

Born into care: unpacking the impact of area-level deprivation in Wales

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About this report

This report explores the relationship between area-level rates of infants and children appearing in care proceedings in Wales and deprivation, unpacking the impact of the different domains of the Welsh Index of Multiple Deprivation (WIMD).

It is the sixth report in the *Born into care* series, and follows:

- Broadhurst, K. et al. (2018). *Born into care: Newborns in care proceedings in England*. London: Nuffield Family Justice Observatory
- Alrouh, B. et al. (2019). *Born into care: Newborns and infants in care proceedings in Wales*. London: Nuffield Family Justice Observatory.
- Griffiths, L.J. et al. (2020). *Born into care: One thousand mothers in care proceedings in Wales*. London: Nuffield Family Justice Observatory.
- Griffiths, L.J. et al. (2020). *Born into care: One thousand mothers in care proceedings in Wales*. A focus on maternal mental health. London: Nuffield Family Justice Observatory.
- Pattinson, B. et al (2021): *Newborn Babies in urgent care proceedings in England and Wales*. London: Nuffield family Justice Observatory.

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The data used in this study is available from the Secure Anonymised Information Linkage (SAIL) Databank at Swansea University, Swansea, UK, which is part of the national e-health records research infrastructure for Wales. All proposals to use this data are subject to review and approval by the SAIL Information Governance Review Panel (IGRP). When access has been granted, it is gained through a privacy-protecting safe-haven and remote access system, referred to as the SAIL Gateway. Anyone wishing to access data should follow the application process guidelines available at: www.saildatabank.com/application-process

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About the Centre for Child and Family Justice Research

The Centre for Child and Family Justice Research (CFJ) is co-hosted by the Department of Sociology and the Lancaster Law School and works in close collaboration with the Data Science Institute, bringing together academics, practitioners and policy makers.

The work of the Centre focuses on the formal operation of family justice systems, but also broader social justice concerns and inequalities. The Centre's mission is to progress cutting-edge research, which aims to improve the lives of children, young people and families.

In partnership with the SAIL Databank, Cafcass England and Cafcass Cymru, the Centre is progressing a major programme of work to increase the safe and ethical use of controlled data for family justice research. This programme of work is funded by the Nuffield Foundation.

Partners



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Foreword

I would just like to say how welcome this valuable research and analysis is in exploring the inextricable links between deprivation and outcomes for children. This in-depth study into a complex subject, the sixth in the *Born into care* series, can help to shine an all-important light on recognising our social responsibility and considering how our services, communities and country can respond to address this inequality of opportunity and consequences. I would also like to acknowledge how this study navigates this highly nuanced landscape, with consideration and recognition that there are multiple layers of complexity attached to so many children's circumstances; which makes the role and responsibility of safeguarding even more difficult - yet clearly so important to get right. The fundamental message around how policymakers should consider implementing measures to alleviate deprivation and improve public health linking this to its direct impact on children, is an encouraging step. We must work towards ensuring that we see improved opportunities and outcomes for children and families in the future.

Barnardo's Cymru and our many partners across the country continue to work tirelessly alongside local authorities aiming to secure better outcomes for children. This should be seen as a shared responsibility. An example of this which is pertinent to the *Born into care* research is our Baby & Me service, in partnership with Newport City Council. We have drawn a huge amount of inspiration and learning from this body of evidence, enabling us to adapt and respond more effectively to families' circumstances. We are seeing in so many areas just how diligently services and teams are working, across many sectors and boundaries, trying to safely keep families together. Sometimes with success, yet other times sadly not. The challenges of child safeguarding should not go unrecognised and how, in some cases, a child entering care is unfortunately the safest option for them.

Being able to better recognise and understand these links between deprivation and children's outcomes, whether they are causal factors or contributory family context, can surely help us to re-frame our interventions. This could include measures such as further enabling families, who experience deprivation, to access support services assisting with income maximisation, employment opportunities, education, health care and any other necessary support. A key aim must be to develop more partnership services in more stable and long-term funding landscapes with frameworks which can more effectively respond, safeguard and improve lives.

Safeguarding and promoting better outcomes for children and families is truly a shared responsibility for all of us.

Mark Carter

Barnardo's Assistant Director for Children Services
Barnardo's Cymru
Cyfarwyddwr Cynorthwyol Gwasanaethau Plant

Executive summary

This report sheds new light on the differential effects of domains of deprivation on the rates of infants and children subject to care proceedings in Wales. It is the sixth report in the *Born into care* series, following *Born into care: England* (Broadhurst et al., 2018), *Born into care: Wales* (Alrouh et al., 2019), *Born into care: 1,000 mothers in care proceedings in Wales* (Griffiths et al., 2020), *Born into care: One thousand mothers in care proceedings in Wales. A focus on maternal mental health* (Griffiths et al., 2020), and *Newborn Babies in urgent care proceedings in England and Wales* (Pattinson et al., 2021), which have provided the first evidence on infants, and their mothers, in the family justice system in England and Wales.

What are ‘care proceedings’?

Care proceedings are issued under Section 31 (s.31) of the Children Act 1989 and can lead to removal of a child from parents’ care on account of actual or likely significant harm.

About the data

This study used population-level administrative data supplied by the Children and Family Court Advisory and Support Service Wales (Cafcass Cymru), combined with local authority-level deprivation domain data, using the highly secure systems for linkage and anonymisation established by the SAIL Databank.

The study includes all children (N=7,381) who were subject to care proceedings in Wales between calendar years 2014 to 2018, differentiating between incidence rates for infants (those less than one-year old) and older children.

Key research findings

- infants are far more at risk of appearing in care proceedings in Wales than older children.
- infants and children living in areas characterised by high levels of socio-economic deprivation are at heightened risk of becoming subjects in care proceedings.
- the association between area deprivation and care proceedings holds for: income, employment, health and educational deprivation, but *not* for community safety, housing and physical environment deprivation. In addition, these associations are much stronger for infants than for older children. Over time, the strongest association between rates of care proceedings and deprivation, is evident for employment.
- Public law cases involving children cluster particularly in deprived fringe and urban areas of South Wales and some areas in North Wales, but far less in rural areas.
- A considerable part of the statistical association between incidence rates of children in care proceedings and deprivation is affected by outliers, - a small number of areas with extremely high incidence rates of children. But we also see a very small number of areas showing high deprivation rates but lower incidence rates of children, which may reflect variations at the level of local policymaking.
- Whilst this report is focused on deprivation and indicates that deprivation, especially the employment domain are important in explaining rates of care proceedings, other policy and practice factors will most likely play a part, but are beyond the scope of this study.

This study demonstrates the feasibility, but also importance of, unpacking different domains of area-level deprivation and their associations with care proceedings. Socio-economic deprivation is a broad descriptor, but policy makers and practitioners need more precision if interventions that target deprivation are to be effective. **Given the likelihood of continued pressure on public finances, this study suggests that tackling area-level income, employment, health and educational deprivation may be effective in reducing children's risk of appearing in care proceedings.** Further research which examines the impact of the different domains of deprivation **at the household level** is needed, to build on these findings. In addition, qualitative research would shed light on the mechanisms involved, for example, in the impact of unemployment on parenting difficulties.

1. Introduction

In Wales, as in England, where an infant or older child is identified as having suffered or is at risk of suffering significant harm from one or both parents, a decision may be made to issue care proceedings under s.31 of the Children Act 1989.¹ Children subject to a care order at the final hearing of care proceedings may be placed with kin, in foster care, with (prospective) adoptive parents, or may remain with parents.

Previous reports produced by the Family Justice Data Partnership (FJDP) have examined rates of infants in care proceedings in England and Wales, noting rising incidence rates (Broadhurst et al., 2018; Alrouh et al., 2019). In England and Wales, an increasing number of the very youngest children are at heightened risk of appearing before the family courts, on account of actual or likely significant harm.

In order to begin to understand what factors or family needs, lie behind these concerning increases, the Family Justice Data Partnership (FJDP based at the Universities of Lancaster and Swansea) has begun to probe several avenues of enquiry, building on the first *Born into care* reports. The team has first tackled questions about maternal health vulnerabilities, with further work on-going (Griffiths et al., 2020). In addition, the team (Cusworth et al., 2020; Johnson et al., 2020) has completed preliminary analyses of the association between area-level deprivation and incidence rates of both public and private law proceedings, using the composite Welsh Index of Multiple Deprivation (WIMD).

Care proceedings and area-level deprivation

This report aims to further advance knowledge by unpacking the impact of deprivation, to achieve a more nuanced understanding of which specific domains of deprivation are associated with heightened risk of care proceedings. Our interest is in the impact of specific domains on both infants, but also comparisons between infants and older children in Wales.

Area-level deprivation has been found in numerous UK-wide and international studies to be associated with low birth weight in children (Dibben, Sigala, and Macfarlane 2006), reduced physical and mental health (Bécares et al. 2012), increased child mortality (Taylor-Robinson et al. 2019) as well as a reduced social cohesion of families and communities (Haynes and Gale 2000; Lawlor et al. 2005; McCulloch, Mohan, and Smith 2012). Area-level deprivation can have pernicious effects on the well-being of both families and communities, with a marked negative impact on life chances (Wilkinson and Pickett, 2010). With reference to children's social care, Bywaters and colleagues have added to the generic literature by probing associations between rates of children involved with statutory children's services and deprivation, as well as rates of children's entry to care (Bywaters, Brady, et al. 2016; Webb et al. 2020; Bywaters, Bunting, et al. 2016). As we might expect, in areas of greater socio-economic deprivation, children were found to be more likely in receipt of child protection services, and in addition, more likely to enter care.

¹ In Wales, children can also enter public care on a voluntary basis, with parental agreement under s.76 of the Social Services and Well-being (Wales) Act 2014. This repealed Part 3 of the Children Act 1989 in Wales, whereby children entered care on a voluntary basis under s.20 (which still applies in England). This report is concerned with children subject to care proceedings, not those who enter care on a voluntary basis.

Composite measures of deprivation – uses and limitations

There is much more to be done to probe the relationship between socio-economic deprivation and either children's social care or family justice involvement. Previous research has not systematically distinguished between *different domains* of deprivation in the UK and family court involvement. Most studies have measured area-level deprivation by using *composite* multiple deprivation indices that consider in combination, domains such as income, health, employment, education and crime. In Wales, the Welsh Index of Multiple Deprivation (WIMD) is the official measure of relative deprivation for small areas. The WIMD consists of eight domains of deprivation,² each with a number of underlying indicators, some of which are measured annually (Stats Wales 2014). The overall index is published every four years, with the most recent data published in 2019 (Stats Wales 2019).

The use of composite measures has several drawbacks which include inconsistencies and changes in the composition of domain indicators over time. When composite measures are not harmonised, this impedes comparison both over time and cross-nationally. Whilst composite measures tend to have greater statistical power, for these reasons their value may also be limited. Of specific relevance to this report, composite measures tend to brush over the differential effects of deprivation domains, providing policy makers with insufficient direction regarding the investment of limited resources.

To expand, area-level income, health, education and crime levels may have different effects on family well-being and resilience and, therefore, on children's risk of becoming subjects in care proceedings. For these reasons, it is important to unpack the different deprivation domains and more precisely pinpoint the specific domains associated with heightened risk of care proceedings. Different domains warrant very different types of intervention. Asking and answering questions about the wider environment or ecology of family life is critical to understanding the contextual factors associated with children's involvement in the family justice system. This report adds to a body of literature, which seeks to challenge a narrow focus on parental risk (Duschinsky et al., 2020), as we search for solutions to the current care crisis.

Research questions

Using child-level, full-service population data collected routinely by Cafcass Cymru concerning care proceedings (between calendar years 2014 and 2018), this report provides new empirical evidence about associations between deprivation and incidence rates of infants and older children subject to care proceedings across the 22 local authorities (LAs) in Wales. Significantly, our analysis unpacks the impact of the eight deprivation domains: income, employment, health, educational, community safety, access to services, housing and physical environment deprivation. The research questions are as follows:

- How are the different domains of area-level deprivation associated with the rates of children appearing in care proceedings in Wales?
- Do these associations differ for different age groups of infants and children?
- Do these associations vary over time?

