![Ministry of Housing, Communities & Local Government logo]

National Evaluation of the Troubled Families Programme 2015 - 2020

Family Outcomes – national and local datasets, Part 4

Contents

Foreword

The Troubled Families' Programme aims to transform the way services work with families. To do this, the Programme champions working with the whole family to overcome multiple and complex problems, whilst joining up how services and partners work together to deliver a comprehensive and more effective intervention strategy.

The Ministry of Housing, Communities and Local Government wanted to design a national evaluation that was robust enough to stand up to public scrutiny and to establish whether the Programme was achieving its goals and utilising the resources effectively. To do this we used a quasi-experimental approach to assess the added value of the programme, i.e. a net impact evaluation. However, the design of the Programme poses a particular challenge for a national evaluation: there is no central programme, or one service model. Troubled Families interventions are all locally prescribed and tailored around families' needs and local factors.

The impact evaluation is a central element of the national evaluation which also includes a process evaluation, an economic evaluation and a longitudinal family survey. The impact evaluation is innovative and ambitious in its design, using nationally held administrative data from other Government Departments to measure outcomes on a scale not attempted before - it includes data from every upper tier local authority (149) for the programme group and a comparison group of families and this data is matched at the family and individual level to data held by other Government Departments. The data matching exercise provides the Department with information on offending, school attendance and attainment, children's social care and benefits and employment. The result is a very large dataset with over a million cases and over 3000 variables.

The vast amount of information and the inclusion of a comparison group has enabled the Department to undertake Propensity Score Matching to measure the net impact. In the absence of a Randomised Controlled Trial (RCT), Propensity Score Matching is regarded as a robust method for evaluating outcomes. The method has allowed analysts in the Department to control for differences between the programme and comparison group, taking into account a range of area, family and individual level characteristics and outcomes and to carry out insightful analysis. In developing the Propensity Score Matching models, interpreting the analysis and through the guidance of our technical experts, analysts at the Department have gained a wealth of experience and technical skills to evaluate social policies, and these methods are being applied to our other projects evaluating homelessness interventions.

In carrying out the work the analysts have learnt a lot about quality assuring data and data sharing with local authorities and Government Departments and have worked through a complex web of legislation, data security and ethical considerations. This

work has been time consuming but has allowed us access to a rich and robust dataset without compromising the anonymity of those whose data we hold. This project is an example of how different government departments, a range of officials within those departments and local authorities can work together and draw on each other's experience and expertise to deliver a fantastic resource.

The national evaluation of the Troubled Families Programme has been supported by a number of individuals from across government and academia who have provided insight and expertise that has greatly assisted the analytical team at the Department.

The Troubled Families Team have provided insight and advice and their continued support for the evaluation has been invaluable - Joe Tuke, Thomas Griffiths, Kirby Swales, Sally Frazer, Hannah Meyer, Elizabeth Johnson and Nicola Simpson are those with whom we have worked closely on the project more recently. I would like to express my gratitude to the analysts who have worked tirelessly on the data for the impact and economic evaluation – since last Summer this has included Naomi Knight, Lu Han, Rachel Huck, Matthew Lynch, Ricky Taylor, Ralph Halliday and Lan-Ho Man.

The Department would like to thank analytical and policy colleagues at the Department for Work and Pensions, Department for Education, the Ministry of Justice and Her Majesty's Revenue and Customs for their ongoing support which is essential to the delivery of the impact evaluation, as well as their expertise in helping analysts to interpret the data. In particular, we have worked closely with Edmund Kirby (Department for Work and Pensions), Lisa Robinson (Ministry of Justice) and Debbie Bovenizer (Department for Education). We would also like to thank colleagues at the Office for National Statistics for their ongoing work to collect, quality assure and collate the data and for creating the derived dataset on which the analysis is carried out, including Dean Jathoonia, Debbie Toomer, Tony Hitching, Stephen Milner, Angela Samuel and Sue Fendall. Thank you also to the Local Authority staff for making this evaluation possible, in particular, their commitment to regularly submitting the data relating to the families they are working with to the Office for National Statistics and the Troubled Families Information System.

We have benefited enormously from the expertise, support and guidance of members of the Technical Advisory Group in developing our Propensity Score Models. Dr Jo Blanden (University of Surrey), Mike Daly (Department for Work and Pensions), Dr Susan Purdon (Bryson and Purdon Social Research) and Professor Peter Urwin (University of Westminster) have provided regular and essential critique of our work, including the methods for assessing impact and the results from the analysis of the data. Their ongoing input has helped improve the quality of the data and ensured that the statistical models and the results of the impact evaluation are robust.

The current evaluation design was informed by the design and implementation (difficulties) of the first evaluation of the programme. We have been lucky to benefit from the continued support of Professor Jonathan Portes who has dedicated time to discuss the findings with us, as well as providing comments and suggestions to help us explore the findings further and improve their presentation.

The ongoing support and independent scrutiny of the evaluation as a whole has been provided by members of the Independent Advisory Group and for this the Department is also grateful. Members of the group include Dr Angela Donkin (National Foundation for Educational Research), Professor Patrick Sturgis (University of Southampton), Professor Anna Vignoles (University of Cambridge), Rose Doran (Local Government Association), Tom McBride (Early Intervention Foundation), Gerard Sheldon (Department for Education) and Penny Withers (Department for Health and Social Care).

The Department would like to say thank you to Julian Cox of Greater Manchester Combined Authority (GMCA) who carried out the calculations for the Cost Benefit Analysis and supported the analytical team to draft the Cost Benefit Analysis section of this report. We are grateful for the work he has carried out which has allowed an assessment of the economic benefits of the programme.

We are also extremely grateful for the hard work of the teams at Ipsos MORI which carry out the case study research and staff and family surveys on our behalf - Isabella Pereira, Rachel Williams, Claudia Mollidor, Holly Kitson, Lucy Lindley and Kelly Maguire. The work by Ipsos MORI has proved invaluable to us in informing areas for our own analysis, providing useful findings to further develop the programme within the Department as well as local authorities and other partners and providing valuable insights into the stories behind the findings.

I am particularly pleased with the progress made over the last year. Despite challenges with this project we have successfully developed a number of statistical models for outcomes of key interest and used these to estimate the benefits to the public that the programme is delivering. The work to interrogate the data further will continue and we are working hard to provide more useful findings which we hope to make available in the year ahead.

Stephen Aldridge
Chief Economist
Director for Analysis and Data
Ministry of Housing, Communities and Local Government

Executive Summary

This report includes the findings from the national evaluation of the Troubled Families Programme (2015 – 2020). All findings are based on data submitted by local authorities and matched to national administrative datasets: the latest dataset (Dataset 6) consists of 248,528 families and 864,205 individuals on the programme.

Key Findings

Characteristics of families

Individuals on the programme were considerably more complex than individuals in the general population.[1] *Descriptive analysis* showed, compared to the general population and in the year before joining the programme, for families on the programme:

- Adults were five times more likely to be claiming benefits and over ten times more likely to be claiming Jobseeker's Allowance.
- Children were nearly three times more likely to be persistently absent from school.
- Children were over nine times more likely to be classified as a Child in Need.[2]
- Adults were over nine times more likely to have a caution or conviction.

In addition:

- Over two fifths of troubled families had a family member with a mental health problem.
- Just over a fifth of troubled families had a family member affected by an incident of domestic abuse or violence.

Progress of families
- In the 12 months and 24 months after joining the programme, the proportion of adults claiming out of work benefits reduced. This was with the exception of Employment and Support Allowance where the proportion of adults claiming in the first 12 months increased.

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[1] Families on the Troubled Families Programme have multiple needs and to be eligible for the programme must meet two or more of the national criteria – worklessness and financial exclusion, school absence, mental and physical health problems, children needing help, domestic violence and abuse, crime and anti-social behaviour.

[2] Children in need are defined under the Children Act 1989 as: a child who is unlikely to reach or maintain a satisfactory level of health or development, or their health or development will be significantly impaired, without the provision of services, or the child is disabled. The data for Children in Need includes Looked After Children, children on a Child Protection Plan, and children on a Child in Need Plan. The children who are considered by the local authority as in need of help and therefore included in the National Impact Study may or may not be children who are classed as in need.

- In the two years after joining the programme the proportion of children on the programme persistently absent from school fluctuated, i.e. there was no clear trend.
- The proportion of Children in Need and on a Child Protection Plan fell over the two years after joining the programme, whilst the proportion of Looked After Children rose over the same period.
- The proportion of adults and juveniles (10-17 year olds) cautioned and convicted in the 12 months and 24 months after joining the programme was lower than in the 12 months before they joined the programme.

Outcomes of families

Impact analysis was carried out to compare the outcomes of individuals on the Troubled Families Programme with a matched comparison group over a 24 month period using Propensity Score Matching. Outcomes were split into six monthly periods after joining the programme, and any differences between the programme and comparison group were tested for statistical significance. The results showed:

Children who need help
- A smaller proportion of **Looked After Children** on the programme had been continuously looked after across all outcome periods.
- No difference between the programme or comparison group in the proportion of **Children in Need** across all outcome periods.
- A higher proportion of children on the programme on a **Child Protection Plan** for the first three six month periods and no difference between the groups in the fourth period compared to the comparison group.

Out of Work Benefits
- No difference between the programme and comparison group in the proportion claiming **Jobseeker's Allowance** in the first three outcome periods, but a smaller proportion of those in the programme group claiming Jobseeker's Allowance in the fourth outcome period.
- No difference between the programme and comparison group in the proportion claiming **Employment and Support Allowance** or **Income Support**.

Offending
- A smaller proportion of **adults** on the programme received a **custodial sentence** *compared to the comparison group*, but there was no difference between the two groups for **cautions** or **convictions**.
- A smaller proportion of **juveniles** on the programme received a **custodial sentence** or were **convicted** *compared to the comparison group*. There was no difference between the two groups for **cautions**.

Cost Benefit Analysis

The Greater Manchester Combined Authority (GMCA) research team have undertaken a cost benefit analysis of the Troubled Families Programme based on the outputs from the Propensity Score Matching. The analysis only considered effects measured in the Propensity Score Matching models, i.e. it did not include all outcomes for the programme, and only included outcomes where a statistically significant impact was found.

The analysis suggests **every £1 spent on the programme delivers £2.28 of benefits**, indicating the programme has had a positive net impact. These benefits are driven by the impact of the programme on Looked After Children and youth custody.

The analysis also suggests **every £1 spent on the programme delivers £1.51 of fiscal benefits**, indicating the programme is cost-saving to the taxpayer (although not all of these fiscal benefits will be cashable). These benefits are driven by the impact of the programme on Looked After Children.

As the impact analysis only found an impact on the proportion of Jobseeker's Allowance claimants in the final outcome period and found no clear evidence of an impact on employment, the cost benefit analysis also considered the benefits when excluding any effects on Jobseeker's Allowance. Removing these effects gives an **economic benefit of £1.94** and a **fiscal benefit of £1.29** for every £1 spent.

Introduction

The Troubled Families Programme aims to transform the lives of 400,000 families with multiple, persistent and often severe problems, across six headline issues, these are: worklessness and financial exclusion, school absence, mental and physical health problems, children needing help, domestic violence and abuse, crime and anti-social behaviour.

The Troubled Families Programme is designed to deliver whole family working, with a keyworker acting as a single point of contact for families. A keyworker should work in partnership with other agencies to deliver necessary, relevant support to all family members. Local Authorities can focus their local programme on different elements of the six headline issues according to local need.

Beyond the keyworker model, the Troubled Families Programme aims to mainstream 'whole family working' across the spectrum of early help services delivered by local authorities. The national evaluation of family outcomes sits alongside several other research strands: a qualitative process evaluation which works to understand both how the programme is being delivered and how it is being experienced by families; a longitudinal family survey; and longitudinal staff surveys.

Research Aims

The national evaluation of the Troubled Families Programme aims to assess the programme's impact on family outcomes and the strength of the economic case for the programme.

It also aims to provide insight into this cohort of complex families with multiple disadvantages at both an individual and family level.

This report is the fourth in a series of reports from the national evaluation of the Troubled Families Programme. The first two reports focused on the descriptive characteristics of families on the programme. They highlighted the complex needs faced by this cohort. The third report presented a deep dive into children connected with children's services and preliminary findings of the impact of the programme on children's service use outcomes.

The current report has three key objectives, to:

- provide updated, detailed descriptive statistics of the troubled families cohort, including at a family level across each of the six headline issues;
- evaluate the programme's impact on families, in order to assess whether the troubled families investment leads to improved outcomes for families, across

three of the four headline issues available in national administrative data: children's service use, crime,, and worklessness and financial exclusion;[3]

- evaluate the economic case for the Troubled Families Programme, through a cost-benefit analysis of both the fiscal and public value benefits of the programme, this should include all available outcome measures from the impact evaluation.

This report includes the latest findings from the national evaluation of the Troubled Families Programme. The findings incorporate the data on families who joined the programme between September 2014 and December 2017 and who were matched to national datasets.

The report includes the following:

- **Section A**: the updated characteristics of families on the programme and the problems they faced when they joined the programme;
- **Section B**: the latest trends for families' for children who need help; employment; benefits (Jobseeker's Allowance, Employment and Support Allowance and Income Support) and adult and youth offending;
- **Section C**: analysis of the net impact of the programme on outcomes for up to 24 months after joining the programme using Propensity Score Matching. A summary of the findings and fuller tables can be found in Annex E. The results have been approved for publication by the Technical Advisory Group.[4]
- **Section D**: cost-benefit analysis of the programme, in order to determine whether there have been any cost-savings to the tax-payer.

The dates for inclusion of data vary depending on the analysis carried out:

1. **Baseline characteristics** of individuals and families on the programme are based on data for those who joined the programme between September 2014 and December 2017.
2. **Progress** for individuals describing key trends in the data are based on those who joined the programme between September 2014 and June 2016.
3. **Outcomes** for individuals are based on those who joined the programme between September 2014 and April 2016.

This report brings together the findings from:

- **The National Impact Study (NIS):** Details of families on the programme (provided by local authorities), are matched to data held in administrative

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[3] MHCLG is still working to better understand the absence data, and impact analysis on this measure will be forthcoming.
[4] A group of academics and specialists with expertise and experience of the application of Propensity Score Matching to programme evaluation.

datasets held by government departments. These datasets include the Police National Computer (PNC) held by the Ministry of Justice (MoJ), The National Pupil Database (NPD) held by Department for Education (DfE) and the Work and Pensions Longitudinal Study (WPLS) and Single Housing Benefit Extract (SHBE) held by the Department for Work and Pensions (DWP). Data is also collected for a comparison group, made up of families who are not on the programme. The time lags in each dataset vary depending on the frequency of collection and publication (see Annex B for further information).

- **Family Progress Data (FPD):** Local authorities have provided additional data that is not held in national administrative datasets directly to MHCLG. This includes individual level and family level data on anti-social behaviour, domestic abuse, police callouts, dependence on non-prescription drugs or alcohol, issues with mental health, presence of NEETs[5], those missing from education and problems relating to housing. The data provided by local authorities is only for families and individuals on the programme. The Family Progress Data is less complete than the data for the National Impact Study and therefore likely to be an underestimate of the prevalence of problems amongst troubled families.

Local authorities are asked to submit National Impact Study data and Family Progress Data every six months on all the families eligible for and engaged in their local Troubled Families Programme to the Office for National Statistics (ONS).[6] The identities of families in the National Impact Study data are then matched to individuals in administrative datasets. There are some limitations/challenges with this matching process that should be noted and caution needs to be taken when interpreting the results:

- High match rates are dependent on the quality of the personal data supplied by local authorities;
- The data matching methodology is different in each government department (they have their own matching algorithms) and results in differing match rates;
- Only people with a caution or conviction will be matched to the Police National Computer. This means the match rate is lower for the Police National Computer than for the Work and Pensions Longitudinal Study and National Pupil Database.

The data in Dataset 6 were matched by government departments in May/June 2018: 248,528 families and 864,205 individuals on the programme were matched

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[5] NEET stands for Not in Employment, Education or Training. Only those aged between 16 and 24 inclusive can be a NEET.
[6] Local authorities submit data on all families eligible for the programme who are currently engaged and waiting to join the programme. This provides the evaluators with the ability to compare the outcomes of families in the programme and comparison group.

successfully to administrative datasets. The number of individuals matched to each dataset was:

- 114,916 to the Police National Computer;
- 376,235 to the National Pupil Database;
- 767,275 to the Work and Pensions Longitudinal Study and/or the Single Housing Benefit Extract (317,033 adults; 450,242 children).[7]

Table 1: Individual Match Rates between the administrative data source and individual level data

Administrative dataset	National Impact Study dataset
National Pupil Database	96.0%
Work and Pensions Longitudinal Study, Single Housing Benefit Extract (adults)	78.8%
Work and Pensions Longitudinal Study (children)	81.0%
Police National Computer	18.5%
Any dataset	88.2%

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[7] The Single Housing Benefit Extract is a monthly extract of housing benefit and council tax benefit. The data is claimant level.

Section A: Demographics and Characteristics of Troubled Families

Data on family demographics and characteristics is taken from the National Impact Study (NIS) and the Family Progress Data (FPD). The base numbers are reported below and vary according to the quality of the data. The analysis presented here only includes families who have taken part in the programme and has been carried out on Dataset 6, which includes those who joined the programme up to December 2017.

Three fifths of the individuals who have taken part in the programme were children. When they joined the programme most adults were aged between 18-44 years old and around a third of children were aged 10 years or under. The age distribution of individuals on the programme is illustrated in the chart below:

Figure 1: Age distribution of individuals on the programme[8]
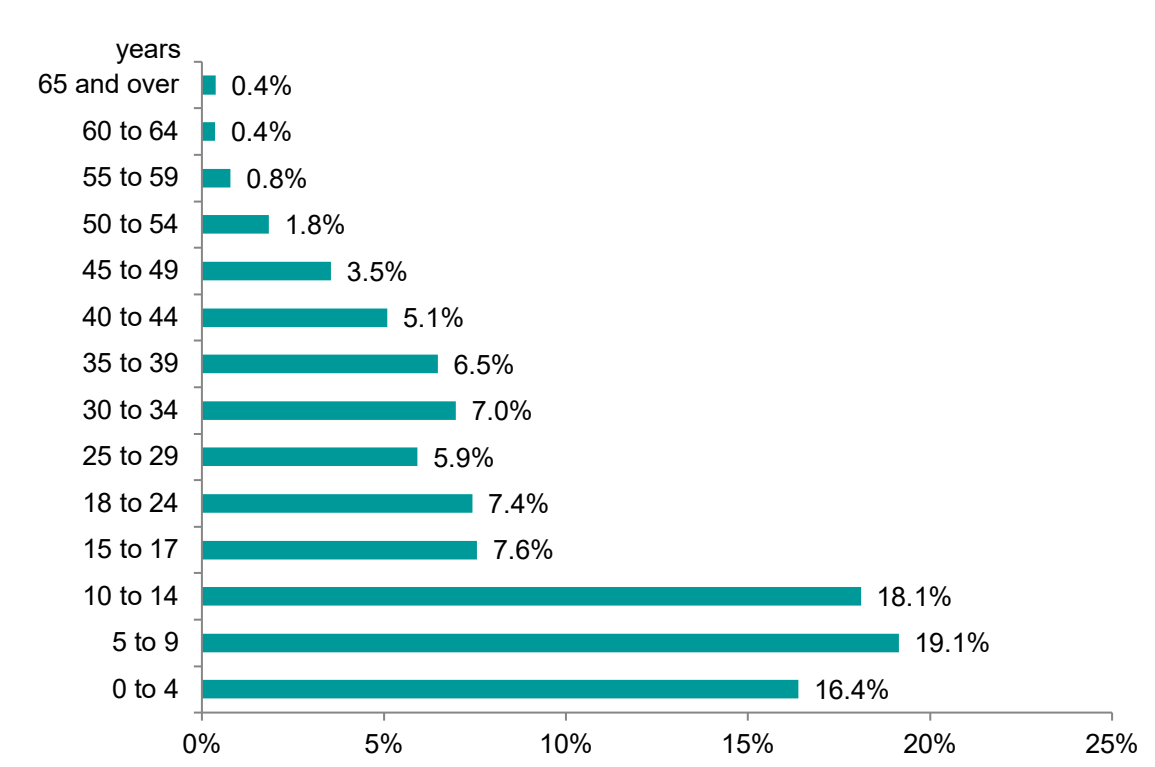
Of families on the programme, over two thirds of adults were female and around four fifths of individuals were white. Families on the programme were typically larger, contained more dependent children, were more likely to have a lone parent and have a child aged under-five than families in the general population.

Table 2 includes the key characteristics of families on the programme. National averages have been included in the table below to enable comparison of programme

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[8] Base number is 864,205 individuals

families to the general population, but it should be noted that the programme is likely to include a higher proportion of lone parents than found in the general population because it targets families at risk of financial exclusion. The programme is also likely to include a higher proportion of children who need help because it targets children at risk of harm.

Table 2: Demographics and characteristics of families on the programme[9]

	In the year before starting on the programme	National Prevalence
Proportion of female adults	67.9%	51.4%
Proportion of female children	46.4%	48.8%
White	80.1%	86.0%
Non-white	19.9%	14.0%
Proportion of families with at least one child aged under five	49.0%	17.0%
Average size of family	4.0	2.4
Average number of dependent children in a family	2.2	1.7
Proportion of lone parent families	56.2%	15.4%

In the year before they joined the programme, families experienced a range of issues under each of the six headline criteria on which families would have been selected for inclusion on the programme:

1. ***Worklessness and Financial Exclusion*** - Adults out of work or at risk of financial exclusion, or young people at risk of worklessness;
2. ***Education and School Attendance*** - Children not attending school regularly;
3. ***Children who Need Help*** - Children of all ages, who need help, identified as Children in Need or subject to a Child Protection Plan or Looked After Children;
4. ***Health*** - Parents or children with a range of health problems (including drug or alcohol misuse);
5. ***Crime and Anti-Social Behaviour*** - Parents or children involved in crime or anti-social behaviour;

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[9] Based on matched data for 248,528 families and 864,205 individuals. Base numbers vary for each measure due to differing amounts of missing data for each variable. Sources for National Prevalence figures can be found in Annex A.

6. ***Domestic Abuse*** - Families affected by domestic violence and abuse.

The data presented in section A tables highlighted in bold text relate to the outcomes of particular interest to the programme.

Worklessness and Financial Exclusion

In the year before joining the programme, the data from the National Impact Study showed, for 56% of *families* on the programme at least one adult was claiming at least one of: Jobseeker's Allowance (JSA); Employment and Support Allowance (ESA); or Income Support (IS). 56% of *individual adults* on the programme were claiming any benefits in the year before joining the programme – five times the national rate. Adults on the programme were over 10 times more likely to be claiming Jobseeker's Allowance compared to the national population.[10]

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[10] Case level data on Universal Credit is not currently available to MHCLG for the evaluation.

