offset the negative effects associated with being NEET. However, overall there is little evidence of an additional accumulated disadvantage, redolent of a Matthew effect, associated with being in the NEET then inactive category.

[Table 4 about here]

The models in Table 3 also show that having a higher level of attainment relates to a substantially higher score on CAMSIS in contrast to no-qualifications (Sorjonen, Hemmingsson, Lundin, Falkstedt, & Melin, 2012). A more deprived position in relation to Carstairs is associated with a lower CAMSIS score for each quintile in comparison to the most advantaged reference. Those reporting LLTI at 2001 show negative but non-significant effects. However, LLTI at 1991 shows a positive effect for both men and women, although only significant for men and the confidence interval approaches 0 (CIs .24 to 5.63), net of the other variables included in the model. This is somewhat surprising. One possible explanation for this may be that those with serious health problems may never enter or may leave the workforce and therefore will not have a position on CAMSIS, 20 years later. Those who remain may do slightly better than average as a small number of very ill, who would otherwise occupy less advantaged occupations, may be selected out, with those remaining unable to undertake more disadvantaged, manual roles.

Table 5 reports the results of two-step models accounting for selection into work. The results show a large selection effect from men, but the model for women is non-significant. For men, the model shows those in the NEET non-active category to be doing around 3 times worse than the OLS model results suggest (β: -12.8, 95% CIs -9.5 to -16.0). The switcher categories also

perform differently in the selection model. In the OLS model the NEET-inactive category and the switcher categories score similar results in relation to the non-NEET-active reference category. In the selection model this is not the case. There is a clear pattern with the NEET-Inactive category scoring the lowest, the NEET-active category appearing to do somewhat less badly (β: -3.8, 95% CIs -1.9 to -5.6) and the non-NEET inactive category falling in between (β: -7.8, 95% CIs -5.8 to -9.8). This is a pattern we have found to be associated with various outcomes (Feng, Everington, Ralston, Dibben, Raab, & Graham, 2015).

Figure 1 shows model result for CAMSIS position stratified by level of educational attainment. Only the NEET interaction variable is reported (see appendix 1 for full models). The results do not fully support hypothesis 3, that occupational scarring, associated with NEET status, is evident within levels of education. For men, the NEET categories are only significant at the two lowest educational levels. For women, the contrast are clearer, with the categories including NEET tending to score significantly lower CAMSIS scores than the non-NEET/active group within all levels of education, except for those with degrees. Overall, hypothesis 3 holds best for women, but also applies to men in the two lowest educational categories. The associations for those with degrees stand out, both men (β: 3.40, CIs-10.88 to 17.69) and women (β: 13.56, CIs 1.31 to 25.80) NEET/inactive record higher CAMSIS scores, although the confidence intervals are wide and the contrast is not significant for men. However it seems possible that the effect for women may relate to a small number who are in otherwise advantaged circumstances who, for reasons possibly related to the timing of the census in relation to childbearing and family formation, were not in the workforce or education when measured in 1991 and 2001. It is also possible that this finding relates to individuals who have taken a year out of education and are classified as NEET for this reason (Crawford & Jonathan, 2012). This is similar to the finding by Burgess *et al.* (2003), who noted a small positive outcome for the more skilled, who had been unemployed earlier in their career.

[Figure 1 about here]

Conclusions

NEET young people are of policy concern across countries (Mascherini*, et al.*, 2012). However, there is a body of literature which questions the NEET classification, in particular arguing that the group is heterogeneous and therefore has little substantive sociological meaning (e.g. Furlong, 2006, 2007; Lunsing, 2007). Despite this, much empirical work highlights long term disadvantage associated with NEET status, such as more precarious

participation in paid employment (Bynner & Parsons, 2002; Gregg, 2001) and lower average incomes (Gregg & Tominey, 2005). The research here shows that there are penalties associated with NEET status in terms of their occupational position will be lower 20 years later. Overall, we therefore find clear evidence for hypotheses 1, that NEET status leads to occupational scarring at the aggregate level. This suggests NEET should remain an important target group for policy makers (Bell & Blanchflower, 2011). The terms outlined by Hillmert (2011) might explain the outcomes we observe as a Matthew effect. It seems likely that those NEET could be experiencing processes of *social closure* and *collective polarisation*. For some NEET status may be the start, for others it may be a stage, of a process where there is less opportunity to bridge emergent differences and reflects an increased chance that an individual occupies a disadvantaged situation.

