

# The social cost of adverse outcomes of children who need a social worker

Technical report

An independent research report by Alma Economics

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Commissioned by the Independent Review of  
Children's Social Care

November 2021



The Independent Review of Children's Social Care was announced in January 2021 and will report in Spring 2022. Josh MacAlister is leading the review which has a wide ranging and ambitious scope. The review is a chance to look afresh at children's social care. It will look at issues through the perspective of children and families throughout their interactions with children's social care, from having a social worker knock on the door, through to children being in care and then leaving care.

In June 2021 the review published the Case for Change which set out early thinking about what needs to change in the children's social care system. So far, the chair and review team have heard directly from over 1,000 people with lived experience of care and a similar number of people who are part of the children's social care workforce.

This technical report constitutes independent research by Alma Economics. It was published in November 2021 alongside a summary report produced by the independent review as well as a second technical report focussing on annual expenditure on children's social care.

Alma Economics was selected through a competitive process, in-line with government procurement rules, to carry out work for the review on the costs associated with the children's social care system and the cost effectiveness of the review's recommendations. The review's recommendations will be costed by Alma Economics and published alongside the final report in Spring 2022.



Alma Economics combines unparalleled analytical expertise with the ability to communicate complex ideas clearly.

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# Introduction

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In March 2020, there were more than 380,000 Children in Need in England, making up 3.2% of all children (Department for Education, 2021b; Department for Education, 2021). Among this group of children, more than 80,000 were children looked after, i.e. children who have been in the care of their local authority for more than 24 hours.

Section 17 of the Children Act 1989 defines Children In Need as children (i) who are unlikely to achieve or maintain, or to have the opportunity of achieving or maintaining, a reasonable standard of health or development without the provision of services by a local authority (LA), (ii) whose health or development is likely to be significantly impaired, or further impaired, without the provision of such services, or (iii) who are disabled.

Following the government's commitment in the 2019 manifesto to review children's social care (CSC), the Independent Review of Children's Social Care (the Review) was established in 2021. The focus of the Review is to ensure that children grow up in loving, stable and safe families and, where that is not possible, that care provides the same foundations. Underpinning this, the objective of the Review is to understand how money should be best spent to deliver improved outcomes for children and families. As its first major milestone, the Review published the Case for Change setting out key problems in the system and early thinking about what needs to change (The Independent Review of Children's Social Care, 2021).

For the purposes of this report, using the same terminology as the Children in Need Review, we have used the term 'children who need a social worker' (or 'children with a social worker') to refer to all 'Children in Need' using the broadest statutory definition under the Children Act 1989. This encompasses all children receiving statutory support from local authority social care including those on a Children in Need Plan, on a Child Protection Plan and Children Looked After. We are using the term 'children who need a social worker' (or 'children with a social worker') as 'Children in Need' is used to mean either some or all of these groups, and is not widely used beyond this context, contributing to misunderstanding and lack of recognition. This covers all groups who, beyond any assessment, are accessing social care support for safeguarding and/or welfare purposes, including disabled children.

Alma Economics has been working with the Review team to investigate the outcomes of children who need a social worker and the related costs and expenditure. This research project comprises two phases. Phase 1 aims to document the lifetime cost to individuals, the state and society of adverse outcomes of children with a social worker, and explore how money is currently being spent in the system. Phase 2 will evaluate the cost effectiveness of the Review's policy recommendations to reform CSC.

The present document constitutes one of the two reports of Phase 1, and presents estimates of the social cost of the adverse outcomes experienced by children who need a social worker over their lifetime. These children have adverse outcomes compared to the general population in many different aspects (education, health etc.). These adverse outcomes tend to persist during adulthood, years after these children have stopped interacting with the care system. They are also associated with different types of social costs due to decline in wellbeing, loss in productivity, increased use of public services, and other social costs.

It is important to note that this work does not examine the *causes* of these adverse outcomes. The estimates do not provide any information on the impact of CSC or any other social or policy factor.

# Review of evidence

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In order to get a better understanding of the type and magnitude of adverse outcomes that children who need a social worker face in the UK over their lifetime, we carried out a review of the academic and grey literature. We considered the impact on (i) educational outcomes, (ii) labour market outcomes, (iii) mental and physical health, (iv) criminal behaviour, and (v) homelessness.

While there is a rich evidence base on children looked after outcomes once they leave care, the same is not true for children with a social worker more widely. Most of the literature that studies children with a social worker focuses only on their educational outcomes in school compared to other children. To shed light on the outcomes of children with a social worker, we turn to the literature on children who are victims of abuse or neglect. According to the Department for Education (2020a), the majority of children who need a social worker (54%) were victims of abuse or neglect.

It is important to stress that this work does not examine the causes of these adverse outcomes, and the estimates do not provide any information on the impact of the social care system or any other social or policy factor.

## Labour market outcomes

The literature consistently finds that children looked after experience worse labour market outcomes in adulthood than children who have never been in care. For children victims of abuse or neglect, evidence from the UK finds sizeable effects on employment in mid-to-late adulthood. Evidence also shows that adults who were in care have significantly lower earnings compared to the wider population.

