



Ministry of Housing,
Communities &
Local Government

National evaluation of the Troubled Families Programme 2015-2020

Family outcomes – national and local datasets, part 5



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Foreword

In March 2019 we published the findings from our impact evaluation and cost benefit analysis of the Troubled Families Programme. This was the culmination of a great deal of work over a number of years carried out by analysts and the troubled families team at MHCLG. 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 (150) for the programme group and a comparison group of families. This data is matched at the family and individual level to data held by other government departments.

The design of the data collection enabled analysts in the Department to undertake Propensity Score Matching to measure the net impact of the programme. 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 for their analysis.

The results indicate that the programme has had a positive impact and reduced the proportion of: looked after children; juveniles and adults receiving custodial sentences; juveniles receiving convictions; as well as Jobseeker's Allowance claimants. The cost benefit analysis found the programme provides value for money:

- Every £1 spent on the programme delivers £2.28 of economic benefits (*includes economic, social and fiscal benefits*).
- Every £1 spent on the programme delivers £1.51 of fiscal benefits (*only budgetary impacts on services*).

This report builds on the impact analysis and provides us with a better understanding of who benefits from the programme, how and why. In particular, which families and individuals benefit from the programme as well as how their outcomes, relating to children's social care and offending, change over time.

The latest findings are based on the same dataset used for the impact analysis, published in March 2019, on around 250,000 families. This is because the analysis commenced soon after completing the impact analysis. Our efforts to obtain more recent data have been hindered by factors outside of our control, including the need to re-negotiate data sharing agreements following the introduction of the General Data Protection Regulation 2018 (GDPR). Some of these took longer to agree than anticipated.

The findings of the latest analysis suggest that:

- ***The programme is effective for two groups of families:*** those already in touch with services and families where needs have not been identified before they start on the programme.
- ***There are two distinctive mechanisms by which the programme works:*** providing support alongside existing public services to families who have entrenched, complex needs and intervention with families who have lower identified needs and less contact with statutory services before joining the programme.

These findings are particularly useful to feed into discussions about the design of a successor programme.

The publication of this report would not be possible without the input of the following groups and individuals. I would like to thank the members of the evaluation's Independent Advisory Group for their ongoing support and advice, in particular to ensure our reporting is balanced and clearly explained. In addition, I would like to thank Susan Purdon who provided the team with constructive feedback on the interaction effects analysis. The support and encouragement of Thomas Griffiths, Calum Peterson, Kate Gregory-Smith and Ruth Keeling in the troubled families team at MHCLG has been invaluable. Members of the analytical team have worked hard to continue to analyse the data and in the past year have included Matthew Lynch, Patrick Thewlis, Rachel Huck, Ralph Halliday, Ricky Taylor and Lan-Ho Man. Finally, I'd like to say thank you to local authorities, colleagues in other government departments and the Office for National Statistics for their ongoing support without which the project would not be able to continue.

Over the coming year, we will continue to analyse the data and test what more the data can tell us about how effective the programme is. We will publish a final report from the evaluation in 2021.

Stephen Aldridge

Chief Economist

Director for Analysis and Data

Ministry of Housing, Communities and Local Government

Executive summary

This report builds on the previous outcome reports. The findings are split into two sections:

- **Section 1:** family characteristics, focuses on the criteria that families met¹ and the complexity of needs of families on the programme. It also includes analysis of the data available on educational outcomes for young children.
- **Section 2:** family outcomes, explores whether the programme is more effective for some families or individuals than others and how outcomes change over time for families.

Key findings

Complexity of families

Families on the programme have a wide range of needs and, although they may be similar in other regards, there is little indication that this is a homogeneous group of families. There is some evidence that there are sizeable sub-populations of families on the programme with similar needs, notably those assessed as at risk of financial exclusion, children who need help and those with health problems. This seems to suggest that while there is potential for common approaches and similar interventions, it is unlikely that a one-size-fits-all approach will sufficiently meet every family's needs.

The analysis of the complexity of each cohort suggests that, over the period of the programme, the number of problems faced by families has declined. This could reflect that services worked with the families with the highest needs at the start of the programme and the needs of families has declined over time or that services have struggled more recently to deal with more complex families because of resource constraints.

Educational outcomes for young children

Analysis of the foundation scores, for children in reception year at school, found young children from families on the programme are behind their peers in the general school population across all developmental measures. The:

- Proportion of children on the programme meeting the expected level of development across all 17 criteria is consistently lower than those in the general school population².
- Percentage point differences between children on the programme and the general population meeting the expected or exceeded level is greatest in the literacy and numeracy categories. Differences between the children on the programme and the general population were smallest for physical development measures.

¹ The six criteria are: (1) families at risk of financial exclusion, including adults out of work (2) children not attending school regularly, (3) parents and children with a range of health problems, (4) children who need help or are in need or subject to a child protection plan, (5) families affected by domestic violence and abuse and (6) adults or children involved in crime and anti-social behaviour.

² <https://www.gov.uk/government/statistics/early-years-foundation-stage-profile-results-2016-to-2017>

This puts younger children at a disadvantage early in life when they start school and suggests the need for targeting support to families with young children to help improve their life chances.

Who does the programme work for?

We have used interaction effects models³ to explore which individuals and families the programme is helping the most. The interaction effects models suggest the programme is helping those involved with children's social care in the year before they joined and that those already on a child in need plan or on a child protection plan are less likely to be in touch with children's social care services after joining the programme. The results also suggest that the programme is having an impact on those who were not in touch with services before they joined. After joining the programme the probability of children being on a child protection plan increases amongst those who did not meet the 'child who need help' criterion and were not previously in contact with children's social care services.

The programme also appears to have had a positive impact on offending outcomes for those families with a recent criminal history, reducing the probability of cautions and convictions among families with a conviction in the year before the programme or identified as meeting the crime and anti-social behaviour criterion. The results suggest the programme may not be helping younger juveniles and families without an offending history. After joining the programme, younger juveniles had a higher probability of being cautioned and adults from families that did not meet the domestic abuse or crime and anti-social behaviour criteria had a higher probability of being cautioned or convicted.

How do individual outcomes change over time?

Analysis was carried out to track individual outcomes over time. This suggested that the status of children already in touch with children's social care services before they joined the programme changed for most children 13-24 months after joining the programme. The majority of children who were looked after, on a child protection plan or a children in need plan were only in touch with universal services and no longer receiving statutory children's services.

The same analysis for offending behaviour also suggested that the majority of adults and juveniles who had been convicted or given a custodial sentence before they joined the programme had reduced their offending 13-24 months after joining the programme and their contact with the criminal justice system had stopped or was at least reduced in its severity.

³ See [Methodology](#) section for explanation of interaction effects models. The interaction effects modelling tests the difference in impacts (i.e. the relative difference) of the programme between sub-groups. This is in contrast to the Propensity Score Matching which tests whether the programme has an impact on a particular outcome.

Indications of how the programme is working

The current findings using interaction effects models and analysis of how outcomes change over time, together with the results from the Propensity Score Matching⁴ and the qualitative evaluation⁵, provide indications of the mechanisms by which the programme may be having an impact, and how these mechanisms differ for different families. Although it is difficult to draw definitive conclusions, we hypothesise that there are two relatively distinct mechanisms by which the programme may be having an impact with two corresponding cohorts.

Mechanism 1 – providing support alongside existing public services (such as children’s social care and criminal justice services) to families who have entrenched, complex needs

The programme seems to be improving the experience that families with complex needs have of statutory public services. The qualitative evaluation reports that part of the role of keyworkers is co-ordinating public service delivery and that they are effective at doing this. There is strong qualitative evidence that keyworkers are working with other professionals who are already in contact with the families (most notably social workers, the police and youth offending teams). Keyworkers reported co-ordinating multiple services, working across families’ multiple needs and addressing some of the problems that statutory services struggle to deal with, such as anti-social behaviour and children at risk of harm.

This approach appears to be effective at reducing reliance on high cost and high intensity public services, particularly amongst children in these families. The positive results from the impact evaluation particularly around reductions in the proportions of looked after children, juvenile convictions and juvenile custodial sentences, show that the programme has been effective at reducing families’ use of these services. The analysis presented here suggests that the programme has had this effect by providing effective and focused support to families that were already interacting with services before they joined the programme. It may also suggest that it is successfully identifying families where these problems and needs are entrenched, and who can benefit from the additional support of the programme on top of normal service delivery⁶.

Mechanism 2 – intervention with families who have lower identified needs and less contact with statutory services, but at risk of escalating problems

The programme also seems to be working with families that have had less previous contact with statutory public services, but who, once they join the programme, are at high risk of escalation or identified as having unmet needs. In fact, the quantitative evidence that may most strongly reflect this mechanism may be the increase in the use of child protection plans immediately after families join the programme. The interaction effects

⁴ For more information about the findings from the Propensity Score Matching see: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/786891/National_evaluation_of_the_troubled_families_programme_2015_to_2020_family_outcomes_national_and_local_datasets_part_4.pdf

⁵ For findings from the qualitative evaluation see: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/784611/National_evaluation_of_the_Troubled_Families_Programme_2015_to_2020_Case_studies_research_part_3.pdf

⁶ This includes those in touch with social services and the criminal justice system.

analysis suggests this increase is concentrated amongst children who were not previously in the child social care system, suggesting that the programme is effectively identifying some at-risk families and ensuring they are receiving the services they need.

Introduction

The Troubled Families Programme

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

The 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 problems 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 surveys⁷.

Previous report

The previous Troubled Families Programme evaluation report [Family outcomes - national and local datasets, Part 4](#) was published in March 2019. The report provided analysis of the characteristics of the families on the programme, an estimate of the impacts of the programme and an assessment of the overall value for money of the programme.

Characteristics of families and family progress

Descriptive analysis showed that, as expected, families on the programme had higher needs and interactions with services than the population in general. They were considerably more likely to have: adults claiming benefits; adults with a caution or conviction; children who were persistently absent from school; and children who were in touch with children's social care services.

Impact analysis

The previous report assessed the impacts of the Troubled Families Programme on key measured outcomes for families in the 24 months after joining the programme. It used a Propensity Score Matching method to estimate the impact of the programme based on a comparison of the outcomes for families who had joined the programme with a similar

⁷ Annex A of the Evaluation Overview Policy Report includes information about the design of the evaluation: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/786889/National_evaluation_of_the_Troubled_Families_Programme_2015_to_2020_evaluation_overview_policy_report.pdf

comparison group who had not joined the programme. The report found positive impacts on looked after children and custodial sentences for both adults and juveniles, as well as convictions for juveniles. After joining the programme there was a higher proportion of children on the programme on child protection plans until around two years later and no difference in the proportion of the programme and comparison group claiming Jobseeker's Allowance until around two years later.

This report

This report builds on the previous outcome reports. The findings are split into two sections.

Section 1: family characteristics

The first section sets out the results of additional analysis of the characteristics of the families on the programme to supplement the results of the previous report. This analysis focuses on the criteria that families met⁸ and the complexity of needs of families on the programme. It also includes analysis of the foundation scores for young children.

Section 2: family outcomes

The second section sets out quantitative analysis that goes beyond the scope of the impact analysis published in March 2019. While the impact analysis provides a robust assessment of the impact of the Troubled Families Programme, it gives limited insight into how the programme works, why it works and who it works for. This report considers some of these questions based on analysis of the data.

In particular:

1. Section 2a explores whether the programme is more effective for some families or individuals than others;
2. Section 2b explores how outcomes change over time for families interacting with the programme (including before and after joining the programme).

These findings should be considered alongside the results of the family survey and the qualitative research that sits alongside the impact analysis as part of the evaluation of the Troubled Families Programme⁹.

⁸ The six criteria are: (1) families at risk of financial exclusion, including adults out of work (2) children not attending school regularly, (3) parents and children with a range of health problems, (4) children who need help or are in need or subject to a child protection plan, (5) families affected by domestic violence and abuse and (6) adults or children involved in crime and anti-social behaviour.

⁹ The full set of results can be found here: <https://www.gov.uk/government/publications/national-evaluation-of-the-troubled-families-programme-2015-to-2020-findings>

Section 1a: Characteristics of families

Introduction

There are six eligibility criteria families can meet in order to qualify for support on the Troubled Families Programme. These are: (1) families at risk of financial exclusion, including adults out of work (2) children not attending school regularly, (3) parents and children with a range of health problems, (4) children who need help or are in need or subject to a child protection plan, (5) families affected by domestic abuse and (6) adults or children involved in crime and anti-social behaviour. As a minimum, families must meet any two of these criteria. However, a considerable proportion of families meet more than this. The findings below are from descriptive analysis of Dataset 6.

Methodology

We use data collected and submitted by local authorities to MHCLG. This data includes which of the six national criteria each family on the programme meets when they join and provides good coverage of families. It is completed on nearly all families for which we have data. However, some caution should be taken in interpreting the results below. Discussions MHCLG had with local authorities identified data quality concerns among some, where they:

- reported limited access to data held by partners, for example difficulties in accessing health data. This means that for some local authorities there may be consistently missing data for some eligibility criteria across all their families;
- described a process for checking the eligibility criteria where data sources were checked in a certain order and these would stop once they had identified at least two criteria for a family. This means that families may meet more than two criteria, but this may not be reflected in the data.

We use data on 205,353 families to consider the number of criteria that are met and the most common combinations of criteria, as well as whether this has varied for different cohorts of the programme.

Results

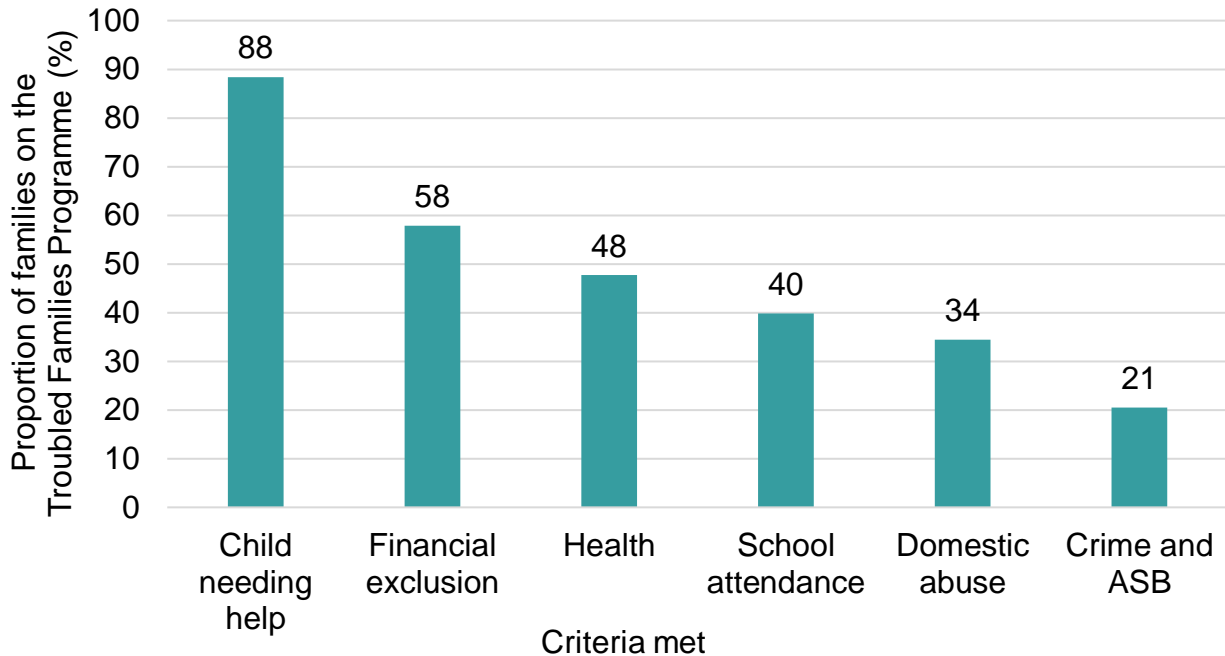
Number and type of criteria being met

The number of criteria families met when joining the programme reveal the number of needs these families have and provide an indication of the complexity of need. Of the families on the programme:

- The majority meet two or three of the six criteria (58%: 31% and 27% respectively).
- A sizeable proportion meet four criteria (16%).

