



## Using family court data to explore links between adverse family experiences and proven youth offending

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Risk factors linked to adverse family experiences such as family conflict, domestic violence, child abuse and neglect are some of the strongest predictors of youth crime. This report presents analysis conducted to explore proven youth offending rates of those in contact with the family justice system as a child. It has a specific focus on children that have been named in a public law case, where the local authority has intervened to protect their welfare. Findings from this analysis are associations and do not necessarily represent causal links between contact with the public law system and offending, nor can they tell us about the direction of any relationship.

This analysis, conducted by Ministry of Justice (MoJ) Analytical Services, uses linked data, matching extracts from the Police National Computer (PNC) and the family justice case management database (FamilyMan) for the first time. An evidence review of the related international literature was also conducted to place the results within the wider research context. This project is part of a broader programme of work to link large-scale administrative datasets from both within the department and across government, drawing out further insights on the drivers and patterns of offending behaviour to inform policy development and practice.

### Key findings

- Those in contact with the public law system were more likely to offend and commit multiple offences between the ages of 10 and 17 than those of the equivalent age group in the general population. They also, on average, started offending earlier than offenders of the same age in the general population.
- Findings from the evidence review suggest that the link between offending and public law may be explained to a large extent by shared risk factors, including family poverty and parental neglect or abuse.
- Wider evidence indicates that when children have been taken into local authority care, placement type and instability have been linked to higher offending rates. There is, however, concern about unnecessary criminalisation of children in care homes and this may explain, in part, the higher offending levels for this group.
- Results from this analysis suggest that children in contact with the public law system in their early teenage years for the first time were more likely to offend than those who were involved at any other age.
- Wider evidence indicates that maltreatment and going into care as a teenager may have a stronger association with youth offending than maltreatment or care only experienced in childhood. Young people's offending may also be affected by the type and instability of the care placement experienced. That said, teenagers can have pre-existing issues with offending that may have influenced placement decisions.
- Results suggest that for females in their early teenage years, contact with the public law system was linked to a greater increase in likelihood of offending, prolificacy and violent offending than for males. However, young males in contact with the public law system still have a higher likelihood of offending than females of the same age. International research indicates that experience of out-of-home placement can be more strongly linked to offending for females.

The views expressed in this Analytical Summary are those of the author, not necessarily those of the Ministry of Justice (nor do they reflect Government policy).



## Introduction and background

This report presents results from the first analysis of linked family court and proven offending data. It is intended to make a contribution to existing evidence about the extent to which adverse family experiences such as child abuse and neglect, and the experience of the family justice system are associated with the likelihood of offending.

The family justice system deals with issues that arise following the breakdown of families, parenting and relationships. This includes divorce, adoption, domestic violence orders, private law (relating to parental disputes concerning the upbringing of children), and public law where a local authority uses a legal intervention to protect the welfare of a child (the process by which a child enters the care system).

There is extensive research indicating that adverse family experiences, which may lead to young people being taken into local authority care, are associated with an increased risk of youth antisocial behaviour and offending (see for example, Farrington & Welsh, 2007; Leschied et al, 2007; Ryan & Testa, 2005). Studies also show that age and gender are important mediating factors in this relationship, and are particularly important when it comes to experiences of the care system. This analysis aims to further our understanding of the overlap between welfare and youth justice cohorts and findings must be considered in light of the caveats set out below (see Approach section).

The analysis for this report suggests that there is a stronger relationship between the public law system and offending than for other case types (e.g. private law or divorce), so this association is the focus of this paper. Published figures also indicate that there are high rates of proven offending amongst those in local authority care (children in care are five times more likely to offend than the general population)<sup>1</sup> (DfE, 2015).

## Approach

This report focuses on proven offending between the ages of 10 and 17, which is dealt with by the youth justice system.<sup>2</sup> The analysis assessed offending patterns for children and young people named in public law cases when compared to the equivalent cohort of young people in the general population in England and Wales. Findings from an evidence review of the related international literature are also included to place the results within the wider research context.

Two administrative databases, held by the MoJ, were used for the analysis. The family justice case management system (FamilyMan) contains administrative information on public law cases, private law cases, domestic violence orders, adoption and divorce. This was linked to an extract from the Police National Computer (PNC) dataset, also held by MoJ, which contains all proven offending data for those that have a police recorded offence since 2000. Proven offending refers to offences recorded in the PNC that result in a youth reprimand, final warning or caution,<sup>3</sup> as well as those resulting in a conviction. The data may not represent the full picture of crime as it only includes incidents recorded by the police.

The majority of public law cases (two thirds) recorded in FamilyMan involve an application for a care order placing a child in the care of a designated local authority. The remainder tend to be applications for supervision orders for supervision by a local authority and emergency protection orders (EPO) where a young person is immediately moved to a place of safety. For this analysis, information was not available on the outcomes of family justice cases (see Interpreting findings, below).

The following cohorts were used to assess the relationship between offending and the public law system (see Appendix 1 for more details).

- **10–17 PL cohort:** those born in 1990–1992 who were named as a child in a public law case aged 10–17, enabling an assessment of proven offending between the ages 10–21 (7,581 records – 3,883 female, 3,676 male).<sup>4</sup>

<sup>1</sup> Proven offending by children who are aged 10 or over who have been looked after continuously for at least 12 months as at 31 March. General population estimates are based on data from 2014.

<sup>2</sup> The youth justice system, in England and Wales, is a distinct justice system that prosecutes and convicts persons 10–17 years of age who commit criminal offences. The principal aim is to prevent offending by children and young people. The youth justice system also includes a separate Youth Court with specially trained magistrates and different sentencing powers. There is also a separate sentencing framework recognising that young people are different to adults with an emphasis on restoration and rehabilitation.

