MAKING SENSE
UNDERSTANDING THE DRIVERS OF VARIATION IN SPEND ON CHILDREN'S SERVICES

2

NEWTON

CONTENTS

3

FOREWORD

Across the country, local authority children's services are under significant and increasing pressure. Numbers of children in care are at record levels, child protection enquiries have increased by more than 150% in a decade, and more families than ever are turning to children's social care for support. At the same time, government funding has reduced to the point that children's services will face a funding gap of almost £2 billion by 2020.

This pressure is not unique to any particular type or group of councils. From large rural counties to smaller inner city boroughs, councils consistently tell us that demand for children's services is putting their budgets under enormous pressure. Yet we are regularly quoted statistics which show some children's services departments spending considerably more than others, with the clear suggestion that higher spenders should be able to reduce their budgets to match those of lower spending areas elsewhere.

The research presented here focuses on understanding these differences and shows that such arguments are misguided and short-sighted,

explaining for the first time why variation is an inevitable result of the specific circumstances facing individual councils. There is no right amount for councils to spend on children's services, and the report is clear that local leaders must base their budgets on the appropriate cost of delivering good outcomes for children and families in their particular local area.

While the research meticulously demonstrates that the majority of spend variation is due to wider economic or geographic circumstances largely outside the control of children's services, it is frustrating that inconsistent financial returns continue to hinder efforts to easily compare the cost of delivering services in different areas. This report will help councils to identify the changes required to address this issue locally, and the LGA will support them to do so, but we need government to heed our longstanding call for better designed electronic forms and reporting guidelines if this work is to be consistently applied across the country.

Some degree of variation is unavoidable in public services, particularly within hugely complex

4

From large rural counties to smaller inner city boroughs, councils consistently tell us that demand for children's services is putting their budgets under enormous pressure

partnership systems such as children's services, and we will continue to support all of our members to deliver the best possible outcomes for children and families. This work will be aided by the government's recent investment in an enhanced sector led improvement programme, allowing us to focus more rigorously on the minority of spending variation that is within local control. But we must be clear that funding cuts coupled with a growing demand for services has created a hugely challenging environment for councils all over the country as they seek to intervene with families earlier, recruit more social workers and ensure sufficient placement choice to meet the often complex needs of children and young people.

This research was squarely focussed on the question of why council spend on children's services varies across the country, and comprehensively disproves the notion that this is simply a result of inefficiency or poor practice. Variation is inevitable and, as democratically accountable bodies, councils rightly spend in line with the needs and priorities of their local population. But we are now left facing the bigger question of where we go from here. Demand

for children's services continues to increase across the country, yet we have no long-term strategy to address this growing need and no sustainable funding solution to enable councils to meet it.

This research demonstrates that the scope to reduce spending variation through practice changes alone is small, and even those changes that could be made will often require investment to achieve. Councils across the country are under increasing and sustained financial pressure, and the rising number of children and families who rely on children's services deserve better than prevarication and uncertainty on how those services will be funded in the future. The time for action is now, and we hope that this report will help to galvanise that action within Whitehall and beyond.

Councillor Richard Watts
Chair, LGA Children and Young People Board

5

EXECUTIVE SUMMARY

Nationally reported data for each local authority reveals that spend on children's services per child varies significantly between authorities, from £292 to £1,254 (based on revenue outturn returns for FY16/17 and the local population aged 0-25). Standardising for similar outcomes, spend per child still varies from £299 to £805.

This work, commissioned by the Local Government Association (LGA) and undertaken by Newton, seeks to shed light on the factors driving variation of spend on children's services, establishing why some authorities spend significantly more than others, whilst achieving similar levels of outcome.

The work comprises two major projects. The first involves a review and analysis of national demographic, geographic and economic data for all councils in the country, to identify correlations with children's services spend. The second project, a detailed, on-the-ground study of the factors influencing spend which could not be quantified through national data alone, was completed with a sample of eight councils. The factors identified included analysis of financial reporting and the influence of council and partner organisation practice.

Through correlation analysis of 18 demographic, economic and geographic measures, it has been possible to identify a set of five factors that explain approximately half of the variation in spend seen nationally across all authorities. These factors are largely outside of the control of councils, and certainly sit outside the control of children's services. As a consequence, variation in what authorities spend on children's services (per head of child population) is inevitable. It is not logical to expect authorities to converge on a single 'right' value of spend.

Of the five drivers of variation, the IDACI measure of deprivation was found to be the single most significant factor. Alone, it explains 31% of variation. When combined with the other four factors (size of population aged 0-25, amount of disposable

household income, levels of unemployment and levels of crime) the resulting model describes just over 50% of spend variation.

Analysis of reported spend, according to the revenue outturn financial returns, echoes previous research that has shown variation in the accuracy of how these returns are compiled. This makes it difficult to draw a like-for-like comparison of spend between councils. The treatment of grants, coding of spend to areas of the revenue outturn and allocation of central overheads were the three key areas of inaccuracy identified. The complexity is compounded by the fact that the guidelines for the returns do not permit a like-for-like comparison of spend between authorities, specifically around how spend on asylum-seeking children is set out. In the sample of authorities with whom in-depth analysis of the financial returns was completed, the overall contribution of this factor to spend variation was small. However, this is not necessarily representative of the broader national picture since examples were seen where individual council spend changed by up to 12%.

Nationally, spend on looked after children and safeguarding children and families (which covers core spend on statutory child in need and child protection social work) are both the largest areas of spend and also the areas where spend varies most between authorities. Study of these areas across the sample authorities identified that taking the right local steps to achieve the best possible outcomes for children, young people and families could reduce spend variation between the sample group of councils by 13%. The changes required to achieve this consistently, whilst more in the control of councils than other local partners, are nonetheless complex, potentially costly and challenging to achieve, with no 'one size fits all' solution across authorities. Opportunities exist to explore the role of partnership working and practice consistency further to assist authorities in developing local improvement plans.

NO 'ONE SIZE FITS ALL' SOLUTION

Spend on other areas of children's services outside of looked after children and safeguarding children and families makes up 30% of spend on average but presented a source of variation between the sample of authorities. In one authority the figure was 22%, whilst in another it was 56%. Within this, different approaches to early help and preventative services were identified. The methods employed in this study were not designed to identify a correlation between spend on early help / preventative services and lower spend at higher tiers. It was noticeable that councils spending more on these services tended to do so primarily as a result of political or strategic commitment to the importance of providing help early. Greater engagement in the building of the evidence-base around early help and preventative services, at a time when such spend is coming under pressure, is likely to be important if funding for them is to be maintained.

By taking two different approaches this work has described some of the drivers behind up to 50% of the variation in spend on children's services. More importantly perhaps, the work also re-emphasises that we should expect to see some degree of variation driven by wider economic and

Variation in what authorities spend on children's services is inevitable

geographical factors; our modelling suggests that a range from £334-£883 could be expected as the result of five factors alone. This coupled with variation in financial reporting practices means that caution needs to be taken when comparing one authority with another. Rather; the narrative around spend needs to be based on local system understanding and the appropriate cost of achieving the ideal outcomes for children and families.

The scope of this work, looking specifically at factors driving variation in spend on children's services between councils, is one of many questions and challenges facing the sector. Further work in this area is required to address the next logical questions around factors driving increases in demand and the future funding arrangements for children's services, including the total quantum of spend.

INTRODUCTION

It has long been recognised that the amount spent by councils on children's services differs widely from authority to authority. Whilst there has been much debate as to why this is the case, there is little true understanding of the factors driving the variation, nor any robust evidence indicating which of these have the greatest impact.

Department for Education (DfE) figures show an upward trend in child protection cases, with an 83% increase in the number of children on a child protection plan over the last ten years[1]. At the same time, councils face on-going cuts to funding across the board, with Local Government Association analysis showing that this will contribute to a £2 billion shortfall for children's services by the year 2020[1]. These funding pressures are already evident, with overspend on children's services reaching £655 million nationally in the financial year to April 2017[2].

The Local Government Association is campaigning for a sustainable funding solution for children's services. This campaign was launched as part of the Bright Futures initiative. It calls for local and national government to work together to ensure that vital services, on which children, young people and their families depend, continue to receive the funding they need.

National data shows that, for all ratings of outcome (based on Ofsted scores), some authorities spend £292 per child whilst others spend more than £1,254 per child[3].

Previous research has highlighted the role that poverty plays in driving demand for children's services[4]. Some estimates suggest that two thirds of children's services costs could be attributed to the impact of child poverty alone[5]. That said, the full range of factors at play has, as yet, been neither quantified nor prioritised. The issue is complicated further by the fact that the financial data currently available is neither sufficiently accurate nor standardised to allow meaningful detailed comparisons between authorities[6].

At present it is difficult to understand how much is spent on what, to achieve what outcomes

Recognising this, the LGA commissioned Newton to conduct research into the variation of spend on children's services. To gain a full and rich picture of the issues, Newton designed a research process comprising two distinct projects. Firstly, a detailed scrutiny of national data was undertaken to identify the factors operating in the wider economic and political environment that influence the level of spend on children's services. The second project within the research comprised an in-depth, on-the-ground analysis with a representative sample of local authorities. Financial reporting practice was studied, as well as a study of decision-making and practice, (including the influence of partner organisations). The objective was to achieve a greater understanding of the factors underpinning variation in spend by a group of authorities, all of which achieve similar levels of outcome.

The definitions of 'similar levels of outcome' used in the selection of the sample councils, in addition to Ofsted ratings, included:

- Percentage of children in need who are persistent school absentees over three terms

- % of looked after children with three or more placements during the year

- The average 'Progress 8' score for looked after children at Key Stage 4

- Percentage rate of social worker turnover

8

SOME AUTHORITIES SPEND £292 PER CHILD WHILST OTHERS SPEND MORE THAN £1,254 PER CHILD

> **Shedding light on the factors that influence spend provides insight into the drivers of variation between authorities**

Shedding light on the factors that influence spend provides insight into the drivers of variation between authorities, allowing for a more meaningful discussion on funding requirements. Whilst recognising that the sample size of eight authorities is small, this work does provide a platform for further research into decision-making and spend in children's services.

Detail of what was done and what was found is given in this report. All analysis is based on 16/17 R03 net spend per 0-25 population. Detailed analysis of the findings can be found in the statistical appendix to this work.

[1] LGA comparison of the 2007 and 2017 DfE statistical releases on 'Characteristics of children in need'. https://www.gov.uk/government statistics/characteristics-of-children-in-need-2016-to-2017

[2] https://www.thebureauinvestigates.com/stories/2018-02-07/childrens-services-perilous-as-councils-struggle-to-balance-their-budgets

[3] https://www.gov.uk/government/statistics/local-authority-revenue-expenditure-and-financing-england-2016-to-2017-final-outturn

[4] Bywaters et al. (2016) The relationship between poverty, child abuse and neglect: an evidence review

[5] Bramley, G. and Watkins, D. (2008) The public service costs of child poverty . York: Joseph Rowntree Foundation

[6] Freeman & Gill (2014) Research on Children's Services Spending and Budgeting – Section 251 Returns

PART 1:
# FACTORS INFLUENCING SPEND OPERATING IN THE WIDER ECONOMIC ENVIRONMENT

10

Half of all variation in spend between councils can be explained by five demographic, geographic and economic factors largely outside the control of councils

SPEND

Variation in spend

The range of spend across all authorities was found to be £292 to £1,254. Adjusting to give spend for authorities achieving similar outcomes (Ofsted ratings), the spend varies from £299 to £805.

Figure 1.
Children's services spend by authorities in England

Reported Net Spend per 0-25 Population 16/17

335.0   885.0
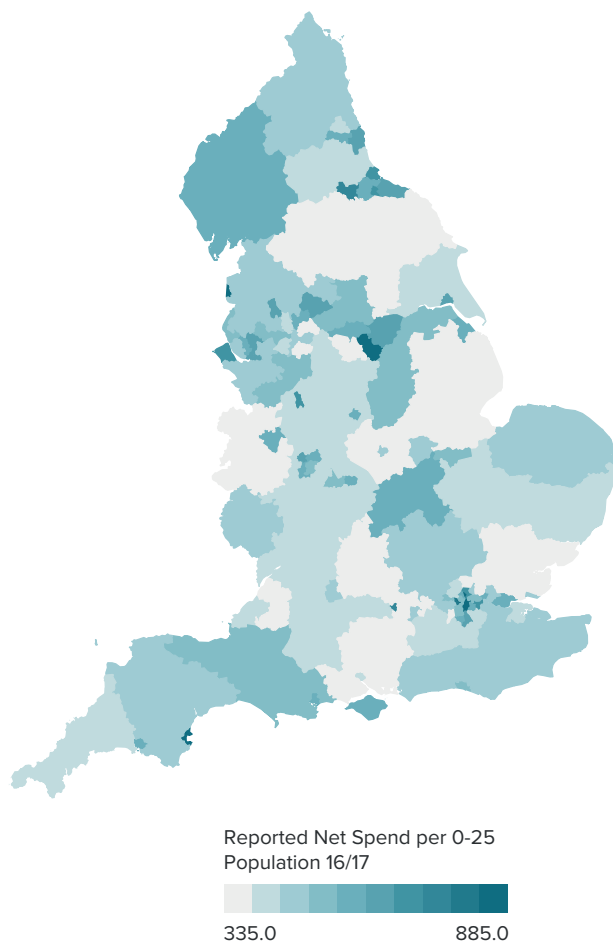
Colour indicates the reported net spend per 0-25 for each local authority.
The darker the colour the higher the spend.

