Youth provision and life outcomes

A study of longitudinal research

A Youth Evidence Base report for the Department for Culture, Media and Sport

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Summary of key findings

Our research used five datasets to explore the effects of weekly participation in youth clubs on outcomes later in life. Four of the five datasets were longitudinal studies; the fifth was a rolling annual survey. The studies covered different generations of young people from the 1970s to 2000s, and the timing of outcome measurements reflected this.

There is a clear association between participation in youth provision and positive short-term outcomes relating to physical health and wellbeing, pro-social behaviours and education. There is also strong evidence that these short-term outcomes are sustained over decades and, compared with non-participants, people who attended youth clubs continue to score more highly for several of these indicators of wellbeing.

The proportion of young people who participate in youth clubs weekly has increased over time, from c. 20% (the 1970 British Cohort Study) to c. 35% (the Millennium Cohort Study (MCS) and UK Household Longitudinal Study (UKHLS)), possibly because recent datasets adopted a wider definition of 'youth activity' including in-person clubs, scouts, girl guides and other such activities.

What factors predict participation in youth activities? Young people with the following characteristics were more likely to participate on a weekly basis:

- BCS70: young men, lower parental income/social class, lower reading scores
- Next Steps: young men, ethnic minorities
- MCS: White and Black Caribbean, living in safe neighbourhoods and devolved nations, higher parental income, higher education level and social class
- UKHLS: White British, higher parental income, married or cohabitating parents and parents involved in volunteering activities.

What is the relationship between participation in youth activities and outcomes for young people at the time of participation? Regular attendees were more likely to:

- BCS70 (16 years old): be involved in a fight, steal and interact with police
- Next Steps (16 years old): do sports weekly, not consume alcohol weekly, carry a knife
- MCS (14 years old): not truant, not drink alcohol/take illegal drugs, be in good health
- UKHLS (10 – 16 years old): not truant, not drink alcohol, aspire to university, good health.

What is the relationship between participation in youth activities and outcomes later in life (between the ages of 20 and 30 years)? Participants in youth clubs were more likely to:

- BCS70: (30 years): have interacted with police since the age of 16 years
- Next Steps (24-25 years): have higher education, not take illegal drugs, have lower earnings
- MCS (17 years): be in good health, have a qualification and a paid job
- UKHLS: (at 16 years) to be a part of an organisation, want to go to university, be in good physical health; (at 20 years) be in education, volunteer.

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Executive summary

Study background and scope

1. The Department for Culture, Media and Sport (DCMS) commissioned three projects to research youth provision collectively called the Youth Evidence Base. SQW, the University of Essex, University of Warwick and UK Youth carried out the three projects concurrently, advised by the Department and a specially convened Youth Panel enabling us to draw on young people's lived experience of youth provision.

2. This report outlines findings from analysis of five longitudinal datasets to answer the following research questions:

    1. **What are the personal characteristics that predict young people's participation in youth activities (including youth clubs)?**

    2. **What is the relationship between participation in youth activities and outcomes for young people at the time of participation?**

    3. **What is the relationship between participation in youth activities and outcomes later in life (between the ages of 20 and 30 years)?**

    4. **Are there any 'cohort effects' – differences in observed patterns across people from different generations?**

3. The six outcome areas were: educational outcomes, employment/career pathways, general health, mental health, life satisfaction and wellbeing, and crime and anti-social behaviour.

Datasets and approach

4. Five datasets (listed in Table 1) were used to answer our research questions. They span several decades, the oldest tracking people born in 1970 and the most recent one people born in 2002. The datasets used two different definitions of youth activities: BCS70, Next Steps and ALSPAC asked respondents about attending youth clubs; the definition in MCS and UKHLS was broader, including youth clubs, scouts, girl guides or other organised activities.

Table 1: Datasets used in the research study (in chronological order)

Name	Type / Date
Avon Longitudinal Study of Parents and Children (ALSPAC)	• Cohort study: people born in 1991 – 1992 in the Bristol area (England)
British Cohort Study (BCS70)	• Cohort study: people born in 1970
Millennium Cohort Study (MCS)	• Cohort study: people born in 2000 – 2002

Name	Type / Date
Next Steps Generational Study (Next Steps) (also known as the Longitudinal Study of Young People in England – LSYPE1)	• Cohort study: people born in 1989 – 1990
Understanding Society (also known as the UK Household Longitudinal Study) (UKHLS)	• Rolling annual survey of British households • The study started in 2009, including a sample of households who participated in the British Household Panel Study (1991 - 2009)

Source: SQW and University of Essex

5. The research focused on young people who attended weekly; intensive engagement was deemed more likely to be associated with observable outcomes. Time between contemporaneous and longer-term outcome measures varied due to data availability (Table 2).

Table 2: Ages (years) at which contemporaneous and later life outcomes are captured in each dataset

Study	Age that contemporaneous outcomes were measured	Age that outcomes later in life were measured
ALSPAC	16	25-26
BCS70	16	26 and 30
MCS	14	17
Next Steps	16	24-25
UKHLS	10-16	16, 20 and 24

Source: SQW and University of Essex

Analysis

6. We adopted a systematic and consistent approach to the analysis of all five datasets that utilised appropriate statistical techniques (and robustness checks) as well as triangulation of results across the studies. In broad terms we accounted for a number of personal and familial characteristics including gender, ethnicity, local area (e.g., neighbourhood safety) and family background. Even though the overall approach was common across all five longitudinal studies, elements of the analysis such as exact model specifications and particular outcome measures varied slightly between the datasets.

7. Notable features of our analysis are:

- we uncovered statistical associations but did not establish a direct causal relationship. Controlling for observable characteristics helped isolate the effect of attending youth clubs/activities (to a degree) but did not categorically establish causality

- the older studies suffered from attrition and missing responses (both these factors reduced the sample size available for analysis) while the newer studies naturally covered a shorter time period which limited our ability to trace the effect over longer periods of time

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- none of the studies we analysed were designed to solely focus on participation in youth activities, and this required us to adjust our research design accordingly.

Key findings

8. Key findings are summarised, above. There are differences in results relating to the characteristics of young people attending the youth clubs: for example, in BCS70 people from lower social class families were more likely to attend whereas the opposite was true in MCS. We note the strong relationship between net parental monthly income and youth participation rates reported in UKHLS and that while having a very low income did not deter all participation (presumably because at least some provision is free) having the disposable income to pay for subscriptions, trips, and uniforms, etc., appeared to promote participation.

9. In some cases, the outcomes associated with participation were positive (better health or education participation for example). In others the outcomes are more subtle. For example, in BCS70 there are 'negative' contemporaneous outcomes associated with youth participation. However, in relation to most outcomes in later life, we observed no statistically significant differences between the groups of participants and non-participants in BCS70. This lack of negative associations is important because this 'convergence' of outcomes could be interpreted as a 'reduction in negatives,' indirect evidence for positive long-term effects from youth participation (given the initial socio-economic imbalance between the groups).

Reflections on findings

10. The profile of young people who participated in youth club activities differs between earlier and later datasets. The proportion of young people surveyed who regularly attended youth activities also increased over time (although that may be due to different definitions). Similarly, the types of outcomes that were observed to be statistically associated with youth club participation were also different. Consequently, some findings need to be understood within the context of each dataset, the way questions were phrased, or the duration between contemporaneously reported effects and those observed later in life.

11. Changes in the funding landscape and types of activities offered through youth services may have an important role in explaining the differences in results across the studies (i.e., the cohort effects). For example, young people in the devolved nations had higher participation rates, possibly linked to differences in youth provision funding across the UK and funding decisions made in devolved nations.

12. The report concludes with recommendations regarding building the evidence base to help establish the causal impact of youth provision, the economic impact of youth services, and the impact of youth provision on different young people.

1. Introduction to the project

Key points

- DCMS commissioned SQW, the University of Essex, the University of Warwick and UK Youth to carry out three research projects called the 'Youth Evidence Base.'

- This report outlines findings from analysis of five longitudinal studies to answer the following research questions:

  - What are the personal characteristics (such as gender) that predict young people's participation in youth activities (including youth clubs)?
  - What is the relationship between participation in youth activities and outcomes for young people at the time of participation?
  - What is the relationship between participation in youth activities and outcomes later in life (between the ages of 20 and 30 years)?
  - Are there any 'cohort effects' – differences in observed patterns across people from different generations?

- The research focused on the effects of weekly participation in youth clubs, and other organised youth activities. The exact definition of participation reflected that used across the datasets in line with how the data had been collected.

- The six outcome areas of interest were:

  a) Educational outcomes
  b) Employment / career pathways
  c) General health
  d) Mental health
  e) Life satisfaction and wellbeing
  f) Crime and anti-social behaviour.

Building the evidence base for youth activities

1.1 Existing evidence examining the impact of involvement in youth activities on young people draws mixed conclusions about how these activities shape young people's life outcomes. Recent high-quality longitudinal studies have found that involvement in uniformed provision such as Scouts is linked with a range of benefits in later life. For example, using the 1958

National Child Development Study data Dibben, Playford and Mitchell (2017)[1] found that participation in Scouts or Guides was linked to, on average, better mental health at the age of 50 years (as measured with the MHI-5 mental health index). Similarly, Berrie et al. (2022)[2] used Aberdeen Children of the 1950s data to demonstrate that members of Scouts or Guides were more likely to be in good general health at age 50 years. Recent analysis commissioned by UK Youth estimated the economic benefit of youth work to be c. £5.7bn (in England), with an estimated return on investment range of 3.2x to 6.4x.[3] However, some earlier studies found evidence of mixed or even negative associations of youth provision with educational outcomes and anti-social behaviour later in life (see Feinstein, Bynner and Duckworth, 2005).[4]

1.2 In this context, The Civil Society and Youth (CSY) directorate at the Department for Culture, Media and Sport (DCMS) commissioned SQW, in collaboration with UK Youth, the University of Exeter (UoE) and University of Warwick, to carry out further research.

1.3 The Youth Team sits in the CSY directorate and oversaw this research. The Youth Team leads on out of school provision in England for young people aged 11 to 18 years (up to 25 years for those with special educational needs and disabilities (SEND)). Their remit covers a range of provision including youth clubs, youth volunteering, residential activities, uniformed youth groups and universal access youth groups.

1.4 This project is one in a series of three related projects that are collectively called the 'Youth Evidence Base' and which were commissioned to build a stronger evidence base about the youth sector's impact. Combined, these projects increase understanding of how young people's involvement in youth activities makes a difference to their lives, and to the communities in which they live.

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[1] Dibben, C., Playford, C. and Mitchell, R., 2017. Be (ing) prepared: Guide and Scout participation, childhood social position and mental health at age 50—a prospective birth cohort study. *J Epidemiol Community Health*, 71(3), pp.275-281.

[2] Berrie, L., Adair, L., Williamson, L. and Dibben, C. (2022) 'Youth organizations, social mobility and health in middle age: evidence from a Scottish 1950s prospective cohort study', *European Journal of Public Health*, 1, p.7.

[3] UK Youth and Frontier Economics (2022) *The economic value of youth work.* Available at: https://www.ukyouth.org/wp-content/uploads/2022/09/Economic-Value-of-Youth-Work-Final-260822-STC-clean75-1.pdf

[4] Feinstein, L., Bynner, J. and Duckworth, K. (2005) *Leisure contexts in adolescence and their effects on adult outcomes [Wider Benefits of Learning Research Report No. 15.* Centre for Research on the Wider Benefits of Learning, Institute of Education, University of London.

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1.5 Figure 1-1 sets out a summary of each research strand:

Figure 1-1: Youth Evidence Base project suite summary

Strand 1
What is the impact of youth activities on outcomes later in life?
- analyse longitudinal datasets
- control for other relevant personal and familial characteristics
- examine impact on education, physical health, mental health, employment, life satisfaction and crime

Strand 2
What does existing evidence say about the impact of youth provision?
- conduct systematic searches and sifts of existing literature
- extract details about the rigour of the evidence base
- identify findings about impact across contexts

Strand 3
What impact does the presence of youth clubs have on local areas?
- analyse secondary datasets to identify how the presence or closure of youth clubs shapes local outcomes
- conduct case studies in local areas of interest to understand why changes have occured

Source: SQW

1.6 This strand of the research was led by SQW, a public policy and economic research consultancy, with support from Dr Cara Booker, a Senior Research Fellow at The Institute for Social and Economic Research (ISER) at the University of Essex, and Jacob Diggle and Somia Nasim at UK Youth. UK Youth is a charity that seeks to secure sustainable investment into the youth sector, build cross-sector understanding of how youth work makes a difference, and create opportunities to embed effective solutions at scale. They provided strategic guidance, informed the research design, and feedback on analysis – as well as helped to recruit a Youth Panel – a group of six young individuals aged 16 to 25 years who used their lived experience of attending youth clubs to provide feedback on our approach and findings. We are indebted to our panellists Grace Berringer, Mia Meggiolaro, Shaun Horne, Victor Agbontean, Molly Taylor and Therese Crossan for their insights. Dr Tom Perry and Dr Rebecca Morris at the University of Warwick are leading the literature review (strand 2) and also contributed to the design of this project.

The aims of the research project

1.7 The aim and objectives for the research were set by the Youth Team in the CSY directorate and developed further with the research team. The purpose of the research project was to explore how far existing data could be used to answer the question '**What is the impact of youth activities on outcomes later in life**?'. This question was broken down further as:

1. What factors predict participation in youth activities?

2. What is the relationship between participation in youth activities and life outcomes at the time of participation (contemporaneous outcomes)?

3. What is the relationship between participation in youth activities and outcomes later in life?

1.8 Five relevant datasets were identified during initial scoping analysis[5] (Table 1-1). Four of these were cohort studies. Such studies follow a group of research participants who share a common characteristic (in our case being born at a particular point in time) over a period of many years. Their data is collected via interviews or self-completion surveys. Cohort studies provide robust longitudinal data; however, they suffer from attrition, and study elements, such as questions and sample composition, chosen at the outset, may lose relevance.[6]

1.9 The fifth dataset is a rotating panel of British households where new respondents are added to the study every year (and some may leave the study). Such studies tend to be less exposed to biases linked to attrition since the pool of research participants gets 'topped up' and a shorter follow-up period is designed in. However, their design precludes tracing individuals over time.

1.10 The value of using these datasets is that they can track changes over time, whilst most previous evaluations of youth work have only captured short-term impacts. These datasets are of a scale that they also enable a matching of individuals to comparator groups. The use of these five datasets enabled investigation of a supplementary research question:

4. Were there any 'cohort effects' – differences in observed patterns across people from different generations?

Table 1-1: Datasets used in the research study (in chronological order)

Name	Type / Date
British Cohort Study (BCS70)[7]	• Cohort study: people born in 1970
Next Steps Generational Study (Next Steps)[8]	• Cohort study: people born in 1989 – 1990
Avon Longitudinal Study of Parents and Children (ALSPAC)[9]	• Cohort study: people born in 1991 – 1992 in the Bristol area (England)
Millennium Cohort Study (MCS)[10]	• Cohort study: people born in 2000 – 2002

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[5] Additionally, we scoped harmonised datasets published by CLOSER – an interdisciplinary partnership of leading social and biomedical longitudinal population studies, the UK Data Service and The British Library – to determine whether these can be used for comparability of findings across studies. Currently, the CLOSER datasets provide a limited number of metrics that could be used as control characteristics but they do not cover all datasets in scope of this study. For example, harmonised parental social class is available for MCS and BCS but not for the other studies. For this reason, we decided not to complement our analysis with these additional datasets.

[6] With adequate sample sizes random attrition normally does not compromise analysis. However, if attrition is linked to characteristics of research participants the results may be biased. For example, if young people who attended youth clubs were more likely to drop out of the study the analysis would need to correct for this.

[7] More information about the study is available here: https://cls.ucl.ac.uk/cls-studies/1970-british-cohort-study/

[8] More information about the study is available here: https://cls.ucl.ac.uk/cls-studies/next-steps/

[9] More information about the study is available here: https://www.bristol.ac.uk/alspac/

[10] More information about the study is available here: https://cls.ucl.ac.uk/cls-studies/millennium-cohort-study/

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Name	Type / Date
Understanding Society (also known as the UK Household Longitudinal Study) (UKHLS)[11]	• Rolling annual survey of British households • Started in 2009, including a sample of participants in the British Household Panel Study (1991 - 2009)

Source: SQW and UoE

Defining key terms and research scope

Defining youth activities and youth provision

1.11 'Youth provision' is a broad term that may include many different activities that vary by their nature, mode of delivery and provider type. At project inception, we scoped the terms 'youth club,' 'youth provision,' 'youth services' and 'youth activities' with DCMS and our Youth Panel. The Youth Panel highlighted activities they saw as within the remit of the study:

> ### Youth Panel reflections on types of youth provision
>
> The Youth Panel described the range of activities they understand to be within the remit of this study, including:
>
> - Youth clubs
> - Detached youth work
> - Residentials and outdoor learning
> - Sports, arts and cultural learning - where the primary purpose of the activity is young people's personal development as opposed to elite talent development
> - Skills and knowledge building, for example in relation to finances, outside of formal education
> - The development of emotional and social skills, including activities targeting young people's confidence
> - Social action
> - Pastoral support, and mental health and wellbeing support, outside of a clinical setting

1.12 Figure 1-2 summarises the modes of delivery and provider types within scope for the Youth Evidence Base research, which can be universal (meaning any young person can participate) or targeted to specific groups of young people.

Figure 1-2: Summary of modes of delivery and provider types

Modes of delivery
- Centre- or facility-based

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[11] More information about the study is available here: https://www.understandingsociety.ac.uk/

- Detached and street-based youth work (not typically attached to a building or hub)
- Outreach youth work (typically an 'extension' of building- and hub-based provision)
- Outdoor learning in parks, sports fields or residentials
- Digital youth work

Provider types
- Local authority youth services
- National uniformed organisations (for example, the Scouts or Girlguiding)
- Voluntary and community sector (VCS) organisations, not affiliated to a national uniformed organisation
- Provision delivered through faith groups
- Organisations with embedded youth workers, for example, some Housing Associations, schools and hospitals

Source: UK Youth

1.13 To ensure that we were able to focus on those services that best fit the Youth Team's remit within DCMS we identified criteria to help us judge whether provision falls in or out of scope for this research, namely:

- Young people's participation should be voluntary and not mandated (therefore the youth justice and children's care systems and their associated services are out of scope)

- Activities that can be run by volunteers or by trained youth practitioners are in scope (including activities in schools), but activities run by teachers in or out of school are out of scope

- Activities that prioritise young people's holistic development are in scope; activities focused on a specific talent (such as sport or music) are out of scope

- Activities involving a financial contribution by parents (such as activities charging a fee) are in scope so long as they conform to the above criteria.

1.14 Ultimately, we were constrained by the data collected and recorded in the secondary datasets we analysed and had to rely on definitions from the questionnaires used to collect data. These fell into one of two types: either the questions focused more narrowly on involvement in 'youth clubs', or more broadly on 'youth activities' including uniformed provision. We describe specific indicators for youth participation available in each of the datasets in Section 2.

Defining life outcomes

1.15 To define potential 'impact' (the outcomes of interest) of youth provision across our Youth Evidence Base research, we developed hypotheses in dialogue with our Youth Panel, DCMS and in reference to literature about the benefits that involvement in youth activities produces. Our hypotheses are that involvement with youth clubs/activities:
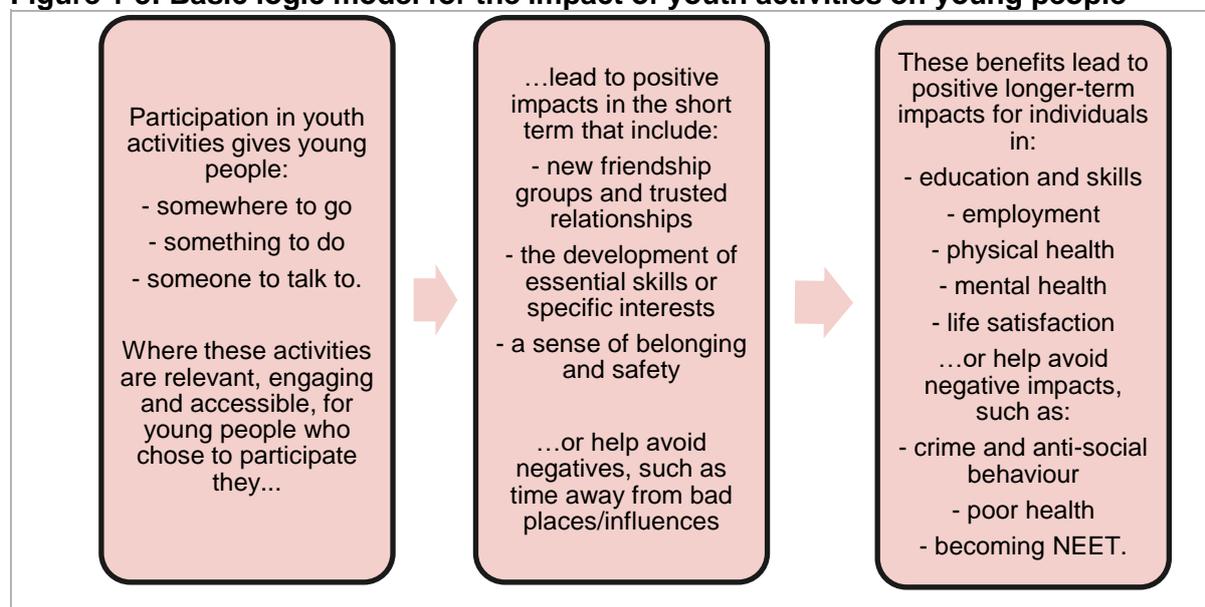
- leads to a wide range of positive benefits for young people across outcomes covering education, skills and employment, physical and mental health, and life satisfaction, and

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- helps avoid negatives such as being a victim of crime.