<sup>3</sup> Reprimands and final warnings were replaced by youth cautions for all 10–17 year olds from 8 April 2013 and youth conditional cautions were made available for all 10–17 year olds also from 8 April 2013.

<sup>4</sup> The number of records for males and females do not add up to the total as there were a small number of individuals with no gender recorded. This figure also includes some duplicated IDs which were removed prior to analysis.

- **3–14 PL cohort:** those born in 1997–1999 who were named as a child in a public law case aged 3–14, facilitating an analysis of those who were named in a public law case aged 3–14 and their offending between the ages 10–14 (23,072 records – 11,401 female, 11,643 male).<sup>44</sup>

Throughout this document ‘general population’ refers to the equivalent cohort in the general population for the public law cohort presented. The term ‘increased likelihood of offending’ refers to how many times more likely an individual is to commit a proven offence compared to their equivalent cohort in the general population.

#### Interpreting findings:

- Data collection in FamilyMan started in 2000 (and the case management system was not used in all Family Courts until 2006); therefore, the analysis focused on those children that were named in a public law case age three and over, as those under the age of three are not yet old enough for a comprehensive assessment of their offending patterns to be undertaken (see for example Figure A5).
- The analysis focuses only on those who were named as a child in a public law case and does not look at outcomes of these cases as this information is not recorded in FamilyMan. Where ‘contact with the public law system’ is mentioned, this indicates the individual was named in a public law case. It is important to note that whilst the evidence review draws on studies that aim to assess the association between offending behaviour and the care system, some of the young people included in this analysis may never have entered the care system.
- The analysis can determine associations between an increased likelihood of proven offending and

being named in a public law case. These associations do not, however, necessarily represent causal links between interaction with the public law system and offending behaviour and cannot tell us about the direction of the relationship.

Further details about the methodology adopted for this study and how to interpret the results are set out in Appendix 1.

## Findings

### Overall rates of proven offending

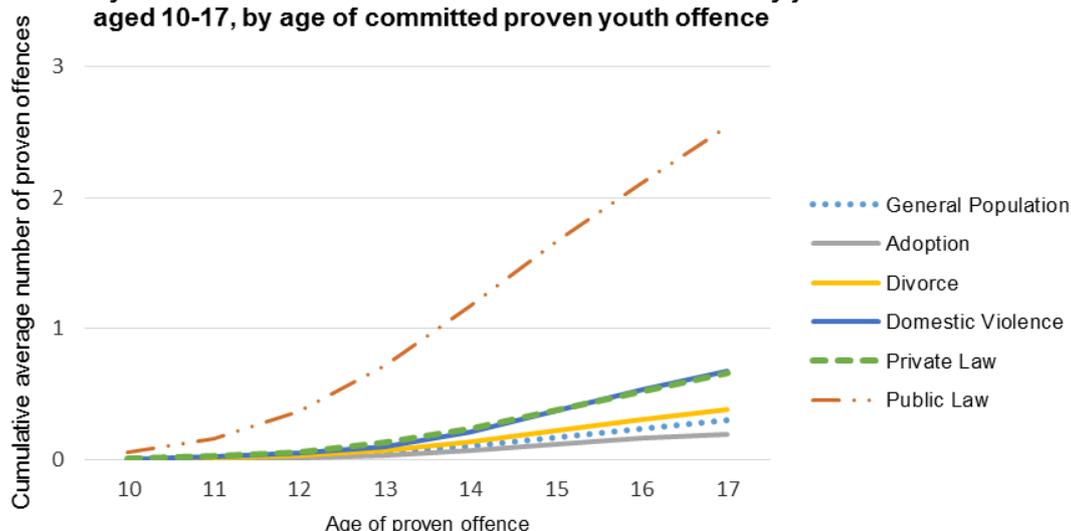
*Children who were named in a public law case had a higher rate of proven youth offending than the general population, and the highest rate of offending when compared to children experiencing other family justice case types.*

This section focuses on young people who were aged 10–17 when they were named in a public law case (the 10–17 PL cohort). The analysis indicated that this group was associated with a higher rate of proven youth offending in comparison to the general population. These individuals were more likely to offend, more likely to be prolific offenders, and more likely to engage in violent crime. They were also likely to start offending at a younger age than offenders in the general population.

The analysis first focused on the **likelihood of committing one or more proven youth offences, compared across family justice case types** (e.g. divorce, domestic violence, private law). For all cohorts analysed, those individuals named in public law cases were more likely to offend and also to have committed more offences, on average,<sup>5</sup> than those named in any other family justice case type (see Figure 1).

<sup>5</sup> Figure 1 shows the cumulative average to demonstrate the strength of the association over time.

**Figure 1. Cumulative average number of proven offences committed by individuals born 1990-92 who were named in a family justice case aged 10-17, by age of committed proven youth offence**



Given this finding, this report focuses specifically on the public law group.

Among those young people who were in contact with the public law system, the analysis assessed their **likelihood of youth offending in comparison to the general population**. Results suggested that individuals who were in contact with the public law system aged 10–17 (the 10–17 PL cohort):

- were 2.9 times more likely to have offended between the ages of 10 and 17 than the general population; and
- 39% of individuals had committed one or more proven offences by the age of 17.

The same cohort also committed **more offences on average** than the general population. Figure 1 shows the cumulative average number of youth offences. Between the ages of 10 and 17, this cohort:

- committed, on average, 2.5 proven offences, whereas the general population committed 0.3; and
- 8% committed 10 or more proven offences. As such, they were 19.2 times more likely to commit 10 or more offences between the ages of 10 and 17 than the general population.

This cohort was also 4.6 times more likely to commit a **violence against the person** offence between the ages of 10 and 17 than the general population. The increase in this specific offence type exceeds the increase in likelihood of overall offending of 2.9.