Methodology

Using nationally available data, 18 factors operating in the wider demographic, geographic and economic environment were considered in detail.

A statistical model (see statistical appendix) was built to understand which of these factors have the greatest impact on spend and therefore make the greatest contribution to the observed variation. This analysis showed that deprivation (as measured by the deprivation affecting children index, IDACI, one of the indices collected nationally as a contributor to the Index of Multiple Deprivation (IMD) – see statistical appendix) has a major impact, explaining some 31% of the variation.

It should be noted that as this exercise is concerned with correlation analysis of the data relating to each council, it is not possible to draw a cause-and-effect relationship between the five factors and spend. Neither does it provide a hard-and-fast rule as to what a council should spend. Across the country, there are authorities with high levels of deprivation, highly-rated outcomes from their services and low levels of spend, just as there are those with low levels of deprivation, poor outcomes and high spend.

As deprivation was found to be the single factor with by far the greatest impact, the task was then to identify the degree of influence of the remaining factors on spend. This was achieved by exhaustively combining the IDACI with other measures in the statistical model to determine the best set of five measures which, when selected in the appropriate order, give the best explanation of observed spend.

THE IMPACT ON VARIATION OF SPEND WAS FOUND TO LIE NOT SIMPLY IN INDIVIDUAL FACTORS, BUT IN COMBINATIONS OF THE FACTORS
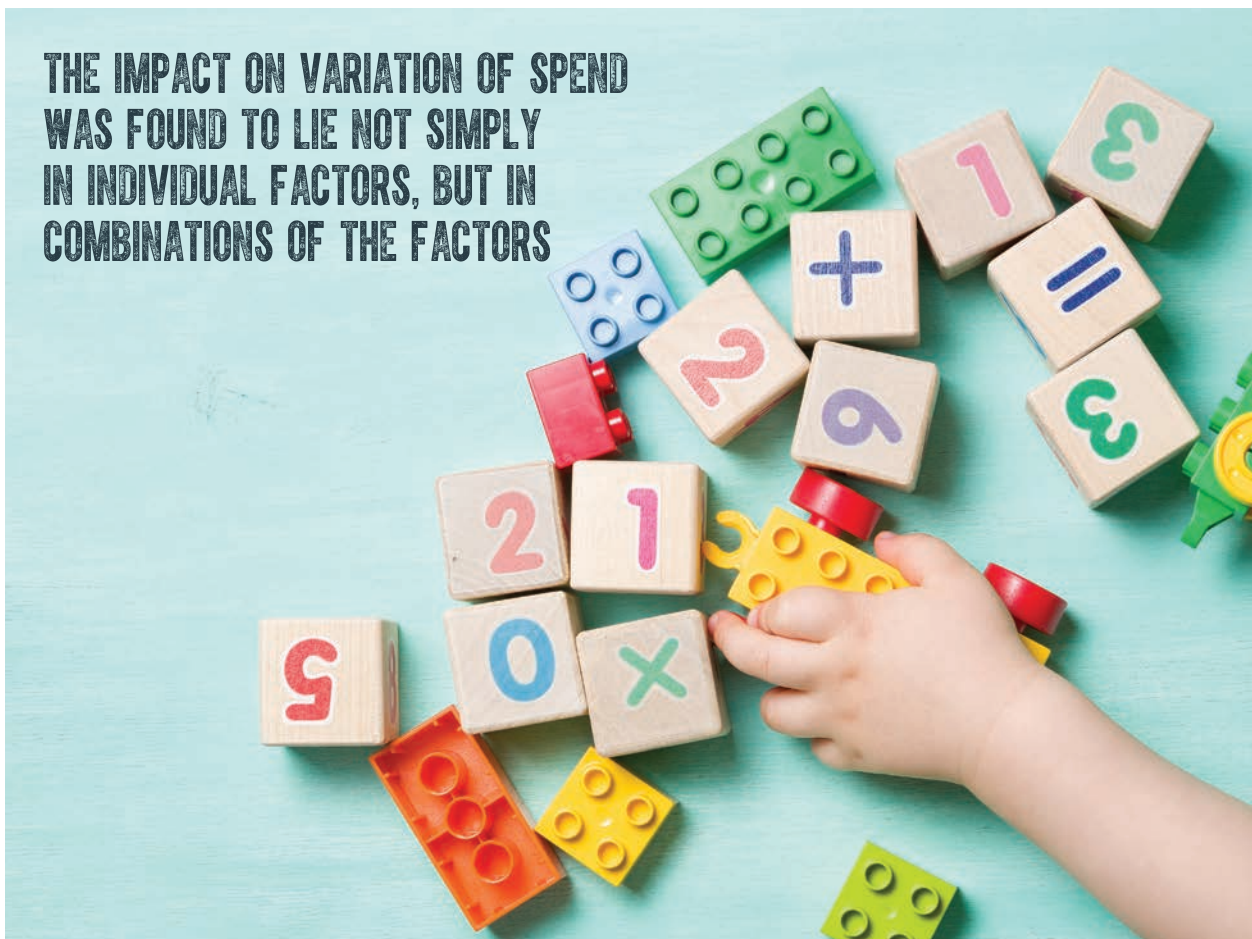
Previous Research & Context

Research undertaken previously has explored the impact that certain factors might have financially[1] as well as looking at the impact of specific factors on levels of demand[2]. Newton's extensive review of existing literature revealed that, as yet, there has been no research providing a systematically derived evidence base describing the full range of factors influencing spend or establishing the extent and priority of each factor.

The work recently commissioned by the DfE looking at children's services funding, part of the government's broader Fair Funding Review, gives an indication of the level of importance the sector attaches to understanding these issues and the current lack of understanding of local authority spend at the national level.

Results

The following table lists five key factors, derived from the initial 18, which, in combination, were found to be linked to 50.1% of the observed national variation of authorities' spend on children's services. It is both

important and interesting to understand that the impact on variation of spend was found to lie not simply in individual factors, but in combinations of the factors. For example, the impact of population size alone is relatively weak, but in combination with deprivation its impact is much greater. The table on the following page shows the direction of correlation for each factor (impact of the measure on spend), along with a description of the measurement.

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> ## Deprivation is the single biggest factor, explaining 31% of variation

[1] Freeman, J. (2014) Research on Children's Services Spending and Budgeting — Section 251 Returns, CIPFA

[2] Bywaters, P. et al (2016) The relationship between poverty, child abuse and neglect: an evidence review, Joseph Rowntree Foundation

FACTOR	DIRECTION OF CORRELATION	DATASET USED	DESCRIPTION OF MEASURE
Deprivation	↑ Higher levels of deprivation are linked to higher spend	IMD Dataset: IDACI – Average Score (see statistical appendix)	Income Deprivation Affecting Children Index (IDACI) - refers to the proportion of children living in income deprived households. An income deprived household is one receiving some sort of income support benefit or with an income below 60% of the national median.
Size of population aged 0-25	↓ Larger 0-25 populations are linked to lower spend	Predicted populations from the Office of National Statistics (ONS)	ONS predicted population aged 0-25 inclusive.
Disposable household income	↑ Higher disposable income is linked to higher spend	Gross Disposable Household Income (GDHI) from the ONS	Money (per person resident) households have available for spending or saving. Defined as income less taxes, pension contributions and cost associated with housing.
Levels of unemployment	↑ Higher unemployment is linked to higher spend	IMD Dataset: Employment – Average Score	Proportion of the working-age population, involuntarily not in employment.
Levels of crime	↑ Higher levels of crime are linked to higher spend	IMD Dataset: Crime – Proportion of lower super output areas (LSOAs) in lowest 10% of crime rate nationally.	The number of LSOAs (small geographic areas with a population of about 1500) that lie in the bottom 10% nationally of national crime rates. Crime as defined by incident rates of violence, burglary, theft and criminal damage.

13

↑ positive correlation   ↓ negative correlation

Figure 2.
Deprivation – the national picture

Income Deprivation Affecting
Children Index

0.0680   0.3930
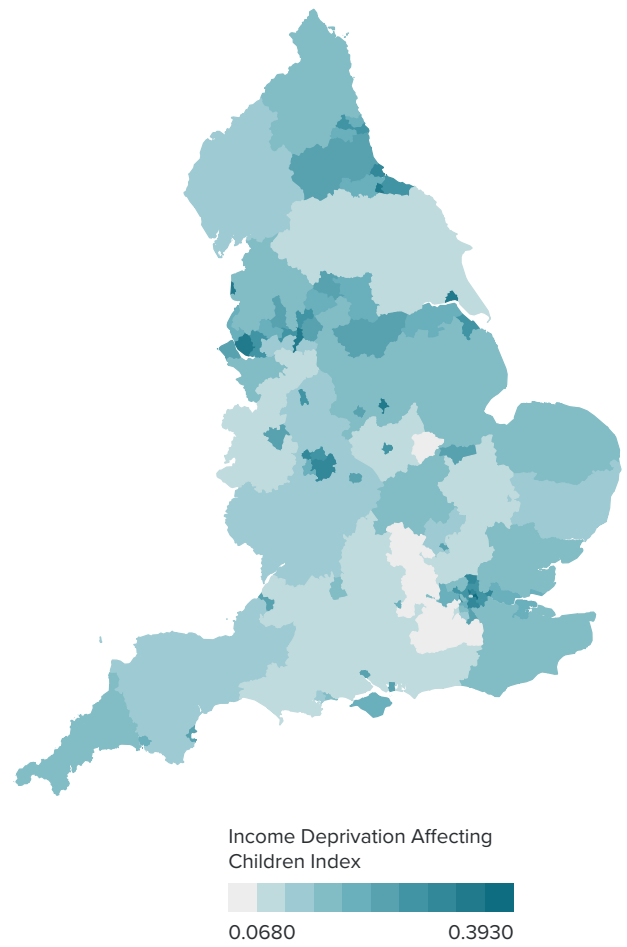
Colour indicates the level of deprivation, as measured by IDACI, for each
local authority. The darker the colour the higher the IDACI score and higher
the level of deprivation.

DEPRIVATION

As levels of deprivation increase, so does the amount spent and variation between authorities

The single most important factor driving variation in spend on children's services is deprivation affecting children, linked to 31% of the variation seen between authorities. The relationship between deprivation and levels of demand for children's services is well-established[3], with research proposing a combination of direct factors (such as material hardship) and indirect factors (parental stress and neighbourhood condition) as the causal links. A link between deprivation and funding requirements for children's services was made in the 2006/07 funding review, with the Relative Needs Formula including a 'top-up' based on certain deprivation measures.

Figure 3.
Spend per child against level of deprivation

SPEND PER CHILD AGAINST LEVEL OF DEPRIVATION
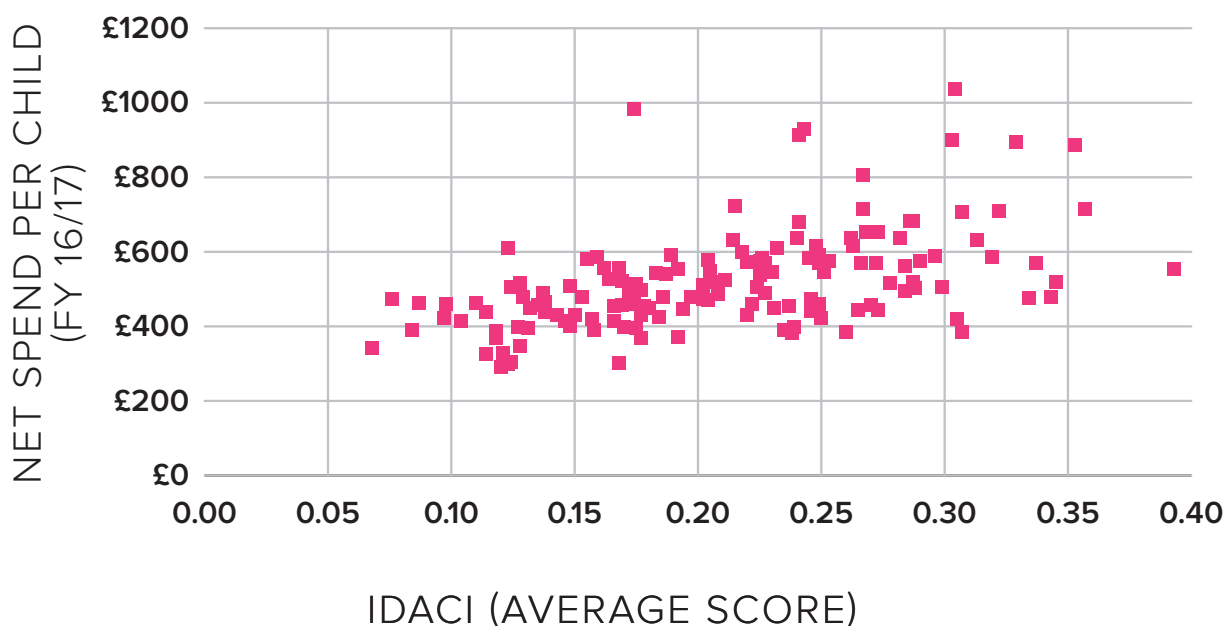
3   Bywaters, P. et al (2016) The relationship between poverty, child abuse and neglect: an evidence review, Joseph Rowntree Foundation

SIZE

Authorities with larger populations aged 0-25 see a lesser degree of variation in spend

Eliminating the effect of deprivation, by adjusting for IDACI, gives the plot graph on the following page for spend against population size.