- Only a small proportion of families meet five or more of the criteria (8%)¹⁰.
- Most families meet either the at risk of financial exclusion or the children who need help criteria (58% and 88% respectively).

Figure 1: Distribution of families on the programme meeting the six headline criteria.



Note: total proportion of criteria does not equal 100% due to overlap of criteria within families.

The results above suggest that the programme is successfully targeting families with complex needs, but that, although families on the programme are more likely to have needs across the domains relative to the general population, very few have needs across every criterion. The results also suggest that while each of these criteria are equally important in determining eligibility, some are considerably more likely to be met by families on the programme. For instance, even though families on the programme are more likely to have histories of crime and anti-social behaviour than the general population, this still comprises a relatively small proportion of families compared to those on the programme because they have children who need help.

Combinations of criteria being met

While the number and type of criteria met gives some indication of families' complexity of need, it is the combination of problems and the interactions between these that determines what this complexity means in terms of family outcomes and experiences. Families on the programme may be very different from each other if their combinations of needs differ. These families may also benefit from different interventions, and so a better understanding of the relative prevalence of different combinations of needs can also provide useful insight

¹⁰ The remaining 18% met fewer than 2 criteria. This could be due to data quality issues, the reliance of local authorities on local discretion to include families with other needs on the programme or because families met only one criterion.

into what the programme might need to deliver. Our analysis of the combinations of needs shows the most and least common combinations in our cohort.

Of all families on the programme that met two of the eligibility criteria:

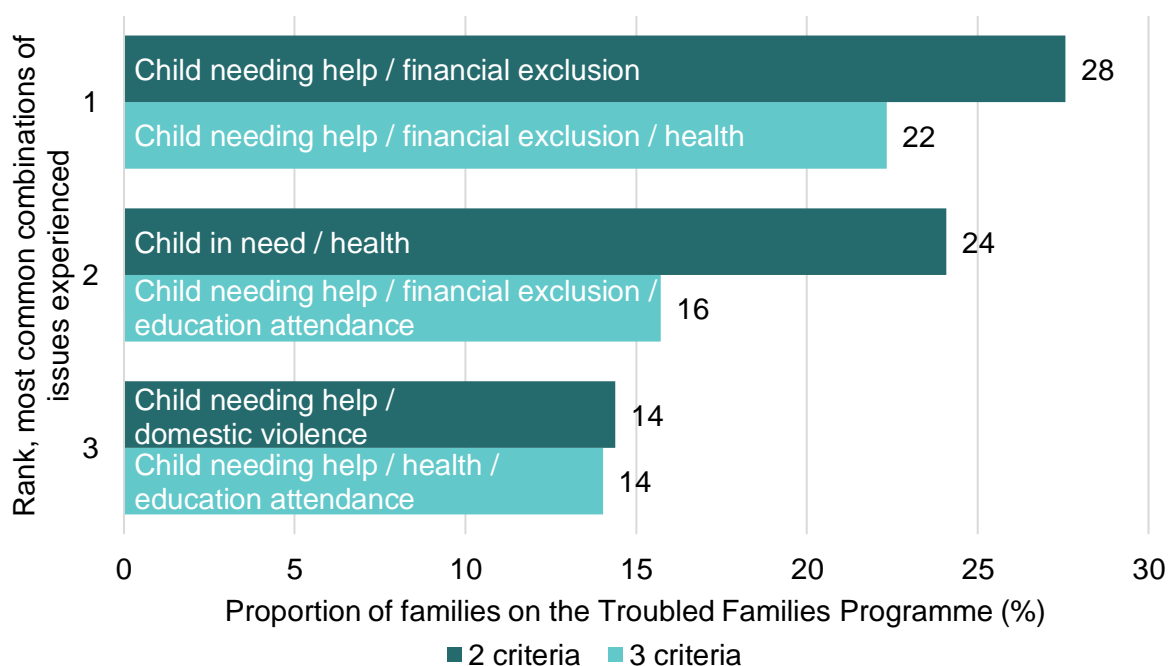
- 28% were at risk of financial exclusion and had children who needed help; and
- 24% had children who needed help and health problems;
- less than two per cent met domestic abuse in combination with any other criterion and less than two per cent met crime and anti-social behaviour in combination with any other criterion.

Of the families on the programme that met three of the eligibility criteria:

- 22% were at risk of financial exclusion, had children who needed help and health problems;
- less than one per cent met at risk of financial exclusion, crime and anti-social behaviour and domestic abuse and less than one per cent met at risk of financial exclusion, crime and anti-social behaviour and health.

The findings suggest that families on the programme have a wide range of needs, and although they may be similar in other regards, there is little indication that this is a homogeneous group of families. There is some evidence that there are sizeable sub-populations of families on the programme with similar needs, notably those that are at risk of financial exclusion and have children who need help and health problems. This seems to suggest that while there is potential for common approaches and similar interventions, it is unlikely that a one-size-fits-all approach will sufficiently meet every family's needs.

Figure 2: Top three criteria combinations for families meeting two or three of the six headline criteria.

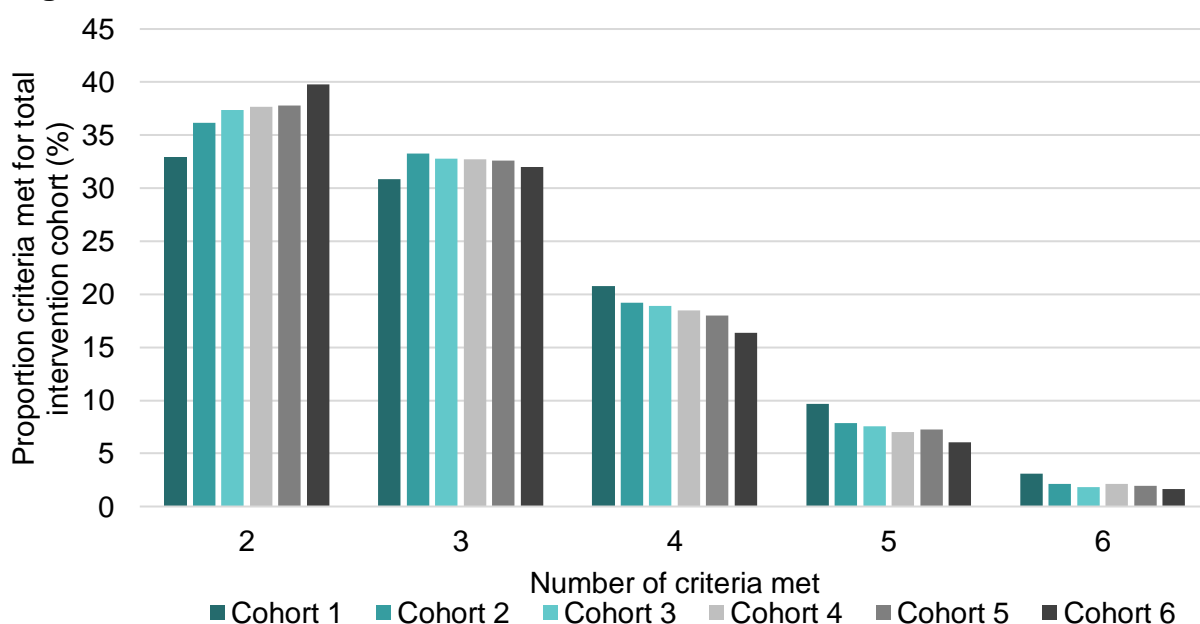


Complexity across the cohorts

It was possible to explore the potential changes to the complexity of families as new cohorts joined the programme by using the recorded start date. The data were split into six-month cohorts from the start of the programme to the most recent data cut-off date. The first cohort spans September 2014 and June 2015¹¹ and the final cohort June to December 2017.

We compared the number of criteria met by the families in each cohort to explore whether this has changed over time. As seen in the chart below, families meeting two or three of the eligibility criteria make up the majority of each cohort and this remains relatively stable over time, around 65% of the programme families in each cohort.

Figure 3: Proportion of families meeting a number of headline criteria, within programme cohorts.



The greatest range across the cohorts is among families meeting two criteria, with 33% of cohort 1 meeting two criteria and 40% of cohort 6 (a seven-percentage point difference). The increase in families meeting two criteria is offset by a decrease in the proportion of families meeting four, five or six criteria.

The findings above suggest that over the period of the programme the number of problems faced by each cohort of families has declined. This could reflect that services worked with the families with the highest needs at the start of the programme and the needs of families has declined over time or that services struggled more recently to deal with more complex families because of resource constraints¹².

¹¹ The first cohort includes a group of local authorities that signed up to be 'early starters', the earliest starting in September 2014. The programme was officially launched in April 2015.

¹² Troubled Families Co-ordinators reported cuts and capacity in core services were one of the key challenges to delivering the programme – see staff survey report.

Section 1b: Educational outcomes for young children

Introduction

The findings below are from descriptive analysis of Dataset 6 and use data available on early childhood development from the National Pupil Database.

Data for early development: foundation scores

The design of the data collection for means outcomes for individual children under school age is not captured unless they are in contact with children's social services. This is because the administrative data sources used by the evaluation do not cover this subset of the population. However, the data provided by local authorities makes it possible to identify children who are in families on the programme and the type of household and environment they live in.

The earliest individual measure of school attainment and development for young children on the programme comes from the early years foundation score. In their reception year, children are assessed against 17 developmental criteria¹³ as meeting one of three levels: emerging; expected; or exceeding¹⁴. This measure has been in place since 2013. Any children in the dataset with foundation scores in the year before they joined the programme were included in the analysis. The figures below do not include the assessments used before 2013, as these are not comparable.

Findings

Analysis of the data on foundation scores suggests children on the Troubled Families Programme perform less well than the general school population across all developmental measures, even at the age of four years. When they join the programme, the individual scores for children are consistently lower for children on the programme when compared to children in the general school population (see Figure 4, overleaf):

- Nine per cent of children on the programme score only 17 points across all measures compared to three per cent across England.
- 22% score 34 points, which is the equivalent of meeting the expected level in each and every learning goal, compared to 28% across England.

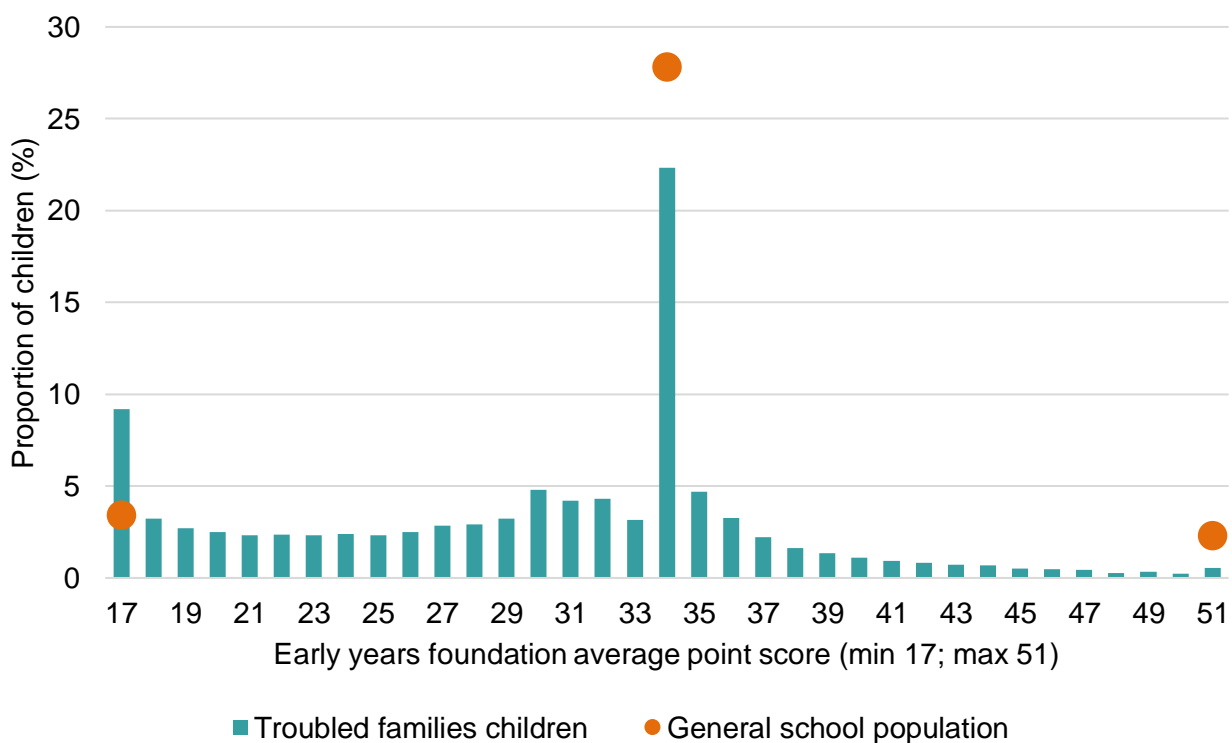
¹³ See Figure 5 below for the categories of developmental criteria.

¹⁴ In their reception year, children are assessed against 17 developmental criteria as meeting one of three levels: emerging (1 point); expected (2 points); or exceeding (3 points). The scores for each of the 17 measures are combined to provide the overall point score. Over the 17 criteria this gives a minimum score of 17 and a maximum score of 51. Thus, a child below the expected level in all 17 measures will score 17 overall, whereas a child exceeding the expected level in all goals will score 51.

- Under one per cent score 51 points across all measures compared to two per cent across England.

Figure 4 is based on a chart in the early years foundation stage profile report¹⁵. It shows the distribution of total points across all measures for the children on the programme and includes three comparison points (in orange) for the general school population ('emerging': a score of 17; 'expected': a score of 34; and exceeding: a score of 51). An outcome of 34 points is the equivalent of a child achieving the expected level in each and every early learning goal.

Figure 4: Proportion of children attaining each early years foundation score.



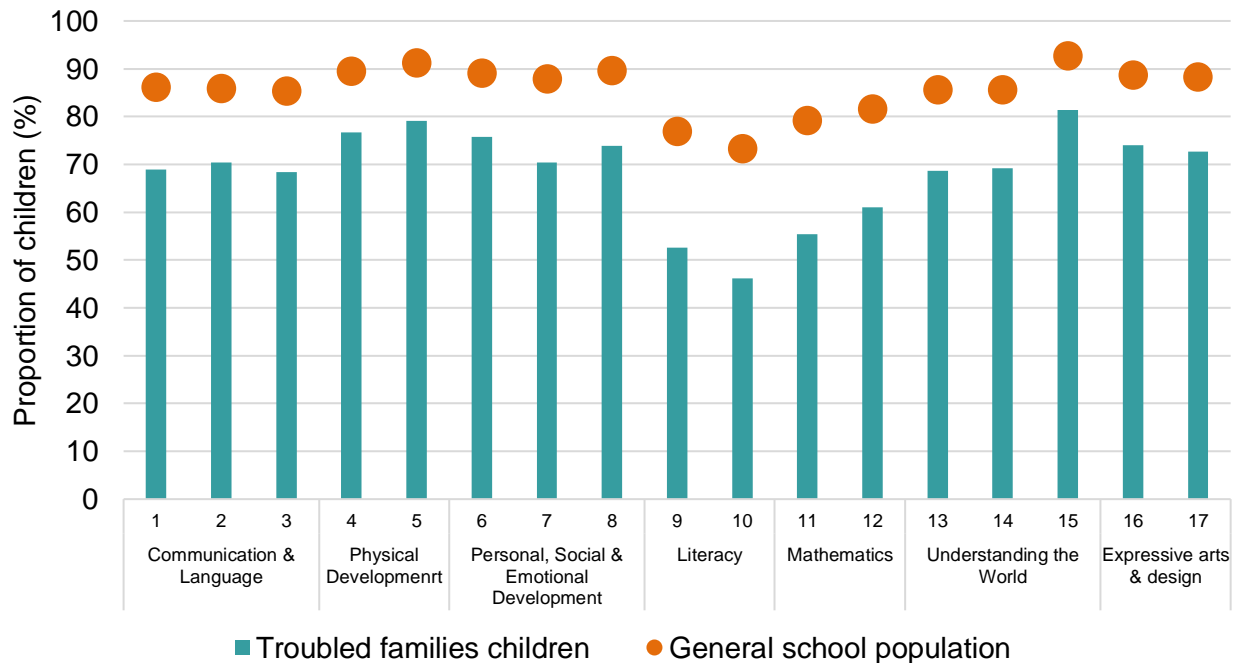
Taking the specific assessment measures individually, children on the programme perform less well across all measures when compared to children in the general school population (see Figure 5, overleaf), the:

- Proportion of children on the programme meeting the expected level of development across all 17 goals is consistently lower than those in the general school population.
- Percentage point differences between children on the programme and the general population meeting the expected or exceeded level is greatest in the literacy and numeracy categories. Differences between the children on the programme and the general population were smallest for physical development measures.