Table 3: Families and adults claiming benefits or in employment (from Department for Work and Pensions/Her Majesty's Revenue and Customs administrative data)

In In the year before starting on the programme, % of:	Prevalence amongst programme participants	Base figure for analysis	Indicative national prevalence[11]
Individuals claiming JSA or ESA or IS	**48.9%**	**317,033**	**7.8%**
Families claiming JSA or ESA or IS	**55.6%**	**240,002**	**Not available**
Adults in work	**36.3%**	**331,165**	**75.1%**
Families with an adult claiming any benefits[12]	60.8%	240,002	Not available
Adults claiming any benefits[12]	55.5%	317,033	10.7%
Adults claiming Employment and Support Allowance or Incapacity Benefit (ESA/IB/SDA)	20.7%	317,033	5.8%
Families claiming Employment and Support Allowance or Incapacity Benefit (ESA/IB/SDA)	25.2%	240,002	Not available
Adults claiming Income Support (IS)	23.2%	317,033	1.6%
Adults claiming Jobseeker's Allowance (JSA)	12.7%	317,033	1.2%
Families who are workless (no adults working)[13]	31.4%	240,002	14.9%[14]
Families with a child under-five with one adult out of work[15]	62.1%	118,660	Not available
Families with a child under-five with both adults out of work[15]	36.4%	118,660	Not available

Data provided by local authorities (Family Progress Data) revealed in the year before joining the programme 18% of families had a young person not in education, employment or training (NEET). Just over five per cent of families had made a homelessness application.

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[11] National Prevalence data is only available for individuals, not families. Sources for National Prevalence figures can be found in Annex A.

[12] Benefits included in this measure are Jobseeker's Allowance (JSA), Employment and Support Allowance (ESA)/Incapacity Benefit (IB)/Severe Disablement Allowance (SDA), Income Support (IS), Disability Living Allowance (DLA) and Carer's Allowance (CA).

[13] This is a proxy figure for workless; it represents any family where all adults 18-64 years-old were on Jobseeker's Allowance (JSA), Employment and Support Allowance (ESA)/Incapacity Benefit (IB)/Severe Disablement Allowance (SDA) or Income Support (IS)

[14] The National Prevalence figure is household level and taken from the Family Resources Survey data.

[15] Single parents are included in these figures.

Table 4: Those at risk of financial exclusion, including those not in employment, education or training (NEETs) (from local authority data sources)

In the year before starting on the programme, % of:	Prevalence amongst programme participants	Base figure for analysis	Indicative national prevalence[11]
Families with a young person who is not in education, employment or training (NEETs 16-24)	**18.4%**	**36,418**	**Not available**
Individuals not in education, employment or training (NEETs 16-24)	15.1%	40,166	11.1%
Families that have been evicted	1.3%	57,402	Not available
Families that have made a homelessness application	5.6%	74,189	Not available
Families who have any rent arrears	25.7%	51,484	Not available

Education and School Attendance

The data from the National Pupil Database showed children in families on the programme were nearly three times more likely to be persistently absent (i.e. they missed 10% or more education sessions) in the school year before joining the programme compared to school children nationally. Around a third of families had a child who was persistently absent in the last school year. The data also showed that children from families on the programme were five times more likely to be permanently excluded from school in the year before joining the programme than those in the general population. Nationally over half of children achieved five A*-C GCSEs (including English and Maths), compared to under a quarter of children in families on the programme.

In the year before starting on the programme, % of:	Prevalence amongst programme participants	Base figure for analysis	Indicative national prevalence[16]
Families with a child who is persistently overall absent (10% or more school sessions missed)	**32.6%**	**191,928**	**Not available**
Children who are persistently overall absent (10% or more school sessions missed)	**29.9%**	**261,837**	**10.4%**
Families with a child who is persistently overall absent (15% or more school sessions missed)[17]	18.4%	191,928	Not available
Children who are persistently overall absent (15% or more school sessions missed)	15.8%	261,837	4.5%
Families who have a child who is persistently absent (15% or more school session missed) or has a fixed period exclusion or a permanent exclusion	9.1%	108,399	Not available
Children with a fixed period exclusion	9.1%	213,975	4.8%
Children with a permanent exclusion	0.5%	213,975	0.1%
Children achieved five A*-C GCSEs incl. English and Maths	24.3%	72,801	53.5%

Children who Need Help

In the year before joining the programme, children in families on the programme were over nine times more likely to be classified as a Child in Need[18] than those in the general population. Children in these families were over 12 times more likely to be on a Child Protection Plan and twice as likely to have a special educational need

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[16] National prevalence data is only available for individuals, not families. Sources for National Prevalence figures can be found in Annex A.

[17] Two thresholds for persistent absence are included as the absence threshold changed from 15% to 10% in September 2015

[18] Children in need are defined under the Children Act 1989 as: a child who is unlikely to reach or maintain a satisfactory level of health or development, or their health or development will be significantly impaired, without the provision of services, or the child is disabled. The data for Children in Need includes Looked After Children, children on a Child Protection Plan, and children on a Child in Need Plan. The children who are considered by the local authority as in need of help and therefore included in the National Impact Study may or may not be children who are classed as in need.

(SEN) in the year before joining the programme compared to children in the general population.

Table 6: Children who need help (from Department of Education administrative data)

In the year before starting on the programme, % of:	Prevalence amongst programme participants	Base figure for analysis[19]	Indicative national prevalence[20]
Families with a child who is a Child in Need (CIN)[21]	**40.8%**	**192,792**	**Not available**
Children who are continuously Looked After (LAC)[22]	**0.5%**	**443,609**	**0.6%**
Children classed as Child in Need (CIN)	31.8%	443,609	3.3%
Children on a Child Protection Plan (CPP)	4.9%	443,609	0.4%
Families with at least one child with a special educational need (SEN) (with or without a statement)	44.8%	208,198	Not available
Children with a special educational need (SEN) (with or without a statement)	33.2%	369,304	14.6%
Children with a special educational need (SEN) (with a statement)	6.0%	369,304	2.9%

Health

Data provided by local authorities (Family Progress Data) showed more than two fifths of families on the programme had at least one individual with a mental health issue and around one in six families had an individual dependent on non-prescription drugs or alcohol in the year before joining the programme.

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[19] From NIS5 onwards, children who are under the age of five but unmatched to Department for Education data have been included in the base number for Children in Need, Child Protection Plan and Looked After Children. This increased the base number and lowered the percentages of Children in Need, children on a Child Protection Plan and Looked After Children, compared to previous analyses of the data.

[20] National prevalence data is only available for individuals, not families. Sources for National Prevalence figures can be found in Annex A.

[21] In this report a Child in Need refers to the umbrella term for involvement with Children's Services. Families who have a Child in Need includes those with a child on a Child in Need Plan, on a Child Protection Plan or Looked After, or a combination of these.

[22] Continuously refers to children who are looked after for 6 months or more.

Table 7: Families with health problems (from local authority sources)

In the year before starting on the programme, % of:	Prevalence amongst programme participants	Base figure for analysis	Indicative national prevalence[23]
Families with an individual with any mental health issue	**41.9%**	**86,682**	**Not available**
Families with an individual dependent on drugs or alcohol	15.6%	78,632	Not available
Families with an individual dependent on drugs	11.6%	75,649	Not available
Families with an individual dependent on alcohol	9.9%	74,519	Not available

Crime and Anti-Social Behaviour

Data from the National Impact Study showed adults on the programme were over nine times more likely to have a caution or conviction than adults in the general population in the year before joining the programme.

Table 8: Adults and children involved in crime (from Ministry of Justice administrative data)

In the year before starting on the programme, % of:	Prevalence amongst programme participants	Base figure for analysis	Indicative national prevalence[24]
Families with an adult or child with a caution or conviction[25]	**7.9%**	**248,292**	**Not available**
Adults with a caution or conviction	4.6%	334,406	0.5%
Children with a caution or conviction	2.5%	221,064	0.4%

Local authority data (Family Progress Data) showed fewer than eight per cent of families on the programme were involved in anti-social behaviour and nearly a third had a police call out to their home in the year before joining the programme.

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[23] National prevalence data is only available for individuals, not families.

[24] National prevalence data is only available for individuals, not families. Sources for National Prevalence figures can be found in Annex A.

[25] Based on all families with at least one individual aged 10-100 matched to Police National Computer. Other figures in the table based on all adults aged 18-100 or all children aged 10-17 matched to Police National Computer.

Table 9: Families involved in anti-social behaviour and police call outs (from local authority data sources)

In the year before starting on the programme, % of:	Prevalence amongst programme participants	Base figure for analysis	Indicative national prevalence[26]
Families with an anti-social behaviour incident	7.7%	118,413	Not available
Families where police have been called out to their home	31.3%	125,226	Not available

Domestic Abuse

Local authorities record incidents of domestic abuse from local police data and/or their own data. The data revealed just over a fifth of families on the programme had at least one family member who had been affected by domestic abuse in the year before joining the programme.

Table 10: Families affected by domestic abuse (from local authority data sources)

In the year before starting the programme, % of:	Prevalence amongst programme participants	Base figure for analysis	Indicative national prevalence[27]
Families who have been involved in a domestic abuse incident	**22.4%**	**161,197**	**Not available[28]**

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[26] National prevalence data is only available for individuals, not families.
[27] National prevalence data is only available for individuals, not families.
[28] The national figure for adults aged 18-59 is 6.2%.

Section B: Progress of Troubled Families

Section B includes analysis of national administrative datasets to examine whether the proportion of families on the programme with particular issues changed in the 24 months after joining. The findings below include only four of the six headline problems on which families have been selected for inclusion on the programme, as it is based on data provided through administrative datasets and not the data provided by local authorities[29]. For each of these issues, progress data for up to 24 months after joining the programme was available for the first three cohorts of troubled families (i.e. families starting the programme between September 2014 and June 2016). Full details for each cohort can be found in Annex C.

Worklessness and Financial Exclusion

In order to control for the roll-out of Universal Credit (UC), local authorities were removed from the analysis where the roll-out of Universal Credit affected over ten per cent of individuals in the troubled families' data (see Propensity Score Matching section for fuller explanation). This means the base numbers in the results below are lower than in previous publications.

At the end of the second year after joining the programme, the proportion of working age individuals on the programme claiming:

- Income Support and Jobseeker's Allowance had decreased by 4.7 percentage points and 3.3 percentage points respectively.
- Employment and Support Allowance had increased by 1.5 percentage points.

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[29] Family Progress Data provided by local authorities is only provided for families on the programme (not a comparison group) and the quality of returns is variable.

Figure 2 shows trends and prevalence for those on the programme in the two years after joining the programme. The trends across the three cohorts of troubled families are presented in Annex C, table A4.

Figure 2: The percentage of working age adults on the programme claiming out of work benefits when joining the programme, 12 months later and 24 months later[30,31]

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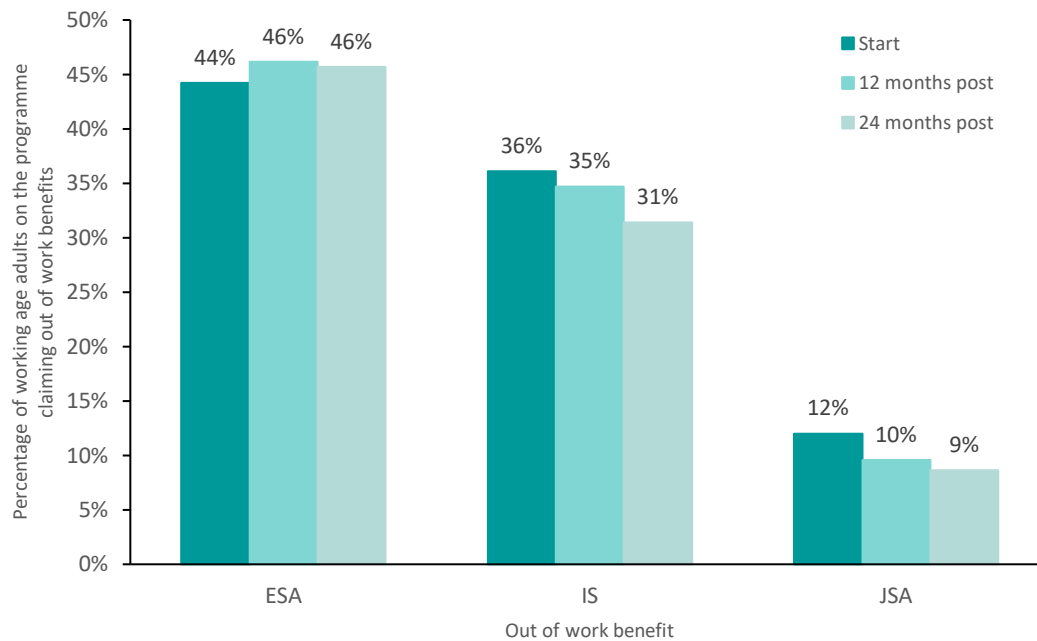
[30] Based on 34,699 working age adults who were matched to the Work and Pensions Longitudinal Study (two years after joining the programme), in local authorities where the Universal Credit roll-out was below ten per cent.

[31] The proportion of Jobseeker's Allowance claimants is much lower than other benefits as it tends to be claimed for shorter periods and the above reflects just one point in time.

In the year and second year after joining the programme around half of those adults who stopped claiming out-of-work benefits had spells of employment. Of those who continued to claim benefits, the majority only claimed benefits in that period, but a minority also had spells of employment[32]. Some adults started claiming benefits after they joined the programme. The results are in table 11 below:

Table 11: Proportion of those claiming benefits who were economically inactive and employed in the 12 and 24 months after joining the programme[33]

	In the year after programme start		In the second year after programme start	
	Economically inactive	Employed	Economically inactive	Employed
Employment and Support Allowance (ESA)				
Continued claiming ESA	90.0%	10.0%	91.1%	8.9%
Stopped claiming ESA	54.8%	45.2%	60.7%	39.3%
Started claiming ESA	52.4%	47.6%	64.7%	35.3%
Jobseeker's Allowance (JSA)				
Continued claiming JSA	69.4%	31.6%	60.4%	39.6%
Stopped claiming JSA	39.5%	61.5%	45.2%	54.8%
Started claiming JSA	50.8%	49.2%	50.7%	49.3%
Income Support (IS)				
Continued claiming IS	89.5%	11.5%	89.1%	10.9%
Stopped claiming IS	54.1%	45.9%	51.0%	49.0%
Started claiming IS	50.0%	50.0%	71.6%	28.4%

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[32] The employment data has been included, but it should be noted that some P45 data is missing from the dataset (see section C: discussion of employment data). The results should therefore be interpreted with caution.

[33] Based on 12,528 working age adults for Employment and Support Allowance, 1,920 for Jobseeker's Allowance and 13,493 Income Support.

Below is a Sankey Diagram[34] which illustrates the full breakdown of the movement between different benefit statuses when joining the programme and 24 months later.

Figure 3: Movement between benefits when joining the programme and 24 months after joining the programme[35]

Programme start   **24 months after programme start**

(Sankey diagram showing flows between: Claimed ESA, Claimed JSA, Claimed IS, Did not claim any of the three at programme start and the same categories 24 months after programme start)

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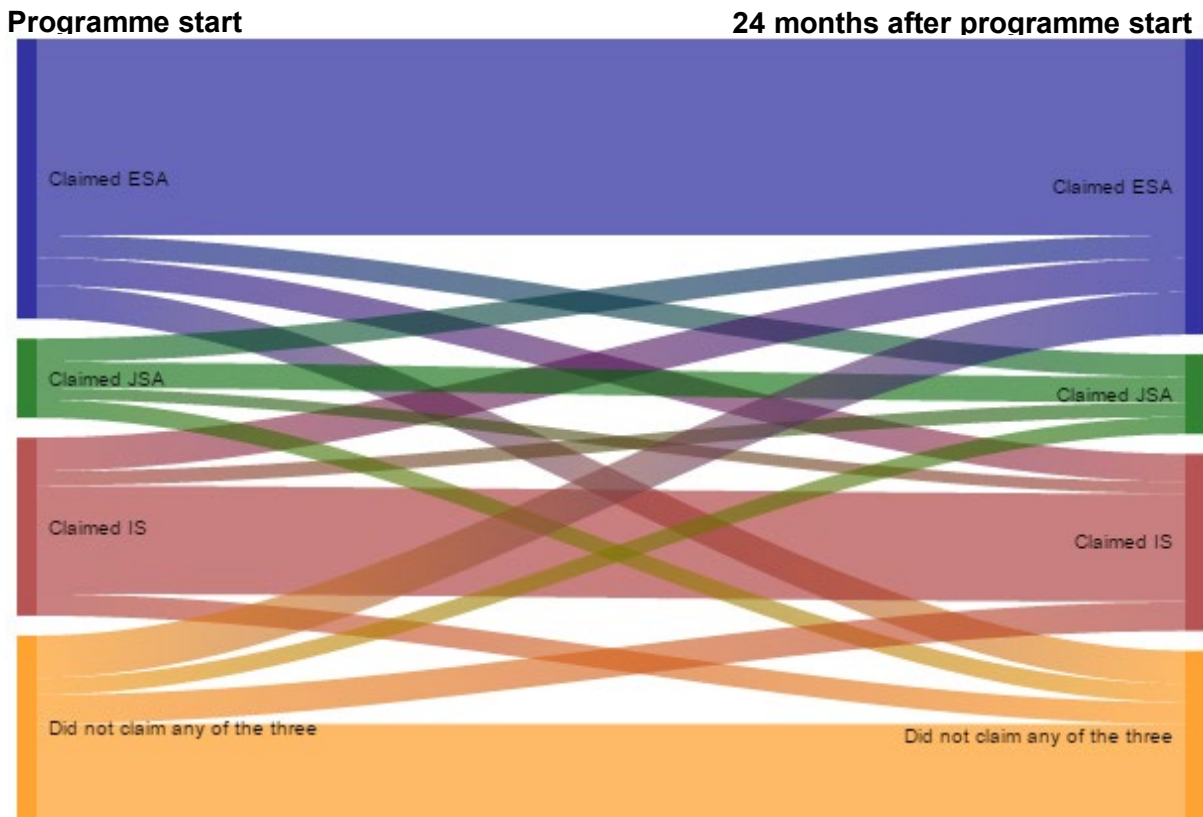
[34] Sankey diagrams are a type of flow diagram. The width of each arrow/band is proportionate to the flow quantity.

[35] Did not claim any of the three out of work benefits: including Jobseeker's Allowance, Employment and Support Allowance and Income Support.

Education and School Attendance

In the two years after joining the programme the proportion of children on the programme persistently absent from school fluctuated, i.e. there was no clear trend.

Figure 4: Proportion of school age children persistently absent from school (missed at least 10% of sessions)[36]

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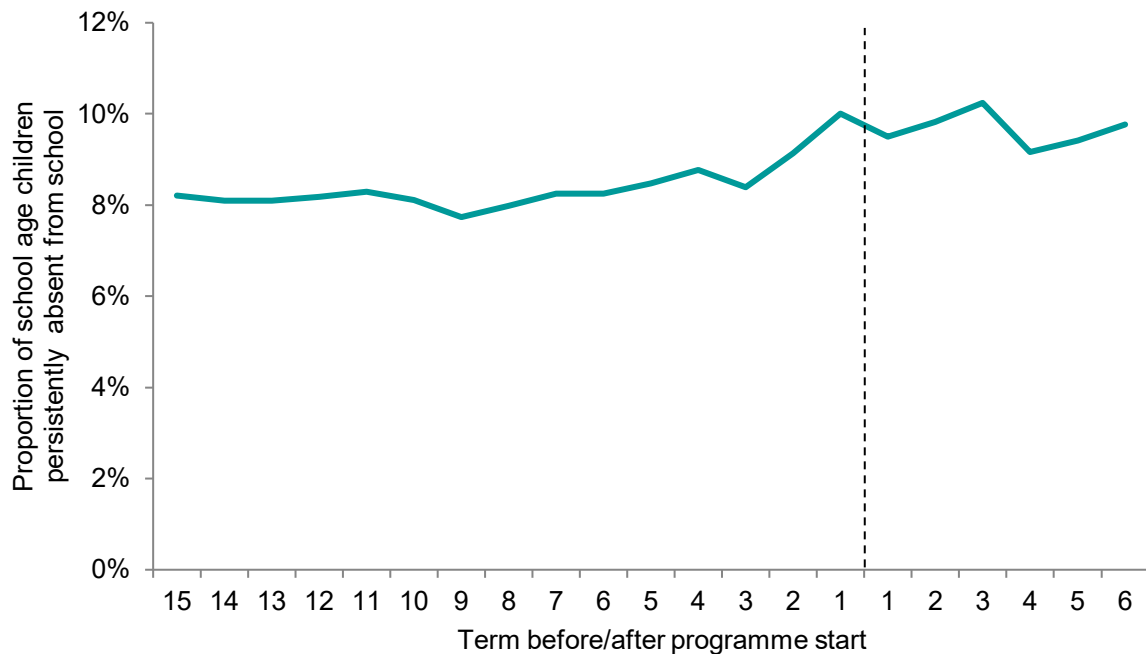
[36] Base before programme: 101,548 children aged 5-15 years, whose 24 month outcomes can be observed. Base after programme: 88,327 aged 5-15 years 24 months after joining the programme. Base after programme is lower because there are fewer children in the data whose absence can be observed six terms (two years) after joining the programme.

Similarly, among children on the programme, the average proportion of school sessions missed rose and then fell in the two years after joining the programme.