Significant negative associations between NEET and occupational position are not evident within all levels of education. This is the case for men with degrees, further education, college and university entrance level (Highers-in Scotland) qualifications, and also for women with degrees. Therefore hypothesis 3, that scarring is evident within levels of education, is not fully confirmed. There is little evidence to support hypothesis 2, that there is accumulating additional disadvantage associated with being recorded inactive at 2001 as well as NEET at 1991. The selection model for men suggests that the NEET/inactive group doing substantially worse, occupationally, than the NEET (1991) active (2001) group, indicating additional disadvantage accruing. However, the OLS models and the models stratified by educational attainment do not show large differences between these groups.

There appear clear gendered differences. Arulampalam *et al.* (2001) report only minor scarring affects women, related to unemployment. Our examinations of occupational outcomes suggest variable differences between men and women. The aggregate OLS models (Table 4) suggest similar result comparing men and women. However, the selection models and the models stratified by educational attainment suggest differences in outcome between men and women. These differences are likely to be indicative of different processes of accumulating disadvantage. They also suggest that policy interventions aimed at the NEET group may affect men and women differently.

Debate as to whether researchers should engage with the concept of NEET is in some respects a moot point. Policy makers are interested in the concept and may be in a position to set an agenda around NEET irrespective of academic discussion. However our analysis also suggests

groups who are not negatively affected by their NEET status, at least in terms of occupational outcome. Outcomes vary by gender and level of education. This highlights that NEET is not a simple catch all policy object marking disadvantage, but neither can it be dispensed with as irrelevant, despite apparent flaws in the concept (e.g. Furlong, 2006, 2007; Lunsing, 2007). At the aggregate level NEET status indicates a disadvantage, at a more detailed level unpicking the processes leading to disadvantaged outcomes requires more focussed research.

A key weakness of these analyses is that it depends on data at three time points ten years apart, the 1991, 2001 and 2011 censuses. Therefore our NEET groupings will contain people who move in and out of employment. This is likely to move results closer to the average than if we could isolate anyone who had ever had a spell of NEET. In this respect the results may show a lower level of inequality than may be the case if the NEET group were measured differently. Another weakness is the sample size. Although the overall sample is appropriate, once stratified by level of educational attainment and by men and women the sample groups reduce considerably. A larger sample would make a closer examination of sub-sets of NEET possible. Furthermore, the selection model suggests a large selection bias for men, when controlling for selection into work, a negative result several times larger for those who were NEET/inactive than the OLS model reports becomes apparent.

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Table 1, Examples of occupations by CAMSIS score, based on SOC2010

Men		Women	
CAMSIS score	SOC2010 occupation	CAMSIS score	SOC2010 occupation
8.83	Street cleaners	8.76	Industrial cleaning process occupations
20.46	Kitchen and catering assistants	21.37	Cleaners and domestics
30	Quarry workers and related operatives	30.39	Launderers, dry cleaners and pressers
40.1	Aircraft maintenance and related trades	40.16	Customer service occupations
50.03	Leisure and sports managers	50.18	Library clerks and assistants
60.01	Senior officers in fire, ambulance, prison and related services	60.07	School secretaries
70.16	Biological scientists and biochemists	70.81	Company secretaries
80.02	Higher education teaching professionals	80.29	Authors, writers and translators
92.04	Social and humanities scientists	92.63	Medical practitioners

Table 2. Descriptive statistics

Variable		% Men	% Women
Educational attainment	No qualifications	9	8
	Standard Grade [1]	33	34
	Highers [2]	19	19
	HNC/HND [3]	13	12
	Degree+ [4]	25	28
Areal deprivation	Carstairs 1 – least deprived	24	21
	Carstairs 2	20	21
	Carstairs 3	19	20
	Carstairs 4	19	19
	Carstairs 5 – most deprived	17	19
Age	16	24	22
	17	26	24
	18	25	26
	19	26	28
Limiting long term illness 1991 & 2001	LLTI 01- no	94	93
	LLTI 01- yes	6	7
	LLTI 91- no	98	98
	LLTI 91- yes	2	2
NEET 1991, economically active at 2001 composite variable	Non-NEET/Active01	83	73
	Non-NEET/Inactive01	8	15
	NEET/Active01	6	6
	NEET/non-active01	3	5
CAMSIS	Mean CAMSIS 2011	46.45	47.87
	Mean CAMSIS Non-NEET 1991	47.39	49.05
	Mean CAMSIS NEET in 1991	38.99	38.88
	n	3737	4450

The *n* and percentages are given with missing removed.
Does not sum to 100, because of rounding.
1,These are high school graduate level qualification in Scotland.
2,These are high school qualifications usually used to gain university entrance.
3,College/further level qualifications.
4, Degree and higher degrees.
Source: SLS.