The 10–17 PL cohort also had an **earlier onset of proven youth offending**. Of those who offended between the ages of 10 and 17, the most common age of first offence was 13, compared to 15 in the general population.<sup>6</sup> Analysis of this public law cohort showed that, between the ages of 10 and 14, when compared to the general population, they were:

- 4.3 times more likely to commit a proven offence (compared to 2.9 for offences between the ages of 10 and 17 and 2.3 between the ages of 10 and 21); and
- 9.2 times more likely to commit more than one offence (compared to 5.1 for offences between the ages of 10 and 17 and 3.8 between the ages of 10 and 21).

### Findings from the evidence review

*Shared risk factors may explain why children in contact with the public law system can have an elevated risk of offending.*

The association between public law and offending may be explained to a large extent by shared risk factors. Young people going through public law cases are likely to come from high risk family backgrounds affected by poverty, abuse and deprivation (Schofield et al, 2012). Research by MoJ, for example, showed that the most common reasons for care or emergency protection orders in England and Wales were neglect (53%) and physical abuse (33%). In addition, emotional abuse was a reason in just over a fifth (22%) of cases and child

<sup>6</sup> The median and mean for this cohort were also 13. The general population median and mean were 15 and 14 respectively.

sexual abuse was cited in 9% of cases (Cassidy & Davey, 2011).

Neglect and abuse are also associated with a higher risk of young people becoming involved in antisocial behaviour and crime (see for example, Farrington & Welsh, 2007; Leschied et al, 2007). A series of longitudinal studies using a sample of over 1,000 individuals in the US showed that, at age 33, those who had been abused or neglected as children had a higher risk of arrest for non-violent (55%) and violent crime (96%) (Widom, 2003; Widom & White, 1997). Similar studies from the UK support these results. For example, findings from the Cambridge Study in Delinquent Development (a longitudinal study of 411 South London boys) showed that, at age 8–10, cruel, passive or neglectful parenting were key predictors of later youth offending (Farrington, 2003).

International research also indicates that those offenders who are prolific, persistent and start their offending behaviour early are more likely to have experienced family-related risk factors than those who offend only in adolescence (Moffitt, 1993). These findings provide a useful context within which to understand the offending trajectories of those in contact with the public law system.

*Local authority care placements may be linked to increases in young people's risk of youth offending, although the driver for this is unclear.*

When children have been taken into local authority care, placement type and instability have been linked to higher offending rates. A longitudinal study with a sample of 18,676 individuals from the US found that, whilst victims of maltreatment were more likely to offend, the experience of being placed into out-of-home care was also an important factor (Ryan & Testa, 2005). Negative outcomes are consistently linked to placement instability in studies from the US and UK. Young people who move into multiple different placements and, hence, may not develop a secure and sustained relationship with carers, tend to offend more than those who experience more stable placements (Ryan & Testa, 2005; Baskin & Sommers, 2011; Darker et al, 2008; Jonson-Reid, 2004; Ryan et al, 2007; Sinclair, 2007).

There are particular concerns around the criminalisation of young people in children's homes. These individuals have been found in studies to be more likely to be involved with the youth justice system than those in other types of placement (Prison Reform Trust, 2016; Howard League,

2016). A recent report from the Howard League for Penal reform indicated that 13–15 year olds in children's homes were six times as likely to have a proven offence as those in other placements. There is some evidence that indicates this may, in part, be due to the increased likelihood of police involvement in minor incidents that take place in a children's home compared to how similar incidents are typically treated within the family home (Shaw, 2014; HoC Justice Committee, 2013).

## Age of contact with the public law system

*Children who were first in contact with the public law system in their early teenage years were more likely to commit a youth offence than those involved at any other age.*

The analysis indicated that the age at which a child was in contact with the public law system had an effect on their likelihood of committing a proven youth offence. Up to a peak at age 14, an increase in age at first contact with the public law system was associated with a broad increase in likelihood of offending.

Figure 2 shows the proportion of children who were in contact with the public law system between the ages of 3–14 (3–14 PL cohort) who offended aged 10–14, by their age at first contact with the public law system.<sup>7</sup>

The results show that:

- **among those aged 3–4 years at first contact:** 5% committed an offence (2.4 times more than the general population); and
- **among those aged 13–14 years at first contact:** 17% committed an offence (8.2 times more than the general population).

Figure 3 focuses on those young people who were older when in contact with the public law system (10–17 PL cohort) and assesses their offending between the ages of 10 and 17. Among this group, the proportion who offended broadly increased with age of contact with the public law system until the age of 14 and then declined.

## Findings from the evidence review

*Experiencing maltreatment or going into care as a teenager may be linked to higher risk of youth offending than maltreatment or care as a younger child.*

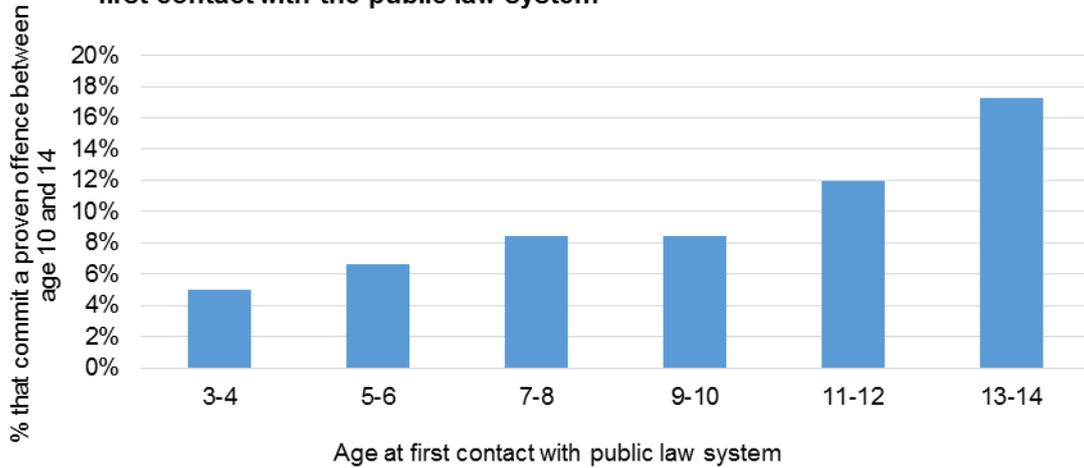
Research indicates that maltreatment in early childhood (such as abuse or neglect) is associated with negative outcomes later in life (Allen, 2011). There is some

