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The influence of neighbourhood crime on young people becoming not in education, employment or training

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ABSTRACT

The influence of living in a disadvantaged neighbourhood on young people's transitions from education to the labour market has not received much attention in past research. This study examines the extent to which social disorganisation, understood as the level of crime experienced in the neighbourhood, can influence young people's educational and employment outcomes. It draws on data collected from Next Steps, a longitudinal nationally representative cohort of English young people. Using logistic regression and propensity score matching techniques and controlling for family background, prior educational attainment, ethnicity and gender, victimisation and risk behaviour of the young person, the results suggest that living in a disadvantaged neighbourhood increases the probability of young people experiencing Not in Education, Employment or Training (NEET) status at ages 16–19. Sensitivity analysis shows that these results are robust to selection bias.

Introduction

Past sociological research has explored the association between disadvantaged neighbourhoods and young people's outcomes focusing on the consequences of concentrated poverty on educational attainment, participation in education, job aspirations and the capacity to achieve them. Few studies have focused on the relationship between neighbourhood context and young people's transitions. Biggart and Furlong (1996) found that local labour markets affect young people's decisions to remain in education. A recent article reported higher rates of young people Not in Education, Employment or Training (NEET) in particular areas in the UK (Crowley and Cominetti 2014) and, other research has found higher NEET rates in 'weaker labour markets' in England (Sissons and Jones 2012). Growing up in a deprived neighbourhood has been associated with lower employment aspirations and increased effort to achieve in the labour market (Tomaszewski and Cebulla 2014). The present study contributes to past research by investigating the influence of neighbourhood context and in particular the effect of living in a high crime area on young people's trajectories after compulsory education.

Neighbourhood effects

The importance of neighbourhood contextual factors and in particular the effect of crime on shaping children's and young people's behaviour and life chances has long been established in the literature (Brooks-Gunn, Duncan, and Aber 1997; Sampson and Groves 1989). One of the most fundamental sociological approaches to the study of neighbourhood crime originates by Shaw and McKay (1942) and argues that low economic status, ethnic heterogeneity and residential mobility lead to social disorganisation and crime. This classic work has been further developed by the Underclass theory (Wilson 1987), the neighbourhood effects theory (Jencks and Mayer 1990), the epidemic hypothesis (Crane 1991) and the neighbourhood effects model (Leventhal and Brooks-Gunn 2000).

These theories focus mainly on three aspects of deprived communities that influence young people's trajectories: social organisation, social isolation and institutional factors. Social organization theories emphasize the importance of collective efficacy, regulation of crime and monitoring of youth behaviour (Wilson 2012, 1996). Low social cohesion results in higher crime, disorder and fear among residents in a community. Criminal acts are reinforced in socially disorganised communities especially among young people who participate in groups that share the same system of values and take part in antisocial behaviour (Crane 1991; Jencks and Mayer 1990).

Social isolation theories refer to lack of social connectedness. Residents of poor neighbourhoods are isolated from social networks and institutions which could provide them with information about job opportunities. It is unlikely for young people to become competitive or to be interested in pursuing education in areas where people stick to group norms, there is a lack of mainstream role models and no perception that education is meaningful (Wilson 2012).

Resource theories focus on the availability and quality of public services (Thrupp, Lauder, and Robinson 2002) such as libraries, community centres and schools. Residents' access to resources determines the opportunities offered to young people and influences academic and employment trajectories. Living in a deprived neighbourhood with few amenities and a transient population can be disruptive to young people's development.

Past research has investigated developmental pathways to young people's outcomes and Leventhal and Brooks-Gunn (2000) put forward a structural framework for investigating neighbourhood effects. In their comprehensive review of theoretical frameworks of neighbourhood effects, they specify that neighbourhoods operate through individual, family, school, peer and community processes and affect young people's development. Neighbourhood effects in connection with developmental pathways of young people are considered to be indirect through effects on parenting practices during early years, and to become direct, after young people's exposure to neighbourhood context during adolescence (Kohen et al. 2008; Duncan, Brooks-Gunn, and Klebanov 1994).