¹⁵ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/652602/SFR60_2017_Text.pdf

The figure below shows the proportion of children on the programme meeting at least the expected level for each of the 17 measures and includes comparison points (in orange) for the general school population.

Figure 5: Proportion of children assessed as meeting the expected or exceeded level across the 17 development goals.



The findings suggest that a higher proportion of young children from families on the programme are behind their peers (in the general school population) in meeting goals for early development, putting them at a disadvantage early in life and when they start school. The Early Intervention Foundation reviewed the evidence for early interventions and concluded that providing the right, targeted support can improve children’s and families’ outcomes¹⁶. Our findings support the need for targeting support to families with young children to help improve their life chances.

¹⁶ <https://www.eif.org.uk/why-it-matters/how-do-we-know-it-works>

Section 2a: Who does the programme work for?

Background

The report published in March 2019 provides an assessment of the impact of the Troubled Families Programme on key outcome measures for which we have data¹⁷. The method used to assess impact was Propensity Score Matching and the results suggest that the programme is having a positive impact and improving outcomes, most notably reducing the number of children in care and custodial sentences for adults and juveniles. The results also show the programme is cost-effective, with the benefits of the programme outweighing the costs¹⁸.

However, the results of the Propensity Score Matching give limited insight into the mechanisms by which the programme delivers that impact, who it has an impact on, and under what circumstances it has an impact. We have undertaken additional quantitative analysis to provide insight into whether the programme has been more effective for some types of families compared to others. This is an important question for several reasons:

- While the effects of the programme are noticeable, and the economic benefits substantial, these are largely attributable to changes in outcomes for a small number of families. We would like to understand more about why this is the case, given we would like the programme to have positive impacts on a larger number of families.
- Having a better understanding of who the programme is effective for will identify where the programme could be more refined in order to achieve greater benefits per family worked with and pounds spent, or alternatively where it needs further development.
- It will help us answer questions about how the programme delivers outcomes. For example, whether it succeeds primarily through preventing escalation of needs or by managing high intensity/complex needs.

Methodology

The analysis and findings below attempt to identify whether the programme is particularly effective for certain sub-groups of families on the programme. This analysis draws largely on the data used in the previous report (Dataset 6), which contains administrative data on outcomes for children's social care, offending, benefits and employment for a large number of families on the programme as well as a comparison group of similar families

¹⁷ (1) worklessness and employment, (2) school absence, (3) children who need help and (4) offending behaviour. The school absence Propensity Score Matching model is still in development. Outcomes that the programme was designed to deliver were included in the financial framework and used as a basis for the design of the evaluation.

¹⁸ For more information about the findings from the Propensity Score Matching see:

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/786891/National_evaluation_of_the_troubled_families_programme_2015_to_2020_family_outcomes_national_and_local_datasets_part_4.pdf

that are not on the programme. For the impact analysis, we used Propensity Score Matching models to identify differences in outcomes between the programme group and the comparison group that could be attributed to the programme. That method requires a large sample to detect differences between the groups. For this reason, it was not feasible to use Propensity Score Matching to conduct sub-group analysis.

Instead, we have used interaction terms in logistic regression modelling. A logistic regression model expresses how the likelihood of an outcome (e.g. a child being in care) changes dependent on a range of characteristics (e.g. age, gender, prior contact with children's services). A key function of logistic regression is to estimate the effect that individual characteristics or variables have on the likelihood of an outcome.

An interaction effects model allows us to create a variable (**interaction term**) that considers the combined effect of two variables. As an illustrative example, the interaction term 'age*gender' would indicate how the effect of age on the outcome differs between men and women. Using this same logic, we can include an interaction term for example, 'on the programme*gender', to see if the effect of the programme differs between men and women. Where an interaction term is statistically significantly different from zero, we can conclude that there is a difference in impact between the two sub-groups (in this case men and women). We have used this approach to explore whether the programme is more effective for some sub-groups than others.

Including whether someone was on the programme in the interaction term allows us to see the likelihood of the outcome for those on the programme compared to the comparison group, after controlling for a range of characteristics¹⁹. If the logistic regression model adequately controls for other factors that influence the outcome, any significant results can be interpreted as the impact of the programme²⁰. However, we acknowledge that there is, as with any statistical model, a degree of uncertainty with our estimates.

To find out exactly how the impact of the programme varies, we rely on the '**marginal effects**' of the interaction model. The marginal effects are estimated after the logistic regression model is run²¹. Marginal effects:

- tell us the likelihood of an outcome using 'predicted probabilities' (i.e. the probability of an outcome based on the characteristics included in our model);
- show how a change in the predicted probabilities, as a result of being on the programme, varies by whether an individual has a particular characteristic or not. For example, how a change in the predicted probabilities of being convicted whilst on the programme varies by men and women.

¹⁹ The characteristics ('control variables') included in the model are demographic and family characteristics, previous use of services and the criteria that families met.

²⁰ The interaction effects modelling tests the difference in impacts (i.e. the relative difference) of the programme between sub-groups. This is in contrast to the Propensity Score Matching which tests whether the programme has an impact on a particular outcome.

²¹ The marginal effects reported below are calculated on the basis of an 'average' family in the analysis – that is, one with a mean score on all control variables. The results were derived using the margins command in Stata.

We have used an interaction effects model to explore which individuals and families the programme is helping the most. The analysis identifies the characteristics of families where impacts are greatest, as well as the characteristics of families for which the programme is having less of an impact.

Building on our Propensity Score Matching work, we have developed a logistic regression model with interaction terms for each broad outcome for which the Propensity Score Matching found significant impacts²²: (1) children's social care; (2) juvenile offending; and (3) adult offending. By using logistic regression, we have been able to control for differences between groups. Each interaction effects model includes the range of characteristics used in the Propensity Score Matching models and tests the differences in the impact of the programme for particular sub-groups. The results below give an indication of the difference in the impact of the programme between the sub-groups we have tested, i.e. the relative difference.

In order to corroborate these findings, we have drawn on the qualitative evidence to test whether these findings are consistent with what is being reported by staff and families.

For each set of outcomes below, we report the impacts published in March 2019, and then set out the results of our analysis into whether the programme has a greater impact for certain sub-groups. It should be noted that only models with a statistically significant interaction term have been included in the results, i.e. those at or above the 95% confidence level. In this section of the report we have included the results that give a clear indication of where the programme is more effective. The full list of interaction effect model sub-groups and further results are included in Annex A.

Children's social care

Overall impact from Propensity Score Matching

Overall, the programme had a beneficial impact on looked after children, where a smaller proportion of children on the programme (than in the comparison group) were in care in the 19-24 month period after families joined. There was a statistically significant increase in the proportion of children on child protection plans in the seven to 12 months after families joined the programme, but no difference after 19-24 months. There was no significant difference in the proportion of children on a child in need plan between the two groups.

Who does it work for?

Models were developed to test the characteristics related to the following outcomes: a looked after child; on a child in need plan; or on a child protection plan. The interaction effects analysis explores whether there are differential impacts of the programme for particular sub-groups.

²² Further work is being carried out to test other outcomes, such as benefit claims and educational achievement.

Looked after children (LAC)

Differential impact

The findings suggest that the programme has a greater impact on being a looked after child (LAC) 19-24 months after joining the programme for children who were on a child in need plan (CINP) in the year before joining, relative to those children who were **not**.

Table 1: Average marginal effects (AME): change in predicted probabilities of being a looked after child 19-24 months after joining the programme²³.

When individual is on programme	Change in predicted probability (AME)	Std. Err.	P-value
CINP in year before programme start	-0.010*	0.005	0.053
Not CINP in year before programme start	0.008	0.006	0.187

Holding all other factors constant, for those children on a child in need plan in the year before joining the programme, the findings suggest the programme **decreases** the predicted probability of being a looked after child by 0.010²⁴. The impact of the programme on children who were **not** on a child in need plan in the year before joining the programme is not statistically significant.

Child in need plan (CINP)

Differential impact

The findings suggest that the programme has a greater impact on being on a child in need plan (CINP) 19-24 months after joining the programme for children who were **not** involved with children's social care (CSC)²⁵ in the year before joining, relative to those children who were.

Table 2: Average marginal effects (AME): change in predicted probabilities of being on a child in need plan 19-24 months after joining the programme.

When individual is on programme	Change in predicted probability (AME)	Std. Err.	P-value
Involved with CSC in year before to programme start	-0.022	0.012	0.072
Not Involved with CSC in year before to programme start	0.091***	0.014	0.000

Holding all other factors constant, the findings suggest that for those children who were **not** involved with children's social care, the programme **increases** their predicted probability of being on a child in need plan by 0.091. The impact of the programme for children who were involved with children's social care in the year before joining the programme is not statistically significant.

²³ Statistically significant differences indicated where * p value <0.05; ** p value <0.01; *** p value <0.001.

²⁴ Predicted probabilities allow us to predict the probability of achieving a certain outcome. The value of a predicted probability works on a probability scale, with values ranging from 0 to 1.

²⁵ Children's social care (CSC) is a derived variable which includes children who were looked after (LAC), on a child protection plan (CPP) or on a child in need plan (CINP)

Child protection plans (CPP)

Differential impact 1

The findings suggest that the programme has a greater impact on being on a child protection plan (CPP) for children from families who met the programme's children who need help criterion, relative to those who did **not**. However, the difference in the impact between the two groups is relatively small.

Table 3: Average marginal effects (AME): change in predicted probabilities of being on a child protection plan (CPP) 19-24 months after joining the programme.

When individual is on programme	Change in predicted probability (AME)	Std. Err.	P-Value
Criterion met – children who need help	0.026***	0.007	0.000
Criterion not met – children who need help	0.024***	0.005	0.000

Holding all other factors constant, the findings suggest that for those children from families who met the children who need help criterion, being on the programme **increases** the predicted probability of being on a child protection plan by 0.026. The programme also **increases** the predicted probability of being on a child protection plan for those children whose families did **not** meet the criterion by 0.024.

Differential impact 2

The findings suggest that the programme has a greater impact on being on a child protection plan (CPP) 19-24 months after joining the programme for those children who were on a child protection plan in the year before joining, relative to children who were **not**.

Table 4: Average marginal effects (AME): change in predicted probabilities of being on a child protection plan (CPP) 19-24 months after joining the programme.

When individual is on programme	Change in predicted probability (AME)	Std. Err.	P-value
On CPP in year before programme start	-0.075*	0.035	0.033
Not on CPP in year before programme start	0.035***	0.004	0.000

Holding all other factors constant, the findings suggest that for those children who were on a child protection plan in the year before joining the programme, being on the programme **decreases** the predicted probability of being on a child protection plan 19-24 months after joining the programme by 0.075. In contrast, the programme **increases** the predicted probability of being on a child protection plan 19-24 months after joining the programme for those who were **not** on a child protection plan in the year before joining by 0.035.

Differential impact 3

The findings suggest that the programme has a lesser impact on being on a child protection plan (CPP) 19-24 months after joining the programme for those children who

were **not** involved with children’s social care (CSC) in the year before joining, relative to those who were²⁶.

Table 5: Average marginal effects (AME): change in predicted probabilities of being on a child protection plan (CPP) 19-24 months after joining the programme.

When individual is on programme	Change in predicted probability (AME)	Std. Err.	P-value
Involved with CSC in year before to programme start	0.036	0.027	0.195
Not Involved with CSC in year before to programme start	0.017***	0.003	0.000

Holding all other factors constant, the findings suggest that for those children who were **not** involved with children’s social care in the year before joining, the programme **increases** their predicted probability of being on a child protection plan by 0.017. The impact of the programme for children who were involved with children’s social care in the year before joining the programme is not statistically significant.

Key findings for children’s social care

The programme appears to have an impact on those already in the social care system in the year before they joined the programme, reducing the probability of children’s social care service use among those already on a child in need plan or on a child protection plan before joining the programme. Notably, it also appears to be having an impact on children who may not have had previous contact with the social care system. The findings suggest the probability of being on a child in need plan increases among those not already in the social care system, and the probability of being on a child protection plan increases among those not already in the social care system, not assessed as meeting the children who need help criterion and not already on a child protection plan.

Offending

Overall impact from Propensity Score Matching

Overall, the programme had a beneficial impact on juvenile convictions and juveniles and adults receiving custodial sentences. There was a smaller proportion of juveniles on the programme (than in the comparison group) who were convicted in the 24 month period after families joined. The proportion of juveniles and adults receiving custodial sentences was also reduced in the 24 month period after joining.

Who does it work for?

Models were developed to test the characteristics related to outcomes for cautions, convictions and custodial sentences for both juveniles and adults. The interaction effects analysis explores whether there are differential impacts of the programme for particular sub-groups.

²⁶ Although an impact may not reach the accepted level of statistical significance ($p < 0.05$), the relative size of the effect between the sub-groups may still be greater than those that do reach statistical significance.

Juvenile cautions

Differential impact

The findings suggest that the programme has a similar impact, in opposite directions, on cautions for both younger juveniles (10-15 years old) and older juveniles (16+ years old) in the 24 month period after joining the programme.

Table 6: Average marginal effects (AME): change in predicted probabilities of receiving a caution in the 24 months after joining the programme.

When individual is on programme	Change in predicted probability (AME)	Std. Err.	P-value
10-15 years	0.005*	0.002	0.041
16+ years	-0.005	0.003	0.113

Holding all other factors constant, the findings suggest that for younger juveniles (10-15 years old) on the programme their predicted probability of being cautioned in the 24 months after joining **increases** by 0.005. The impact of the programme for older juveniles (16+ years old) is not statistically significant.

Juvenile convictions

Differential impact

The findings suggest that the programme has a greater impact on convictions for juveniles from families with a conviction in the year before joining, relative to those **without**.

Table 7: Average marginal effects (AME): change in predicted probabilities of receiving a conviction in the 24 months after joining the programme.

When individual is on programme	Change in predicted probability (AME)	Std. Err.	P-value
Family with conviction in year before programme start	-0.008*	0.004	0.025
Family without conviction in year before programme start	0.003	0.002	0.239

Holding all other factors constant, the findings suggest that for those juveniles from families with a conviction in the year before joining, the programme **decreases** their predicted probability of being convicted in the 24 months after joining the programme by 0.008. The impact of the programme for juveniles from families **without** a conviction is not statistically significant.

Adult cautions

Differential impact

The findings suggest that the programme has a greater impact on being cautioned in the 24 months after joining for those adults from families who met the programme's crime and anti-social behaviour (ASB) criterion, relative to those adults from families who did **not**.

Table 8: Average marginal effects (AME): change in predicted probabilities of receiving a caution 24 months after joining the programme.