<sup>7</sup> If an individual is a named child in more than one public law case then their first contact refers to the first time the child was named in a public law case within their age cohort.

evidence, however, based on international research that suggests maltreatment in childhood is not as strongly associated with offending as maltreatment in adolescence. Research from the US, using a sample of 1,000 children from the longitudinal Rochester Youth

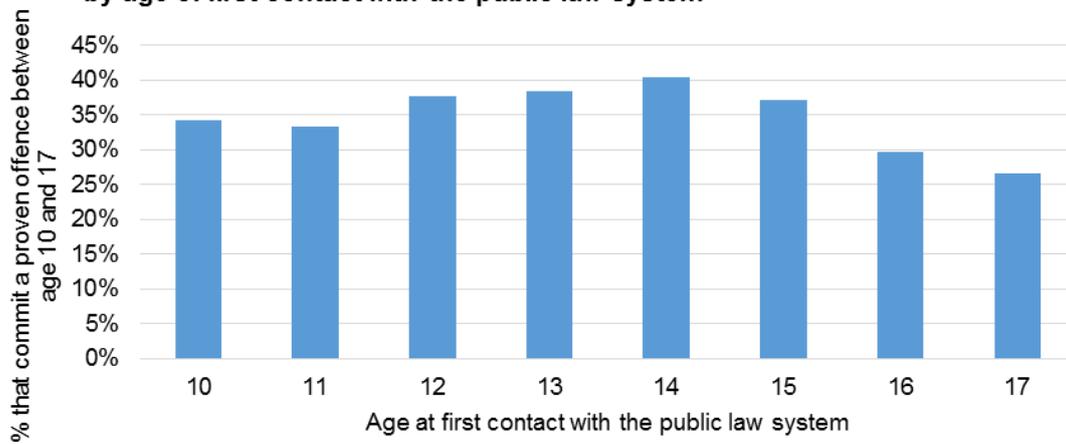
Development Study, found no relationship between maltreatment that occurred only in childhood and either arrest or self-reported delinquency (Ireland et al, 2002).

**Figure 2. Proportion of children born 1997-1999 and named in a public law case aged 3-14 who offended between ages of 10-14, by age of first contact with the public law system**

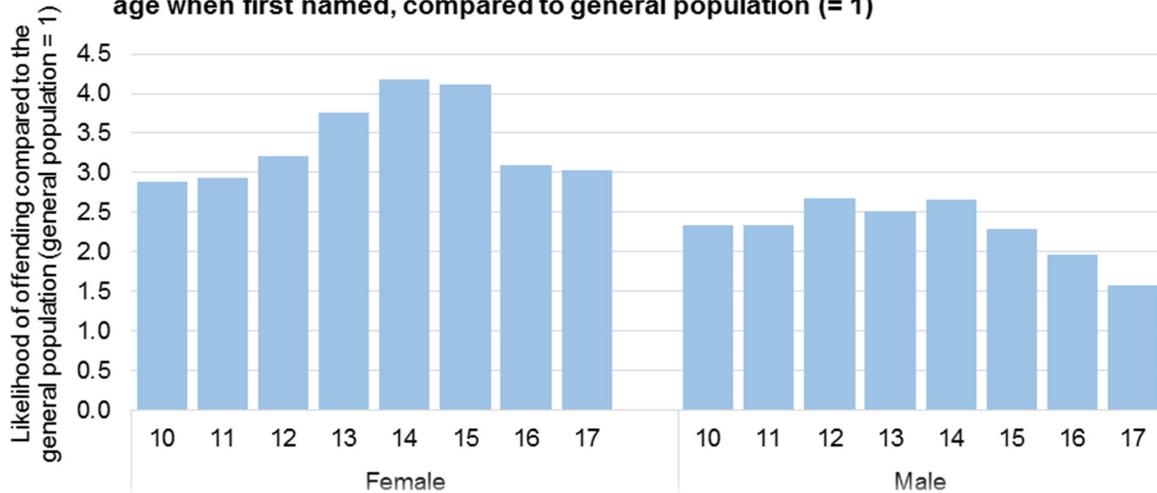


Note: Age of those individuals named in a public law case were banded due to relatively small sample sizes

**Figure 3. Proportion of young people born 1990-1992 and named in a public law case aged 10-17 who offended between the ages of 10-17, by age of first contact with the public law system**



**Figure 4: Increased likelihood of proven offending between ages 10-17 for those born 1990-1992 who were named in a public law case aged 10-17, by age when first named, compared to general population (= 1)**



In comparison, for those maltreated only as a teenager, the odds of arrest in adolescence were 3.7 times greater than for those never maltreated.

Those young people who are taken into care as a teenager are also more likely to commit proven offences than those going into the system only at a younger age. Recent cross-sectional research from the UK on a small sample of 100 children, comparing children in care who had offended with those who had not, found that being a teenager on entry into care was associated with a higher likelihood of offending (Schofield et al, 2012). It is important to note, however, that young people going into care as a teenager may already be engaged in anti-social behaviour and offending and this may be a factor leading to their care placement (Sinclair, 2007).