## Employment

The evidence consistently shows that individuals who have been in care are significantly and persistently less likely to be employed. Following individuals who have been in care at ages 20-29 years, 30-39 years and 40-49 years shows that care leavers experience lower employment throughout adulthood, with marked differences between the type of care they received. In particular, children in residential care experience significantly worse employment outcomes in adulthood, followed by children in foster care and children in kinship care; with an average of 48%, 59% and 69% of children in residential, foster and kinship care being employed throughout the follow-ups respectively, compared to 76% of children in parental care (Sacker et al. 2021).

Furthermore, individuals who have been in care and suffer from severe multiple disadvantages (SMD)<sup>1</sup> experience significantly higher unemployment rates compared to those not suffering from SMD, with the former group being twice more likely to have never been in employment before the age of 26 compared to the latter (The Scottish Care Review 2020). This finding suggests that improvements in the care system that decrease the likelihood of having complex needs later in life can generate significant labour market gains. The experience of abuse and neglect is also associated with worse employment outcomes in adulthood. Adults who are victims of child abuse and neglect are 3 and 4 percentage points less likely to be in employment at ages 42 and 50, compared to adults who did not experience abuse and neglect as children (Conti et al. 2017).

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<sup>1</sup> SMD is a proxy for complex needs, and is measured by The Scottish Care Review (2020) using the following indicators: moderate drug use to age 30, heavy alcohol use to age 42, homelessness to 42, convicted or cautioned to 16, accident or assault to 26, and mental health to 42.

## Average earnings

Adults who have been in care have significantly lower earnings compared to individuals with no history of interacting with CSC. They earn approximately one third less than individuals who have never been in care, both 11 years after GCSE and at the age of 42 (British Cohort Study; Nelson and Anderson 2021).

Evidence from the UK finds no statistically significant effect of childhood abuse and neglect on earnings in adulthood conditional on employment. The evidence is inconclusive regarding differences in earnings for victims of child abuse and neglect that are in employment relative to the remaining population in employment (Conti et al., 2017).

## Educational outcomes

The educational outcomes of children who need a social worker are relatively well-researched. As education takes place early in the life cycle, it is not surprising that adverse circumstances during childhood affect educational achievements. All evidence reviewed in the literature finds that children with a social worker have lower educational attainment throughout the education cycle, starting as early as the early years foundation stage (EYFS).

The difference in the level of development in EYFS between children who need a social worker and the general pupil population is sizeable. The Department for Education (2020) documents that in 2018/19, 44% of children with a social worker achieved a good level of development in EYFS. This compares to 72% of all pupils reaching a good level of development in EYFS. Weaker outcomes of children with a social worker in early years can be partly explained by other deprivations associated with lower attainment in early years, such as special educational needs (SEN), with 35% of children who need a social worker having special educational needs.

The educational attainment gap not only persists throughout key stages (KS), but it also widens from KS2 to university. While children with a social worker score over 10% less than their peers during the school years in KS2, their attainment is approximately 40% lower in KS4 compared to their peers with no social work interventions, and only 15% go on to study A levels at age 16/17 (Berridge et al., 2020; Department for Education, 2019b). Moreover, children who need a social worker are found to be almost five times less likely to enter higher education at age 18 compared to their peers (Department for Education, 2019b).

## Health outcomes and healthy behaviours

This section summarises findings from the literature on the adverse outcomes suffered by children who need a social worker in terms of physical and mental health as well as healthy behaviours. In terms of physical health, the literature finds that individuals who have been in care are at significantly higher risks of death throughout adulthood compared to adults who have never been in care. Furthermore, care status, abuse, and neglect are associated with adverse health outcomes in adulthood, including long term illnesses and poor overall health.

Regarding mental health, evidence finds that the prevalence of mental health disorders amongst children in care is significantly higher compared to children who have not been in care and that it remains high in adulthood. Similarly, adults who were victims of child abuse or neglect are at significantly higher odds of developing anxiety and depression in mid-to-late adulthood.

Finally, evidence on alcohol and drug abuse suggests a higher tendency amongst care leavers of drug and alcohol abuse in early-to-mid adulthood.

## Mortality and physical health

Care status during childhood is linked with higher mortality in adulthood. A study tracking children looked after 42 years after initial assessment finds that they are over 70% more likely to die than those who have not been in care at any given time during the follow-up period, while accounting for a series of individual and childhood characteristics (Murray et al. 2020a).

Furthermore, care status, as well as child abuse and neglect, are associated with a range of adverse health outcomes in adulthood, including the development of long term illnesses and poor overall health. Sacker et al. (2021) compare the prevalence of long-term illness among care leavers in different care settings 10, 20 and 30 years after living in care. Throughout the follow-up periods, care leavers who were in residential care have the highest prevalence of limiting long-term illnesses (around 32% on average), followed by adults who lived in foster care (around 17% on average) and adults who lived in kinship care (13% on average). This is significantly higher than the average prevalence of limiting long-term illnesses amongst individuals who have not been in care (8%). Similarly, individuals who have been in care report having worse overall health outcomes and are twice more likely to have poor health at the age of 42 than individuals with no history of public care (The Scottish Care Review (2020)).

Finally, adverse childhood experiences (including care status, physical neglect, living in a household in contact with mental health services, and having a family member with alcohol abuse problems) is associated with increased physiological wear-and-tear<sup>2</sup> at the age of 44. The increase is more pronounced the higher the number of adverse childhood experiences an individual was exposed to.