Extensive academic debate on the effects of neighbourhood context on human development has produced inconclusive results (Lupton 2003; Van Ham and Manley 2012). Qualitative studies show strong and consistent negative effects on life chances (MacDonald et al. 2005; MacDonald and Marsh 2005) and employment outcomes (Atkinson and Kintrea 2001). Researchers using observational data though have not been able to demonstrate the influence of social context on individual lives (Jencks and Mayer 1990). Furstenberg and Hughes (1997) point that 'despite the intensity of interest in neighbourhood influences,

quantitative research has not demonstrated a convincing association between neighbourhoods and children's development, much less established the pathways between characteristics of neighbourhoods and child development'. The reasons behind these mixed results may be traced to a number of problems including the selection bias issue and the type of data employed.

Selection bias is the key problem in neighbourhood effects research. Neighbourhood context is not allocated randomly, but it is guided by parental selection and preferences (Tienda 1991; Galster 2008; Hedman and van Ham 2012). The question is whether unmeasured parental characteristics and social capital that affect neighbourhood selection influence young people's development over and above neighbourhood characteristics or whether neighbourhood deprivation has an effect on young people either directly or through mediating pathways (Dietz 2002). It is challenging to separate genuine neighbourhood effects on young people's outcomes from the effects of specific family characteristics who decide to live in a certain neighbourhood (Manski 1993; Hedman and van Ham 2012). Failure to include certain observable or unobservable characteristics in the analysis could lead to omitted variables bias. Two approaches are used to estimate neighbourhood effects on young people's outcomes and reduce the selection bias problem; experimental and observational studies.

Experimental designs in neighbourhood effects research involve assigning families randomly to reside in poor and non-poor neighbourhoods. Experimental designs allow a better estimate of neighbourhood effects because researchers can control for family characteristics associated with neighbourhood selection and in this way reduce selection bias and avoid the omitted variables problem. A well-documented housing mobility programme is the experimental study 'Moving to Opportunity' and the quasi-experimental 'Gatreaux' project. Research on both programmes found little impact of neighbourhood effects on adults' outcomes (Rosenbaum, 1995). While experimental designs allow random selection and random assignment, they have received criticism because the small samples, the external validity problem, ethical and practical considerations and high costs moderate their theoretical advantages (DeLuca et al. 2012; Ludwig et al. 2008).

Observational studies and in particular longitudinal data include a range of socio-economic status and income characteristics for families and neighbourhoods and allow research on associations between population characteristics and social outcomes. The most commonly used statistical approaches are regression models and instrumental variables, however careful modelling is required to address the selection bias issue. This study uses regression modelling and propensity score matching. Relations of interest were not explored in a multilevel framework because the three levels of hierarchy available, that is pupils, schools and neighbourhoods, are not nested one within the other; the pupils within a particular neighbourhood go to many different schools. The regression model in this study includes a wide range of statistical controls for covariates with appropriate weights to deal with sample design issues. Further analysis is carried out using matching estimators to approximate a randomized trial. The main advantages of matching estimators over regression techniques are that they are non-parametric, allow comparisons between treatment and control groups, and avoid multicollinearity. They also allow researchers to use sensitivity analysis to investigate how hidden biases caused by unobserved characteristics can change the conclusions of propensity score analysis.

Youth transitions

Participation in education and the labour market after compulsory education is a key policy concern to support young people's economic independence and their integration in the society. Despite the initiatives launched by the UK government to support transitions after the age of 16 (DfE 2014, 2017), a large number of young people still disengage from mainstream educational and employment pathways (Maguire and Rennison 2005; House of Commons 2018). It is important to investigate young people in NEET status because being NEET can be predictive of future unemployment spells and social exclusion for individuals (Bynner and Parsons 2002; Furlong and Cartmel 2004), and can cause public finance costs and lost tax contributions for the society (Coles et al. 2010).