Also, those going into care as a teenager may also have a different, and less stable, experience than younger children in care. Teenagers are more likely to experience care placement breakdown and instability of placements than younger children, which is consistently linked to proven offending (see for example, Ryan & Testa, 2005; Baskin & Sommers, 2011). They are also more likely to be placed in a children's home, which, as mentioned previously, have the highest rates of youth justice system involvement of all care placements.

### Gender and contact with the public law system

*For females in their early teenage years, contact with the public law system was linked to a greater increase in likelihood of youth offending, prolificacy and violent offending than for males.*

When breaking the data down by gender, age of contact with the public law system was found to be a more

important factor for females than males. When in contact with the public law system as a young child, gender had little effect on patterns of youth offending. However, for females in their early teenage years, contact with the public law system was linked to a greater increase in likelihood of youth offending, prolificacy and violent offending than for males.

Analysis of the 3–14 PL cohort showed that both males and females aged 3–4 at first contact with the public law system were 2.4 times more likely to offend than the general population. However, for the older, 10–17 PL cohort, contact with the public law system was associated with a greater increase in likelihood of youth offending for females than males (see Figure 4). Compared to females in the general population, females in the 10–17 PL cohort were:

- 3.8 times **more likely to commit a proven youth offence** (32% vs 8%). The equivalent figure was 2.6 for males (46% vs 18%);
- 7.6 times **more likely to commit a violence against the person offence** (8% of females in the cohort), between the ages of 10–17. The equivalent figure was 3.9 for males (13% of males in the cohort);
- 8.3 times **more likely to commit two or more proven youth offences** (21% vs 3%). The equivalent figure was 4.2 for males (35% vs 8%).

It is important to note that, in general, males offend more than females. This was also found to be true in this study. Females in the 10–17 PL cohort were, however, 1.8 times more likely to offend than males in this age group in the general population.

## Findings from the evidence review

*Care placements may be more strongly linked to proven youth offending for females than males.*

International evidence indicates that experiencing child welfare services can have a disproportionate effect on females. A US study by Jonson-Reid (2000) used official records for 159,539 children who had been the subject of reports linked to abuse or neglect. They found that care placements were linked to higher rates of offending for females than for males. Another study by Ryan and Testa (2005) analysed official records on child maltreatment and offending for over 18,000 children in the US. They found that for males in care placements, the experience of instability was a stronger predictor of offending; whereas for females, the experience of the placement itself was a more important factor than instability.

In addition to the experience of child welfare services, the impact of child maltreatment on future offending may differ by gender. Research from the US, using a sample of over 1,000 individuals, found that maltreatment was more strongly linked to violent offending for females than males (Widom & White, 1997).

Findings on the association between gender and maltreatment, however, are mixed and there are a number of large-scale, international, longitudinal studies that have not found maltreatment to have a different effect on girls in terms of their likelihood of offending (Mersky & Reynolds, 2007; Topitzes et al, 2012; Wilson et al, 2009). It is, however, important to note that the small number of girls who offend can make it challenging to conduct robust analysis and, hence, findings for females should be treated with a degree of caution.

## Conclusion

This analysis uses linked data, matching extracts from the PNC and FamilyMan for the first time. Findings indicate an association between contact with the family courts as a child or young person and an increased likelihood of proven offending. They should be considered in light of the limitations set out above and do not necessarily represent causal links between interaction with the public law system and offending behaviour, nor can the analysis tell us about the direction of the relationship.

The analysis points to the importance of early years preventative approaches. Consideration could also be given to more joint working between the family and youth justice systems. Also, given the suggested importance of gender and age when in contact with the public law

system, it is likely that those in contact with the public law system in their early teenage years may benefit from targeted support and intervention around their offending, particularly females.

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## Appendix 1: Methodology

The analysis conducted by Ministry of Justice (MoJ) Analytical Services uses, for the first time, linked data, matching extracts from the Police National Computer (PNC) and the family justice case management database (FamilyMan). An evidence review of the related international literature was also conducted.

### Literature review

Findings from an evidence review of the related international literature were included to place the results within the wider research context. Given the limited time available, a full rapid evidence assessment was not possible; therefore, a rapid, thematic (non-systematic) search of the evidence was conducted, using a limited number of research repositories and “snowball” sampling. Search terms were based on key themes, and searches were completed on google scholar, EBSCO and Proquest databases. Search terms included were (“youth offending” or “youth crime” or “juvenile delinquency”) and (“domestic violence” or “child maltreatment” or “child abuse” or trauma or “care system” or “looked after” or “family justice” or “public law”), and/or gender, and/or “risk factors”. Sources were assessed on the basis of the robustness of the research methodology, taking into account relevance and context of any findings.

### Data sources

Two administrative databases, which are held by the MoJ, were used for this study.

1. The PNC extract held details of all individuals convicted or cautioned for recordable offences committed in England and Wales, including some offences committed outside England and Wales,<sup>8</sup> taken from a snapshot from December 2015. Offences are not always immediately recorded in the PNC, so data were used between 2000 and December 2014 to ensure data quality and completeness. The quality of the information recorded on the PNC is generally assumed to be relatively high as it is an operational system on which the police depend, but analysis can reveal errors that are typical when handling administrative datasets of this scale.
2. FamilyMan is an administrative system used by court staff for case management purposes and contains good quality information about the progress of a case through the family courts. The extract used in this study contained the records of children named in a family justice case between 2000 and February 2016.