## Mental disorders in childhood and adulthood

The prevalence of mental health and behavioural disorders among children looked after is much higher compared to both the general population and children from disadvantaged households. The prevalence of anxiety amongst children looked after is two and three times higher than children from disadvantaged households and children not living in disadvantaged households respectively. Similarly, the prevalence of depression amongst children looked after is approximately three times and four times higher compared to children from disadvantaged households and children not living in disadvantaged households respectively.

Children in care are also approximately four times and ten times more likely to display behavioural disorders<sup>3</sup> compared to children from disadvantaged households and children not living in disadvantaged households respectively (Ford et al., 2007).

Conti et al. (2017) use two large-scale datasets from Great Britain and England to investigate long-term outcomes of children victim of abuse and neglect, with both datasets showing similar results. Accounting for a rich set of individual characteristics, they find that child neglect, physical and emotional abuse and sexual abuse are associated with persistent and significant effects on mental health, including higher risks of being diagnosed with anxiety and depression in adulthood.

## Alcohol and drug abuse

The literature finds a higher tendency of drug and alcohol abuse amongst care leavers in early-to-mid adulthood, as well as a higher prevalence of alcohol abuse amongst victims of child maltreatment in mid-to-late adulthood.

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<sup>2</sup> Physiological wear and tear is defined as the accumulation of the “damage to cells, tissues, and organs in the body caused by dietary toxins and environmental agents” (American Psychological Association, n.d.).

<sup>3</sup> Behavioural disorders are defined by Ford et al. (2007) as oppositional defiant disorder, socialised conduct disorder, unsocialised conduct disorder, conduct disorder confined to the family context, or other conduct disorder.

Viner and Taylor (2005) survey thirty-year-olds to investigate the link between care history and healthy behaviours, including alcohol and drug abuse. The study found that individuals with a history of public care are approximately 25% more likely to have used drugs in the year preceding the survey compared to those with no history of public care. Similarly, the study finds that individuals with a history of public care are two percentage points more likely to have alcohol problems by their thirties.

The experience of child maltreatment is associated with alcohol use in late adulthood. Victims of child maltreatment are more than two percentage points more likely to be heavy drinkers at the age of 50 than individuals of the same age who were not victim of child maltreatment. However, the literature finds no statistically significant effect of child maltreatment on alcohol use in earlier stages of adulthood (Conti et al., 2017).

## Criminality

The literature reviewed documents a much higher offence rate amongst care leavers compared to adults with no history of care and a significant representation of adults with a history of care and childhood abuse in the prison population.

Indeed, adults with a history of public care are twice more likely to have been convicted in a civil or criminal court by the age of 30 compared to individuals who have never been in care (Viner and Taylor, 2005). Furthermore, 24% and 31% of male and female prisoners in England and Wales have been in care at some point during their life, and 29% of prisoners experienced child abuse (Williams, et al., 2012).

## Homelessness

The literature shows that individuals who have been in care are significantly more likely to become homeless in different stages of the life cycle and to experience hidden homelessness<sup>4</sup>. In particular, they are twice more likely to be homeless compared to individuals with no history of care, both between the age of 16 to 30 and at the age of 42 (Viner and Taylor, 2005; The Scottish Care Review, 2020). Care leavers are also over-represented amongst hidden homeless people, with 25% of hidden homeless adults found to be care leavers (Reeve 2011).

## Intergenerational cycle of care

The intergenerational cycle of care refers to the tendency of children in care to have their own children entering the care system, which constitutes another costly adverse outcome for families and society. There are no official statistics on the intergenerational cycle of care in England and evidence on this topic in the literature is sparse. However, a recent study suggests that 32% of children in care have a parent who is a care leaver (PWC, 2021).

The concern around a high tendency of children of care-experienced parents interacting with the care system has been raised by the Centre for Social Justice (2015), which reported that at least 10% of care leavers aged 16-21 had a child taken into care in the preceding year. This figure is consistent with evidence from the US, where a study following young people leaving care in three states shows that by the age of 21, 10% of mothers were living apart from at least one biological child (Courtney et al., 2007). Follow-ups of this cohort of care leavers show that this figure increases substantially as care leavers grow older, with 19% of mothers aged 25/26 living apart from at least one biological child (Courtney et al., 2011).

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<sup>4</sup> In Reeve (2011) hidden homeless are defined as individuals with records of staying in squats, sofa surfing, or sleeping rough and with no statutory entitlement to housing.

Evidence from the UK shows that parents who are care-experienced or victims of childhood abuse and neglect are more likely to have their children placed for adoption and to have recurrent care proceedings. Focusing on Welsh children placed for adoption, Roberts et al. (2017) finds that more than a quarter and two-thirds of their birth mothers have been in care and known to Children's Services when younger respectively.

Moreover, among women subject to repeat care proceedings, many were victims of child abuse and neglect (66% of mothers were victims of child neglect, and over half were subject to at least one form of emotional, physical or sexual abuse), or had been in care (40%) (Broadhurst et al., 2017).