The majority of quantitative research on young people in NEET status points to gender, ethnicity, family background characteristics, educational attainment and peer influence to explain fractured transitions. Gender inequalities in the probability to enter NEET were influenced in the past by the high share of women undertaking unpaid care work, however the difference has gradually decreased (House of Commons 2018). Ethnic minority groups have very high participation rates in education and are more likely to continue to higher education in comparison to British young people (Crawford and Greaves 2015). For some second generation ethnic groups the probability of entering NEET status was lower in comparison to their white British counterparts, a difference that could be attributed to different attitudes and aspirations of ethnic minority groups (Zuccotti and O'Reilly 2018; Heath, Rothon, and Kilpi 2008).

Parental social class is an important determinant of young people's destinations (Furlong et al. 2012). Young people in England and Wales at the age 19–20 from unskilled working class families were twice as likely to experience NEET status in comparison to those from well-educated middle class families. Low educational attainment increases the likelihood of entry in NEET status (Bynner and Parsons 2002). Being bullied, socially excluded or forced to hand over money or possessions in school increases the probability of experiencing NEET (Green, Collingwood, and Ross 2010). Involvement in peer aggression is associated with high school drop-out rates and increases the risk of becoming NEET at age 20 (Moore et al. 2015).

The present study

Previous studies on the effect of deprived communities on young people's development have paid little attention to the influence of social disorganisation and crime on young people's transitions. Further, few studies have investigated the pathways that mediate the direct effect of neighbourhood context on young people. Past studies have used basic regression models or instrumental variables techniques to address the selection bias issue associated with using observational studies to explore neighbourhood effects. This study attempted to fill these gaps by investigating the influence of living in a high crime area on young people's transitions. It explores young people's transitions by focusing on the mediating mechanisms of neighbourhood effects, that is: individual, family background, educational attainment and school experiences. It extends past research by using a traditional regression technique followed by matching estimators and sensitivity analysis to address

the selection bias issue associated with prevailing regression techniques using observational data.

The first aim of this study was to examine the direct association between crime in the neighbourhood and young people's transitions. It was hypothesized that living in a socially disorganised neighbourhood could have a direct negative effect on young people's transitions after compulsory education. The second aim of the study was to explore indirect effects of area deprivation on young people. It was expected that being NEET would vary by ethnicity, because of the high aspirations of immigrant parents, and by gender. It was further expected that, at least to some extent, neighbourhood effects would be mediated by family social class. The third aim of the study was to investigate the effect of educational attainment, exposure to aggression in school and risk behaviour on young people's outcomes. It was hypothesized that educational attainment would mitigate adverse area effects whereas exposure to aggression and participation in risk behaviour at school would exacerbate negative neighbourhood effects.

Materials and methods

Sample

The analysis drew on Next Steps, a longitudinal survey designed to follow a single cohort of 15,500 young people born in England in 1989/90 from 2004 (wave 1, young people in Year 9, age 13) to 2010 (wave 7, young people age 19). The survey was designed to over-sample those from deprived backgrounds and ethnic minority groups. An important benefit of the analysis was a dataset that reported in detail the activities of young people after compulsory education (waves 4–7) through the Main Activity History files when respondents were aged 16–19. Further, the data was linked with the general Index of Multiple Deprivation and its seven decomposed indices, which measure relative levels of deprivation in small areas of England at wave 1. Information on prior educational attainment was provided by the National Pupil Database (NPD).

In the analyses to follow, all independent variables, which include information about neighbourhood characteristics, young people and their families, were measured at wave 1. The dependent variable, young people's destinations at the ages 16–19, was measured at waves 4–7. A set of longitudinal weights supplied with the dataset were applied to address attrition. Analyses were conducted using Stata 14. The analytic sample consisted of 8,931 people at the ages of 16–19 who gave valid information on their monthly main activity.

Key measures

The key measures constructed for the purposes of this study are described below.