Detailed analysis of questions of local authority spend are beyond the scope of this study. However, we have included 'spend' (net expenditure for family support) as a control variable.

² The WIMD domains of deprivation are income, employment, health, education, access to services, community safety, physical environment and housing.

2. Data and methods

Administrative data collected and maintained by Cafcass Cymru was acquired by the SAIL Databank. The SAIL Databank contains extensive anonymised health and administrative data about the population of Wales, which is accessible via a secure privacy-protecting data sharing platform, underpinned by an innovative and proportionate information governance model (Ford et al. 2009; Jones et al. 2014, 2019). Our use of this data has been subject to review and approval by the SAIL Information Governance Review Panel (IGRP). We analysed de-identified data, within the privacy-protecting environment or the SAIL Gateway. The SAIL Gateway safeguards the data but in addition, adds further layers of security through standardised disclosure controls, for example, in the case of rare events or small numbers.

The study used Cafcass Cymru administrative data for all children (N=7,381)³ who were subject to care proceedings in Wales under s.31 of the Children Act 1989, between calendar years 2014 to 2018. This timeframe was chosen in order to be able to link the data to local authority-level data on the eight area-level deprivation domains. The earliest reliable and comparable deprivation domains data for Welsh local authorities (LAs) are from 2014, as both the local area boundaries and the composition of the deprivation domain measures changed between 2011 and 2014 (Stats Wales 2014). Because deprivation domain data was not published by the Welsh statistics office for the year 2018, we supplemented the latest available deprivation data from the year 2019. We made the reasonable assumption, that within a single year (2019) that deprivation levels have not changed significantly. Data quality review found only a very small number of missing values: 14 children aged 0 to 15 were excluded as they had no valid date of birth and 16 children could not be allocated to a local authority (LA). From the main *Born into care* (BIC) dataset, 91 records of children aged 16 and 17 were excluded from the analysis because this report focuses on children of compulsory school age and below, rather than post 16 education.

2.1 Incidence rates of children care proceedings in family courts

The level of analysis of this report is the aggregate level of local authorities (LA). The incidence rate of children subject to care proceedings per LA is the dependent variable of our analyses. We calculated incidence rates of children in care proceedings for each of the following four child age groups within the 22 Welsh LAs: infants (children aged less than one year old, s (N=2,139), children aged one to four years (N=1,897), children aged five to nine years (N=1,709) and children aged ten to fifteen years (N=1,620). The Cafcass Cymru data was linked to area-deprivation domain data for the 22 Welsh local authorities (LAs), published by the Welsh Government (Stats Wales 2019, Stats Wales 2019a) and to publicly available social care data on the local authority's net expenditure for family support services (Stats Wales 2014; Stats Wales 2019). Family support services expenditure is an important control variable because local governments' provision of support services is likely to influence the incidence rates of children who are subjects in s.31 care proceedings. That said, to fully interrogate the impact of spend would require more detailed measures than simply net expenditure on family support.

³ This is the total number of child-case records for children under 16 between 2014 and 2018, 16 records had no LA and were therefore excluded from the analyses (as areas are the unit of analysis).

The deprivation and family support services expenditure data were then linked to the local authority (LA) identifier of each child. The incidence rate of children subject to care proceedings per LA is the number of child-cases of each age group per LA divided by the population size of each age group per 1,000 of the LA's population.

Following these steps, we then created two datasets as follows:

Firstly, an aggregate dataset was created with the child incidence rates for the years 2014 to 2018 per LA and linked to the eight deprivation domains for the years 2014 and 2019. The 22 Welsh LAs were the units of analysis. This dataset was used to describe and map incidence rates and deprivation domain scores, across LAs. We made use of the deprivation scores for the year 2019, rather than 2018, because this was the closest year available. Deprivation domain data was not collected in 2018 by the Welsh statistics agency, as above.

Secondly, we analysed the relationships between deprivation domains and the incidence rates (of children subject to care proceedings) by the age of the child, the year of incidence and by the deprivation domain components scores of the areas using mixed effects Poisson regression modelling. For this, a long-shaped dataset with time-point observations for each of the four age groups by area (LA) was created with N=440 time-point-by-age-group-by-area observations⁴. The data was analysed in the SAIL Databank trusted research environment (TRE), as above, via Swansea University, who hold the Cafcass data (Johnson et al. 2020).

2.2 Deprivation domains

Deprivation domains are the main independent variables for this report. The Welsh government publishes annual data on eight area-deprivation domains, income, employment, education, health, community safety, housing, access to services and physical environment deprivation. These domains are sub-indices, derived using exploratory factor analyses using several single measures of each domain (Stats Wales 2014, 2019). Their weighted scores make up the Welsh Index of Multiple Deprivation (WIMD). Detailed information about each deprivation domain and its underlying items can be found in the Welsh Government Statistics' technical report document on the WIMD domains (Stats Wales 2019; see also Appendix 4 of the same report). The Welsh government statistics authority (Stats Wales) recommends that analyses which aim to disaggregate multiple deprivation should use the domain scores at the LA-level, rather than individual items that were included in these domains. The Welsh government provides data on the deprivation domains per LA as the percentage of Lower layer Super Output Areas (LSOA) within each LA that are within the 20% most deprived quantile of all LSOAs nation-wide (Wales-wide). For the analyses of this report, the deprivation domain data from Stats Wales was brought into the safe SAIL data environment and linked to the LA identifier of each child case, at the point of issue of s31 care proceedings for each child.

2.3 Control variable – net expenditure for social care services, supporting families

It is important to take local policymaking regarding families and children into account in social research, as decisions of national and local area policy makers are, of course, implicated in rates of care proceedings. Furthermore, policymakers do respond to deprivation — hence the two are correlated. The effects of deprivation variables may therefore be masked (or moderated) by the impact of local policymaking. Robinson et al (2019) found that policies such as New Labour's English health inequalities strategy had beneficial effects on infant mortality. We might expect to see similar positive impacts on

⁴ The N=440 is based on 7,379 child-case records aggregated to create 440 observations (5 years window x 4 age groups X 22 LAs).

rates of s.31 care proceedings, where effective policy enables children to remain safely with their families.

We, therefore, included the local government's net expenditure for family support, social care services as a control variable in our statistical models. Control-variables are variables whose effect is accounted for, while at the same time exploring the primary focus on deprivation. The net expenditure for family support services is a measure of social care policy at the local government level and is measured as the net expenditure in government grants per LA in Thousands £.⁵ The social care data is publicly available on the Welsh government statistics website (Stats Wales 2020). We performed a bivariate Pearson's R correlation of family support services expenditure with the deprivation domains, finding a modest positive correlation with all deprivation domains. This means that government expenditure for family and child support services is, as expected, higher in deprived areas, indicating greater need for family support in these areas. This observation is largely in keeping with earlier research from Bywaters and colleagues (2016). However, as above, a full analysis of the proportion of variance in rates of care proceedings, attributed to patterns of expenditure or other local area policy decisions was beyond the scope of this study, but is certainly an important avenue of enquiry for future research.

2.4 Analysis strategy

We present the data in three steps, reflecting different elements of our analysis strategy. First, incidence rates for children in care proceedings per LA and statistics concerning area-level deprivation scores per LA are presented and visualized via boxplots. This gives us an important and accessible picture of the levels of deprivation that infants and older children were experiencing, at the point of issue of their s31 care proceedings and of the LAs' rates of children entering care.

Secondly, we visualized the child incidence rates per LAs using bivariate choropleth maps (these are maps that colour code a variable of interest, thus, visualizing differences between areas). For data protection reasons, the maps depict differences for LAs which have numbers of care proceedings above 4 (this is to prevent any risk of identity disclosure). For the same reason, the choropleth maps showing incidence rates for children older than 1 year of age can only be displayed in 3 broad categories. We also present changes over time in child incidence rates, per LA using line charts.

Finally, we present the third step in our analysis, based on statistical modelling of the incidence rates for children subject to care proceedings in Wales per local authority. The mixed effect Poisson regression model accounts for time (year), the ages of the children (grouped) and deprivation variables. Due to a high correlation (multi-collinearity) between some of the deprivation domain measures (income, employment, education and health), it was not possible to include all domains at the same time. Hence several models were run, each exploring the statistical effect of one deprivation domain while controlling for two other deprivation domains and for the LA net expenditure for family support services.

[Appendix table 1](#) shows detailed summary statistics of the variables used in the report

A list and a map of all local authorities in Wales can be found on the website of the Office for National Statistics (ONS 2020).

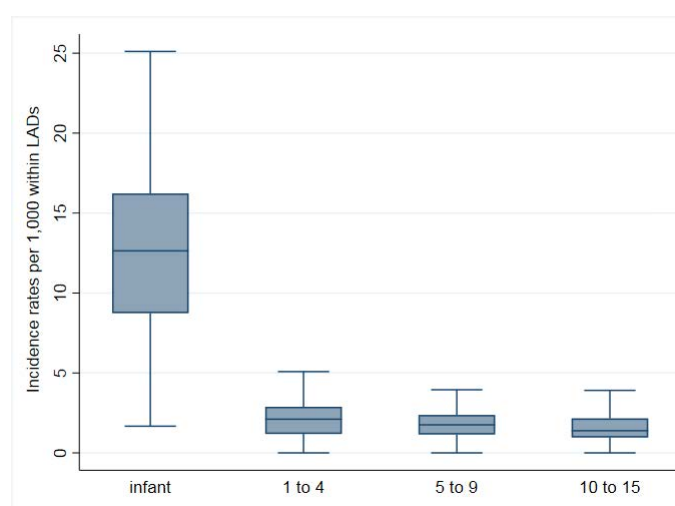
⁵ The N=440 is based on 7,379 child-case records aggregated to create 440 observations (5 years window x 4 age groups X 22 LAs).

3. Findings – area deprivation and infants in care proceedings

This section provides a descriptive overview of local authority-level incidence rates, for children subject to care proceedings in Wales. Incidence rates for each age group are expressed as the number of care proceedings per 1,000 children in the general population, with rates averaged over the period 2014 to 2018.

Figure 1 plots local authority-level incidence rates for each of the four age groups of children. The median (or middle value) is shown by the central line, with the boxes indicating the 25th and 75th percentiles, or middle half of the distribution, and the whiskers indicating the minimum and maximum values. Extreme high or low rates (outliers) are not plotted.

Figure 1: Boxplots of local authority-level incidence rates for children subject to care proceedings per 1,000 children in the population, by age group (2014-2018)



Note: The Boxplot excludes outliers.

Firstly, **we see a large difference in the median incidence rates for infants compared to older children.** The median local authority-level incidence rate for infants subject to care proceedings per 1,000 children in the population is much higher than those for older children. Put simply, this means that infants (aged less than 1 year) are far more likely to appear in care proceedings, than older children). The median rate for infants is 12.6 per 1,000, while the incidence rate for children aged one to four years is 2.1, the incidence rate for children aged five to nine years is 1.7, and the incidence rate for children aged ten or over is 1.4 per 1,000 children in the population.

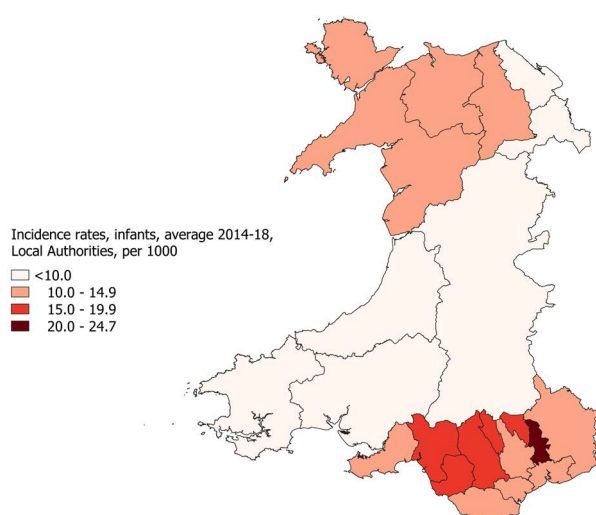
Secondly, **the incidence rates for infants show much larger variation across local authorities than those for older children,** and the maximum rate for infants is 25 per 1,000, while the maximum values for older children do not exceed five per 1,000.