Figure 5: Average proportion of school sessions for which school age children were absent[37,38]

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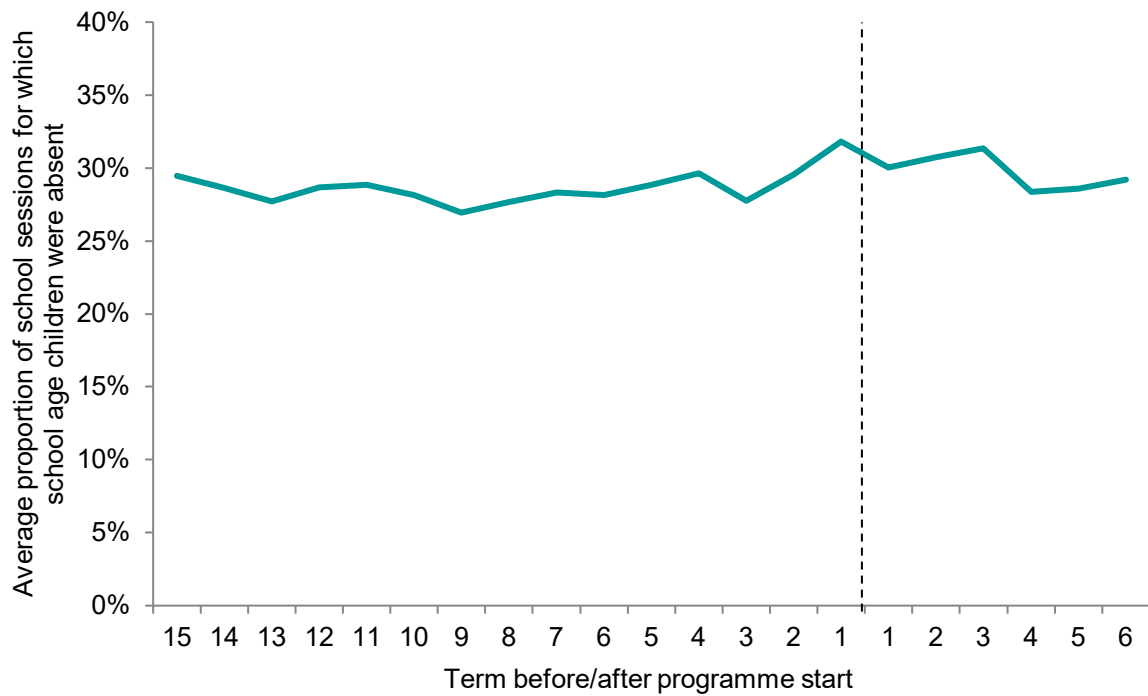
[37] The chart includes the average proportion absent for children matched to the National Pupil Database that are school aged at the relevant term, and who have 24 months of school outcomes available after joining the programme.
[38] Base: 113,359 children aged 5-15 years whose outcomes can be measured for the 6 terms (two years) after joining the programme.

Children who Need Help

The proportion of children either classified as a Child in Need or with a Child Protection Plan decreased in the two years after joining the programme. The proportion of Looked After Children increased in the same period.

Figure 6: Proportion of children who are Children in Need (CIN), on a Child Protection Plan (CPP) and Looked after Children (LAC)[39,40]

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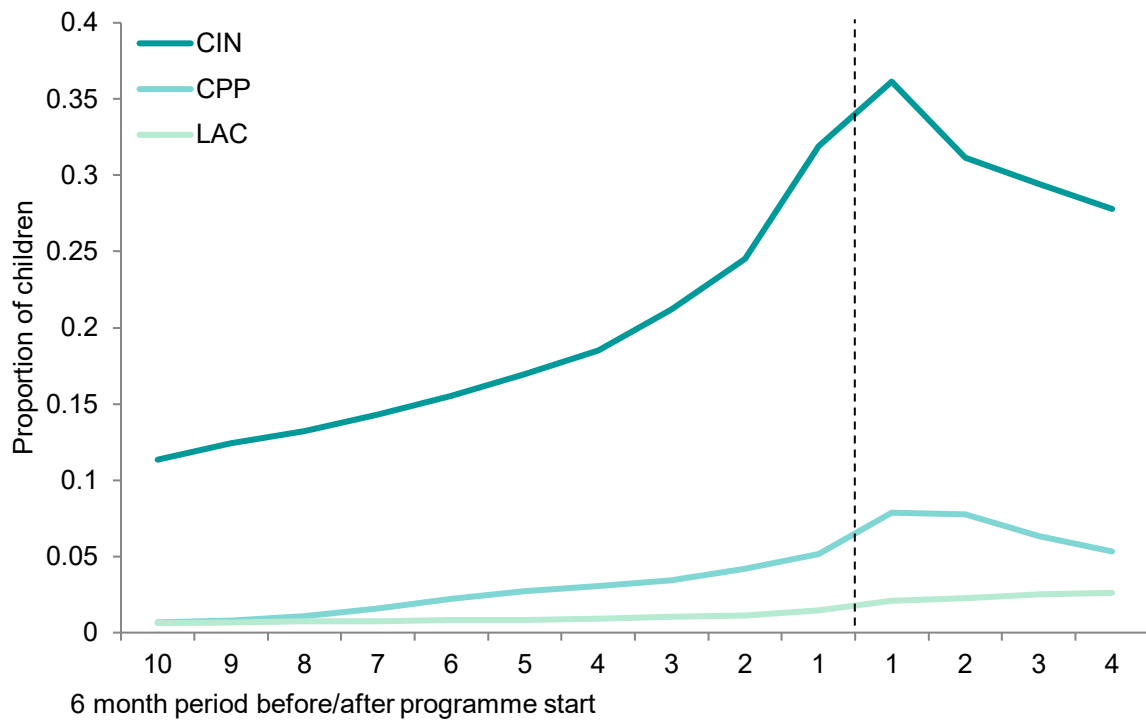
[39] The chart includes all children eligible to be classed as a Child in Need when they joined the programme, i.e. the data in the 24 months after joining the programme has not been adjusted for age.
[40] Based on 72,302 children on the programme for which 24 month outcomes are observed.

Crime (and Anti-Social Behaviour)

The proportion of adults and juveniles (10-17 year olds) cautioned and convicted in the 12 months and 24 months after joining the programme was lower than in the 12 months before they joined the programme.

Table 12 Proportion of individuals cautioned and convicted in the 12 months before and 12 and 24 months after joining the programme[41,42]

	Cautions	Convictions
Prevalence		
Proportion cautioned/convicted in the 12 months before programme	1.8%	3.6%
Proportion cautioned/convicted in the 12 months after programme	1.4%	3.3%
Difference	-0.4ppt	-0.3ppt
% change in individuals cautioned/convicted	-22.2%	-8.3%
Proportion cautioned/convicted in the 24 months after programme	1.0	2.9
Difference	-0.8ppt	-0.7ppt
% change in individuals cautioned/convicted[34]	-44.4%	-19.4%

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[41] Based on 196,287 individuals aged over 10 (in the year before they joined the programme), who were participating in the programme and their 24 months outcomes have been observed.
[42] Due to small numbers percentage change in individuals may appear large.

There was a greater decrease in cautions and convictions amongst adults taking part in the programme compared to 10-17 year olds (juveniles). For juveniles there was an increase in the proportion of convictions and a decrease in cautions.

When comparing 10-17 year olds (juveniles) to adults taking part in the programme, in the year before and subsequent years after joining the programme, there was a greater decrease in cautions and convictions for adults.

Table 13 Proportion of individuals cautioned and convicted in the 12 months before and 12 and 24 months after joining the programme[43]

	10-17 year olds		18+ year olds	
	Cautions	Convictions	Cautions	Convictions
Prevalence				
Proportion cautioned/convicted in the 12 months before programme	2.1%	2.3%	1.7%	4.4%
Proportion cautioned/convicted in the 12 months after programme	2.0%	2.7%	1.0%	3.7%
Difference	-0.1ppt	0.4ppt	-0.7ppt	-0.7ppt
% change in individuals cautioned/convicted	-4.8%	+17.4%	-41.2%	-15.9%
Proportion cautioned/convicted in the 24 months after programme	1.5%	2.8%	0.7%	3.0%
Difference	-0.6ppt	+0.5ppt	-1.0ppt	-1.4ppt
% change in individuals cautioned/convicted	-28.6%	+21.7%	-58.8%	-31.8%

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[43] Based on 119,481 adults (aged18+) and 76,806 children (aged between 10-17) who were participating in the programme and their 12 months outcomes have been observed.

Section C: Outcomes for Troubled Families

This section is a summary of the work carried out to estimate the impact of the Troubled Families Programme on outcomes related to: children's service use; out of work benefits; and adult and juvenile offending. The analysis has been carried out on the latest data (Dataset 6) which includes families who joined the programme between September 2014 and April 2016.[44]

Methodology

Propensity Score Matching

Propensity Score Matching (PSM) is commonly used for evaluating social policy programmes in the absence of a randomised control trial. It is regarded as a robust method for measuring impact and is particularly suitable for large datasets that include a lot of information about programme and non-programme participants in order to match cases across a number of relevant characteristics. Propensity Score Matching is therefore a method highly suited to measuring the impact of the Troubled Families Programme.

Propensity Score Matching controls for differences in the pre-programme characteristics of individuals on the programme and in the comparison group, including demographic characteristics and individual and family problems, thereby reducing selection bias.

Propensity Score Matching Models

Logistic regressions were carried out to identify which factors were significant for both selection onto the programme and the outcome. Where a factor was significant either for the programme selection or outcome measure, only factors predicting outcomes were included. Every attempt was made to maximise the predictive power of each logistic regression whilst, where possible, minimising the number of factors in the model to minimise bias.

Every attempt was made to ensure the two groups were well-matched on each variable. Inevitably, because the evaluation was not a randomised controlled trial, some residual differences remained on some characteristics between the two groups for each of the models, and may have remained on some unobservable characteristics. However, on the whole, the Propensity Score Matching approach provided relatively unbiased estimates of impact, with the overall bias in each model

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[44] Comparison group families are assigned a pseudo-start date. These start dates follow a similar trend to the start dates of the families on the programme.

within acceptable bounds (i.e. under 25% bias[45]). The programme and comparison groups were matched using Local Linear Regression on individual and family characteristics (see Annex E for the full tables and list of variables included in each model).

Data Used in the Analysis

For every model, Propensity Score Matching was carried out using data from areas that had passed an assessment of the suitability of their comparison group data. In practice this meant areas were excluded from the analysis where there was possible contamination bias between the programme and comparison group (e.g. because the comparison group might have received an intervention similar to the Troubled Families Programme). Areas were also excluded if there was evidence of selection bias between the programme and comparison group cases that could not be controlled for in the analysis (e.g. if comparison families were not on a waiting list or had been 'selected' in a different way to the programme group resulting in fundamental differences between them).

The programme and comparison groups were matched on five years of historical administrative data at both a family and individual level to ensure, as far as possible, all potential confounders were accounted for. Thus, the outcomes for individuals who had been on the Troubled Families Programme were compared against outcomes for individuals who had not been on the programme but were eligible (i.e. met two or more of the national criteria). These individuals form a comparison group which is essentially a waiting list for the programme.

The analysis followed an 'intention-to-treat' design, in that the outcomes included families that dropped out of the programme or failed to complete it for other reasons. Such a conservative approach might reduce the reported impacts of the programme because those who did not fully engage with the programme remain in the analysis. However, it ensures that the impact analysis reflects the results of all those that joined the programme.

Due to varying time lags in the administrative data (see Annex B for more information) the cut-off date for joining the programme for each Propensity Score Matching Model varied. Each model included outcomes for up to two years after joining the programme:

1. ***Children who need help model***: children in families who joined the programme between *September 2014 and March 2015*.
2. ***Benefits model***: adults (aged 18-64) in families who joined the programme between *September 2014 to April 2016.*

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[45] Under 25% bias is considered acceptable on conventional statistical tests used to test for bias in Propensity Score Matching models

3. **Offending model**: juveniles (aged 10-17[46]) and adults (18+ years old) in families who joined the programme between *September 2014 and December 2015*.

The results demonstrate programme impacts for earlier joiners of the programme only and provide the first set of data on the longer term impacts of the programme.

The Comparison Group

The comparison group for the Propensity Score Matching contained individuals from families which met the troubled families criteria but had not yet been through the programme. As the programme has progressed (since it started in 2015) the comparison group has been getting smaller and less complex relative to the programme group. The Troubled Families Programme has a focus on service transformation and over the lifetime of the programme more local authorities have adopted a 'Whole Family Approach' across their services. This means there are fewer eligible families that can be used to form a robust comparison group.

To mitigate the changes within the comparison group, comparison group data from previous waves of the evaluation (Datasets 4 and 5) were used, alongside the comparison group from Dataset 6. This increased the amount of comparison group data that could be used in the Propensity Score Matching models. Datasets 4, 5 and 6 were all produced by the Office for National Statistics (ONS) using the same method. This method may result in some comparison families appearing more than once in the combined dataset. However, since new randomised Pseudo Start dates are generated for families at each data linking cycle (because comparison group members have not started on the Troubled Families Programme), although some characteristics will be the same, (e.g. number of family members, gender, ethnicity) the family's trajectory over time will look different, depending on the point in time at which a family's start date has been imputed/generated.

Combining comparison groups from different data extracts reduced the variance in the comparison group, potentially reducing the standard errors calculated by the Propensity Score Matching model, leading to a potential over-estimation of statistical significance. However, the models and results were approved by the Technical Advisory Group and considered robust as a measure of net impact of the programme.

It is important to note, the changes mean the results from this report cannot be directly compared to the results published in March 2018, as the Propensity Score

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[46] The age of criminal responsibility in the UK is 10 years.

Matching models have been re-worked to ensure that the programme group remain well-matched to the comparison group.[47]

Local authorities included

The Propensity Score Matching models only included data from around a fifth of the upper tier local authorities. Only 78 out of 150 local authorities were able to submit comparison group data. Of the 78 areas, 33 areas provided comparison group data that was, as far as could be ascertained, reasonably free of selection or contamination biases.

To check that the results of the impact analysis were still generalisable to the programme overall, the characteristics of families in these local authorities were compared to families in the excluded areas. This analysis suggested that the data from the 33 local authorities included in the Propensity Score Matching models were representative of the programme population as a whole, as the key characteristics were similar (including age, family size, whether a member of the family was classed as a Child in Need, whether employed, criminal histories, etc.). Nevertheless, caution should be taken in extrapolating these results to the programme as a whole as some unobserved bias might still exist between these 33 local authorities and the rest.

Lack of Universal Credit data for the Benefit (and Employment) model

The administrative data MHCLG received did not include individual/household level information on those who were claiming Universal Credit (UC).

Universal Credit was introduced in some pilot areas as early as 2013 and since autumn 2017 a more intensive roll-out has been taking place. The missing Universal Credit data meant there was a known unobservable in the dataset, i.e. whether or not an individual was in receipt of Universal Credit. Without individual level data on Universal Credit, we were unable to check the rate of movement onto Universal Credit in either the comparison or programme group.

MHCLG are in the process of securing access to this data, which is held by the Department for Work and Pensions (DWP). To assist the analysis, the Department for Work and Pensions provided the number of working age individuals in Dataset 6 in each local authority in receipt of Universal Credit as of July 2017 (in both the programme and comparison group). This allowed an assessment of the impact of the roll-out of Universal Credit on the data. Analysis of the data suggested that areas:

1) with a low level of Universal Credit claimants did not show a sharp drop in their Jobseeker's Allowance claimants;

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[47] Previous report - https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/694356/20180326_Troubled_Families_-_families_outcomes_report.pdf

2) where Universal Credit roll-out was above 10% of all working age adults in the data had a progressive decrease in the proportion of Jobseeker's Allowance claimants since the roll-out of Universal Credit;

3) with the highest level of Universal Credit claimants showed the largest decrease in the numbers of Jobseeker's Allowance claimants, presumably because Universal Credit was substituted for Jobseeker's Allowance claims.

In order to control for this bias, analysis of benefit and employment outcomes was restricted to local authorities with fewer than 10% of working age individuals on Universal Credit. It was assumed that the roll-out of Universal Credit data affected both those on the programme and in the comparison group equally in each area. Tests were carried out to establish whether the impact analysis was sensitive to the threshold that was applied for Universal Credit roll-out. The results for areas with less than 10% per cent of claimants on Universal Credit were very similar to those with five per cent on Universal Credit.

As a further measure, the level of Universal Credit roll-out was included as a matching variable in the Propensity Score Matching models, even though the analysis was restricted to areas with less than ten per cent of adults on Universal Credit. This was to control for any residual differences in Universal Credit roll-out in the areas. Nevertheless, because of limitations with the data for Universal Credit, the results of the benefits (and employment) model should be interpreted with caution.

Employment Data

Employment status is based on P45 returns, provided by data from Her Majesty's Revenue and Customs (HMRC). There are significant data quality issues that made it difficult to draw robust conclusions about the Troubled Families Programme using this data.

As reported elsewhere, the P45 data may be an underestimate of employment.[48] Not all working individuals will have a P45 return. Those who are self-employed are not paid by PAYE. In recent years this is an increasing percentage of the population, with 45% of all employment growth accounted for by a rise in self-employment.[49] The earnings of those that are self-employed are typically lower than in other types of employment.[50] The rise of the gig economy has played a part in this.

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[48] See Greater Manchester Working Well Early impact assessment (January 2018 – see https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/668439/greater-manchester-working-well-early-impact-assessment.pdf)
[49] See Resolution Foundation Slides 'A Tough Gig' (February 2017 - https://www.resolutionfoundation.org/app/uploads/2017/02/Self-employment-presentation.pdf)
[50] See ONS 'Trends in Self Employment in the UK' (February 2018 https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/articles/trendsinselfemploymentintheuk/2018-02-07)

The gig economy and the self-employment rate have not occurred with an even geographic spread.[51] Within the Propensity Score Matching models it has not been possible to control for geographic differences, and therefore there may be a systematic difference between the programme and comparison groups that has not been controlled for.

Jobs paid by 'cash-in-hand' will also not be included in the employment data. However, it is unlikely troubled families employment advisors or Jobcentre Plus employees would advocate this type of work. If the Troubled Families Programme group included a disproportionate number of self-employed or 'cash-in-hand' employees, or individuals in areas where there are higher rates of jobs available through self-employment opportunities, the employment model might underestimate the impact of the programme on employment outcomes.

As a result, the benefits data is considered to provide a more robust measure of the impact of the programme on employment, and is used as the main source for the impact analysis here. This is aligned with best practice; DWP officials have used both benefits and employment data to evaluate work programmes and have relied on the benefits data to provide an estimate of the impact of an intervention rather than the employment data.

This conclusion is compounded by the fact that the P45 data that was available for this evaluation does not include those *not* claiming benefits. Although this would apply to both the Troubled Families group and the comparison group, it is not certain that this would affect both groups equally.

Although the impact analysis relies more heavily on the benefits data, the HMRC P45 data and the Propensity Score Matching models that build on this are included in Annex D, and are drawn upon to corroborate the findings from the benefit models. The results of the employment model showed no statistically significant difference for employment outcomes for those on the programme in contrast to the comparison group for each of the six month periods after joining the programme.

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[51] See Resolution Foundation Slides 'A Tough Gig' (February 2017 - https://www.resolutionfoundation.org/app/uploads/2017/02/Self-employment-presentation.pdf)

Results

Findings below have been presented in graphs or tables. Where the findings are presented in graphs, confidence intervals have been added to show the potential range of values. Where the confidence intervals do not overlap we can be confident that there is a difference between those on the programme and in the comparison group.

Impact of the Troubled Families Programme on Out-of-Work Benefits

Propensity Score Matching has been carried out for the following out-of-work benefits to ascertain whether working age adults are claiming:

- Jobseeker's Allowance;
- Employment and Support Allowance;
- Income Support.

Outcomes are measured across three time periods:

- seven to 12 months;
- 13-18 months;
- 19-24 months.

The Propensity Score Matching model included 21,576 individuals on the programme and 7,815 individuals in the matched comparison group. Note that the comparison group for this model included individuals from Datasets 4, 5 and 6.

As a rule-of-thumb a well-matched comparison group should, when matched, be similar to the programme group on key characteristics. In the context of out-of-work benefits a good model would match the adults on key variables relating to each out-of-work benefit in the period just before they join the programme. **The results should be interpreted with a note of caution as the model does not include Universal Credit and there remain some small, but not significant differences between the two groups before they joined the programme for Jobseeker's Allowance**. The model controlled for pre-programme differences in out-of-work benefit claims between the two groups:

Table 18: Match between the programme and comparison group: out-of-work benefits

In the 6 months before programme start	Claiming JSA	Claiming ESA	Claiming IS
Proportion of adults in the programme group	12.4%	19.8%	24.6%
Proportion of adults in the comparison group	13.0%	20.1%	24.7%
Difference	**-0.6%**	**-0.3%**	**-0.1%**

Outcomes for Out-of-Work Benefits

The results for Jobseeker's Allowance showed no difference between the two groups in the first three outcome periods. However, in the fourth period there were a significantly smaller proportion of individuals who were claiming Jobseeker's Allowance compared to the matched comparison group.

Figure 11: Outcomes for the programme and comparison group for Jobseeker's Allowance.
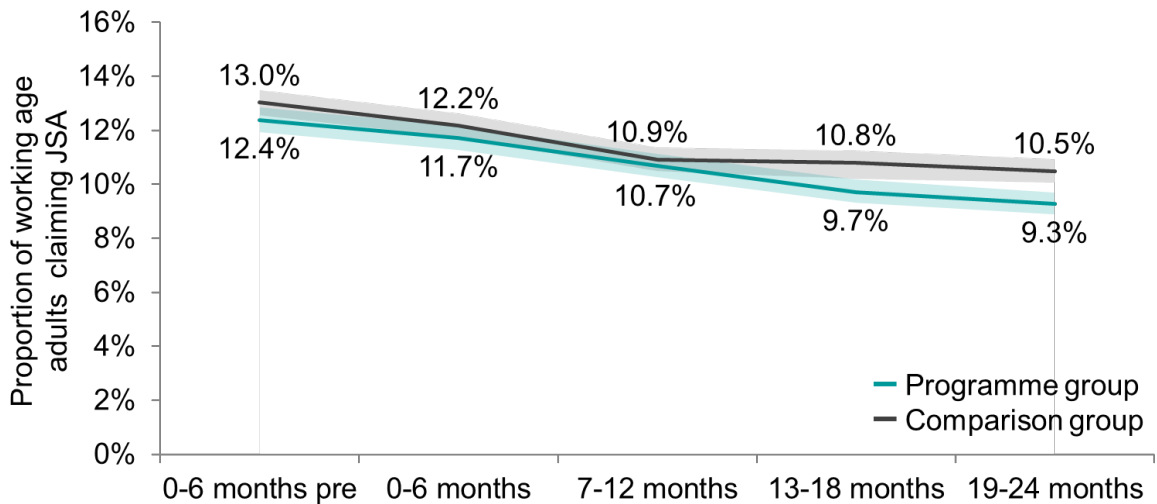
There was no significant difference between the two groups in the proportions claiming Employment and Support Allowance or Income Support.

Figure 12: Outcomes for the programme and comparison group for Employment and Support Allowance.