Tabel 3. Economic activity at 2011 by NEET and non-NEET 1991

	% Active 11	% Not Active 11	n
	Men		
Non-NEET	92	8	3,388
NEET	70	30	349
	Women		
Non-NEET	85	15	3,936
NEET	68	32	514

Source: SLS.
Note: Chi Square, men= 170 women= 99, Phi men= .21***, Phi women= .15***
***p<=0.001.

Table 4. OLS estimates on CAMSIS scores

		Men			Women		
		β	lci	uci	*β*	lci	uci
Educational attainment	No qualifications	-	-	-	-	-	-
	Standard Grade	4.02***	2.59	5.46	6.52***	5.07	7.98
	Highers	10.02***	8.45	11.59	11.83***	10.23	13.43
	HNC/HND	12.77***	11.10	14.45	13.79***	12.06	15.51
	Degree+	21.92***	20.38	23.49	23.02***	21.43	24.60
Areal deprivation	Carstairs 1 – least deprived	-	-	-	-	-	-
	Cars 2	-1.36*	-2.48	-.24	-1.97***	-3.07	-.87
	Cars 3	-2.013**	-3.17	-.86	-2.64***	-3.77	-1.51
	Cars 4	-3.88***	-5.04	-2.71	-3.01***	-4.16	-1.85
	Carstairs 5- Most deprived	-2.11**	-3.34	-.87	-5.05***	-6.25	-3.85
Age	Age	.30	-.04	.64	.21	-.12	.53
Limiting long term illness	No LLTI 91	-	-	-	-	-	-
	LLTI 91	2.94*	.24	5.63	.14	-2.28	2.55
	No LLTI 01	-	-	-	-	-	-
	LLTI 01	-.97	-2.68	.74	-1.31	-2.83	.21
NEET 1991, economic activity at 2001 composite variable	Non-NEET91 - Active01	-	-	-	-	-	-
	Non-NEET91 –Inactive01	-3.4***	-4.92	-1.95	-4.25***	-5.33	-3.18
	NEET91 – Active01	-2.43**	-4.01	-.85	-2.75***	-4.29	-1.20
	NEET91-Inactive01	-4.36***	-6.78	-1.95	-4.08***	-5.85	-2.31
	Constant	33.45***	27.31	39.6	35.58***	29.66	41.49
	R^2	0.35			0.36		
	n	3575			4450		

Source: SLS.
Note: lower confidence interval (lci), upper confidence interval (uci).
*p<=0.05.
**p<=0.01.
***p<=0.001.

Table 5. selection model estimates on CAMSIS scores

		Men			Women		
		β	lci	uci	*β*	lci	uci
Educational attainment	No qualifications	-	-	-	-	-	-
	Standard Grade	5.76***	4.01	7.50	6.88***	4.97	8.79
	Highers	11.94***	10.06	13.81	11.95***	9.79	14.11
	HNC/HND	14.59***	12.61	16.58	13.95***	11.71	16.19
	Degree+	23.67***	21.83	25.52	22.91***	20.70	25.12
Areal deprivation	Carstairs 1 – least deprived	-	-	-	-	-	-
	Cars 2	-1.90**	-3.17	-.61	-2.39***	-3.57	-1.21
	Cars 3	-2.60***	-3.93	-1.26	-2.97***	-4.18	-1.75
	Cars 4	-4.54***	-5.90	-3.18	-2.86***	-4.11	-1.61
	Carstairs 5- Most deprived	-4.17***	-5.61	-2.72	-4.71***	-6.02	-3.41
Age	Age	.33	-.06	.73	.13	-.23	.48
Limiting long term illness	No LLTI 91	-	-	-	-	-	-
	LLTI 91	2.02	-1.11	5.14	-.95	-3.70	1.78
	No LLTI 01	-	-	-	-	-	-
	LLTI 01	-4.63***	-6.83	-2.43	-.76	-2.96	1.44
NEET 1991, economic activity at 2001 composite variable	Non-NEET91 - Active01	-	-	-	-	-	-
	Non-NEET91 –Inactive01	-7.81***	-9.83	-5.80	-3.49***	-5.41	-1.57
	NEET91 – Active01	-3.78***	-5.64	-1.92	-3.26***	-4.96	-1.56
	NEET91-Inactive01	-12.76***	-16.01	-9.52	-3.59*	-6.85	-.34
	Constant	31.24***	24.09	38.4	35.58***	29.66	41.49
	Rho	12.07***			0.09		
	Log likelihood	-13424			-15772		
	n	3652 (426 censored)			4413 (813 censored)		

Source: SLS.
Note: Heckman selection procedure was applied, lower confidence interval (lci), upper confidence interval (uci).
*p<=0.05.
**p<=0.01.
***p<=0.001.