When individual is on programme	Change in predicted probability (AME)	Std. Err.	P-value
Criterion met – crime and ASB	-0.007*	0.003	0.027
Criterion not met – crime and ASB	0.003	0.002	0.075

Holding all other factors constant, the findings suggest that for those adults from families who met the programme's crime and anti-social behaviour criterion, the programme **decreases** the predicted probability of being cautioned by 0.007. The impact of the programme for adults from families who did not meet the criterion is not statistically significant.

Adult convictions

Differential impact 1

The findings suggest that the programme has a greater impact on being convicted in the 24 months after joining for adults from families who met the programme's crime and anti-social behaviour (ASB) criterion, relative to adults from families who did **not**.

Table 9: Average marginal effects (AME): change in predicted probabilities of receiving a conviction 24 months after joining the programme.

When individual is on programme	Change in predicted probability (AME)	Std. Err.	P-value
Criterion met – crime and ASB	-0.009*	0.004	0.040
Criterion not met – crime and ASB	0.007*	0.003	0.012

Holding all other factors constant, the findings suggest that for those adults from families who met the crime and anti-social behaviour criterion, the programme **decreases** the predicted probability of being convicted by 0.009. In contrast, for those adults from families who did **not** meet the programme's crime and anti-social behaviour criterion, the programme **increases** their predicted probability of being convicted by 0.007.

Differential impact 2

The findings suggest that the programme has a lesser impact on being convicted in the 24 months after joining the programme for adults from families who did **not** meet the domestic abuse criterion, relative to adults from families who did²⁷.

²⁷ Although an impact may not reach the accepted level of statistical significance ($p < 0.05$), the relative size of the effect between the sub-groups may still be greater than those that do reach statistical significance.

Table 10: Average marginal effects (AME): change in predicted probabilities of receiving a conviction in the 24 months after joining the programme.

When individual is on programme	Change in predicted probability (AME)	Std. Err.	P-value
Domestic abuse criterion met	-0.008	0.004	0.087
Domestic abuse criterion not met	0.006*	0.003	0.027

Holding all other factors constant, the findings suggest that for those adults from families who did **not** meet the domestic abuse criterion, the predicted probability of being convicted in the 24 months after joining the programme **increases** by 0.006. The impact of the programme for adults from families who met the criterion is not statistically significant.

Key findings for offending

The interaction analysis suggests that the programme had an impact on offending outcomes for those families with recent criminal history. Juveniles in families with a conviction in the year before the programme were less likely to be convicted, whilst adults from families identified as meeting the crime and anti-social criterion were less likely to be cautioned or convicted after joining.

The results suggest the programme also appears to be having an impact on younger juveniles and adults in families without a recent offending history. After joining the programme, the probability of younger juveniles (aged 10-15 years) being cautioned increased and the probability of adults being cautioned or convicted increased in families that were not identified as meeting the domestic abuse or crime and anti-social behaviour criteria.

Section 2b: How do individual outcomes change over time?

In the last publication of the evaluation of the Troubled Families Programme²⁸ we reported that there were fewer looked after children on the programme compared to the comparison group, but a larger proportion of children on child protection plans. There were also fewer adult and juvenile custodial sentences and juvenile convictions among those on the programme compared to the comparison group.

We have analysed the data further in an attempt to better understand the results from the Propensity Score Matching models. We consider how the families' use of children's social care services and how contact with the criminal justice system changed before and after joining the programme. This analysis does not attempt to measure the impact of the programme, it only captures changes in outcomes for those on the programme.

The analysis tracks the individual outcomes of children who were looked after, on a child protection plan or on a child in need plan in the year before joining and reports their status two years after they joined. We have carried out similar analysis to track how contact with the criminal justice system changed after joining the programme.

For the following analysis, individuals are selected for investigation based on the following criteria: age; the local authority in which they live; and the availability of two years of outcome data after joining the programme. It only includes data from local authorities included in the Propensity Score Matching²⁹ and individuals who were successfully matched to the National Pupil Database for children who need help, and those successfully matched to the Police National Computer for offending.

Children who need help

Pre-programme outcomes

For the current analysis, in the year before families joined the programme, one per cent of children were looked after, five per cent were on child protection plans, and just over a quarter (26%) were on a child in need plan³⁰. The remaining children (69%) included in the analysis were only interacting with universal services³¹.

²⁸ [Family outcomes - national and local datasets, Part 4](#)

²⁹ The Propensity Score Matching analysis includes 33 local authorities where we are confident about the quality of the data provided.

³⁰ Children may be recorded as having more than one status. The descriptive analysis found that 31.8% of children were classed as in need (see the report published in March 2019). Please note that the percentages for all children do not add up to 100% due to rounding.

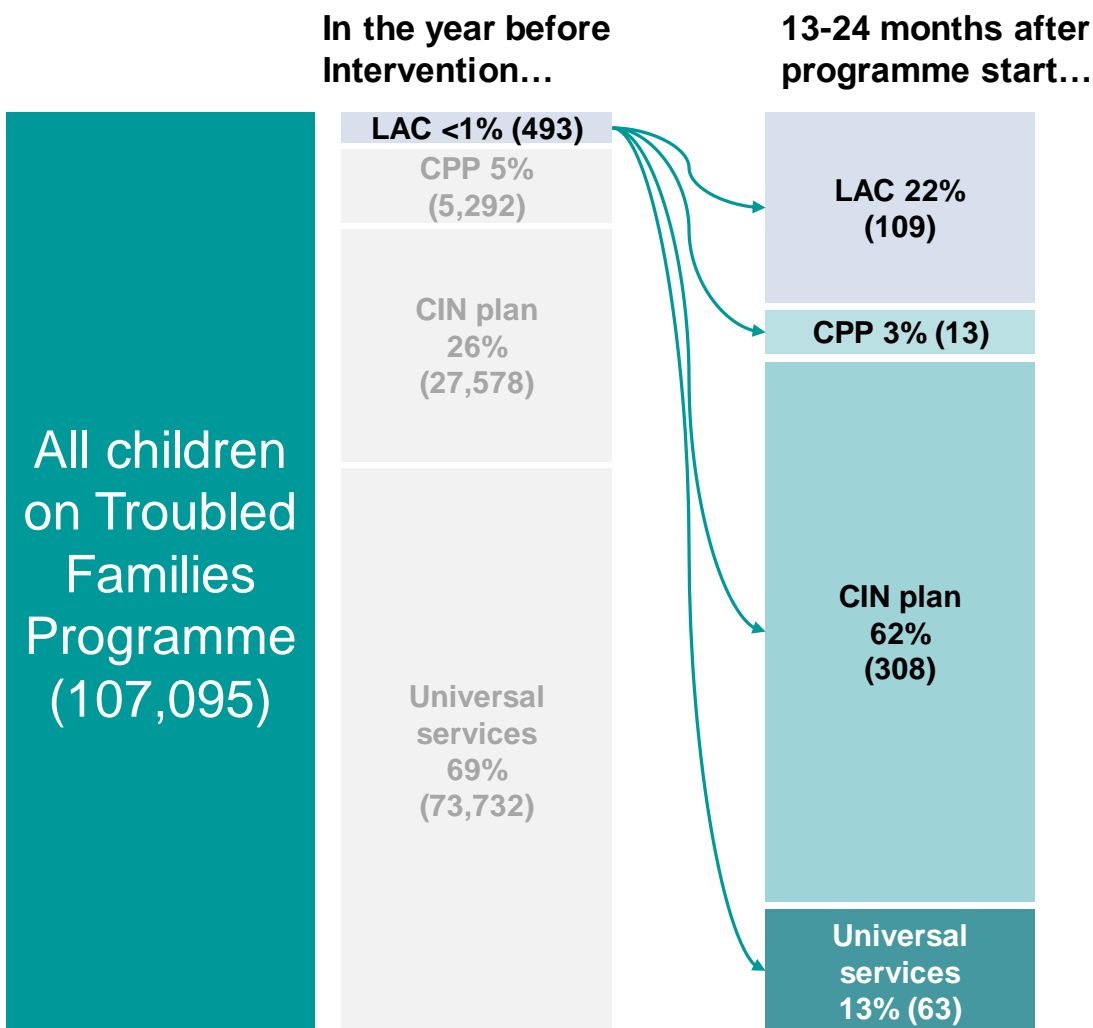
³¹ Universal services include services that are available and accessible to all children, including education and health.

Changes in children’s social care service use

Looked after children

Of the children who were looked after in the year before they joined the programme, around a quarter (22%) were still looked after, three per cent had moved on to a child protection plan, and almost two thirds (62%) were on a child in need plan. The remaining children (13%) had interacted only with universal services two years after joining the programme. Overall, this suggests that the children’s social care status changed for 78% of children who were looked after in the year before they joined the programme, with the status remaining the same for the rest (22%).

Figure 6: Change in children’s social care status for children on the programme – looked after children.

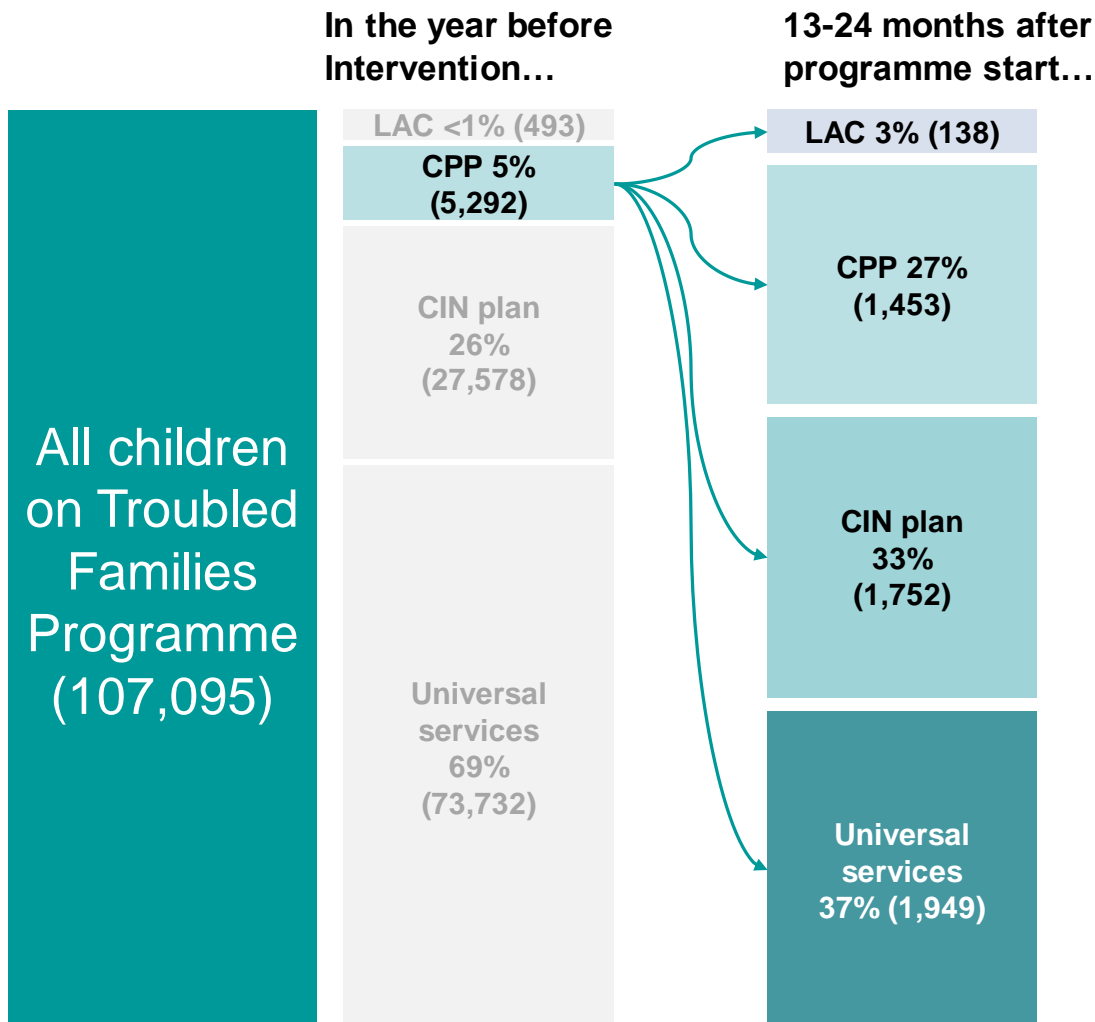


Child protection plans

Of the children who were on child protection plans in the year before they joined the programme, over a third (37%) only interacted with universal services two years after joining. Three per cent became looked after, a further third (33%) were on child in need plans, and 27% remained on child protection plans. Overall, this suggests that the children’s social care status changed for 73% of children who were on a child protection

plan in the year before they joined the programme, with the status remaining the same for the rest (27%).

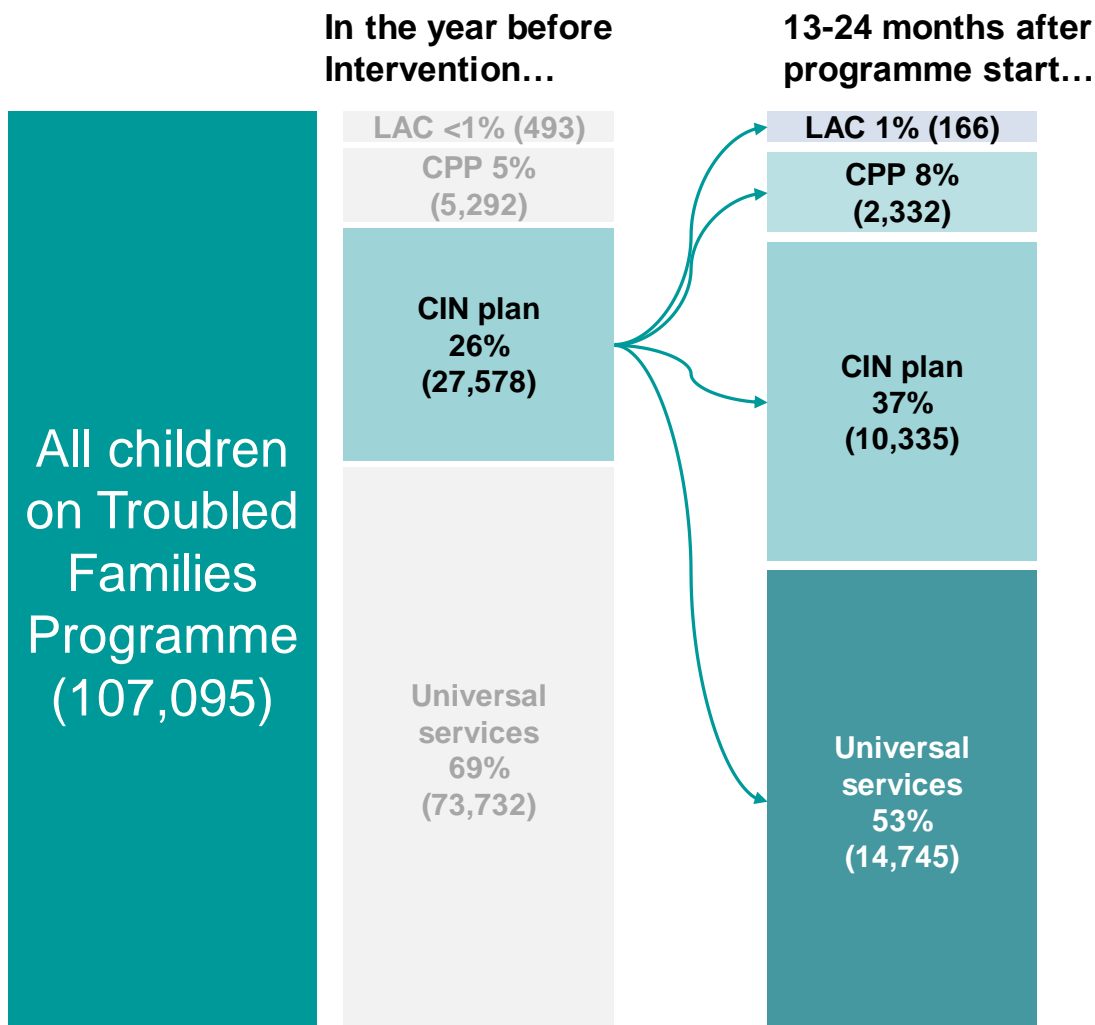
Figure 7: Change in children’s social care status for children on the programme – child protection plans.