1.16 Effects will vary by individual and area, reflecting levels and intensity of engagement, and accessibility to quality provision.

1.17 The short-term effects are those positive aspects associated with immediate 'rewards' due to feeling more confident, making new friends, feeling safer, healthier and more active, experiencing a sense of belonging, and building relationships with trusted adults. Such short-term effects can be reinforced through involvement from young people's networks, their friendship groups, siblings, peers, and families. Effects can also be felt by their collective wider communities including teachers and tutors, families, local businesses and other local community groups. Figure 1-3 summarises this basic 'logic model' for the impact of youth activities on young people.

Figure 1-3: Basic logic model for the impact of youth activities on young people

Participation in youth activities gives young people:

- somewhere to go
- something to do
- someone to talk to.

Where these activities are relevant, engaging and accessible, for young people who chose to participate they...

…lead to positive impacts in the short term that include:
- new friendship groups and trusted relationships
- the development of essential skills or specific interests
- a sense of belonging and safety

…or help avoid negatives, such as time away from bad places/influences

These benefits lead to positive longer-term impacts for individuals in:
- education and skills
- employment
- physical health
- mental health
- life satisfaction
…or help avoid negative impacts, such as:
- crime and anti-social behaviour
- poor health
- becoming NEET.

Source: SQW

1.18 In the context of this study, these hypotheses are subject to several caveats. Namely:

- The effects of engaging in youth activities are highly subjective and individualised. For some young people the effect might be neutral or minimal; for others, it is life changing

- Changes experienced by young people who engage in youth activities might be attributed to a wide range of other factors in addition to their participation

- The effects of non-participation in youth activities are equally difficult to articulate because they relate to highly individualised and subjective scenarios either where good things did not happen, or bad things did

- Less than a third of young people regularly access youth work and the profile of participants is not necessarily representative of all young people. Those with higher social support may be more likely to attend (such as parent facilitated enrichment) and those with

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fewer forms of other support may also be more likely to attend because their needs are higher or they are recruited to targeted interventions.

1.19 These aspects of impact identification and attribution notwithstanding, the impacts that are associated with youth activities include short-term effects of involvement alongside longer-term effects.

1.20 Following a scoping review of available data and keeping in mind the logic model set out, above, in consultation with DCMS and the Youth Panel, we selected six outcome areas (Table 1-2):

Table 1-2: Outcome areas of interest

Area	Examples of associated metrics
1. Educational outcomes	• Highest qualification • Intention to undertake further study
2. Employment / career pathways	• Current economic activity • Number of periods of unemployment • Earnings
3. General health	• Self-assessment of general health
4. Mental health	• Whether experiencing low mood or depression • Whether struggling with other conditions, including anxiety, etc.
5. Life satisfaction and wellbeing	• Self-assessed life satisfaction / wellbeing
6. Crime and anti-social behaviour	• Truancy/absence from school • Suspensions and expulsions from school • Contact with the police (formal caution, arrest) • Instances of stealing or vandalism • Carrying weapons • Gang membership • Frequency of alcohol and drug use

Source: SQW and UoE

1.21 The exact outcome measures that were used varied across the datasets due to the differences in the study questionnaires. The full sets of indicators we considered for the final analysis in each of the datasets are presented in Section 3.[12]

1.22 For later life outcomes, we focussed on observations at a time when the respondents were as close to 30 years old as possible in each study. The main reason for this decision was the desire to make the results we obtain from different datasets as comparable as possible while allowing enough time for outcomes (such as educational pathways) to manifest. This is a different approach to that adopted in other comparable studies. For example the two studies on the effects of attending Scouts-Guides mentioned in the introduction looked at the effects at 50 years old. In our analysis only one dataset would allow us to analyse outcomes at 50 (BSPC70) limiting any comparisons across the datasets. Considering the differences in the

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[12] Some outcome measures had to be excluded or combined with others due to sample size considerations.

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nature of activities that 50-year-olds engaged in as young people, in contrast with contemporary youth activities, we determined that considering the effects at the age of 50 was out of scope for this study.

1.23 We decided to focus our analysis on the effects of 'frequent' attendance, i.e. at least weekly, since the effects of less frequent participation are likely to be harder to detect.[13]

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[13] As an additional robustness check we also carried out the analysis using an 'infrequent' definition i.e. attending a youth club at least once in the last 12 months. The results were broadly similar but, as expected, being somewhat less pronounced.

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2. Our approach to analysing the datasets

Key points

- The datasets analysed as part of this research project used two different definitions of youth activities in scope: BCS70, Next Steps and ALSPAC asked respondents about attending *youth clubs;* MCS and UKHLS used a broader definition that included *youth clubs, scouts, girl guides or other organised activities.*

Table 2-1: The ages at which we were able to analyse the outcomes in each datasets

Study	Age that contemporaneous outcomes were measured (years)	Age that outcomes later in life were measured (years)
ALSPAC	16	25-26
BCS70	16	26 and 30
MCS	14	17
Next Steps	16	24-25
UKHLS	10-16	16, 20 and 24

- We adopted a systematic step-by-step approach to the analysis across datasets:
  a) Descriptive analysis
  b) Analysis of predictors of youth participation
  c) Analysis of attrition in the data on later life outcomes (and statistical correction)
  d) Statistical matching to reduce the bias from systematic differences in characteristics between those who attended youth clubs and those who did not
  e) Analysis of outcomes
  f) Interpretation and triangulation of findings

- The same general methodology was applied across all five datasets, to account for the following personal and familial characteristics: gender, ethnicity, geographical region and local area (e.g., neighbourhood safety), household composition, family background (e.g., parental income and/or social class/occupation), school characteristics, and parental aspirations. This approach was tailored with model specifications that were dataset-specific to make maximum use of the available data

- We considered all results significant at the 10% level to be of interest, and explain the rationale for this, below. Where relevant, we indicated which findings were significant at the 5% level and which were at the 10%

- Our analysis did not establish a direct causal relationship but rather uncovered statistical associations. Controlling for observable characteristics helped to isolate the effect of youth clubs/activities (to a certain degree) but did not establish causality.

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Introduction to the datasets

2.1 In Table 1-1, above, we presented the datasets we have included in our study. Table 2-2, below, summarises how these define 'youth activities'. The different datasets ask about participation in different ways and over different time periods:

- BCS70, Next Steps and ALSPAC are well aligned on the definition of youth participation recorded in the data – they asked participants about attendance at youth clubs. MCS and UKHLS are aligned with each other but use a broader definition of participation: 'youth clubs, scouts, girl guides or other organised activities'

- The questions that were asked in each of the studies varied substantially, both in terms of the reference period (e.g. the last 12 months vs current school year) and, most importantly, in the breadth of the definition.

2.2 This variation in the questions could be driven, at least partly, by the changes in youth provision and the funding landscape over time. In the mid-1980s when participants in the BCS70 cohort were going to youth clubs a much larger share of youth services was publicly funded compared to the mid-2010s when the MCS cohort would be accessing youth provision.

2.3 Pre-empting the discussion of our findings, we note changes in the funding landscape and types of activities offered through youth services may have an important role in explaining the differences in results across the studies (i.e. the cohort effects). These differences are especially pronounced in the characteristics of young people who were attending the youth clubs: for example, in BCS70 it was a group of people from lower social class families whereas the opposite was true in MCS.

Table 2-2: Questions used in the datasets to measure participation in youth activities

Study / dataset	Question to young people recording youth activities in scope
Avon Longitudinal Study of Parents and Children (ALSPAC)	During this school year, have you taken part in youth clubs where you can hang out with other people (inside or outside school)?
British Cohort Study (BCS70)	Have you been to a youth club(s) in the past 12 months? On how many occasions have you been?
Millennium Cohort Study (MCS)	How often do you go to youth clubs, scouts, girl guides or other organised activities?
Next Steps Generational Study (Next Steps)	In the last 12 months have you been to a youth centre or youth club of any kind? How often do you usually go to youth centres or youth clubs nowadays?
Understanding Society (UKHLS)	How often do you go to youth clubs, scouts, girl guides or other organised activities?

Source: SQW and UoE

2.4 When analysing later life outcomes the 'target' age of respondents was as close to age 30 years as permitted by the dataset. Table 2-3 shows, below, this varied between datasets and in one case (MCS), the closest relevant observations are for young people aged 17 years.

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Table 2-3: Overview of dataset coverage

Dataset	Study type	Year of participants birth	Ages of participants when they answered questions relevant to this research	Geographic coverage
Avon Longitudinal Study of Parents and Children (ALSPAC)	Cohort study	1991 – 1992	Later life outcomes: **25/26 years** (2017)	Bristol area (South West of England)
British Cohort Study (BCS70)	Cohort study	1970	Contemporaneous outcomes: **16 years** (Wave 4, 1986) Later life outcomes: **26 years** (Wave 5, 1996) and **30 years** (Wave 6, 2000)	England, Scotland and Wales
Millennium Cohort Study (MCS)	Cohort study	2000 – 2002	Contemporaneous outcomes: **14 years** (Wave 6, 2015) Later life outcomes: **17 years** (Wave 7, 2018)	England, Scotland, Wales and Northern Ireland
Next Steps Generational Study (Next Steps)	Cohort study	1989 – 1990	Contemporaneous outcomes: **16/17 years** (Wave 4, 2007) Later life outcomes: **24/25 years** (Wave 8, 2015)	England
Understanding Society (UKHLS)	Household panel study	1999 – 2009	Contemporaneous outcomes: **10-16 years** (the data collection wave varies across individuals) Later life outcomes: **16 years, 20 years** and **24 years** (the data collection wave varies across individuals)	England, Scotland, Wales and Northern Ireland

Source: SQW and UoE

Analytical approach

2.5 We conducted our analysis in six stages as set out below:

1. **Descriptive analysis.** The first step of the analysis provided insights into the differences in take-up of youth club-based activities across different generations and shed light on the existence of any systematic differences between participants and non-participants within each study.

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2. **Analysis of predictors of youth club participation.** The second step provided insights into characteristics associated with youth club participation (i.e. the profile of youth club participants within each study), and delivered the answer to the first research question.

3. **Analysis of attrition.** The third step was necessary to determine whether to use additional methods to control for sample selection. If young people with a particular set of characteristics are more likely to drop out of the study (for example those attending youth clubs) the results may be skewed. Generally, we found attrition unlikely to introduce a bias into our analysis, with youth club participation being uncorrelated with dropping out of the study. However, in the cases where there was some indication that attrition could be creating a bias, we used a standard statistical correction procedure (the Heckman correction) and compared the two sets of results. In all cases the results proved to be consistent across the 'corrected' and 'non-corrected' specifications.

4. **Statistical matching.** In the fourth step of the analysis, we applied a statistical matching technique (Propensity Score Matching) to select a tailored comparison group of non-participants with similar characteristics to those young people attending youth clubs. The purpose of restricting the comparison group in this way was to reduce bias resulting from systematic differences between participants and non-participants in youth clubs (selection bias). We also carried out our analysis on both unmatched (full)[14] and matched samples and triangulated the findings.

5. **Analysis of outcomes.** The fifth step sought to uncover the relationships between youth participation and outcomes of interest. Most of the outcome measures we considered were binary (yes/no), captured using Logit models. These models showed whether participating in youth clubs was statistically linked to 'higher' or 'better' outcomes (examples include a higher level of education, self-reported life satisfaction, or salary uplift). In other words, whether according to the data and those 'better' outcomes were more likely to be observed among youth club attendees and by how much. For continuous measures (such as weekly earnings) the results were obtained using linear regressions and indicated whether there was a statistical association as well as the magnitude of the effect (i.e. how much higher/or lower the average outcome was for young people who attended youth clubs compared to those who did not).

   ➤ Even though the exact model specifications varied, in broad terms we accounted for the following personal and familial characteristics: gender, ethnicity, geographical region (including breakdown by nation in datasets with UK-wide coverage) and local area (e.g., neighbourhood safety), household composition, family background (e.g., parental income and/or social class/occupation), school characteristics, and parental aspirations[15]

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[14] When 'full' datasets were analysed the outcomes were compared across all respondents in the dataset for whom the data was available.

[15] We used tailored model specifications for different datasets to make the maximum use of the data available in each dataset.

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6. The final step in our approach involved triangulation of findings. Points we considered at this stage included (but were not limited to) the following:

> Was it likely that the differences in sample composition were driving the results?

> Could the differences in the definitions of youth activities across the datasets, as well as respondents' interpretations, explain the variation in results?

> As our datasets spanned multiple decades, how important was the change in the profiles of youth club participants over time for explaining the effects youth activities had on their lives?

> Did short-term outcomes translate into long-term impacts?

Data limitations

2.6 The five longitudinal datasets that were analysed in preparation of this report are rich and comprehensive studies of their respective research participants. Nevertheless, none of them are without their limitations for the purposes of our research. The main issues are related to attrition levels (people dropping out of the study completely) and missing responses (research participants not responding to some questions). Even though these were found unlikely to bias the results (as discussed above) they reduced the sample sizes available for analysis lowering the precision of our estimates. Given that none of the studies were purposefully designed to investigate the effects of youth provision, the variation in questions (even within one study) also creates challenges for analysis and interpretation. Furthermore, and as our overview shows, above, the datasets cover different time periods, age groups and intervals for outcome observation. We highlight each dataset's key attributes in Annex A.

Interpreting the results

2.7 Findings presented in this report are based on results of robust statistical analysis. However, care and caution are needed when considering and interpreting those results. Specifically, we emphasise the following points in relation to the concepts of *statistical significance* and *causality*:

- **Despite the fact the analysis considers outcomes at the individual level, the concept of statistical significance is about the *averages*,** i.e. are the outcomes on average better or worse for those attending the youth clubs? Absence of the relationship on average does not mean the effect is absent for everyone. Statistical insignificance may reflect high heterogeneity in outcomes driven by individual circumstances.

- **Our analysis does not establish a direct causal relationship but rather uncovers statistical associations** (if they are present). Attending youth clubs is likely to be one of many contributing factors affecting the outcomes in which we are interested. Controlling for observable characteristics helps to isolate the effect of attendance but does not categorically establish causality.

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- The results of the analysis of contemporaneous outcomes (at the time of attending youth clubs) should be interpreted keeping in mind the possibility of a '**reverse causal link**.' For example, a young person may start going to youth clubs regularly because they or their parents see it as a way to 'keep them out of trouble;' or because the young person or their parents see youth provision as aspirational in and of itself.[16]

- **We used the statistical significance level of 10%.** The level of statistical significance represents the probability of us being wrong if we conclude that a relationship exists. Given it is likely that other factors beyond participating in youth clubs (such as socio-economic background, personal interests and aspirations, positive and negative life-changing events, etc.) are at least as important for determining life outcomes, we considered all results significant at the 10% level to be of interest. In the following sections, where relevant, we indicate which findings were significant at the 5% level and which were at the 10%.[17]

- **We acknowledge that our work involved a large number of estimations** and using the relatively high threshold for statistical significance (10% compared to 5%) can increase the risk of some relationships appearing statistically significant purely by chance. We therefore spent extra time triangulating the findings and determining whether the results appear to fit into patterns emerging from each of the datasets individually as well as from looking across them. We also explored emergent findings with the wider research team and Youth Panel in order to ensure our interpretation of results was plausible.

2.8 The following section presents the results of our analysis.

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[16] From a statistical point of view, if the reverse link exists, the obtained estimate of the effect is a weighted average between the impact of youth clubs on the outcome and the reverse influence. However, the weights cannot be recovered. Our ability to address this issue using statistical approaches, such as instrumental variables, is limited by the lack of valid instruments at our disposal. In this context, valid instruments would be variables highly correlated with participation in youth activities but not affected by the reverse influence of contemporaneous outcomes.

[17] Many academic studies focused on analysing ex-ante stronger relationships adopt a stricter 5% level of statistical significance. Precise p-values can be found in A.1.

3. Five datasets: Results of analysis

Key points

- The reported proportion of young people participating in youth clubs weekly has increased over time, from c. 20% (BCS70) to c. 35% (MCS and UKHLS). However, this result may be largely driven by the fact that more recent datasets adopted a wider definition of participation

- The cohort studies (the details of which are outlined in Table 2.2, above) showed that young people with the following characteristics were more likely to participate in youth club activities on a weekly basis:
  - BCS70: young men, lower parental income and social class, lower standardised reading scores
  - Next Steps: young men, ethnic minorities
  - MCS: White and Black Caribbean, safe neighbourhoods, parents with higher income, higher education level and social class, in devolved nations
  - UKHLS: White British, from families with higher income, married or cohabiting parents and parents involved in volunteering activities

- At the time of attending youth clubs, regular attendees were more likely to:
  - BCS70: be involved in a fight, steal and interact with police
  - Next Steps: do sports weekly, not to consume alcohol weekly, carry a knife
  - MCS: not to be truant, not to drink alcohol or take illegal drugs, be in good health (physical and mental)
  - UKHLS: not to be truant, not to consume alcohol, aspire to go to university, be in good health (physical and mental)

- Later in life those who participated in youth clubs were more likely to:
  - BCS70: (30 yrs.): have interacted with police since the age of 16
  - Next Steps (24-25 yrs.): have higher education, not take illegal drugs, have lower earnings
  - MCS (17 yrs.): be in good health, have a qualification and a paid job
  - UKHLS: (at 16 yrs.) to be a part of an organisation, want to go to university be in good physical health; (at 20 yrs.) be in education, volunteer

- Some of these findings need to be understood within the context of the way questions were phrased, or the duration between contemporaneously reported effects and those observed later in life

- Our analysis of ALSPAC data did not reveal any statistically significant relationships between participating in youth clubs and outcomes of interest

- There was no evidence to confirm the existence of consistent differences in the benefits from youth clubs for young people from more or less well-off families.

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Introduction

3.1 In this section we present our findings from each of the datasets. The section is structured the following way:

1. First, for each dataset, we present the results in relation to the differences in observable characteristics between those who attended youth clubs and those who did not, and in their life outcomes,[18] focusing on statistically significant results.

2. Then we provide our reflections and a short summary of the 'story' told by each of the longitudinal studies.

3.2 In tables throughout this section the colour green is used to highlight a 'positive' or beneficial outcome; yellow is used to highlight a 'negative' outcome. The level of statistical significance is indicated with asterisk(s) – one for the 10% level, and two for maximum 5% level.

3.3 Annex A presents further detail on each dataset's content. Annex B presents additional outputs from our statistical analyses.

British Cohort Study (BCS70)

Predictors of youth participation

3.4 Our analysis of predictors of youth participation suggests that the profile of youth club participants in BCS70 was skewed towards those from less affluent households in terms of parental income and occupation. Youth participants also tended to be male, have lower vocabulary test scores and more younger siblings. Those going to an independent school were less likely to participate in youth clubs.

3.5 The participation rate observed in this dataset was 18% i.e. 18% of young people reported attending youth clubs at least once a week. Table 3-1 presents the breakdown of participation rate by key background characteristics of young people (where we observed statistically significant differences between participants and non-participants).