3.1 Mapping the incidence rates of children entering care proceedings

In this section, we map the incidence rates of children who were subject to care proceedings per 1,000 children in the population, for local authorities across Wales. Maps are shown separately for each of the four age groups, with rates averaged across the years 2014 to 2018.

Figure 2 shows the incidence rates for infants (children aged less than 1 year old). We can **see a clear clustering of high rates of care proceedings in some fringe and urban areas**⁶ of South Wales, with the highest rates seen in some of the Valley authorities – Torfaen (above 20 per 1,000 children in the population), Blaenau Gwent, Merthyr Tydfil, Rhondda Cynon Taf, Neath Port Talbot and Bridgend all had incidence rates of between 15 and 20 per 1,000 children in the population. There is also some clustering in the other (mainly urban) authorities in South Wales, and some of the rural authorities in North Wales. Lower incidence rates tend to be seen in the other rural local authorities in mid-Wales.

Figure 2: Choropleth map of the incidence rates of infants subject to care proceedings per 1,000 children in population (2014 – 2018)



Figures 3 to 5 display the local authority-level incidence rates for children aged one to four years, five to nine years and ten and over. To avoid any risk of disclosure, the rates for these older age groups can only be displayed in three broad categories, **although this still provides an informative picture of the spatial clustering of high incidence rates of care proceedings.**

We see from the maps that, **as for infants, high incidence rates of care proceedings for older children are mostly clustered in the Valley local authorities of South Wales** – particularly the semi-urban and urban areas of Torfaen, Blaenau Gwent and Merthyr Tydfil. In North Wales, the only local authority with a high incidence rate of care proceedings for these older age groups of children is the Isle of Anglesey.

However, the overall incidence rates of older children entering care proceedings are much lower than those for infants, hence these incidence rates need to be interpreted with care. This is particularly the case for areas with a relatively low population density, such as the Isle of Anglesey. **Variation in the presence of small numbers needs to be interpreted with great care**, given that small numbers are far less reliable and that there is also considerable variation over time, as later parts of this report show, with some areas showing a peak in their incidence rates at one time-point, but much lower incidence rates in other years.

⁶ This report uses the rural – urban and fringe definitions of the Department for Environment, Food & Rural Affairs (Bibby and Shepherd, 2011).

Figure 3: Choropleth map of the incidence rates of children aged one to four years subject to care proceedings per 1,000 children in population (2014 – 2018)

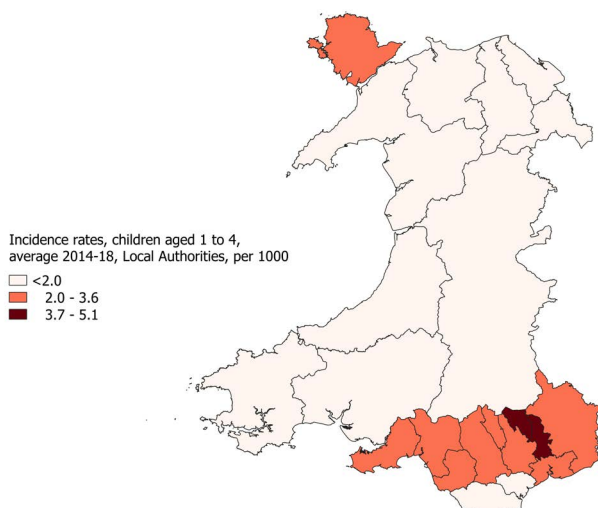


Figure 4: Choropleth map of the incidence rates of children aged five to nine years subject to care proceedings per 1,000 children in population (2014 – 2018)

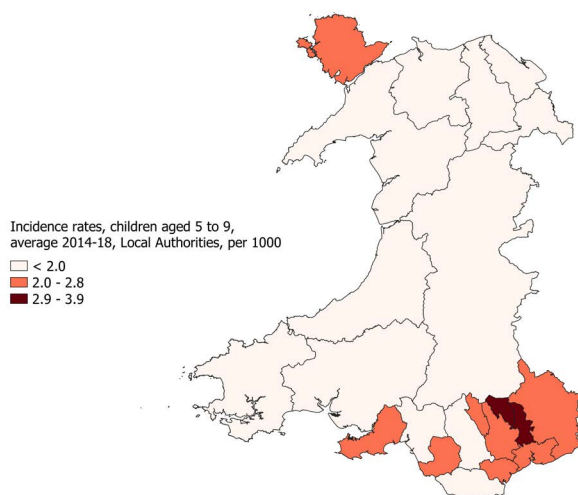
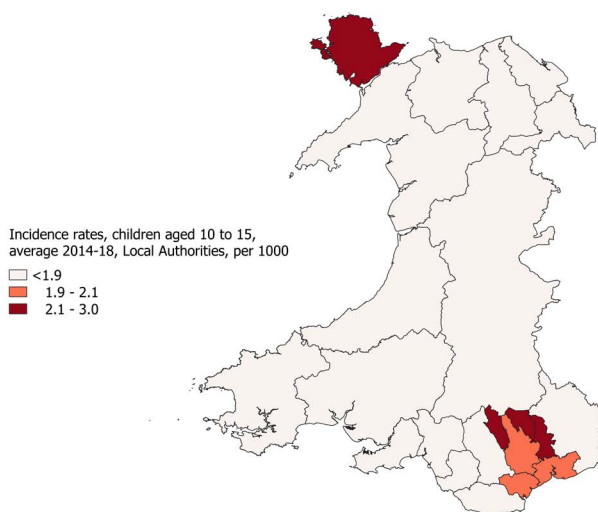


Figure 5: Choropleth map of the incidence rates of children aged ten years and above subject to care proceedings per 1,000 children in population (2014 – 2018)



3.2 Area-level Deprivation

In this section we consider average (mean) incidence rates of children (of all ages) entering care proceedings for each of the eight deprivation domains, with rates averaged across the period 2014-2018. Bar charts are used to indicate the mean incidence rates and 95% confidence intervals by deprivation quantiles. Each quantile represents a quarter of local authorities, from the least deprived to the most deprived, based on the percentage of Lower layer Super Output Areas (LSOA) within each LA that are within the 20% most deprived quantile of all LSOAs nation-wide (Wales-wide). Figures 6 to 11 show a differentiated picture for the different domains of deprivation.

We can see that for most deprivation domains, except physical environment and access to services domains, there are differences in the incidence rates by deprivation quantiles, with the two most deprived quantiles showing the highest incidence rates of care proceedings. **However, these differences are only statistically significant for the income, employment, health and education domains. For these deprivation domains, the association appears strong and statistically significant.** The bar charts also show that the differences are only statistically significant for the comparison between local authorities in the most deprived quantile and the two least deprived quantiles. The differences between the two most deprived quantiles are not statistically significant.

Figure 6: Bar charts of incidence rates of children in care proceedings by income deprivation

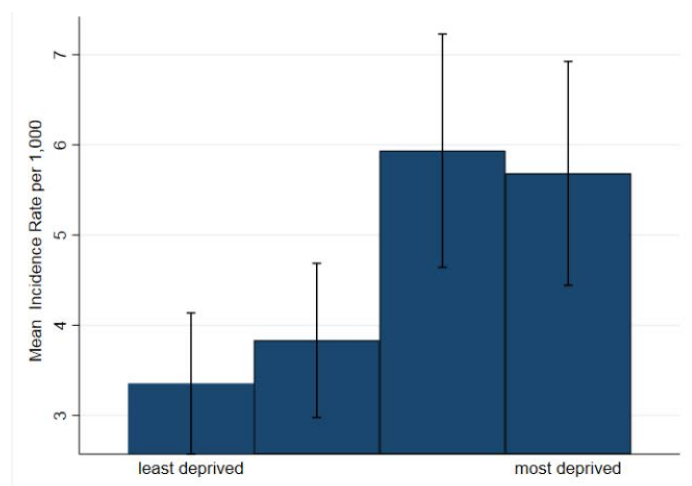


Figure 7: Bar charts of incidence rates of children in care proceedings by employment deprivation

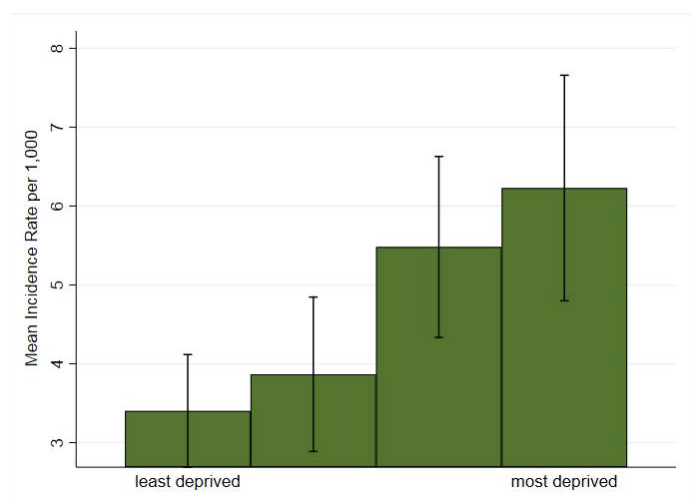


Figure 8: Bar charts of incidence rates of children in care proceedings by education deprivation

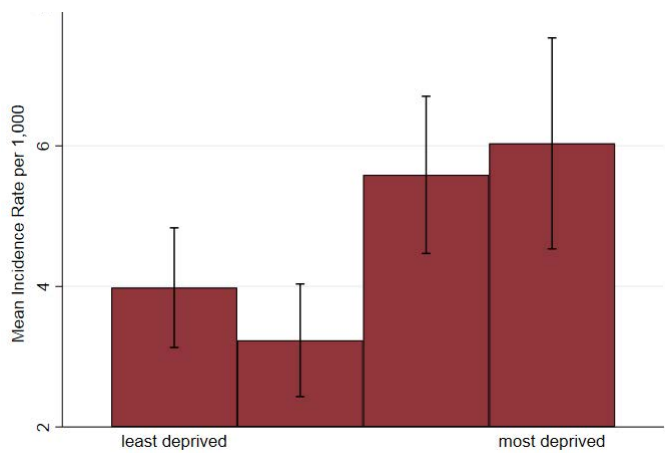


Figure 9: Bar charts of incidence rates of children in care proceedings by health deprivation

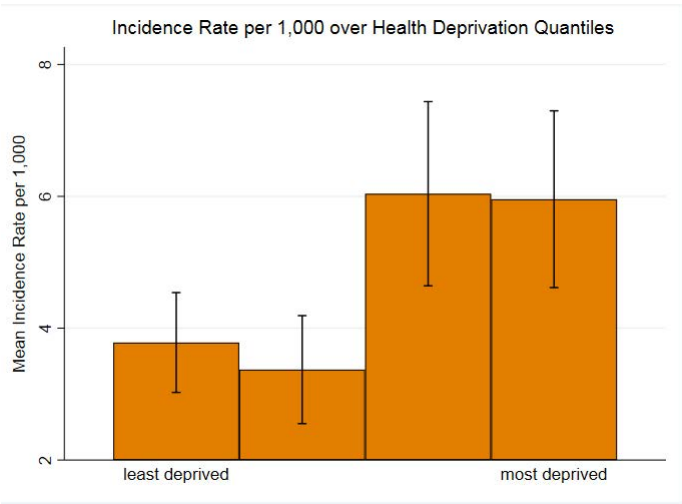


Figure 10: Bar charts of incidence rates of children in care proceedings by community safety deprivation