- NEET: Defining NEETs can be challenging as a concept that encompasses individuals from a variety of backgrounds (Furlong 2006; Yates and Payne 2006) in precarious employment (Roberts 2011) with short, long or repeated spells of inactivity (Raffe 2003). Following past methodology (Payne 2000; Bynner and Parsons 2002; Yates et al. 2011), a young person is classified as NEET in this study if they have been inactive without

participating in any form of education or training for a period of six months or more between September 2006 and December 2009. The advantage of this approach is that it does not describe a snapshot of transitions in the short term. It rather focuses on problematic fractured trajectories for a longer period of time. Further, because it does not refer to six consecutive months, it captures fractured transitions of those young people who move in and out of NEET status. Next Steps allows for this classification through the monthly main activity files that report four distinctive categories of activity formed to match the interests of the policies of the DfE: Education, Employment, Apprenticeship or Training and NEET. The Next Steps definition of NEET conforms to the UK government definition and includes young people who are: (a) Economically inactive with no participation in education or training; and (b) Unemployed with no participation in education or training (House of Commons 2018). Following past methodology, the sample in this study included only young people and their families who lived in the same neighbourhoods throughout the period of study (number of young people who moved away from an area = 74). A binary indicator was constructed: 1 = NEET, 0 = education, employment or training.

- Neighbourhood deprivation: Neighbourhood was defined as the 32,482 lower layer super output areas (SOAs) in England, each consisting of approximately 1500 people using the Index of Multiple Deprivation (IMD). A limitation of super output areas is that while they are distinctive geographical localities where residents have some level of a shared sense of identity (Lupton 2003), they do not capture self-defined communities and may not correspond to the local reality of neighbourhoods. The IMD is a geographical composite measure that consists of seven separate domains: income, employment, health and disability, education and training; barriers to housing; crime; and, living environment. The crime domain measures the rate of recorded crime at small area level and consists of four indicators that represent the risk of personal and material victimisation: burglary, theft, criminal damage and violence. The crime score was standardized and divided in quartiles for the logistic regression analysis. A binary indicator was constructed for the estimation of treatment effects to compare a treated and a control group (high and low crime neighbourhoods).
- Gender: A binary indicator (0 = men, 1 = women)
- Ethnic group: Young people's ethnic group was recorded in one of seven categories to indicate mixed, Indian, Pakistani, Bangladeshi, Black Caribbean, or Black African group (reference category = white).
- Prior educational attainment: Wave 1 data was linked to young people's attainment at Key Stage 2 (KS2) at age 11. The average KS2 point score in Maths, Science and English was standardized and split above or below median attainment.
- Mother's and father's highest educational qualifications: It was measured over six categories and recoded in (a) degree and higher, (b) A level and some HE, (c) GCSEs and lower, and (d) mother/father not present (reference category: GCSEs and lower).
- Socio-economic classification (SEC): The occupational class of the head of the household was recoded into service, intermediate, working class and unemployed (reference category: working class). Unemployment was considered as one extra category in the occupational classification taking into account evidence that young people in households where no adult member works are more likely to leave education or to face unemployment (Macmillan 2014).

- Entitlement to low income benefits: A binary indicator of families in receipt of state benefits (0 = No, 1 = Yes).
- Involvement of the police: A binary indicator of whether the police got in touch with parents because of the young person's behaviour (0 = No, 1 = Yes).
- Experience of aggressive behaviour in school: A scale measuring young people's exposure to aggressive behaviour consisted of six items. Items included: Whether the young person was upset by name-calling, excluded from a group of friends, made to hand over money or possessions, threatened with violence, experienced violence, or bullied over the previous year. The scores were summed to create a scale (Cronbach's alpha = 0.84) and a binary indicator was constructed (where 0 indicated that the young person did not experience aggressive behaviour).
- Engagement in risky behaviour: Young people were asked four items at Wave 1. Items included: Have you ever graf fitied on walls, vandalised public property, shoplifted, taken part in fighting or public disturbance. The scores were summed to create a scale (Cronbach's alpha = 0.75) and a binary indicator was constructed (where 0 indicated that the young person did not engage in risky behaviour).