As the size of the child/young people population in an area increases, a decrease is seen in the average amount authorities spend on children's services per child. Whilst it is tempting to leap to the obvious assumption - that this observation is likely to be due to economies of scale, these statistical findings alone do not support that conclusion.

Further analysis of the data shows that at lower populations (less than 100,000) there is an increase in variation - with a greater number of authorities spending more money in areas with a smaller 0-25 population.

Further detailed work is needed to understand precisely how and why population size impacts upon variation. There are a number of possible explanations for this observed pattern of variation. One of which is that authorities with smaller populations may see a greater impact from individual high cost placements or demand for specific services.
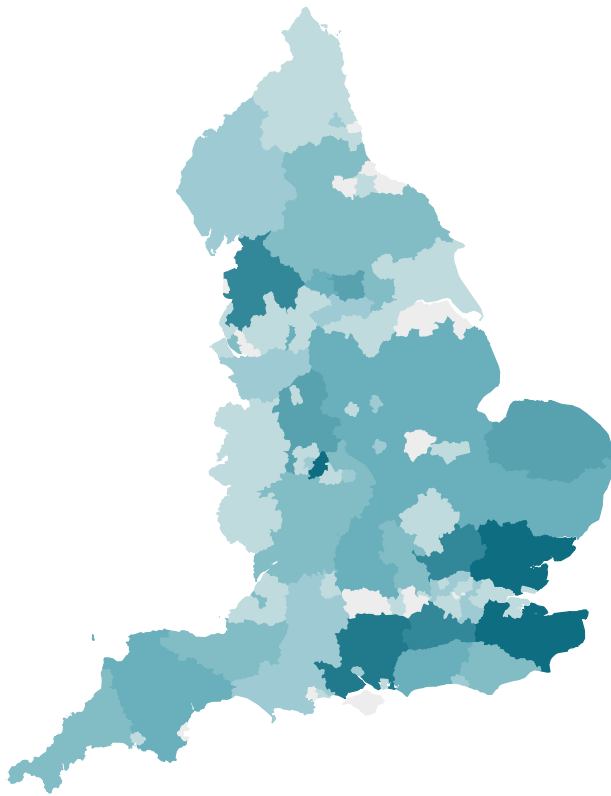
Figure 4.
0-25 population distribution in England

2016/17 Population 0-25

2167   480412
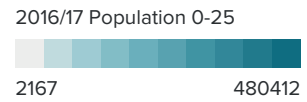
Colour indicates the 0-25 population for each local authority. The darker the colour the higher the population.

Figure 5.
Spend by population size, adjusted for IDACI

SPEND BY POPULATION SIZE, ADJUSTED FOR IDACI

NET SPEND PER CHILD

£1000
£900
£800
£700
£600
£500
£400
£300
£200
£100
£0

0   100000   200000   300000   400000   500000   600000

POPULATION 0-25
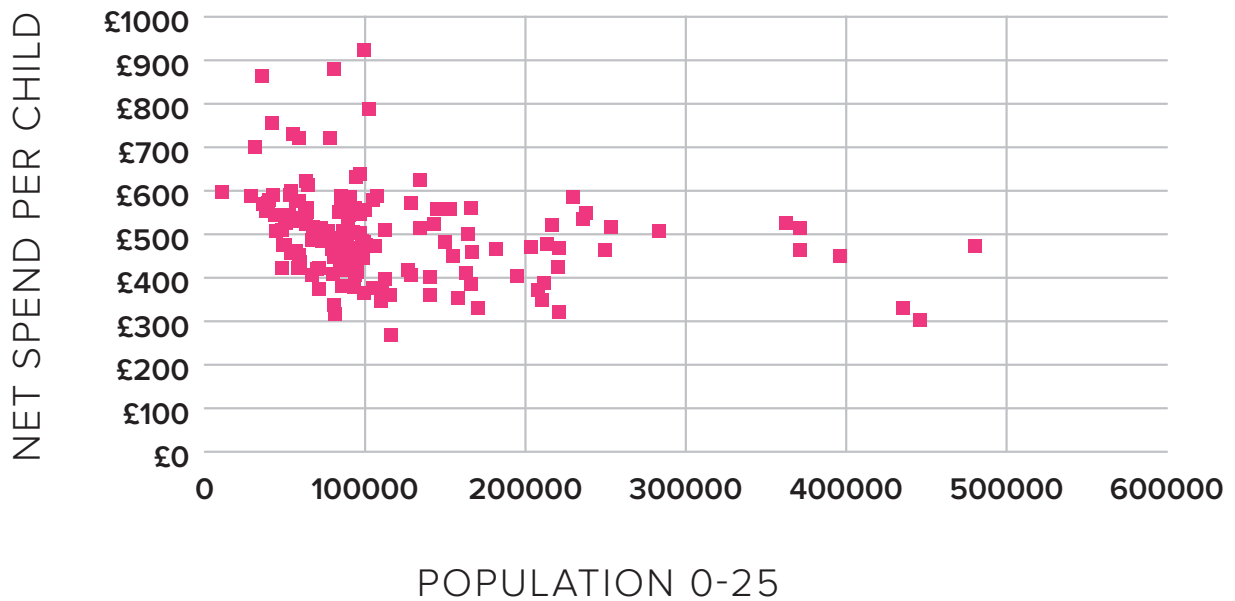
MORE RESEARCH IS NEEDED
TO UNDERSTAND WHY SPEND
PER CHILD INCREASES AS
THE AVERAGE HOUSEHOLD
DISPOSABLE INCOME INCREASES

INCOME

As household income increases, the average spend per child on children's services increases, as does the variation in spend between authorities

The positive correlation between levels of deprivation and spend might logically lead to an assumption that the same would hold true for low household disposable income. Interestingly, this was found not to be the case. Spend per child increases as the average household disposable income increases, consistent with previous research[4] showing that 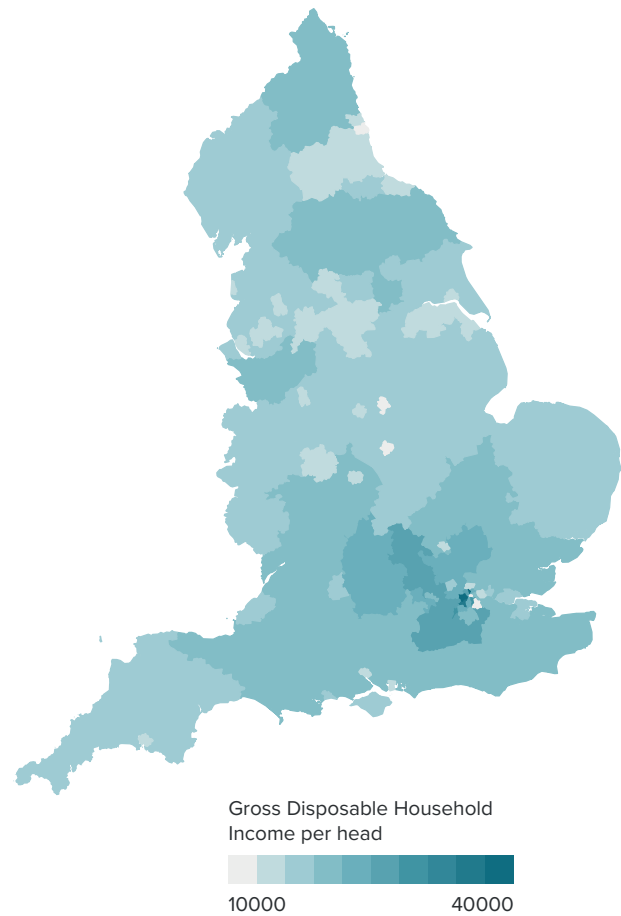for a given level of deprivation, a child in a more affluent authority is more likely to be subject to a child protection plan or become a looked after child.

Figure 6.
Distribution of GDHI in England

Gross Disposable Household Income per head

10000   40000

Colour indicates the level of disposable income per head, as measured by GDHI, for each local authority. The darker the colour the higher the disposable income.

19

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4   Bywaters, P. et al (2014)
     Child welfare inequalities:
     new evidence, further questions,
     Children & Family Social Work

UNEMPLOYMENT AND CRIME

The final two measures included in the statistical model are unemployment and crime figures. As might be expected, the amount councils spend on children's services tends to increase where there are higher levels of unemployment and/or crime.

PREDICTIVE VALUE OF THE FACTORS OPERATING IN THE WIDER ENVIRONMENT

Taking the impact of the five key factors linked to 50.1% of variation on actual spend, a predicted spend across all 148 authorities studied (3 of the total of 151 were excluded on the grounds of potentially skewing the analysis unduly – see statistical appendix) was calculated. This was found to vary from £334 to £883, a smaller range than that currently observed. It is important to be clear that this is not the range that should be in place; it is simply the range that might be expected, given the effect of the five factors.
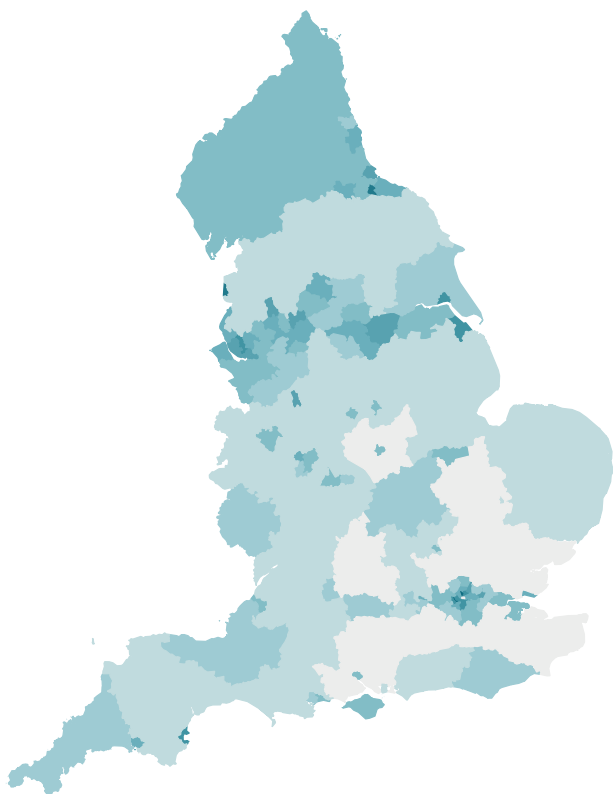
Figure 7.
Predicted spend in England given five key factors influencing spend

Predicted

335.0   885.0

Colour indicates the predicted net spend per 0-25 for each local authority. The darker the colour the higher the spend.