Child in need plans

Of the children who were on child in need plans in the year before they joined the programme, just over half (53%) only interacted with universal services two years after joining. One per cent became looked after, eight per cent were on child protection plans and over a third (37%) remained on child in need plans. Overall, this suggests that the children’s social care status changed for 62% of children who were on a child in need plan in the year before they joined the programme, with the status remaining the same for the rest (37%). Please note that the percentages do not add up to 100% due to rounding.

Figure 8: Change in children’s social care status for children on the programme – child in need plans.



Key findings

These results suggest that the status of most children who were in touch with children’s social care in the year before joining the programme changed status in the two year period after joining. The majority of children who were looked after, on a child protection plan or children in need plan were only in touch with universal services in the two year period after joining, i.e. not in touch with statutory children’s services.

Using this analysis alone it is not possible to conclude whether any of these movements are a consequence of the programme, as this does not take into account what would have happened in the absence of the programme. It is likely that some of the movements between services would have taken place in the absence of the programme. This suggests that there is considerable fluidity between children’s social care services and between the populations who are and are not interacting with children’s social care.

Offending

Pre-programme outcomes

For the current analysis, in the year before families joined the programme:

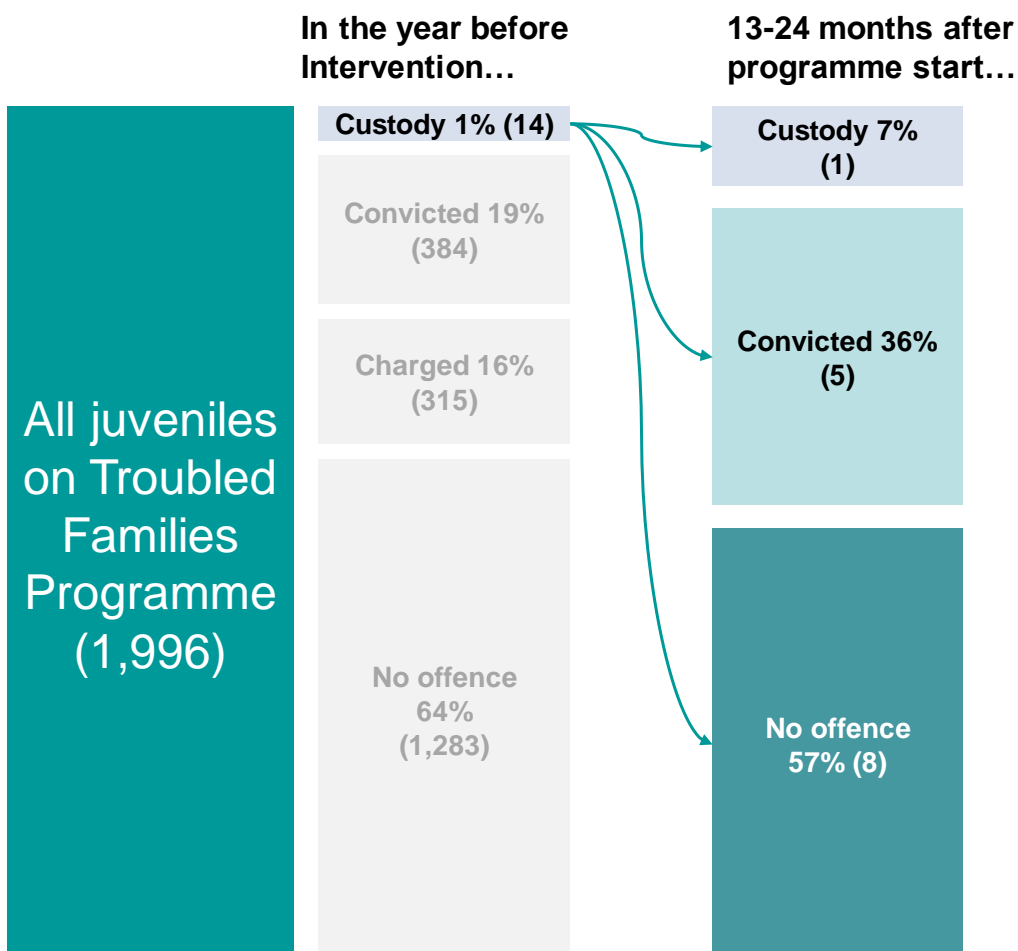
- One per cent of juveniles were given a custodial sentence, 19% were convicted, 16% were charged and 64% did not commit any offences.
- One per cent of adults were given a custodial sentence, 11% were convicted, five per cent were charged and 84% did not commit any offences.

Changes in contact with criminal justice system

Juveniles with custodial sentences

Of the juveniles who were sentenced to custody in the year before they joined the programme, nearly three fifths (57%) committed no further offences two years after joining, with 36% receiving a further conviction and seven per cent being given a custodial sentence. Overall, this suggests that outcomes improved for the majority of juveniles who had been given custodial sentences in the year before joining the programme.

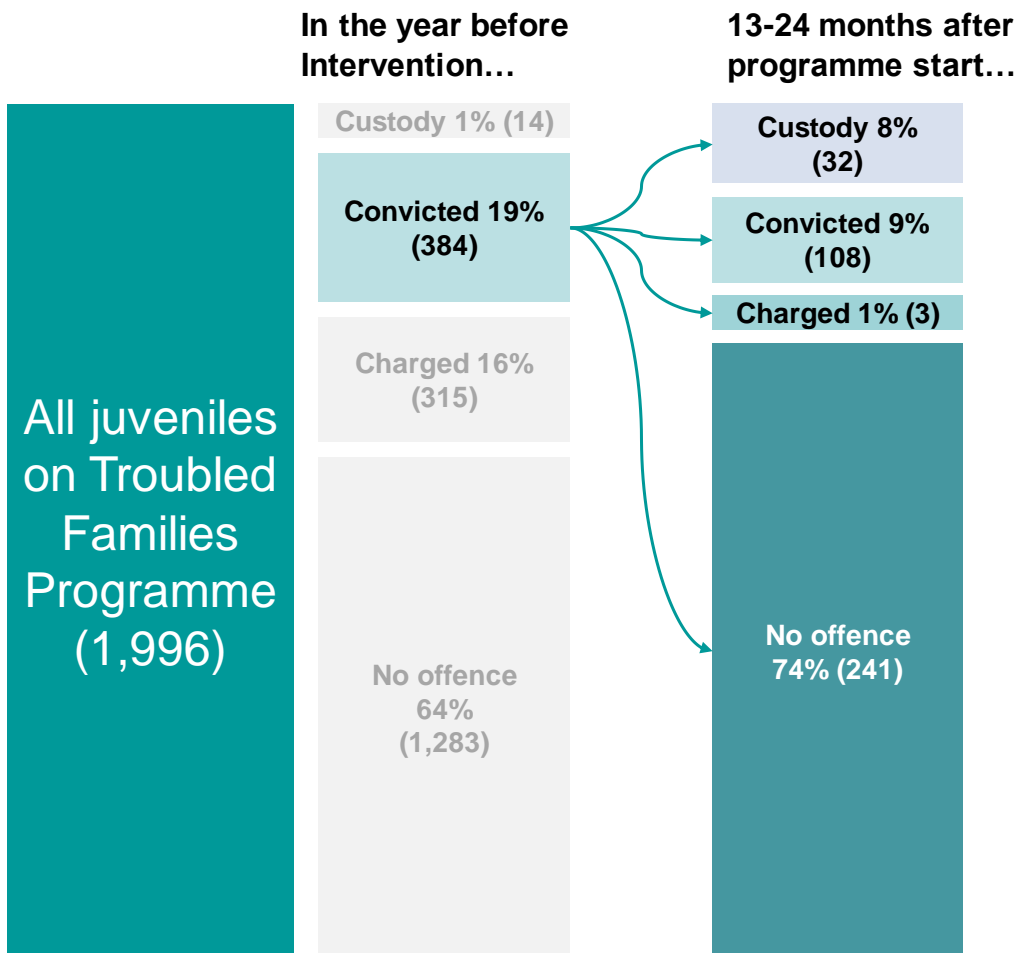
Figure 9: Change in status for juvenile offenders on the programme – custodial sentences.



Juveniles with convictions

Of the juveniles who were convicted in the year before they joined the programme, nearly three quarters (74%) committed no further offences two years after joining, nine per cent received a further conviction, eight per cent were given a custodial sentence and one per cent were charged for a further offence. Overall, this suggests that outcomes improved for the vast majority of juveniles who had been convicted in the year before joining.

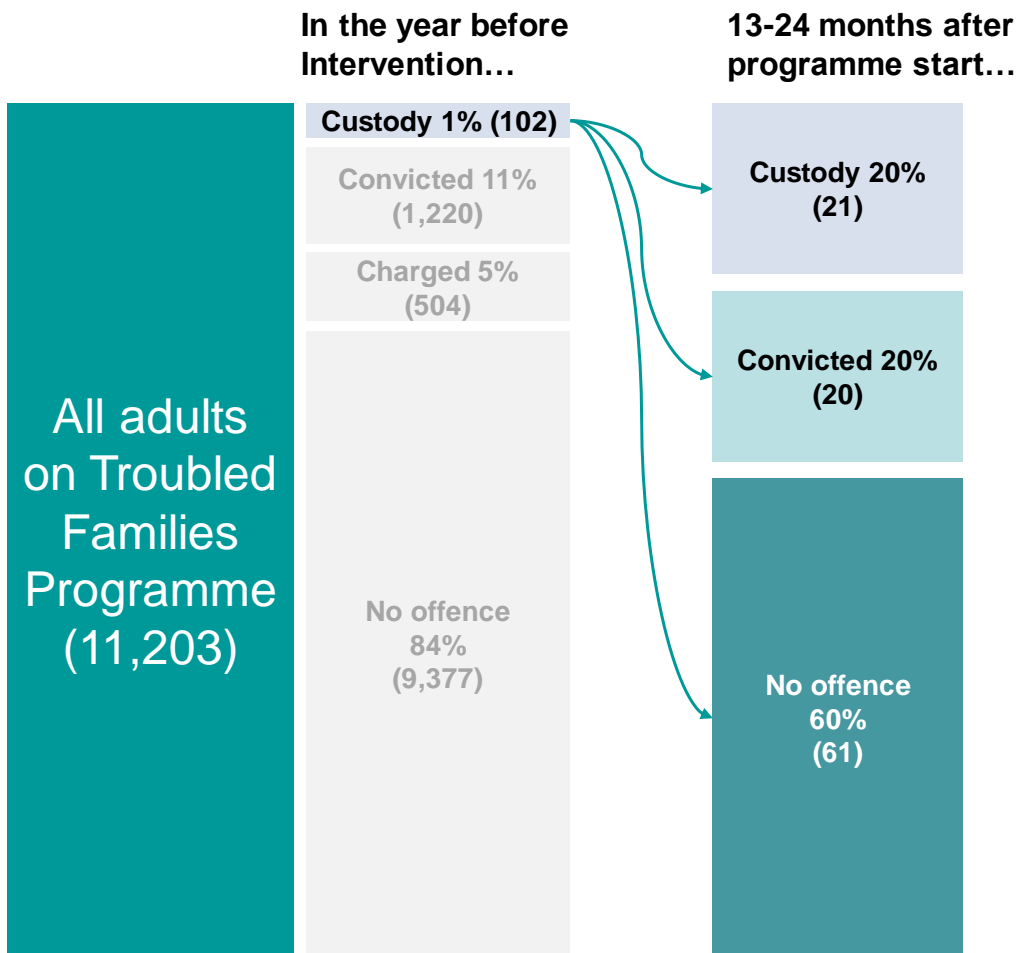
Figure 10: Change in status for juvenile offenders on the programme – convictions.



Adults with custodial sentences

Of the adults who were given custodial sentences in the year before they joined the programme, three fifths (60%) committed no further offences two years after joining, with one fifth (20%) remaining in custody or receiving a further custodial sentence and one fifth (20%) being convicted. Overall, this suggests that outcomes improved for the majority of adults who had been given custodial sentences in the year before joining the programme.

Figure 11: Change in status for adult offenders on the programme – custodial sentences³².

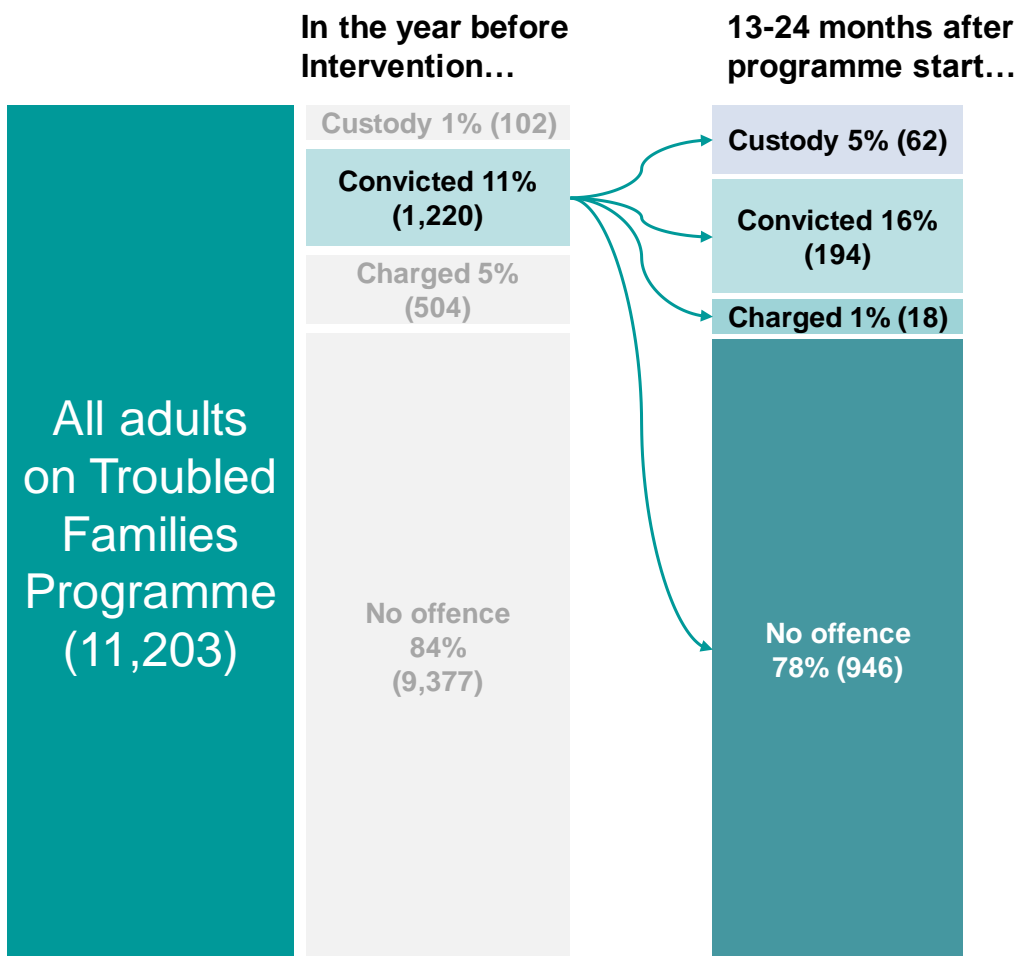


Adults with convictions

Of the adults who were convicted in the year before they joined the programme, nearly four fifths (78%) committed no further offences two years after joining, with 16% receiving a further conviction, five per cent being given a custodial sentence and one per cent being charged for an offence. Again, this suggests that outcomes improved for the majority of adults who were convicted in the year before joining the programme.

³²This analysis excludes those still in custody after the start of the programme.