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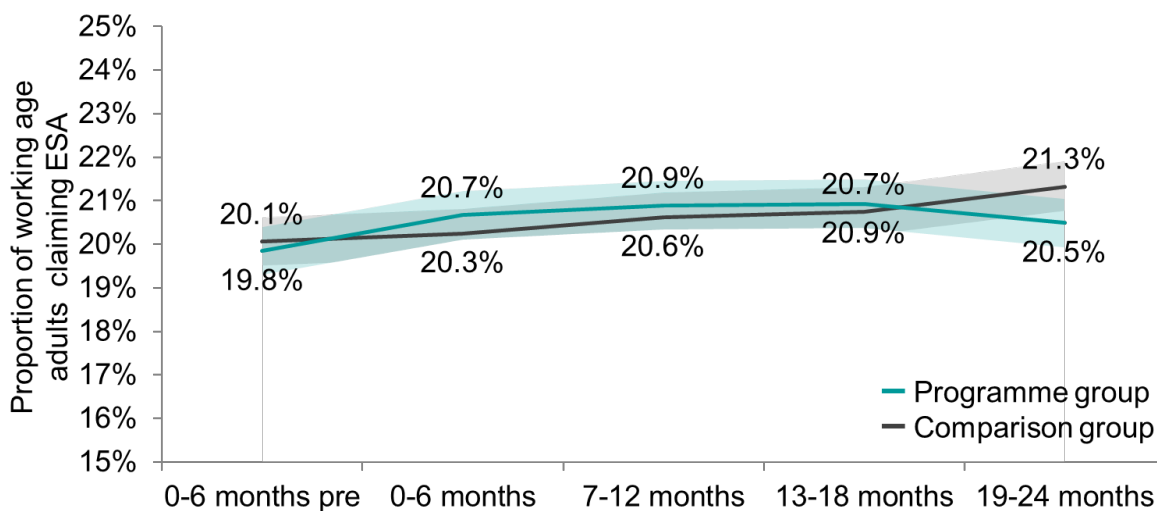
Figure 13: Outcomes for the programme and comparison group for Income Support
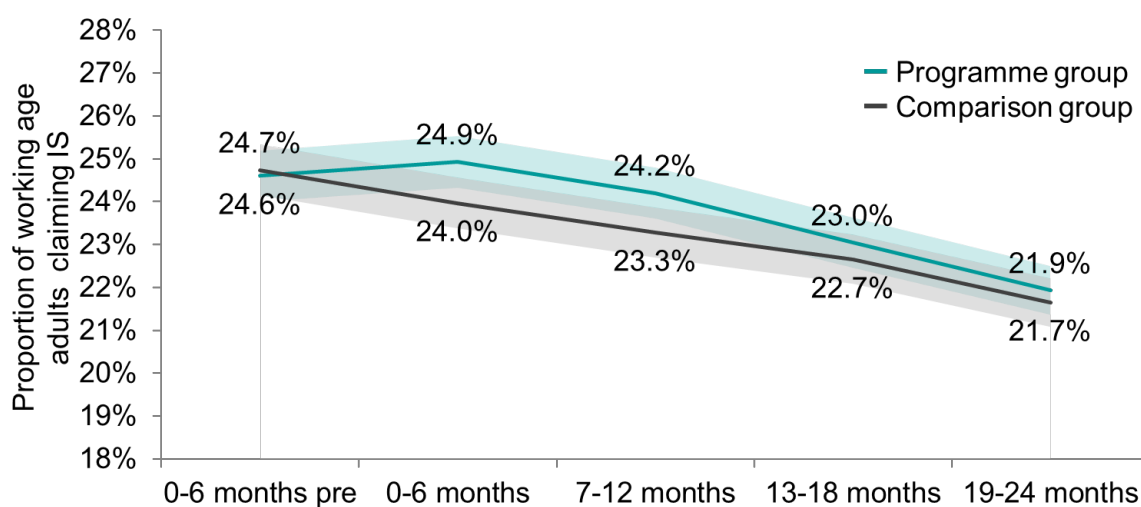
Further results for out-of-work benefits are provided in the tables in Annex E.

Discussion of results for out-of-work benefits

The results from this model should be interpreted with a note of caution, in particular given the concerns around controlling for Universal Credit. Overall they suggest the programme is having no or limited impact on individuals claiming out-of-work benefits. This finding is supported by the employment model which shows no difference between the programme and comparison group for employment outcomes (see Annex D).

There is some divergence in the final outcome period for Jobseeker's Allowance, with a smaller proportion of those on the programme claiming this benefit than in the comparison group (a statistically significant difference).

This difference may be because more individuals on the programme were in employment, although this was not supported by the results from the employment model in the same period (i.e. they were not picked up in the P45 data, although as discussed there are known issues about the P45 data). There is also the possibility that these individuals are moving onto Universal Credit, although the modelling work has attempted to control for this (by only including areas with low levels of Universal Credit roll-out). Further analysis is required to understand what is driving this finding.

The case study work by Ipsos MORI found that keyworkers and Troubled Families' Employment Advisers often agreed to focus on parents' additional issues (such as mental health problems, substance misuse and/or domestic abuse), as well as on building confidence before helping people move into work. This may provide an explanation for why the programme has not yet had a discernible impact on benefit claims or employment.

The same work also found that when families joined the programme, Troubled Families Employment Advisers would ensure that they were in receipt of all the

benefits they were entitled to. This may suggest that we should expect to see an increase in the number of benefit claimants amongst the programme group, but this is not the case in the Propensity Score Matching findings.

Impact of the Troubled Families Programme on Children who Need Help

Propensity Score Matching (i.e. comparing outcomes with a matched comparison group) was carried out for the following children's service use outcomes, whether the child was:

- classed as a Child in Need;
- continuously looked after;[52]
- on a Child Protection Plan.

Outcomes were measured across three time periods:

- seven to 12 months;
- 13-18 months;
- 19-24 months.

The Propensity Score Matching model included 10,862 individuals in the programme group and 3,714 individuals in the matched comparison group. Note that the comparison group for this model only contained individuals from Dataset 6 due to time lags in the data relating to children's social care (see Annex B), i.e. children that had follow-up data for the two year period after joining the programme (either programme start date or pseudo-start data for the comparison group).[53]

The Propensity Score Matching model for children's service use controlled for pre-programme differences on key variables for the two groups, see table 16 below:

Table 16: Match between the programme and comparison group: children's service use[54]

In the 6 months before programme start	Children in Need	On a Child Protection Plan	Looked After Children
Proportion of children in the programme group	37.2%	6.5%	0.5%
Proportion of children in the comparison group	37.1%	6.0%	0.5%
Difference	**0.1%**	**0.5%**	**-**

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[52] Children on a Child Protection Plan and Looked After Children are subsets of those who are classed as Children in Need. It is possible to be both on a Child Protection Plan and a looked after child.
[53] Comparison group families are assigned a pseudo-start date. These start dates follow a similar trend to the start dates of the families on the programme.
[54] Based on 10,862 individuals in the programme group and 3,714 individuals in the matched comparison group.

Children's Service Use Outcomes

The results for each period after joining the programme showed a significantly smaller proportion of **Looked After Children** who had been continuously looked after in contrast to the comparison group. The differences between the groups for each period were statistically significant.

Figure 7: Outcomes for Looked After Children for the programme and comparison group.
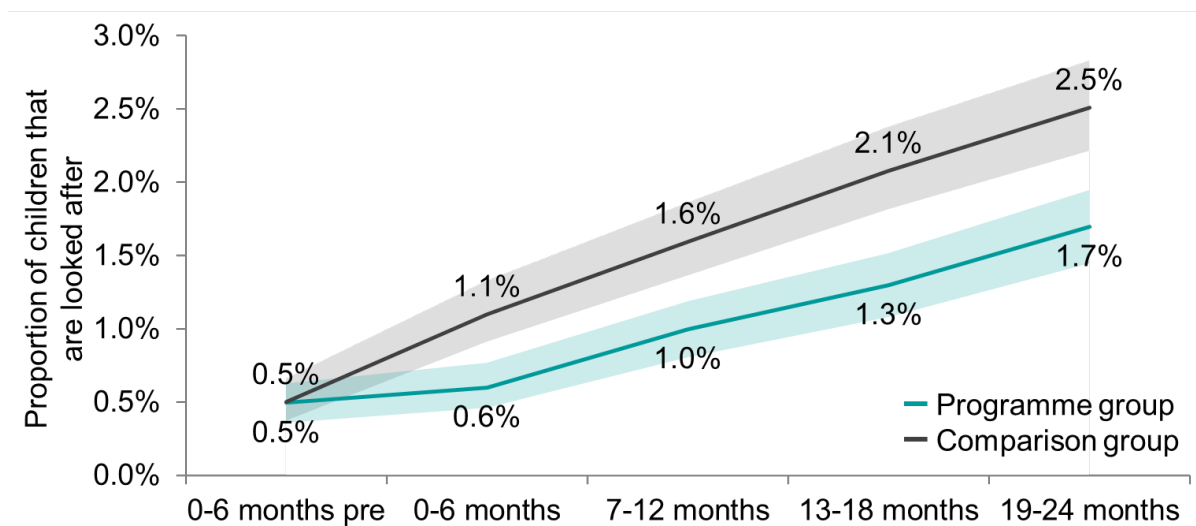
The results showed no difference in the proportion of **Children in Need** in contrast to the comparison group for any period after programme start.

Figure 8: Outcomes for Children in Need for the programme and comparison group[55]

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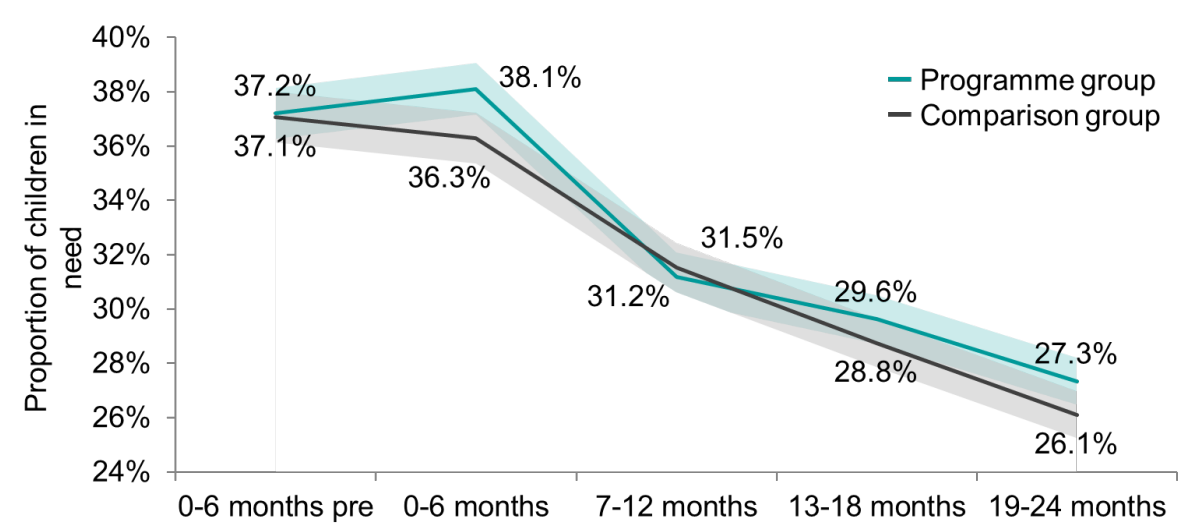
[55] It should be noted the Children in Need model includes all Children in Need, i.e. those on Child in Need plans as well as those who have more acute need i.e. have a Child Protection Plan or are looked after.

There were a higher proportion of children on the programme on **Child Protection Plans** in contrast to the comparison group for the first three six month periods and no significant difference between the groups in the final period.

Figure 9: Outcomes for children on Child Protection Plans for the programme and comparison group.
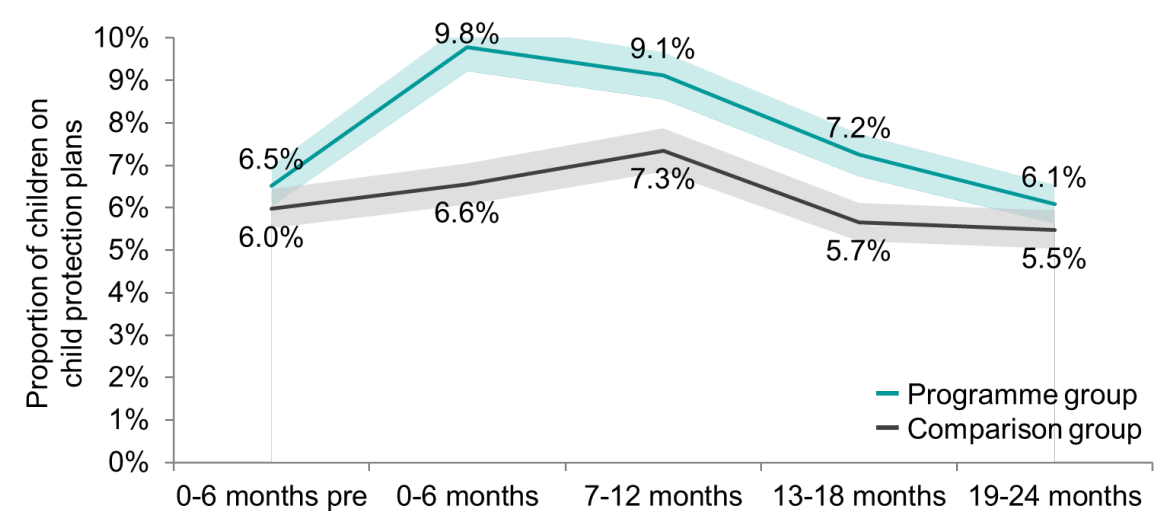
It should be noted that the proportions of Children in Need and children on Child Protection Plans both fall over time.

Further results can be found in the tables in Annex E.

Discussion of results for children who need help

The findings contrast with our earlier findings (published in March 2018) where the programme was found to have an impact on the proportion of Children in Need and there was no difference between the proportion of programme and comparison group children on Child Protection Plans. The differences between the results could be due to recent work to improve the pre-programme match between the two groups, as well as changing characteristics in the families in the dataset.

The findings suggest there are fewer children in care continuously as a result of the programme.

The longer-term outcomes suggest the Troubled Families Programme's impact on children in care was sustained over the entire two year period after families joined the programme.

For both groups there was a consistent fall in the proportion of children classed as 'in need', (the umbrella status for those on a Children in Need Plan a Child Protection Plan and Looked After Children) and on Child Protection Plans across the four periods. However, the results suggest the programme did not have an impact on the proportion of Children in Need and that the proportion of children on Child Protection Plans was higher (in the first three periods) than it would have been without the programme. In fact, the increase in the proportion on a Child Protection Plan within the first six months of families joining the programme coincided with a reduction in

the proportion of children placed in care. The overall increase in the numbers of continuously Looked After Children (in both the programme and comparison groups) is not surprising, given that once children are looked after by the state they tend to remain so. This would suggest that the impact of the programme has probably been in reducing the number of children entering care, and so mitigating this increase.

The higher proportion of children on Child Protection Plans on the programme could be a result of keyworkers uncovering unmet need when they begin to work with families and alerting social workers to risks within these families (a finding supported by the qualitative work carried out by Ipsos MORI). This could also explain the subsequent decrease in the proportion of children on Child Protection Plans (and convergence to the proportion in the comparison group) as the majority of Child Protection Plans last between 6 and 24 months.[56] It is also plausible that some of the increase in Child Protection Plans is the consequence of there being fewer Looked After Children; it is likely that the children who would have otherwise been in care would still require some social care support. However, this would not explain all the increase in children on Child Protection Plans amongst the programme group.

The qualitative case study work carried out by Ipsos MORI found Troubled Families Programme keyworkers were working alongside social workers. Staff who were interviewed reported that joining up services improved the quality of the work they could carry out with families and their outcomes, whilst reducing the burden on social workers. One case study found that keyworkers were stepping in for social workers and carrying out the child in need/child protection plans (with the social worker maintaining oversight and statutory responsibility), working with the whole family and making decisions about the care/services provided. The majority of Troubled Families Co-ordinators fed back in the staff survey that the programme was helping to manage the demand on Children's Social Care. Some keyworkers fed back that their caseloads included a lot of children on the edge of care and they were working to stop families from escalating to social care, to help reduce pressure on the system as well as to improve the lives of the families.

Further analysis of the data is required to establish the movement of children through children's social care for children on the Troubled Families Programme to better understand the programme's impact on children's social care service use.

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[56] DFE Statistical Release characteristics of Children in Need:
https://www.gov.uk/government/statistics/characteristics-of-children-in-need-2017-to-2018

Impact of the Programme on Adult and Juvenile Offending

Adult Offenders

Propensity Score Matching has been carried out for the following adult offending outcomes to ascertain whether the individual:

- received a custodial sentence;
- was cautioned;
- was convicted

at any time point in the two years after joining the programme. The 24 month outcome period was included to be consistent with the time periods by which Ministry of Justice measure their offender rehabilitation programmes.

The Propensity Score Matching model included adults (aged 18 to 100): 30,896 individuals were in the programme group and 14,468 individuals were in the matched comparison group. Note that the comparison group for these models contained individuals from Datasets 4, 5 and 6. The results may only provide an indication of results for this group as there is a risk those matched to the Police National Computer are not representative of all offenders in both groups.

The model controlled for pre-programme differences in cautions, convictions and custodial sentences between the two groups:

Table 19: Match between the programme and comparison group: adult offending[54]

In the year before programme start:	Received custodial sentence	Cautioned or convicted
Proportion of adults in the programme group	1.4%	6.4%
Proportion of adults in the comparison group	**1.5%**	6.3%
Difference	**-0.1%**	**0.1%**

Adult Offenders Outcomes

The results showed that a significantly smaller proportion of adults on the programme received a custodial sentence in the two years after joining the programme in contrast to the comparison group. There was no difference between the two groups for cautions or convictions.

The results for adults offending are shown in the table below and in the fuller tables in Annex E.

Table 14 Impact of the programme on Adult Offending[57]

Anytime within two years after programme start:	Custodial sentence	Cautioned	Convicted
Proportion of adult offenders on the programme	1.2%	1.9%	5.9%
Proportion of adults offenders in the comparison group	1.6%	2.2%	6.1%
Difference	**-0.4%*****	**-0.3%**	**-0.3%**

Discussion of results for adult offender outcomes

The results suggest that the programme is having a small positive impact on the proportion of adults receiving custodial sentences, but no impact on the proportion of adults being cautioned or convicted. This could indicate the severity of adult offending is reducing as a result of participation in the programme. Another possible explanation is that judges may be more lenient with those in contact with the programme committing similar offences to those in the comparison group; further work is needed to consider whether this might be the case.

The results of the family survey supported the finding indication that criminal activity had reduced Between the time one and two survey of families on the programme. Ipsos MORI found that families were significantly less likely to have had the police called to their home, been arrested or told off or asked to move on (though it should be noted that the survey only measures change over time and not the impact of the programme). The case study work, also carried out by Ipsos MORI, found local authorities had built strong links and productive collaborations with the police and justice services, and in some areas the police were changing the way they worked with families and were working more closely with other partners to deal with families' problems. The changes in the way services are being delivered - a joined-up approach among service providers - could be assisting in reducing offending in some areas.

Juvenile Offenders

Propensity Score Matching has been carried out for the following juvenile offender outcomes to determine whether the individual:

- received a custodial sentence;
- was cautioned;
- was convicted

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[57] Statistically significant differences indicated where * p value <0.05; ** p value <0.01; *** p value <0.001

at any point in the two year period after starting on the programme.

The Propensity Score Matching model included juveniles (aged 10 to 17) (20,109 individuals in the programme group and 9,815 individuals in the comparison group). Note: the comparison group for this model contained individuals from Datasets 4, 5 and 6. The results may only provide an indication of results for this group as there is a risk that those matched to the Police National Computer are not representative of all those in both groups.

The model controlled for pre-programme differences in cautions, convictions and custodial sentences between the two groups:

Table 21: Match between the programme and comparison group: juvenile offending[54]

In the year before programme start:	Received custodial sentence	Cautioned or convicted
Proportion of juvenile offenders in the programme group	0.2%	3.5%
Proportion of juvenile offenders in the comparison group	**0.2%**	3.7%
Difference	**-**	**-0.2%**

Juvenile Offenders Outcomes

The results for the two year period after programme start showed a significantly smaller proportion of juveniles on the programme received a custodial sentence and were convicted compared to the comparison group. Although the percentage point difference is small, due to the small number of individuals receiving custodial sentences in this cohort, this relates to a large percentage change. There was no difference between the two groups in the proportions receiving a caution.

The results for juvenile offending are shown in the table below and in the fuller tables in Annex E.

Table 15 Impact of the programme on juvenile offending[58]

Anytime within two years after programme:	Custodial sentence	Cautioned	Convicted
Proportion of juvenile offenders on the programme	0.5%	3.2%	3.9%
Proportion of juvenile offenders in the comparison group	0.8%	3.0%	4.6%
Difference	**-0.3%***	**0.2%**	**-0.7%****

Discussion of results for juvenile offender outcomes

The findings suggest that the programme is having a moderate, but positive impact on juvenile offending. Juveniles who had been on the programme were less likely to be convicted or to receive a custodial sentence in the two years after they joined the programme. However, they were equally as likely as the matched comparison group to be cautioned. This may suggest the Troubled Families Programme stops juveniles from committing more serious offences. It could also be the case that judges and the police may be more lenient with those in contact with the programme committing similar offences to those in the comparison group. As discussed above for adult offending, the qualitative work completed by Ipsos MORI suggests that local authorities and their partners were working differently with families to deal with offending behaviour which might be helping to reduce offending in some areas.

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[58] Statistically significant differences indicated where * p value <0.05; ** p value <0.01; *** p value <0.001

Section D: Cost Benefit Analysis

Introduction and Summary

The Greater Manchester Combined Authority (GMCA) research team have undertaken a cost benefit analysis of the Troubled Families Programme based on the outputs from the Propensity Score Matching. The analysis only considered effects that are included in the Propensity Score Matching models (children's service use, employment, out-of-work benefits and adult and youth offending), and only included outcomes where there was a statistically significant impact.

The analysis estimated the costs and benefits of the programme for the cohort that joined in 2017/18 over a five year time horizon.

The model considered two of the five cases in the Her Majesty's Treasury Five Case Model for assessing business cases:

- the economic case, which includes all economic and social benefits to capture the overall public value of the programme;
- and the fiscal/financial case, which covers the budgetary impacts of the programme as well as the fiscal impact of change in demand for public services.[59]

The analysis suggests that **every £1 spent on the programme delivers £2.28 of public value benefits** over five years, indicating that the programme has a net positive impact and meets the economic case.

The analysis also suggests that **every £1 spent on the programme delivers £1.51 of fiscal benefits** over five years, indicating that the programme is cost-saving to the taxpayer and meets the fiscal/financial case. However, not all of these fiscal benefits will be cashable.