Table 3-1: Categorical predictors of youth participation, British Cohort Study

	Frequently attended youth clubs
Gender	
Men	19%

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[18] Most figures in tables with results demonstrate the expected change in the likelihood of reporting an outcome that is associated with participation in youth clubs (controlling for personal and familial characteristics). Results in relation to continuous outcomes, such as earnings, demonstrate the differences between the average values for those who attended youth clubs weekly and those who did not. Where relevant, the results are presented for both the unmatched (full) sample as well as for a smaller sub-sample where the imbalances in background characteristics between participants and non-participants were reduced using statistical matching. The 'n' number in the tables shows the number of observations used in that particular statistical model. The number of observations varied across models due to missing responses.

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	Frequently attended youth clubs
Women	17%
Combined income of parents per week[19]	
<£50	24%
£250-299	16%
£ 300-349	14%
£ 350-399	13%
£ 400-449	12%
£500 and over	11%
Father's occupation	
Partly skilled	19%
Skilled – manual	17%
Skilled – non-manual	18%
Professional	13%
Going to independent school at 16	
Yes	7%
No	22%
Have two or more younger siblings	
Yes	21%
No	16%
Whole sample average	18%

Source: SQW
Note: The table includes only those categories where the estimation showed statistically significant differences.

3.6 Table 3-2 demonstrates the difference in reading scores between participants and non-participants – 0.3 of a standard deviation observed in the whole sample.[20] Differences of such magnitude are often considered to be 'medium' or 'sizable.'[21]

Table 3-2: Continuous predictors of youth participation, British Cohort Study

	Frequently attended youth clubs	Did not frequently attend youth clubs
Mean standardised vocabulary test scores at 16 (st. dev from the mean)	-0.19	0.10

Source: SQW

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[19] Measured in 1986 prices, as recorded in the original data at the time of fieldwork.
[20] In a standardised metrics, roughly 70% of all observations lie within one standard deviation of the mean.
[21] Sawilowsky, S.S., 2009. New effect size rules of thumb. *Journal of modern applied statistical methods*, 8(2), p.26.

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Youth provision and life outcomes

Effects on contemporaneous outcomes

3.7 In BCS70, participation in youth clubs was statistically associated with anti-social behaviour outcomes. In particular, youth club participants were more likely to have been in a fight, to have interacted with the police and to have stolen something. The patterns were similar for the matched and unmatched samples (an explanation of matching is given in section 2). In the matched sample, youth club attendees were around a third more likely to have experienced these outcomes. In tables throughout this section the colour green is used to highlight a 'positive' (/beneficial) outcome; the colour yellow is used to highlight a 'negative' outcome.

Table 3-3: Estimated statistically significant effects on contemporaneous outcomes

Outcome area/measure	Unmatched sample	Matched sample
Crime and anti-social behaviour		
Been in a fight	15% non-participants 21% youth club participants n= 2,256, **	17% non-participants 22% youth club participants n= 777, *
Interacting with police since age 10	31% non-participants 43% youth club participants n= 2,524, **	35% non-participants 45% youth club participants n= 867, **
Committed theft	29% non-participants 33% youth club participants n= 2,264, *	27% non-participants 35% youth club participants N= 764, **

Source: SQW
*Note: ** 5% significance, *10% significance;*
The colour green is used to highlight a 'positive' (/beneficial) outcome; the colour yellow is used to highlight a 'negative' outcome.

Effect on outcomes later in life

3.8 At 30 years, youth club participants were more likely to have interacted with the police. However, the question in the study was phrased in a way that covered the period since the previous questionnaire (age 16 years). Considering our findings regarding contemporaneous effects presented above, it is impossible to definitively say whether we captured a true 'later life' link.

3.9 Across all other areas of interest (such as education, employment or health), there were no statistically significant differences between participants and non-participants.

Table 3-4: Estimated statistically significant effects on outcomes at 26 and 30 years

Outcome area/measure	Unmatched sample	Matched sample
Crime and anti-social behaviour		
Interacting with police since age 16 (at age 30)	18% non-participants 23% youth club participants	19% non-participants 24% youth club participants

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Outcome area/measure	Unmatched sample	Matched sample
	n= 2,247, **	n= 771, *

<div align="right">Source: SQW</div>
<div align="right">Note: ** 5% significance, *10% significance;</div>
<div align="right">The colour green is used to highlight a 'positive' (/beneficial) outcome; the colour yellow is used to highlight a 'negative' outcome.</div>

Reflections

3.10 In BCS70, the profile of youth club participants was skewed towards young people from poorer households and those with lower school performance (at the time of participation). The observed 'negative' contemporaneous outcomes associated with youth participation are therefore likely to be a reflection of the profile of participants rather than a result of their involvement in youth activities. In fact, in relation to most outcomes in later life, we observed no statistically significant differences between the groups of participants and non-participants. Young people from disadvantaged backgrounds tend on average to experience worse outcomes than their more affluent peers. Therefore, this 'convergence' of outcomes *could* be interpreted as a 'reduction in negatives,' indirect evidence for positive long-term-effects from youth participation (given the initial socio-economic imbalance between the groups).

Next Steps Study

Predictors of youth participation

3.11 Overall, the data suggests that, in the population covered by this study, minority ethnic young men were the dominant group in youth clubs (in terms of numbers). The average participation rate observed in the sample was 7% i.e. 7% of young people went to youth clubs on a weekly basis. The analysis of personal and familial characteristics that could be linked to youth participation revealed that participants and non-participants had fairly similar characteristics, with the exception of the gender and ethnic balance. Table 3-5 illustrates the statistically significant imbalances:

Table 3-5: Gender and ethnic imbalance in youth participation, Next Steps

	Frequently attended youth clubs
Gender **	
Men	8%
Women	5%
Ethnicity *	
White	5%
Bangladeshi	15%
Black	13%
Pakistani	11%
Sample average	7%

<div align="right">Source: SQW</div>
<div align="right">Note: The table includes only those categories where the estimation showed statistically significant differences.</div>

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3.12 A weaker predictor of youth participation was young people's number of siblings: those with no siblings were less likely to participate in youth clubs – only 5% of them did. This factor was also statistically significant, at the 10% level (while the gender and ethnic differences were significant at the 5% level).

Effects on contemporaneous outcomes

3.13 The data suggest that young people from the Next Steps study who frequently attended youth clubs had a healthier lifestyle – they were c. 10% less likely to consume alcohol and c. 10% more likely to participate in weekly sports activities. Though somewhat surprisingly they were also more likely to carry a knife. The absolute value of the latter effect is small – youth club participants were only a few percentage points more likely to report such a behaviour.

3.14 Considering only c. 5% of the sample carried a knife, we hypothesised that the result could be driven by several 'random responses' or by 'anti-socially inclined' sub-groups of study participants. However, a further investigation provided no evidence of this: there were no clear patterns linked to the levels of deprivation, parental socio-economic class or income. Table 3-6 presents statistically significant associations between youth club participation and youth outcomes.

Table 3-6: Estimated statistically significant effects on contemporaneous outcomes

Outcome area/measure	Unmatched sample	Matched sample
General health		
Weekly sport activity	57% non-participants 64% youth club participants n= 8,650, **	60% non-participants 66% youth club participants n= 1,082, **
Anti-social behaviour		
Frequent consumption of alcohol	33% non-participants 29% youth club participants n= 8,386, *	30% non-participants 24% youth club participants N= 1,042, **
Carrying a knife	5% non-participants 6% youth club participants n= 8,527, *	4% non-participants 7% youth club participants n= 978, **

Source: SQW
Note: ** 5% significance, *10% significance;
The colour green is used to highlight a 'positive' (/beneficial) outcome; the colour yellow is used to highlight a 'negative' outcome.

Effect on outcomes later in life

3.15 According to the data, the positive association between youth club participation and healthier lifestyle can also be traced to later life outcomes. The finding that youth club participants had lower earnings may be misleading (or easily misinterpreted). Given there is some evidence that youth club participants were more likely to get a university degree, it is possible that their

earnings would have been on a higher growth trajectory and when the next data sweep becomes available this result may be reversed.

3.16 Table 3-7 shows statistically significant links between youth participation and later life outcomes (at the age of 24 – 25 years).

Table 3-7: Estimated statistically significant effects on outcomes at 24 - 25 years old

	Full sample	Matched sample
Education		
Has higher academic education (NVQ4+)		38% non-participants 46% youth club participants n= 618, **
Employment		
Average weekly earnings	-6% n= 3,670,*	-9% n= 428, *
Anti-social behaviour		
Taken illegal drugs in the 12 months prior to the survey	20% non-participants 16% youth club participants n= 4,781, *	

Source: SQW
*Note: ** 5% significance, *10% significance;*
The colour green is used to highlight a 'positive' (/beneficial) outcome; the colour yellow is used to highlight a 'negative' outcome.

Reflections

3.17 In the Next Steps study the groups of participants and non-participants in youth clubs appear much more balanced on their background characteristics (compared to BCS70). At the time of youth provision the participants led a healthier life – the difference that persisted into their mid-20s. Overall, the youth provision appears to be associated with 'the good things' sticking in the longer term, especially if the hypothesis about the wage growth and reversal of the result on weekly earnings at 25 years old (as a result of university participation) gets confirmed through further research.

Millennium Cohort Study (MCS)

Predictors of youth participation

3.18 Our analysis of personal and familial characteristics pointed to the profile of participants in youth activities being skewed towards young people from more affluent families, living in safe neighbourhoods, with parents with higher education and from higher socio-economic classes, who were expecting their children to be in full-time education at 16. Youth participation was less prevalent among some ethnic minorities. Across the UK, young people in the devolved nations, especially Northern Ireland, were more likely to be involved in youth activities than those in England. This is consistent with youth work funding patterns in the last 15 years: N.I.

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statutory youth work funding has been largely protected (with contribution from peace building funds) whilst England has seen dramatic reductions in funding. Table 3-8 presents the subgroup breakdown of youth participation rate observed in the sample. Overall, 38% of the sample participated in youth clubs and other forms of organised activity on a weekly basis.

Table 3-8: Categorical predictors of youth participation, MCS

	Likelihood of frequently attended youth activities
Ethnicity	
White	40%
Indian	29%
Pakistani	20%
Bangladeshi	22%
Black Caribbean	42%
Country	
England	34%
Wales	38%
Scotland	45%
Northern Ireland	52%
Gender	
Men	38%
Women	37%
Neighbourhood safety	
Very safe	41%
Safe	36%
Not very safe	33%
Natural father in household	
Yes	40%
No	32%
Parents would like the respondent to continue in full-time education at 16	
Yes	38%
No	33%
Parental NVQ level	
NVQ1	30%
NVQ2	34%
NVQ3	38%
NVQ4	42%
NVQ5	46%

	Likelihood of frequently attended youth activities
Parental socio-economic class	
Managerial and professional	45%
Intermediate	38%
Semi-routine and routine	34%
Sample average	38%

Source: SQW

Note: The table includes only those categories where the estimation showed statistically significant differences.

Table 3-9: Continuous predictors of youth participation (income), MCS

Frequently attended youth activities	Mean family weekly income (OECD equivalised)[22]
Yes	£446
No	£391

Source: SQW

Effects on contemporaneous outcomes

3.19 The data suggest that young people in MCS who frequently attended youth clubs were less likely to engage in anti-social behaviour and crime such as school truancy, drinking alcohol, taking illegal drugs or stealing. Participants in youth activities were also less likely to feel unhappy or miserable and more likely to be in good physical health (although the magnitude of the effect is not large given that the vast majority of young people reported being in good health). These patterns remained consistent across both the full (unmatched) and matched samples (Table 3-10).

Table 3-10: Estimated statistically significant effects on contemporaneous outcomes, MCS

Outcome area/measure	Unmatched sample	Matched sample
Crime and anti-social behaviour		
Missing school without permission	10% non-participants 7% youth club participants n= 10,123, **	10% non-participants 7% youth club participants n= 7,763, **
Drinking alcohol - never or almost never	77% non-participants 80% youth club participants n= 9,972, **	76% non-participants 80% youth club participants n= 7,708, **
Stealing from a shop	4% non-participants 3% youth club participants n= 9,944, **	4% non-participants 3% youth club participants n= 7,639, **

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[22] Equivalised income is a measure of household income that takes account the differences in households' size and compositions.

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Outcome area/measure	Unmatched sample	Matched sample
Taking cannabis or any other illegal drug	5% non-participants 4% youth club participants n= 9,998, **	5% non-participants 3% youth club participants n= 7,663, **
General health		
Being in good, very good or excellent health	86% non-participants 90% youth club participants n= 10,133, **	87% non-participants 91% youth club participants n= 7,769, **
Mental health		
Feeling unhappy or miserable	61% non-participants 59% youth club participants n= 9,987, *	61% non-participants 58% youth club participants n= 7,679, **

Source: SQW
Note: ** 5% significance, *10% significance;
The colour green is used to highlight a 'positive' (/beneficial) outcome; the colour yellow is used to highlight a 'negative' outcome.

Effects on outcomes later in life

3.20 As the latest available MCS data is from 2018, we were only able to study outcomes three years after participation in youth activities. The analysis suggests participants experienced better physical health and were more likely to have an education qualification at age 17 years. The effects were, however, relatively small in both absolute and relative terms as both outcomes were common across the whole sample.

Table 3-11: Estimated statistically significant effects on outcomes at 17 years old, MCS

Outcome area/measure	Unmatched sample	Matched sample
Employment / career pathways		
Currently doing any kind of paid job	39% non-participants 45% youth club participants n= 7,755, **	40% non-participants 47% youth club participants n= 6,063, **
Educational outcomes		
Having a qualification	97% non-participants 98% youth club participants n= 8,041, **	
General health		
Being in good, very good or excellent health	93% non-participants 94% youth club participants n= 8,244, **	94% non-participants 95% youth club participants n= 6,406, **

Source: SQW
Note: ** 5% significance, *10% significance;
The colour green is used to highlight a 'positive' (/beneficial) outcome; the colour yellow is used to highlight a 'negative' outcome'.

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Youth provision and life outcomes

3.21 Participation in youth activities was also associated with having a paid job at 17 years. Importantly, as shown in Table 3-12, being in employment was not a substitute for education. In fact, the proportion of those with a job and going to school or college was higher among youth club participants than non-participants.

Table 3-12: Education status of those doing a paid job at 17 years old, MCS

	Doing any kind of paid job
Participation in youth activities	
Non-participants	93% going to school or college
Youth club participants	95% going to school or college

Source: SQW

Reflections

3.22 Our analysis of predictors of youth participation suggests those attending youth activities in the Millennium Cohort Study tended to be from more affluent backgrounds, which contrasts with earlier cohorts, particularly BCS70. Moreover, young people in the devolved nations had higher participation rates, possibly linked to differences in youth provision funding across the UK and funding decisions made in devolved nations.[23]

3.23 At the time of youth participation (14 years old), participants were more likely to experience 'good outcomes' such as good health and avoid 'bad outcomes' such as different types of anti-social behaviour – likely reflecting their socio-economic profile. 'Good outcomes' carried into the future, with participants continuing to experience better health. At age 17 years, they were also more likely to have obtained an education qualification and to have a paid job (while still being in education) – possibly pointing to greater independence and self-reliance developed through participation in youth activities.

Understanding Society (UKHLS)

Predictors of youth participation

3.24 In line with what we observed in MCS, the demographics of frequent youth club attendees in UKHLS appear to be skewed towards young people from well off families. Non-separated parents, higher household income and being white were all found to be associated with a higher likelihood of going to youth clubs.

3.25 This dataset was the only one that provided us with insights into the age profile of youth club participants (because the study covers young people of different ages rather than a cohort of the same age). Among the study participants the rate of weekly youth club participation decreases monotonically with age from 49% at 10 years old to 27% at 15. This is a statistically

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[23] YMCA (2023) *Generation Cut: A research report into youth work funding disparities across England and Wales.* Available at: https://www.ymca.org.uk/generation-cut

significant pattern. Other statistically significant predictors of frequent youth participation included: gender, ethnicity, parental marital status, whether they volunteer and household income. Descriptively, there was also a difference in the participation rates between rural and urban areas. The differences between participants and non-participants on these characteristics are summarised in Table 3-13 and Figure 3-1. Overall, across the whole sample 37% of young people weekly engaged with youth clubs or in other forms of organised activity.

Table 3-13: Predictors of youth club participation, Understanding Society

Characteristic	% attending youth clubs weekly
Age**	
10	49%
11	44%
12	39%
13	35%
14	31%
15	27%
Gender*	
Male	40%
Female	37%
Ethnicity	
White British	42%
Mixed	35%
Black**	32%
Asian**	22%
Other	41%
Parental marital status	
Married/cohabiting	40%
Previously partnered*	35%
Single**	31%
Parents volunteers**	
Yes	48%
No	35%
Urban/Rural residence	
Rural	43%
Urban	37%
Sample average	37%

Source: UoE
Note: The table includes only those categories where the estimation showed statistically significant differences.

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Figure 3-1: Youth participation vs parental income
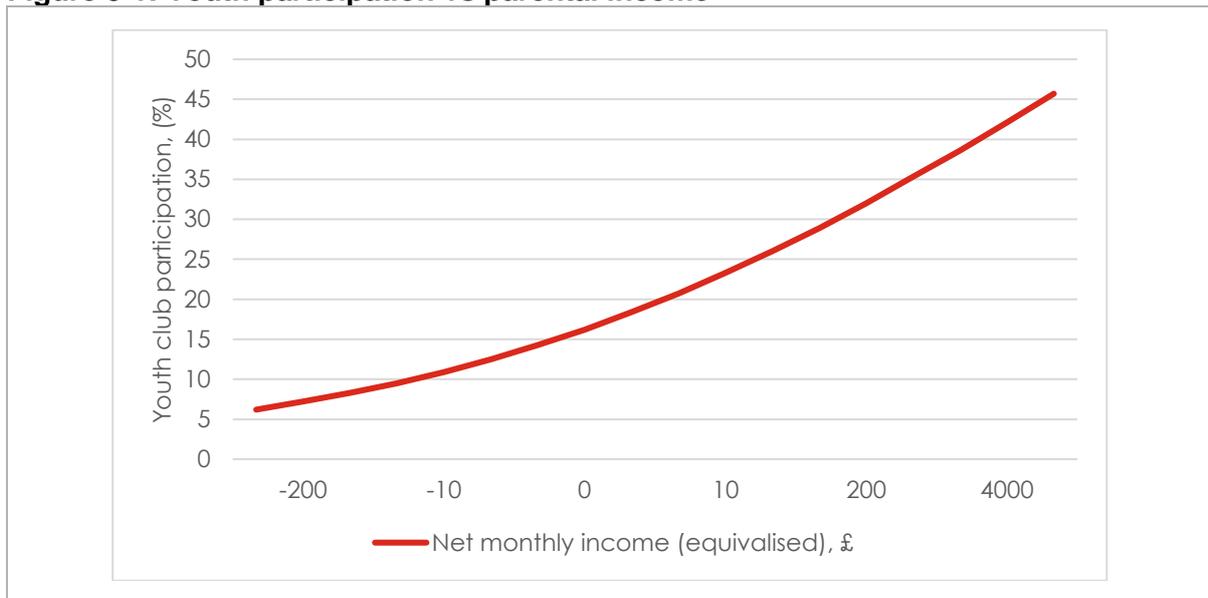
Source: UoE

Net monthly income includes negative values in cases where expenditure exceeds income. The relationship is significant at the 5% level.

3.26 We note the strong relationship between net monthly parental income and youth participation rates. Importantly, having a very low income does no deter all activity, presumably because at least some provision is free. However, being both able to attend (because disposable income enables payments of subscriptions, trips, uniforms, etc.) and expected to attend (due to parental or peer encouragement) appears to stimulate participation.

Effects on contemporaneous outcomes

3.27 The data on outcomes from the time when young people were first asked about their participation in youth clubs suggests that those who attended at least weekly were more likely to want to go to university, had better self-rated health and better self-esteem and were less likely to have played truant. There were no differences in the proportion of young people who had ever drank or used drugs between those who did or did not attend youth clubs weekly.

3.28 We observed similar patterns in the data from their last year in the youth panel, when they were asked these questions again, as well as some new ones. Differences in self-rated health and truancy remained the same. However, no differences were now observed between young people who participated in youth clubs weekly and those who did not for self-esteem scores nor wanting to go to university. These results could partly be due to the changing composition of the two groups: a larger proportion of younger people (ages 10-12) went to youth clubs and perhaps knew they would want to go to university; a smaller proportion of 15-year-olds were attending the clubs, meaning that some participants 'transitioned' to the non-participants group reducing the differences between the two groups.

3.29 While overall measures of mental health did not differ between youth club participants and those who did not regularly attend youth clubs, there were some differences in specific

domains of mental health. For example, regular participants had higher prosocial scores and lower emotional symptoms scores compared to those who were not regular participants.[24] Both of these differences indicate that regular youth club participants had better mental health with respect to these domains.