### Selecting the study cohorts

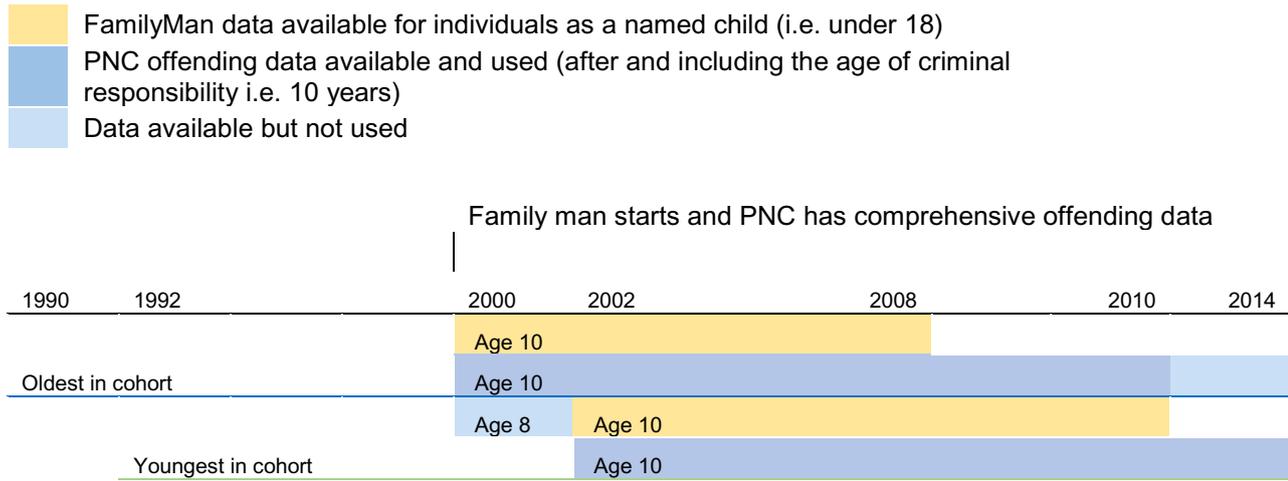
The PNC contains all proven offending data for those that have a police recorded offence since 2000. Individuals born prior to 2000 were selected for the study cohorts to ensure that they would have reached an age such that there was at least a four year period in which they could appear within the PNC extract. Two cohorts were analysed, for each, cohort data needed to be available for all the selected individuals across the whole age range which was analysed. For example, where the youngest individuals in the cohort had a final complete year of offending data for the year in which they are 21, this was the maximum age that was analysed, despite the oldest in the cohort having a complete year of offending data for the year in which they were 23, effectively 21 was the cut-off point.

**The 10–17 PL cohort:** consists of those born 1990 to 1992 who were named as a child in a public law case aged 10–17, enabling an assessment of proven offending between the ages 10–21. This cohort was selected to provide the longest offending history possible, as they had reached the age of criminal responsibility (age 10) in 2000. The final full year of offending data in the PNC extract available for the youngest in the cohort was at the age of 21, so offending was analysed for this cohort between the ages of 10 and 21 (see Figure A1). As the FamilyMan database had not started until they were between 8 and 10 years old, there is no data available on their contact with the public law system before this age.

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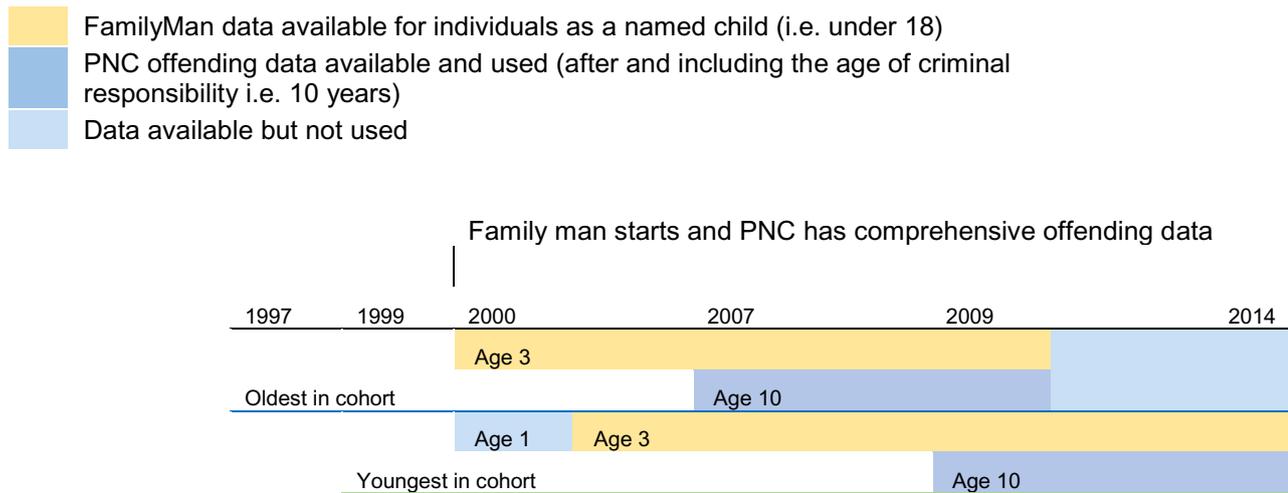
<sup>8</sup> Previous offences are recorded for an individual irrespective of where the offences occurred

**Figure A1: 10–17 PL cohort chosen to represent individuals who have had a longer period of time in which to offend<sup>9</sup>**



**The 3–14 PL cohort:** those born 1997 to 1999 were chosen to show the offending patterns of those who were named in a family justice case at a younger age (i.e. 3–14 years). The final year of offending data in our PNC extract available for the youngest individuals in the cohort was at the age of 14, so offending was analysed for this cohort between the ages of 10 and 14 (see Figure A2).