As the impact analysis only found an impact on the proportion of Jobseeker's Allowance claimants in the final outcome period and found no clear evidence of an impact on employment, the cost benefit analysis also considered the benefits when excluding any effects on Jobseeker's Allowance. Removing these effects gives an **economic benefit of £1.94** and a **fiscal benefit of £1.29** for every £1 spent.

These estimates may underestimate the benefits of the programme because:

- The set of outcomes considered are **limited to those that have been included in the Propensity Score Matching models**, meaning that it has

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[59]Her Majesty's Treasury, Guide to Developing the Programme Business Case (2018) - https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/749085/Programme_Business_Case_2018.pdf

not considered possible impacts on domestic abuse, homelessness and improved mental health and wellbeing;

- The **assumptions about how effects are sustained** beyond the two years for which there is outcomes data were **conservative;**
- The analysis **only considered costs and benefits over a five-year time horizon**. Where outcomes are positive for younger children (e.g. the reduction in Looked After Children), evidence from other early programme programmes suggests that benefits may be sustained over a considerably longer time period.[60]

Methodology

Impacts

This analysis considered the costs and benefits over a five-year time horizon for the cohort of 124,144 families who joined the programme in 2017/18.

The length of time spent by local authorities working with individual families will depend on the level of need and programme type required. The average length of time on the programme for each family was approximately nine months, and so the Cost Benefit Analysis assumed that the costs for every family were incurred in the first year of analysis. This probably brought forward some of the costs of this cohort that did extend into year two, especially for families that joined relatively late in the year or were on the programme for a particularly long time. This was intended to be a cautious assumption; bringing forward costs meant that none were discounted, so the present values of these increased.

The analysis assumed that the effects of the programme on the cohort who joined the programme in 2017/18 would be the same as the effects of the programme on the sample included in the Propensity Score Matching models.

The Propensity Score Matching analysis covered the following outcome measures, the proportion of:

- Looked After Children
- Children in Need
- Children on Child Protection Plans
- Adults convicted, cautioned and sentenced to custody (as well as length of custody)
- Juveniles convicted, cautioned and sentenced to custody
- Adults claiming Jobseeker's Allowance
- Adults claiming Employment and Support Allowance

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[60] Early Intervention Foundation, How do we know it works? - https://www.eif.org.uk/why-it-matters/how-do-we-know-it-works/

- Adults claiming Income Support
- Adults in employment

The Propensity Score Matching models measured impacts over the first two years following a family joining the programme. Not all the results were statistically significant. The cost benefit analysis included all those measures where differences between the programme and comparison groups were statistically significant, regardless of whether these differences were positive or negative. In general, the outcomes from the Propensity Score Matching analysis are the same as the outcomes considered in the cost-benefit analysis. However, some outcomes from the Propensity Score Matching analysis are used to inform estimates of different outcomes considered in the cost-benefit analysis. In particular, the cost-benefit analysis uses the impacts on the proportion of adults claiming Jobseeker's Allowance to indicate the impact on employment, and uses the impacts on juvenile convictions to inform estimates of the impact on crime. A full list of the outcomes included are shown in table 29 below.

Table 29: Outcomes included in the cost benefit analysis

Outcome in Propensity Score Matching	Outcome in Cost Benefit Analysis	Time period after beginning of the programme			
		0-6 months	7-12 months	13-18 months	19-24 months
Proportion of adults claiming Jobseeker's Allowance	**Number of adults unemployed and claiming Jobseekers Allowance**	Not included		Included	
Proportion of Looked After Children	**Number of looked after children**	Included			
Proportion of juveniles convicted within two years of joining the programme	**Number of crimes committed by juveniles**	Included			
Proportion of adults given a custodial sentence within two years of joining the programme	**Number of years spent in prison by adults**	Included			
Proportion of juveniles given a custodial sentence within two years of joining the programme	**Number of years spent in prison by juveniles**	Included			
Proportion of children on a Child Protection Plan	**Number of children on a Child Protection Plan**	Included			

Although the Propensity Score Matching models measured impact beginning from the date families joined the programme (i.e. year one, 2017/18), the Cost Benefit

Analysis assumed that the benefits fell from year two onwards. Again, this was intended to be a cautious assumption; pushing back benefits meant they were more heavily discounted, and so their present value was lower.

Outcome data was only available for the first two years following the programme (modelled as years two and three in the Cost Benefit Analysis), but it is likely that some of these effects will extend into the future. To take account of this, the analysis modelled a range of scenarios that consider how effects might be sustained in years four and five.

Costs

The Cost Benefit Analysis considered the costs of the programme as the average cost incurred by central government per family. £920 million has been allocated to the Troubled Families Programme between 2015 and 2020 to support 400,000 families[61]; an average cost of £2,300 per family. This cost per family exceeded the £1,800 fees paid to local authorities for each family, because it also included overhead costs funded through the System Transformation Grant.[62] The costs were all assumed to fall in the first year because the average time families spent on the programme was estimated to be nine months.

The analysis assumed that the average cost to central government per family represents the additional resources that local authorities were able to assign to families on the programme on top of what they would have otherwise received. There may have been some cases where this funding was not wholly used to fund additional services and other cases where local authorities topped up this funding with additional resources diverted from elsewhere, but the analysis has been unable to account for this.

Benefits

Benefits were calculated for each outcome in each year where the Propensity Score Matching analysis indicated a statistically significant difference between the programme and comparison groups.[63] These differences were applied to the 124,144 families in the 2017/18 cohort to estimate the change in outcomes.

These outcomes are presented in table 30. Further description of this methodology is described in Annex F.

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[61] Written Question 28956 – Families: Disadvantaged (2016) - https://www.parliament.uk/written-questions-answers-statements/written-question/commons/2016-02-29/28956
[62] Local authorities were paid an annual Service Transformation Grant to enable areas to identify a senior point of contact and to support local oversight and coordination of the programme.
[63] Where there were multiple measurements in the same year, the annual effect was calculated by taking the average of the effect in all periods in that year

Table 30: Effects of outcomes considered in cost-benefit analysis

Outcome	Base number (counter-factual)	Impact year 2	Impact year 3	Comments
Number of adults unemployed and claiming Jobseekers Allowance	22,760	0	-2,470	1.72 adults per family. Assumes any change in the number of Jobseekers Allowance claimants reflects a change in the number of people employed.
Number of looked after children	6,300	-1,490	-2,190	2.21 children per family.
Number of crimes committed by juveniles	337,050	-24,110	-24,110	1.76 10-17 year olds per family. Assumes 50% of convictions are in each year. For each young person with a conviction there are assumed to be 3.8 convictions, based on Ministry of Justice reoffending statistics.[64] Every conviction is assumed to be indicative of 8.87 crimes. This is based on the ratio of crimes recorded in the Crime Survey for England and Wales to the total number of convictions.[65]
Number of years spent in prison by adults	740	-100	-100	1.72 adults per family. Assumes an average sentence length of 164 days and that 50% of sentence is spent in custody. Assumes 50% of custodial sentences are in each year.
Number of years spent in prison by juveniles	400	-80	-80	1.76 10-17 year olds per family. Assumes an average sentence length of 164 days and that 50% of sentence is spent in custody. Assumes 50% of custodial sentences are in each year
Number of children on a Child Protection Plan	15260	+6,880	+3,030	2.21 children per family

For years four and five, which are beyond the period for which there is impact data, the analysis considered a range of scenarios as to how effects will be sustained. There is considerable evidence around the strong association between childhood outcomes and outcomes later in life, which might suggest positive impacts on

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[64] Ministry of Justice (2016) – Proven Reoffending Statistics
https://www.gov.uk/government/statistics/proven-reoffending-statistics-october-to-december-2016
[65] Kantar (2018) – Crime Survey for England and Wales. http://www.crimesurvey.co.uk/en/index.html

children could have very long-lasting effects. However, there is not sufficient evidence to conclude how the specific impacts of this programme would influence outcomes later in life. Instead, we have limited this extrapolation to cautious, short-term assumptions. The optimistic scenario assumed that 100% of the effects in year three are felt in years four and five, but to avoid the risk of over-stating the benefits these results are not presented here. The central scenario assumed that 75% of the effects in year three will be felt in year four, and 50% will be felt in year five. This is conservative – in the results included in Table 30 above there is little indication that effects were weaker two years after families joined the programme than after one. The only outcome where there was a weaker effect two years after families joined the programme than after one was the proportion of children on a Child Protection Plan (that is, the only negative outcome).

A more pessimistic scenario assumed that 50% of the effects in year three will be felt in year four, and 0% will be felt in year five. Finally, where appropriate, the analysis calculated a break-even estimate. This showed the proportion of benefits that would need to be sustained in year four in order for the benefit-cost ratio to be greater than or equal to one. These scenarios are presented in Table 31.

Table 31: Benefits scenario analysis

Scenario	Year 1	Year 2	Year 3	Year 4	Year 5
Initial analysis	*None*	*As measured*	*As measured*	*None*	*None*
Optimistic scenario	None	As measured	As measured	100% of year 3	100% of year 3
Central scenario	None	As measured	As measured	75% of year 3	50% of year 3
Pessimistic scenario	None	As measured	As measured	50% of year 3	None

The same logic was applied to any dis-benefits (i.e. where impacts were negative).

Monetisation of benefits
All monetisation values were sourced from the New Economy Manchester Unit Cost Database, a collection of over 600 individual unit costs.[66] The costs in the Unit Cost Database have been generally sourced from government or academic sources, and verified with the relevant central government departments.[67] At the time of analysis, some values had been updated since the last publication; where this was the case, the updated values were used, rather than the published ones. The updated database is currently being reviewed by central government departments before upcoming publication.

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[66]New Economy Manchester, Unit Cost Database - http://www.neweconomymanchester.com/our-work/research-evaluation-cost-benefit-analysis/cost-benefit-analysis/unit-cost-database
[67]Her Majesty's Treasury, Supporting Public Service Transformation (2014) - https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/300214/cost_benefit_analysis_guidance_for_local_partnerships.pdf

The model considered two of the five cases in the Her Majesty's Treasury Five Case Model for assessing business cases[59]:

- The **Economic case**: this includes all the costs and benefits of the programme to any individual in society (the whole of England) in order to capture the overall public value created;
- The **Fiscal or Financial case**: this covers the budgetary impacts of the programme to tax-payer funded services (including welfare). It considers the additional costs to these services associated with delivering the programme, as well as any changes in demand for services.

Note that while the fiscal case considers budgetary and fiscal impacts, this is not limited to cashable savings. In some cases, a reduction in demand for services does not result in immediate savings. For example, demand reductions might take time to be considered in budgeting decisions, or demand reductions might free up resources for alternative use rather than reducing expenditure.

The valuations/unit costs used are presented in Table 32. It is worth noting these costs are not always comprehensive. In particular, many do not include wider social and economic impacts, where there is no established methodology to do so. It is also worth noting the unit costs indicate the average cost of each of these outcomes. It is possible that where the programme has had an impact, this could be from avoiding (or inducing) cases that have less severe economic or fiscal consequences than the average. For instance, a custodial sentence that is avoided could have been in a lower security prison than average, and so would have smaller economic impacts. There is therefore the potential the unit costs over-estimate the marginal (additional) impact of the programme effects. Conversely, it is also possible they under-estimate the impact, if the potential outcomes avoided would have had a greater economic impact than average. More detail, including sources and assumptions, is given in Annex F.

Outcome	Unit cost - fiscal case	Unit cost - economic case	Price year	Comments on differences between economic and fiscal cost
An additional adult unemployed and claiming Jobseeker's Allowance	£12,657	£19,153	2017-18	The economic cost includes additional costs to the NHS due to increased hospital use and costs from reduced employment. It excludes transfer payments from taxpayers to recipients
An additional looked after child	£906	£3,424	2016-17	The economic cost includes additional costs of crime, such as those relating to impacts on the health of victims and costs of damages
An additional crime committed by a juvenile	£35,371	£35,371	2016-17	Any additional economic impacts are not included.
An additional year spent in prison by an adult	£87,910	£87,910	2016-17	Any additional economic impacts are not included.
An additional year spent in prison by a juvenile	£54,114	£54,114	2016-17	Any additional economic impacts are not included.
An additional child on a Child Protection Plan	£3,728	£3,728	2008-09	Any additional economic impacts are not included.

Unit costs were uprated to 2017/18 prices where appropriate, and multiplied by the number of people affected/number of incidents to give a total benefit for each outcome. The benefits for each outcome were then added together to get total benefits.

Benefits and costs incurred in the future were discounted by the standard Her Majesty's Treasury (HMT) Green Book discount rate of 3.5%.

Net present value and benefit-cost ratios (BCRs)

Net present values were calculated by subtracting the discounted costs from the discounted benefits in each of the scenarios. The benefit-cost ratio was calculated by dividing the discounted benefits by the discounted costs.

Results of the Cost Benefit Analysis

Costs

Multiplying the £2,300 estimated cost per family by the 124,144 families attached to the programme in 2017/18, equated to a total cost of approximately £286 million, all of which fell in year one. This was the same in all scenarios considered. The costs are presented in Table 33.

	2017-18	2018-19	2019-20	2020-21	2021-22	Present value costs
Costs	£286m	-	-	-	-	£286m

Economic Case

Table 34 and Figure 14 below show the discounted total benefits over a five year period, and the resultant net impact (i.e. benefits minus costs) and benefit-cost ratio. They include the initial analysis, the central scenario for years four and five and the pessimistic scenario for years four and five.

Table 34: Total benefits: economic case

Scenario	2017-18	2018-19	2019-20	2020-21	2021-22	Present Value benefits	Net Present Value	BCR
Initial	-	£141m	£233m	-	-	£374m	£88m	1.31
Central	-	£141m	£233m	£169m	£109m	£651m	£366m	2.28
Pessimistic	-	£141m	£233m	£112m	-	£486m	£201m	1.70

Under the central scenario, the total net public benefit for the 2017/18 cohort over five years was estimated to be £366million. This suggests that every £1 spent on the programme delivered £2.28 of benefits.

As the benefit-cost ratio for the economic case was already positive in the initial analysis, no break-even analysis was undertaken for the impacts in year four.

Figure 14: The economic case (central scenario)

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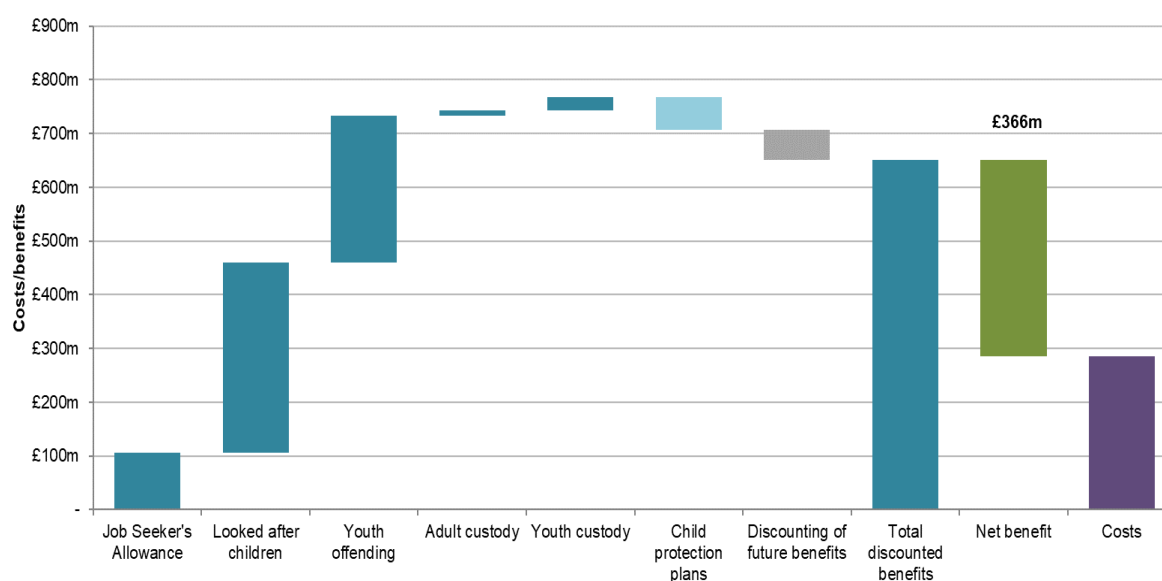
Figure 14 indicates that the majority of the economic benefits come from the changes to the proportion of Looked After Children and those committing youth crime. This indicates that a large proportion of the economic benefits (or at least those that were measured) of the programme are due to changes amongst a small minority of families. This may suggest that if the programme was able to concentrate resources on these families, the net benefits could be even higher.

Fiscal/Financial Case

Table 35 and Figure 15 below show the fiscal costs and benefits over a five year period, with and without discounting, and the resultant net impact and return on investment. They include the initial analysis, the central scenario for years four and five and the pessimistic scenario for years four and five.

Table 35: Total benefits: fiscal/financial case

Scenario	2017-18	2018-19	2019-20	2020-21	2021-22	Present Value benefits	Net Present Value	BCR
Initial	-	£82m	£160m	-	-	£242m	-£44m	0.85
Central	-	£82m	£160m	£116m	£75m	£432m	£147m	1.51
Pessimistic	-	£82m	£160m	£77m	-	£317m	£31m	1.12

Under the central scenario, the total net fiscal benefit for the 2017/18 cohort over five years was estimated to be £147 million. This suggests that every £1 spent on the programme delivered £1.51 of fiscal benefits. Note that not all of these benefits would be cashable savings, particularly in the short-term. If this was replicated across the whole programme (all 400,000 families) the total net benefit of the £920 million programme would be approximately £470 million.

The break-even analysis suggested that there would be a net fiscal benefit even if the effects in year four were only 28% of those in year three, and were not felt at all in year five. We considered it highly unlikely that effects would diminish this much. The observed benefits did not appear to be diminishing after two years, so we concluded that even on a relatively narrow set of outcomes, and over a short time horizon, there was likely to be a net positive fiscal impact.
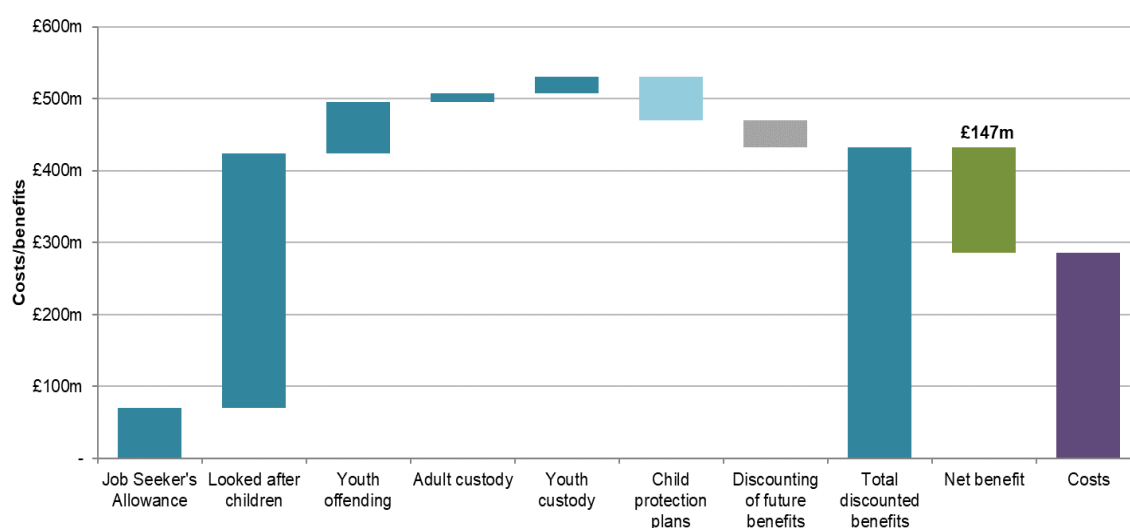
Figure 15 indicates that the large majority of fiscal benefits result from the reduction in the number of Looked After Children. Again, a relatively small change in the number of families affected has a very large impact on the overall benefits, due to the high cost of this service.

Probabilistic sensitivity analysis

Although various scenarios have been modelled to take into account the uncertainty around these results, it is difficult to estimate the likelihood of each of these scenarios. In order to consider this uncertainty more rigorously, we have conducted Monte Carlo probabilistic sensitivity analysis on the outcome parameters. The results from this analysis indicate a high degree of confidence that there is a net positive economic and fiscal impact. This analysis is described in Annex G.

Excluding changes to Jobseeker's Allowance

The impact analysis concluded that there was a statistically significant difference between the proportion of adults claiming Jobseeker's Allowance in the programme group and the comparison group in the final period. The cost-benefit analysis assumed this outcome indicated an increase in the number of people working, and estimated the fiscal and economic value corresponding to this. However, it is possible that when combined with the insignificant results regarding Income Support and Employment and Support Allowance, that there is no overall difference in the number of adults working. To account for this, we also consider the economic and fiscal cases without the Jobseeker's Allowance effects. The results are presented in tables 36 and 37.

Table 36: Total benefits excluding Jobseeker's Allowance: economic case

Scenario	2017-18	2018-19	2019-20	2020-21	2021-22	Present Value benefits	Net Present Value	BCR
Initial	-	£141m	£188m	-	-	£330m	£44m	1.15
Central	-	£141m	£188m	£136m	£88m	£554m	£269m	1.94
Pessimistic	-	£141m	£188m	£91m	-	£421m	£135m	1.47

Table 37: Total benefits excluding Jobseeker's Allowance: fiscal/financial case

Scenario	2017-18	2018-19	2019-20	2020-21	2021-22	Present Value benefits	Net Present Value	BCR
Initial	-	£82m	£131m	-	-	£213m	-£73m	0.74
Central	-	£82m	£131m	£95m	£61m	£368m	£83m	1.29
Pessimistic	-	£82m	£131m	£63m	-	£276m	-£10m	0.97

Discussion and Conclusion

This analysis gives insight into the relative costs and benefits of the Troubled Families' Programme. The analysis completed suggests that the programme is very likely to be cost-effective, in terms of both delivering a positive net economic impact and a positive net fiscal impact.

There are a number of limitations of this analysis. In general, these are likely to result in the results under-estimating the benefits of the programme.

Firstly, the set of outcomes considered is limited to those that have been included in the Propensity Score Matching modelling, meaning that it has not considered possible impacts on domestic abuse, homelessness and mental health and wellbeing.

Secondly, many of the unit costs included here do not comprehensively consider the costs and benefits of the outcomes, because the methodologies do not exist to measure these. This means that some important impacts were not considered. In general, the analysis was unable to take into account the direct health and wellbeing impacts of any of these changes, which may be considerable. For example, the benefits of having fewer Looked After Children only considered the immediate fiscal benefits of no longer having to provide care services, excluding any related impacts on the children's health and wellbeing. Such benefits may be large[68]; even where they cannot be quantified, they should be considered as part of the overall public benefit of the programme. On the other hand, some of the unit costs may overestimate the economic or fiscal benefit of programme effects, if the cases avoided by the programme are less severe than average.