Figure 12: Change in status for adult offenders on the programme – convictions.



Key findings

These results suggest that the majority of adults and juveniles who had been convicted or given a custodial sentence before they joined the programme reduced their contact with the criminal justice system in the two year period after joining (had not committed any further offences) or at least reduced the severity of their offending.

It is not possible to conclude whether any of these movements are a consequence of the programme and it is likely that some of the movement seen would have taken place in the absence of the programme.

Summary and conclusions

Section 1: characteristics of families

Section 1 explores the complexity of needs of families on the programme. It finds that the programme is being targeted at those with complex needs, but that very few of these families have problems across all six (or even five) of the criteria. The most common criterion that families met was children who need help (88%), and there are far more families that meet this criterion than others, such as crime and anti-social behaviour (21%). There are some common combinations of needs – in particular, many families (28%) met both the children who need help and the at risk of financial exclusion criteria. However, this still only represents a minority of families, suggesting the population of families on the programme is not homogenous and have different needs to which those delivering the programme must respond.

The results presented in this report suggest that over the period of the programme the number of problems faced by families has declined. This could reflect that services worked with the families with the highest needs at the start and the needs of families has declined or that services have more recently been struggling to deal with more complex families because of resource constraints.

Analysis of the foundation scores for children in reception year at school found that young children from families on the programme are behind their peers in the general school population across all developmental measures. This puts them at a disadvantage early in life and when they start school, which suggests the need for targeting support to families with young children to help improve their life chances.

Section 2: family outcomes

Section 2a considers whether the programme is more effective for some families than others. The findings from the interaction effects models suggest that the programme is more likely to reduce service use amongst families and individuals with previous use of those services in the year before they joined the programme, and increase service use amongst those who do not have prior use of those services in the year before joining.

Taken together with the results of the Propensity Score Matching and findings from the case studies and surveys undertaken as part of the wider evaluation, the children's social care results suggest that the programme is more effective at reducing service use amongst those already being supported by the social care system and is potentially identifying unmet need once families have joined the programme. The crime results suggest the programme is more effective among families where there was previous offending and risk of offending, but less effective among families without a recent offending history where for some groups the probability of offending increases. Increases in offending after joining the programme were seen among younger offenders and families that had not met the crime and anti-social behaviour or the domestic abuse criteria. This

may indicate that, although these issues may not have been identified before joining the programme, they are problems that the families already face.

On the whole, and taking all of the findings together, the results suggest that the programme is providing focused interventions to address already existing problems and is doing this effectively among some families. However, there are also some groups of families that the results suggest the programme is: (a) having less of an impact on, such as younger juvenile offenders; and (b) identifying and/or dealing with previously unmet needs, shown in the increased probability of child protection plans.

Section 2b looks at how outcomes change for individuals who were interacting with services in the year before joining the programme. It finds that there is considerable fluidity in outcomes before and after joining the programme for both children's social care and for contact with the criminal justice system. Many individuals identified as at higher risk, such as children who were looked after or who were sentenced to custody, had no contact with these services two years after joining the programme. Although some of this is likely to be as a result of the programme, it suggests that this fluidity also exists in the absence of interventions. This may imply that normal service delivery is working to improve outcomes for many families, and that the programme is having its greatest impact where it targets families and provides the necessary support, such as better partnership working and a more joined-up service that better meets their needs.

Taking the findings of section 2a and 2b together with the results of the Propensity Score Matching suggests that the programme has been relatively successful at improving outcomes for children and offenders whose needs would not have improved in the absence of the programme and providing the necessary support for these families.

In context: a hypothesis of mechanisms in the Troubled Families Programme

Taking all the evidence we have so far together we begin to see a picture emerging of the mechanisms by which the programme may be having an impact, and how these mechanisms differ for different families. Although it is difficult to draw definitive conclusions, we hypothesise that there are two relatively distinct mechanisms by which the programme may be having an impact, with two corresponding cohorts:

Mechanism 1: providing support alongside existing statutory public services (children's social care, criminal justice services, etc.) with families who have entrenched, complex needs and are high users of public services.

Mechanism 2: intervening with families who have lower identified needs and have less contact with statutory public services but have a high risk of their needs escalating.

Mechanism 1 – providing support alongside existing public services with families who have complex needs

The programme seems to be improving the experience that families with complex needs have of statutory public services. The qualitative evaluation reports that part of the role of keyworkers is co-ordinating public service delivery, and that they are effective at doing this. There is strong qualitative evidence that keyworkers are working with other professionals who are already in contact with the families (most notably social workers, the police and youth offending teams). Keyworkers reported co-ordinating multiple services, working across families' multiple needs and addressing some of the problems that statutory services struggle to deal with, such as anti-social behaviour and children at risk of harm.

This approach appears to be effective at reducing reliance on high cost and high intensity public services, particularly amongst children in these families. The positive results from the impact evaluation (particularly around reductions in the proportions of looked after children, juvenile convictions and juvenile custodial sentences, published in March 2019), show that the programme has been effective at reducing the use of the most intensive services. The analysis presented here suggests that the programme has had this effect by providing effective and focused support to families that were already interacting with services before they joined the programme. It may also suggest that it is successfully identifying families where these problems and needs are entrenched, who can benefit from the additional support of the programme on top of normal service delivery.

Mechanism 2 – intervention with families at risk of escalating problems

The programme also seems to be operating through keyworkers working with families that have had less previous contact with statutory public services (or contact with lower intensity services), but who, once they join the programme, are at high risk of escalation or identified as having unmet needs. In fact, the quantitative evidence that may most strongly reflect this mechanism may be the increase in the proportion of child protection plans immediately after families join the programme, a finding from the Propensity Score Matching analysis. The interaction effects analysis suggests this increase is concentrated amongst children who were not previously in the child social care system, suggesting that the programme may effectively be identifying at-risk families and ensuring they are receiving the services they need.

In order to properly evaluate what is driving better outcomes and how the programme is having an impact, i.e. What Works, we would need to undertake impact analysis on the psychological or behavioural measures that predict service use, and/or would need to consider outcomes over a considerably longer time period.

Annex A: Interaction analysis results

Interaction effects model sub-groups

A complete list of the sub-groups used in the interaction effects models for both children’s social care and crime outcomes is below. To provide a complete picture, the list includes those sub-groups where either a statistically significant impact of the programme (i.e. marginal effects were statistically significant) was found in both sub-groups or only one of the sub-groups, as well as those models where no statistically significant impact was found for either sub-group.

Children’s social care (CSC)

Table 11: Looked after child (LAC).

Interaction variable	Subgroups	
Involvement in children’s social care (CSC)	Group 1	Involved in CSC in year before programme start
	Group 2	Not involved in CSC in year before programme start
Child in need plan (CINP)	Group 1	On CINP in year before programme start
	Group 2	Not on CINP in year before programme start
Child protection plan (CPP)	Group 1	On CPP in year before programme start
	Group 2	Not on CPP in year before programme start

Table 12: Child in need plan (CINP).

Interaction variable	Subgroups	
Involvement in children’s social care (CSC)	Group 1	Involved in CSC in year before programme start
	Group 2	Not involved in CSC in year before programme start
Looked after child (LAC)	Group 1	Looked after child in year before programme start
	Group 2	Not looked after child in year before programme start
Criterion met - health	Group 1	Family meets programme health criterion
	Group 2	Family does not meet programme health criterion
Criterion met - crime and anti-social behaviour (ASB)	Group 1	Family meets programme crime and ASB criterion
	Group 2	Family does not meet programme Crime and ASB criterion
Criterion met – financial exclusion	Group 1	Family meets programme financial exclusion criterion
	Group 2	Family does not meet programme financial exclusion criterion
Criterion met – school attendance	Group 1	Family meets programme school attendance criterion
	Group 2	Family does not meet programme school attendance criterion
Single-parent family	Group 1	Single-Parent Family
	Group 2	Not Single-Parent Family

Table 13: Child protection plan (CPP).

Interaction variable	Subgroups	
Involvement in children's social care (CSC)	Group 1	Involved in CSC in year before programme start
	Group 2	Not involved in CSC in year before programme start
Criterion met - child needing help	Group 1	Family meets programme child needing help criteria
	Group 2	Family does not meet programme child needing help criteria
Child protection plan (CPP)	Group 1	On CPP in year before programme start
	Group 2	Not on CPP in year before programme start

Crime**Juvenile****Table 14: Juvenile cautions.**

Interaction variable	Subgroups	
Age	Group 1	Younger juveniles (aged 10-15)
	Group 2	Older juveniles (aged 16+)

Table 15: Juvenile convictions.

Interaction variable	Subgroups	
Family with recent criminal history	Group 1	Family member convicted in year before programme start
	Group 2	Family member was not convicted in year before programme start
Age	Group 1	Younger juveniles (aged 10-15)
	Group 2	Older juveniles (aged 16+)
Child protection plan (CPP)	Group 1	On CPP in year before programme start
	Group 2	Not on CPP in year before programme start

Table 16: Juvenile custodial sentences.

Interaction variable	Subgroups	
Family with recent criminal history	Group 1	Family member convicted in year before programme start
	Group 2	Family member was not convicted in year before programme start
Custodial sentence	Group 1	Juvenile received custodial sentence in year before programme start
	Group 2	Juvenile did not receive custodial sentence in year before intervention
Child protection plan (CPP)	Group 1	On CPP in year before programme start
	Group 2	Not on CPP in year before programme start

Adult

Table 17: Adult cautions.

Interaction variable	Subgroups	
Criterion met - domestic abuse	Group 1	Family meets programme domestic abuse criterion
	Group 2	Family does not meet programme domestic abuse criterion
Criterion met - crime and & anti-social behaviour (ASB)	Group 1	Family meets programme crime and ASB criterion
	Group 2	Family does not meet programme crime and ASB criterion
Families with young children (aged under 5)	Group 1	Family with young children (aged under 5)
	Group 2	Family without young children (aged 5 or older)

Table 18: Adult convictions.

Interaction variable	Subgroups	
Criterion met - domestic abuse	Group 1	Family meets programme domestic abuse criteria
	Group 2	Family does not meet programme domestic abuse criteria
Criterion met - crime and & anti-social behaviour (ASB)	Group 1	Family meets programme crime and ASB criteria
	Group 2	Family does not meet programme crime and ASB criteria
Families with young children	Group 1	Family with young children
	Group 2	Family without young children

Table 19: Adult custodial sentences.

Interaction variable	Subgroups	
Age	Group 1	Younger adults (aged 16-25)
	Group 2	Older adults (aged 26+)

Note: the programme was found not to have any further impacts for outcomes related to juvenile convictions or custodial sentences, and adult cautions, convictions or custodial sentences.

Children's social care

Further results for children's social care are presented below. The results below give an indication of the difference in impact of the programme between the sub-groups we have tested, i.e. the relative difference. The programme was found not to have any further impacts for outcomes related to looked after children.

Child in need plan

Differential impact 1

The findings suggest that the programme has a greater impact on being on a child in need plan 19-24 months after joining the programme for those children from families who do **not** meet the programme's health criterion, relative to those who did.

Table 20: Average marginal effects: change in predicted probabilities of being on a child in need plan 19-24 months after joining the programme³³.

When individual is on programme	Change in predicted probability (AME)	Std. Err	P-Value
Health criterion met	-0.013	0.022	0.561
Health criterion not met	0.046***	0.010	0.000

Holding all other factors constant, the findings suggest that for those children from families who did **not** meet the programme's health criterion, the programme **increases** the predicted probability of being on a child in need plan by 0.046. The impact of the programme on children who met the programme's health criterion is not statistically significant.

Differential impact 2

The findings suggest that the programme has a greater impact on being on a child in need plan 19-24 months after joining the programme for those children from families who met the programme's crime and anti-social behaviour criterion, relative to those who did **not**.

Table 21: Average marginal effects: change in the predicted probabilities of being on a child in need plan 19-24 months after joining the programme.

When individual is on programme	Change in predicted probability (AME)	Std. Err	P-Value
Crime and ASB criterion met	0.079***	0.019	0.000
Crime and ASB criterion not met	0.032**	0.010	0.002

Holding all other factors constant, the findings suggest that for those children from families who met the programme's crime and anti-social behaviour criterion, the programme **increases** the predicted probability of being on a child in need plan 19-24 months after joining the programme by 0.079. Likewise, for those children from families who did **not** meet

³³ Statistically significant differences indicated where * p value <0.05; ** p value <0.01; *** p value <0.001.

the programme's crime and anti-social behaviour criterion, the programme **increases** the predicted probability of being on a child in need plan by 0.032.

Differential impact 3

The findings suggest that the programme has a greater impact on being on a child in need plan 19-24 months after joining the programme for those children from families who met the programme's at risk of financial exclusion criterion, relative to those who did **not**.

Table 22: Average marginal effects: change in predicted probabilities of being on a child in need plan 19-24 months after joining the programme.

When individual is on programme	Change in predicted probability (AME)	Std. Err	P-Value
Financial exclusion criterion met	0.055***	0.010	0.000
Financial exclusion criterion not met	-0.003	0.019	0.892

Holding all other factors constant, the findings suggest that for those children from families who met the programme's at risk of financial exclusion criterion, the programme **increases** the predicted probability of being on a child in need plan 24 months after joining the programme by 0.055. The impact of the programme on children who did **not** meet the programme's financial exclusion criterion is not statistically significant.

Differential impact 4

The findings suggest that the programme has a greater impact on being on a child in need plan 19-24 months after joining the programme for those children from families who met the programme's school attendance criterion, relative to those who did **not**.

Table 23: Average marginal effects: change in predicted probabilities of being on a child in need plan 19-24 months after joining the programme.

When individual is on programme	Change in predicted probability (AME)	Std. Err	P-Value
School attendance criterion met	0.058***	0.012	0.000
School attendance criterion not met	0.020	0.014	0.140

Holding all other factors constant, the findings suggest that for those children from families who met the programme's school attendance criterion, being on the programme **increases** the predicted probability of being on a child in need plan 19-24 months after joining the programme by 0.058. The impact of the programme on children who did **not** meet the programme's school attendance criterion is not statistically significant.

Differential impact 5

The findings suggest that the programme has a greater impact on being on a child in need plan 19-24 months after joining the programme for those children with at least two parents, relative to those with a single parent.

Table 24: Average marginal effects: change in predicted probabilities of being on a child in need plan 19-24 months after joining the programme.

When individual is on programme	Change in predicted probability (AME)	Std. Err	P-Value
From a single-parent family	0.013	0.017	0.447
Not from a single-parent family	0.052***	0.011	0.000

Holding all other factors constant, the findings suggest that the programme **increases** the predicted probability of being on a child in need plan for families with at least two parents by 0.052. The impact of the programme on children from single parent families is not statistically significant.

Annex B: Changes in offending behaviour

Introduction

The findings below are from descriptive analysis on Dataset 6, using data available on offending behaviour from the Police National Computer.

It is not possible to draw any causal conclusions from this trend analysis. Instead, the findings below give an indication of whether these trends differ for different groups of individuals or different types of crime.

For the following analysis, individuals are selected for investigation based on age, the local authority in which they live (only those included in the Propensity Score Matching) and the availability of two years of outcome data following the start of the programme. It only includes individuals who were successfully matched to the Police National Computer.