3.30 Table 3-14 shows statistically significant relationships between youth club participation and short-term outcomes.[25]

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[24] A standard Strength and Difficulties Questionnaire (SDQ) has 25 items: five to asses emotional symptoms of mental challenges, five items to identify conduct problems, five for hyperactivity and inattention, five dedicated to peer relationship problems and five indicators of prosocial behaviour. A higher score on the first four measures are indicative of mental challenges. A higher score on the fifth scale is a positive outcome. For more detail see, for example, https://www.sdqinfo.org.

[25] All non-percentage figures show the mean predicted scores among youth club participants and non-participants.

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Table 3-14: Effects on contemporaneous outcomes, Understanding Society

Outcome category/measure	Wave first reported youth club participation		Last wave in youth panel	
	Unmatched	Matched	Unmatched	Matched
Educational outcomes				
Want to go to University	93% non-participants 95% youth club participants n= 3,206, *			
Econ activity				
Did paid work last week			16% non-participants 21% youth club participants n= 2,642, **	
General health				
Self-rated health	2.26 non-participants 2.14 youth club participants n= 4,208, **	2.24 non-participants 2.11 youth club participants n= 3,232, **	2.41 non-participants 2.23 youth club participants n= 1,631, **	2.42 non-participants 2.41 youth club participants n= 1,359, **
Mental health				
Self-esteem	24.7 non-participants 25.4 youth club participants N= 4,241, **	24.7 non-participants 25.4 youth club participants n= 3,232, **		
SDQ Prosocial score			7.44 non-participants 7.75 youth club participants n= 2,653, **	7.40 non-participants 7.74 youth club participants N= 2,149, **
SDQ Hyperactivity score				

| Outcome category/measure	Wave first reported youth club participation		Last wave in youth panel	
SDQ Emotional Symptoms score			3.14 non-participants 2.90 youth club participants n= 2,654, **	3.17 non-participants 2.88 youth club participants n= 2,149, *
Crime and anti-social behaviour				
Been truant in the last 12 months	9% non-participants 7% youth club participants n= 4,157, **	8% non-participants 6% youth club participants n= 3,183, *	13% non-participants 9% youth club participants N= 4,057, **	13% non-participants 9% youth club participants n= 2,260,**
Ever drink		25% non-participants 23% youth club participants n= 3,211, **	55% non-participants 52% youth club participants n= 4,082, *	

Source: UoE
*Note: ** 5% significance, *10% significance;*
The colour green is used to highlight a 'positive' (/beneficial) outcome; the colour yellow is used to highlight a 'negative' outcome.

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Youth provision and life outcomes

Effect on outcomes later in life

3.32 We did not observe any statistically significant differences in outcomes between the two groups at the age of 24 years, which is likely to be partly due the small sample size available for that analysis.

3.33 At age 20 years, young people who participated in youth clubs regularly were more likely to have been a student or in a training programme and less likely to have been employed compared to young people who were not regular youth club participants. Figure 3-2 shows the differences in the labour status between the groups at age 20. This is consistent with the pattern of increased higher education observed in the MCS study.

Figure 3-2: Statistically significant differences in outcomes at 20 years old, Understanding Society
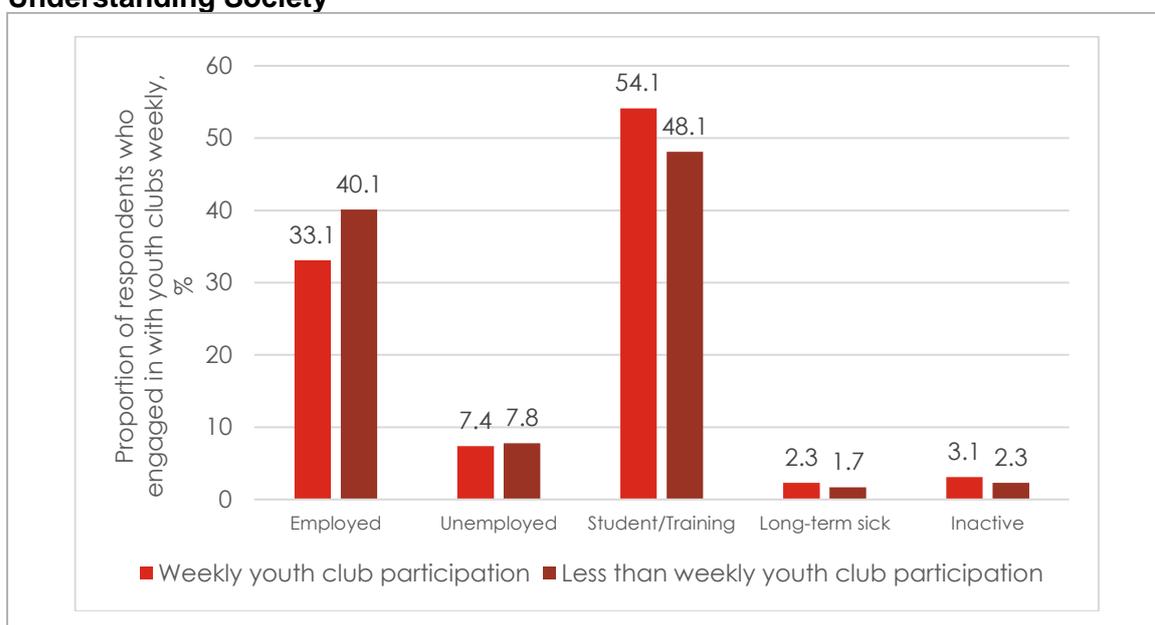
Source: UoE

3.34 While there were no associations that were consistent across all three ages that we considered for later life outcomes, volunteering had the most consistent results in the younger ages.[26] At ages 16 and 20, young people who had participated in youth clubs at least weekly were 10 to 17 percentage points more likely to have volunteered compared to those with lower or no youth club participation.

3.35 At age 16, there were only two significant associations between regular youth club participation and educational outcome questions. Regular youth club attendees reported a higher likelihood of gaining a training or university place and successfully finishing their studies. Also at age 16, regular participants had better self-rated health and were more likely to be a member of an organisation.

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[26] There were too few responses to this question at age 24 to run the model.

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Table 3-15: Youth club participation and later life outcomes, Understanding Society

	Age 16		Age 20	
	Unmatched	Matched	Unmatched	Matched
Educational outcomes				
Likelihood of gaining training	70% non-participants 74% youth club participants n= 1,782, **	67% non-participants 73% youth club participants n= 892, **		
Likelihood of successfully finishing studies	81% non-participants 84% youth club participants n= 1,788, *			
Econ activity				
Labour force status 5-category			1% → 48% non-participants 2% → 54% youth club participants[27] n= 1,491, **	
General health				
Self-rated health	2.15 non-participants 2.06 youth club participants n= 3,325, **			
Civic Participation				
Ever volunteer	24% non-participants 41% youth club participants n= 1,392, **	21% non-participants 33% youth club participants n= 815,**	16% non-participants 28% youth club participants n= 492, **	17% non-participants 27% youth club participants N= 273, *
Member of an organisation	7% non-participants 15% youth club participants n= 1,412, **	8% non-participants 16% youth club participants n= 704, *		

*Source: UoE. Note: ** 5% significance, *10% significance; The colour green is used to highlight a 'positive' (/beneficial) outcome; the colour yellow is used to highlight a 'negative' outcome.*

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[27] The ranges for this effect sho the predicted probabilities to be in the least likely labour force category (long-term sick) and the most likely (in education).

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Reflections

3.36 Similar to what we saw in MCS, attending youth clubs in the UKHLS sample is associated with 'positive things' continuing into young adulthood. Young people who attended the youth clubs were found to be in better health and 'better citizens' (i.e. less likely to engage in anti-social activities, more likely to do volunteering) both at the time of the provision and later in life. The later life outcomes were, perhaps, captured too early to reflect any other impacts that may manifest themselves in the future (e.g. in terms of earnings following a higher likelihood of completing a university degree).

3.37 It is likely that at least some of the positive differences between the groups are down to pre-existing variation prior to joining the clubs, since statistically significant predictors of participation suggested that young people from less disadvantaged backgrounds were more likely to engage with the youth clubs.

Avon Longitudinal Study of Parents and Children (ALSPAC)

Predictors of youth participation

3.38 In the ALSPAC sample, we found no statistically significant predictors of participation in youth club activities. However descriptively, those who reported struggling in school at a younger age were among youth club attenders somewhat more often (24%) while only 15% of private school-educated young people reported attending youth clubs.

Effect on outcomes later in life

3.39 None of the analysed outcomes of interest found a statistical significance linked to youth club participation. A further investigation did not provide any evidence that this result could be driven by the differences in effects across sub groups of study participants that happened to 'average out' into a statistically insignificant relationship overall. Because there were no statistically significant predictors of youth club participation, for this dataset we carried out estimations only using the full sample (no statistical matching).

Reflections

3.40 The lack of statistically significant results could partly be explained by the fact that the measure of youth participation available in this dataset does not account for intensity of engagement with youth clubs. When in the other datasets we analysed the effects of attending youth clubs at least once a year, the results also tended to show weaker relationships (compared to our main results for weekly participation).

3.41 However, in our opinion, the feature of the ALSPAC sample that may influence the results the most is how similar the groups attending and not attending youth clubs were. In some sense, what the results are showing is that those two groups remained similar into their young adulthood. The reasons behind this more equal balance between the groups compared to other datasets are not completely clear. However, the fact that the study participants were recruited from a relatively small geographical area is likely to be a factor.

Did observed effects vary by income?

3.42 In addition to the main analysis presented in this section we also carried out an exploratory analysis aimed at uncovering the differences in the effects of youth participation on disadvantaged young people (those 'who might benefit the most'). We used parental income as a proxy since this measure was available across all datasets and tended to be correlated with other familial characteristics (for example, parental education, occupation/social status, safety of the neighbourhood where they lived etc.)[28]

3.43 There was insufficient evidence to suggest that the benefits of youth clubs are statistically significantly different for more disadvantaged groups. However, we do not claim that those differences do not exist. It could be the case that the differences were masked by the changing composition of participants.[29]

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[28] We used two alternative approaches to looking at these effects: the first one involved introducing an extra variable that would capture the additional effect of attending the youth club while being from a certain part of the income distribution on top of the 'baseline' effect. The second approach was, where possible, to estimate the magnitude of the effect associated with youth clubs while forcing the income variable to take a specific value. The first approach is, in theory, more robust since the model is built to explicitly estimate the 'additional effect.' However, in this case, youth club participation proved to be correlated with socio-economic background and income. Therefore, when additional variables representing the interaction between the two were added to the models, they struggled to determine to which of the variables, if any, the effect should be attributed to (the issue of multicollinearity). As a result, we tended to observe widening confidence intervals and reduction in explanatory power of the models. The second approach did not suffer from this problem but ultimately relied on the main model to identify an effect that was statistically significant across the whole income distribution in the first place.

[29] In other words, at any given point in time there perhaps were not enough people from the 'other tail' of the income distribution for us to identify the difference in the effect. It is also possible that the variation in individual outcomes among disadvantaged young people is too large making the average of those outcomes no different from the average observed for other young people.

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4. Conclusions and recommendations

Conclusions

4.1 **Our findings are based on the results of robust statistical analysis. However, care is needed in interpreting them to neither overstate nor understate the observed effects.** Our analysis did not establish any causal links but rather focused on statistical associations. This consideration is especially important for the outcomes observed at the time when young people were going to youth clubs because of a clear possibility of a reverse causal influence (i.e. did we observe the outcomes because young people were engaged with youth clubs or were they attending youth clubs because of the outcomes we observed in the first place?).

4.2 The factors that are associated with youth club participation appear varied. **Different datasets generate a different portrait of the characteristics of young people who engage in youth provision.** This is partly a function of how the datasets define that activity. For those designed 50 years ago, youth activities were described as 'youth clubs'. More recently designed surveys have a much broader definition of the activity and to include 'youth clubs, scouts, girl guides or other organised activities'. These different definitions may reflect our changing ideas of youth clubs or youth activities and what they are for, but they may also reflect how respondents chose to respond and hence the survey samples that we analysed.

4.3 Our analysis revealed that **each of the longitudinal studies was 'telling its own story**,' giving a definitive 'yes' as the answer to research question four (cohort effects). The most striking difference between the studies (and generations) was the difference in the profile of youth club participants.

4.4 Those who frequently (at least weekly) engaged with youth clubs in the **mid-1980s** (the BCS70 cohort) tended to be young men from poorer, lower social class families, who performed worse academically (as proxied with a reading score). This pattern, however, changed with time. Participating groups were much more similar in the **mid-2000s** (the Next Steps and ALSPAC cohorts) with gender and ethnicity being the statistically significant predictors of participation (young people from minority ethnic groups and men were more likely to engage with youth clubs). Later the balance was tilted the other way (compared to the 1980s) with the data from the more recent studies (MCS and UKHLS) suggesting that in **2010s,** youth club participants tended to be from more well-off families, who were socially active and lived in safe neighbourhoods.

4.5 This finding could be partly explained by the **changes in the funding landscape**. With more provision switching from public funding to a mix of public, charitable, and commercial funding (alongside some financial contribution from participating families and volunteers'

time) and expanding the range of activities being offered. During a period of substantially reduced public funding, youth provision was maintained at higher levels in affluent areas where families with disposable income could subsidise provision[30]. The National Youth Sector Census has found that: "there is twice as much youth provision in the most affluent areas as opposed to the most deprived areas, alongside 50% more buildings purpose built for, or dedicated towards, young people in affluent areas."[31] Even though they do not discriminate against disadvantaged groups, the overall participation rates can become skewed towards young people whose families could afford a uniform, weekly subscriptions, bus fares and expenses associated with trips, fixtures or special activities.

4.6   Alongside these factors, we hypothesise that the growth of a middle class may have transformed social perceptions of the role and value of participating in organised youth activities from, **a place that allowed parents to 'keep their children out of trouble' to an enrichment activity that supports aspirations** and allows young people to capitalise on their strengths.

4.7   **This idea is supported by the findings regarding the relationship between attending youth clubs and contemporaneous and future outcomes (research questions three and four)**. In the BCS70 study, we observed a negative association between youth clubs and anti-social behaviour at the same age (getting into street fights, interacting with police) – a finding consistent with results of Feinstein, Bynner and Duckworth (2005) who also analysed this dataset. These associations are not causal and are likely driven by background characteristics of young people. The negative associations largely disappear with time – there are little to no statistically significant differences between participants and non-participant later in life. In other words, by the age of 30, people who grew up facing disadvantage and attended youth clubs in the 1980s have 'caught up' with their peers.

4.8   In all other datasets we found that the **positive differences in outcomes observed between youth club attendees and other young people** (such as leading a healthier lifestyle, not missing school, higher education) **were also present later in their lives**. Specifically, these patterns were apparent in MCS, UKHLS and Next Steps. Occasional negative differences in longer-term outcomes could be down to the data capturing the outcomes a bit too early. For example, in the Next Steps sample, weekly earnings at 25 were found to be on average lower for youth club participants. But since more of them completed a university degree and had less work experience, we expect the result to be reversed when the next wave of data becomes available.

4.9   We note that the variation in results across the datasets could be driven by the differences in definitions used in more recent studies compared to the older ones. However, considering

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[30] We could not test this hypothesis extensively due to data limitations, but the Understanding Society data suggest that young people in the South East may be more likely to participate in youth clubs providing some level of indirect support to this conjecture.
[31] See: NYA (2021) Initial Summary of Findings from the National Youth Sector Census. Available at: https://www.nya.org.uk/wp-content/uploads/Summary-Report-v5.pdf

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that BCS70 and Next Steps are aligned on the definition, in our opinion, the funding and functional changes provide a more convincing explanation for the cross-generational differences we observe.

4.10 **For the majority of outcome measures we analysed, we could not confirm a statistically significant relationship with attending youth clubs**. However, as the concept of statistical significance is about averages, it does not mean that no young people benefited from youth clubs in these outcome areas. Statistical insignificance may reflect high heterogeneity in outcomes driven by individual circumstances.

4.11 **There is a clear association between participation in youth provision and positive short-term outcomes relating to physical health and wellbeing, pro-social behaviours[32] and education.** There is also strong evidence that these short term outcomes are sustained over decades and remain more positive than peers who did not access youth provision**.**

Recommendations

4.12 The purpose of the study was to use existing secondary datasets to explore what can be learned about the impact of youth activities on outcomes later in life. In fulfilling this brief we have 1) identified a range of factors and associated metrics that can be used to describe impact; 2) identified a set of five datasets with sufficient longitudinal reach and coverage of both 'participation' and 'impact', and 3) analysed those datasets using the most appropriate and reliable approaches to explore statistical associations between participation in youth activities and outcomes in later life.

4.13 We have reflected on the quality of evidence available, alternative models or hypotheses that could extend the analysis further, and the challenges associated with communicating the results appropriately and fairly. These are discussed in turn below.

Recommendation 1: Building evidence about causal impact of youth provision

4.14 The datasets were designed as cohort studies or a panel study to explore a range of issues of social relevance. None were designed solely to trace participants in youth activities through life. Longitudinal studies are expensive and require a degree of foresight regarding policy imperatives decades into the future. Consequently, we expect that starting a dedicated large-scale longitudinal study of youth work would be valuable but may be

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[32] Pro-social behaviours are those helping or altruistic behaviours that are positive and meant to promote the interests of society.

impractical – for example, UKHLS has received over £160m in funding (although the high cost of this study reflects its size and comprehensive nature).[33]

4.15 Instead, we would suggest exploring a range of different approaches to designing data capture and associated systems to track participant outcomes over time. A wide range of research or evaluation options could be explored which might include:

- Working with DCMS-supported sectors including youth centres and sports, arts and uniformed provision to design longitudinal research methodologies that track young participants over time. This could be based on a group of youth clubs or providers of youth engagement activities and use these to create a participant cohort. The trends in their data could then be benchmarked against the wider population and convincing evidence establishing causality could be gathered through a combination of statistical and in-depth qualitative work.

- Finding technological ways to link participation (for example through a leisure card, or app) with individuals. These have been explored in the past and there are difficulties associated with trying to make them work – not least as young people may not want to have their attendance captured in this way. However, experimenting with different approaches continues to be worthwhile because it offers a potential for rich data. This data then could be linked to establish a causal link through the introduction of surveys or other forms of data capture at future touch points. DCMS could draw on experience from devolved nations. For example, in Wales youth organisations are required to formally register young people who attend their services, which opens up the possibility of data linkage.

- Lobby for and fund appropriate space in future longitudinal studies or for additional questions in current iterations of UKHLS. This would create the continuation of survey data and could provide further information into the types of young people who participate and the nature of their participation.[34]

- **Recommendation:** DCMS should explore a range of options to design data collection and tracking systems that focus on the issue of the impact of participation in youth provision.

Recommendation 2: Building evidence about economic impact of youth services

4.16 An alternative approach to establishing the impact of youth activities would be to explore the return on investment in youth activities based on a range of different assumptions. This

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[33] CFE Research (2022) Evaluation of Understanding Society: Impact and views of data users. Available at: https://www.ukri.org/wp-content/uploads/2022/09/ESRC-120922-MainReportAndCaseStudies.pdf

[34] UKHLS is highlighted in this context since it is an ongoing 'rolling' study that adds more young people engaging with youth clubs to the sample every year. This in theory allows to collect more granular data about their participation to the extent that is not possible in older cohort studies.

would build on previous work to further interrogate theories of change and models used to estimate either the cost savings or the additional benefits of participation.[35] Those assumptions could be initially tested through both a literature review (building on the foundation created through Strand 2 of the Youth Evidence Base work) and qualitative exploration of effects with different groups including young people. For example, the scale of effect of encouraging young people of all different levels of attainment and backgrounds to maintain engagement with their education or training could be explored. Alternatively, the positive effect of extrapolating the health benefits from active habits in youth through to mid-life could be explored.

4.17 More specifically, DCMS could fund an update to research conducted for UK Youth[36] examining the economic value of youth work, to incorporate data from this and accompanying Youth Evidence Base studies.

- **Recommendation:** DCMS should explore models of attribution that make the economic case for participation in a range of different types of youth provision.