Thirdly, the analysis has only considered the costs and benefits over a five-year time period. Where outcomes were positive for younger children (e.g. the reduction in Looked After Children), evidence from other early intervention programmes suggests that benefits may continue to be felt over a considerably longer time period.[69]

Fourthly, the cost estimates have relied on estimates of the total cost to central government. The estimates may not always accurately represent the economic costs borne by local authorities – if the payments made were not used to fund additional resources, or alternatively if local authorities topped up these payments with other funding. If this was the case, it is unclear which effect would be stronger, and therefore whether it would increase or decrease the estimated net impact.

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[68] Observational data shows that Looked After Children have significantly higher rates of mental health problems than the general population, although this may not indicate causality (McAuley and Davis, 2009).
[69] For example, the Perry Pre-school study (a randomised control trial of a pre-school programme) observed continued effects of the programme on economic performance much later in adult life (Schweinhart, 2005)

Fifthly, decisions around the timing of benefits and costs were purposefully cautious. Some costs are likely to have been brought forward, while some benefits will have been pushed back. This will have decreased the estimated net impact.

Finally, the analysis made assumptions about how effects are sustained beyond the two years following the programme. Our central scenario estimate (which we considered to be based on the most plausible) assumed that the effects in year four would be 75% of those in year three, and that the effects in year five would be 50% of those in year three. However, there was little indication that differences between the programme and comparison group were closing as time passed, and so this scenario is likely to be relatively cautious.

Summary

The results showed that all families targeted by the Troubled Families Programme had a range of complex needs, which were more prevalent in these families than the general population. The trend analysis also suggested that the issues for families who participated in the programme reduced across a wide range of measures, including Children in Need, on a Child Protection Plan, adult and juvenile cautions and convictions and out of work benefits. The only measure where there was an increase was the proportion of Looked After Children.

The estimates of the net impact of the programme, where the comparison group provided an approximation of the outcomes of families in the absence of the programme, suggested that overall the programme was having a moderate, but positive effect on some key measures, including Looked After Children and adult and juvenile custody. The Cost Benefit Analysis based on the impact analysis provides an encouraging picture and suggests that even though the programme did not have a positive impact on all measures and the evaluation provides only a partial picture, the programme is delivering both public value benefits and fiscal savings. The findings are, on balance, encouraging, but further analytical work is required to understand what is driving the results.

The results for Children in Need and Child Protection Plans suggest the proportion of families with these issues was falling following participation in the programme, in contrast to national trends. However, the results showed a mixed picture for net impact. The trends for Children in Need and Child Protection Plans suggested the staff working with families on the programme addressed unmet need after families joined and worked intensively with these families to de-escalate risk over a six or 12 month period (the length of a Child in Need plan and Child Protection Plan respectively).

The effect of the programme on employment and out-of-work benefits was less clear. The models suggest the programme had little or no impact on employment or out-of-work benefits, however qualitative evidence suggests these families are likely to be much further away from the labour market and that troubled families employment advisers are more likely to focus on getting individuals work-ready rather than into employment. The employment and benefit models have some limitations and should be interpreted with caution, as they don't include Universal Credit claims.

The results for adult and juvenile offending (10-17 year olds) suggest the programme is having a positive impact and reducing the proportion of those going into custody, as well as reducing the proportion of juveniles being convicted of offences after joining the programme. This could be a result of judges and/or the police being more lenient on those who are engaged with the programme, or could be as a result of the group reducing the severity of their offending.

Technical Annex: data sources

This annex provides information on the quality and sources of the different datasets referenced in the report.

ANNEX A: NATIONAL PREVALENCE ESTIMATES

In order to provide national comparisons for the headline characteristics and prevalence of problems amongst troubled families, MHCLG analysts have estimated indicative national prevalence for the relevant reference population from national statistics produced by other Government Departments (e.g. Department for Education, Department for Work and Pensions and Ministry of Justice). These are provisional estimates and are subject to further discussion with departments.

Table A1: Datasets used for the national evaluation

Dataset	Description	Source	Frequency
National Impact Study (NIS)	Individual level linked administrative data for all families assessed as eligible for the programme on employment/benefits, crime/offences, education/ attendance, Children in Need/care. Discussions on going to access health data for future rounds of data matching.	Nationally held administrative datasets	Six monthly data linkage
Family Progress Data (FPD)	Individual and family level data on programme type and additional information not collected in administrative datasets (e.g. domestic abuse incidence, NEET status, housing tenure, etc.). Requested by MHCLG and collected through an online information system. These data are subject to further quality assurance and there are some issues with missing data. We are working with local authorities on improving the quality of the data collection.	Local Authorities (submitted to MHCLG via an online information system)	Six monthly

Table A2: Source of national prevalence figures

	Measure	National prevalence source (amongst the population of England)	Base figure source
Education	Child with a fixed period exclusion	DfE (2016/2017) - Permanent and fixed period exclusions in England: 2016 to 2017	Pupils on the school roll / primary secondary and special schools.
	Child with a permanent exclusion	DfE (2016/2017) - Permanent and fixed period exclusions in England: 2016 to 2017	Pupils on the school roll /primary secondary and special schools.
	Child who is persistently absent (10% authorised & unauthorised)	DfE (2016/2017) - Pupil absence in schools in England: 2016 to 2017	Pupils on the school roll /primary secondary and special schools aged 5-15
	Child who is persistently absent (15% authorised & unauthorised)	DfE (2016/2017) - Pupil absence in schools in England: 2014 to 2015 (Additional Tables, new persistent absence methodology (10%)	Number of enrolments in each academic year. Includes pupils on the school roll for at least one session who are aged between 5 and 15, excluding boarders.
	Child with a SEN	DfE (2018) - SFR 29/2016: Special educational needs in England, January 2018	Population Estimates for UK, England and Wales, Scotland and Northern Ireland: Mid-2016
Children in need	Child classed as CIN at 31 March 2016	DfE (2016/17) - Characteristics of Children in Need: 2016 to 2017	Population Estimates for UK, England and Wales, Scotland and Northern Ireland: Mid-2016
	Child on a Child Protection Plan at 31 March 2016	DfE (2016/2017) - Characteristics of Children in Need: 2016 to 2017	Population Estimates for UK, England and Wales, Scotland and Northern Ireland: Mid-2016
	Children looked after at 31 March	DfE (2016/2017) - Children looked after in England including adoption: 2016 to 2017	Population Estimates for UK, England and Wales, Scotland and Northern Ireland: Mid-2016
Work	Individuals claiming JSA or ESA or IS	DWP statistical summaries 2017	Population Estimates for UK, England and Wales, Scotland and Northern Ireland: Mid-2016
	Adult claiming any out of work benefits	Nomis	Population Estimates for UK, England and Wales, Scotland and Northern Ireland: Mid-2016
	Adult claiming JSA	Nomis	Population Estimates for UK, England and Wales, Scotland and Northern Ireland: Mid-2016
	Adult claiming ESA or IB	Nomis	Population Estimates for UK, England and Wales, Scotland and Northern Ireland: Mid-2016
	Adult claiming IS	Nomis	Population Estimates for UK, England and Wales, Scotland and Northern Ireland: Mid-2016
	Adults in work	UK Labour Market: February 2016	Population Estimates for UK, England and Wales, Scotland and Northern Ireland: Mid-2016
Crime	Adult with a caution or conviction	MoJ Criminal Justice System statistics quarterly	Population Estimates for UK, England and Wales, Scotland and Northern Ireland: Mid-2016
	Child with a caution or conviction	MoJ Criminal Justice System statistics quarterly	Population Estimates for UK, England and Wales, Scotland and Northern Ireland: Mid-2016

ANNEX B: TIME LAGS IN THE ADMINISTRATIVE DATA

The lengths of outcomes we can currently measure are limited by time lags in the data - these range from six to 24 months. It is important to note that progress may not be made by a family immediately after programme – and programmes with families typically last six to twelve months.

Table A3: Available outcome data in months for earliest joiners of each cohort

	Date of last data	Cohort 1 Sept 2014 - June 2015 46,500 families	Cohort 2 July 2015 - Dec 2015 36,031 families	Cohort 3 Jan 2016 - June 2016 41,450 families	Cohort 4 July 2016 - Dec 2016 35,377 families	Cohort 5 Jan 2017 - June 2017 29,090 families	Cohort 6 July 2017-Dec 2018 60,080 families
Employment	26/04/2018	42	30	24	18	12	6
Benefits	02/04/2018	42	30	24	18	12	6
Crime	30/12/2017	36	24	18	12	6	
Absence	17/12/2017	36	24	18	12	6	
CIN	31/03/2017	30	18	12	6		

ANNEX C: SUPPLEMENTARY DATA

SECTION B: COHORT ANALYSIS

Worklessness and Financial Exclusion

Across Cohort 1 (enrolled September 2014 – June 2015), Cohort 2 (enrolled July – December 2015) and Cohort 3 (enrolled January – June 2016) similar patterns emerged. In the two years after joining the programme, the proportion of working age individuals claiming:

- Income Support and Jobseeker's Allowance decreased;
- Employment and Support Allowance increased.

The proportion of working age individuals in Cohort 3 who were claiming Employment and Support Allowance differed slightly from Cohort 1 and 2.

Table A4: The proportion of individuals claiming benefits when joining the programme, 12 and 24 months after joining by cohort[70,71]

	At programme start	12 months after programme start	Difference	24 months after programme start	Difference
Employment and Support Allowance					
Cohort 1	46.1%	48.1%	+2.0ppt	48.3%	+2.2ppt
Cohort 2	43.1%	45.1%	+2.0ppt	44.6%	+1.5ppt
Cohort 3	42.7%	44.4%	+1.7ppt	42.6%	-0.1ppt
Total	44.2%	46.1%	+1.9ppt	45.7%	+1.5ppt
Jobseeker's Allowance					
Cohort 1	13.5%	10.3%	-3.2ppt	9.0%	-4.5ppt
Cohort 2	11.6%	9.5%	-2.1ppt	8.6%	-3.0ppt
Cohort 3	10.1%	8.6%	-1.5ppt	8.3%	-1.8ppt
Total	12.0%	9.6%	-2.4ppt	8.7%	-3.3ppt

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[70] Based on 14,790 (cohort 1), 12,402 (cohort 2) and 7,470 (cohort 3) working age adults (two years after joining the programme), in local authorities where the Universal Credit roll-out was below ten per cent.

[71] The proportion of Jobseeker's Allowance claimants is low as this reflects just one point in time.

	At programme start	12 months after programme start	Difference	24 months after programme start	Difference
Income Support					
Cohort 1	36.3%	35.1%	-1.2ppt	32.0%	-4.3ppt
Cohort 2	36.0%	34.2%	-1.8ppt	30.7%	-5.3ppt
Cohort 3	36.0%	34.8%	-1.2ppt	31.8%	-4.2ppt
Total	36.1%	34.7%	-1.4ppt	31.4%	-4.7ppt

Crime (and Anti-Social Behaviour)

Across Cohort 1 (September 2014 – June 2015) and Cohort 2 (July 2015 – December 2015) the proportion of individuals receiving cautions and convictions in the 12 months before and 12 and 24 months after joining the programme was similar.

In the 24 months after joining the programme both cohorts were less likely to be cautioned or convicted.

Table A5: Proportion and number of individuals cautioned and convicted in the 12 months before and 12 and 24 after joining the programme by cohort[72]

	Cohort 1		Cohort 2	
	Cautions	Convictions	Cautions	Convictions
Prevalence				
Proportion cautioned/convicted in the 12 months before programme	1.9%	3.6%	1.7%	3.5%
Proportion cautioned/convicted in the 12 months after programme	1.5%	3.4%	1.3%	3.1%
Difference	-0.4ppt	-0.2ppt	-0.4ppt	-0.4ppt
% change in individuals cautioned/convicted	-22.3%	-4.9%	-25.9%	-11.7%
Proportion cautioned/convicted in the 24 months after programme	1.1%	3.2%	0.9%	2.6%
Difference	-0.8ppt	-0.4ppt	-0.8ppt	-0.9ppt
% change in individuals cautioned/convicted	-43.7%	-12.8%	-47.3%	-26.4%

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[72] Based on 109,315 (Cohort 1) and 86,972 (Cohort 2) individuals aged over 10 (at the time of programme), who are participating in the programme and their 24 months outcomes have been observed.

SECTION C: OUTCOME ANALYSIS

Movement through Children's Social Care

The data for those on the programme was used to test whether the overall proportion of Children in Need, children on a Child Protection Plan and Looked After Children changed after families joined the programme. The analysis suggests the proportion of children on the programme with any Children's Social Care status initially increased after joining the programme, but then subsequently reduced. Less than 1% of children had more than one status in any one 6 month period.

Figure A1: Children's Social Care (CSC) status before and after joining the programme
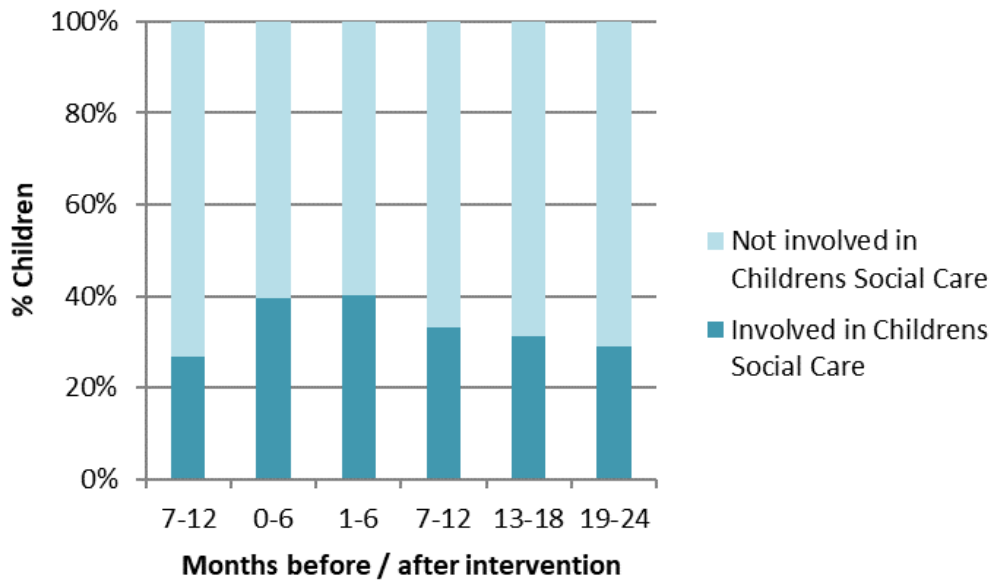
ANNEX D - IMPACT OF THE TROUBLED FAMILIES PROGRAMME ON EMPLOYMENT

Programme families included in the model:

Adults (aged 18-64) in families who joined the programme between September 2014 to April 2016.

Propensity Score Matching was carried out for employment outcomes (whether or not an individual was employed) across three time periods:

- seven to 12 months;
- 13-18 months;
- 19-24 months.

The Propensity Score Matching model included 21,576 individuals on the programme and 7,936 individuals in the matched comparison group. Note that the comparison group for these models included individuals from Datasets 4, 5 and 6.

The results should be interpreted with a note of caution because the model does not include Universal Credit, there are known data quality issues with the P45 data and there remains a statistically significant difference for Jobseeker's Allowance in the 6 month period prior to the programme. The model controlled for any pre-programme differences for employment between the two groups for employment:

Table A6: Match between the programme and comparison group: employment

In the 6 months before programme start	Individuals employed
Proportion of adults in the programme group	33.7%
Proportion of adults in the comparison group	33.8%
Difference	**-0.1%**

Employment Outcomes

The results for each of the six month periods after joining the programme showed no difference for employment outcomes for those on the programme in contrast to the comparison group. The differences between the groups for each period were not statistically significant.

The results for employment are shown in the graph below and in the fuller tables in Annex E.
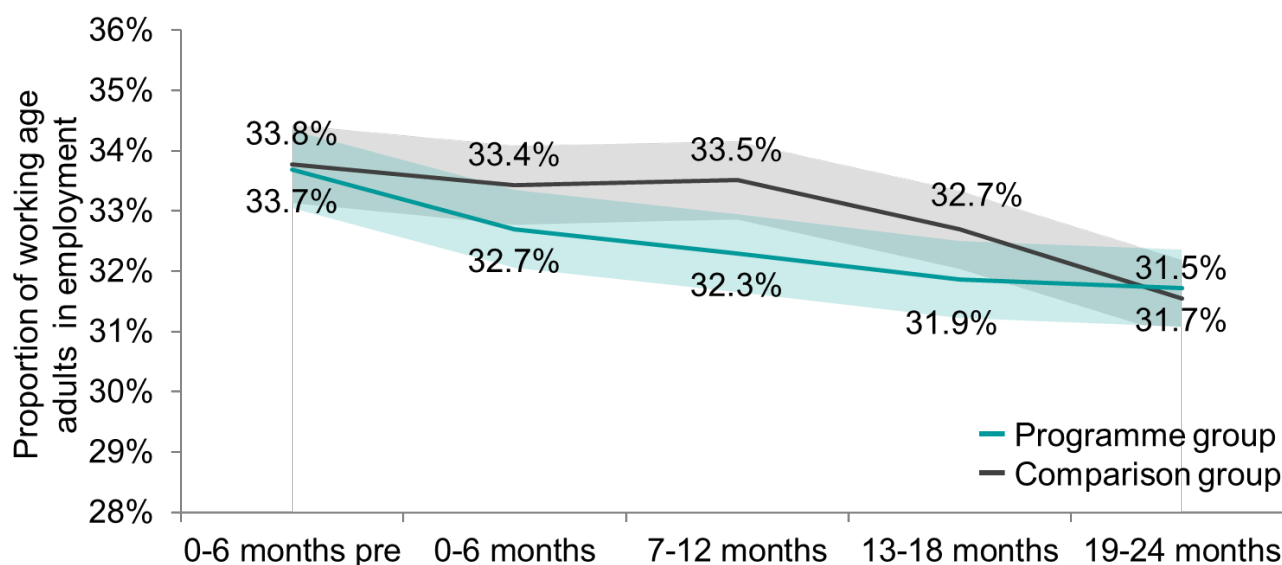
Discussion of results for employment

The results from this model should be interpreted with a note of caution. They show the employment outcomes for those on the programme are no different to those in the comparison group. This finding is supported by the case study work by Ipsos MORI, which found that keyworkers and Troubled Families' Employment Advisers often agreed to focus on parents' additional issues (such as mental health problems, substance misuse and/or domestic abuse), as well as on building confidence before helping people move into work. The limitations in Her Majesty's Revenue and Customs employment data (cited in Section C above, see discussion of Employment Data) might mean that some of those missing from the data could be coming off benefits but not being picked up in the P45 data returns, but equally some may be claiming Universal Credit. For both the programme and comparison group, which have similar characteristics, this could be determined by the type of employment that they can secure as they re-enter the labour market.

As discussed earlier the labour market has become more complex in the last ten years with differences having more regional impact than previously in regards to both self-employment and the related gig-economy. Although these changes have not only impacted those at the lower end of the labour market, there is clear evidence that they have had an impact on entry level work. It has not been possible to control for these differences in the model and as such it is unknown whether there remains some bias between the two groups.

The model has also not controlled well for the proportion of individuals claiming Jobseeker's Allowance in the six months prior to joining the programme. These are the individuals closest to the labour market and therefore the most likely to find work. A statistically significant difference in this pre-programme outcome is a further area of potential remaining bias between the programme and comparison groups.