Analytical strategy

After presenting descriptive statistics, two statistical methods are utilised to analyse the data. The first method involved binary logistic regression models to investigate neighbourhood effects on the experience of NEET. Logistic regression analysis allows the investigation of the unique association of each predictor variable with young people's outcomes. Models were built up in three stages. The first model included area characteristics only to investigate the hypothesis that crime in the neighbourhood directly affects young people's transitions. The second model additionally included young people's gender, ethnicity and family background indicators, and the third model added prior educational attainment and involvement in or experience of risky behaviour to test whether indirect effects of area deprivation affect young people's outcomes.

The second method involved matching estimators (Rosenbaum 2002), a modelling approach that imitates a randomized community trial and attempts to explore associations using observational data. A model was built to compare outcomes of subjects that were very similar in terms of observable characteristics with the exception of their treatment status. A young person in a high crime neighbourhood was compared with a young person with similar individual and family background characteristics in a low crime neighbourhood in terms of their experience of being NEET. The vector of covariates introduced in the analysis to match treated and control groups included the set of covariates that were used in the logistic regression model. Treatment and control groups were constructed using the Propensity Score Matching (PSM) estimator. The Nearest Neighbour Matching (NN) estimator was also estimated as a robustness check. The 'teffectspsmatch' and 'teffectsnnmatch' commands were used in Stata to run the models. Matching estimators results are conditional on observed characteristics only. A complimentary analysis, sensitivity analysis was carried out to check for hidden bias arising because of unobserved variables that could affect simultaneously neighbourhood selection and young people's outcomes. The Mantel and Haenszel

(MH) test statistics for binary outcomes was used for the analysis (Mantel and Haenszel 1959; Aakvik 2001) to check if the estimated neighbourhood effects were overestimated or underestimated.

Results

Descriptive statistics

Table 1 shows the distribution of young people in NEET status and in education, employment or training across the main study variables. Row counts and percentages are presented simultaneously for all groups to allow easy comparison. As we can see, the increase in NEET rates corresponded to increasing neighbourhood crime rates. Sixteen per cent of young people who lived in the lowest crime neighbourhoods were NEET compared to 27% of those in the highest crime neighbourhoods. Within ethnic groups, the NEET rate was the lowest among Indian and the highest among Mixed and Pakistani young people. Considerable family background and class differences were also observed. NEET rates were lower for young people whose parents had A levels or higher education qualifications, occupied a service or intermediate class position and did not receive state income support. Turning to educational attainment, the NEET rate was 31% for young people with lower levels of educational attainment at KS2 in comparison to 14% for those with higher levels of attainment. Finally, an increase in NEET rates was apparent for young people who engaged in risky activities or experienced aggressive behaviour in school.

Regression analyses

The high NEET rates in high crime neighbourhoods observed in Table 1 could be due to factors such as different family background, educational attainment or individual characteristics and attitudes. To formally describe and explain the relationship between NEET status and neighbourhood crime, binary logistic regression models are estimated controlling for a number of important and confounding variables.

Table 2 illustrates the odds of entry into NEET status. Model 1, which explored the association between NEET status and area characteristics only, indicated that living in a neighbourhood with high crime rate was associated with entry into NEET. The association remained in models 2 and 3. The higher the level of crime in the neighbourhood, the higher the odds of entry into NEET in all three models. Model 3 showed that, after the inclusion of all variables in the analysis, living in the highest crime neighbourhoods was associated with 80% higher probability of entry into NEET in comparison to living in low crime neighbourhoods.

Gender, ethnicity and family class background were predictors of NEET in Model 2 and the association remained when young people's own educational attainment and risk factors were included in the analysis in Model 3. The results in Model 3 demonstrated gender differences as women had a 23% lower probability of entry into NEET compared to men. Further, nearly all ethnic minority groups (except for the mixed group in model 2) experienced lower probability of entry into NEET relative to the white group. Family background characteristics as proxied by parental education, class and income poverty were all predictors

Table 1. Distribution of young people in NEET status and education, employment or training across different groups, individuals aged 16–19.