Recommendation 3: Building evidence about impact of youth provision on different young people

4.18 The discussion in the report is about young people, and due to the nature of data being explored, there has been limited discussion about how participation in youth activities might affect different types of young people. The datasets provide some insights into young people from different socio-economic backgrounds and this is valuable as it helps to inform policy decisions about where spending might be focussed. But they do not tell us very much about how the effects vary by gender, ethnicity or any other of the protected characteristics. In our study this was not an oversight – the data simply was not there but that does not mean that it is not important. Similarly, while there are relatively few statistically significant links that demonstrate the effect of participation, this does not mean the effect of participation on some young people is not profound. It can still have a profound effect, but this is masked by the large variation in life outcomes across the whole population of young people.

4.19 This is exacerbated by a lack of investment available for research into youth work so that any effect on young people cannot be differentiated by their involvement in say, universal or targeted youth services.

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[35] UK Youth and Frontier Economics, 2022. The Economic Value of Youth Work. Available at: *https://www.ukyouth.org/wp-content/uploads/2022/09/Economic-Value-of-Youth-Work-Final-260822-STC-clean75-1.pdf*

[36] UK Youth and Frontier Economics, 2022. The Economic Value of Youth Work. Available at: https://www.ukyouth.org/wp-content/uploads/2022/09/Economic-Value-of-Youth-Work-Final-260822-STC-clean 75-1.pdf

- **Recommendation**: DCMS should work with UKRI and other research funders to increase the availability of funding for research relating to youth work.

- **Recommendation:** Future research priorities should be identified through a collaborative process that includes youth work providers and young people.

- **Recommendation**: Future youth work research should be required to explore, and report, what is known about the effects on young people with different protected characteristics.

Annex A: Summary of datasets

A.1 In this annex, for each dataset, we provide further detail regarding: a) the sample sizes; b) the proportion of young attending youth clubs; c) outcome measured used in the analysis; d) control variables (i.e. personal and familial characteristics of young people accounted for in the analysis).

British Cohort Study (BCS70)

Sample overview

A.2 Our sample in the BCS70 consisted of 6,231 individuals born across England, Scotland and Wales in a single week of 1970. The sample was constructed on the basis of responses to the youth participation question in Wave 4 of the study (1986, age 16) and included 54% of research participants from that wave (those with missing responses excluded from the sample).

A.3 As is shown in Table A-1 young people who had attended a youth club at least once in the preceding year constituted nearly 28% of the sample. The participation rate for those attending youth clubs at least once per week was 18%, which corresponded to 1,100 individuals.

Table A-1: Frequency of Youth Club participation in the British Cohort Study

Frequency of youth club participation	% of the sample
Any frequency	28%
At least once a week	18%

Source: SQW

A.4 When studying later life outcomes, we used data collected at ages 26 (Wave 5, 1996) and 30 (Wave 6, 2000). We were able to trace 71% of the sample in Wave 5, and 81% of the sample in Wave 6. As is shown in Table A-2 there were no significant differences in terms of dropping out of the study between youth club participants and non-participants. This was confirmed by further statistical tests.[37]

Table A-2: Youth club participation vs staying in the British Cohort Study at 26 and 30

	Did not frequently attend youth clubs	Frequently attended youth clubs
Not in the study at 26	81%	19%
In the study at 26	83%	17%

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[37] The χ^2 and Fisher exact tests of proportions.

	Did not frequently attend youth clubs	Frequently attended youth clubs
Not in the study at 30	82%	18%
In the study at 30	82%	18%
Total	82%	18%

Source: SQW

A.5 The dataset covered all our areas of interest in terms of contemporaneous and later life outcomes. Table A-3 lists all final outcome measures used in the analysis.

Table A-3: Outcomes of interest, British Cohort Study

	Contemporaneous (16 years old)	Later life (26 or 30 years old)
Educational outcomes		• Has higher education (NVQ4+) (age 26) Left full-time education post age 18 (age 26)
Employment / career pathways		• Is in employment or education/training (age 30) • Has a professional or managerial-technical occupation (age 30) • Annual take-home (net) pay (age 30) • No. of periods unemployed and seeking work (age 26)
General health	• Self-reported health: good or excellent health in the past 12 months	• Self-reported health: good or excellent health generally (age 30)
Mental health	• Has felt anxious / depressed / unhappy in the past year	• Often feels miserable or depressed (age 30)
Life satisfaction and wellbeing		• Is satisfied with how life has turned out so far (age 30)
Crime and anti-social behaviour	• Has taken part in a fight in the last 12 months • Has interacted with police since age 10 (has been moved on by police; has been arrested & taken to station; or has been formally cautioned) • Drinks alcohol about once per week or more often • Has been absent from school since Sept '85 but not ill	• Has interacted with police since age 16 (has been moved on by police; has been arrested & taken to station; or has been formally cautioned at station) (age 30)

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	Contemporaneous (16 years old)	Later life (26 or 30 years old)
	• Has taken drugs in the past year • Has taken something without permission / stolen something[38]	

Source: SQW

4.20 We accounted for the following personal and familial characteristics when estimating statistical relationships: a) gender; b) ethnicity; c) combined income of parents; d) standardised vocabulary test scores at 16; and e) number of people in the household younger than the respondent. When selecting variables to control for, we balanced their relevance for outcomes and youth participation against the reduction in usable sample size from including extra variables (as the survey data contained many missing observations across variables).

Next Steps

Sample overview

A.6 Our analysis of the Next Steps data considered 11,560 individuals born in 1989 – 1990 across England. That is the number of respondents who completed the relevant questionnaire at the age of 16 and indicated the frequency with which they had been attending youth clubs (further 241 young people either did not respond to the question about youth club participation or did not disclose how frequently they attended).

A.7 Table A-4 shows the fractions of the sample that attended youth clubs at different frequencies. Compared to the BCS70, the attendance among respondents was substantially lower. In fact, the figures were the lowest across all datasets. The participation rates we observed in ALSPAC (which covers a cohort of similar age) are more in line with other studies, suggesting that this was not a generational phenomenon but rather an artefact of the study's sampling strategy.

Table A-4: Frequency of Youth Club participation in the Next Steps study

Frequency of youth club participation	% of the sample
At least once in the last 12 months	18%
At least once a week	7%

Source: SQW

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[38] This included: taking something from a shop without paying; taking a bicycle with no intention of putting it back; taking a car, motorbike or moped belonging to someone else for a ride without the owner's permission; breaking open a bank cash dispensing machine to get money; taking something from others' car/bike; getting into someone's house without their permission to take something; taking something from others' shed/garage; taking something from a cloakroom, school desk, or taking other property left lying about.

A.8 We were able to trace 57% of the sample in the data that covered outcomes at the age of 24 – 25. There was no apparent relationship between attending youth clubs and dropping out of the study, as demonstrated by Table A-5 – a cross tabulation of participation vs remaining in the study (in %). This was further confirmed by formal statistical tests.[39]

Table A-5: Youth club participation vs staying in the Next Steps study at 25

	Did not frequently attend youth clubs	Frequently attended youth clubs
Not in the study at 25	93%	7%
In the study at 25	93%	7%
Total	93%	7%

Source: SQW

A.9 The dataset contained usable data on outcomes from all areas of interest discussed in Section 1. Table A-6 lists specific outcome measures considered in the final analysis of this dataset.

Table A-6: Outcomes of interest, Next Steps

	Contemporaneous (16 years old)	Later life (24-25 years old)
Educational outcomes	• Likelihood of applying to university: ranked by respondent as high or very high	• Has higher <u>academic</u> education (NVQ4+)
Employment / career pathways		• Whether the study participant was in work, education or training • Number of unemployment spells • Net weekly earnings • High social class: proxied with a higher managerial, admin & professional occupation
General health	• Self-reported health: very good or fairly good • Self-reported sport activity: weekly	• Self-reported health: excellent or very good • Self-reported sport activity: weekly
Mental health	• Poor mental health as measured with a high General Health Questionnaire (GHQ) score: 4+	• Poor mental health as measured with a high General Health Questionnaire (GHQ) score: 4+
Life satisfaction and wellbeing		• Self-reported life satisfaction: very satisfied with their life
Crime and anti-social behaviour	• Frequent consumption of alcohol: weekly	• Frequent consumption of alcohol: weekly

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[39] The χ^2 and Fisher exact tests of proportions and a logit regression. The results can be found in A.1.

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Youth provision and life outcomes

Contemporaneous (16 years old)	Later life (24-25 years old)
• Carrying a knife in the last 12 months	• Taken illegal drugs in the 12 months prior to the survey • Disciplinary action: in the 12 months prior to the survey was arrested, cautioned at police station, found guilty by court, or given a Penalty Notice for Disorder

Source: SQW

A.10 The individual characteristics we were able to control for when investigating the effects of youth club participation on life outcomes included: a) gender; b) ethnicity; c) number of siblings; d) whether their household had only one parent during their youth, and; e) parental social class; f) parental monthly income; g) whether the young person had caring responsibilities (cared for someone older than 15 years old), and h) the index of multiple deprivation of the area they were growing up in. The same characteristics were considered when determining the factors that could potentially predict participation in youth clubs.

Millennium Cohort Study (MCS)

Sample overview

A.11 Our analysis of MCS involved a sample of 11,497 individuals born across England, Scotland, Wales and Northern Ireland in 2000-02. The sample consisted of those survey respondents in Wave 6 of the study (2015, age 14) who answered the question about participation in 'youth clubs, scouts, girl guides or other organised activities' (which constituted 97% of all Wave 6 participants).

A.12 Of those, 6,548 reported participating in youth activities and 4,313 reported doing so at least once per week. This is shown in Table A-7. The proportion of participants in youth activities was substantially higher than in the other three cohort studies, likely reflecting the broader definition of youth participation used in MCS, which incorporated scouts, girl guides and other organised activities on top of youth clubs (this definition is more consistent with the expansive definition of 'youth activities' favoured by our Youth Panel).

Table A-7: Frequency of participation in youth clubs, scouts, girl guides or other organised activities in MCS

Frequency of youth club participation	% of the sample
Any frequency	57%
At least once a week	38%

Source: SQW

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A.13 We used data collected at Wave 7 (2018, age 17), i.e. the latest available wave, to study later life outcomes. We were able to trace 80% of the sample (9,168 individuals). As shown in Table A-8, participants in youth activities were less likely to drop out of the study. This was also supported by further statistical tests.[40] As this provided some evidence that attrition might be creating a bias, we decided to incorporate a standard statistical correction procedure (the Heckman correction) when performing further statistical analysis. The results of these robustness checks were in line with the baseline 'non-corrected' findings presented in this sub-section.[41]

Table A-8: Participation in youth activities vs staying in MCS at 17

	Did not frequently attend youth clubs	Frequently attended youth clubs
Not in the study at 17	68%	32%
In the study at 17	61%	39%
Total	62%	38%

Source: SQW

A.14 The dataset contained data on outcomes across all our areas of interest. Table A-9 lists all final outcome measures used in the analysis.

Table A-9: Outcomes of interest, Millennium Cohort Study

	Contemporaneous (14 years old)	Later life (17 years old)
Educational outcomes		• Currently going to school or college • Having a qualification: GCSE, iGCSE, Higher Grade (Scotland), National Four (Scotland), National Five (Scotland), BTEC, AS level or Extended Project Qualification • Currently doing an apprenticeship or any kind of traineeship, training course or scheme
Employment / career pathways		• Currently doing any kind of paid job
General health	• Self-reported health: good, very good or excellent	• Self-reported health: good, very good or excellent
Mental health	• Feeling miserable or unhappy	• Having mental health conditions or illnesses lasting or expected to last 12 months or more

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[40] The χ^2 and Fisher exact tests of proportions, logit models.
[41] We present non-corrected results since when the formal ex-post tests suggest the correction is unlikely to be necessary/yield in a different estimate, using it lowers the precision of the estimate.

	Contemporaneous (14 years old)	Later life (17 years old)
Life satisfaction and wellbeing		• Self-reported life satisfaction: being satisfied with oneself on the whole
Crime and anti-social behaviour	• Has missed school without parents' permission in the last 12 months • Has never or almost never (1-2 times) had an alcoholic drink in the last 12 months • Has taken something from a shop without paying in the last 12 months • Has ever carried a knife or other weapon • Has interacted with police (has ever been stopped or questioned; or has ever been given a formal warning or caution; or has ever been arrested) • Is currently a member of a street gang • Has ever tried cannabis or any other illegal drug (such as ecstasy, cocaine, speed)	• Has interacted with police (has ever been stopped or questioned; or has ever been given a formal warning or caution; or has ever been arrested)

Source: SQW

A.15 The following individual characteristics (expressed using the terminology used in the survey) were accounted for in our analysis of the effect of participation in youth activities on life outcomes: a) gender; b) ethnicity; c) nation (England, Wales, Scotland or Northern Ireland); d) area safety (safe to walk/play within a mile or 20 minutes from home); e) the number of people in the household (excluding the respondent); f) natural mother in the household; g) natural father in the household; h) whether parents would like the respondent to continue in full-time education at 16; i) parental NVQ level (both academic and vocational qualifications); j) parental socio-economic class; k) family weekly income; l) whether the respondent was in good, very good or excellent health at 11; and – for outcomes at 17 only – m) whether the respondent was in good, very good or excellent health at 14; and n) whether the respondent was feeling miserable or unhappy at 14.

Understanding Society (UKHLS)

Sample overview

A.16 Understanding Society is a UK-wide household panel study in which members of the household are interviewed annually. Young people aged 10-15 years old are asked to

complete a questionnaire as part of the youth panel.[42] Unlike the other studies included in this report, the youth panel is a rotating panel rather than a cohort. This means that every year new respondents enter the panel, most aged 10. Respondents who turn 16 are asked to join the main panel. Thus, the range of ages included in the sample for our analysis spans from 12 (joined the youth panel in wave 10, 2019) to 24 (joined youth panel in wave 1, 2009).

A.17 Some of the questions in this study are asked on a rotating basis. This was the case for the question about the youth club participation which was asked every second year. Furthermore, some questions are targeted towards a specific sub-sample. For example, the question about self-perceived likelihood of gaining a university or training place is asked as part of the main (adult) panel, but only of 16–21-year-olds.

A.18 To maximise the sample size available for analysis of contemporaneous outcomes we ran our models on the data from the years when each young person responded to the question about youth club participation for the first time as well as on the data from the last year they were still in the youth panel.

A.19 To maximise the sample size available for analysis of later-life outcomes we traced as many youth panel research participants as far into the adult panel as we could. This approach meant that we considered the later life outcomes for three groups at different ages: 16, 20 and 24 years old. Table A-10 shows the number of people in each of the three age groups we analysed. The sample of 24-year-olds was small but, in theory, provided an opportunity to 'bridge' the time gap between other cohort studies and potentially shed light on whether the differences between the results across the studies are driven by the elements of their respective designs (e.g. approach to sampling) or 'time-specific' context (e.g. common types of youth provision).

Table A-10: Sample sizes available for analysis in Understanding Society

Panel	Sample size
Youth (youth participation and contemporaneous outcomes)	n=4,564
Age 16	n=3,930
Age 20	n=1,671
Age 24	n=363

Source: UoE

A.20 The rates of participation in youth clubs and other organised youth activities that we observed in the sample were in line with the figures from MCS which uses the same 'broader' definition in their questionnaires (Table A-11).

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[42] Please note the throughout this subsection, when we refer to a youth panel, we mean the UKHLS study participants aged 10 to 15, rather than the Youth Panel we recruited to feedback on our research.

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Table A-11: Youth participation, Understanding Society

Frequency of youth club participation	% of the sample
Any frequency	55%
At least once a week	37%

Source: SQW

A.21 In terms of the outcomes of interest available for the analysis, they covered all areas of interest for our research and are presented in Table A-12.

Table A-12: Outcomes of interest, Understanding Society

	Contemporaneous (≤15 years old)	Later life (16-24 years old)
Educational outcomes		• Highest educational qualification • Importance of their education to who they are
Employment / career pathways	• Desire to go to university • Did paid work in the last week	• Labour force status • Personal income
General health	• Self-reported good health	• Self-reported general health • Whether has a long-standing illness
Mental health and	• Self-reported self-esteem • Strengths and Difficulties Score (SDQ)	• GHQ score
Life satisfaction and wellbeing		• Self-reported life satisfaction • Civic participation: whether ever volunteers
Crime and anti-social behaviour	• Have ever been truant • Have tried alcohol • Have used/tried illegal drugs • Involvement in fights, shoplifting and vandalism	• Alcohol consumption (AUDIT-C score)

Source: UoE

A.22 The set of control characteristics that we were able to use in this dataset includes: a) age; b) gender; c) ethnicity; d) one parent's (usually mother's) labour force status; e) volunteer status and partnership status; f) household income; g) number of children aged 0-15 in the household; h) region of residence;[43] i) urban/rural residence; and j) wave of study.

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[43] Each devolved nation is a region, nine English regions.

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Avon Longitudinal Study of Parents and Children (ALSPAC)

Sample overview

A.23 Our analysis of the ALSPAC data covered 5,417 young people whose mothers were recruited into the study in 1991 - 1992 in the Bristol area, South West of England, during pregnancy. The sample consisted of those with a recorded response to the youth club participation question from the Year 11 questionnaire for young people (age 16 years).

A.24 The dataset distinguished between youth club activities outside and inside schools, which we combined into one measure for the purposes of our analysis.[44] However, there was no differentiation by frequency with which young people engaged with the youth clubs. Approximately 20% of the sample engaged in youth club activities to some degree Table A-13 which is consistent with what we observed in other datasets (except for Next Steps).

Table A-13: Youth club participation during school year, ALSPAC

Frequency of youth club participation	% of the sample
Any level of participation in youth club activities inside school	3%
Any level of participation in youth club activities inside school	18%
Combined	20%

Source: SQW

A.25 55% of the sample took part in the follow-up survey at the age of 25 – 26 years (Life at 25+ questionnaire). We found no statistical relationship between attending youth clubs and dropping out of the study, as demonstrated by Table A-14 the cross tabulation of participation vs remaining in the study (in %). This was further confirmed by formal statistical tests.

Table A-14: Attrition vs youth participation, ALSPAC

	Did not attend youth clubs	Attended youth clubs
Not in the study at 25-26 years	79%	21%
In the study at 25-26 years	81%	19%
Total	80%	20%

Source: SQW

A.26 Unlike with other datasets, when analysing the ALSPAC data we did not consider the relationship between youth participation and contemporaneous outcomes. This decision was dictated by the fact that in this study data on outcomes comparable to the other datasets was collected before the data on youth club participation (as part of the Life of a

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[44] Due to how uncommon in-school youth clubs were in the data.

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Teenager questionnaire, age 14). Table A-15 summarises the later-life outcomes we analysed.

Table A-15: Outcomes of interest, ALSPAC

	Later life (25-26 years old)
Employment / career pathways	• Being in paid work, education or training • Monthly earnings
Mental health	• Feeling miserable: feeling sad, miserable, unhappy or tearful in the past four weeks • Self-harm: attempting to harm or kill themselves when feeling sad or lacking interest
Crime and anti-social behaviour	• Was in trouble with the law in the last 12 months • Involved in violence, stealing and vandalism

Source: SQW

A.27 The personal characteristics we controlled for in our analysis of ALSPAC data included: a) gender; b) ethnicity; c) growing up in a safe neighbourhood; d) urban vs rural area where grew up; e) the area's deprivation level; f) parental views on responsibility for children's education (them vs school); g) whether the research participant struggled at school (aged 7 – 12, reported by young people at 25 years of age); h) parental income and social class. Same set of characteristics was considered when determining the factors that could potentially predict participation in youth clubs.

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Annex B: Further detail on statistical analysis

B.1 This annex contains statistical output supporting the findings presented in the main body of the report. Table B-1 provides a more detailed description of our analytical approach. Following that table, for each of the five datasets covered in this report we present (where relevant):

- The output from the logistic regression used to predict participation in youth clubs which was used to carry out Propensity Score Matching (PSM) i.e. to select the participants and non-participants with similar background characteristics

- The distributions of predicted probabilities to participate in youth clubs (propensity scores) for participants and non-participants before and after matching – this demonstrates improvements in the balance between the two groups. The 'treatment' group in the figures refers to those who attended youth clubs weekly

- Estimates from regressions of outcome variables on the indicator for youth participation and background characteristics. We used logit models for binary characteristics and linear regressions (estimated with OLS using robust standard errors when necessary) for continuous outcomes.

B.2 We note that the estimates from logit regressions should not be directly interpreted as magnitudes of effects, however they indicate the direction of the effect. The marginal effects (i.e. the estimated effect in terms of the change in expected probability of outcomes associated with youth clubs) for all statistically significant estimates can be found in Section 3 of the report.