# Methodological Framework

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## Methodology

We combine different sources of evidence to estimate the additional probability for children who need a social worker experiencing adverse outcomes for each year of life. Our reference group is children with similar demographic and socioeconomic characteristics.

## Groups of children considered

Children who need a social worker is a wide category, comprising Children in Need Plans (CINP), children looked after, and children in a Child Protection Plan (CPP)<sup>5</sup>. It should be noted that we expect additional groups of children to be in contact with social services (e.g., children who are referred to those services but are not identified as children who need a social worker). However, children with a social worker is the broader group of children receiving social care support.

One of the groups of children included within children with a social worker is children looked after. These are children who have been in the care of their local authority for more than 24 hours, and thus are placed outside their home, including with relatives, in foster care, in a children's home or for adoption. Children in this group are expected to have different outcomes than the rest of children with a social worker due to their additional needs and more adverse experiences that led to them being removed from their birth home.

Based on all the above, this report focuses on the lifetime costs associated with the adverse outcomes of all children who need a social worker. Once this is estimated, we zoom into the group of children who are children looked after and estimate the costs related to their specific outcomes. We also produce estimates for other children who need a social worker, excluding children looked after, for comparison.

## Measuring the likelihood of adverse outcomes

We use regression coefficients from the literature that control for demographic and socioeconomic characteristics to calculate the increased probability of children who need a social worker to experience adverse outcomes compared to the general population of children. If regression figures are not available, we compare the average outcomes of two groups of children (e.g., children with a social worker and children not in contact with social care services).

As discussed in the evidence review, although there is extensive literature on the adverse outcomes of children looked after, the evidence on the outcomes of children with a social worker is mostly limited to educational attainment. Consequently, we use the literature on the outcomes of children maltreated as the best available evidence for children who need a social worker. The reason for this is that the majority of children with a social worker were victims of abuse and neglect. In particular, abuse and neglect are much more common than any other primary need of children with a social worker. The second most common primary need is family dysfunction. All other needs are identified in less than 10% of cases (Department for Education, 2020a). Given the rich literature on children looked after and their particularly severe outcomes, we use the available evidence to estimate the outcomes for children looked after separately from the rest of children who need a social worker.

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<sup>5</sup> Children in Need Plans (CINPs) are children who need support services from their local authority to achieve a reasonable level of health or development. A Child Protection Plan (CPP) provides support for a child at risk of significant harm in one or more of the following four categories: physical abuse, sexual abuse, emotional abuse, and neglect.

## Types of costs

We grouped the social costs of the adverse outcomes that children who need a social worker face into four broad categories:

- **Impact on wellbeing.** This refers to the impact of adverse outcomes on the wellbeing of children who need a social worker. For example, increased prevalence of anxiety and depression results in a loss in productivity and an increase in costs to healthcare services, but also in a decline in quality of life and overall wellbeing. To monetise the health impact on life-years and quality of life, we use the Quality Adjusted Life Years (QALYs). The QALY approach weights life years (saved or lost) by the quality of life experienced in those years. One QALY is equal to 1 year of life in perfect health, and it is valued at £60,000 according to the Green Book.
- **Productivity losses.** The second social cost that we consider is the decline in productivity and contribution to the wider economy. The most direct contributor to this cost is the lower rate of employment among children who need a social worker compared to the general population. Other contributors to productivity losses include loss in earnings, increased absenteeism and early retirement due to adverse outcomes like mental health problems and substance misuse, as well as early mortality, that result in foregone productivity.
- **Cost to public services.** Some adverse outcomes experienced by children who need a social worker, such as worse mental health and increased substance use, result in increased use of services. These include, among others, higher use of the NHS and the criminal justice system. We calculate the extra social cost incurred due to the increased use of these services driven by the increased incidence of adverse outcomes. In addition, we include in the cost to public services the expenditure sustained by central and local government to support children with a social worker during their childhood. These include expenditure on children's social care and expenditure on education.<sup>6</sup>
- **Other social costs.** These are not captured by the above categories and include the cost of fear of crime due to higher offence rates among children who need a social worker compared to the general population and the cost of the physical and emotional injuries suffered by victims of crime.

In addition, we estimate the social cost associated with the intergenerational cycle of care. Children looked after are much more likely than the general population to have children that also end up in care. According to PWC (2021), 32% of children in care have a parent who is a care leaver compared to 1% of the rest of the population. This means that some of the adverse outcomes that are experienced by children looked after today will also be experienced by their children. This so-called intergenerational cycle of care translates to a social cost. This is calculated by multiplying the total social cost of adverse outcomes by the increased likelihood of children looked after having children who will also be in care.

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<sup>6</sup> Details on the annual expenditure on children's social care can be found in the report "Annual expenditure of children's social care" published alongside this report.

# Estimating the social cost of adverse outcomes

## Overview

The adverse outcomes considered are (i) reduced employment, (ii) mental health problems (anxiety and depression), (iii) substance misuse (alcohol and drugs), (iv) conduct disorders and anti-social behaviour, (v) offending, (vi) homelessness, and (vii) mortality. We also include central and local government expenditure on children's social care and related services.

Some outcomes are considered separately for children and adults. As mentioned, each of the adverse outcomes described in this section relates to a specific type of social cost, which includes loss in productivity, increased cost of social services, and loss in wellbeing for children who need a social worker. The type of social cost, associated adverse outcomes, and relevant age groups are summarised in Table 1.