	Education, employment or training		NEET		Total
	Observations	%	Observations	%	Observations
Crime in the neighbourhood					
1st quartile (lowest crime)	1487	84%	275	16%	1762
2nd quartile	1467	82%	333	19%	1800
3rd quartile	1487	78%	419	22%	1906
4th quartile (highest crime)	1464	73%	541	27%	2005
YP (young person) male	2756	77%	814	23%	3570
YP female	3113	81%	738	19%	3851
Ethnicity of YP					
White	4072	78%	1,127	22%	5199
Mixed	256	75%	85	25%	341
Indian	509	89%	60	11%	569
Pakistani	333	75%	110	25%	443
Bangladeshi	255	76%	81	24%	336
Caribbean	156	76%	48	24%	204
Black African	167	87%	25	13%	192
Other ethnic group	155	83%	32	17%	187
Highest educational qualification of the mother					
GCSEs and lower	3187	76%	999	24%	4186
A levels or some HE	1570	84%	306	16%	1876
Degree or higher	719	85%	127	15%	846
Mother not present	105	62%	64	38%	169
Highest educational qualification of the father					
GCSEs and lower	2201	78%	622	22%	2823
A levels or some HE	1311	84%	246	16%	1557
Degree or higher	798	88%	108	12%	906
Father not present	981	70%	424	30%	1405
Social class background					
Service class	1984	84%	377	16%	2361
Intermediate class	1332	82%	290	18%	1622
Working class	1979	75%	656	25%	2635
Unemployed	422	69%	190	31%	612
Family receiving low income benefits	1988	71%	795	29%	2783
Family not in receipt of low income benefits	3865	84%	756	16%	4621
Key stage 2 attainment low	2162	69%	950	31%	3112
Key stage 2 attainment high	3882	86%	652	14%	4534
Police involvement for YP's behaviour	174	56%	138	44%	312
No police involvement for YP's behaviour	5233	81%	1,249	19%	6482
YP experienced aggressive behaviour	2339	76%	743	24%	3082
YP did not experience aggressive behaviour	3462	82%	783	18%	4245
YP engaged in risky behaviour	1141	70%	484	30%	1625
YP did not engage in risky behaviour	4658	82%	1,041	18%	5699

of young people's destinations. The absence of the mother or the father from the household doubled the odds of entry into the NEET group. Especially the absence of the mother doubled the odds of entry into NEET. Young people from families in receipt of state benefits were 45% more likely to enter NEET in comparison to those who did not receive income support.

Table 2. Results of logistic regression of entry into NEET status.

Variables	Model 1 OR	Model 2 OR	Model 3 OR
Crime in the neighbourhood (Ref. 1st quart. lowest crime neighbourhoods)			
2nd quartile	1.287	1.245	1.232
3rd quartile	1.642	1.478	1.466
4th quartile	2.421	1.909	1.804
Sex of YP (Ref. male)		0.726	0.774
Ethnicity of YP (ref. cat. White)			
Mixed		1.045	0.844
Indian		0.345	0.391
Pakistani		0.542	0.516
Bangladeshi		0.489	0.417
Black Caribbean		0.677	0.628
Black African		0.142	0.109
Other ethnic group		0.551	0.615
Highest educational qualification of mother (Ref. GCSEs or lower)			
Degree or higher		0.813	0.928
A levels or some HE		0.738	0.815
Mum not present		2.096	2.229
Highest educational qualification of father (Ref. GCSEs or lower)			
Degree or higher		0.615	0.711
A levels or some HE		0.827	0.882
Dad not present		1.317	1.262
SEC (ref. cat. working class)			
Service		0.747	0.834
Intermediate		0.660	0.709
Unemployed		1.549	1.780
Low income benefits		1.591	1.450
Key stage 2 attainment			2.358
Police involvement			2.077
YP experienced aggressive behaviour			1.288
YP engaged in risky behaviour			1.577
Constant	0.235	0.340	0.151
Pseudo R-squared	0.018	0.079	0.129
Observations*	7,473	6,210	5,660
% of cases	84%	70%	63%

Model 1 includes area characteristics; Model 2 includes family background indicators; Model 3 includes young person's prior educational attainment and risk factors.