Making Sense - Understanding the drivers of variation in spend on children's services

PART 2:
IN-DEPTH WORK WITH SAMPLE COUNCILS
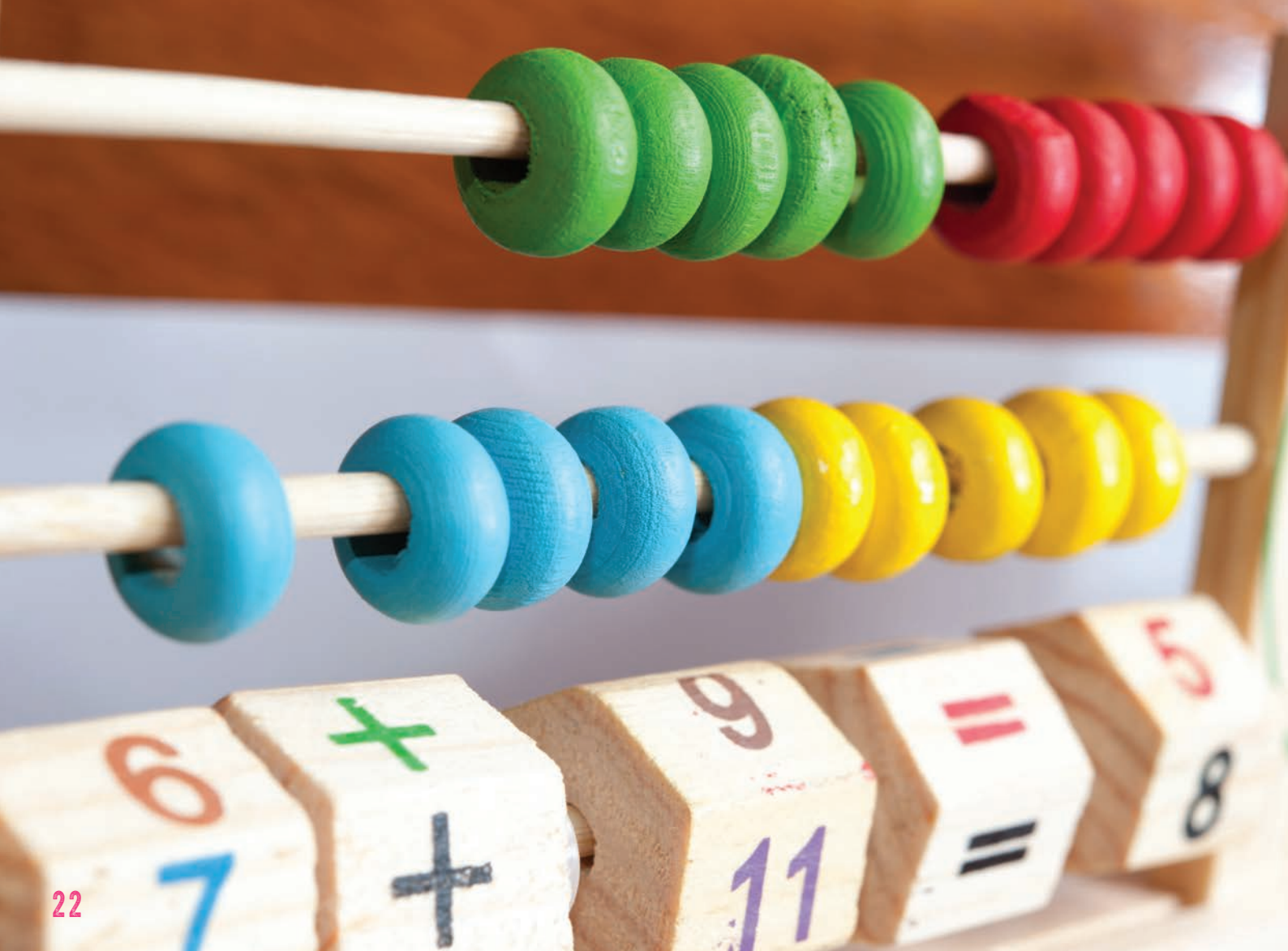
Scrutiny of national-level data sheds light on approximately half of the variation issue. To understand the full picture of the factors driving variation, a study of the practices and decision-making within local authorities was undertaken. Specifically, there were three key areas of study:

• Scrutiny of financial reporting practices

• Spend on looked after children and safeguarding services

• Spend on other children's services

Analysis of every authority supporting children's services in England would require significantly greater time and resource than was available for this work. A small sample of eight authorities was selected against set criteria, for an in-depth study, to provide insight into financial reporting and the impact of local decision-making and practice (including the impact of partner organisations).

The criteria for selecting the sample councils were:

• Similar levels of deprivation. Given that deprivation underpins a significant portion of variation it was important to isolate this factor to understand the local factors in greater detail.

• Similar outcomes. Identifying the variation of spend on services despite similar results is critical to further understanding the complex issues at play. Authorities rated by Ofsted as outstanding or inadequate were excluded. The eight selected are similar in terms of Ofsted ratings and a range of indicators from the local authority Interactive Tool (LAIT).

• A spread of:
  o county, unitary and London authorities
  o urban and rural areas
  o geographic spread
  o political control.

The eight authorities selected were:

- Cornwall
- Derbyshire
- Greenwich
- Halton
- Hammersmith & Fulham
- Hillingdon
- Portsmouth
- West Sussex

The team from Newton would like to express their gratitude to the staff of these councils, who contributed significant amounts of time and effort to supporting the analysis required for the project.

Despite similar levels of deprivation and quality of outcomes, the reported spend on children's services in the eight authorities studied showed a range of £423 - from £382 to £805 per child. To understand this range better and to identify the factors that drive this variation, it was essential to ensure that each authority's financial data compared like-for-like.

Figure 8.
Reported spend (£382 - £805,
Range = £423) for eight Authorities
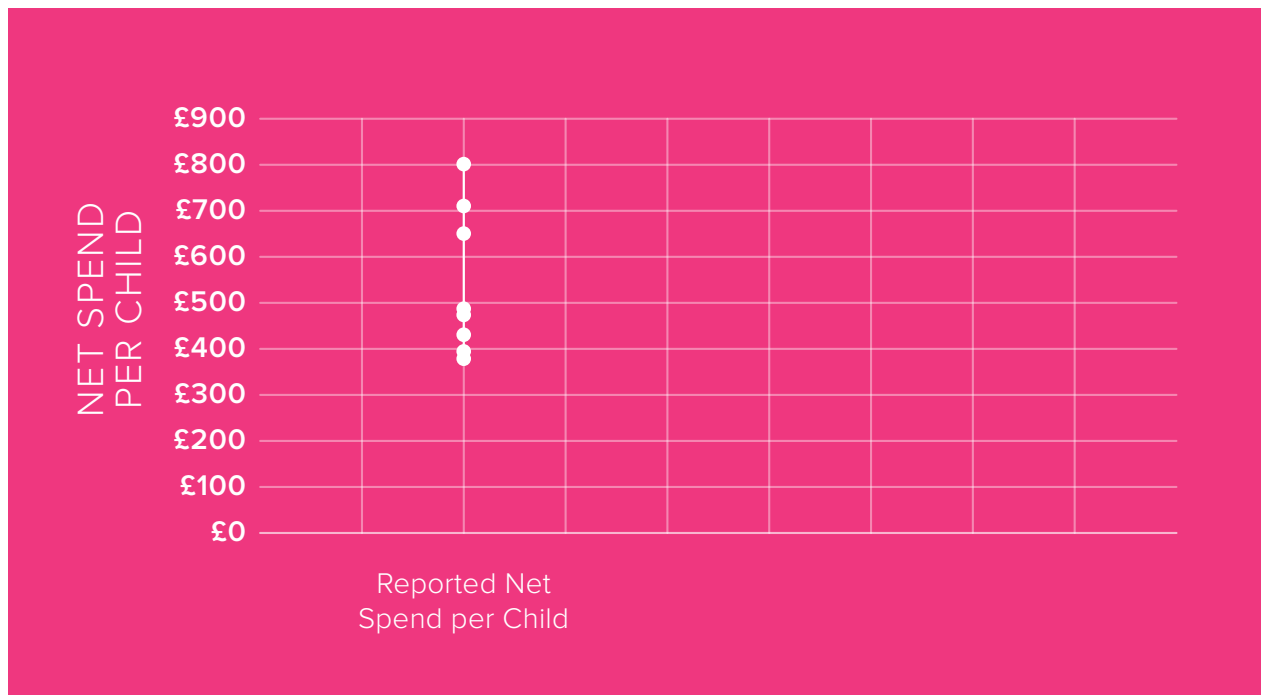
UNDERSTANDING FINANCIAL REPORTING PRACTICE

A frequently heard comment amongst finance staff at the authorities studied was

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You can't use national outturn data to compare what two councils spend on children's services...

This widely-held belief was confirmed by Aldaba's work in 2016. Aldaba's study provided evidence that national financial returns on children's service spend are not reliable[5].

For the current project it was therefore important from the outset to understand the extent to which variation results from differences in the reported spend, rather than reflecting a true, comparable spend on children's services.

Revenue outturn data (as captured by RO3 returns) from all eight authorities was scrutinised, to quantify the extent of variation in financial reporting.

By adjusting for discrepancies in reporting practice, a true 'like-for-like' comparison of spend could be established. This means that, possibly for the first time, operational differences between authorities driving variation in spend, could be identified and explored.

In selecting the most appropriate data for the study, a number of sources were considered. Revenue outturn returns (RO forms) for 2016/17 (the most recent year for which the national returns were available) were selected in preference to other possible sources, for example RA (Revenue Account) or s251.

The reasons for selecting the RO forms are:

- The RO is based on outturn, whereas other measures are based on budget. Using the RO eliminates variation due to varying levels of budget under/overspend.

- The RO suite of forms describe the local authority's expenditure completely. The spend and income on every service must fit somewhere within the return. In contrast, the s251 return, which is built up from spend intention, introduces an opportunity for additional variation through service cost centre selection.

- Net expenditure was selected rather than gross expenditure to avoid introducing further variation resulting from the chosen service delivery model. An example of this would be when an authority commissions a larger service than they need, but then sells additional capacity to neighbouring authorities. In this situation the gross spend would be artificially inflated.

Like-for-like figures were achieved by first fixing a standard, based on the RO3 guidance. The outturn of each of the eight authorities was analysed (with frequent checking against individual transactions to ensure that the process was correct), and the net

5   Aldaba (2016) Children's services: spending and delivery, DfE

figure was adjusted, relative to the standard. For this analysis, only the RO3 total was used.

Analysis of the data from the 8 authorities revealed both over-reporting and under-reporting. Part of this is due to inherent issues in the RO guidance that do not allow a like-for-like comparison. A significant portion was due to differences in how accurately councils follow the reporting guidance. It should be noted this was purely a result of errors in the approach, rather than any attempt to manipulate

reporting. Creating this 'like-for-like' comparison of spend resulted in the reported figures for individual councils changing by up to 12% (Figure 9).

In this sample the number of under- and over-reporters happened to be roughly equal, so that the net effect was close to zero. However, there is no reason to assume that this is the case across all authorities. Further study across all authorities would be needed to establish the potential impact of consistent approaches to reporting.

Figure 9.
Variation in reported spend between eight authorities in the study sample
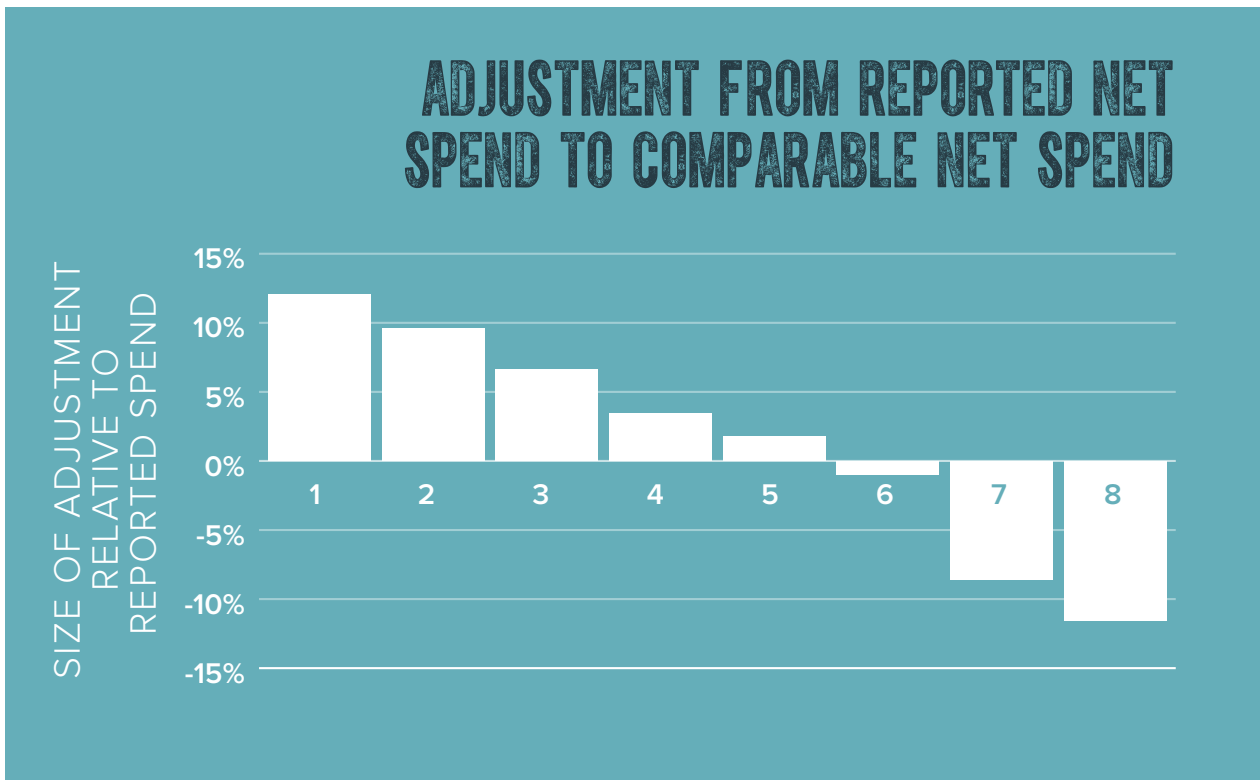
Four key factors were found to lead to differences between net reported and comparable spend values:

1. The allocation of the corporate overhead - the cost of services provided centrally by the authority, for example human resources and corporate finance. The way that these are allocated to children's services lines of the RO is decided by the finance team at the authority. There is no central guidance as to how the allocation should be made. Corporate overhead is not separated out in the revenue outturn.

2. The amount spent on Unaccompanied Asylum Seeking Children (UASC) – this was found to vary by authority. The way the RO guidelines instruct councils to code spend in this area does not support a like-for-like comparison.

3. Differences in the way authorities account for grant funding.

4. Inaccuracies in coding of spend, particularly in terms of allocation of spend to the sections of the revenue outturn relating to children's services and education.