We apply the maltreatment framework used by Conti et al. (2017) to all children who need a social worker, after which we 'zoom in' on the more severe adverse outcomes of children looked after. All the coefficients discussed in this section represent a percentage point difference between the outcomes of children with a social worker and the general population. For some adverse outcomes, the only available estimates in the literature are on children looked after but not on children with a social worker. These include drug misuse, mortality, anti-social behaviour and homelessness, as well as anxiety and depression below the age of 19. To estimate these outcomes we compare the magnitudes of adverse outcomes that are available for both children with a social worker and children looked after (e.g., employment, alcohol misuse etc.). On average, the magnitude of adverse outcomes experienced by children who need a social worker is 65% that of children looked after. We assume this same ratio holds for the unobserved outcomes for children who need a social worker.

**Table 1. Type of social cost, associated adverse outcomes and relevant age groups**

Type of social costs	Adverse outcomes	Specific cost	Relevant age groups
<b>Loss in productivity</b>	Employment	Foregone employment and earnings	19-64
	Anxiety and depression	Increased absenteeism and early retirement	0-18 & 19-64
	Alcohol and drug misuse	Increased absenteeism	19-81
	Mortality	Foregone employment and earning	19-81
<b>Cost of public services</b>	Anxiety and depression	Healthcare costs	0-18 & 19-81
	Alcohol and drug misuse	Healthcare and criminal justice system costs	19-81
	Conduct disorder	Healthcare and social care costs	0-18
	Anti-social behaviour	Criminal justice system costs	19-81

	Offending	Youth criminal justice system costs	0-18
	Homelessness	Homelessness services, NHS, and criminal justice system costs	19-81
	Social care needs	Central and local government expenditure on children's social care and education	0-18
<b>Wellbeing impact</b>	Depression and anxiety	QALY loss	0-18 & 19-81
	Alcohol and drug misuse	QALY loss	19-81
	Mortality	QALY loss	19-81
	Homelessness	QALY loss	19-81
<b>Other social costs</b>	Fear of crime	QALY loss	0-18 & 19-81
	Cost to the victims of crime	Physical and emotional costs to the victims of crime	0-18 & 19-81

## Adverse outcomes considered

### Reduced employment

Children who need a social worker are less likely to be employed once they reach adulthood than the general population. This lower employment leads to a loss in overall economic productivity, which constitutes a cost to society. We value this lost productivity due to reduced employment using age-specific earnings in 2019 between the ages of 19 and 64 (retirement age).

As mentioned, we use the regression coefficients estimated by Conti et al. (2017) to cost adverse outcomes for children who need a social worker. The authors report a range of 3 to 4 percentage points reduction in employment at ages 33, 42, 50 and 55. We assume a straight-line relationship between the coefficients. We also assume the magnitude of adverse outcomes remain constant below the age of 33 and above the age of 55 (up to the age of retirement, after which it becomes zero). At each age, we multiply the age-specific earning by the coefficient found in Conti et al. (2017) to estimate productivity losses.

For children looked after, we use the regression coefficients in Sacker et al. (2021) on employment rates for children in care in their 20s, 30s and 40s. The average difference across all time periods between children in kinship, foster and residential care and children who have never been in care is 5, 15 and 37 percentage points respectively. For the rest of the years, we assume a straight-line relation. We assume that the coefficient remains constant before the age of 25 (until 19) and after the age of 45 (until the retirement age). We also calculate the cost by type of placement (foster care, kinship care and residential care) using the regression coefficients estimated by Sacker et al. (2021). Again, at each age, we multiply the age-specific earnings by the regression coefficient to calculate productivity losses.

## Loss of earnings

The study conducted by Nelson and Andersen (2021) shows that adults who have been in care have lower earnings compared to the wider population. In particular, the gap is £4,000 8 years after GCSEs and £6,000 11 years after GCSEs. Based on these figures, we estimate the loss of earnings for children looked after in adulthood by multiplying the earning gap by the probability of being employed in each year. We assume that the earning gap remains constant until retirement.

As the evidence on children who need a social worker is inconclusive, we estimate the loss of earnings using the fact that outcomes experienced by children with a social worker are 65% of that experienced by children looked after and assume that the ratio between observable outcomes holds for not observable ones.

## Anxiety and depression

Children who need a social worker are more likely to suffer from anxiety and depression during adulthood than the rest of the population. This results in a cost to society due to (i) higher use of public services, (ii) reduction in productivity, and (iii) reduction in the quality of life. We evaluate all three of these costs using the following:

- For increased public service use, we use the cost per person for anxiety and depression found in McCrone et al. (2008), which we convert to 2019 prices. This includes increased usage of health care services, including GP care, residential care, and inpatient care.
- For reduction in productivity, we use the costs found in Fineberg et al. (2013) for anxiety and depression. It should be noted that we only include productivity losses due to absenteeism and early retirement reported in the paper, but not due to the reduction in employment to avoid double counting. Additionally, this cost only applies after the age of 19, as productivity losses are assumed to be zero for children.
- For loss in wellbeing, we used QALY loss due to moderate anxiety and depression from Salomon et al. (2015) and the value of a QALY reported in the Green Book (set at 60,000) (HM Treasury, 2018).