B.3 '% correct' represents the share of observations correctly classified by logit models using the standard cut-off of 0.5. That is, if for an observation (individual) the predicted probability of an outcome is greater or equal to 0.5 that outcome is predicted to be achieved. Then the prediction is compared to the true realisation to see if the observation was classified correctly.

Analytical approach

Table B-1: Step-by-step analytical approach

Step	Approach/methods	Comment
1. Descriptive analysis	• Cross tabulations, including: ➢ participation rates in youth clubs ➢ observable characteristics of young people and their families by participation status • Statistical tests to identify systematic differences in observable characteristics among participants and non-participants in youth clubs ➢ tests for differences in means for continuous variables (t-tests) ➢ tests of proportions for categorical variables (χ^2, Fisher exact) • 'Cleaning up' the data, selection of control variables available for analysis in each dataset	• The first step of the analysis provided insights into the differences in take-up of youth club-based activities across different generations and shed light on the existence of any systematic differences between participants and non-participants within each study.
2. Analysis of predictors of youth club participation	• Analysis of factors or characteristics associated with attending a youth clubs ➢ correlations between youth club participation and observable characteristics ➢ statistical estimation of the relationship between youth club participation and a range of characteristics	• The second step provided insights into characteristics associated with youth club participation (i.e. the profile of youth club participants within each study), allowing us to select factors that needed to be accounted for in statistical analysis. • At this point, in some of the datasets, the analysis revealed imbalances between participant and non-participant groups on some characteristics, informing later stages of the analysis and delivered the answer to the first research question.
3. Analysis of attrition	• Analysis of attrition rates between survey waves among participants and non-participants in youth clubs, to uncover whether youth club participation is linked to a higher chance of dropping out of or remaining in the study	• The third step was necessary to determine whether to use additional methods to control for sample selection. If young people with a particular set of characteristics are more likely

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Step	Approach/methods	Comment
	➤ cross tabulations ➤ statistical estimation of the relationship between attrition and youth club participation, accounting for individual characteristics	to drop out of the study (for example those attending youth clubs) the results may be skewed. • We performed cross-tabulations and estimated statistical relationships between youth club participation and dropping out of the study, and generally found attrition was unlikely to be an issue. However, in the cases where there was some indication that attrition may be creating a bias, we used a standard statistical correction procedure (the Heckman correction) [45] and compared the two sets of results. ➤ In all cases the results proved to be consistent across the 'corrected' and 'non-corrected' specifications.
4. Matching	• Statistical matching techniques to restrict the sample to participants and a sub-group of non-participants (those most similar to participants in terms of personal/familial characteristics) ➤ tests to check if the matching reduced systematic differences between participants and non-participants in youth clubs	• In the fourth step of the analysis, we applied a statistical matching technique (Propensity Score Matching) to select a tailored comparison group of non-participants with similar characteristics to those young people attending youth clubs. • The purpose of restricting the comparison group in this way was to reduce bias resulting from systematic differences between participants and non-participants in youth clubs (selection bias). • However, as using a matched comparison group resulted in smaller sample sizes decreasing the analytical power of our analysis, we also performed the statistical estimations for the full (unmatched) sample and triangulated findings from both. [46]
5. Analysis of outcomes	• Statistical models for outcomes as a function of participating in youth club activities and personal/familial	• The fifth step sought to uncover the relationships between youth participation and outcomes of interest. Most of the outcome measures we considered were binary (yes/no).

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[45] First discussed in Heckman, J., 1974. Shadow prices, market wages, and labor supply. *Econometrica: journal of the econometric society,* pp.679-694.
[46] Statistical matching reduces selection bias based on observable characteristics but can also reduce imbalance in characteristics not recorded in the data if they correlate with what we observe.

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Step	Approach/methods	Comment
	characteristics – for the matched and unmatched (full) sample ➢ tests to check if the model is correctly specified ➢ testing for statistical significance of the relationship between participation in youth clubs and the outcome variable ➢ necessary corrections to account for possible violation of assumptions (e.g. robust standard errors)	• The analysis of them involved estimating Logit models and indicated whether participating in youth clubs was statistically linked to 'higher' or 'better' outcomes i.e. whether according to the data and our models those 'better' outcomes were more likely and by how much. • For continuous measures (such as weekly earnings) the results were obtained using linear regressions and indicated whether there was a statistical association as well as the magnitude of the effect (i.e. how much higher/or lower the average outcome was for young people who attended youth clubs compared to those who did not). • The same general methodology was applied across the five datasets. However, we used tailored model specifications for different datasets, as opposed to a generic, unified model specification. ➢ This is because the datasets differ in their coverage (for example in relation to such characteristics as family income, education and socio-economic status of parents etc.). We adjusted our approach to make the maximum use of the available data in each dataset • In each dataset, we grouped related outcome variables into broader categories, to increase the analytical power of our modelling. For example, whether a young person has taken part in a fight at school, at a football match, outside a pub, on a bus/train, or elsewhere, was grouped into a general 'taken part in a fight' outcome. This approach helped us minimise the influence of the 'rare event bias.'[47] • Where possible, we transformed categorical outcomes into binary ones applying the same set of rules across the

[47] See for example King, G. and Zeng, L., 2001. Logistic regression in rare events data. *Political analysis*, 9(2), pp.137-163, for a discussion of issues with statistically examining rare events.

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Step	Approach/methods	Comment
		datasets. For example, we mapped qualification levels into whether a person had higher education or not. ➢ This allowed for a clearer interpretation of results across datasets where similar data had been recorded on different scales • The model specifications for later life outcomes in most cases were limited to control variables from earlier sweeps (normally at the age of attending the youth clubs). This was due to endogeneity considerations, specifically trying to avoid biased estimates due to reverse causality (something we could not achieve when considering contemporaneous outcomes).
6. Interpretation of results and triangulation of findings	• Interpretation of obtained estimates ➢ including interpretation of the effects relative to the profile of youth club participants observed in each dataset ➢ magnitude of observed effects for continuous outcomes (e.g. earnings) ➢ comparing predicted probabilities of binary outcomes (e.g. being in good or excellent health) for those who attended youth clubs and those who did not • This step provided us with the answers to research questions 2,3 and 4	• The final step in our approach involved triangulation of findings. Points we considered at this stage included (but were not limited to) the following: ➢ Was it likely that the differences in sample composition were driving the results? ➢ Could the differences in the definitions of youth activities across the datasets, as well as respondents' interpretations, explain the variation in results? ➢ As our datasets spanned multiple decades, how important was the change in the profiles of youth club participants over time for explaining the effects youth activities had on their lives? ➢ Did short-term outcomes translate into long-term impacts?

Source: SQW, UoE

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British Cohort Study (BCS70)

B.4 Due to the degree of missingness of responses to the questions in the study, propensity score matching to account for the differences in background characteristics between youth club participants and other young people was performed on two variables that were determined to be correlated with other relevant background characteristics and resulted in the smallest loss in sample size – standardised vocabulary test scores and number of younger siblings (Table B-2).

Table B-2: Regression output from the logit model used for propensity score matching

	Coef	St. err.	p-value
Reading score	-0.30	0.04	0.00
Number of younger siblings	0.13	0.05	0.00
constant	-1.69	0.06	0.00

Source: SQW

Figure B-1: Distributions of propensity scores – full sample, BCS70

Source: SQW

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Youth provision and life outcomes
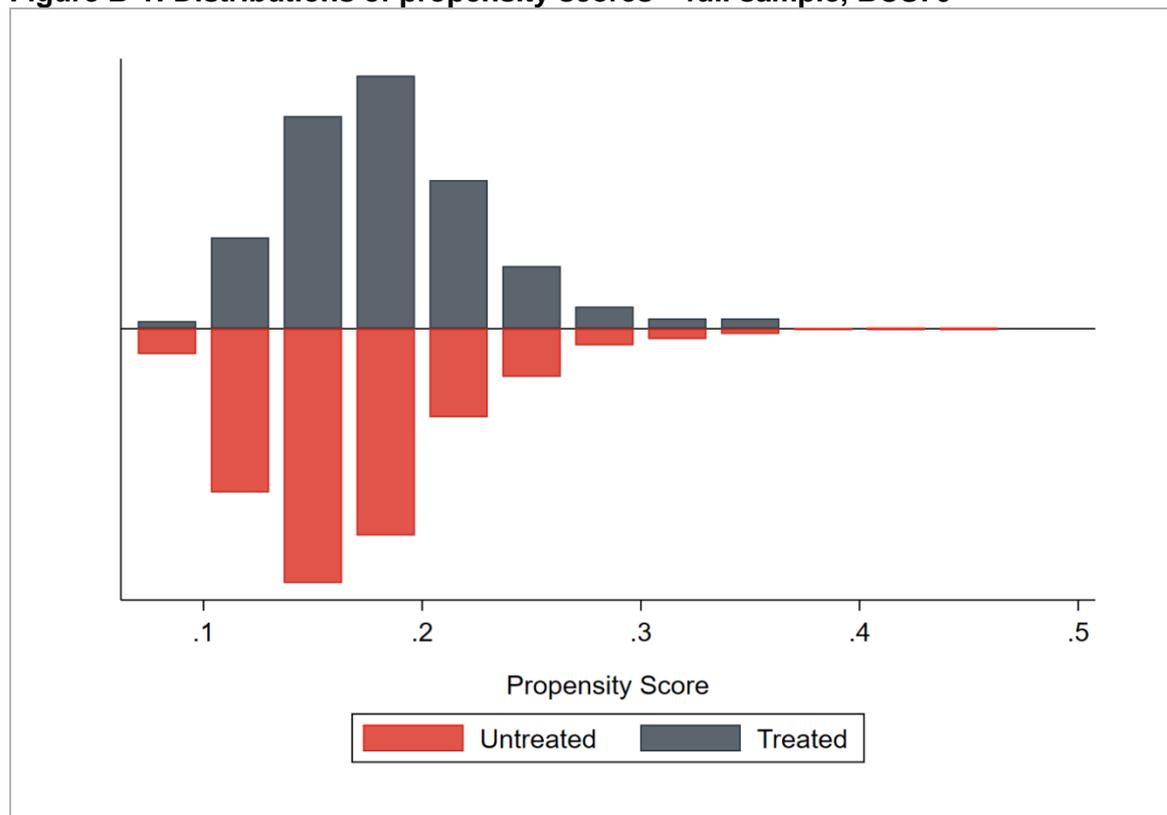
Figure B-2: Distributions of propensity scores – matched sample, BCS70
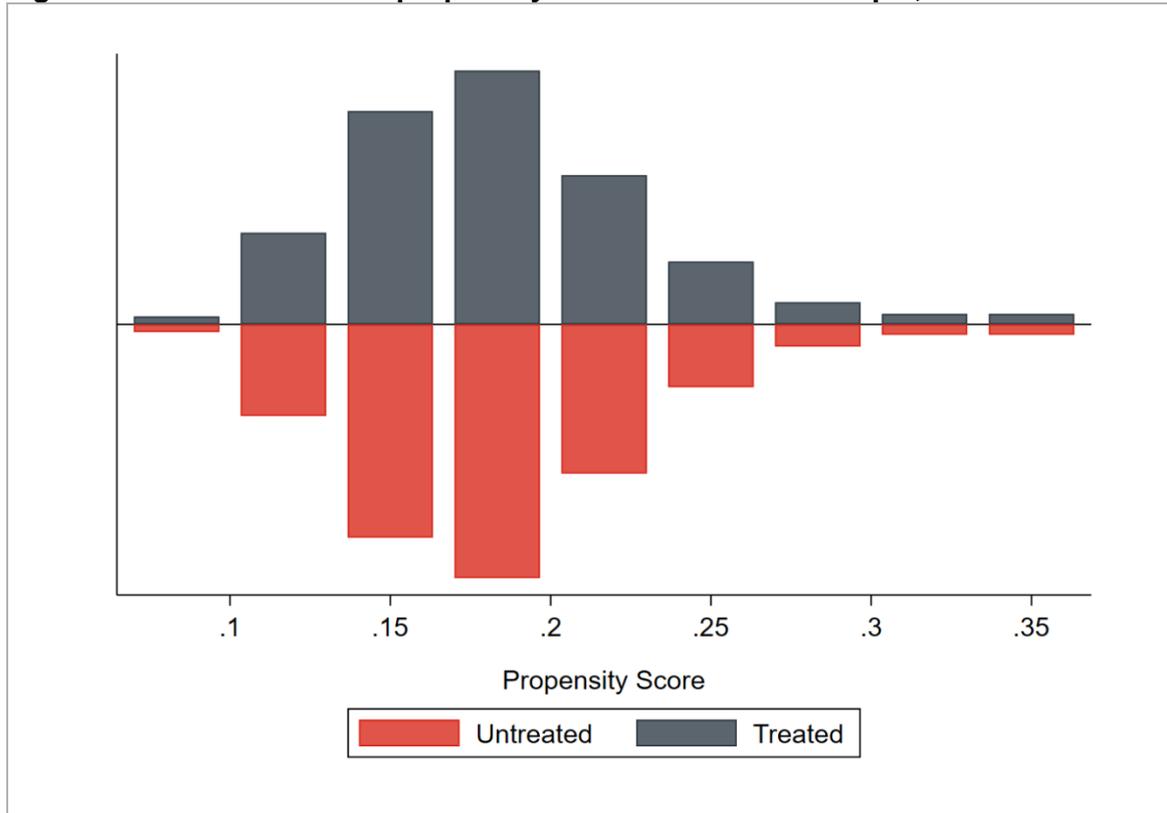
Source: SQW

Table B-3: Logit regression results for contemporaneous outcomes (age 16), BCS70

Outcome	Full sample					Matched sample				
	coef.	s.e.	p-value	n=	% correct	coef.	s.e.	p-value	n=	%correct
Education										
General health										
Good or excellent health	-0.06	0.23	0.78	2506	95%	0.12	0.29	0.67	793	93%
Mental health										
Has felt anxious / depressed / unhappy in the past year	-0.01	0.12	0.94	2125	63%	0.00	0.16	0.99	710	66%
Crime and anti-social behaviour										
Has taken part in a fight (last 12 months)	0.47	0.15	0.00	2256	84%	0.35	0.20	0.08	777	81%
Has interacted with police since age 10	0.55	0.11	0.00	2524	69%	0.45	0.14	0.00	867	64%
Consumes alcohol weekly	-0.09	0.11	0.41	2590	55%	-0.12	0.14	0.36	902	56%
Has been truant this school year	0.06	0.11	0.57	2667	60%	0.05	0.14	0.70	928	61%
Has taken drugs in the past year	0.01	0.23	0.97	2253	93%	0.26	0.32	0.41	749	94%
Has taken something without permission / stolen something	0.22	0.12	0.08	2264	71%	0.34	0.16	0.03	764	69%

Controlling for: a) gender; b) ethnicity; c) combined income of parents; d) standardised vocabulary test scores at 16; and e) number of people in the household younger than the respondent.

Source: SQW

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Table B-4: Logit regression results for binary outcomes later in life (ages 26, 30 - 25), BCS70

Outcome	Full sample					Matched sample				
	coef.	s.e.	p-value	n=	% correct	coef.	s.e.	p-value	n=	% correct
Education										
Has higher education (NVQ4+)	-0.09	0.15	0.55	2018	73%	-0.25	0.19	0.21	692	77%
Is in employment or education/training	-0.22	0.16	0.18	2254	86%	-0.22	0.21	0.30	774	85%
Left full-time education post the age of 18	-0.11	0.14	0.42	2068	71%	-0.07	0.18	0.68	711	75%
Employment / career pathways										
Has a professional or managerial-technical occupation	-0.09	0.13	0.50	1919	65%	0.01	0.17	0.96	649	67%
General health										
In good or excellent health	-0.11	0.17	0.51	2250	88%	-0.05	0.21	0.80	779	86%
Mental health										
Often feels miserable or depressed	-0.24	0.16	0.14	2442	84%	-0.18	0.21	0.39	776	85%
Life satisfaction and wellbeing										
Satisfied with how life has turned out so far	0.00	0.14	0.98	2257	80%	-0.06	0.18	0.75	784	79%
Crime and anti-social behaviour										
Has interacted with police since age 16 (taken to station/cautioned, etc)	0.32	0.15	0.03	2247	81%	0.37	0.20	0.06	771	79%

Controlling for: a) gender; b) ethnicity; c) combined income of parents; d) standardised vocabulary test scores at 16; and e) number of people in the household younger than the respondent.

Source: SQW

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Table B-4: Regression results for continuous outcomes later in life (ages 26 and 30), BCS70

Outcome	Full sample					Matched sample				
	coef.	Robust s.e.	p-value	n	R^2	coef.	Robust s.e.	p-value	n	R^2
Employment/career pathways										
Number of unemployment spells	0.10	0.32	0.76	805	0.07	0.26	0.43	0.54	262	0.08
Annual take-home (net) pay (natural logarithm)	-0.07	0.05	0.14	1759	0.15	-0.04	0.05	0.47	599	0.19

Controlling for: a) gender; b) ethnicity; c) combined income of parents; d) standardised vocabulary test scores at 16; and e) number of people in the household younger than the respondent.

Source: SQW

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Next Steps

Table B-5: Regression output from the logit model used for propensity score matching

	Coef	St. err.	p-value
Gender (base: man)			
Woman	-0.45	0.09	0.00
Ethnicity (base: white)			
Mixed	0.51	0.19	0.01
Indian	0.46	0.17	0.01
Pakistani	0.65	0.19	0.00
Bangladeshi	0.81	0.21	0.00
Black Caribbean	0.68	0.23	0.00
Black African	0.89	0.23	0.00
Other	0.75	0.24	0.00
Number of siblings	0.07	0.04	0.07
Lone parent	-0.11	0.12	0.35
Parental income (base: £867 - £1299)			
Up to 216	-0.27	0.44	0.54
from 217 up to 432	-0.05	0.25	0.86
from 433 up to 866	-0.01	0.18	0.96
from 1,300 up to1,732	0.03	0.18	0.85
from 1,733 up to2,166	0.09	0.18	0.61
from 2,167 up to 2,599	0.05	0.19	0.81
from 2,600 up to 3,032	-0.09	0.22	0.68
from 3,033 up to 3,466	-0.26	0.24	0.30
from 3,467 up to 3,899	-0.19	0.26	0.45
from 3,900 up to 4,332	-0.50	0.29	0.09
from 4,333 or more	-0.11	0.20	0.57
Parental occupation (base: not currently working)			
Routine occupations	0.09	0.19	0.62
Semi-routine occupations	-0.10	0.17	0.54
Lower supervisory and technical occupations	-0.26	0.21	0.22
Small employers own account workers	-0.33	0.20	0.09
Intermediate occupations	-0.09	0.20	0.66
Lower managerial and professional occupations	-0.19	0.16	0.22

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|	Coef	St. err.	p-value
Higher managerial and professional occupations	0.12	0.20	0.55
Caring responsibilities	-0.04	0.20	0.84
Index of multiple deprivation	0.00	0.00	0.10
constant	-2.76	0.20	0.00

Figure B-3: Distributions of propensity scores – full sample, Next Steps
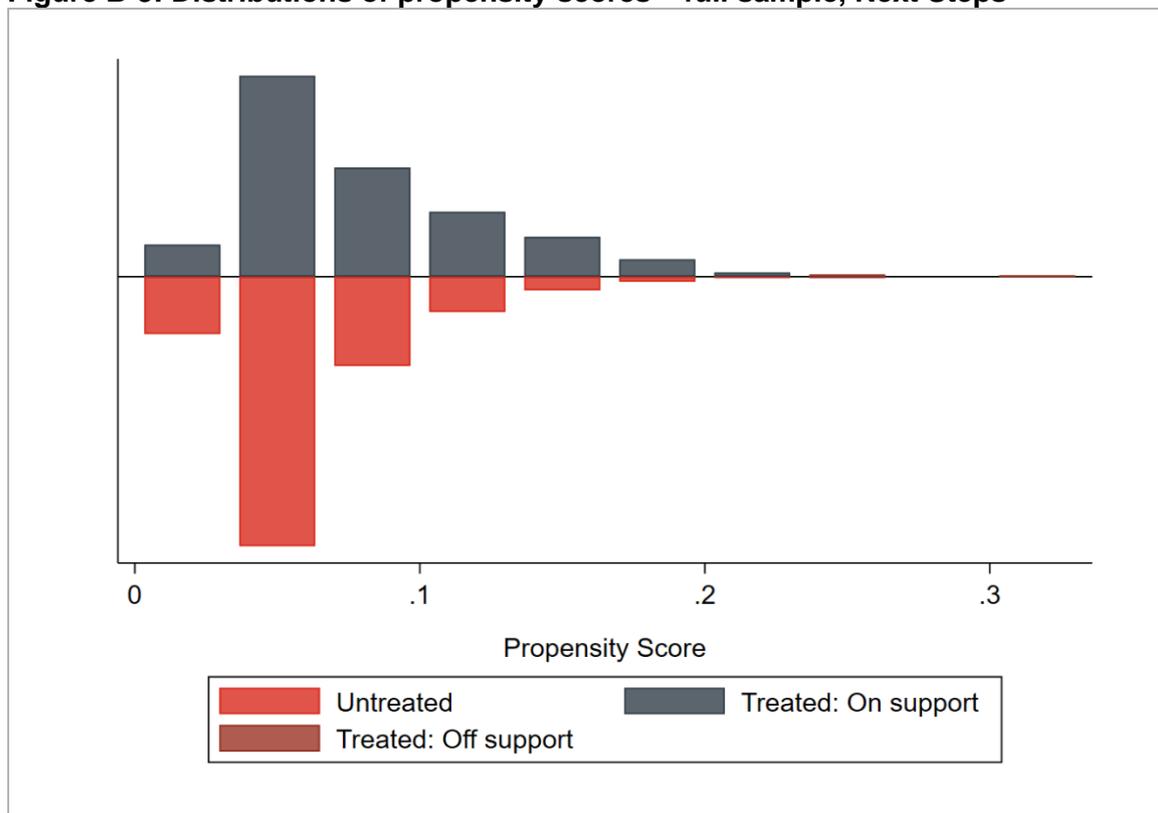
Source: SQW