Figure 10.
Variation by factor

VARIATION CAUSED BY EACH FACTOR

RANGE OF ADJUSTMENTS

£70
£60
£50
£40
£30
£20
£10
£0

Corporate Overheads | UASC | Grant Funding | Coding

All figures used in the comparison of corporate overheads are gross values, rather than net. Each of these four contributory factors is considered in the following detail.

Corporate overheads

Previous work by CIPFA[6] highlighted variation in the proportion of the corporate overhead apportioned to children's services. To understand the extent to which this was causing variation in spend, the amount apportioned to children's services for similar corporate services across the eight authorities was identified and then compared with the amount of the total overhead.

This factor should be considered within the context of the relative size of children's services. The children's services spend relative to the total authority spend was identified to provide this context. In one authority, for example, children's services represented 11% of the spend, yet were allocated only 9% of the overhead. In another authority however, children's services represented 10% of the spend but were allocated 29% of the overhead.

Having identified this variation, the spend value across the authorities was then adjusted to identify the effect of consistent overhead allocation. This adjustment resulted in changes to the reported spend, ranging from a 6% increase to 7% decrease. To establish this like-for-like comparison at a national level (which is essential to inform a meaningful discussion on spend on children's services) it would be necessary to conduct this adjustment exercise at this level of detail for all authorities in the country - a significant undertaking. A relatively simple way to achieve the same result would be to make a change to the format of the RO forms. Currently the overhead is included in running expenses, but the inclusion of a separate column for corporate overhead, allocated against each line in the RO forms, would provide a mechanism for reporting these consistently across the country.

The allocation of this spend to lines of the RO is directly linked to the relevant budget. Despite this, the study teams observed little challenge from children's services officers, nor found any evidence of a process to check for appropriate allocation. Greater levels of awareness of the factors influencing spend — on which comparisons are made — would be likely to drive more accurate and consistent reporting.

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6 Freeman, J. Research on Children's Services Spending and Budgeting – Section 251 Returns, CIPFA, 2014

Unaccompanied Asylum Seeking Children (UASC)

Spend on UASC drives significant variation between authorities. It is generally a result of a specific geographic pressure, for example the existence of an airport or port within the authority. In order to understand the variation of spend by authorities as a result of local operational practice, it is essential to identify and exclude all contributions to net spend related to UASC demand, leading to a spend defined as that supporting the local population. In this instance the RO3 guidance does not lend itself well to the analysis, in that it requires that the UASC spend be split across multiple lines.

The guidance states that line 26 (asylum seekers) 'shall include the costs of assessment and care management, as well as any costs incurred in sourcing accommodation'. However, the guidance also states that for those UASC children classified as 'looked after', the accommodation cost shall be included in line 13 with the other looked after children spend. This means that if the return is completed correctly it is then impossible to determine the cost of supporting the UASC population.

The study of reporting practice in the eight authorities revealed that in practice, adherence to the RO3 guidance was low, particularly around placements being included in the line for looked after children (line 26). It also proved possible to determine a total cost for supporting the UASC population in each authority and make the appropriate adjustment to the net spend.

One authority in the sample has an international airport and therefore a significant UASC population. The study indicates that, across the eight authorities studied, UASC has a lesser impact on variation than grant funding does (see appendix).

That said, the indications from this work are that the benefit in identifying the total UASC spend in a single line of the RO3 would be significant and would allow a nationwide comparison of costs of supporting the local population.

Handling of grants

Having eliminated variation due to reporting practices on corporate overheads and UASC, the reported income of the eight authorities was then examined further. This exercise revealed that the way in which authorities handle grant funding through their accounts is responsible for substantial variation in the nationally reported figures.

An illustration of anomalies in the reporting of grant income is given below in Figure 11. 'Authority 2' reports a much larger income than 'Authority 1' (and hence lower net) as a result of treating the grant funding as income.

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Local and national government must both play their parts if finance returns are to be useful for comparing spend between councils

Figure 11.
**Two authorities with different approaches
to reporting grant income**
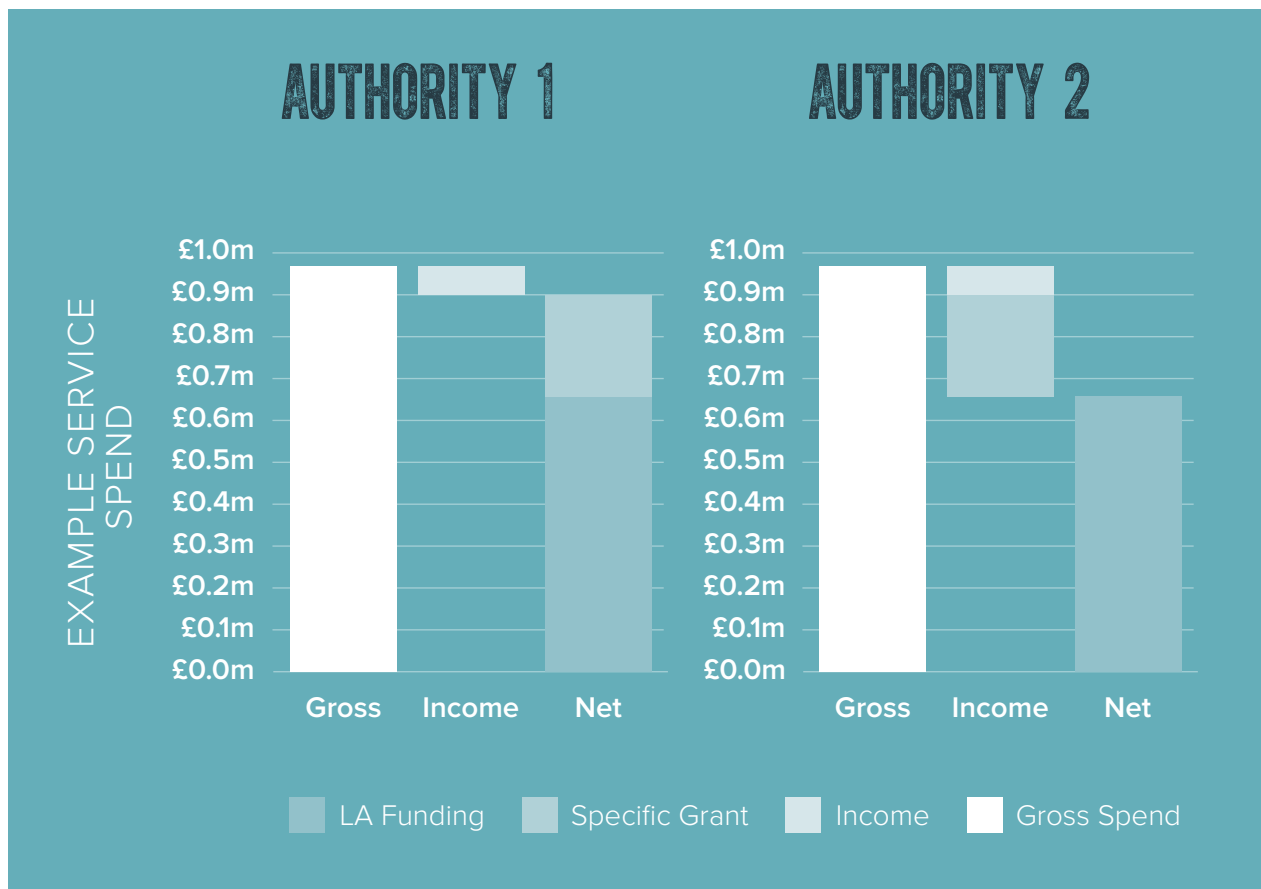
In practice there are two common circumstances in which this occurs:

1. Instances where grant monies (such as from the Direct School and Public Health grants) are transferred into the children's budget on the rationale that services meeting the criteria of those grants are being delivered within children's services. This manifests as increased expenditure in the RO3 lines associated with these services and an increased income (lower net spend) in children's services. Although these transfers may negate each other in the RO3 total, nevertheless they prevent like-for-like comparison of individual blocks of spend between authorities.

2. Where grants are allocated across multiple services or authorities and are then distributed by a leading service or authority. Where this leading service is internal to the authority, the case is very similar to 'Authority 1' (above). However, if the leading service is external to the authority, for example a partnered neighbouring authority, the grant funding being reported as income (as in Authority 2 above) will cause an error in the RO3 total for the authority.

For the purposes of this study, where authorities had approached the reporting of grants in this way, the grant was eliminated from income to give like-for-like spend – as in 'Authority 1 – above). For one of the authorities studied, this meant an increase in their net reportable spend of 9%.

Coding

The variation between the authorities observed and the comparable standard mainly resulted from inaccuracies in compiling the RO3 return, rather than from errors in interpretation of the guidance. An example was the coding of early years centres into the children's centres line where they were co-located. Moving this spend to the appropriate line reduced the reported spend.

Summary of financial analysis
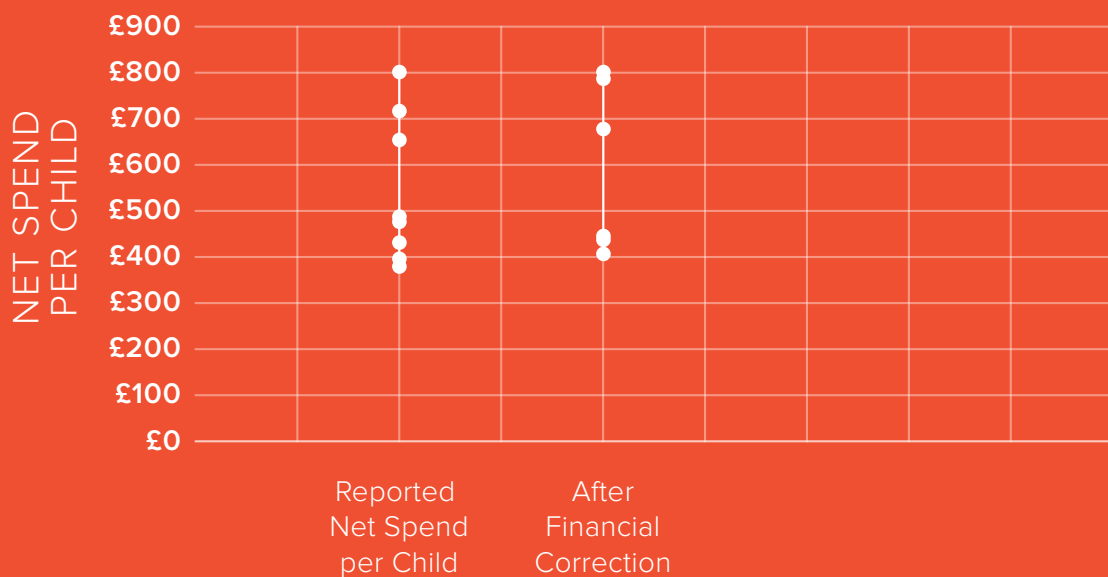
As can be seen from Figure 12, the impact of consistent reporting practice is a narrowing of the range of spend to £390 – from £407 to £797 per child.

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Creating this 'like-for-like' comparison of spend resulted in the reported figures for individual councils changing by up to 12%

Figure 12.
Reported spend for the eight sample councils alongside the comparable spend values

A study of this nature inevitably provokes thought and discussion about what could be done to resolve the discrepancies found in reporting of financial data.

The most straightforward approach to improving consistency would be to change the RO3 form and guidance to capture the elements driving variation and eliminate them from comparison. This could include how corporate overheads are handled, how grants are accounted for and a clear consistent approach to the costs linked to UASC.

Alongside this national–level change, a locally based approach might be to improve the process of completing the RO form, which might include improvement of the training of staff tasked with completing the forms.

One council involved in the project has been on a 5-year improvement journey from a rating of 'Inadequate' to 'Good', which has been achieved despite a challenging financial position with flat spending powers across children's and adults' services.

Improvements to the working relationship between operations and finance functions were seen as an integral part of this improvement journey, to be delivered alongside changes to the practice, structure and processes of the family-facing services.

The granularity of financial tracking allows service managers to see live versions of their individual budgets, current spend position and forecasts. These are reviewed monthly between the service director and service managers, with the support of finance staff. Finance staff have a deep understanding of the service and know exactly what operational functions each line of budget relates to.

In undertaking the detailed financial analysis, the authority came out with the smallest variation between reported and comparable spend of any studied at just 1.8%.

EXAMPLE:
Relationship between operations and finance

SPEND VARIATION ON LOOKED AFTER CHILDREN AND SAFEGUARDING SERVICES

High level analysis of national data by budget line in the RO3 across authorities, reveals that the greatest area of spend across all local authorities is on looked after children and safeguarding services. Together these account for approximately 70% of the total spend on children's services nationally. Spend on looked after children also accounts for the greatest degree of variation in spend between authorities (6–70%, see Figure 13) and so were investigated further in our sample authorities.

It should be noted that such a wide range of variation in reported spend on looked after children appears anomalous and must be treated with some caution. The financial analysis work conducted as part of this research only looked at coding accuracies at the RO level, not between the sub-categories within the RO3. It may well be that some of the variation is down to differences in financial coding at this level and would require further detailed study to investigate.