For children who need a social worker, we use the regression coefficients on anxiety and depression from Conti et al. (2017) at ages 33, 42, 50, and 55, which suggest a difference in the prevalence of anxiety ranging between 4.5 and 7 percentage points between maltreated children and children that have not been maltreated. The paper also finds a difference in the prevalence of depression ranging between 8 and 13 percentage points between maltreated children and those that have not been maltreated. As before, we assume a straight-line relationship between these coefficients. These estimates only apply to children with a social worker in adulthood, as neither Conti et al. (2017) nor the rest of the literature explore increases in the incidence of anxiety and depression at age 18 or below. Therefore, we approximate the impact on children who need a social worker below the age of 19 using by exploiting the fact that the magnitude of the observable outcomes of children with a social worker is 65% of those of children looked after, as explained above.

For children looked after, we use estimates on the increased likelihood of developing depression and anxiety found in Ford et al. (2007), which estimate an average difference in the prevalence of depression and anxiety between children looked after and children who have never been in care is 8 and 3 percentage points respectively. These estimates are available only at the age of 18. In order to approximate the evolution of anxiety and depression for children looked after throughout their lifetimes, we use the coefficients on long-term illness found in Sacker et al. (2021) at different ages. We assume the same rate of growth for anxiety and depression as that of long-term illness. We also assume constant coefficients below the age of 19 and above the age of 45.

## Substance misuse

Children who need a social worker are more likely to engage in substance misuse than the rest of the population. Like anxiety and depression, substance misuse is associated with a cost to society due to increased use of public services, a decline in productivity, and a reduction in the quality of life of individuals who engage in it. We evaluate those costs as follows:

- For increased public service use, we use the cost per person of drug and alcohol misuse issues found in Cabinet Office (2003) and Black (2020), respectively, which we convert to 2019 prices. The cost of alcohol misuse includes healthcare costs and criminal justice system costs. The cost of drug misuse includes costs to the criminal justice system, enforcement, prevention, and cost of treatment.
- For reduction in productivity due to alcohol misuse, we use costs found in Cabinet Office (2003). We only include productivity losses due to absenteeism and early retirement reported in the paper, but not due to reduction in employment to avoid double counting.
- For reduction in productivity due to drug misuse, we use costs found in Black (2020). The costs presented in Black (2020) do not distinguish between productivity costs due to reduction in employment and costs due to absenteeism and early retirement. Therefore, we assume that the proportion of productivity loss due to absenteeism and early retirement for drug misuse is the same as that of alcohol misuse (28%). We apply this percentage to the total loss in productivity due to drug misuse to exclude productivity losses due to reduced employment and to avoid double counting.
- For loss in wellbeing, we use QALY loss due to moderate drug and alcohol misuse from Salomon et al. (2015) and the value of a QALY reported in the Green Book (set at £60,000) (HM Treasury, 2018).

For children looked after, we use the regression coefficient on alcohol and drug misuse from Viner & Taylor (2005) measured at ages 30-39, which suggests a difference of drug misuse between children looked after and children who have never been in care of 5 percentage points. We then apply the same growth rate as long-term illness found in Sacker et al. (2021), as we did for anxiety and depression. For alcohol misuse experienced by children who need a social worker, we use the regression coefficient from Conti et al. (2017) estimating a difference in the prevalence of alcohol misuse between maltreated children and children who have not been maltreated of 2.5 percentage points at the age of 50. Drug misuse for children with a social worker is not explored in the literature. Therefore, we approximate the magnitude of the impact using the findings on children looked after following the methodology described in the previous sections. For both children looked after and children who need a social worker, these costs are only relevant at age 19 and above.

## Conduct disorder and anti-social behaviour

Children looked after are more likely to suffer from conduct disorder while they are still children. This translates to anti-social behaviour in adulthood. Both of these outcomes are associated with costs to society. This mainly comes from the increased use of public services. To estimate the costs of conduct disorder, we use estimates from Snell et al. (2013), which include primary care costs (GPs and health visitors), child health service, and social care service. To calculate the costs of anti-social behaviour, we also use costs found in Scott et al. (2001), which include criminal justice system costs associated with anti-social behaviour.

The increased likelihood of children in care having conducted disorder is taken from Ford et al. (2007) for up to age 18, who show that children looked after are 25 percentage points more likely to display

conduct disorder relative to children who have never been in care. Since we know that 40% of children with conduct disorder exhibit anti-social behaviours in adulthood (Scott et al., 2001), we use this to find the likelihood of engaging in anti-social behaviour for children looked after at age 19 onwards. We assume this to be constant throughout their life.<sup>7</sup> Conduct disorder and anti-social behaviour are not explored in the literature for children who need a social worker. Therefore, we approximate this adverse outcome for children with a social worker by using the coefficients found for children looked after, applying the methodology described in the section “Overview”.