Population level findings

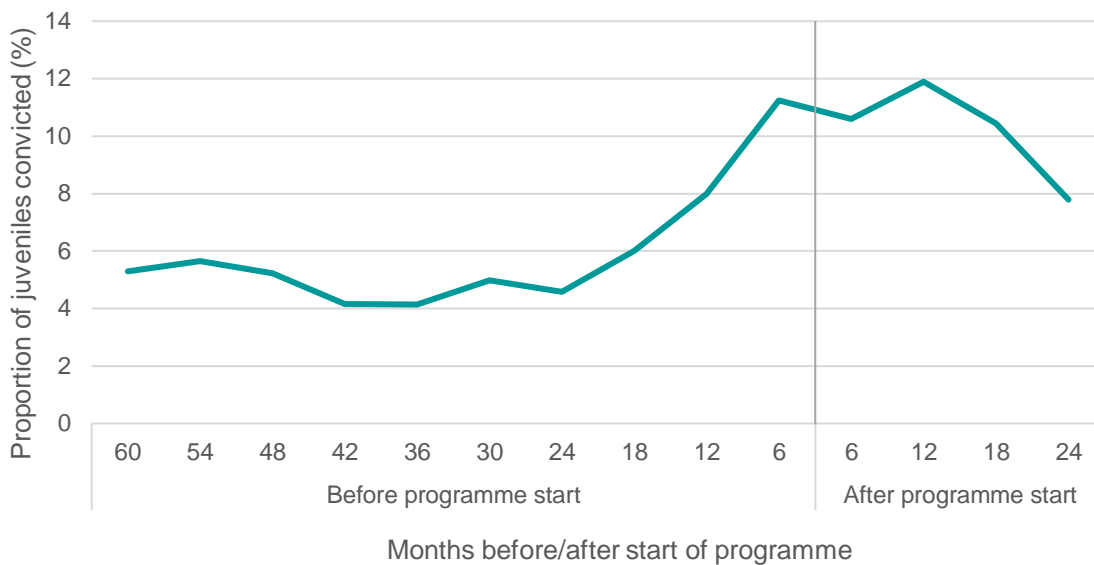
Juveniles

The proportion of juveniles receiving a:

- conviction increases in the six to 12 month period after joining the programme, and then decreases from 12 months onwards. Most juvenile convictions are given to males (84%);
- caution reduces across the two years after joining the programme. Most juvenile cautions (67%) are given to males.

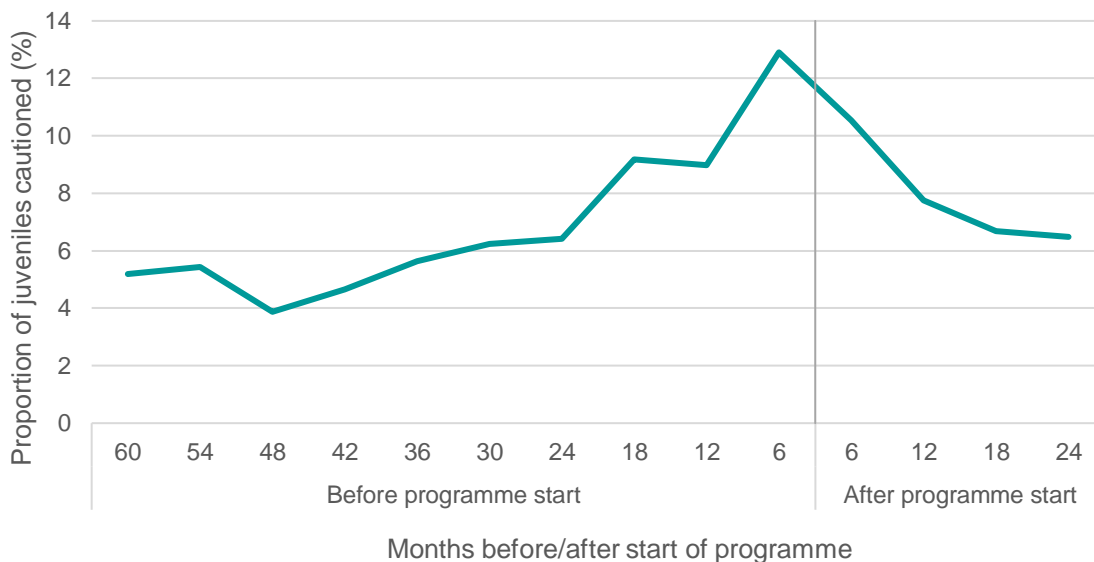
In the two year period before joining the programme, the proportion of juveniles (10-17 year olds) convicted for an offence increases sharply and peaks around 6-12 months after joining. It is possible that the increase in the proportions of juveniles convicted after joining the programme is due to the time it takes for offences to be processed by the criminal justice system. During the second year after joining the programme the proportion of juveniles convicted of an offence decreases sharply (see chart below).

Figure 13: Proportion of juveniles convicted before and after joining the programme.



The proportion of juveniles receiving a caution decreases in the two years after joining the programme. The proportion of cautions in the period before joining the programme increases sharply and starts to decrease quite sharply around the point when they join the programme.

Figure 14: Proportion of juveniles cautioned before and after joining the programme.



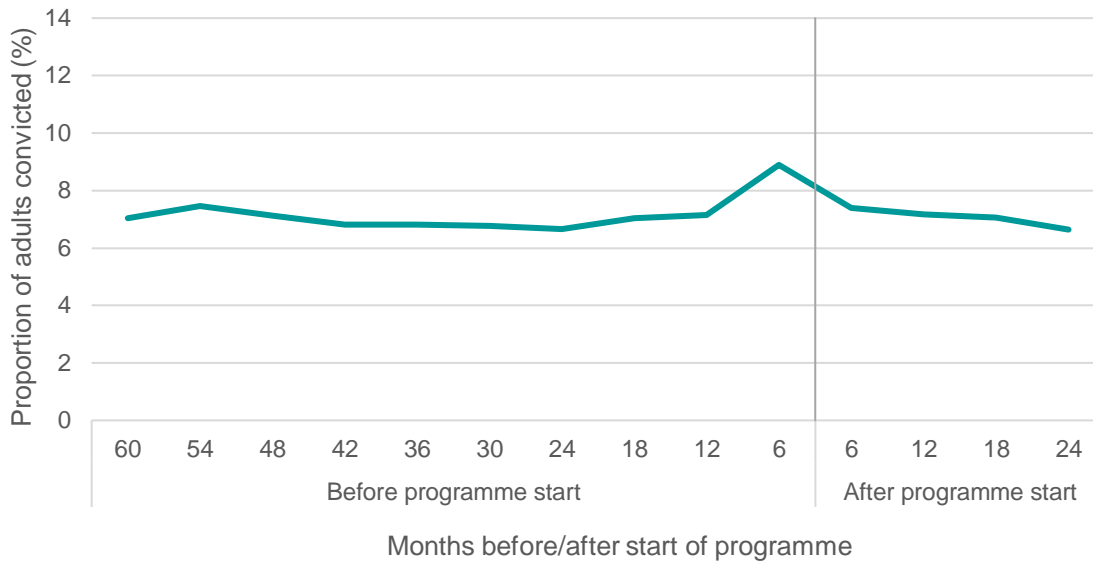
Adults

The proportion of adults receiving a:

- conviction decreased slightly after joining the programme.
- caution decreased after joining the programme. Females are given just over half of adult cautions (51%).

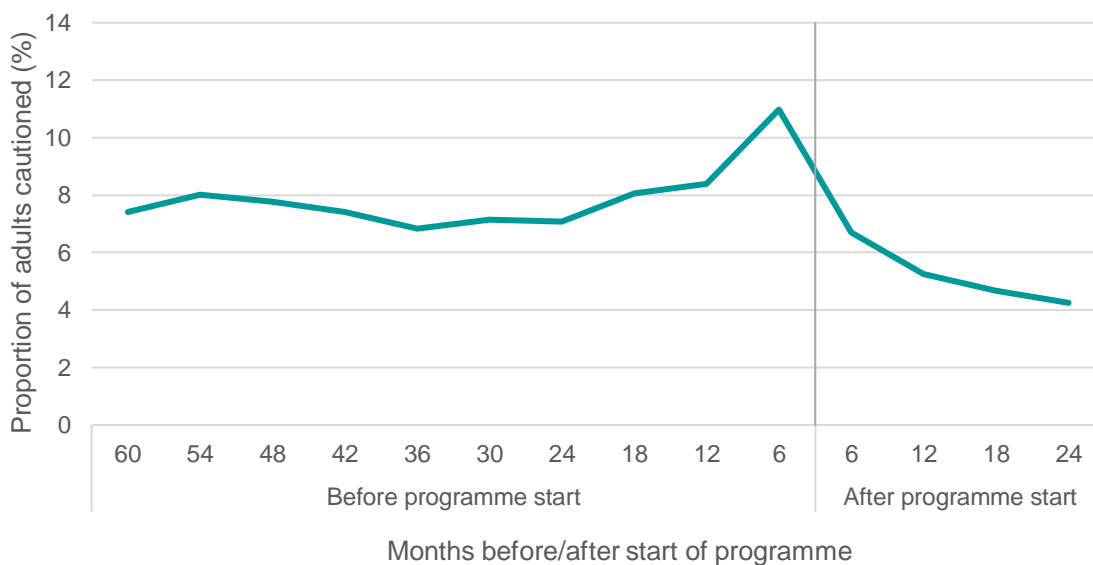
The proportion of adults convicted of an offence in the two years after joining the programme slightly decreases. A sharp increase and decrease occurs around the point when they join the programme and, around 12 months after joining, the proportion of adults convicted decreases slightly and steadily.

Figure 15: Proportion of adults convicted before and after joining the programme.



The proportion of adults cautioned is lower two years after joining the programme compared to any other point in the five years before the programme. As with adult convictions, the proportion of adults receiving a caution sharply increases and begins to decrease around the time of joining the programme. The downward trend is at first sharp, but then continues to decrease at a steady rate.

Figure 16: Proportion of adult cautions before and after joining the programme.



Subpopulation analysis

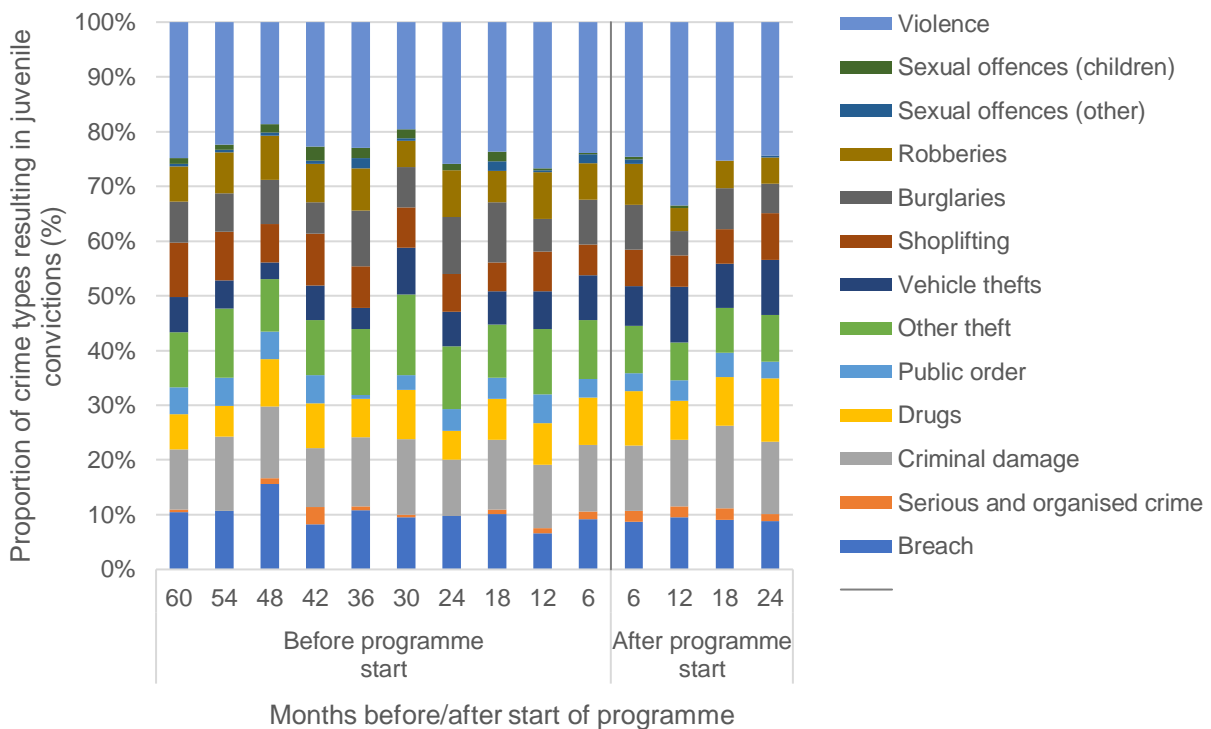
Types of crime

Juveniles

Analysis of the types of crimes that juveniles are convicted for across the six-month periods before and after joining the programme shows that violent crime represents the greatest proportion of convictions (approximately 20-30% in all periods) amongst juveniles on the programme. Due to the small numbers there is a lot of fluctuation in all sexual offences, serious organised crime and public order offences.

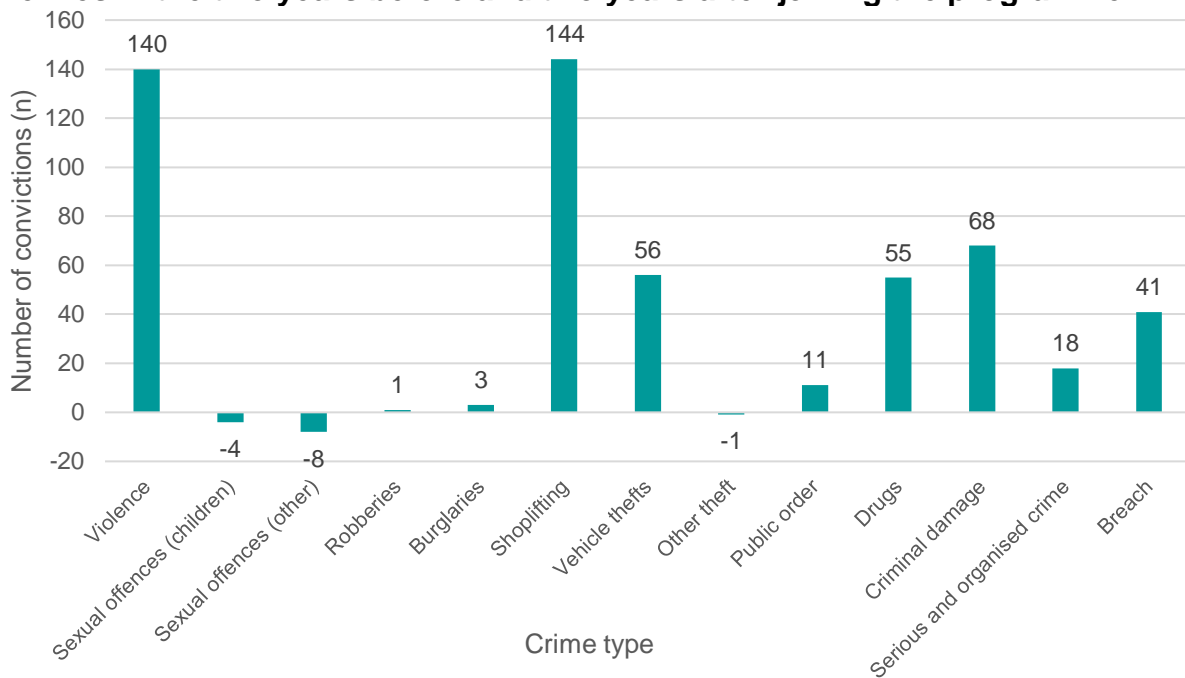
There is no clear change in the proportion of each crime a juvenile is convicted of before and after joining the programme (see figure 17).

Figure 17: Proportion of juvenile conviction types in each six month period (excluding 'other crime' category).