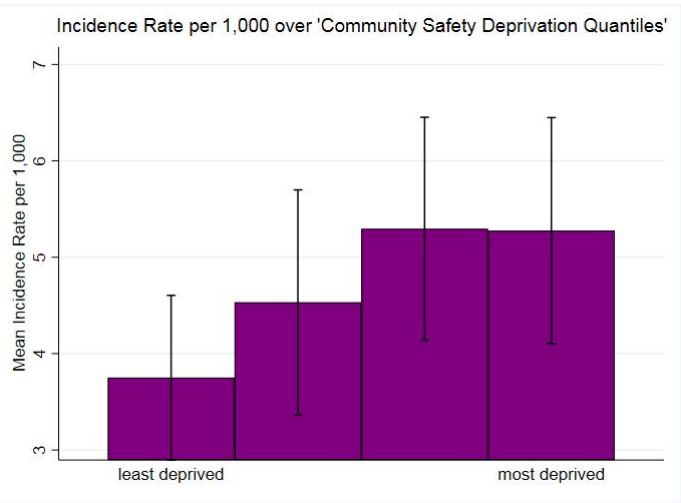


Figure 11: Bar charts of incidence rates of children in care proceedings by physical environment deprivation

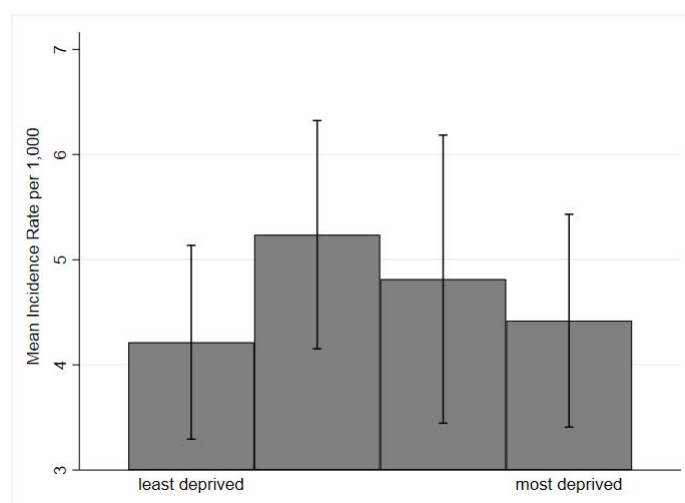
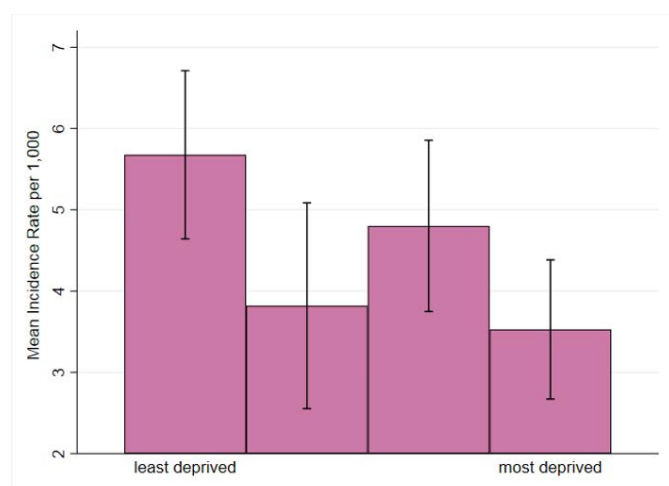


Figure 12: Bar charts of incidence rates of children in care proceedings by access to services deprivation



In order to visualize the relationships for each LA between deprivation and child incidence rates in care proceedings, we provided scatter plots for each of the deprivation domains that exhibit a statistically significant association with the incidence rates in Appendix 2. These domains are income, employment, education and health.

The scatterplots show that there is a modest association between these four deprivation domains and incidence rates of children in s31 care proceedings, but they also show a large variation and several outliers that deviate from the general pattern. Both **Torfaen and Merthyr Tydfil display unusually high child incidence rates in care proceedings, but although they also do show elevated deprivation levels, they are not the most deprived areas. Blaenau Gwent and Newport, on the other hand, both have high levels of deprivation on all four domains, but much lower incidence rates than Torfaen and Merthyr Tydfil (although their child incidence rates are still above average).** The Isle of Anglesey exhibits above average incidence rates of older children only in 2018, but not in 2014, hence we would need to look at future data in order to interpret this difference. This is especially true, as already said, in the presence of small numbers and considering that we are interpreting differences between only 22 LAs.

It is noteworthy that several LAs, including outliers such as Merthyr Tydfil contain several smaller geographies (LSOA) which suffer from deep-rooted deprivation (Appendix 5). The Welsh Statistics Agency (Stats Wales) defines deep-rooted deprivation as areas that have persistently been among the 50 most deprived areas in five consecutive government reports on deprivation (2005 to 2019). Such small areas with deep-rooted deprivation, which are hidden under the overall lower deprivation rates of the larger surrounding LAs, may help explain the elevated incidence rates in some areas.

However, the large variation in the patterns also indicates that there are other factors, apart from deprivation, which also contribute to explaining child incidence rates in s31 care proceedings.

3.3 Change over time

In order to explore the patterns of incidence rates in Welsh LAs over time, we created line charts of the incidence rates by age group and area (Figures 13 to 17). Unfortunately, an over-time comparison of the deprivation domains is not possible due to changes in the composition and weighting of deprivation measures between 2014 and 2018. Nevertheless, the line charts offer insights into which areas have experienced an increase in the rates of children subject to care proceedings. As can be expected, there is some fluctuation. **The majority of LAs do not exhibit substantially significant patterns of change over time.** Although, some areas exhibit stubborn patterns of above-average incidence rates. A small number of LAs do show significant and consistent increases and these tend to be areas that have higher than average incidence rates at baseline: **Torfaen not only stands out by comparatively high incidence rates across all child age groups, but also shows a considerable increase in these rates over time. Merthyr Tydfil also shows consistent and sustained increases over time, especially of its infant rates, but also for older children.** Blaenau Gwent is another area with high incidence rates of children of all age groups at baseline, however its infant incidence rate has decreased since 2017, and its incidence rates for older children also decreased since 2015. Still, Blaenau Gwent retained above average incidence rates still in 2018, albeit lower than Torfaen and Merthyr Tydfil.

In terms of the current direction of Welsh Government policy, **Bridgend is a positive example: although being in the highest quantile in 2014 with an infant incidence rate of almost 20 per thousand, Bridgend has seen a good decrease in its infant incidence rate since 2016, and also in the incidence rates for older children.** Perhaps, this might be related to successful policies at the local level to prevent the reception of children into care. Denbighshire saw an increase from a rate of 10 to a rate of 19 per thousand between 2014 and 2016, followed by a decrease to a rate of eight per thousand between 2016 and 2018.

Fluctuation is seen especially in the rates of older children for some LAs, however, due to the small numbers in the rates of older children of all LAs, these fluctuations need to be interpreted with caution. Regarding Welsh Government policy objectives to reduce the number of children entering care - the good news here is that the rates for older children are small across the board, however, the bad news is that the rates for infants are significantly higher.

Of course, drawing evaluative conclusions from statistical descriptions such as these, starts, rather than closes conversations about rates of children entering care. The material we present is best used to stimulate conversation among similarly deprived, but differently 'performing' local authorities, to gain practitioner insights into these local area patterns.

Figure 13: Line chart of incidence rates of infants by local authority, North Wales

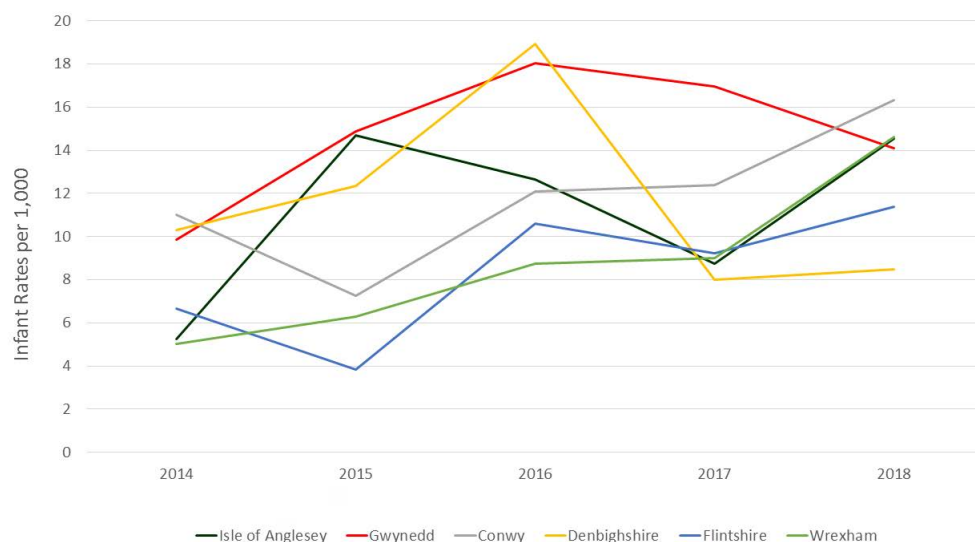


Figure 14: Line chart of incidence rates of older children by local authority, North Wales

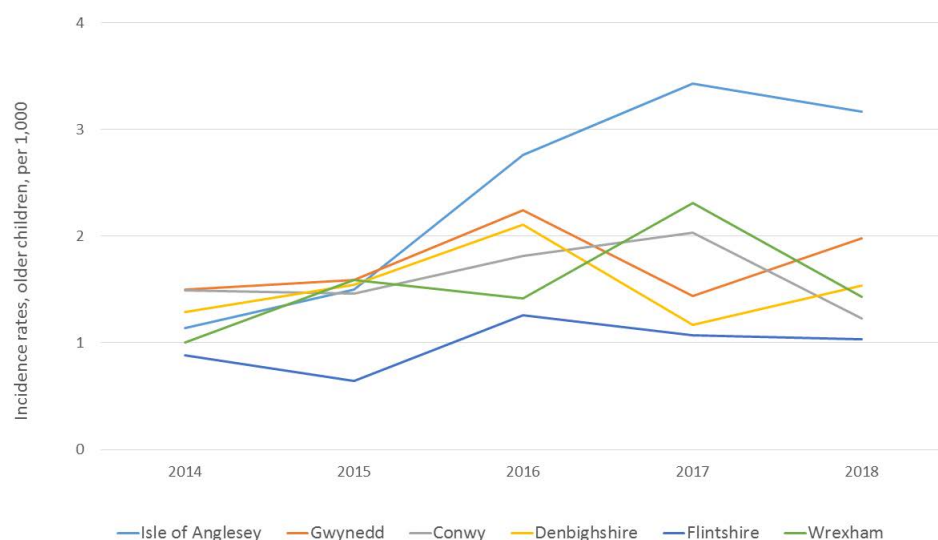


Figure 15: Line chart of incidence rates of infants by local authority, Wales Central

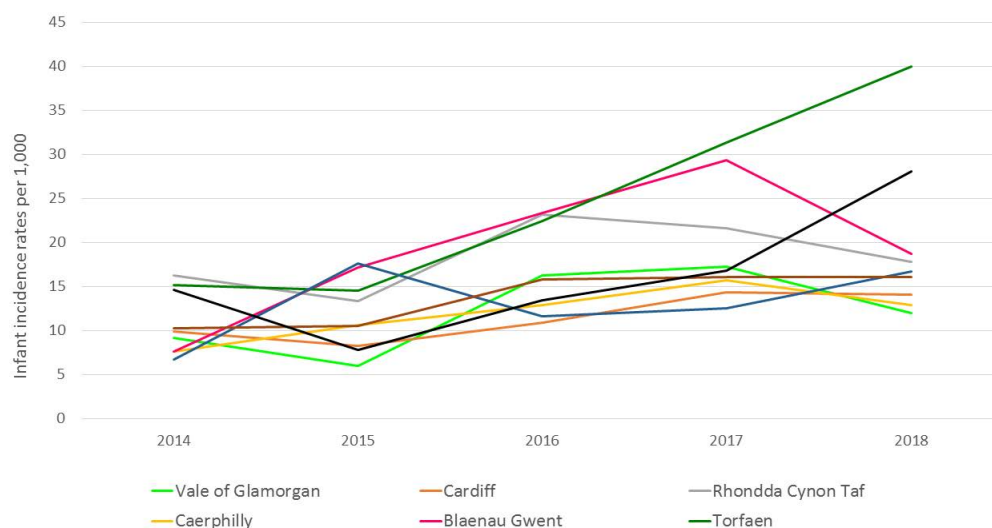


Figure 16: Line chart of incidence rates of older children by local authority, Wales Central