## Offending

Children looked after are more likely to commit an offense relative to the general population (Department for Education, 2018). This is associated with an increased cost of public services. We use estimates from the Ministry of Justice (2011), which provide the costs to the criminal justice system due to young offenders (below the age of 19), including the costs of police, courts, offender management teams, and custody.<sup>8</sup> The increased likelihood of children looked after committing an offense by the age of 18 is taken from Department for Education (2018) based on data supplied by the Ministry of Justice, which estimates that children in care aged 10 to 17 are three times more likely to offend relative to other children and young adults. Offending rates are assumed to be constant throughout the lifetime. The increased offence rate is not explored in the literature for children who need a social worker. Therefore, we approximate this impact on children with a social worker by using the findings on children looked after, applying the methodology described in the section “Overview”.

In addition, we estimate wider social costs due to (i) the contribution of increased offending rates to the society’s fear of crime and (ii) the physical and emotional costs to the victims of crime. The cost of fear of crime is estimated by multiplying the additional crime committed by children who need a social worker by the annual cost of fear of crime.<sup>9</sup> The physical and emotional cost to the victims of crime is calculated based on estimates included in the Greater Manchester Unit Cost Database based on Heeks et al. (2018). The average cost per incident (across all types of crime) is £1,489.

## Homelessness

Children looked after are more likely to experience homelessness than the rest of the population. This is associated with an increase in public service costs for homelessness services (cost to LAs), costs to the NHS (A&E and inpatient), and costs of contact with the criminal justice system (Crisis, 2018). The increased likelihood of being homeless for children looked after is taken from Viner and Taylor (2005) who find that the average difference in the probability of being homeless from the age of 16 until the ages of 30-39 is 8.5 percentage points higher for children in care compared to children who have never been in care. We assume this difference to be constant over the lifetime. The incidence of homelessness is not explored in the literature for children with a social worker. Therefore, we approximate this impact on children who need a social worker by using the estimates on children looked after, as explained in the section “Overview”. We calculate the cost of homelessness assuming that homelessness episodes last for six months (Crisis, 2018).

Moreover, we calculate the impact on wellbeing due to homelessness using QALY. Aldridge et al. (2015) estimate that one year of homelessness is associated with a loss of 0.117 QALYs, approximately £7,000 per year.

<sup>7</sup> Scott et al. (2001) state that: “The antisocial behaviour tends to persist—40% of 8 year olds with conduct disorder are repeatedly convicted of crimes such as theft, vandalism, and assault in adolescence”.

<sup>8</sup> The reason for not including cost of offenders above the age of 18 is to avoid double counting, as criminal justice system costs is already included for adults as part of costs associated with substance misuse, homelessness, and anti-social behaviour.

<sup>9</sup> The annual cost of fear of crime is estimated to be approximately £3 billion pounds (Dolan and Peasgood, 2007).

## Mortality

Children looked after have a higher mortality rate than the general population. This is associated with two types of costs:

- Loss in productivity estimated using age-specific earnings in 2019 between the ages of 19 and 67 multiplied by the likelihood of being employed.
- Wellbeing loss due to early death, which is calculated as 100% loss in QALY from the median age of death.

Murray et al. (2020) estimate that children looked after are 1.3 percentage points more likely to die at a median age of 40 relative to children who have never been in care. We assume the difference in the death rate to be constant up to the age of 81, and we fit a straight line between the ages of 19 and 40, starting at zero. The excess mortality rate is not explored in the literature for children who need a social worker. Therefore, we approximate this impact on children who need a social worker by using the estimates for children looked after, following the approach described in the section “Overview”.

## Findings

We estimate the social cost of the adverse outcomes experienced by children who need a social worker over their lifetime. As mentioned in the previous section, we do not examine the causes of these adverse outcomes, and the estimates do not provide any information on the impact of the social care system or any other social policy factor. We assume that the size of the cohort is constant with constant prices of service provision at all times based on 2019/20 data. We do not discount costs accruing later in life as we want to weigh costs across a person's lifetime equally.

We estimate that the lifetime social cost of adverse outcomes per child who needs a social worker (from age 0 to 81) to be around £720,000 (Table 2). The cost of public services includes expenditure on education and social care services incurred by the central and local government.<sup>10</sup> As mentioned, children looked after have particularly severe outcomes, which translate to a lifetime social cost of £1.2 million per child looked after, almost twice that of other children who need a social worker (excluding children looked after) at £610,000.

**Table 2. Lifetime social cost per child**

	<b>Children who need a social worker (including children looked after)</b>	Children looked after	Children who need a social worker (excluding children looked after)
Wellbeing impact	<b>£280,000</b>	£290,000	£280,000
Loss in productivity	<b>£200,000</b>	£290,000	£175,000
Cost of public services	<b>£200,000</b>	£520,000	£115,000
Other social costs	<b>£40,000</b>	£60,000	£35,000
<b>Total</b>	<b>£720,000</b>	£1,200,000	£610,000

We also estimate the annual social cost of adverse outcomes per child who needs a social worker in the 2019/20 cohort (Table 4). This is a simple average of the estimated social cost at each year of life between the ages of 0 and 81. It translates to around £14,000 loss per year for each child who needs a social worker. Because children looked after are a particularly vulnerable group, their per person annual social cost is higher at £26,000, more than twice that of children who need a social worker (excluding children looked after) at £11,000.

<sup>10</sup> More details on the calculation can be found in the report "annual expenditure on children's social care" published alongside this research.