*Total number of young people respondents in the Next Steps monthly Main Activity file = 8,931.

Prior educational attainment and aggressive behaviour were determinants of transitions in Model 3. Low attainment at key stage 2 and exposure to aggressive behaviour in school increased the chances of entry into NEET by 1.35 times. Antisocial behaviour was related to the NEET experience; police involvement for the young person's behaviour doubled the odds of entry into NEET. Young people's risky behaviour such as shoplifting and fighting was associated with 57% higher probability of experiencing NEET.

Overall, the results showed associations between crime in the neighbourhood and NEET status. It is however important to be cautious in the interpretation of neighbourhood effects. While special attention was given to control for a large number of predictors in the analysis, there might still be unobserved family or individual characteristics such as ability or motivation that could affect simultaneously neighbourhood choice and young people's outcomes and lead to omitted variables bias.

Treatment effects

Table 3 shows treatment effects results controlling for all the covariates included in the logistic regression model. The results indicated that young people in neighbourhoods with above median crime score were 4 and 6 percentage points more likely to experience NEET compared to young people in lower crime score neighbourhoods under the PSM and NN matching estimators respectively. A complimentary analysis, sensitivity analysis, is estimated to evaluate the results of treatment effects.

Table 4 shows sensitivity analysis results for unobserved selection bias. The positive results indicated that the neighbourhood effects results reported in Table 3 were not sensitive to selection bias for almost all the bounds tested both under the overestimation and under-estimation assumption. The only exception is for $e^\gamma = 1.6$ where we can see positive unobserved selection. However, when interpreting sensitivity analysis results, it is important to bear in mind that unobserved selection is taken to the extremes in this type of analysis. Given that the majority of the results were not sensitive to selection bias and that the analysis adjusted for a wide range of individual, family, educational attainment and peer effects variables, it was still reasonable to draw conclusions about associations between neighbourhood characteristics and young people's outcomes.

Discussion

Living in a socially disorganized community has a negative effect on young people's outcomes. This study used a large cohort from a longitudinal study to investigate the influence of living in a neighbourhood with high incidence of crime on young people's probability of experiencing NEET status. This study also explored in detail neighbourhood effects by considering parental socioeconomic class and young people's educational attainment, participation in risky activities and experience of aggressive behavior. Using data from the Main Activity files of Next Steps and the decomposed Indices of Multiple Deprivation, this

Table 3. Effects of living in a high crime neighbourhood on young people becoming NEET.

Propensity score matching	ATE	N
High crime neighbourhood (Ref. low crime)	0.040	5660
Nearest-neigbour matching	ATET	N
High crime neighbourhood (Ref. low crime)	0.062	5660

Table 4. Sensitivity analysis.

Gamma (γ)	Qmh+	Qmh−
1	6.643	6.643
1.2	3.884	9.43
1.4	1.565	11.818
1.6	0.373	13.915
1.8	2.142	15.792
2	3.727	17.496

where

Gamma (γ) :	odds of differential assignment due to unobserved factors
Qmh+ :	Mantel-Haenszel statistic (assumption: overestimation of treatment effect)
Qmh- :	Mantel-Haenszel statistic (assumption: underestimation of treatment effect)

study examined the direct influence of crime in the community on young people's outcomes and the indirect pathways that mediate neighbourhood effects.

The logistic regression analysis results show that the probability of being NEET is higher for young people who live in areas with high crime. Neighbourhood effects research finds that living in deprived areas has negative effects on people's life chances and reinforces inequalities. This study adds to past research by investigating the effect of crime on the probability of becoming NEET. These results accord with arguments of the social organisation theories that posit that crime and delinquency in deprived communities have severe effects on young people's development.

Contrary to past research that showed gender segregation in access to opportunities, this study found that women had a lower probability to experience NEET status compared to men. This could be explained because the Next Steps specification of the NEET group excludes from the sample those with caring responsibilities. It could also relate to the decrease in the number of women who undertake caring responsibilities in the family (House of Commons 2018).