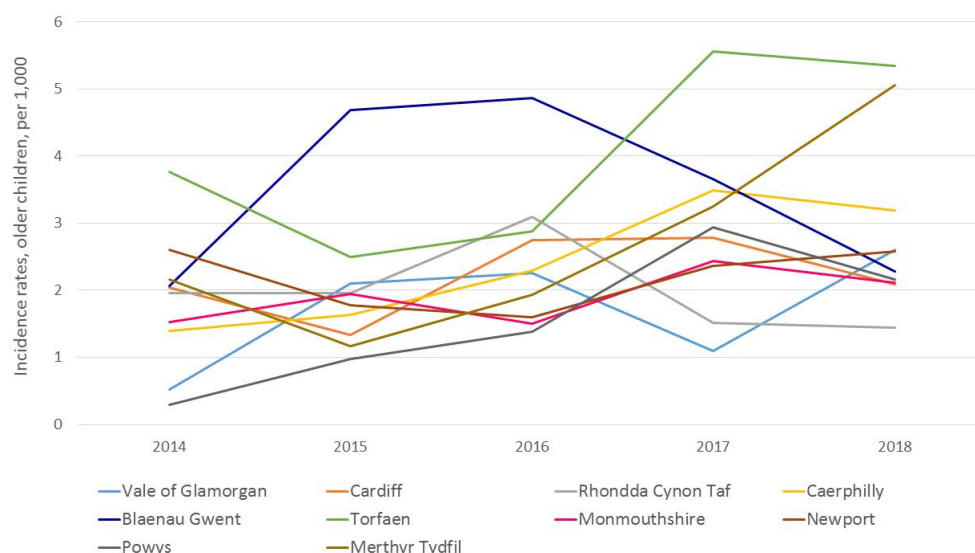


Figure 17: Line chart of incidence rates of infants by local authority, South Wales

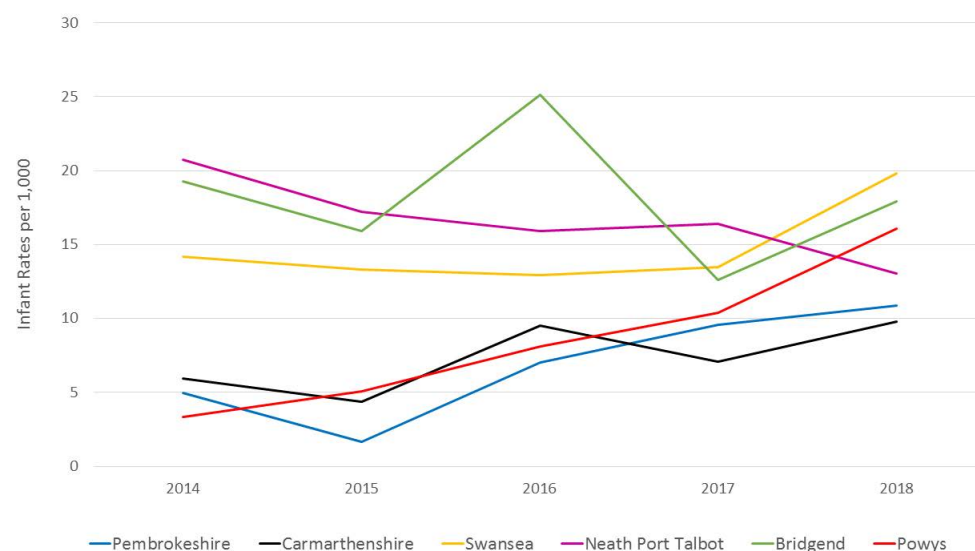
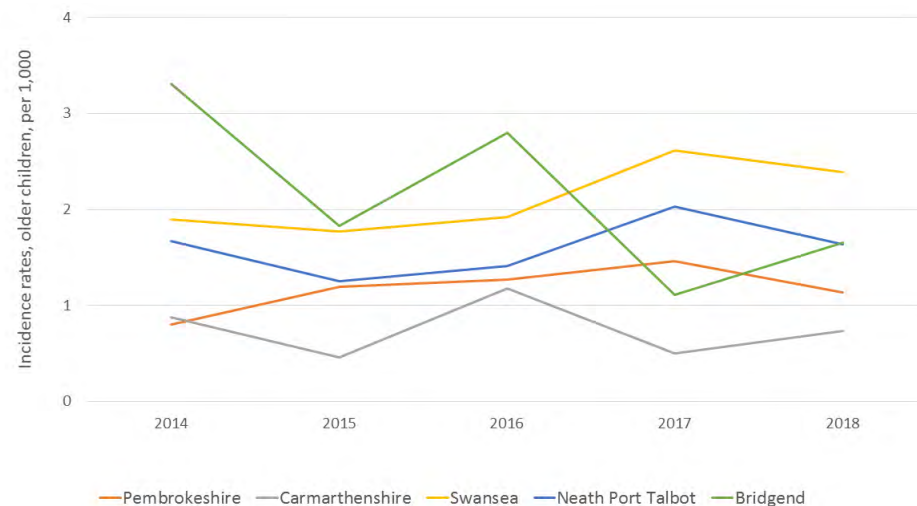


Figure 18: Line chart of incidence rates of older children by local authority, South Wales



3.4 Exploring relationships between different deprivation domains and incidence rates

The third step of the analysis was to explore the relationships between different deprivation domains and the incidence rates for children subject to care proceedings using mixed effects Poisson regressions. Poisson regressions test for the effect of each deprivation domain, while controlling for the effects of the other deprivation domains. Poisson is a regression technique for dependent variables that are counts. The unit of analysis is N=440 time-points by LA by child-age groups. Table 2 in the Appendix displays the coefficients of the final models and tests for the model fit. The regressions were run stepwise. Each deprivation domain was included on its own before adjusting the models for the effects of other variables. Due to the high correlations between the income, educational, employment and health domains (multicollinearity), we could not include all deprivation domains in one model, but instead ran separate models for these domains while controlling for the effects of the access to services and physical environment domains in each model. We also included the LAs net expenditure for social care services supporting families as a measure of social policy activity. It is important to control for differences in local policy making regarding families and children, as this can affect child incidence rates in care proceedings. Deprivation variables may therefore mask the influence of local policy making, and vice versa. Lastly, we are also interested in differences in the incidence rates by age, hence the models include the three youngest age groups, while holding the oldest constant as the reference category.

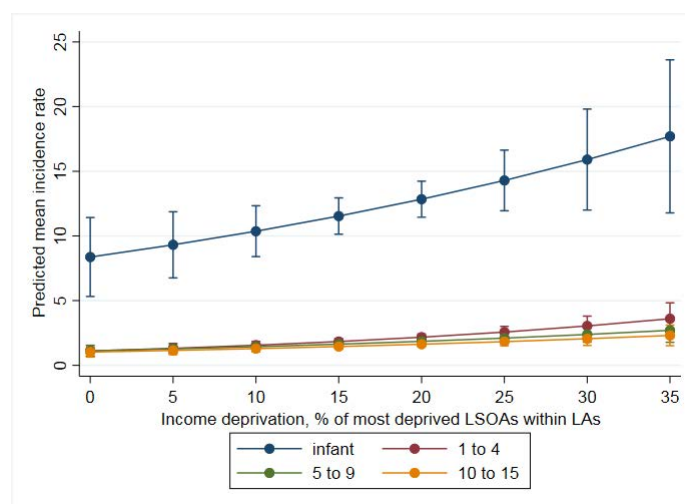
We see from the model coefficients in Table 2 that the variation in the children's incidence rates by the year, which is shown in the line charts is statistically significant and that the large difference between infants and older children is also statistically significant. Infants have incidence rates for care proceedings that are 8 times higher than children aged 10 to 15.

Of the deprivation domains, only income, education, health and employment are statistically significantly related to higher incidence rates of children in care proceedings.

Local governments' net expenditure for family support services, whilst showing a modest statistically significant bivariate correlation coefficient of 0.38 when correlated with s31 incidence rates, is not statistically significant, once deprivation domains are included in the model. **This result shows that deprivation has a much stronger effect on the incidence rates of children subject to care proceedings than the local governments' expenditure on family support.** One caveat here is that government expenditure for family support was measured in £1000, rather than per head, which would have been more informative, but the latter measure is not available in the publicly available social care data.

An important finding from our descriptive statistics was that there are large differences regarding incidence rates, by child age. We, therefore, included interaction effects between the child age groups and those deprivation variables that showed statistically significant effects in our regression model. Figure 17 visualizes an interaction between income deprivation and incidence rates in care proceedings from a Poisson regression model. The lines are the marginal effects of each age group plotted by the level of income deprivation. **The line chart shows clearly that not only are the incidence rates of infants significantly higher than those of older children, but also that the statistically significant effect of income deprivation holds more strongly for infants than older children. The more income deprived an area is, the higher the incidence rates of infants.** The slope increases more steeply for infants than older children. Children aged 1 to 4 also show a significant effect of income deprivation at the highest levels of deprivation, while for older children we cannot detect a significant effect of income deprivation. This is very likely due to their much smaller numbers overall.

Figure 19: Interaction between income deprivation and the age of the children, from poisson regression



We also fitted models with interaction effects for the other deprivation domains that were shown to have statistically significant effects, education and employment deprivation. Interaction effects explore the joint effects of two independent variables – they tell us, whether the effect of one variable (e.g. income deprivation) varies by another (e.g. child age).

The interaction plots for these variables follow the same pattern as income deprivation: Again, we see from figures 17 to 19 that there is a large difference between infants and older children and again the increase in incidence rates by deprivation is particularly strong for infants. The slope increase for infants is particularly strong for employment deprivation (Figure 17).

Figure 20: Interaction between employment deprivation and the age of the children, from poisson regression

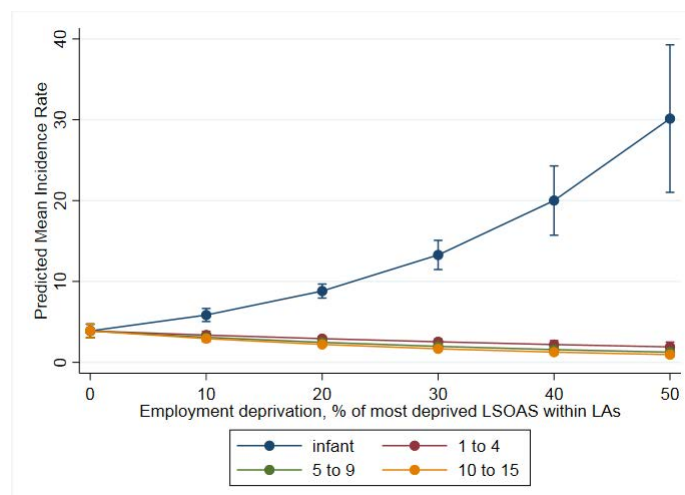


Figure 21: Interaction between education deprivation and the age of the children, from poisson regression