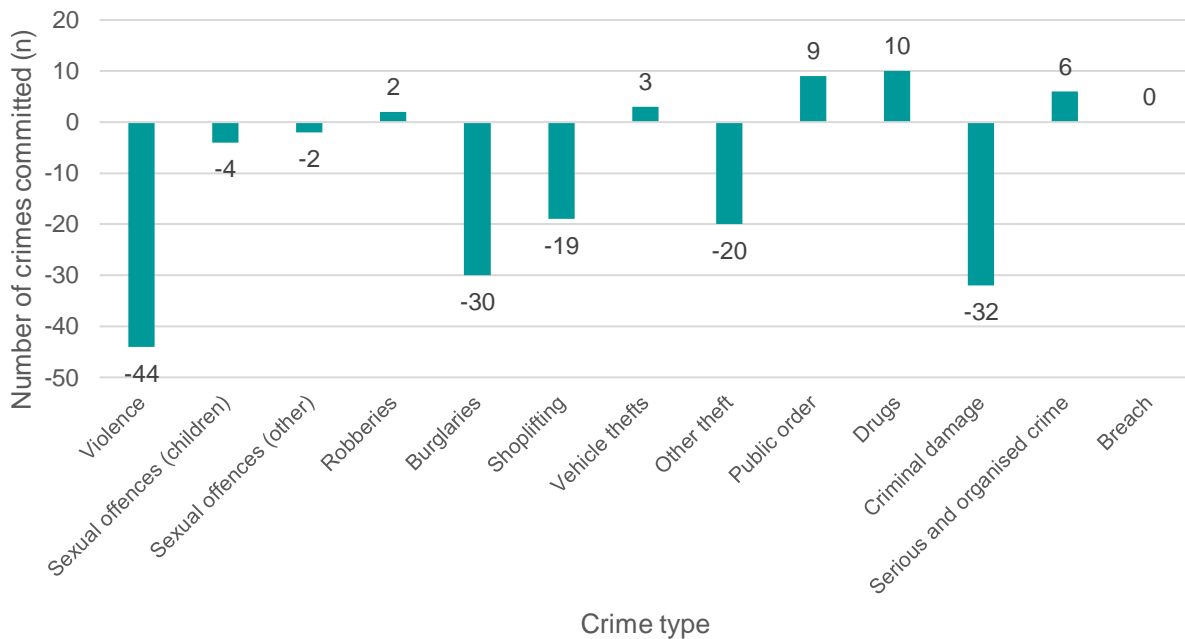
There are some changes in the types of crimes for which juveniles are convicted between the two years before joining the programme and the two years after. For example, convictions for violent offences increases whereas for sexual offences there is a decrease (see Figure 18 overleaf).

Figure 18: Number of convictions and the change in the type of offences among juveniles in the two years before and two years after joining the programme.



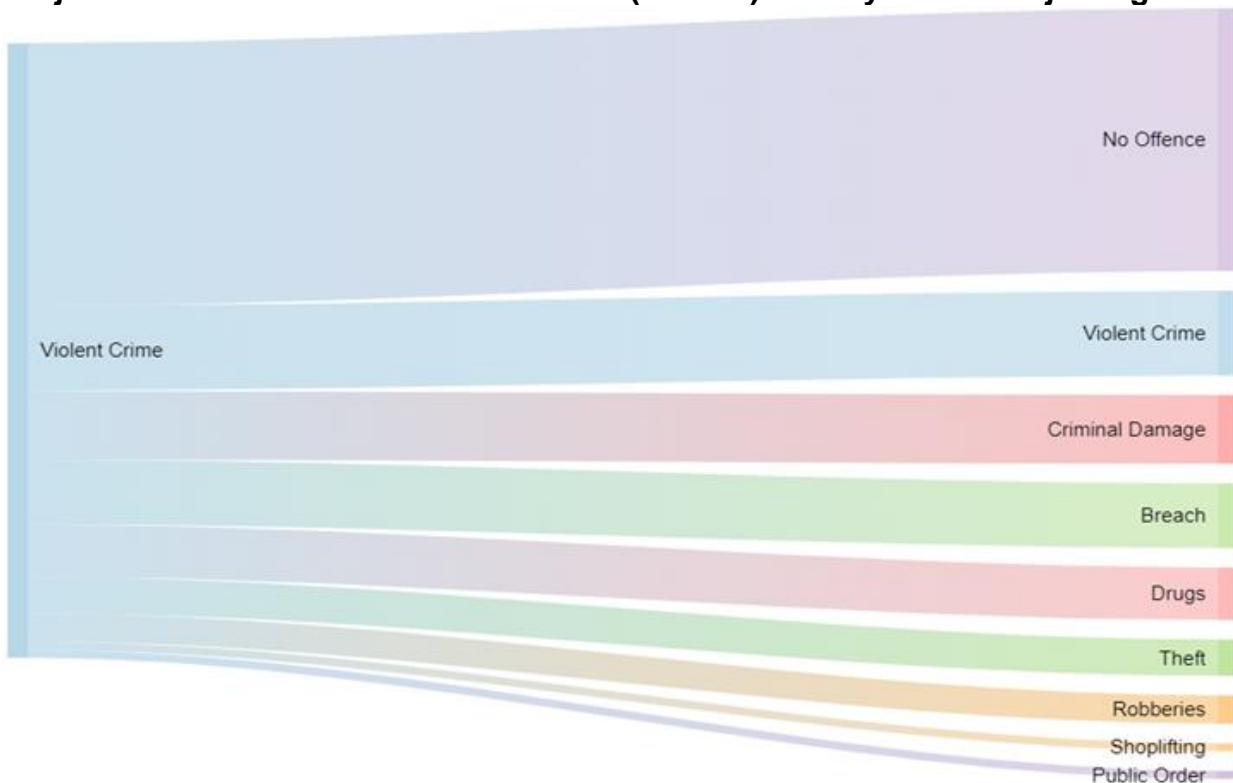
It is also worth noting that even where there is relative stability in the types of crimes being committed across the population of juveniles on the programme, it does not appear that it is the same individuals committing these crimes before and after joining the programme (shown below).

Figure 19: Differences in the number and type of offences among juveniles between two years before joining the programme and two years after.



The Sankey Diagram below shows the convictions for violent crimes in the year before joining the programme and the type of crime the same individuals are convicted for two years after joining the programme. Firstly, it reveals that a smaller proportion are convicted of any offence two years after joining the programme. Secondly, for those convicted of an offence two years after joining, only a small minority are convicted for further violent offences.

Figure 20: Type of crime committed in the second year after joining the programme for juveniles convicted of a violent crime (n = 152) in the year before joining.

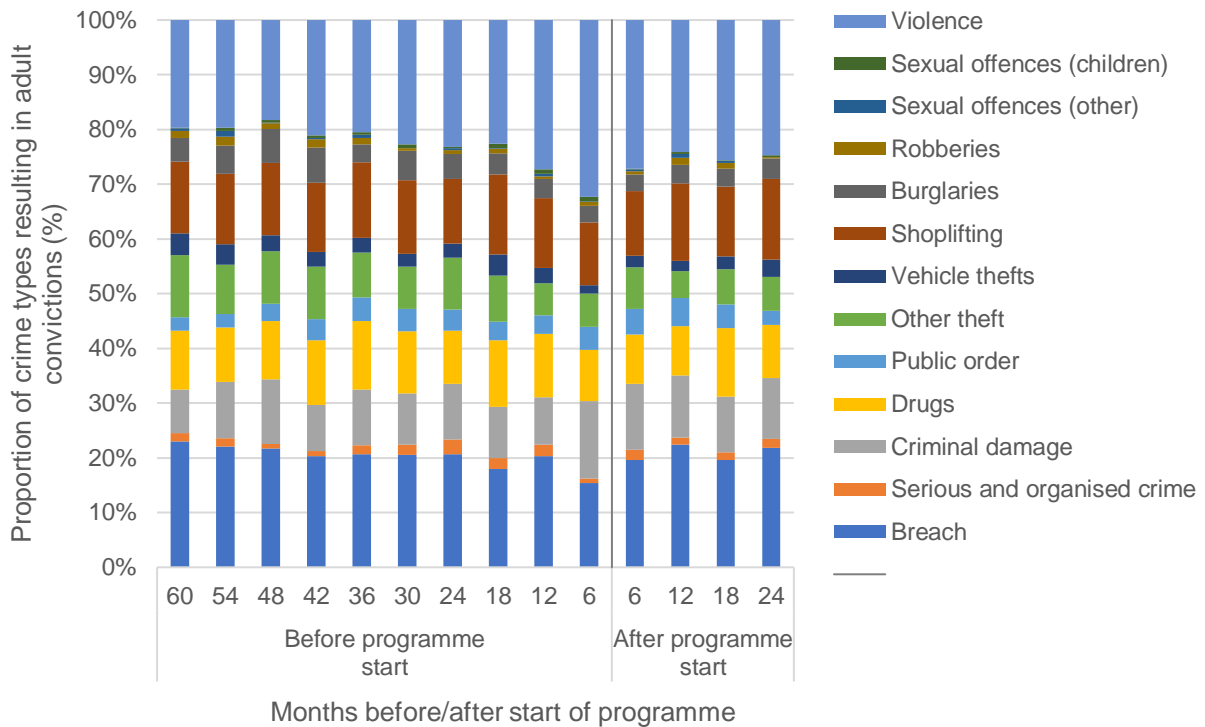


Adults

Analysis of the same data but for adults on the programme shows that violent offences and breach offences make up the greatest proportion of convictions in each of the six month periods before and after the start of the programme (19-41% and 18-23% respectively).

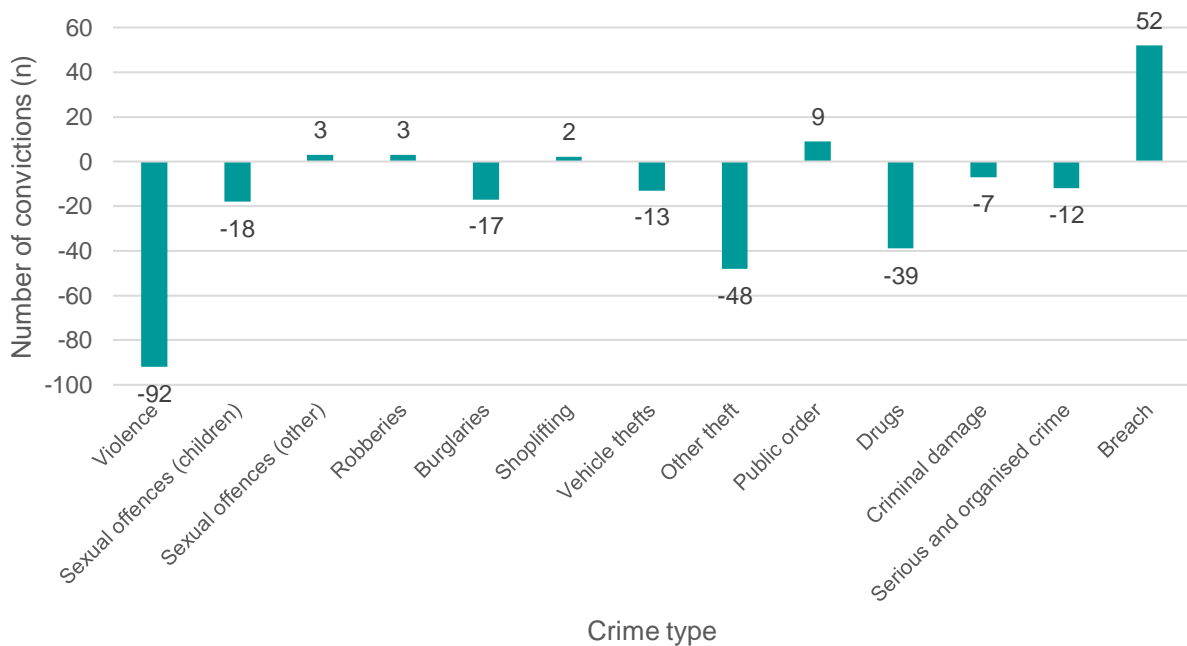
When comparing the proportions of convictions before and after joining the programme there is no obvious change, for example, the proportion of convictions for violent offences fluctuates between 20-30% (see Figure 21 overleaf).

Figure 21: Proportion of adult conviction types in each six month period (excluding 'other crime' category).



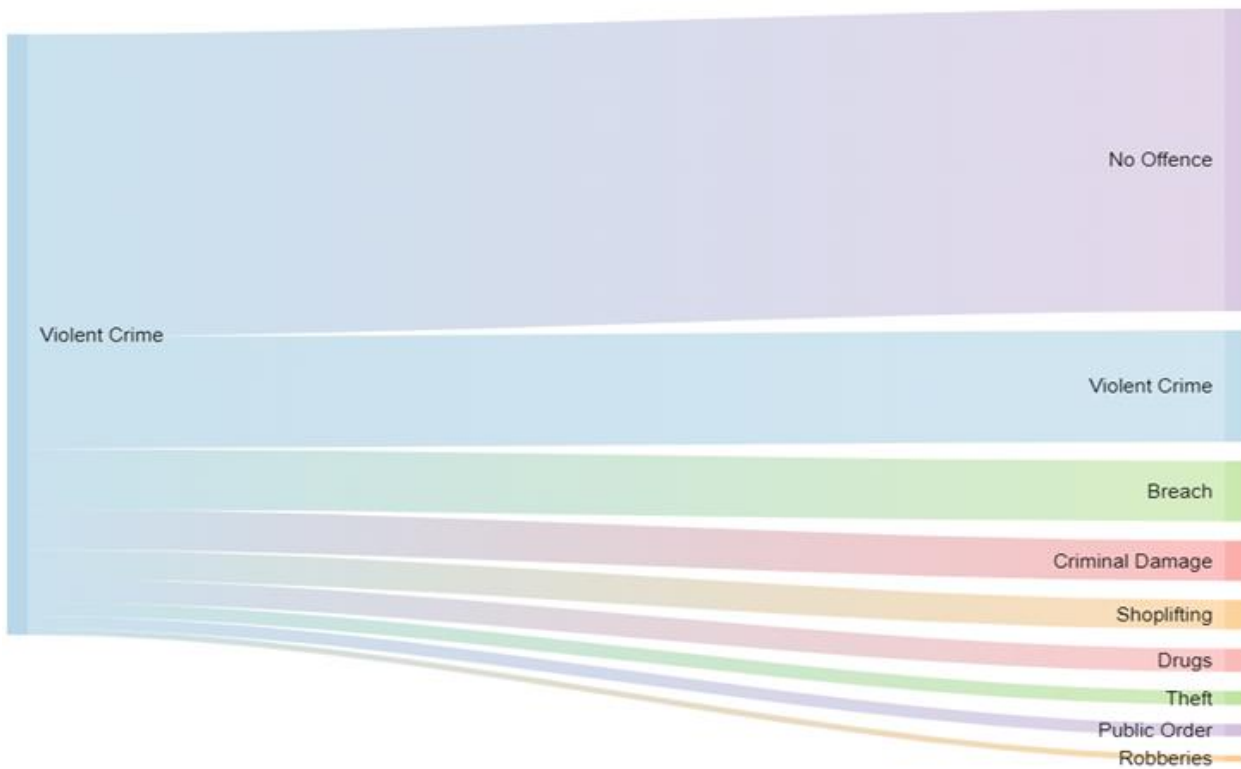
However, when looking at the absolute change in the number of convictions for each offence type, there are some differences between the two years before joining the programme and the two years after. Figure 22 shows that the number of convictions for violent offences reduces (-92) whereas the number of convictions for breach offences increases (+52) in the period after the start of the programme.

Figure 22: Differences in the number of convictions for each offence type among adults between the two years prior and the two years after joining the programme.



The Sankey Diagram below shows convictions for violent crimes in the year before joining the programme and the type of crime the same individuals are convicted for two years after joining the programme. As for juveniles, a smaller proportion of adults are convicted of any offence two years after joining the programme and a small minority are convicted for further violent offences.

Figure 23: The type of crime committed in the second year after joining the programme for adults convicted of a violent crime (n = 387) in the year before joining.



Absolute changes in the type of offence for which adults receive a caution are highlighted in Figure 24. The greatest change is in the number of cautions for shoplifting (-37), drug offences (-42) and criminal damage (-30).

Further analysis suggests these patterns differ between males and females. For example, the proportion of females receiving a caution for a violent offence increases (+14%), whereas the proportion of males receiving a similar caution decreases (-9%).

Figure 24: Total change in number of cautions by crime type among adults.