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ANNEX E: PROPENSITY SCORE MATCHING TABLES

Key statistics and full list of variables: Children's Services Model

Table A7: Number of individuals on and off support

	Off Support	On Support	Total
Comparison Group	-	3,714	3,714
Programme Group	514	10,319	10,862

Table A8: Model bias diagnostic statistics

Sample	Mean Bias	Median Bias	Overall Bias	Rubin's R
Before matching	12.59	7.00	113.85	.84
After matching	2.64	1.93	24.19	.79

Table A9: Programme impacts

Number of months after programme start:	0-6	7-12	13-18	19-24
Proportion of children continuously looked after on the programme	0.6%	1.0%	1.3%	1.7%
Proportion of children continuously looked after in the comparison group	1.1%	1.6%	2.1%	2.5%
Difference	**-0.5%**	**-0.6%**	**-0.8%**	**-0.8%**
Results of significance testing	*p=0.05*	*p=0.04*	*p=0.01*	*p=0.01*
Proportion of children classed as in need on the programme	38.1%	31.2%	29.6%	27.3%
Proportion of children classed as in need in the comparison group	36.3%	31.5%	28.8%	26.1%
Difference	**1.8%**	**-0.3%**	**0.8%**	**1.2%**
Results of significance testing	*p=0.11*	*p=0.75*	*p=0.42*	*p=0.24*
Proportion of children on Child Protection Plans on the programme	9.8%	9.1%	7.2%	6.1%
Proportion of children on Child Protection Plans in the comparison group	6.6%	7.3%	5.7%	5.5%
Difference	**3.2%**	**1.7%**	**1.6%**	**0.6%**
Results of significance testing	*p<0.001*	*p<0.001*	*p<0.001*	*p=0.15*

Table A10: Control variables

Variable	Programme Group	Comparison Group	Mean Standardised Bias
Age at start squared	73.11	77.02	-5.62
Age at start	7.20	7.48	-6.03
Gender	.53	.54	-2.77
Ethnicity Missing	.28	.29	-1.56
Ethnicity non-white	.03	.04	-2.48
Classed in need during the year prior to programme	.41	.42	-1.80
Classed in need in the 1-2 year period prior to programme	.25	.26	-1.59
Classed in need in the 2-3 year prior to programme	.19	.20	-1.73
Classed in need in the 3-4 year period prior to programme	.15	.17	-3.95
Classed in need in the 4-5 year period prior to programme	.13	.13	-1.92
Child on a Child Protection Plan in the 4-5 year period prior to programme	.01	.01	-.33
Child on a Child Protection Plan in the 3-4 year period prior to programme	.02	.02	-.87
Child on a Child Protection Plan in the 2-3 year period prior to programme	.03	.03	-.13
Child on a Child Protection Plan in the 1-2 year period prior to programme	.04	.04	.65
Child on a Child Protection Plan in the year prior to programme	.07	.07	3.09
Child continuously looked after in the 4-5 year period prior to programme	.00	.00	-2.25
Child continuously looked after in the 3-4 year period prior to programme	.00	.01	-5.81
Child continuously looked after in the 2-3 year period prior to programme	.00	.01	-1.89
Child continuously looked after in the 1-2 year period prior to programme	.00	.00	-2.52
Child continuously looked after in the year prior to programme	.01	.01	-.11
Family member cautioned or convicted in the year prior to programme	.10	.13	-11.07
Family member cautioned or convicted in the 1-2 year period prior to programme	.08	.09	-5.17
Family member cautioned or convicted in the 2-3 year period prior to programme	.09	.10	-3.98
Family member cautioned or convicted in the 3-4 year period prior to programme	.08	.09	-2.00
Family member cautioned or convicted in the 4-5 year period prior to programme	.08	.10	-7.86
Number of children in the family	2.88	2.91	-2.41
Child cautioned or convicted in the year prior to programme start	.01	.01	-5.54
Child cautioned or convicted in the four to five years prior to programme start	.00	.00	1.94
Child cautioned or convicted in the 3-4 years prior to programme start	.00	.00	.73
Child cautioned or convicted in the 2-3 years prior to programme start	.00	.00	.29
Child cautioned or convicted in the 1-2 years prior to programme start	.00	.01	-3.69
Programme Criterion met for education	.43	.42	3.03

Variable	Programme Group	Comparison Group	Mean Standardised Bias
Programme Criterion met for child needing help	.82	.82	-.10
Programme Criterion met for anti-social behaviour	.22	.21	3.78
Dummy programme criterion for child needing help	.00	.00	.00
Dummy programme criterion for Education	.00	.00	.00
Dummy programme criterion for anti-social behaviour	.00	.00	.00
Family contains someone who has previously been convicted for a violent offence	.25	.28	-6.19
Family member was in receipt of income support in the 4-5 year period prior to programme	.45	.46	-1.48
Family member was in receipt of income support in the 3-4 year period prior to programme	.45	.45	-.34
Family member was in receipt of income support in the 2-3 year period prior to programme	.43	.44	-.97
Family member was in receipt of income support in the 1-2 year period prior to programme	.39	.39	.97
Family member was in receipt of income support in the year prior to programme	.38	.39	-.95
Primary Reason for being in need was abuse and neglect	.22	.23	-1.58
Primary Reason for being in need was other	.14	.15	-3.17
Family member was employed in the 4-5 year period prior to programme	.36	.36	-1.07
Family member was employed in the 3-4 year period prior to programme	.37	.37	.43
Family member was employed in the 2-3 year period prior to programme	.37	.37	1.15
Family member was employed in the 1-2 year period prior to programme	.37	.37	.99
Family member was employed in the year prior to programme	.39	.38	.86
Child was persistently absent at the 10% level in the 4-5 year period prior to programme	.08	.09	-3.27
Child was persistently absent at the 10% level in the 3-4 year period prior to programme	.09	.10	-3.09
Child was persistently absent at the 10% level in the 2-3 year period prior to programme	.10	.13	-6.80
Child was persistently absent at the 10% level in the 1-2 year period prior to programme	.14	.15	-4.68
Child was persistently absent in the year prior to programme	.16	.18	-5.98
Dummy criterion for persistent absence in the 4-5 year period prior to programme	.03	.03	-1.84
Dummy criterion for persistent absence in the 3-4 year period prior to programme	.04	.05	-3.20
Dummy criterion for persistent absence in the 2-3 year period prior to programme	.05	.05	-2.11
Dummy criterion for persistent absence in the 1-2 year period prior to programme	.04	.04	-1.57
Dummy criterion for persistent absence in the year prior to programme	.04	.04	-.52
Child has at some point been on a Child Protection Plan in the last 5 years	.10	.09	1.32

Variable	Programme Group	Comparison Group	Mean Standardised Bias
Child attended a pupil referral unit in the 1-2 year period prior to programme	.00	.00	-2.91
Child attended a pupil referral unit in the year prior to programme	.01	.01	-4.22
Family contains someone convicted for child sex offences	.05	.03	1.70
Child has ever been classed as in need	.47	.48	-3.27
Child was classed in need in the 6 months prior to programme start	.37	.37	.35
Child was continuously looked after in the 6 months prior to programme start	.00	.01	-.09
Child was on a Child Protection Plan in the 6 months prior to programme start	.07	.06	2.56
Rate of Looked After Children in the local authority	82.77	79.12	13.15

Key statistics and full list of variables: Employment Model

Table A11: Number of individuals on and off support

	Off Support	On Support	Total
Comparison Group	-	7,815	7,815
Programme Group	1,078	20,498	21,576

Table A12: Bias diagnostic statistics

Sample	Mean Bias	Median Bias	Overall Bias	Rubin's R
Before matching	8.8781	5.6683	116.1596	.7381
After matching	1.8696	1.5492	22.3156	.8650

Table A13: Programme impacts

Number of months after programme start:	0-6	7-12	13-18	19-24
Proportion of adults in employment on the programme	32.7%	32.3%	31.9%	31.7%
Proportion of adults in employment in the comparison group	33.4%	33.5%	32.7%	31.6%
Difference	**-0.7%**	**-1.2%**	**-0.8%**	**0.1%**
Results of significance testing	*p=0.42*	*p=0.17*	*p=0.34*	*p=0.82.*

Table A14: Control variables

Variable	Programme Group	Comparison Group	Mean Standardised Bias
Gender	.34	.35	-2.01
Programme Criterion met for Anti-Social Behaviour	.25	.27	-4.71
Programme Criterion met for education	.42	.38	8.84
Programme criterion met for Child needing help	.79	.82	-6.23
Programme Criterion met for worklessness	.67	.67	-.27
Programme Criterion met for health	.37	.39	-3.65
Programme criterion met for domestic violence	.36	.36	.84
Dummy criterion for Anti-social behaviour	.00	.00	.00
Dummy criterion for education	.00	.00	.00
Dummy criterion for child needing help	.00	.00	.00
Dummy criterion for worklessness	.00	.00	.00
Dummy criterion for domestic violence	.00	.00	.00
Dummy criterion for health	.00	.00	.00
Family member classed as in need in the four to five years prior to programme	.19	.21	-3.46
Family member classed as in need in the three to four years prior to programme	.23	.24	-4.11
Family member classed as in need in the two to three years prior to programme	.27	.28	-2.97
Family member classed as in need one to two years prior to programme	.34	.35	-3.53
Family member classed as in need in the year prior to programme	.45	.45	-.14
Age at start of programme	34.07	33.83	2.45
Age at start of programme squared	1257.91	1243.57	2.01
Ethnicity missing	.10	.10	-1.33
Ethnicity non-white	.18	.18	.35
Number of adults in the family	2.15	2.22	-5.90
Number of children in the family	2.25	2.22	2.13
Age of the youngest child in the family	5.38	5.42	-.95
Individual employed at some point in the four to five years prior to programme	.34	.34	1.71
Individual employed at some point in the three to four years prior to programme	.35	.35	1.55
Individual employed at some point in the two to three years prior to programme	.36	.36	-.59
Individual employed at some point one to two years prior to programme	.37	.37	-.98
Individual employed at some point in the year prior to programme	.37	.38	-.45
Family member in receipt of Disability living allowance in the year prior to programme	.30	.31	-1.24
Family member in receipt of Disability living allowance one to two years prior to programme	.28	.29	-2.23
Family member in receipt of Disability living allowance two to three years prior to programme	.27	.28	-3.28

Variable	Programme Group	Comparison Group	Mean Standardised Bias
Family member in receipt of Disability living allowance three to four years prior to programme	.25	.26	-2.78
Family member in receipt of Disability living allowance four to five years prior to programme	.22	.23	-1.86
whether the individual is working age	.14	.14	-3.12
Individual in receipt of Employment and Support Allowance four to five years prior to programme	.13	.14	-1.17
Individual in receipt of Employment and Support Allowance three to four years prior to programme	.15	.15	-.96
Individual in receipt of Employment and Support Allowance two to three prior to programme	.16	.17	-.35
Individual in receipt of Employment and Support Allowance one to two years prior to programme	.19	.18	.50
Individual in receipt of Employment and Support Allowance in the year prior to programme	.22	.22	-.53
Individual claimed ESA in the 6 months prior to programme start	.20	.20	-.56
Weeks spent on ESA in the 6 months prior to programme start	4.39	4.40	-.13
Individual in receipt of Jobseekers allowance in the four to five years prior to programme	.18	.19	-3.31
Individual in receipt of Jobseekers allowance in the three to four years prior to programme	.20	.21	-2.59
Individual in receipt of Jobseekers allowance in the two to three years prior to programme	.21	.22	-2.87
Individual in receipt of Jobseekers allowance one to two years prior to programme	.19	.20	-3.40
Individual in receipt of Jobseekers allowance in the year prior to programme	.17	.18	-3.10
Individual claimed JSA in the 6 months prior to programme start	.12	.13	-1.98
Weeks spent on JSA in the 6 months prior to programme start	1.86	1.93	-1.32
Family member classed as in need in the four to five years prior to programme	.19	.21	-3.46
Family member classed as in need in the three to four years prior to programme	.23	.24	-4.11
Family member classed as in need in the two to three years prior to programme	.27	.28	-2.97
Family member classed as in need one to two years prior to programme	.34	.35	-3.53
Family member classed as in need in the year prior to programme	.45	.45	-.14
Family member in receipt of Disability living allowance four to five years prior to programme	.22	.23	-1.86
Family member in receipt of Disability living allowance three to four years prior to programme	.25	.26	-2.78
Family member in receipt of Disability living allowance two to three years prior to programme	.27	.28	-3.28
Family member in receipt of Disability living allowance one to two years prior to programme	.28	.29	-2.23
Family member in receipt of Disability living allowance in the year prior to programme	.30	.31	-1.24
Family member persistently absence at 10% level in the year prior to programme	.29	.29	-.74

Variable	Programme Group	Comparison Group	Mean Standardised Bias
Family member persistently absence at 10% level one to two years prior to programme	.25	.26	-1.52
Family member persistently absence at 10% level two to three years prior to programme	.23	.23	-1.59
Family member persistently absence at 10% level three to four years prior to programme	.22	.23	-1.83
Family member persistently absence at 10% level four to five years prior to programme	.21	.22	-2.52
Dummy family absence variable for four to five years prior to programme	.12	.12	-1.17
Dummy family absence variable for three to four years prior to programme	.12	.12	-.92
Dummy family absence variable for two to three years prior to programme	.11	.11	.11
Dummy family absence variable for one to two years prior to programme	.10	.10	-1.45
Dummy family absence variable for the year prior to programme	.10	.10	-2.67
Individual participated in a work programme four to five years prior to programme	.10	.11	-2.07
individual participated in a work programme three to four years prior to programme	.13	.14	-2.11
individual participated in a work programme two to three years prior to programme	.19	.20	-3.34
individual participated in a work programme one to two years prior to programme	.22	.23	-3.48
individual participated in a work programme in the year prior to programme	.21	.23	-3.02
Individual in receipt of income support in the four to five years prior to programme	.33	.33	-.70
Individual in receipt of income support in the three to four years prior to programme	.31	.32	-.40
Individual in receipt of income support in the two to three years prior to programme	.29	.29	-.61
Individual in receipt of income support one to two years prior to programme	.27	.27	-1.00
Individual in receipt of income support in the year prior to programme	.27	.27	-.37
Individual claimed IS in the 6 months prior to programme start	.25	.25	-.31
Weeks spent on IS in the 6 months prior to programme start	5.58	5.62	-.40
All adult family members on out of work benefits four to five years prior to programme start	.27	.27	-.05
All adult family members on out of work benefits three to four years prior to programme start	.28	.28	1.08
All adult family members on out of work benefits two to three years prior to programme start	.29	.29	.85
All adult family members on out of work benefits one to two years prior to programme start	.29	.29	.14
All adult family members on out of work benefits in the year prior to programme start	.31	.31	.87
Individual was cautioned in the four to five years prior to programme start	.02	.02	-2.51
Individual was cautioned in the three to four years prior to programme start	.02	.02	-1.86

Variable	Programme Group	Comparison Group	Mean Standardised Bias
Individual was cautioned in the two to three years prior to programme start	.02	.02	-1.84
Individual was cautioned in the one to two years prior to programme start	.02	.02	-.64
Individual was cautioned in the year prior to programme start	.02	.01	1.11
Individual was convicted in the four to five years before programme start	.04	.05	-3.08
Individual was convicted in the three to four years before programme start	.04	.04	-4.29
Individual was convicted in the two to three years before programme start	.03	.04	-3.85
Individual was convicted in the one to two years before programme start	.04	.04	-3.12
Individual was convicted in the year before programme start	.04	.04	-1.18
JSA rate in the local authority	.03	.03	1.37
Proportion of benefit claimants to working age individuals in Local Authority	.14	.14	-3.12
Universal Credit rate	.03	.03	-7.31
IMD decile (where 1 is 10% most deprived LAs in the country)	3.17	3.21	-1.84
IMD income decile where 1 is 10% most deprived Las in the country)	3.09	3.10	-.33
IMD living environments decile	4.76	4.80	-1.71
IMD decile (where 1 is 10% most deprived LAs in the country)	3.17	3.21	-1.84

Key statistics and full list of variables: Benefits Model

Table A15: Individuals on and off support

	Off Support	On Support	Total
Comparison Group	-	7,815	7,815
Programme Group	1,078	20,498	21,576

Table A16: Bias diagnostic statistics

Sample	Mean Bias	Median Bias	Overall Bias	Rubin's R
Before matching	8.93	5.68	116.16	.74
After matching	1.88	1.56	22.30	.86

Table A17: Programme impacts

Number of months after programme start:	6-12	7-12	13-18	19-24
Proportion of adults claiming JSA on the programme	11.7%	10.7%	9.7%	9.3%
Proportion of adults claiming JSA in the comparison group	12.2%	10.9%	10.8%	10.5%
Difference	*-0.5%*	*-0.2%*	*-1.0%*	*-1.2%*
Results of significance testing	*p=0.45*	*p=0.69*	*p=0.05*	*p=0.03*
Proportion of adults claiming ESA on the programme	20.7%	20.9%	20.9%	20.5%
Proportion of adults claiming ESA in the comparison group	20.3%	20.6%	20.7%	21.3%
Difference	*0.4%*	*0.3%*	*0.2%*	*-0.8%*
Results of significance testing	*p=0.58*	*p=0.72*	*p=0.81*	*p=0.26*
Proportion of adults on Income Support on the programme	24.9%	24.2%	23.0%	21.9%
Proportion of adults in Income Support in the comparison group	24.0%	23.3%	22.7%	21.6%
Difference	*0.9%*	*0.9%*	*0.3%*	*0.3%*
Results of significance testing	*p=0.24*	*p=0.25*	*p=0.62*	*p=0.72*

Table A18: Control variables

Variable	Programme Group	Comparison Group	Mean Standardised Bias
Age at start of programme	34.07	33.83	2.45
Age at start of programme squared	1257.86	1243.57	2.00
Individual was between 18 and 24 at start of programme	.19	.20	-2.92
Individual was aged between 25 and 54 at start of programme	.78	.77	3.43
Gender	.34	.35	-2.00
Ethnicity missing	.10	.10	-1.34
Ethnicity non-white	.18	.18	.36
Individual is a single parent	.20	.22	-4.61
Number of adults in the family	2.15	2.22	-5.88
Number of children in the family	2.25	2.22	2.12
Age of the youngest child in the family	5.38	5.42	-.95
Family contains a child under 5	.49	.48	2.37
Programme Criterion met for Anti-Social Behaviour	.25	.27	-4.72
Programme Criterion met for education	.42	.38	8.84
Programme criterion met for Child needing help	.79	.82	-6.24
Programme Criterion met for worklessness	.67	.67	-.26
Programme Criterion met for health	.37	.39	-3.65
Programme criterion met for domestic violence	.36	.36	.82
Dummy criterion for Anti-social behaviour	.00	.00	.00
Dummy criterion for education	.00	.00	.00
Dummy criterion for child needing help	.00	.00	.00
Dummy criterion for worklessness	.00	.00	.00
Dummy criterion for domestic violence	.00	.00	.00
Dummy criterion for health	.00	.00	.00
Individual is entrenched unemployment	.39	.39	-1.67
Individual has been long term unemployed	.02	.02	-.35
Individual has had no previous employment spells	2.43	2.45	-.52
Individual employed at some point in the four to five years prior to programme	.34	.34	1.70
Individual employed at some point in the three to four years prior to programme	.35	.35	1.54
Individual employed at some point in the two to three years prior to programme	.36	.36	-.59
Individual employed at some point one to two years prior to programme	.37	.37	-.97
Individual employed at some point in the year prior to programme	.37	.38	-.45
Individual has previously claimed ESA for mental health reasons	.17	.19	-2.93
Individual in receipt of Employment and Support Allowance four to five years prior to programme	.13	.14	-1.17
Individual in receipt of Employment and Support Allowance three to four years prior to programme	.15	.15	-.96

Variable	Programme Group	Comparison Group	Mean Standardised Bias
Individual in receipt of Employment and Support Allowance two to three years prior to programme	.16	.17	-.36
Individual in receipt of Employment and Support Allowance one to two years prior to programme	.19	.18	.50
Individual in receipt of Employment and Support Allowance in the year prior to programme	.22	.22	-.51
Individual claimed ESA in the 6 months prior to programme start	.20	.20	-.56
Weeks spent on ESA in the 6 months prior to programme start	4.39	4.40	-.13
Individual in receipt of Jobseekers allowance in the four to five years prior to programme	.18	.19	-3.33
Individual in receipt of Jobseekers allowance in the three to four years prior to programme	.20	.21	-2.59
Individual in receipt of Jobseekers allowance in the two to three years prior to programme	.21	.22	-2.86
Individual in receipt of Jobseekers allowance one to two years prior to programme	.19	.20	-3.38
Individual in receipt of Jobseekers allowance in the year prior to programme	.17	.18	-3.08
Individual claimed JSA in the 6 months prior to programme start	.12	.13	-1.95
Weeks spent on JSA in the 6 months prior to programme start	1.86	1.93	-1.29
Individual in receipt of income support in the four to five years prior to programme	.33	.33	-.72
Individual in receipt of income support in the three to four years prior to programme	.31	.32	-.42
Individual in receipt of income support in the two to three years prior to programme	.29	.29	-.64
Individual in receipt of income support one to two years prior to programme	.27	.27	-1.03
Individual in receipt of income support in the year prior to programme	.27	.27	-.38
Individual claimed IS in the 6 months prior to programme start	.25	.25	-.33
Weeks spent on IS in the 6 months prior to programme start	5.58	5.62	-.42
Individual participated in a work programme four to five years prior to programme	.10	.11	-2.07
individual participated in a work programme three to four years prior to programme	.13	.14	-2.11
individual participated in a work programme two to three years prior to programme	.19	.20	-3.32
individual participated in a work programme one to two years prior to programme	.22	.23	-3.46
individual participated in a work programme in the year prior to programme	.21	.23	-3.02
Individual was cautioned in the four to five years prior to programme start	.02	.02	-2.52
Individual was cautioned in the three to four years prior to programme start	.02	.02	-1.81
Individual was cautioned in the two to three years prior to programme start	.02	.02	-1.83
Individual was cautioned in the one to two years prior to programme start	.02	.02	-.64
Individual was cautioned in the year prior to programme start	.02	.01	1.11
Individual was convicted in the four to five years before programme start	.04	.05	-3.08

Variable	Programme Group	Comparison Group	Mean Standardised Bias
Individual was convicted in the three to four years before programme start	.04	.04	-4.29
Individual was convicted in the two to three years before programme start	.03	.04	-3.86
Individual was convicted in the one to two years before programme start	.04	.04	-3.12
Individual was convicted in the year before programme start	.04	.04	-1.19
All adult family members on out of work benefits four to five years prior to programme start	.27	.27	-.05
All adult family members on out of work benefits three to four years prior to programme start	.28	.28	1.06
All adult family members on out of work benefits two to three years prior to programme start	.29	.29	.82
All adult family members on out of work benefits one to two years prior to programme start	.29	.29	.13
All adult family members on out of work benefits in the year prior to programme start	.31	.31	.86
Family member classed as in need in the four to five years prior to programme	.19	.21	-3.46
Family member classed as in need in the three to four years prior to programme	.23	.24	-4.11
Family member classed as in need in the two to three years prior to programme	.27	.28	-2.96
Family member classed as in need one to two years prior to programme	.34	.35	-3.52
Family member classed as in need in the year prior to programme	.45	.45	-.15
Family member in receipt of Disability living allowance in the year prior to programme	.30	.31	-1.23
Family member in receipt of Disability living allowance one to two years prior to programme	.28	.29	-2.22
Family member in receipt of Disability living allowance two to three years prior to programme	.27	.28	-3.27
Family member in receipt of Disability living allowance three to four years prior to programme	.25	.26	-2.78
Family member in receipt of Disability living allowance four to five years prior to programme	.22	.23	-1.85
Whether the individual is working age	.14	.14	-3.12
Family member persistently absence at 10% level in the year prior to programme	.29	.29	-.74
Family member persistently absence at 10% level one to two years prior to programme	.25	.26	-1.51
Family member persistently absence at 10% level two to three years prior to programme	.23	.23	-1.58
Family member persistently absence at 10% level three to four years prior to programme	.22	.23	-1.84
Family member persistently absence at 10% level four to five years prior to programme	.21	.22	-2.52
Dummy family absence variable for the year prior to programme	.10	.10	-2.67
Dummy family absence variable for one to two years prior to programme	.10	.10	-1.46
Dummy family absence variable for two to three years prior to programme	.11	.11	.10

Variable	Programme Group	Comparison Group	Mean Standardised Bias
Dummy family absence variable for three to four years prior to programme	.12	.12	-.92
Dummy family absence variable for four to five years prior to programme	.12	.12	-1.16
IMD decile (where 1 is 10% most deprived Las in the country)	3.17	3.21	-1.84
IMD income decile where 1 is 10% most deprived Las in the country)	3.09	3.10	-.33
IMD living environments decile	4.76	4.80	-1.71
JSA rate in the local authority	.03	.03	1.37
Universal Credit rate	.03	.03	-7.29

Key statistics and full list of variables: Juvenile Offending

Table A19: Individuals on and off support

	Off Support	On Support	Total
Comparison Group	-	9,815	9,815
Programme Group	-	20,109	29,924

Table A20: Bias diagnostic statistics

Sample	Mean Bias	Median Bias	Overall Bias	Rubin's R
Before matching	10.50	6.60	134.1*	.88
After matching	2.00	1.60	17.90	3.56*