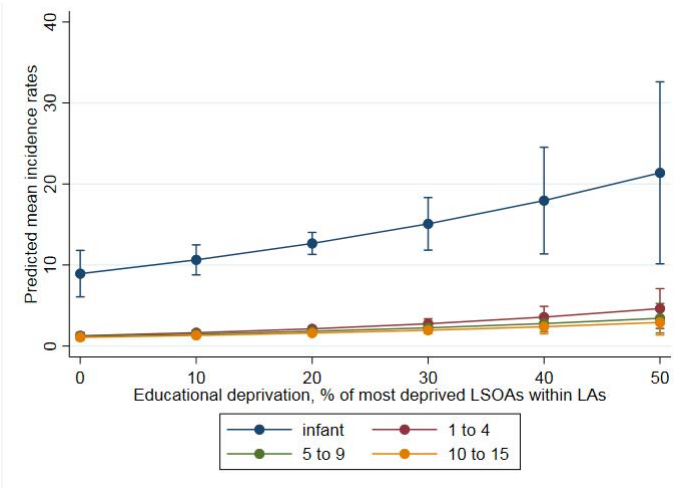
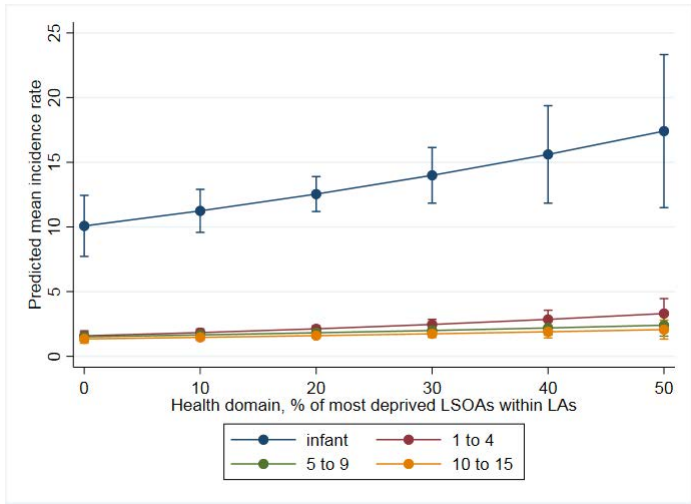


Figure 22: Interaction between health deprivation and the age of the children, from poisson regression



Discussion

This report adds to the insights already published regarding infants in care proceedings in England and Wales. The *Born into care* series was initiated by the Lancaster team (Broadhurst et al., 2018), because of the **far greater likelihood of infants appearing in care proceedings, than all other age categories of children**. This report, with analyses reported at the level of the local authority, once more confirms the vulnerability of infants. Infants are 8 times more likely than children aged 10-16, to appear in care proceedings in Wales.

Given the high rates of infant entry to care, infants are a priority group in terms of understanding the reasons behind their vulnerability. The Family Justice Data Partnership (Universities of Lancaster and Swansea) are completing a series of analyses which aim to uncover factors associated with infants appearing in the family justice system, with the aim of stimulating cross-sector conversations about decision-making and prevention. Asking questions about the **ecology of family life – that is the social-structural factors that shape the conditions of childhood and parenting** are critical to such analyses and debate.

In this report, we have explored relationships between specific domains of deprivation and rates of infants in care proceedings. Our aim has been to try to tease out, the domains of deprivation, which impact most strongly on incidence rates. **We found that of all eight domains, it is especially employment, and also income, health and education, that matter most, regarding rates of care proceedings, for infants and children.** The finding for employment was the most consistent, while the effect of the other domains is driven more by the outliers. The “access to services” deprivation domain (which is a measure of area remoteness) and an impaired physical environment (e.g., through pollution) were statistically unrelated to local authority incidence rates for children subject to care proceedings.

Furthermore, our tests of interactions between age and deprivation show, that the impact of deprivation was highest for infants than any other age group, when examined at the level of the local authority. It was also elevated for the group of children aged 1 to 4 year, but to a much lesser extent. **The younger the child group, the stronger the effect of employment, income and educational deprivation.**

As we might expect, when we examine rates of infant entry to care proceedings at the local authority level, we need to add some nuance to our claims. Our analysis highlights a few areas in South Wales, where incidence rates of children subject to care proceedings are above average and have increased between 2014 and 2018. In this regard, Torfaen and Merthyr Tydfil in particular stand out. It is noteworthy that whilst both areas have above-average deprivation levels, they are not *the* most deprived overall. Blaenau-Gwent, on the other hand, has high deprivation levels, but its incidence rates of children in care proceedings, whilst being above average, are much lower than those of Torfaen and Merthyr Tydfil. Neath Port Talbot saw a marked decrease in its child incidence rates, but saw its educational, employment and income deprivation increase between 2014 and 2019. Merthyr Tydfil, Neath Port Talbot, Bridgend, Swansea and Blaenau Gwent also have some pockets of neighbourhoods suffering from persistent deep-rooted deprivation over long periods of time. Bridgend has nevertheless seen a decrease in its infant incidence rate since 2016, and also in the incidence rates for older children, which might be due to successful policy interventions. Our findings indicate, that apart from deprivation, there clearly are other factors (beyond the scope of this report) which are also influencing rates of care proceedings.

The finding that a local authority's net expenditure for family support services is not statistically significantly related to the incidence of children appearing in care proceedings, once deprivation is included in the model, is as puzzling as it is interesting. Perhaps this is in part due to our measure picking up general (not specific) family support services. We should emphasize, though, that family support expenditure is (modestly) correlated with deprivation (see Appendix 3), as local governments intervene more to provide family support (in terms of spend) in the more deprived areas. Hence, deprivation currently still cancels out the (positive) effect of family support expenditure, when we look across all local authorities in Wales.

The outliers and special cases which we found will be of particular interest to policymakers in the region. To deepen our understanding of what is happening at a local level, a focused discussion with the outliers would be very valuable indeed. As stated earlier in our report, statistical analysis, starts rather than concludes conversations, particularly when we use a relatively small number of local authorities in our research. The picture we have uncovered for Bridgend is particularly noteworthy but can only be further illuminated through dialogue with local policy and practice colleagues.

Turning however, to our overall picture, our main result from this work is that employment especially, has a strong and more consistent influence on the rates of children subject to s31 care proceedings than other deprivation domains. Income, health and education are also statistically significant, but show a less consistent pattern over time.

This then poses the question of the required 'mix' of effective family support interventions. Can traditional social care family support services maximise their effectiveness, whilst the broader structural factors shaping family life, such as employment opportunities are insufficiently addressed? These are the kinds of questions raised by this study and require cross-cutting conversations which draw local authority leads into conversation with those setting broader social policy objectives. In the US and the UK, there is a small, but important body of literature focused on the relationship between unemployment and child maltreatment or neglect. Brown and De Cao (2018) argue that the relationship between economic hardship and child maltreatment, is poorly understood. The authors used data (2004 –2012) from the National Child Abuse and Neglect Data System (NCANDS) in the US, produced by the National Data Archive on Child Abuse and Neglect (NDACAN), to observe the relationship between reported incidents of child abuse and neglect and rising unemployment rates since the financial crash in 2008. A positive relationship was found, increasing unemployment rates were associated with increasing incidents of reported child neglect (rather than other types of abuse). Moreover, the level of unemployment benefits offered within individual states was found to make a difference to reported child neglect. During the economic crisis, US states that offered more generous benefits, saw lower rates of increased reporting of child neglect. The authors conclude that policies which aim to improve parents' employment security – and therefore economic security – may be fruitful in reducing child neglect. The findings from Brown and De Cao (2018) are important as most cases of care proceedings concern child neglect, rather than other forms of child maltreatment. Again, although our analyses are a first step in investigating the impact of specific domains of deprivation on rates of infants in the family justice system, it is notable that higher rates of unemployment are reported for several of the areas of Wales reporting higher rates of cases of care proceedings (e.g., Merthyr Tydfil), with unemployment rates continuing to rise in Wales due to the Covid-19 pandemic.

Given, the observations drawn in general about deprivation and infant entry to care – confirming observations from a growing body of evidence, we would agree with this point, and recent arguments made by Duschinsky et al. (2020), that the research evidence to-date, is weighted towards a focus on parental risk, at the expense of analyses of the wider socio-economic antecedents of child neglect or maltreatment. Paul Bywaters and colleagues have contributed much to remedy this bias, but we need to go further. Macro-economic decisions impact on family life and to-date, the relationship between these decisions and child neglect or maltreatment are insufficiently explored.

Study limitations

Finally, we must acknowledge some limitations. One limitation of this report is the problem of small numbers. The relatively small number of local authorities in Wales limits the statistical power and the statistical significance of some of our findings – we only have 22 local authorities to compare. Furthermore, due to small case numbers and the associated disclosure risk at the level of Lower Super Output Areas (LSOA), it was not possible to look at this smaller geography of neighbourhoods. The findings are more conclusive for the year 2014 than 2018, this might, in part, be due to changes in the deprivation measures in 2018, but could also indicate successful child and family support policy interventions in deprived areas. Due to documented changes of some domain indicators, the deprivation domains are not directly comparable over time (Stats Wales 2019). Our analysis demonstrates however, the value of unpacking deprivations domains, and **it would be highly informative to repeat this analysis for England, using the Cafcass England data now available in SAIL**. Where household level data is available (through, for example, the census) a more granular focus would also be possible.

A second limitation lies in the assumptions that can be drawn from the data. **The statistical finding of low incidence rates in some areas does not automatically signify that children fare better in these areas. Arguably, local authorities with low outlying results also raise questions. Similarly, high incidence rates of children undergoing care proceedings, to some extent, indicate that social services are working hard to address the needs of children in very difficult situations in these areas.** As above, further dialogue with stakeholders and complementary qualitative work would help interpret some of the patterns we found.

Conclusions

This report aimed to unpack associations between the eight deprivation domains of the Welsh Index of Multiple Deprivation (WIMD) and incidence rates of infants and older children that underwent public family law proceedings in the years 2014 to 2018. We found that simply using the Welsh multiple area deprivation overall scores and ranks would hide important differential effects of the different deprivation domains. In order to fully understand associations between area deprivation and the demand for court interventions affecting infants and older children we need to carefully look at the different deprivation domains separately. We found that of the eight deprivation domains, only employment, income, education and health matter for areas' incidence rates of children in care proceedings. Employment showed the most consistent correlational pattern of all deprivation domains over time (ie., across our observational window).

The question arises, to what extent our analysis picks up the **clustering of deprived households** within areas, rather than just deprivation of the geographical areas themselves. Our measures of income, employment, health and housing deprivation are based on aggregated **household-level** data (see Appendix 4), while the access to services, community safety and physical environment domain are picked up through other means. Interestingly, our deprivation measures that are based on **aggregated household-level data**, with the exception of housing deprivation, were all statistically significant, while the environmental deprivation measures that were not aggregated from households were not significant. **Our findings suggest that what really matters with regards to children's risk of entering s31 care proceedings is the broader ecology of family life – in particular of employment, but also income and health.**

Policymakers in Wales should pay particular attention to infants, as they are the group with the highest rates of children in care proceedings, and should pay attention to broader policies that strengthen gainful employment opportunities within areas, mitigate income deprivation and policies that tackle the broader public health of families within areas.

Future research should carry out similar analyses for England and explore if the patterns there are similar to Wales. The analysis should also take into account household-level measures, such as unemployment, occupational class and income deprivation of parental households. For this, further linkages to other data sources would be necessary.