Figure 13.

Breakdown of spend on children's services by RO3 category. Red bars show the percentage of total children's services spend per area, averaged across all councils. The black range markers show the highest and lowest percentages for individual councils

NATIONAL BREAKDOWN OF SPEND FY16/17 (INCLUDING RANGE)
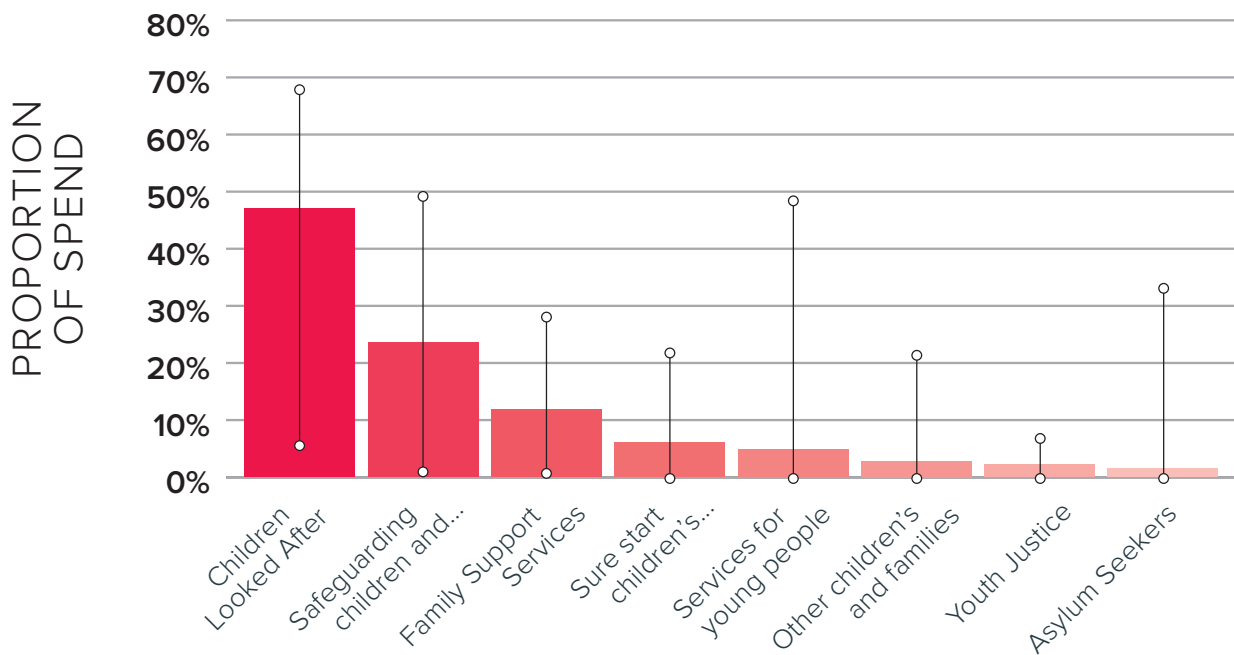
Comparison of the operating models of different authorities, to measure the impact of different practices on variation in spend, is not possible without having a single, constant frame of reference. The approach taken here was to define this constant as the level of service which delivers the best possible outcome for a child, young person or family, irrespective of availability of services, geography or pressures in the system (including financial pressure). This 'best' outcome refers to the best possible solution for the child/young person and his or her family; it does not refer to most convenient, least costly, providing greatest authority oversight—or any other factor that might influence the decision.

The principle underlying this concept is that the best possible outcome does not vary between authorities. By measuring the financial impact of the decisions made and therefore how far each individual authority's decision-making and practice lie from consistently achieving the 'best outcome', it is then possible to work out the variation between the authorities. It is acknowledged that there are weaknesses in this model, one of which is that it relies on study of children and families already known to the service and does not include the impact of children outside of this. However, this is a weakness of almost any approach since identifying those families 'never known' to the system, the 'unmet need', will always be inherently difficult.

33

To illustrate this concept and the approach to using it, some examples are given below:

CHILD A

Child A was taken into care. It was felt that fostering would be the best setting for her. However, there was no fostering capacity for her locally. A place was available in a residential setting and as there was urgency to place child A, the decision was made for her to be placed here.

In reviewing this case as part of the project, the methodology would identify the best placement outcome for the child as fostering. The cost implication of the variation – of residential placement in comparison with the 'ideal' would be measured. The difference between the annualised cost of the actual residential setting (which may be £150K) and of a fostering placement (which may be £24K) would be £126K less per year.

CHILD B

A case review of Child B identifies that although he is supported through targeted early help, he actually meets the threshold for statutory support at child in need level. Child B's best outcome therefore would be achieved at a higher tier of need than is currently the case.

In this situation, the spend implication would be the difference in the annualised cost of supporting a child in targeted early help (which might be £1,000) and CIN (at £1,900). The spend associated with achieving the best outcome would be an increase of £900.

The study team ran a series of case review workshops with more than 50 qualified practitioners across the eight councils. The aim was to quantify how consistently best outcomes were achieved for children, what the financial implications were of this and whether it was a source of overall spend variation between councils. Included within this approach were steps to quantify the impact of partner organisations in explaining variation in spend by authorities on children's services. Cases were selected for review on the basis of being representative of the caseload for each authority – standardised by mix of age, duration of plans/placements, setting type for looked after children or plan and outcome for child in need and child protection cases. A set of anonymised 'control' cases were also used with each council to calibrate for any differences in interpretation of 'best outcomes'. Whilst every effort was made to control and standardise the process between councils, it nevertheless is subject to a degree of hindsight bias and the findings are based on the opinions of those practitioners.

Figure 14.
Quantifying the impact of practice variation on spend across LAC, CP and CIN

SERVICE AREA	ANALYSIS	FINANCIAL IMPACT – degree of variation from ideal (as a percentage of total children's service spend)
Looked after children	1 Are the children being supported as looked after children appropriately placed?	0.14% to 7.46%
	2 Once in care, does the authority provide the right accommodation setting?	0.00% to 0.35%
	3 Does the authority achieve permanence for children in the ideal timescales?	0.00% to 0.19%
Child protection	4 Is the authority supporting children at child protection level appropriately?	-0.70% to 0.51%
	5 Does the authority achieve outcomes for children on child protection plans to the appropriate timescales?	0.01% to 1.99%
Child in need	6 Is the authority supporting children at child in need level appropriately?	0.00% to 1.40%
	7 Does the authority achieve outcomes for children on child in need plans to the right timescales?	-0.82% to 0.11%

In order from largest to smallest cause of variation, the four areas that showed greatest variation are described below. Collectively these explained 13% of the variation in spend between the sample group of councils.

Avoiding care episodes

The most significant area in terms of reducing variation was found to be episodes of taking children into care that practitioners believed could have been avoided.

Practitioners in the sample authorities believed that in 10% to 38% of cases where children became looked after this was not the best end outcome, (although it was often the right decision at that point in time). In 5% to 22% of cases the practitioners were confident that the better outcome could have been achieved through improved support earlier in that child's journey.

The most common requirement for preventing an episode of care was judged by practitioners to be

more effective intervention earlier on. In a number of cases there were frequent referrals for a child in their early teens, sometimes leading to support from early help or even a CIN plan, but without further action. In these cases, matters frequently escalated to the point where the child needed to become looked after at the age of 16/17. The theme emerging from the workshop was that the frequent contact points leading up to the intervention resulted in short or low levels of support, or sometimes no support at all, and could have been acted upon earlier to prevent the episode of care.

EXAMPLE:
Joe's story

Joe is 18 years old and lives in semi-independent living. He had a difficult relationship with his parents from the age of 12: there was some violence between Joe and his dad.

When Joe was 15, the authority had five contacts as a result of a further declining relationship with his parents. Joe's dad asked for help and was promised some support with early help, which did not happen because of a long waiting list, leaving Joe's dad "most disappointed".

There were a further six contacts when Joe was 16, leading to Joe's dad offering to move out of the family home. After a violent incident with his mum, Joe became a looked after child. He moved into a residential placement for 18 months, before moving into his current semi-independent living placement.

Practitioners in the case review workshops were confident that had interventions been made earlier on one of these contacts, Joe would have avoided coming into care. The cost implication of Joe's case would have been 18 months of practitioner support rather than £300k for 18 months at a residential placement (£3.8k per week).

In an effort to improve both the outcomes for looked after children and the chances of reunification, one council involved in the study has set up a dedicated team of practitioners focussed on these two areas.

This has an associated 'invest to save' benefit financially, which is closely monitored. The following is an example case study of the work achieved by the team.

EXAMPLE:
Jay's story

Jay became known to children's services at age **12** following a series of issues at school involving substance misuse and violence.

By age **14** this had escalated to involvement with gangs and being arrested for possession of a knife. His mum wanted to help but was struggling to cope with his behaviour and was increasingly fearful for both her and her son's safety.

The decision was taken to bring Jay into care and he was placed in a children's home away from the area of influence of the gang.

After a period of a year in care, the dedicated looked after child support team worked with Jay and his mother to rebuild their relationship, facilitate a move of house and area for mum and eventually reunify Jay so that now, aged **16**, he is living back at home with the right support and strategies for mum to keep them both safe.

Preventing drift in casework

The next most significant variation of spend was found in drift in casework for CIN plans. The principal reason underlying the drift was cases being passed between different practitioners. This was seen to hinder the progress made with the child or young person earlier in the plan. Other challenges observed were unclear actions within the plan, preventing articulation of clear milestones to signal the end of the plan or a step down.

Ahmed is 14 years old and on a CIN plan for 12 months, addressing his behavioural issues and involvement with drugs. Despite making good progress and engaging with the plan early on, Ahmed's progress was inhibited by a succession of three different social workers over this period. This meant Ahmed had to "repeat my story over and over". Practitioners reviewing Ahmed's journey were confident that this plan could have stepped down to early help six months earlier, had his social worker not changed.
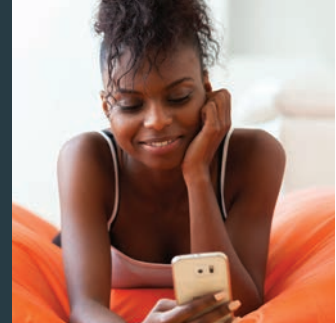
EXAMPLE:
Ahmed's story

Ensuring the best setting for looked after children

Reviewing practitioners found a number of cases in which children had been taken in to IFAs when alternative provisions would have provided a more appropriate setting.

Sirina is 18 years old and was a looked after child. She had been known to social services from a young age having experienced neglect from her parents, and was on a child protection plan from the age of eight.

Sirina's situation deteriorated, and despite joint working with schools and CAMHS, she came into care at age nine. In her first 18 months, she moved between four different fostering placements, before eventually finding a long-term fostering placement where she stayed until she was 18.

Reviewing practitioners felt that Sirina could have been placed with other family members (special guardianship orders or child arrangement orders), instead of taking her in to fostering care. However, the wider family options had not been investigated at that time.

EXAMPLE:
Sirina's story

38

Placing children on the best level of support or type of plan following an assessment

The extent of opportunity to improve decision-making at the point of assessments that result in children and young people going onto CIN or CP plans was also explored in the workshops. Reviewing practitioners identified two key drivers underlying the cases of children incorrectly placed on CIN plans after an assessment.

The first of these drivers was described as the professional relationship between early help and the social work teams, which had led to a lack of involvement of the early help service. In the six authorities studied in detail, colleagues described a lack of trust between the targeted support teams. This was particularly evident where cases lie close to the CIN threshold, often resulting in the case being pulled back into social work teams.

The second driver identified in the review process was authorities placing some children on plans because a sibling was on a plan, rather than focussing on the individual safeguarding needs and threshold considerations for that child.

Adam is six years old and on a child in need plan for 40 weeks.

Adam has three siblings who were also on separate CIN plans. His eldest brother, at 14 years old, was the main concern.

Adam's brother David had been involved in many violent incidents with the police, had a long history of non-attendance and non-engagement with school, and had a very challenging relationship with his parents.

Reviewing Adam's case files, practitioners noted that all actions or comments related to the impact on his older brother David. Adam as an individual was scarcely mentioned in the main plan.

Reviewing practitioners were confident that Adam and two of his other siblings had no need to go onto a CIN plan and could have been supported through existing universal services. The only child requiring support at CIN level was David.

39

Reviewing practitioners also studied cases in which children are placed on CP plans from an assessment. Where this outcome was considered to be less than the ideal level of intervention, the underlying factor was most often related to an inappropriate application of threshold. In the cases studied there were a small number of cases in which reviewing practitioners felt a more appropriate outcome would have been the child becoming a looked after child. There were a larger number of cases in which the ideal level of service would have been the child being placed on a CIN plan.

There were instances where the behaviour of partners was seen to have an impact. For example, in one authority evidence was seen of children being placed on CP plans rather than CIN plans because this was felt to be necessary to access CAMHS support from health partners. However, it was felt that in most cases variation to best outcomes were more under the authorities' control than that of partners. It should be noted that in this study partner behaviours were only analysed through looking at social care case notes for individual children and families. To get a more complete picture it would be useful to review the corresponding case files from partner organisations. Work is also underway by the Children's Commissioner analysing total spend on children across all system partners including education, health, social care and police.