Figure B-4: Distributions of propensity scores – matched sample, Next steps
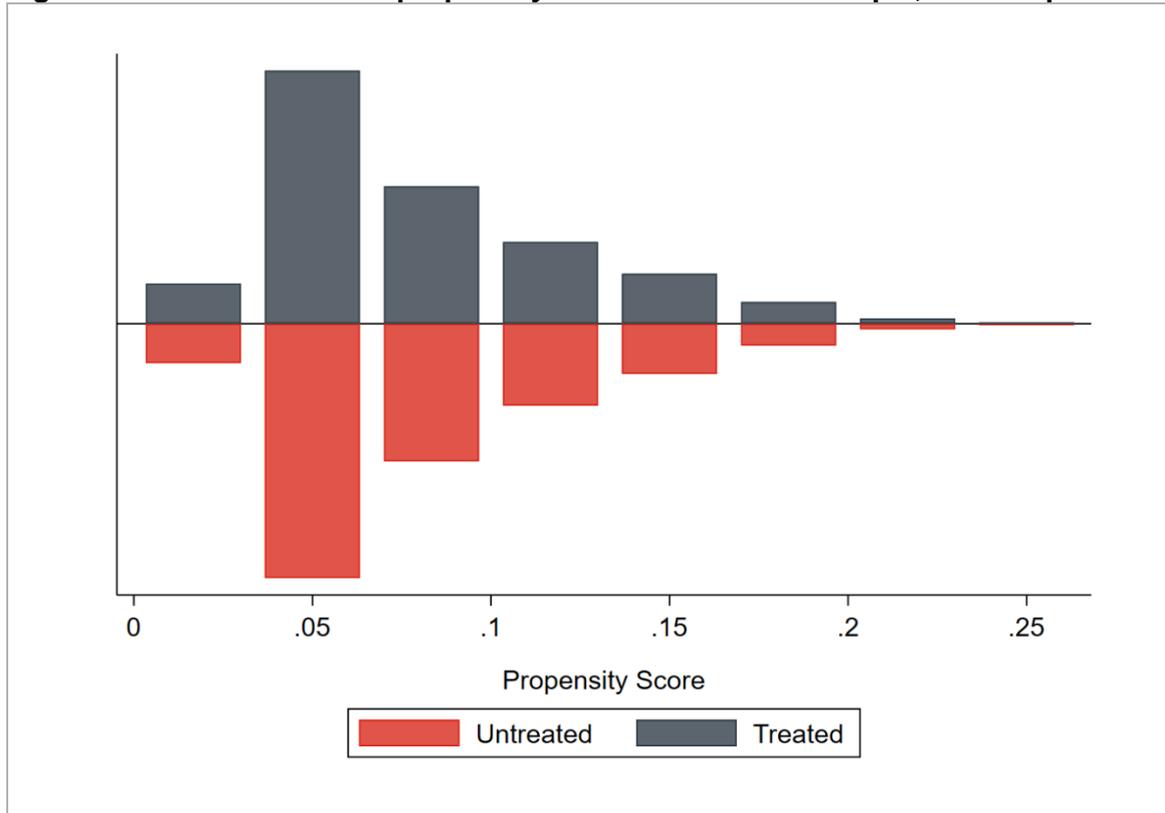
Source: SQW

Table B-6: Logit regression results for contemporaneous outcomes (age 16), Next steps

Outcome	Full sample					Matched sample				
	coef.	s.e.	p-value	n	% correct	coef.	s.e.	p-value	n	% correct
Education										
Likely or very likely to go to university	0.10	0.11	0.36	8530	70%	0.14	0.15	0.35	1070	73%
General health										
Good or very good health	0.29	0.20	0.15	8566	93%	0.41	0.26	0.11	950	93%
Weekly sports	0.35	0.10	0.00	8650	65%	0.33	0.14	0.02	1082	70%
Mental health										
Poor GHQ score (4+)	0.00	0.11	0.98	8245	77%	-0.06	0.16	0.70	1018	77%
Crime and anti-social behaviour										
Consumes alcohol once weekly	-0.20	0.11	0.08	8386	67%	-0.34	0.16	0.03	1042	76%
Carried a knife	0.33	0.18	0.07	8527	95%	0.59	0.31	0.05	978	94%

Controlling for: a) gender; b) ethnicity; c) number of siblings; d) whether their household had only one parent during their youth, and; e) parental social class; f) parental monthly income; g) whether the young person had caring responsibilities and h) the index of multiple deprivation of the area

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Table B-7: Logit regression results for binary outcomes later in life (age 24 - 25), Next steps

Outcome	Full sample					Matched sample				
	coef.	s.e.	p-value	n	% correct	coef.	s.e.	p-value	n	% correct
Education										
Has higher academic education (NVQ4+)	0.13	0.12	0.29	5079	64%	0.42	0.19	0.03	618	69%
In work, education or training	-0.13	0.19	0.50	5063	90%	0.17	0.27	0.53	616	88%
Employment/career pathways										
Proxied with a higher managerial, admin & professional occupation	-0.10	0.13	0.44	4228	61%	-0.19	0.20	0.33	509	64%
General health										
Excellent or very good health	-0.16	0.19	0.39	4957	90%	-0.16	0.28	0.58	605	89%
Weekly sports	0.15	0.13	0.23	4949	65%	0.30	0.19	0.11	602	71%
Mental health										
Poor GHQ score (4+)	-0.10	0.09	0.29	6570	58%	-0.20	0.13	0.12	1083	61%
Life satisfaction and wellbeing										
High life satisfaction	0.01	0.14	0.96	4921	76%	0.31	0.22	0.16	595	79%
Crime and anti-social behaviour										
Was subject to a disciplinary action	0.68	0.25	0.01	4866	96%	0.45	0.40	0.26	510	93%
Consumes alcohol weekly	-0.16	0.09	0.09	6589	59%	-0.24	0.13	0.06	1083	62%
Has taken illegal drugs in last 12 months	-0.28	0.17	0.09	4781	80%	-0.27	0.24	0.26	559	83%

Controlling for: a) gender; b) ethnicity; c) number of siblings; d) whether their household had only one parent during their youth, and; e) parental social class; f) parental monthly income; g) whether the young person had caring responsibilities and h) the index of multiple deprivation of the area

Source: SQW

Table B-8: Regression results for continuous outcomes later in life (age 24 - 25), Next steps

Outcome	Full sample					Matched sample				
	coef.	Robust s.e.	p-value	n	R^2	coef.	Robust s.e.	p-value	n	R^2
Employment/career pathways										
Number of unemployment spells	0.06	0.05	0.23	8657	0.05	-0.03	0.07	0.67	1084	0.1
Weekly earnings (natural logarithm)	-0.06	0.04	0.10	3670	0.08	-0.09	0.05	0.08	428	0.19

Controlling for: a) gender; b) ethnicity; c) number of siblings; d) whether their household had only one parent during their youth, and; e) parental social class; f) parental monthly income; g) whether the young person had caring responsibilities and h) the index of multiple deprivation of the area

Source: SQW

Millennium Cohort Study (MCS)

Table B-9: Regression output from the logit model used for matching, MCS

	Coef	St. err.	p-value
Gender (base man)			
Woman	-0.07	0.04	0.07
Number of people in the household	0.02	0.02	0.24
Safe neighbourhood (base: very safe)			
Safe	-0.10	0.04	0.03
Not very safe	-0.18	0.09	0.04
Not at all safe	0.05	0.31	0.86
Ethnicity (base white)			
Mixed	0.03	0.10	0.76
Indian	-0.32	0.14	0.02
Pakistani	-0.57	0.13	0.00
Bangladeshi	-0.44	0.18	0.02
Other Asian	-0.02	0.23	0.94
Black Caribbean	0.39	0.20	0.05
Black African	0.00	0.16	1.00
Other Black	0.20	0.41	0.63
Chinese	-0.17	0.52	0.74
Other Ethnic Group	0.18	0.18	0.32
Country (base: England)			
Wales	0.12	0.06	0.06
Scotland	0.30	0.07	0.00
Northern Ireland	0.72	0.07	0.00
Natural mother in household	0.13	0.12	0.29
Natural father in household	0.15	0.06	0.01
Parents would like YP to continue education at 16	0.14	0.07	0.05
Qualifications (base: NVQ1)			
NVQ level 2	0.04	0.10	0.68
NVQ level 3	0.16	0.11	0.12
NVQ level 4	0.18	0.10	0.08
NVQ level 5	0.22	0.12	0.06
None of these	-0.15	0.12	0.22
Parental occupation category (base: managerial and professional)			

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	Coef	St. err.	p-value
Intermediate	-0.15	0.06	0.02
Self-employed	-0.11	0.09	0.20
Low supervisory and technical	-0.04	0.13	0.75
Semi-routine and routine	-0.14	0.07	0.03
Not in work	-0.11	0.07	0.11
Parental weekly income (OECD equivalised)	0.00	0.00	0.00
constant	-1.36	0.18	0.00

Source: SQW

Figure B-5: Distributions of propensity scores – full sample, MCS
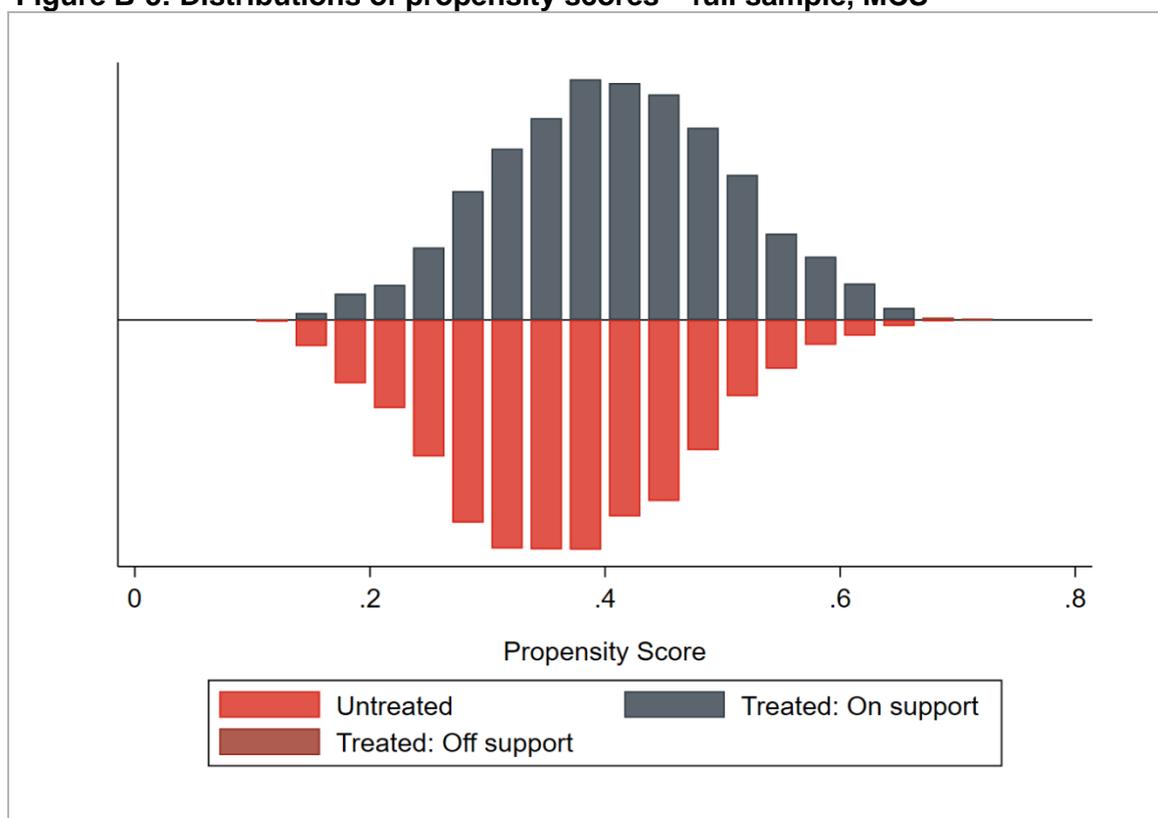
Source: SQW

Figure B-6: Distributions of propensity scores – matched sample, MCS
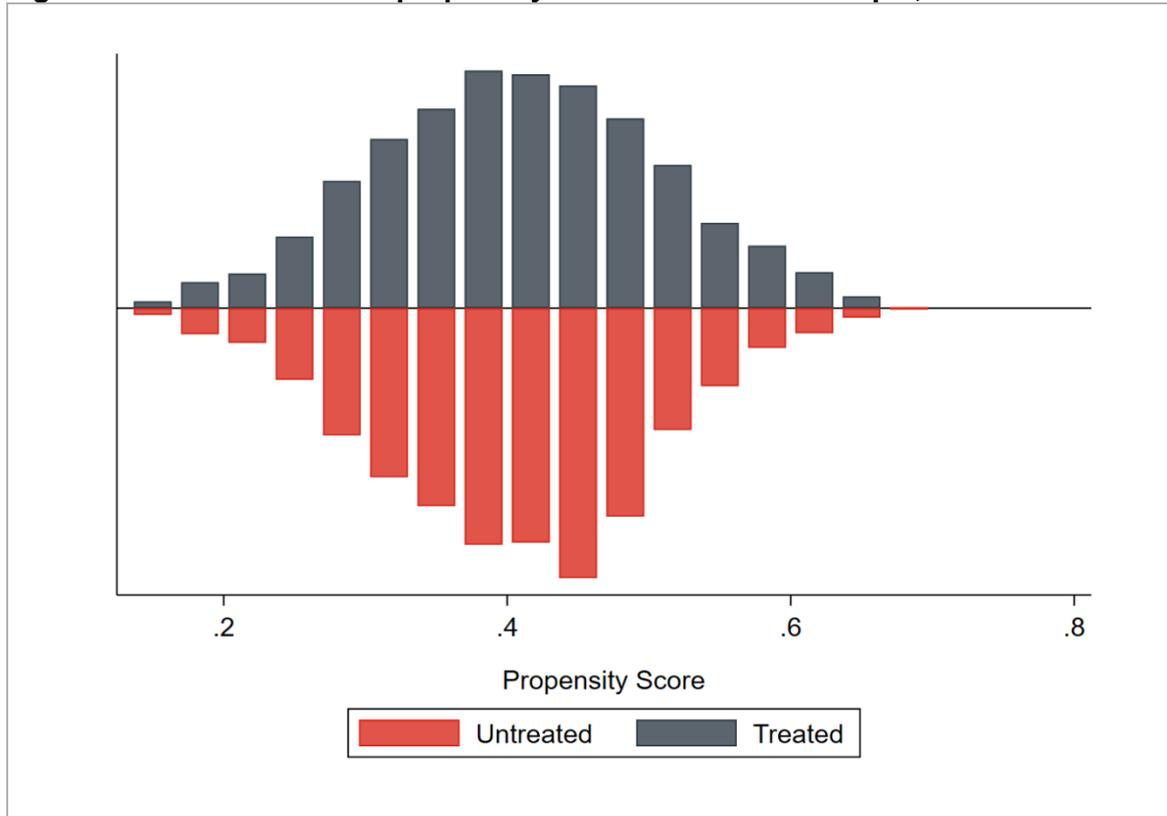
Source: SQW

Table B-10: Logit regression results for contemporaneous outcomes (age 14), MCS

Outcome	Full sample					Matched sample				
	coef.	s.e.	p-value	n	% correct	coef.	s.e.	p-value	n	% correct
General health										
Good or excellent health	0.38	0.07	0.00	10133	87%	0.38	0.07	0.00	7769	89%
Mental health										
Feeling miserable or unhappy (true or sometimes true)	-0.08	0.04	0.06	9987	63%	-0.11	0.05	0.02	7679	63%
Crime and anti-social behaviour										
Has missed school in the last 12 months	-0.31	0.08	0.00	10123	91%	-0.37	0.09	0.00	7763	92%
Has had alcohol no more than 1-2 times in the last 12 months	0.22	0.05	0.00	9972	78%	0.27	0.06	0.00	7708	78%
Has taken something from a shop without paying (last 12 months)	-0.36	0.12	0.00	9944	97%	-0.35	0.13	0.01	7639	97%
Has ever carried a knife or other weapon	0.13	0.14	0.38	9976	98%	0.09	0.16	0.55	7663	98%
Has interacted with police (stopped/questioned etc.)	-0.02	0.06	0.77	10005	84%	-0.07	0.07	0.30	7678	85%
Member of a street gang	0.16	0.16	0.31	9974	98%	0.05	0.18	0.77	7661	98%
Has ever tried cannabis or any other illegal drug	-0.31	0.11	0.01	9998	96%	-0.39	0.12	0.00	7663	96%

Controlling for: a) gender; b) ethnicity; c) country; d) area safety; e) the number of people in the household; f) natural mother in the household; g) natural father in the household; h) whether parents would like the respondent to continue in full-time education at 16; i) parental NVQ level (both academic and vocational qualifications); j) parental socio-economic class; k) family weekly income; l) whether the respondent was in good, very good or excellent health at 11.

Source: SQW

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Table B-11: Logit regression results for binary outcomes later in life (age 17), MCS

Outcome	Full sample					Matched sample				
	coef.	s.e.	p-value	n	% correct	coef.	s.e.	p-value	n	% correct
Education										
Currently going to school or college	0.11	0.09	0.21	8130	92%	0.11	0.10	0.26	6284	93%
Currently doing an apprenticeship or any kind of traineeship	-0.08	0.12	0.52	8043	96%	-0.05	0.13	0.71	6276	96%
Has a qualification	0.31	0.16	0.05	8041	97%	0.25	0.17	0.15	6274	98%
Employment / career pathways										
Currently doing any kind of paid job	0.29	0.05	0.00	7755	62%	0.31	0.05	0.00	6063	61%
General health										
In good or excellent health	0.25	0.10	0.01	8244	93%	0.21	0.11	0.05	6406	94%
Mental health										
Long-lasting mental health condition	-0.15	0.10	0.15	8049	94%	-0.07	0.11	0.54	6210	94%
Life satisfaction and wellbeing										
Satisfied with themselves on the whole	-0.01	0.06	0.80	8196	75%	-0.04	0.06	0.54	6384	76%
Crime and anti-social behaviour										
Has ever interacted with police (taken to station/cautioned, arrested, etc)	-0.01	0.07	0.89	5772	81%	0.02	0.08	0.76	4579	81%

Controlling for: a) gender; b) ethnicity; c) country; d) area safety; e) the number of people in the household; f) natural mother in the household; g) natural father in the household; h) whether parents would like the respondent to continue in full-time education at 16; i) parental NVQ level (both academic and vocational qualifications); j) parental socio-economic class; k) family weekly income; l) whether the respondent was in good, very good or excellent health at 11; m) whether the respondent was in good, very good or excellent health at 14; and n) whether the respondent was feeling miserable or unhappy at 14.