**Table 3. Annual social cost per child**

	<b>Children who need a social worker (including children looked after)</b>	Children looked after	Children who need a social worker (excluding children looked after)
Wellbeing impact	<b>£3,500</b>	£3,600	£3,500
Loss in productivity	<b>£2,500</b>	£3,600	£2,100
Cost of public services	<b>£7,000</b>	£17,500	£4,500
Other social costs	<b>£500</b>	£800	£400
<b>Total</b>	<b>£14,000</b>	£26,000	£11,000

We also calculate the breakdown of the annual social cost per child who needs a social worker in childhood and in adulthood (Table 5). The highest social cost incurred during childhood is due to the cost of public services, especially government expenditure on child social services and education at about £28,000 per child in need. We should highlight, however, that the social cost associated with childhood wellbeing is an underestimate due to substantial evidence gaps in this area. The annual social cost per adult (age 19-81) is estimated to be approximately £10,000.

**Table 4. Breakdown of the annual social cost per child who needs a social worker across childhood and adulthood**

	<b>Per person per year (0 to 18)</b>	<b>Per person per year (19 to 81)</b>
Wellbeing impact	£800	£4,300
Loss in productivity	0	£3,100
Cost of public services	£26,900	£1,600
Other social costs	£200	£600
<b>Total</b>	<b>£27,900</b>	<b>£9,600</b>

Finally, we arrive at an indicative estimate of the total annual social cost of adverse outcomes for all individuals alive today who currently need or have needed a social worker at some point in their life (Table 6). In 2019/20 there were 390,000 of children with a social worker aged 0 to 18 which translates to an average of 22,000 in each year group. Assuming a constant cohort size, we multiply this by 81 (i.e. the average life expectancy in England) to arrive at the total number of people who currently need or have needed a social worker at some point in their life which we then multiply by the average annual cost per person. We follow the same approach to arrive at the total annual social cost associated with individuals who are or have been a child looked after.

The total social cost of adverse outcomes per year is approximately £23 billion. Despite only constituting 20% of children who need a social worker, children looked after make up nearly 40% of the total costs at £9 billion. The largest type of social cost incurred for children who need a social worker is the cost of public services, making up more than half the overall social cost. The second-largest contributor to the social cost is the loss in wellbeing, constituting around 25% of the total cost.

**Table 5. Annual social cost of lifetime adverse outcomes across England**

	<b>Children who need a social worker (including children looked after)</b>	Children looked after	Children who need a social worker (excluding children looked after)
Wellbeing impact	<b>£5.8 billion</b>	£1.2 billion	£4.6 billion
Loss in productivity	<b>£4 billion</b>	£1.2 billion	£2.8 billion
Cost of public services	<b>£12.5 billion</b>	£6.2 billion	£6.2 billion
Other social costs	<b>£1 billion</b>	£260 million	£600 million
<b>Total</b>	<b>£23 billion</b>	£9 billion	£14 billion

**Note:** The figures in the table above are estimated assuming constant cohort size with constant prices of service provision based on 2019/20 data.

Finally, we also considered the wider social cost associated with the intergenerational cycle of care. Evidence shows that children of people who used to be children looked after are much more likely to be in the care system compared to the general population.<sup>11</sup> This creates a cycle of adverse outcomes that impacts the next generation. Taking this wider social cost into account increases the annual social cost for children looked after from £9 billion to £12 billion.<sup>12</sup>

## Limitations of the study

The estimates of the cost of the adverse outcomes experienced by children who need a social worker presented in this report are mainly based on findings from the literature on maltreated children. As mentioned, most of the literature focuses on adverse outcomes experienced by children looked after and maltreated children. The lack of data exploring the magnitude of adverse outcomes across children with a social worker (excluding children looked after and maltreated children) prevents researchers from estimating the impact of adverse outcomes separately for sub-groups of children who need a social worker with different needs. Our estimates are therefore based on the assumptions that the magnitude of the adverse outcomes experienced by maltreated children (the majority of children with a social worker) is the same for all children who need a social worker.

When estimating the costs of adverse outcomes, such as loss in productivity or criminal justice system costs, we selected unit costs from the literature carefully to avoid double counting. In particular, we chose studies in which unit costs are as disaggregated as possible to avoid including costs more than once. However, it might still be the case that some costs overlap and therefore were counted twice.

Overall, it is important to note that the figures we arrive at are likely to be underestimates, as there is limited evidence on some adverse outcomes. In particular, there is no satisfactory way of estimating the individual and social cost of children's suffering as they go through Adverse Childhood Experiences (ACEs). Moreover, the present study does not include the wider impact on birth families and relatives and its social cost. Finally, LAs expenditure on social care services for children with a social worker and children in care are an underestimate of the current expenditure. Some categories of expenditure were excluded from the calculation as it was not possible to separate expenditure on children who need a social worker from those on preventative services offered to the wider population.

<sup>11</sup> PWC, 2021. Delivering better outcomes for children in care. Available at: <https://www.pwc.co.uk/government-public-sector/assets/documents/investment-of-lifetime-delivering-better-children-care-outcomes.pdf>

<sup>12</sup> This estimation only includes the wider social costs for one generation following the current cohort.

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+44 20 8133 3192 24 Stoke Newington Road, N16 7XJ London, UK

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