The results presented in this analysis did not detect any ethnic penalties for minority groups. Ethnic minority members had a lower risk of becoming NEET after compulsory education in comparison to the white group. Previous studies have also reported similar results in terms of occupational achievements of ethnic minority groups in the UK; social mobility levels have been higher among minority groups in comparison to the white majority mainly as a result of educational attainment rather than family background (Heath and McMahon 2005).

As it was hypothesized, family class background, parental education and income poverty were important determinants of NEET status. The results persisted even after the inclusion of prior educational attainment. These results reflect existing patterns of stratification identifying that young people from privileged backgrounds have better outcomes in comparison to those from working class backgrounds. They are in line with past research on the role of social class in determining individual life chances, and on how social class effects persist despite the role of educational attainment in shaping young people's life chances (Breen and Goldthorpe 1997).

Turning to the role of risk, as expected, exposure to aggressive behaviour, antisocial activities and involvement of the police for young people's behaviour were associated with increased probability of entry into NEET. Young people who spend a lot of time in a disorganised neighbourhood and relate to a deviant peer group might develop anti-social behaviour or engage in criminal activities which can have a negative impact on their self-esteem and aspirations about education and employment. These results ascertained Jencks and Mayer's model and Crane's theory that social problems in high crime areas spread like epidemics and that networks enable and transmit antisocial behaviour. These results also stress the importance of the monitoring function that adults need to adopt to control negative behaviour and the role of collective efficacy in preventing crime (Browning, Dietz, and Feinberg 2004).

Treatment effects were used to test the effect of neighbourhood deprivation by comparing outcomes for individuals who grow up in deprived and non-deprived neighbourhoods based on the vector of conditioning covariates that were used in logistic regression analysis. The results indicated a higher probability of entry into NEET for young people in high Crime Score areas in comparison to those in low Crime Score areas. The results were

consistent with neighbourhood effects theories on the geographic clustering of disadvantage and crime and its negative outcomes on young people. Past evidence also pointed to similar neighbourhood effects on young people's educational attainment. Using the Next Steps data and propensity score matching methodology, McDool (2017) found that young people living in deprived neighbourhoods in England have 4–6 percentage points lower probability of obtaining five GCSEs A*-C in comparison to young people in non-deprived neighbourhoods.

What emerges from this study is a set of multiple and diverse mechanisms underlying participation in education and the labour market after compulsory education that operate at the local level. Young people's outcomes are associated with interconnected environments ranging from families to peer group and neighbourhoods and not just the result of individual decision-making. There is a 'dialectical relationship' between the influence of the social environment and individual characteristics in shaping young people's outcomes (Devadason 2006).

Given the numerous factors in the sphere of influence of young people's transitions, multiple preventive, supportive and corrective policy interventions need to be implemented simultaneously to increase participation in education and employment in deprived areas. With regards to neighbourhood crime, the findings of this study indicated that economic and institutional resources, social ties and fostering skills and capacity of people in deprived areas are essential in preventing fractured trajectories.

Turning to disengagement and marginalisation, the findings of this study call for cooperation between education, employment and social services to target support at individuals and families most in need in order to reduce the risk of young people dropping out from school. Offering personalised support, providing information about the opportunities available and widening participation university policies could help address barriers to engagement (McMahon, Harwood, and Hickey-Moody 2016). It is important that young people from deprived neighbourhoods understand from an early age the educational system and the opportunities to access the labour market (Sampson and Themelis 2009) and develop the ability to navigate education's complexity (Järvinen and Ravn 2018).

Participation in meaningful vocational training could also allow skills development and promote job satisfaction (Taylor 2002). Local councils should take an inclusive approach and cooperate with local businesses, the voluntary sector, and schools to equip young people with the right skills, experience and opportunities to prosper. Enterprise hubs in deprived areas could help and develop young people's employability and networking opportunities through workshops and career events.

Data availability statement

Next Steps and neighbourhood deprivation data was kindly provided by the Department for Education and the UK Data Service. The data for all Next Steps waves are available from the UK Data Service (please visit the webpage: https://www.ukdataservice.ac.uk).

Disclosure statement

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