It is important to note that although this thinking presents opportunities for authorities to reduce variation, in practical terms these may be extremely complex and costly to achieve. Many of the opportunities identified involve substantial cultural change impacting large numbers of staff across service boundaries, and may require additional investment in services to provide a higher volume of interventions at an earlier point. The timescales and costs associated with delivering such changes should not be underestimated.

PRACTICE IN SPENDING ON OTHER CHILDREN'S SERVICES

ALL OF THE AUTHORITIES FELT THAT THEY WERE EXPERIENCING ADDITIONAL, UNFUNDED PRESSURES IN SEND AND HOME TO SCHOOL TRANSPORT

Spend on looked after children and safeguarding children and young people make up the majority of spend (around 70%) and also show the largest variation in spend between authorities.

However, in the course of the work with the sample of authorities, significant differences in both spend and delivery models for the other elements of children's services were observed. These include services relating to children with special educational needs and disabilities (SEND) not covered under core safeguarding spend and a wide range of early help and preventative services amongst others.

Combined spend on these made up 30% of total children's services spend on average for the sample group of councils, although this varied from 22% at the lower end to 56% at the upper. The scope of this project did not allow a detailed analysis of these areas, but it nevertheless emerged as an important topic of discussion in each authority.

Variations in approach to early help and preventative services

Across the councils studied in detail there are significant differences in the scale and nature of early help / preventative services, as well as in the length of time that they have been in operation. Some areas have retained a more 'traditional' universal offer (with one area continuing to offer fourteen dedicated children's centres), whilst other areas have moved to a family hub model with locations providing support to children and young people across all age ranges.

The methods employed in this study were not designed to identify a correlation between spend on early help / preventative services and lower spend at higher tiers. Authorities within our sample spending more on early help and preventative services were seen to spend as much as others on looked after children, child protection and child in need provision. This does not mean that spend on preventative services is not effective, it means that analysis of national data or in-depth work across a small sample of councils is insufficient to draw conclusions on effectiveness. It was noticeable that councils spending more on these services tended to do so primarily as a result of political or strategic

commitment to the importance of providing help early. At a time when all spend is coming under pressure, greater engagement from councils in helping to build and draw upon the evidence base for these types of services, at both local and national levels, is likely to be important if they are to secure ongoing funding.

SEND, Transport and High Needs Block pressures

In each of the authorities studied in detail, the topic of spend pressures associated with SEND and home-to-school transport were raised as issues. All of the authorities felt that they were experiencing additional, unfunded pressures in these areas. This presented a challenge to balancing budgets and often required children's services to provide supplementary funding, for example to fulfil shortfalls in what the High Needs Block covered. Factors such as rurality and access to services were flagged in the context of this issue. Although not observed to be a significant driver of overall spend variation between councils, such pressures (often as a result of national policy change), are causing authorities to scale back spending in other areas and would need to be considered in any review of future funding.

41

Summary of analysis

The reported variation in spend between the sample group of councils started at £382 - £805 (a range of £423).

Although financial analysis revealed variation between reported and comparable spend values for individual councils of up to 12%, the upward and downward corrections largely cancelled each other out. Consequently, adjusting for this only reduced variation across that group to £390.

Removing variation in spend on 'other' services (i.e. those outside of the RO categories of looked after children and safeguarding children and families) reduced the range to £257.

The final step in understanding the financial impact of local decision-making and differences between councils in achieving actual and best outcomes identified a further 13% of variation, bringing the remaining variation in spend down to £224. The largest single area within this was the potential to reduce numbers of children coming into care, although it was recognised that significant challenges exist to achieve this. The factors driving the remaining £224 of variation between this sample group of councils remain unexplained in this approach and would require further work to investigate.

Figure 15.
Spend variation across the sample group of councils, adjusted for spend on 'other' children's services and variations in practice around LAC, CP and CIN.
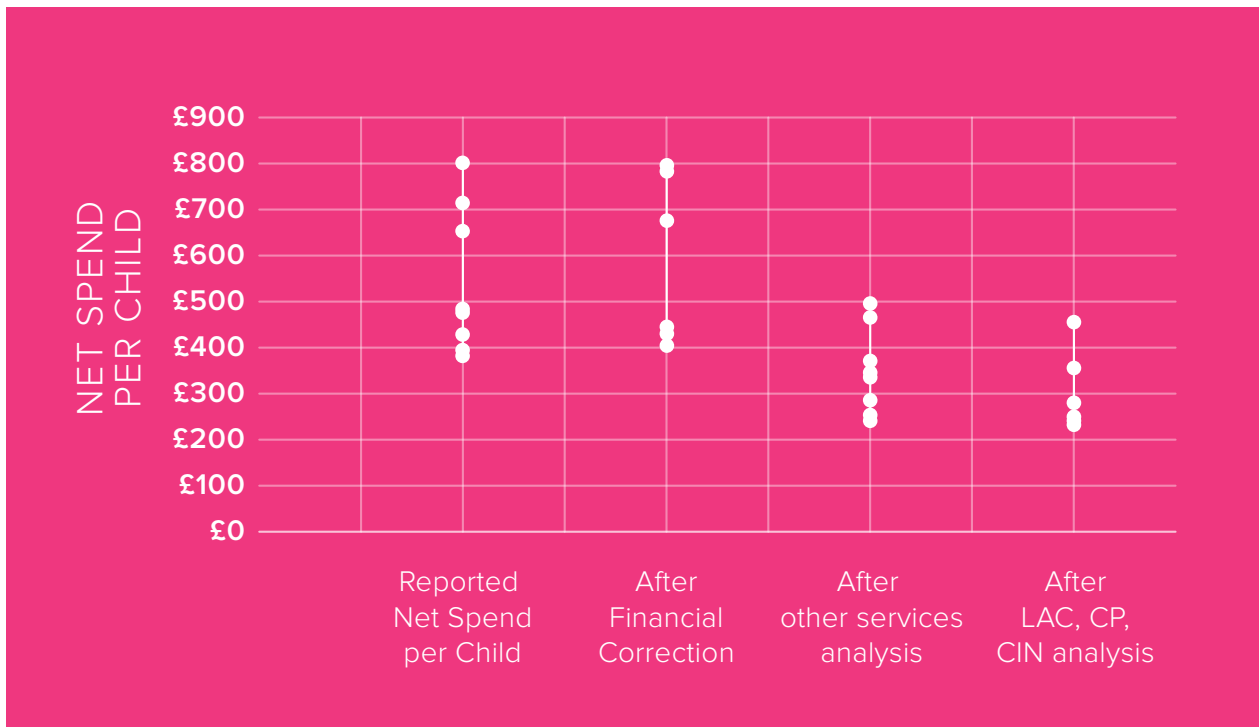
CONCLUSIONS

Understanding and quantifying the drivers of spend variation on children's services can best be achieved by using a combination of nationally available data and analysis of local factors in each authority. Through correlation analysis of 18 demographic, economic and geographic measures, it has been possible to identify a set of five factors that explain approximately half of the spend variation seen nationally across all authorities. These factors are largely outside of the control of councils, and certainly sit outside the control of children's services. As a consequence, variation in what authorities spend on children's services (per head of child population) is inevitable. It is not logical to expect authorities to converge on a single 'right' value of spend.

Of the five drivers of variation, the IDACI measure of deprivation was found to be the single most significant factor. Alone, it explains 31% of variation. When combined with the other four factors (size of population aged 0-25, amount of disposable household income, levels of unemployment and levels of crime) the resulting model describes just over 50% of spend variation.
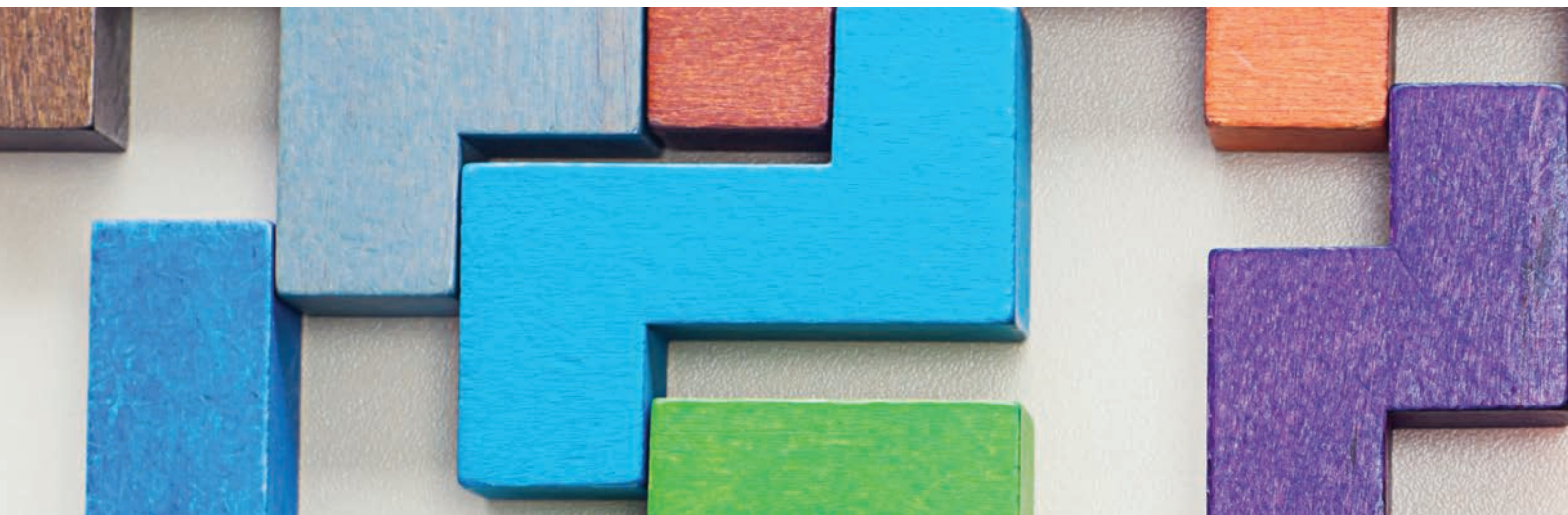
Analysis of reported spend, according to the revenue outturn financial returns, echoes previous research that has shown variation in the accuracy of how these returns are compiled. This makes it difficult to draw a like-for-like comparison of

It is not logical to expect authorities to converge on a single 'right' value of spend

spend between councils. The treatment of grants, coding of spend to areas of the revenue outturn and allocation of central overheads were the three key areas of inaccuracy identified. The complexity is compounded by the fact that the guidelines for the returns do not permit a like-for-like comparison of spend between authorities, specifically around how spend on asylum-seeking children is set out. In the sample of authorities in which in-depth analysis of the financial returns was completed, the overall contribution of this factor to spend variation was small. However, this is not necessarily representative of the broader national picture, since examples were seen where individual council spend changed by up to 12%.

Nationally, spend on looked after children and safeguarding children and families (which covers core spend on statutory child in need and child protection social work) are both the largest areas of spend and also the areas where spend varies most between authorities. Study of these areas across the sample authorities identified that taking

the right local steps to achieve the best possible outcomes for children, young people and families could reduce spend variation between the sample group of councils by 13%. The changes required to achieve this consistently, whilst more in the control of councils than other local partners, are nonetheless complex, potentially costly and challenging to achieve with no 'one size fits all' solution across authorities. Opportunities exist to further explore the role of partnership working and practice consistency to assist authorities in developing local improvement plans.

Spend on other areas of children's services outside of looked after children and safeguarding children and families makes up 30% of spend on average but presented a source of variation between the sample of authorities. In one authority the figure was 22%, whilst in another it was 56%. Within this, different approaches to early help and preventative services were identified. The methods employed in this study were not designed to identify a correlation between spend on early help / preventative services and lower spend at higher tiers. This does not mean that spend on preventative services is ineffective, simply that the analysis conducted here is insufficient to draw conclusions on effectiveness. However, it was noticeable that councils spending more on these services tended to do so primarily as a result of political or strategic commitment to the importance of providing help early. Greater engagement in the building of the evidence-base around early help and preventative services, at a time when all spend is being reviewed by councils, is likely to be important if funding for them is to be maintained.

By taking two different approaches this work has described some of the drivers behind up to 50% of the variation in spend on children's services. More importantly perhaps, the work also re-emphasises that we should expect to see some degree of variation driven by wider economic and geographical factors; our modelling suggests that a range from £334-£883 could be expected as the result of five factors alone. Coupled with variation in financial reporting practices, this means that caution needs to be taken when comparing one authority with another. Rather; the narrative around spend needs to be based on local system understanding and the appropriate cost of achieving the ideal outcomes for children and families.

The scope of this work, looking specifically at factors driving variation in spend on children's services between councils, is one of many questions and challenges facing the sector. Further work in this area is required to address the next logical questions around factors driving increases in demand and the future funding arrangements for children's services, including the total quantum of spend.