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Appendix 1

Appendix 1, Table 1: Summary statistics of the variables used for the analysis

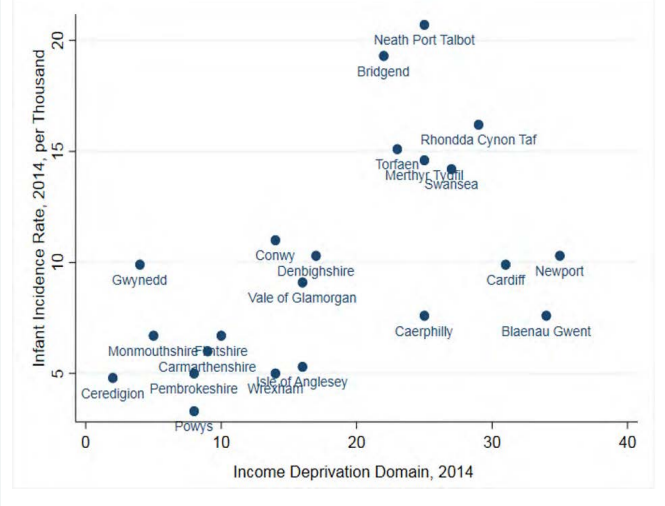
Variable	Obs.	Mean	Std. Dev.	Min	Max
Incidence rate per Thousand (of Local Authorities in Wales)	440	4.696	5.814	<0.08	39.96
Infant-rate per thousand of the population	110	13.023	6.212	<19	39.959
age1_4_rate_per_thousand of the population	110	2.225	1.364	<0.008	7.029
age5_9_rate_per_thousand of the population	110	1.883	1.074	<0.008	5.248
age10_15_re_per_thousand of the population	110	1.653	1.031	<0.008	5.209
<i>Deprivation</i>					
Income deprivation 2014	440	18.136	9.806	2	35
Employment deprivation 2014	440	19.363	13.962	0	51
Health deprivation 2014	440	18.591	14.063	0	47
Educational deprivation 2014	440	18.590	12.947	0	53
Access to services 2014	440	24.045	19.130	1	62
Community safety deprivation 2014	440	19.727	9.1367	7	47
Physical domain deprivation 2014	440	16.818	13.410	2	49
Housing deprivation 2014	440	19.409	13.335	2	48
Net expenditure for family support, own provision, 2018 in £ Thousand	440	1860.81	1539.188	112	7496
Net expenditure for social work child safeguarding, own provision 2018 in £ Thousand	440	4455.591	2422.257	978	8787
Net expenditure for targeted family support, 2018 in £ Thousand	440	1879.909	1816.387	75	7240
Net expenditure for all children looked after services, 2018 in £ Thousand	440	14117.23	10126.83	3393	50306
Year	440			2014	2018
Age split into four age groups, infants, aged 1 to 4 years, aged 5 to 9 years, aged 10 to 15 years	440	0.25	0.433		

Appendix 1, Table 2: Mixed effects poisson model of child incidence rates by deprivation

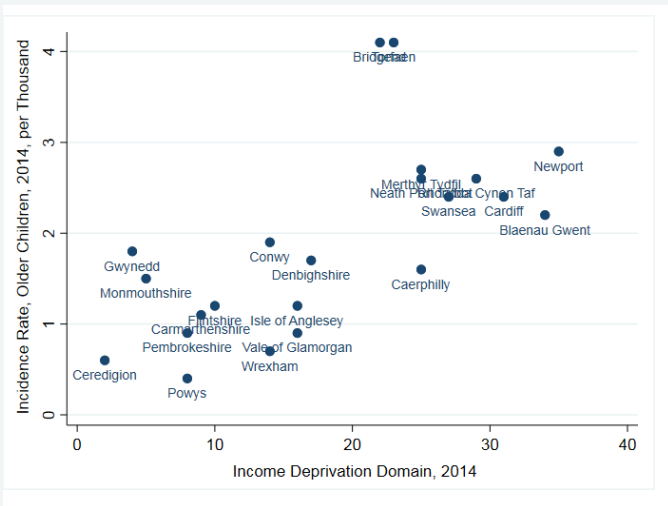
DV: child count	M1	M2	M3	M4	M5
	IRR	IRR	IRR	IRR	IRR
Year	1.096***	1.096***	1.096***	1.096***	1.096***
Age: Infant	8.045***	8.041***	8.042***	8.042***	8.042***
Age: 1 to 4 years	1.368***	1.367***	1.367***	1.368***	1.368***
Age: 5 to 9 years	1.173***	1.173***	1.173***	1.173***	1.173***
Age: 10 to 15 years (reference category)	1	1	1	1	1
Deprivation: Income Domain 2014		1.026*			
Deprivation: Employment Domain 2014			1.014*		
Deprivation: Health Domain 2014				1.010*	
Deprivation: Education Domain 20014					1.020*
Deprivation: Community Safety Domain 2014		1.003	1.005	1.01	0.995
Deprivation: Access to Services Domain 2014		0.998	0.996	0.995	0.995
Local Government's Net expenditure for Family Support Services		1	1	1	1
Constant	0.000***	0.000***	0.000***	0.000***	0.000***
Exposure variable (ln population)	1	1	1	1	1
Between-area variance	1.158**	1.069**	1.067**	1.080**	1.073**
N	440	440	440	440	440
LR test (compared with model not including area-level deprivation variables)		16.48	16.97	13.63	15.48
Log-Likelihood	-1503.657	-1495.318	-1495.17	-1496.84	-1495.92
AIC	3019.314	3010.637	3010.347	3013.68	3011.834
BIC	3043.834	3051.505	3051.215	3054.548	3052.702

Appendix 2: Scatterplots

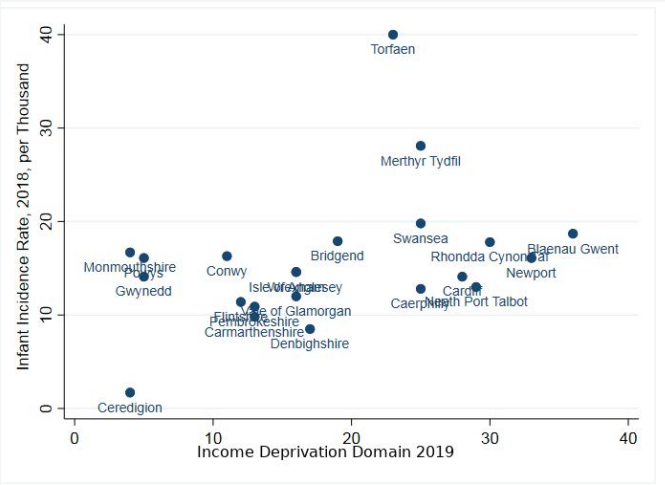
Appendix 2, Figure 1a: Infant incidence rates by income deprivation, 2014



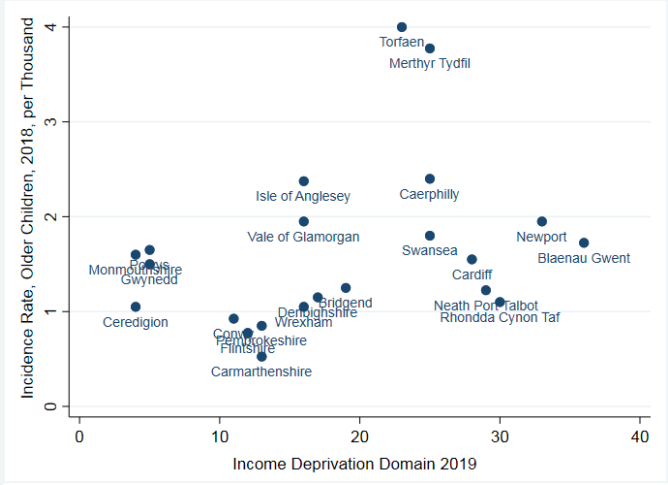
Appendix 2, Figure 2a: Incidence rates, older children (aged 1 to 5 years) by income deprivation, 2014



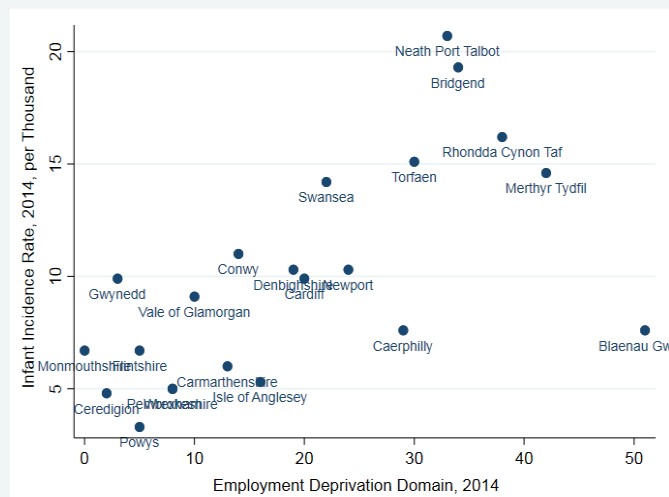
Appendix 2, Figure 1b: Infant incidence rates by income deprivation, 2018-19



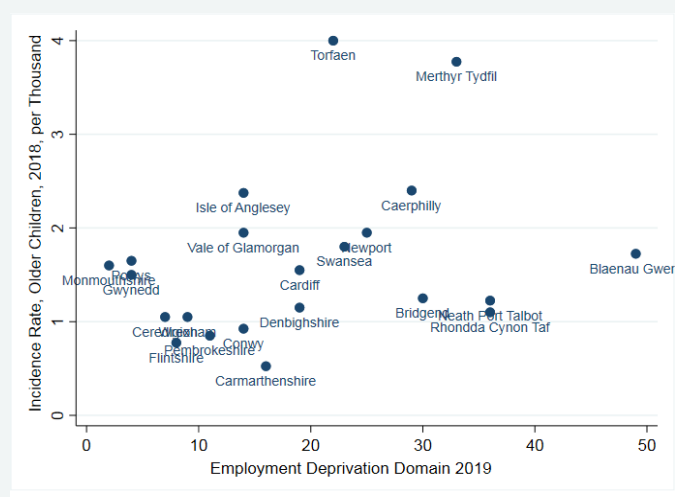
Appendix 2, Figure 2b: Incidence rates, older children (aged 1 to 5 years) by income deprivation, 2018-19



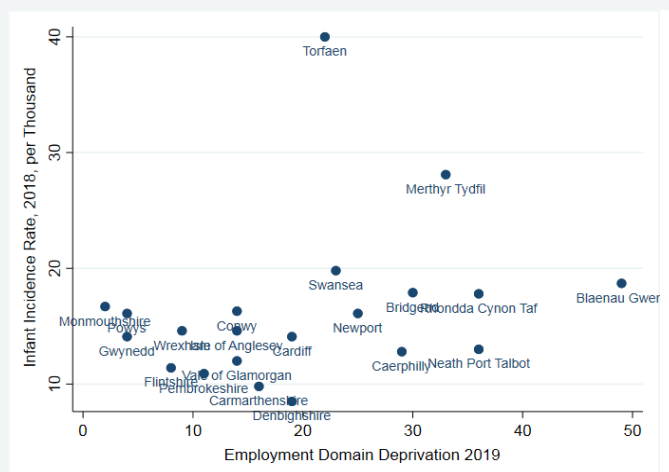
Appendix 2, Figure 3a: Infant incidence rates by employment deprivation, 2014



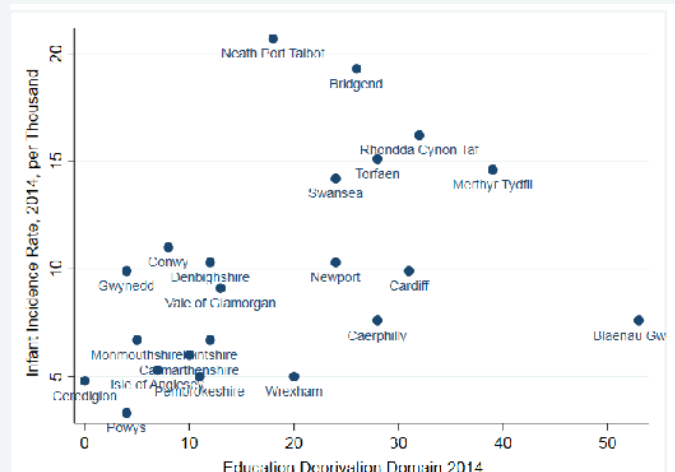
Appendix 2, Figure 4b: Incidence rates, older children (aged 1 to 5 years) by employment deprivation, 2018-19



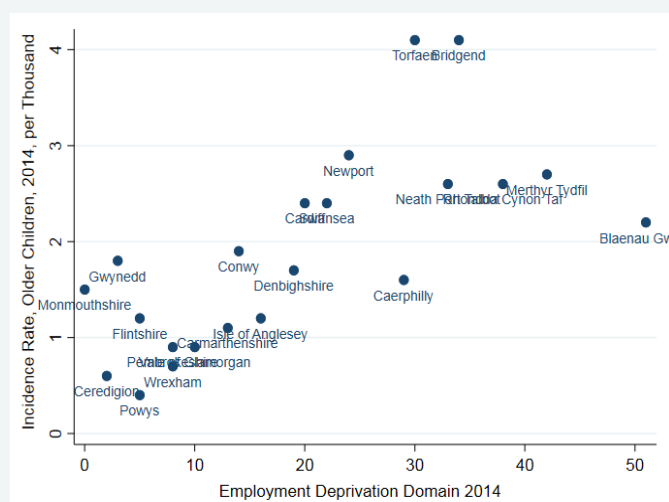
Appendix 2, Figure 3b: Infant incidence rates by employment deprivation, 2019