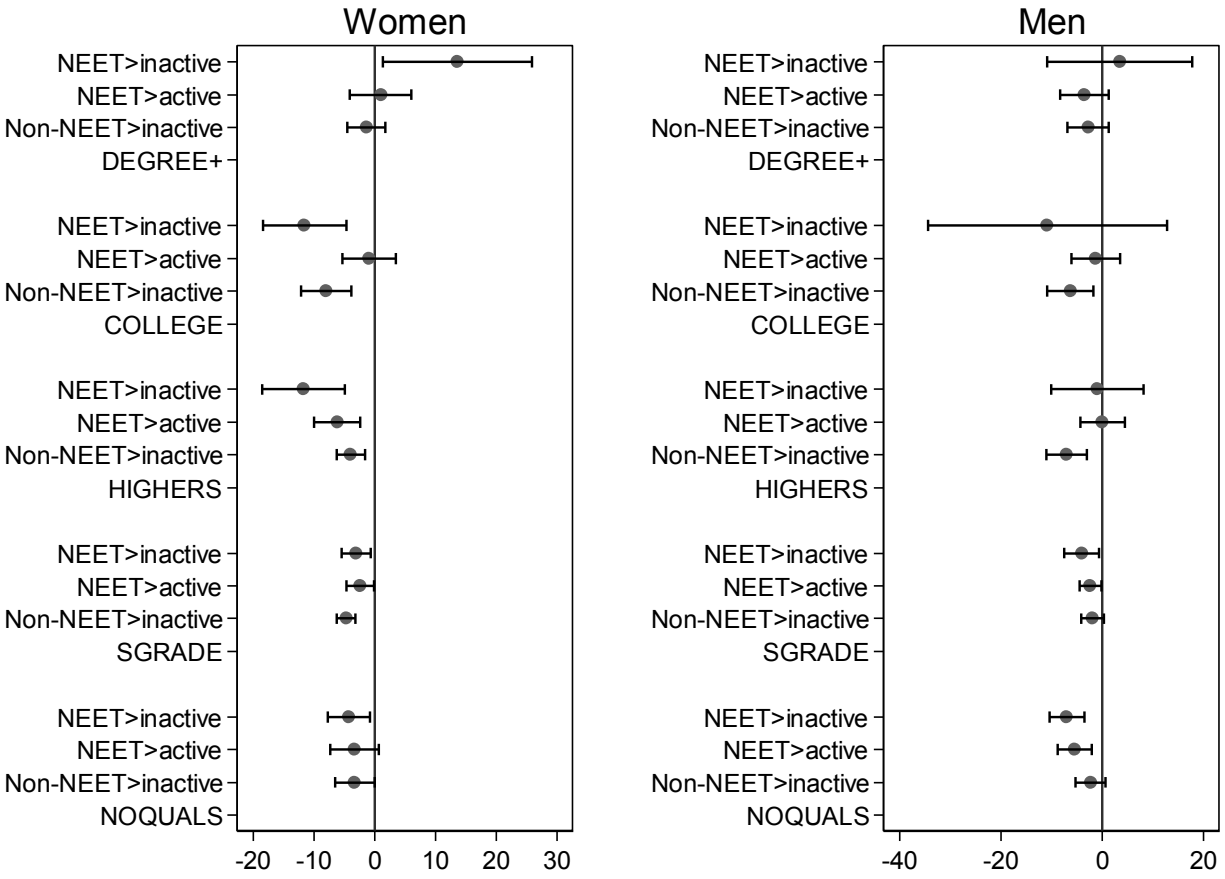

Figure 1, CAMSIS score from models stratified by level of education, showing only the interaction term, including 95% confidence intervals. Source: SLS. Note: the reference category is those non-NEET in 1991 and active at 2001. Area deprivation, age and limiting long term Illness are also controlled in the models, results not reported here. Full models are available in Appendix 1.