**Figure A2: 3–14 PL cohort chosen to represent individuals named in a family case at a young age:<sup>9</sup>**



**Data matching process**

Data matching is a technique used to link different data sources. Often data matching is conducted by using a data field that appears in both datasets and contains a common unique identifier for each individual. In the absence of a unique identifier that appears in both of the administrative data sources, PNC and FamilyMan data was matched using “fuzzy” data matching techniques. This meant that, for this data-share, matching rules were developed that used variables common to both data sources. The variables used were: surname, forename, middle name, date of birth, and sex.

The data were cleaned by removing symbols, identifying and separating out names and putting text fields into uppercase. Any individuals deemed unmatchable were removed. The public law cohorts were then taken from the cleaned FamilyMan dataset.

<sup>9</sup> The Ages referred to in Figure A1 and A2 refer to the age the individuals turn in the year referred to, not the age they are at the start of the year.

Matching rules were used that included combinations of at least four of the five variables to ensure that we had confidence that the match was correct (see Table A1).<sup>10</sup> These variables were combined into a single field. The two databases were then matched on the generated field. If two individuals were matched on a lower numbered rule (see rule column) then there was greater confidence that the match was correct. Where one individual matched to two IDs in the partner dataset, the two IDs were assumed to be the same person. This individual was given one ID to avoid double counting, thus removing duplicate IDs.

**Table A1: Matching rules**

Rule	Surname	Forename	Middle name	Date of Birth	Sex	% match 10–17 PL cohort	% match 3–14 PL cohort
1	Surname	Forename	Middle name	DoB	Sex	21%	17%
2	Surname	Forename	Soundex	DoB	Sex	1%	1%
3	Surname	Forename	Middle name	DoB	-	0%	0%
4	Surname	Forename	Soundex	DoB	-	0%	0%
5	Surname	Forename	Not Wrong	DoB	Sex	76%	81%
6	Surname	Soundex	Middle name	DoB	Sex	1%	1%
7	Surname	Soundex	Middle name	DoB	-	0%	0%
8	Soundex	Forename	Middle name	DoB	Sex	0%	0%
9	Soundex	Forename	Middle name	DoB	-	0%	0%
10	Surname	Middle name	Forename	DoB	Sex	0%	0%
11	Surname	Soundex	Soundex	DoB	Sex	0%	0%

The matching process was subject to a quality assurance process to lower the incidence of error. More specifically there can be two types of error in data matching:

- Type I – an identified but incorrect match (false positive);
- Type II – an unidentified but correct match (false negative).

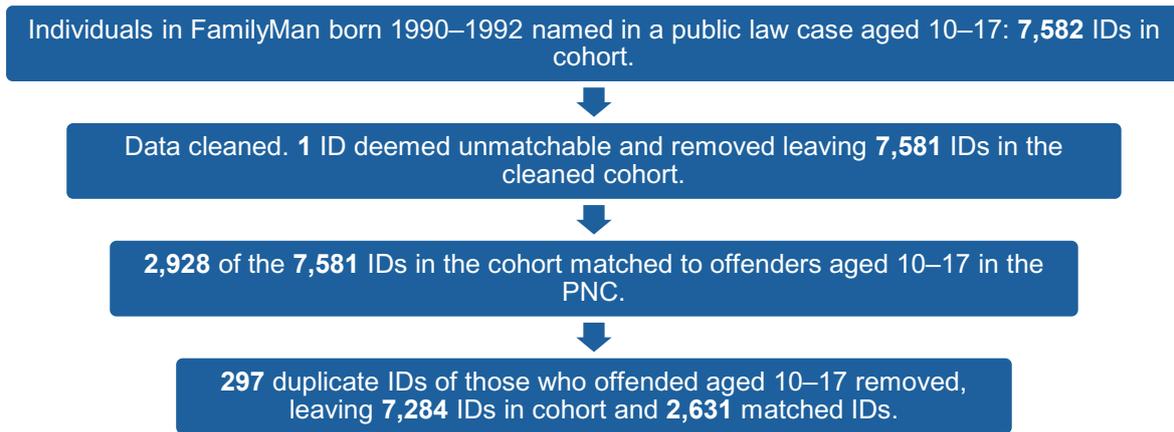
An ideal match process will minimise the risks for both of these types of error. In reality, it is usually the case that reducing the chances of missed matches increases the chances of false positives, and vice versa. It is generally felt that the type I error is more serious, and so steps must be taken to minimise false positives even if this loses some additional true matches. The quality assurance process included manually examining the personal details of a sample:

- of those who had data cleaned, to see if human judgement agreed or disagreed that they could attain a match; and
- of those that joined on each rule, to see if human judgement agreed or disagreed that the same person had been found.

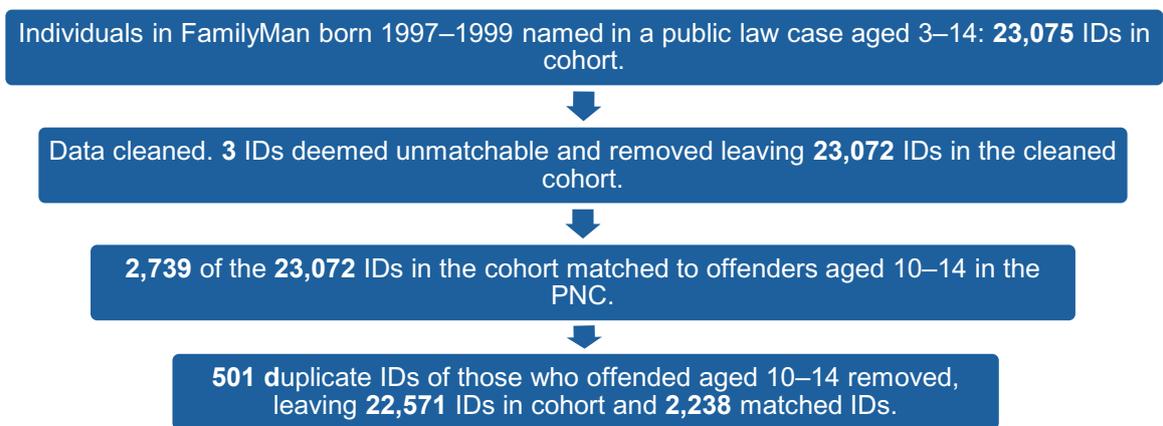
The number of matches was expected to represent the number of offenders within the FamilyMan dataset, therefore it was not expected that all members of the FamilyMan dataset would match. The population sizes for our two cohorts at each step of the process can be seen in Figures A3 and A4 below:

<sup>10</sup> "Not wrong" in the Middle name column refers to where one or both datasets has a blank middle name. Their middle name is not therefore shown to be wrong but it is also not shown to be right. Soundex is used in fuzzy data matching and is a phonetic algorithm for indexing names by sound, as pronounced in English so that names can be matched despite minor differences in spelling.

**Figure A3: 10–17 PL cohort process flow**



**Figure A4: 3–14 PL cohort process flow**



### Data protection

Data Protection Act (DPA) guidance was followed for this study, including the storage and access of data as well as for the data matching process. Access to personal data was restricted to the minimum number of named MoJ analysts required for the process, all of whom hold a specific level of security clearance that is compulsory when accessing personal data held on databases such as the PNC. The matched dataset was anonymised at the earliest opportunity and contains no names or addresses of individuals but anonymised identifiers instead. The matched data is being used for research and analytical purposes only.

### Data analysis

Descriptive statistics were used in this study. The two cohorts were compared to an equivalent cohort in the general population.

The year an individual is born can have an impact on their likelihood of committing a proven offence. To avoid this cohort effect, the cohorts used in the study were compared to their equivalent birth cohort in the general population. The 2013 midyear census population figures were used to estimate the total number of individuals born between 1990–1992 and 1997–1999. The PNC extract was used to identify the number of offenders in the wider birth cohort.

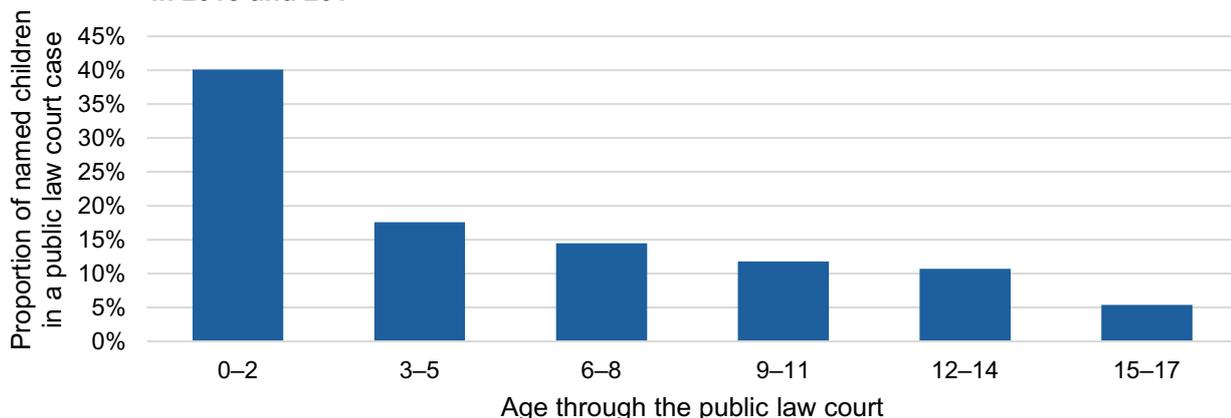
This approach enabled us to provide analysis of differences in the risk of offending between those who did or did not have contact with the family justice system.

## Data limitations and interpreting results

When interpreting results the following limitations should be considered:

- FamilyMan did not include data from all Family Proceedings Courts (FPCs) before 2010. For earlier years, FamilyMan provided data for County Courts and for the FPCs which shared premises and administrative systems with County Courts only. Starting at the end of 2009, an upgrade to the administrative system in all County Courts and FPCs was rolled out nationally. This upgrade was completed in December 2010 following a staggered rollout. The implications are that:
  - Data on all children involved in family law cases are not available. The FamilyMan dataset was used as a representation of the whole family justice system. However, we did not analyse the matched cohort as a proportion of all offenders.
  - There may be a difference in the seriousness of cases heard in the County versus the FPC. As complete data was not available for FPCs before 2010, the older children in our dataset could be subject to more difficult family issues.
- Data entry errors – Individuals listed in both the FamilyMan and the PNC datasets can be subject to errors in manual data entry and possible duplication, which may limit the success of data matching and result in double counting some individuals. To improve the quality of the data, any duplicate IDs that were found were removed, and data cleaning and quality assurance was conducted to ensure that all the individuals in the cohorts had information that could be used for matching. However, duplicates were only identified amongst the records that were matched, therefore the proportion of offenders in the cohort may be underestimated.
- Name changes – Names recorded in FamilyMan are those given when a case was entered into the system. Subsequent name changes may mean that the listed name in FamilyMan will not necessarily be recorded on the PNC, and could therefore reduce the probability of a match being achieved. Hence, the proportion of offenders in the cohort may be underestimated.
- Focus on older cohorts – The analysis set out in this report concentrates on those in contact with the public law system aged three and above. It is important to note that a sizeable minority of children named in a public law case in the data extract were aged two and under (40% in 2013 and 2014, see Figure A5). However, the majority of these children were below the age of criminal responsibility (i.e. 10 years of age), when the data were extracted, and therefore had not had the opportunity to offend.

**Figure A5: The age of named children in a public law court case in 2013 and 201**



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