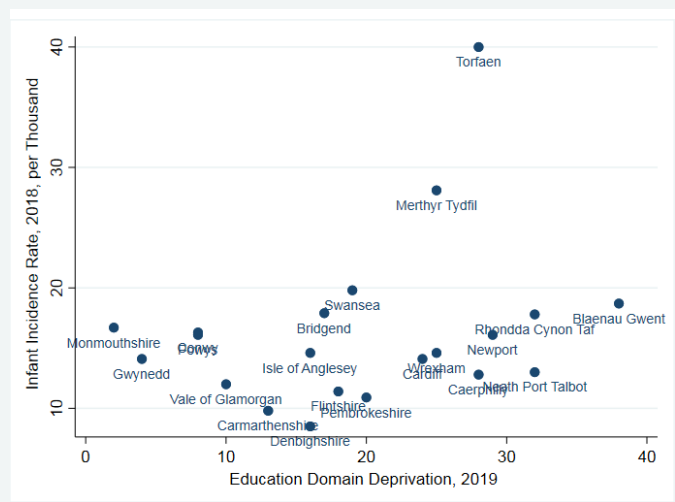
Appendix 2, Figure 5a: Infant incidence rates by education deprivation, 2014



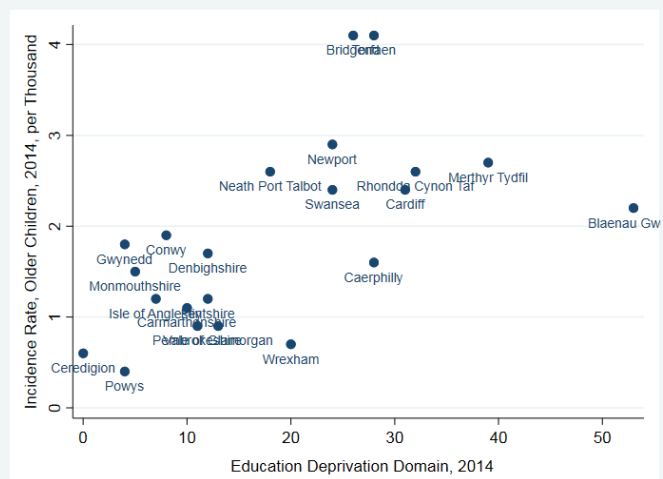
Appendix 2, Figure 4a: Incidence rates, older children by employment deprivation, 2014



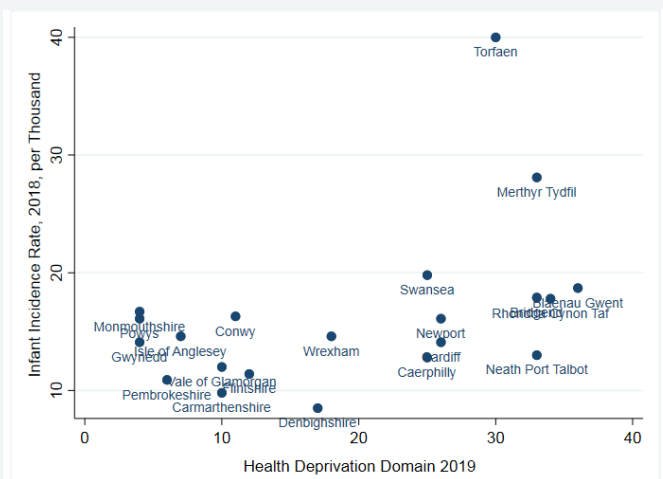
Appendix 2, Figure 5b: Infant incidence rates by education deprivation, 2018-19



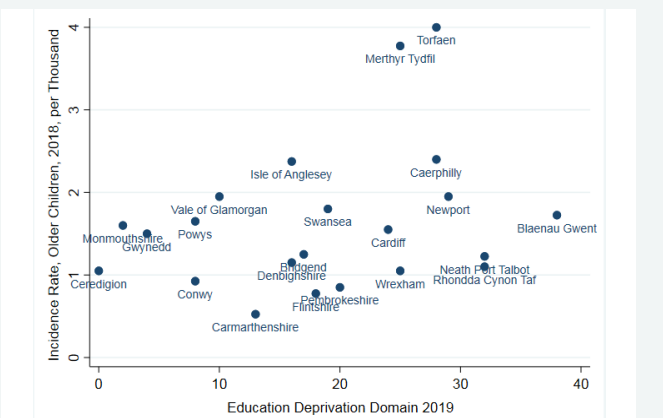
Appendix 2, Figure 6a: Incidence rates, older children by education deprivation, 2014



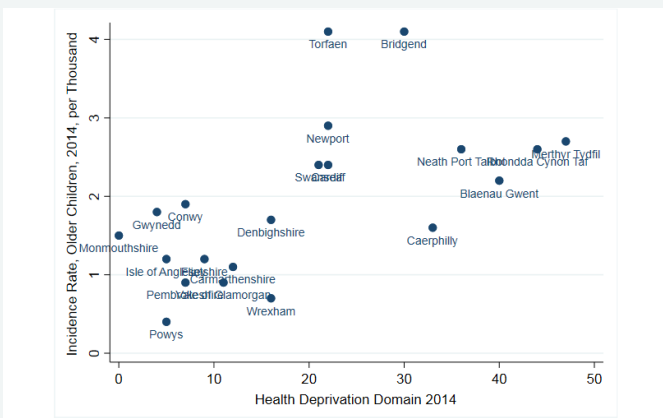
Appendix 2, Figure 7b: Infant incidence rates by health deprivation, 2019



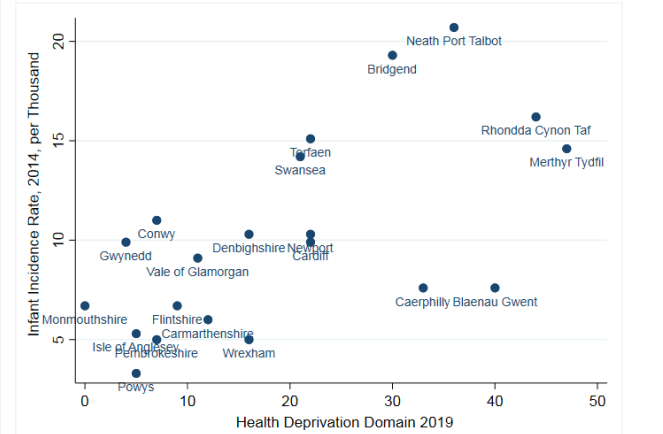
Appendix 2, Figure 6b: Incidence rates, older children (aged 1 to 15 years) by education deprivation, 2018-19



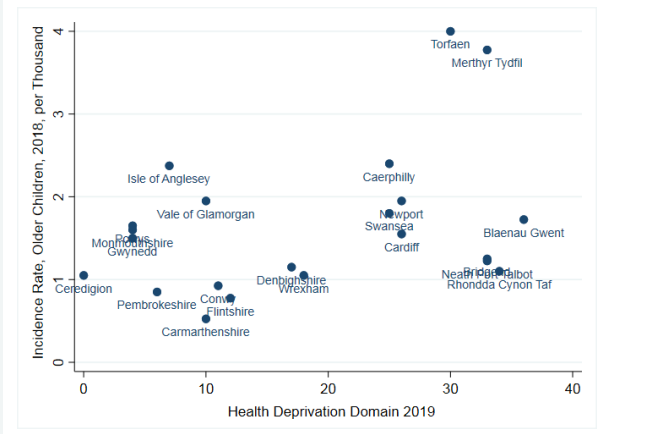
Appendix 2, Figure 8a: Incidence rates, older children (aged 1 to 15 years) by health deprivation, 2014



Appendix 2, Figure 7a: Infant incidence rates by health deprivation, 2014



Appendix 2, Figure 8b: Incidence rates, older children (aged 1 to 15 years) by health deprivation, 2019



Appendix 3: Correlation between the net expenditure for family support services and deprivation domains

Deprivation domain	Net expenditure for family support services, 2018
Income	0.419***
Employment	0.181***
Education	0.298***
Health	0.359***
Community Safety	0.108*
Access to Services	-0.421***
Housing	0.239***
Physical Domain	0.272***

Appendix 4:

The Make-up of the Deprivation Domains

Deprivation Domain	Measures
Income	-Percentage of the population on income related benefits, or tax credits with an income below 60% of the Wales median, or a supported asylum seeker
Employment	-Percentage of working-age population in receipt of employment related benefits
Education	Key stage 2 average point score, stage 4 capped point score, key stage 4 level 2 inclusive, repeat absenteeism, proportion of 18-19 year olds not entering Higher Education, proportion of 25 to 64 year olds without qualifications
Health	All cause death rate, cancer incidence rate. Long-term limiting illness, low birth weight
Housing	Overcrowding (bedroom occupants) and lack of central heating
Community Safety	Police recorded violent crime, criminal damage, burglary, theft, antisocial behaviour, fire incidences
Access to Services	Average travel times (by private and public transport) to the nearest food shops, GP practice, post office, public library, leisure centre, primary school, secondary school, pharmacy, petrol station (private transport only),
Physical Environment	Air concentrations and emissions, flood risk, proximity to waste and industrial sites,

Source: Stats Wales 2014.

Appendix 5:

Areas with deep-rooted Deprivation

LSOA	Local Authority	LSOA Name	WIMD 2019 Rank
W01000240	Denbighshire	Rhyl West 2	1
W01000239	Denbighshire	Rhyl West 1	2
W01001421	Caerphilly	St. James 3	3
W01001274	Rhondda Cynon Taf	Tylorstown 1	4
W01000991	Bridgend	Caerau (Bridgend) 1	5
W01001209	Rhondda Cynon Taf	Penrhiwceiber 1	6
W01001308	Merthyr Tydfil	Penydarren 1	7
W01001428	Caerphilly	Twyn Carno 1	8
W01000413	Wrexham	Queensway 1	9
W01001222	Rhondda Cynon Taf	Pen-y-waun 2	15
W01000863	Swansea	Townhill 2	16
W01000862	Swansea	Townhill 1	18
W01000237	Denbighshire	Rhyl South West 2	19
W01000832	Swansea	Penderry 3	22
W01000742	Swansea	Castle 1	23
W01001739	Cardiff	Ely 3	24
W01001339	Caerphilly	Bargoed 4	29
W01000830	Swansea	Penderry 1	31
W01000864	Swansea	Townhill 3	32
W01001144	Rhondda Cynon Taf	Abercynon 2	33
W01001303	Merthyr Tydfil	Merthyr Vale 2	34
W01001479	Blaenau Gwent	Tredegar Central and West 2	35
W01000817	Swansea	Mynyddbach 1	37
W01000921	Neath Port Talbot	Cymmer (Neath Port Talbot) 2	38
W01001345	Caerphilly	Bedwas Trethomas and Machen 6	43
W01000833	Swansea	Penderry 4	48

Source: Stats Wales 2019.

1. Stats Wales defines deep-rooted deprivation as areas that have been among the 50 most deprived areas in five consecutive government reports on deprivation (2005 to 2019).
2. There are 12 Local Authorities with no small areas of deep-rooted deprivation (Isle of Anglesey, Gwynedd, Conwy, Flintshire, Powys, Ceredigion, Pembrokeshire, Carmarthenshire, Vale of Glamorgan, Torfaen, Newport, and Monmouthshire). This does not mean that there aren't currently any very deprived areas in these Local Authorities. Twenty-two of the small areas identified as being in deep-rooted deprivation are classed as being in Urban (City and Town) areas, representing 85% of the total. The remaining 4 (15%) are classed as Rural (Town and Fringe) areas (Stats Wales 2019).