Table A21: Programme impacts

Anytime within two years after programme:	Custodial sentence	Cautioned	Convicted
Proportion of juvenile offenders on the programme	0.5%	3.2%	3.9%
Proportion of juvenile offenders in the comparison group	0.8%	3.0%	4.6%
Difference	**-0.3%**	**0.2%**	**-0.7%**
Results of significance testing	*p=0.002*	*p=0.43*	*p=0.03*

Table A22: Control variables

Variable	Programme Group	Comparison Group	Mean Standardised Bias
Age at start	13.18	13.21	-1.62
Age at start squared	178.41	179.29	-1.53
Age at first offence	1.35	1.40	-1.16
Age at first offence Dummy	.91	.90	1.32
Sex	.52	.54	-2.99
Ethnicity missing	.01	.02	-2.01
Ethnicity non-white	.24	.25	-2.92
Number of Adults in the Family	2.17	2.24	-5.93
Number of Children in the Family	2.81	2.81	-0.03
Programme criterion met for being a Child in Need	.80	.80	.31
Programme criterion met for Anti-Social Behaviour	.31	.34	-7.52
Programme Criterion Met for Domestic Violence	.31	.30	2.92
Programme Criterion Met for Education	.60	.54	11.82
Programme Criterion Met for Health	.35	.35	-.39
Programme Criterion Met for Worklessness	.69	.68	2.99
Dummy criteria Children needing help	.00	.00	.00
Dummy criterion Anti-social behaviour	.00	.00	1.60
Dummy criteria for domestic violence	.00	.00	3.45
Dummy criteria for education	.00	.00	-1.25
Dummy criteria for workless	.00	.00	2.72
Dummy criterion met for health	.01	.01	3.19
First time offender	.01	.01	1.97
Prolific Offender	.01	.016	-2.57
Length of Time since last offence	.1000	.1190	-2.40
Number of days of a custodial sentence five years before programme	.00	.00	.00
Number of days of a custodial sentence four years before programme	.00	.00	.00
Number of days of a custodial sentence three years before programme	.03	.00	0.85
Number of days of a custodial sentence two years before programme	.086	.026	1.21
Number of days of a custodial sentence in the year before programme	.33	.20	1.56
Number of days of community sentence five years prior to programme	.08	.07	.09
Number of days of community sentence four years prior to programme	.26	.37	-1.76
Number of days of community sentence three years prior to programme	.47	.45	.14
Number of days of community sentence two years prior to programme	.87	.73	1.28
Number of days of community sentence in the year before programme	1.91	2.40	-3.05

Variable	Programme Group	Comparison Group	Mean Standardised Bias
Individual received a custodial sentence five years prior to programme start	.00	.00	.00
Individual received a custodial sentence four years prior to programme start	.00	.00	.00
Individual received a custodial sentence three years prior to programme start	.00	.00	.88
Individual received a custodial sentence two years prior to programme start	.00	.00	2.08
Individual received a custodial sentence in the year prior to programme start	.00	.00	.73
Individual received a community sentence five years prior to programme start	.00	.00	.01
Individual received a community sentence four years prior to programme start	.00	.00	-.70
Individual received a community sentence three years prior to programme start	.00	.00	.49
Individual received a community sentence two years prior to programme start	.01	.01	.33
Individual received a community sentence in the year prior to programme start	.01	.02	-3.49
Individual was cautioned or convicted five years prior to programme start	.00	.00	-.35
Individual was cautioned or convicted four years prior to programme start	.01	.01	-.04
Individual was cautioned or convicted three years prior to programme start	.01	.01	-.96
Individual was cautioned or convicted two years prior to programme start	.02	.02	-3.74
Individual was cautioned or convicted in the year prior to programme start	.03	.04	-1.18
Individual had a fixed period exclusion 5 years prior to programme	.03	.04	-2.02
Individual had a fixed period exclusion 4 years prior to programme	.05	.05	-1.88
Individual had a fixed period exclusion 3 years prior to programme	.08	.09	-6.76
Individual had a fixed period exclusion 2 years prior to programme	.11	.12	-4.66
Individual had a fixed period exclusion in the year prior to programme	.15	.17	-5.44
Individual was a looked after child in the 5 years prior to programme	.01	.01	.07
Individual was a looked after child in the 4 years prior to programme	.01	.01	-1.05
Individual was a looked after child in the 3 years prior to programme	.01	.01	-2.36
Individual was a looked after child in the 2 years prior to programme	.01	.01	-2.93
Individual was a looked after child in the year prior to programme	.01	.01	-4.28
Individual was unauthorised absence at 10% level five years prior to programme start	.04	.04	-2.23
Individual was unauthorised absence at 10% level four years prior to programme start	.05	.04	1.78
Individual was unauthorised absence at 10% level three years prior to programme start	.06	.06	-.24

Variable	Programme Group	Comparison Group	Mean Standardised Bias
Individual was unauthorised absence at 10% level two years prior to programme start	.09	.09	-2.25
Individual was Unauthorised absence at 10% level in the year prior to programme start	.13	.13	-.63
Dummy unauthorised absence at 10% level pre y5	.47	.46	2.36
Dummy unauthorised absence at 10% level pre y4	.51	.51	.73
Dummy unauthorised absence at 10% level pre y3	.46	.47	-2.16
Dummy unauthorised absence at 10% level pre y2	.37	.37	-.28
Dummy unauthorised absence at 10% level pre y1	.28	.29	-1.01
All adults in family on out of work benefits 5 years before programme	.20	.20	1.16
All adults in family on out of work benefits 4 years before programme	.20	.20	1.42
All adults in family on out of work benefits 3 years before programme	.20	.19	3.21
All adults in family on out of work benefits 2 years before programme	.20	.19	1.76
All adults in family on out of work benefits in the year before the programme	.21	.20	2.24
Family employed five years prior to programme	.34	.33	2.24
Family employed four years prior to programme	.35	.34	2.09
Family employed three years prior to programme	.37	.36	1.83
Family employed two years prior to programme	.39	.38	1.45
Family employed in the year prior to programme	.41	.40	1.63
IMD Barriers to Services Decile, where 1 is the most deprived	4.79	4.74	1.63
IMD Crime Decile, where 1 is most deprived 10% LSOAS	3.46	3.52	-2.42
IMD Education and Training Decile where 1 is the 10% most deprived areas	3.38	3.47	-3.67
IMD Income Decile	3.06	3.09	-1.17

Key statistics and full list of variables: Adult Offending

Table A23: Individuals on and off support

	Off Support	On Support	Total
Comparison Group	-	14,468	14,468
Programme Group	-	30,896	30,896

Table A24: Bias diagnostic statistics

Sample	Mean Bias	Median Bias	Overall Bias	Rubin's R
Before matching	9.00	4.90	136.3*	.68
After matching	1.80	1.50	20.70	.96

Table A25: Programme impacts

Anytime within two years after programme:	Custodial sentence	Cautioned	Convicted
Proportion of adult offenders on the programme	1.2%	1.9%	5.9%
Proportion of adult offenders in the comparison group	1.6%	2.2%	6.1%
Difference	**-0.4%**	**-0.3%**	**-0.3%**
Results of significance testing	*p=0.009*	*p=0.12*	*p=0.44*

Table A26: Control variables

Variable	Programme Group	Comparison Group	Mean Standardised Bias
Sex	.36	.37	-1.93
Age at the start of programme	34.02	33.72	2.82
Age at start squared	1269.41	1251.52	2.20
Age of first offence	7.66	7.83	-1.51
Dummy variable for age of first offence	.63	.63	1.86
Ethnicity Missing	.08	.10	-3.45
Ethnicity Non-white	.18	.17	1.63
Number of Adults in the Family	2.30	2.36	-5.02
Number of Children in the Family	2.34	2.32	1.54
Programme criterion met for Crime and Antisocial behaviour	.24	.25	-3.70
Programme criterion met for education	.43	.39	7.21
Programme criterion met for being a Child in Need	.84	.84	-1.24
Programme criterion met for Worklessness in the Family	.72	.70	4.23
Programme criterion met for Domestic Abuse in the Household	.37	.36	1.78
Programme criterion met for having health related problems	.37	.38	-1.78
Dummy criterion met for crime	.00	.00	.67
Dummy criterion met for education	.00	.00	-3.04
Dummy criterion met for being a Child in Need	.00	.00	-.27
Dummy criterion met for Worklessness in the Family	.00	.00	1.66
Dummy criterion met for Domestic Abuse in the Household	.00	.00	-.11
Dummy criterion met for having health related problems	.01	.01	2.98
Whether individual is a first time offender	.07	.07	.16
Whether individual is a prolific offender(15+ offence records)	.10	.11	-1.74
Individual was convicted or cautioned five years prior to programme	.0620	.0690	-3.0893
Individual was convicted or cautioned four years prior to programme	.0582	.0604	-1.0368
Individual was convicted or cautioned three years prior to programme	.0541	.0579	-1.7891
Individual was convicted or cautioned two years prior to programme	.0540	.0616	-3.6518
Individual was convicted or cautioned in the year prior to programme	.0636	.0633	.1393
Total number of days in custodial sentence 5 year before programme	3.2481	3.4518	-.7239
Total number of days in custodial sentence 4 year before programme	3.6414	4.1989	-1.8745
Total number of days in custodial sentence 3 year before programme	3.3080	3.7380	-1.5437
Total number of days in custodial sentence 2 year before programme	3.1921	3.3332	-.5258
Total number of days in custodial sentence 1 year before programme	2.7103	3.0410	-1.3412
Total number of days in community sentence 5 year before programme	2.5637	2.8025	-1.1137

Variable	Programme Group	Comparison Group	Mean Standardised Bias
Total number of days in community sentence 4 year before programme	1.8417	1.8490	-.0403
Total number of days in community sentence 3 year before programme	1.1155	1.2185	-.7181
Total number of days in community sentence 2 year before programme	.7902	.8724	-.7174
Total number of days in community sentence 1 year before programme	.7465	.8122	-.5441
Individual has had a custodial sentence five years prior to programme	.0154	.0178	-2.0547
Individual has had a custodial sentence four years prior to programme	.0163	.0192	-2.4708
Individual has had a custodial sentence three years prior to programme	.0152	.0182	-2.6404
Individual has had a custodial sentence two years prior to programme	.0145	.0164	-1.7551
Individual has had a custodial sentence in the year prior to programme	.0137	.0147	-.9293
Individual has had a community sentence five years prior to programme	.0245	.0291	-3.1667
Individual has had a community sentence four years prior to programme	.0193	.0209	-1.2335
Individual has had a community sentence three years prior to programme	.0122	.0128	-.5762
Individual has had a community sentence two years prior to programme	.0089	.0095	-.7131
Individual has had a community sentence in the year prior to programme	.0082	.0087	-.6670
Whether individual was receiving Job Seeker's Allowance 5 years before programme	.17	.18	-3.52
Whether individual was receiving Job Seeker's Allowance 4 years before programme	.19	.20	-3.02
Whether individual was receiving Job Seeker's Allowance 3 years before programme	.20	.21	-2.69
Whether individual was receiving Job Seeker's Allowance 2 years before programme	.18	.19	-1.91
Whether individual was receiving Job Seeker's Allowance 1 years before programme	.16	.17	-3.99
Whether individual was employed 5 years before programme	.32	.32	.40
Whether individual was employed 4 years before programme	.33	.33	.89
Whether individual was employed 3 years before programme	.34	.34	-1.13
Whether individual was employed 2 years before programme	.34	.35	-1.32
Whether individual was employed 1 years before programme	.35	.36	-1.85
Family is in receipt of free school meals five years before programme	.56	.57	-1.89
Family is in receipt of free school meals four years before programme	.58	.59	-.94
Family is in receipt of free school meals three years before programme	.61	.61	.43
Family is in receipt of free school meals two years before programme	.63	.63	-.31
Family is in receipt of free school meals in the year before programme	.66	.66	1.10
Whether family member received Income Support 5 years before programme	.46	.45	2.11

Variable	Programme Group	Comparison Group	Mean Standardised Bias
Whether family member received Income Support 4 years before programme	.44	.43	2.56
Whether family member received Income Support 3 years before programme	.41	.41	1.48
Whether family member received Income Support 2 years before programme	.38	.36	3.40
Whether family member received Income Support 1 years before programme	.39	.38	1.78
Whether family contains a child with Special Education Need 5 years before programme	.36	.36	.02
Whether family contains a child with Special Education Need 4 years before programme	.37	.37	.45
Whether family contains a child with Special Education Need 3 years before programme	.39	.38	.63
Whether family contains a child with Special Education Need 2 years before programme	.41	.41	.36
Whether family contains a child with Special Education Need 1 years before programme	.41	.41	.01
Whether family contains a child with persistent absence at 10% 5 years before programme	.1977	.2096	-3.0289
Whether family contains a child with persistent absence at 10% 4 years before programme	.2155	.2196	-1.0223
Whether family contains a child with persistent absence at 10% 3 years before programme	.2135	.2154	-.4764
Whether family contains a child with persistent absence at 10% 2 years before programme	.2464	.2501	-.8837
Whether family contains a child with persistent absence at 10% 1 years before programme	.28	.27	1.17
Dummy for whether a child with persistent absence at 10% 5 years before programme is missing	.1240	.1286	-1.3616
Dummy for whether a child with persistent absence at 10% 4 years before programme is missing	.1273	.1370	-2.8679
Dummy for whether a child with persistent absence at 10% 3 years before programme is missing	.1210	.1248	-1.1391
Dummy for whether a child with persistent absence at 10% 2 years before programme is missing	.1042	.1135	-2.8777
Dummy for whether a child with persistent absence at 10% 1 years before programme is missing	.1029	.1113	-2.5939
Index of Multiple Deprivation (IMD) Decile (where 1 is most deprived 10% of LSOAs)	3.02	3.13	-4.86
IMD Education, Skills and Training Decile (where 1 is most deprived 10% of LSOAs)	3.34	3.32	.66
IMD Employment Decile (where 1 is most deprived 10% of LSOAs)	3.15	3.21	-2.42
Out of work benefit claimants to work age population ratio	.14	.14	1.17

ANNEX F: ADDITIONAL INFORMATION ON THE COST BENEFIT ANALYSIS

Looked after Children

On average, in Dataset 6, there were 2.21 children per family on the programme. This figure has been used to derive the cohort size at risk of being taken into care.

The unit cost per looked after child is £54,114 (2016/17 prices). This has been derived by taking the overall national costs of providing support to Looked After Children as reported in the Section 251 return by Local Authorities, divided by the total number of Looked After Children nationally reported in the 901 return.

The reduction in the proportion of Looked After Children due to the Troubled Families Programme results in a large gross fiscal saving of £202million over years two and three.

For this outcome measure only fiscal benefits are included as there is no methodology to estimate the social and economic impacts of reducing the proportion of Looked After Children.

Child Protection Plans

As for Looked After Children, an assumption was made that there were on average of 2.21 children per family at risk of needing a Child Protection Plan.

The unit cost per Child Protection Plan is £3,728 (2009/10 prices). This is sourced from the work on unit costs of child safeguarding carried out by Dr Lisa Holmes and published by Department of Education. This work is currently being revised, and the unit cost used may alter in future publications. However, it is not believed that this will have a major impact on the results.

The increase in the proportion of children on Child Protection Plans as a result of the programme results in an extra fiscal cost of £43million over years two and three.

As for Looked After Children, only fiscal benefits can be measured (costs) as there is no methodology to estimate the social and economic impacts of reducing the proportion of children on Child Protection Plans.

Juvenile Offending

On average, in Dataset 6, there are 1.76 children aged between 10 and 17 per family on the programme. This figure has been used to derive the cohort size which relates to the juvenile offending measures.

Two measures related to youth offending were statistically significant; juvenile convictions and juvenile custody. In order to avoid double counting, the custody costs were taken out of the overall costs of crime.

Juvenile Crime

The unit cost per crime has been taken from the Home Office Economic and Social Costs of Crime 2nd Edition 2018. The overall average cost per crime (as reported in the Crime Survey for England and Wales) is £3,497. This breaks down into a fiscal cost of £979, an economic cost of £1,111 and a social cost of £1,407. When the custody costs are removed, the fiscal cost reduces to £805.

There are approximately 8.87 crimes per conviction, and so the number of convictions is multiplied by this number to estimate the total number of crimes.

The reduction in the proportion of juvenile convictions due to the programme results in a gross fiscal saving of £48million over years two and three following the start of the programme.

Juvenile Custody

The unit cost per year of juvenile custody is £87,910 (2016/17 prices) and has been taken from the Ministry of Justice analysis of the costs of prison places.

The reduction in the proportion of juvenile custodial sentences due to the programme results in a gross fiscal saving of £15million over years two and three.

Adult Offending

On average, in Dataset 6, there were 1.72 adults per family on the programme. This figure has been used to derive the cohort size related to adult offending.

Only one of the adult offending measures was statistically significant: prosecutions resulting in adults being sentenced to custody.

The unit cost has been taken from the Ministry of Justice statistics on the average cost of custody per prisoner per year of £35,371 (2016/17 prices). For the analysis an assumption of an average custody length of 156 days was made (calculated using the average sentence length for adults in Dataset 6).

The reduction in the proportion of adult custody spells due to the programme results in a gross fiscal saving of £7million over years two and three.

Jobseeker's Allowance

As for adult offending, the figure of 1.72 adults per family was used to estimate the cohort size at risk of being on Jobseeker's Allowance (JSA).

The unit cost has been taken from unpublished Department for Work and Pensions analysis indicating that the average fiscal cost of being on Jobseeker's Allowance is £12,657 per year (2017/18 prices). Once transfer payments have been excluded and the economic benefits added, the total unit public value impact of one person being on Jobseeker's Allowance per year is £19,153 (2017/18 prices).

The reduction in the proportion of Jobseeker's Allowance claimants due to the programme results in a gross fiscal saving of £31million over the two year benefits period. Note: for this measure only the impact in year three (i.e. two years after the end of the programme) is included as the impacts calculated for the other periods were not statistically significant.

ANNEX G: PROBABILISTIC SENSITIVITY ANALYSIS

The Cost-Benefit Analysis only included statistically significant impacts from the Propensity Score Matching models. In order to minimise the risk of making conclusions that were not statistically robust, it then used the central estimate of the difference between programme and comparison groups as the measure of impact. Although we had confidence that the effects included were genuine impacts of the policy (i.e. they were non-zero), there was still statistical uncertainty around the central estimates. This statistical uncertainty is carried through to aggregated overall cost/benefit outcomes, including the benefit cost ratios. However, aggregating across a range of outcomes makes it unfeasible to express this uncertainty using conventional statistical tools such as confidence intervals and hypothesis testing.

We have attempted to compensate for this by doing scenario analysis, but we do not know the relative likelihood of each of these scenarios, and so this does not provide a robust indication of the level of confidence we can have in the results.

Monte Carlo probabilistic sensitivity analysis is a way to express the degree of confidence around cost-benefit estimates. Instead of using the central estimate of impacts and calculating the costs and benefits, it takes random values from the probability distributions of each impact (as indicated by the standard errors around each estimate). The probability distributions represent the uncertainty around these estimates. It then simulates the cost-benefit outcome based on these random values. Repeating this process of randomisation gives a distribution of cost-benefit outcomes, which can be used to indicate a level of confidence around these outcomes.

We have attempted this analysis based on the impacts from the Propensity Score matching models. We generated probability density functions for each impact by using the standard error and sample mean of each impact to impute a normal distribution.

For each outcome, a random number generator was used to select a percentile of the probability distribution, and the corresponding value was taken as the impact of the policy. The random values for each outcome were then used to model overall benefits and the benefit-cost ratio. By randomising each outcome separately, the sensitivity analysis assumes that all impacts are independent.

As in the main analysis, we only included outcomes where there was a statistically significant effect (although we consider the impact of including non-statistically significant effects below). Where there were measures of outcomes in multiple time periods, only the last measurement was randomly varied in the sensitivity analysis; the ratio between the last measurement and previous measurements was kept constant (and was set based on the ratio of the central estimates). This assumes that measurements of the same outcome at different periods were perfectly positively correlated.

This process was repeated for 1000 iterations, across the central, pessimistic and initial scenarios, for both the economic and fiscal benefit-cost ratio (BCR). The table below expresses the BCRs under the base case using central estimates (as presented in the main analysis), the probability that the benefit-cost ratio is less than one (i.e. there is a net cost) and the lower and upper bounds of a 95% confidence interval around the benefit-cost ratio.

Table A27: Sensitivity analysis results

	Central		Pessimistic		Initial	
	Fiscal BCR	**Economic BCR**	**Fiscal BCR**	**Economic BCR**	**Fiscal BCR**	**Economic BCR**
Base Case	1.51	2.28	1.12	1.70	0.85	1.31
P(<1)	13%	2%	35%	6%	69%	19%
Lower 95%	0.74	1.31	0.53	0.97	0.40	0.74
Upper 95%	2.27	3.24	1.68	2.42	1.29	1.89

These results suggest that we can have a high degree of confidence that there is a positive net economic benefit in both the central and pessimistic scenarios, and with some confidence that this is the case even under the initial analysis. We can also be confident that in our central scenario (which we consider to be the central case), there is a positive net fiscal benefit. It is more likely than not that this is also the case under the pessimistic scenario. Under the initial analysis, it is unlikely that the programme is fiscally beneficial.

Using this approach also allows us to also consider outcomes that did not have a statistically significant effect, without undermining the robustness of the findings. These results are shown in the table below.

Table A28: Sensitivity analysis results, all outcomes

	Central		Pessimistic		Initial	
	Fiscal BCR	**Economic BCR**	**Fiscal BCR**	**Economic BCR**	**Fiscal BCR**	**Economic BCR**
Base Case	1.51	2.28	1.12	1.70	0.85	1.31
Base case (all outcomes)	1.48	2.50	1.08	1.86	0.81	1.43
P(<1)	19%	3%	40%	9%	72%	20%
Lower 95%	0.60	1.16	0.40	0.81	0.25	0.58
Upper 95%	2.38	3.83	1.78	2.88	1.36	2.25

Including all of the impacts leads to similar conclusions. There is a slightly lower fiscal benefit-cost ratio in all three scenarios, and a lower probability that this is

greater than one. There is a slightly higher central estimate of the economic benefit-cost ratio, but a slightly lower probability that it is greater than one.

There are some limitations to this analysis. Firstly, we have assumed that effects are independent. In fact, we anticipate that there is likely to be some positive correlation between outcomes, such that more positive results on one outcome might indicate more positive results on the others. This would suggest that more extreme overall cost-benefit results are more likely than this analysis suggests. Secondly, and pulling in the other direction, we have assumed that when there are measurements of the same outcome in different periods, these all move in proportion to each other. While it is likely that a more positive measurement in one period would indicate more positive measurements in other periods, it is unlikely that these move perfectly in proportion. This would suggest that the analysis overestimates the likelihood of more extreme results for these outcomes.