Source: SQW

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Understanding Society (UKHLS)

Table B-12: Regression output from the logit model used for matching, UKHLS

	Coef	St. err.	p-value
Age	-0.16	0.05	0.00
Gender			
Male	0.15	0.07	0.03
Ethnicity (base: while)			
Asian	-0.82	0.13	0.00
Black	-0.38	0.19	0.05
Mixed	-0.08	0.19	0.65
Other	-0.14	0.17	0.43
Parental marital status (base: married/cohabitating)			
Previously partnered	0.26	0.15	0.07
Single	-0.33	0.11	0.00
Parental labour force status (base: employed)			
Out of labour force	-0.10	0.10	0.32
Unemployed	-0.07	0.18	0.71
Parents volunteer	0.60	0.08	0.00
Net household income (equivalised)	0.15	0.07	0.04
Number of kids in household	0.05	0.04	0.18
Rural area	0.13	0.10	0.19
Region (base: London)			

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	Coef	St. err.	p-value
North East	0.03	0.20	0.88
North West	0.00	0.15	0.99
Yorkshire and the Humber	-0.14	0.16	0.38
East Midlands	0.14	0.16	0.37
West Midlands	-0.27	0.16	0.09
East of England	-0.12	0.15	0.44
South East	0.14	0.14	0.34
South West	-0.20	0.17	0.23
Wave (base: 2)			
3	0.33	0.14	0.02
4	-0.01	0.14	0.97
5	0.09	0.14	0.55
6	0.07	0.14	0.61
7	0.40	0.14	0.01
8	-0.05	0.15	0.75
9	0.30	0.17	0.07
10	-0.13	0.15	0.39
constant	0.05	0.98	0.96

Source: UoE

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Figure B-7: Distributions of propensity scores – full sample, UKHLS

Propensity Score

Untreated | Treated: On support
Treated: Off support

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Youth provision and life outcomes
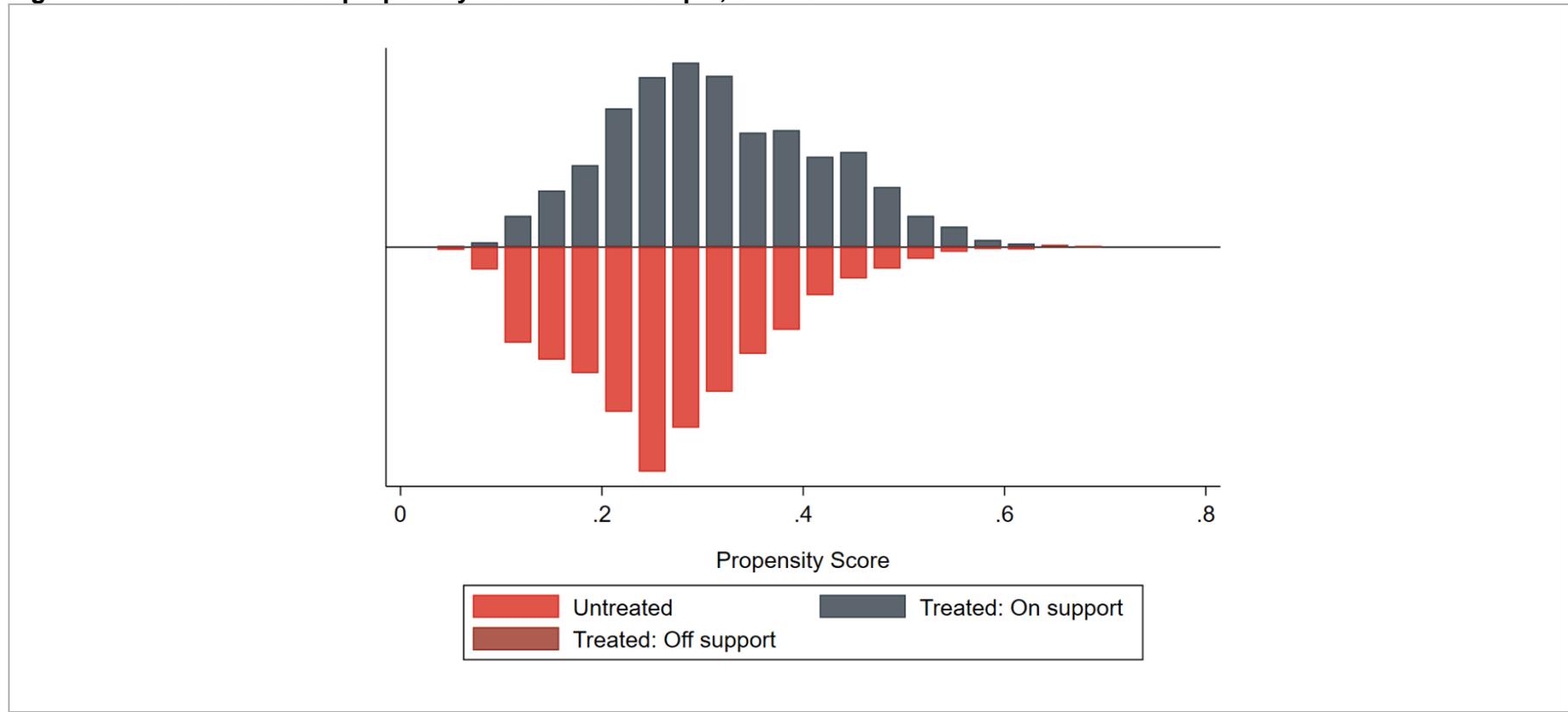
Figure B-8: Distributions of propensity scores – matched sample, UKHLS
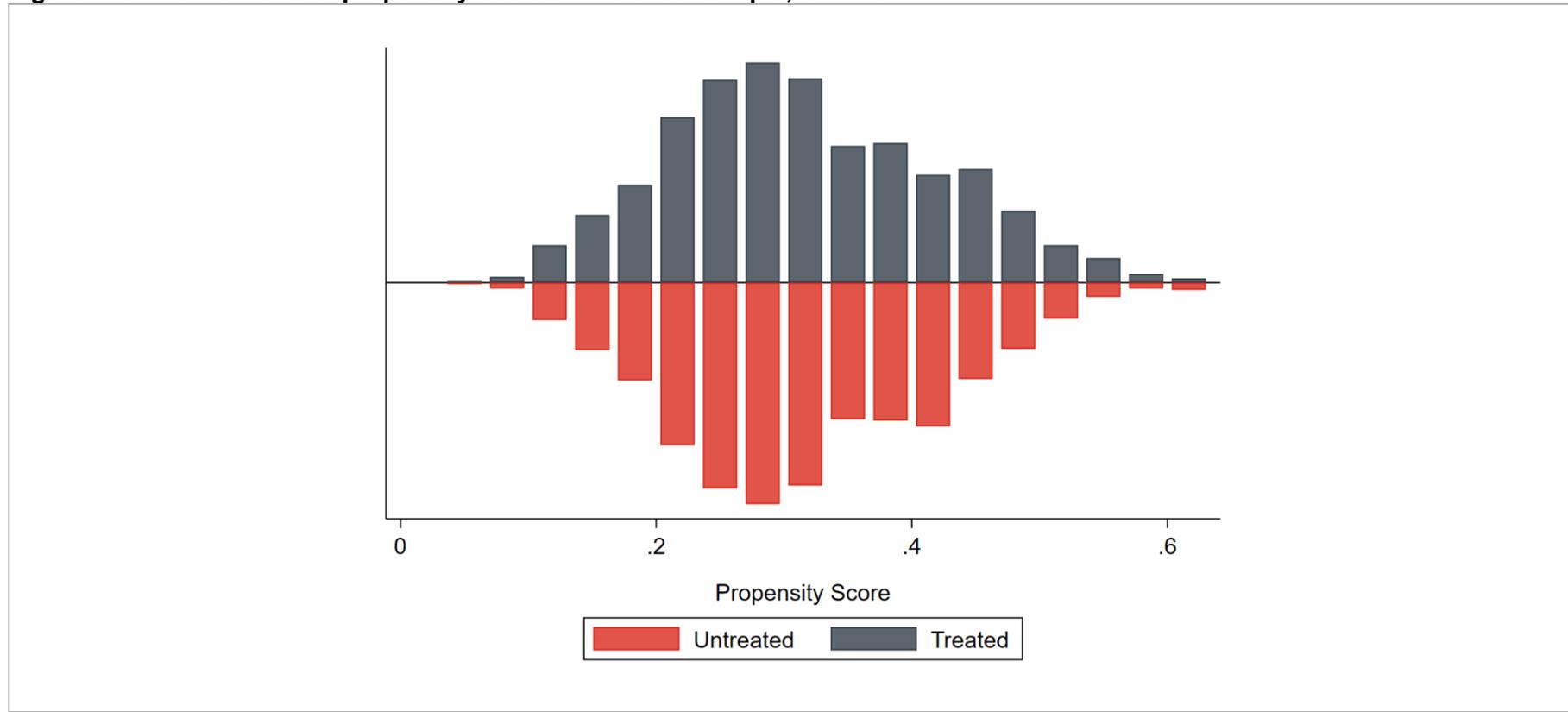
Source: UoE

Table B-13: Regression results for contemporaneous outcomes, UKHLS (wave when first reported youth participation)[48]

Outcome	Full Sample					Matched				
	coef.	s.e.	p-value	n	% correct / R^2	coef.	s.e.	p-value	n	% correct / R^2
Educational outcomes										
Want to go to Uni	0.35	0.21	0.10	3,206	94%	0.35	0.23	0.13	2,391	94%
Economic activity										
Did paid work last week										
Hours worked last week										
General health										
Self-rated health	-0.12	0.04	0.001	4,208	0.05	-0.13	0.04	0.002	3,211	0.05
Mental health										
Self-esteem	0.74	0.14	0.00	4,241	0.03	0.71	0.16	0.00	3,232	0.03
Crime and anti-social behaviour (last 12 months)										
Ever truant	-0.32	0.16	0.05	4,157	92%	-0.34	0.18	0.07	3,183	93%
Ever drink	-0.17	0.10	0.11	4,214	83%	-0.23	0.12	0.05	3,211	83%
Ever use drugs	-0.23	0.19	0.22	4,250	95%	-0.12	0.23	0.61	3,238	96%

Controlling for: a) age; b) gender; c) ethnicity; d) one parent's (usually mother's) labour force status; e) volunteer status and partnership status; f) household income; g) number of children aged 0-15 in the household; h) region of residence; i) urban/rural residence; and j) wave of study.

Source: UoE

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[48] The cells where the percent of 'correctly classified' or R^2 are not reported correspond to outcomes estimated with an ordinal logit model (i.e. allowing for different levels of outcome, for example the labour force participation category)

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Table B-14: Regression results for contemporaneous outcomes, UKHLS (wave when last in the youth panel)

Outcome	Full Sample					Matched				
	coef.	s.e.	p-value	n	% correct/R^2	coef.	s.e.	p-value	n	% correct t/R^2
Educational outcomes										
Want to go to Uni	0.10	0.20	0.61	3,330	93%	0.22	0.24	0.36	1,829	93%
Economic activity										
Did paid work last week	0.32	0.15	0.03	2,642	82%	0.32	0.20	0.10	1,560	81%
Hours worked last week	4.22	10.02	0.68	719	0.08	4.82	11.8	0.68	594	0.12
General health										
Self-rated health	-0.18	0.07	0.009	1,631	0.04	0.22	0.08	0.005	1,359	0.06
Mental health										
Self-esteem	0.43	0.29	0.14	1,632	0.08	0.52	0.32	0.1	1,359	0.08
SDQ Total Difficulties score	-0.28	0.33	0.39	2,651	0.04	-0.18	0.36	0.61	2,147	0.05
SDQ Prosocial score	0.31	0.10	0.001	2,653	0.10	0.38	0.11	0.00	2,149	0.12
SDQ Hyperactivity score	-0.14	0.13	0.29	2,652	0.03	-0.1	0.15	0.49	2,147	0.03
SDQ Emotional Symptoms score	-0.23	0.11	0.04	2,654	0.13	-0.22	0.13	0.08	2,149	0.15
SDQ Peer Relationship Problems score	0.06	0.09	0.49	2,652	0.04	0.09	0.10	0.42	2,148	0.05
SDQ Conduct Problems score	0.05	0.10	0.63	2,653	0.04	0.06	0.11	0.56	2,149	0.06
Crime and anti-social behaviour (last 12 months)										
Ever truant	-0.38	0.15	0.01	4,057	88%	-0.39	0.19	0.04	2,260	89%
Fought	0.41	0.15	0.006	2,633	86%	0.40	0.20	0.04	1,558	85%
Vandalised	0.19	0.18	0.28	2,635	90%	0.25	0.22	0.26	1,558	90%

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Outcome	Full Sample					Matched				
Shoplifting	0.03	0.31	0.92	2,632	97%	-0.09	0.37	0.82	1,557	96%
Ever drink	-0.17	0.10	0.09	4,082	74%	-0.12	0.13	0.37	2,269	71%
Ever use drugs	-0.27	0.22	0.22	2,509	90%	-0.39	0.27	0.15	1,278	90%

Controlling for: a) age; b) gender; c) ethnicity; d) one parent's (usually mother's) labour force status; e) volunteer status and partnership status; f) household income; g) number of children aged 0-15 in the household; h) region of residence; i) urban/rural residence; and j) wave of study.

Table B-15: Regression results for later life outcomes, UKHLS (16 yrs)

Outcome	Full Sample					Matched				
	coef.	s.e.	p-value	n	% correct/R^2	coef.	s.e.	p-value	n	% correct/ R^2
Educational outcomes										
Education important to who they are	-0.0002	0.13	0.99	1,904		-0.04	0.17	0.81	1,009	
Occupation important to who they are	0.02	0.12	0.89	1,903		0.04	0.15	0.76	1,009	
Likelihood of entering higher education	-0.13	0.11	0.26	2,541	0.06	-0.13	0.15	0.39	1,377	0.06
Likelihood of gaining training/uni place	3.72	1.68	0.03	1,782	0.04	5.59	2.22	0.01	892	0.05
Likelihood of successfully finishing studies	2.49	1.42	0.08	1,788		2.77	2.08	0.19	894	
Highest level of exam would like to have	0.12	0.11	0.25	2,800		0.04	0.15	0.79	1,489	
Importance of doing well in quals	0.03	0.24	0.89	1,745		0.34	0.31	0.28	968	

Outcome	Full Sample					Matched				
Received any vocational qualifications	0.14	0.12	0.23	3,585	80%	0.08	0.14	0.60	1,929	80%
Highest educational qualification	-0.04	0.13	0.75	3,488		0.14	0.16	0.38	1,881	
Econ activity										
Labour force status 5-category	0.11	0.13	0.41	3,569		0.18	0.17	0.31	1,921	
Looked for work in past 4 weeks	0.16	0.16	0.31	2,625		0.11	0.21	0.58	1,367	
Hours worked last week	-1.75	1.10	0.12	715	0.05	-1.59	1.47	0.29	422	0.06
Personal income	0.07	0.08	0.33	700	0.07	0.04	0.10	0.68	415	0.11
General health										
Self-rated health	-0.09	0.04	0.03	3,325	0.03	-0.06	0.05	0.26	1,792	0.03
Long-standing illness	0.10	0.13	0.47	3,563	86%	0.19	0.17	0.25	1,917	86%
Mental health										
GHQ Score	0.23	0.27	0.40	3,264	0.09	0.06	0.32	0.85	1,760	0.09
Life satisfaction score	0.07	0.07	0.29	3,308	0.03	0.12	0.09	0.17	1,782	0.03
Crime and anti-social behaviour										
Alcohol Use (AUDIT-C score)	-0.30	0.23	0.20	654	0.06	-0.30	0.29	0.32	370	0.08
Civic Participation										
Ever volunteer	0.85	0.18	0.00	1,392	72%	0.63	0.22	0.006	815	66%
Member of an organisation	0.84	0.28	0.003	1,412	90%	0.76	0.42	0.08	704	88%

Controlling for: a) age; b) gender; c) ethnicity; d) household income; e) household size; f) region of residence; g) urban/rural residence; and h) wave of study.

Source: UoE

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Table B-16: Regression results for later life outcomes, UKHLS (20 yrs)

Outcome	Full Sample					Matched				
	coef.	s.e.	p-value	n	% correct/ R^2	coef.	s.e.	p-value	n	% correct/ R^2
Educational outcomes										
Education important to who they are	-0.30	0.26	0.26	669		-0.05	0.33	0.89	362	
Occupation important to who they are	-0.16	0.20	0.44	667		-0.18	0.24	0.45	361	
Highest educational qualification	-0.05	0.18	0.76	1,492		0.01	0.23	0.98	834	
Economic activity										
Labour force status 5-category	0.32	0.16	0.04	1,491		0.30	0.19	0.12	883	
Looked for work in past 4 weeks	-0.05	0.24	0.84	589		0.08	0.28	0.77	312	
Hours worked last week	-2.03	1.70	0.24	761	0.09	-1.07	1.90	0.58	436	0.09
Personal income	0.05	0.09	0.58	727	0.05	0.04	0.08	0.62	425	0.08
General health										
Self-rated health	-0.02	0.08	0.75	1,373	0.04	0.04	0.09	0.67	770	0.05
Long-standing illness	-0.03	0.22	0.89	1,473	81%	-0.05	0.23	0.83	823	80%
Mental health										
GHQ Score	-0.19	0.43	0.67	1,358	0.06	-0.03	0.50	0.95	763	0.10
Life satisfaction score	0.01	0.11	0.94	1,365	0.02	0.06	0.12	0.64	765	0.04
Crime and anti-social behaviour										

Outcome	Full Sample					Matched				
Alcohol Use (AUDIT-C score)	0.16	0.20	0.42	679	0.08	0.22	0.24	0.36	408	0.08
Civic Participation										
Ever volunteer	0.78	0.34	0.03	492	81%	0.65	0.37	0.10	273	78%
Member of an organisation	-0.28	0.63	0.65	484	91%	-0.24	0.80	0.77	226	90%

Controlling for: a) age; b) gender; c) ethnicity; d) household income; e) household size; f) region of residence; g) urban/rural residence; and h) wave of study.

Table B-17: Regression results for later life outcomes, UKHLS (24 yrs)

Outcome	Full Sample					Matched				
	coef.	s.e.	p-value	n	% correct/ R^2	coef.	s.e.	p-value	n	% correct/ R^2
Educational outcomes										
Highest educational qualification	-0.11	0.41	0.80	336		-0.21	0.57	0.73	193	
Economic activity										
Labour force status 5-category	-0.47	0.48	0.34	336		-0.81	0.57	0.20	193	
Looked for work in past 4 weeks										
Hours worked last week	1.22	1.53	0.44	249	0.12	2.63	3.00	0.42	144	0.25
Personal income	0.03	0.04	0.43	246	0.14	0.04	0.05	0.47	142	0.21
General health										
Self-rated health	-0.03	0.14	0.81	328	0.09	0.12	0.16	0.45	187	0.18
Long-standing illness	-0.59	0.60	0.34	323	80%	-0.46	0.58	0.47	170	83%

Outcome	Full Sample					Matched				
Mental health										
GHQ Score	0.71	0.55	0.21	324	0.11	0.86	0.84	0.34	185	0.15
Life satisfaction score	0.06	0.18	0.74	327	0.10	0.004	0.20	0.98	188	0.22
Crime and anti-social behaviour										
Alcohol Use (AUDIT-C score)	0.31	0.37	0.42	220	0.14	0.28	0.21	0.27	125	0.16

Controlling for: a) age; b) gender; c) ethnicity; d) household income; e) household size; f) region of residence; g) urban/rural residence; and h) wave of study.

Source: UoE

Avon Longitudinal Study of Parents and Children

Table B-18: Logit regression results for binary outcomes later in life (age 25 - 26), Avon study

Outcome	Full sample				
	coef.	s.e.	p-value	n	% correct
Employment / career pathways					
In paid work, education or training	-0.29	0.20	0.15	2126	93%
In the top 50% by monthly earnings	0.08	0.12	0.48	1909	57%
Mental health					
Feeling sad, miserable, unhappy or tearful in the past four weeks	0.13	0.12	0.29	2117	68%
Attempted to harm themselves	0.15	0.41	0.72	2003	98%
Life satisfaction and wellbeing					
High life satisfaction					

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Outcome	Full sample				
Crime and anti-social behaviour					
In trouble with the law within the last 12 months	0.50	0.50	0.33	1851	99%
Involved in violence, stealing and vandalism	0.25	0.45	0.58	1521	98%

Controlling for: a) gender; b) ethnicity; c) growing up in a safe neighbourhood; d) urban vs rural area where grew up; e) the areas deprivation level; f) parental views on responsibility for children's education (them vs school); g) whether the research participant struggled at school (aged 7 - 12)

Source: SQW

SQW   WARWICK   UK YOUTH   University of Essex

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