STATISTICAL APPENDIX

CONTENTS:

1. Statistical analysis of national data sets to assess external factors on spend

Identifying the five geographic and economic factors operating in the wider economic and geographical environment

i. Approach

These factors together account for around 50 per cent of variation in children's services spend.

The aim of this analysis was to identify the extent to which the spend on children's services can be described by external factors, using data that is readily accessible in the public domain.

Spend was defined as the net current expenditure in the Total Children Social Care section as reported in the revenue outturn social care and public health services (RO3) 2016 to 2017.

This includes spend on the following services:

- Sure start children's centres/flying start and early years
- Looked after children
- Other children's and families services
- Family Support Services
- Youth Justice
- Safeguarding children and young people's services
- Asylum Seekers
- Services for young people

Net spend provides the most consistent view of cost for each authority. Grants to cover children's services are not always included in the gross amount reported and gross amount can also include services provided for other authorities (accounted for in the net spend).

To understand the extent to which the variation in spend could be explained by environmental factors, the coefficient of determination was used.

The coefficient of determination, denoted as R^2, is the proportion of the variance in the dependent variable that is predictable from the independent variable(s). In this case the dependent variable is the net current spend and each of the factors identified are treated as independent variables

Using R^2, the extent to which the variables individually describe the variation in the Net Current Spend was established, along with the impact of the different possible combinations of the factors driving variation.

The value of R^2 ranges from 0 (no correlation) to 1 (perfect correlation). Where $R^2 = 1$, 100% of the values of the dependent variable are described by the independent variable(s). The value of R^2 therefore gives the percentage to which each set of variable(s) describes the variation in the dependent variable.

This is the basis of the statistical analysis. It is acknowledged however that correlation refers to a class of statistical relationships; it does not necessarily describe a causal relationship.

ii. Factors investigated

The independent variables assessed fall into the four categories listed below. The scope of this work did not permit an exhaustive investigation of the huge number of potentially correlated variables that could be linked to children's services spend. In the interest of creating a meaningful and relatable output, we selected a group of 18 metrics from commonly used, publicly available datasets that represent some of the most widely known and understood demographic, economic and geographic factors.

47

1. **Geographic factors potentially influencing the way services are provided**

   - Area

   - Population size of those aged 0-25 years

   - Population density

2. **Economic factors**

   - Affluence of the area - Gross Disposable Household Income (GDHI) was used

   - Deprivation indices - Index of Multiple Deprivation (IMD) combining information from seven domain indices (which measure different types or dimensions of deprivation) to produce an overall relative measure of deprivation. We assessed the correlation against IMD and each of the seven domain indices individually

   - Supplementary indices - income deprivation among children (IDACI) and older people (IDAOPI)

3. **Spend in other areas that support children**

   - Education spend

   These factors were presented to a workshop of 50 senior representatives from local authority children's services across the country. Education spending was added to the analysis as a result.

   Excluded from the study were:

   - Organisations operating, and therefore reporting spending, across areas that do not correspond to local authority boundaries such as police forces.

   - Organisations that do not report spending in a way that allows the services specifically supporting children to be identified (health care and police forces are examples).

   - Sources of data across the authorities that were incomplete or poorly defined.

iii. Data sources and data quality

All data used for this analysis is publicly available and has been published on the gov. uk website or the ONS website.

All data is the latest available, as of March 2018:

- Spending data is from the financial year 2016 to 2017 in the revenue outturn reports.

- The GDHI and the deprivation index data is from 2015

- Area of each local authority was taken from Census data from 2011

- Population data – Office for National Statistics (ONS) estimates for mid-2016

Types of local authority:

- The complete set of data comprised 148 local authorities, following exclusion of three atypical organisations (see below). Inclusion of these organisations was likely to skew the analysis of the national data to an unhelpful degree.

- The 148 authorities are made up of
  - o Shire Counties
  - o Metropolitan Districts
  - o Unitary Authorities
  - o London Boroughs

- Where shire counties are made up of multiple districts at which data is reported, data is summed across the corresponding districts

Three local authorities were excluded from the analysis:

1. City of London

- Very small child population and a GDHI of over £455,000

2. Kensington and Chelsea

- Outlier on GDHI

3. Slough

- Reported net spend on children's services was £25.17 per head of child population, less than 10% of most other authorities. As Slough has recently set up a private organisation to run their children's services it is unclear what the reported spend covers. It is unlikely to be possible to provide the scope of children's services provided by other local authorities for this cost, therefore Slough was excluded from this analysis

iv. Assessing the variables

To make a full assessment of the extent to which each variable can explain the variation in children's services spending, every possible combination of the variables was tested. This involved calculation of the R^2 value of each individual variable, followed by calculation of the R^2 value for every combination of two variables, every combination of three variables and so on, until all 16 variables had been incorporated into the equation.

This was undertaken using Python 3.0 to run a script - for further detail see Python script description.

## v. Identification of variables driving the greatest variance by forward selection:

When using large numbers of variables to explain a target variable it is important to avoid overfitting (assuming a factor or set of factors has a greater impact than it does in reality).

By assessing the R^2 of all combinations of all the variables and plotting the variation of R^2 with the number of variables used, the impact of each additional variable in adding to the information on spend can be assessed.

This process is referred to as forward selection and is a recognised method of selecting the most significant factors from a wider set of variables. Using forward selection, variables are added to the model one at a time. At each step, each variable that is not already in the model is tested for inclusion in the model. The most significant of the variables are added to the model.

The analysis in this exercise demonstrated that once five specific variables are used in the model, 85% of the variation driven by all 16 variables is achieved.

This means that after the five high-impact variables are considered, each of the remaining 11 (variables driving only 15% of total variation) provide far less useful information in understanding the variation in spend.

49

R² VARIATION WITH THE NUMBER OF VARIABLES WHEN USING FORWARD SELECTION

NUMBER OF VARIABLES
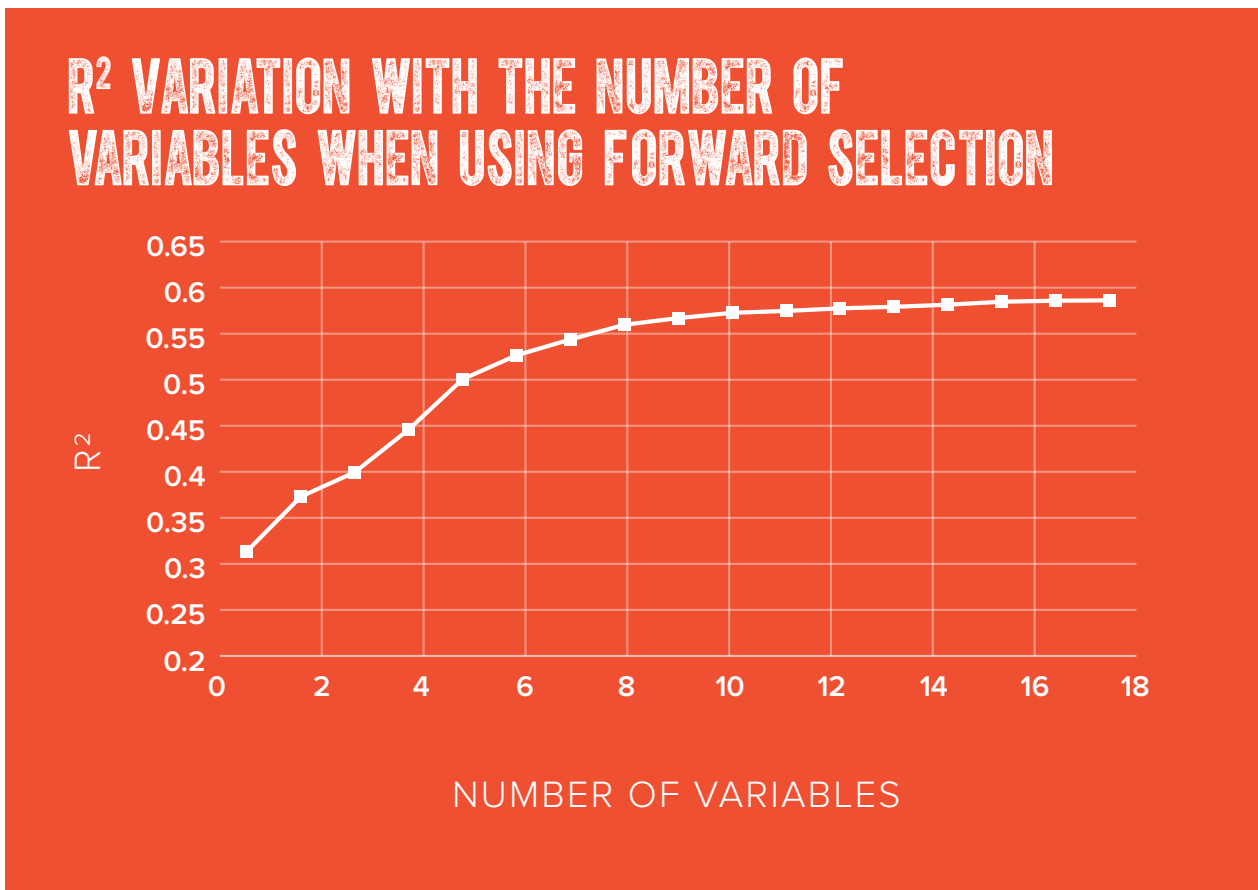
In this case the variable which individually has the strongest correlation with net spend is deprivation, as defined by IDACI.

The value of R^2 was then tested for each of the other variables when combined with IDACI – the highest value of R^2 for a combination of 2 variables including IDACI was reached by adding population of 0-25 year olds (in 2016/17) to the model. Each additional variable was added by testing its R^2 value with the combination of the variables selected so far.

1ST	2ND	3RD	4TH	5TH	R^2
IDACI					0.3137
IDACI	POPULATION 0-25				0.3730
IDACI	POPULATION 0-25	GDHI			0.3995
IDACI	POPULATION 0-25	GDHI	EMPLOYMENT AVERAGE SCORE		0.4459
IDACI	POPULATION 0-25	GDHI	EMPLOYMENT AVERAGE SCORE	CRIME - LSOAs IN BOTTOM 10%	0.5005

vi. Measuring deprivation

Deprivation was found to be linked to some 31% of observed variation in spend on children's services. It is crucial therefore to be explicit about the way in which the extent of deprivation was assessed in this work.

The Index of Multiple Deprivation, (IMD) as used by the Office of National Statistics, is the most widely–used and widely-recognised measurement. The IMD is a compilation of seven key indices of deprivation, with each of the seven domains weighted. The seven domains (with their weighting values) contributing to the IMD are:

- Income Deprivation (22.5%)

- Employment Deprivation (22.5%)

- Education, Skills and Training Deprivation (13.5%)

- Health Deprivation and Disability (13.5%)

- Crime (9.3%)

- Barriers to Housing and Services (9.3%)

- Living Environment Deprivation (9.3%)

In addition to the IMD and the seven domain indices that comprise it, there are two supplementary indices that are used to assess levels of deprivation when appropriate: the Income Deprivation Affecting Children Index (IDACI) and the Income Deprivation Affecting Older People Index (IDAOPI).

The IMD is published at the Lower Layer Super Output Area (LSSOA) level and formed by pulling together a total of 38 individual indicators, selected to cover a range of economic, social and housing issues for each small area in England. The LSOA is a small geographical area comprising an average of 1500 people (minimum 1000) and some 650 households. This small 'packet' of population is used by the ONS to understand and describe small area statistics, as this level of detail provides information at a high level of granularity, allowing patterns of deprivation and other socio-economic factors to be identified.

Once domain scores have been established for each LSOA, they given a ranking. LSOAs are ranked for each domain and also for the combined IMD measure and given a position relative to all others in the country. The LSOA ranked 1 is the most deprived and the LSOA ranked 32,482, the least.

In assessing the levels of deprivation for each of the authorities in this study, two methods of using the IMD were identified – they are:

1. Using the national ranking of LSOAs, the number of LSOAs lying within the lowest 10% was established, for each authority

2. Using the average IMD score across all LSOAs in each authority

Each of the above two approaches to assessing deprivation was then tested against a set of 18 factors (see below) influencing variation, derived from preliminary analysis.

Factors showing the least variation were removed to create a meaningful set which was then subjected to the correlation coefficient process described above, every combination being tested for the R^2 value against net spend.

The number of LSOAs in the lowest 10% of the national ranking LSOAs in terms of deprivation was used as it was felt that this would provide a stronger degree of correlation than the average score of IMD by LSOA for each authority.

In practice it was found that there was a weaker correlation between children's services spend and the number of LSOAs in the lowest 10% of the national ranking, for each of the domains of IMD, than was found with the average score for each domain across all LSOA making up the authority. Crime rate proved to be the single exception to this finding, in which the proportion of LSOAs in the lowest 10% of the national deprivation indices was a stronger indicator than the average score of IMD.

A key finding arising from the study of the national data is that factors impacting on the variation in spend are greater in combination than each factor is as a standalone entity.

An exception to this finding emerged when testing the hypothesis that inequality (defined as deprivation combined with the level of unemployment) within a local authority is a key driver of spend, the variance of the scores for deprivation and employment for all LSOAs within each of the local authorities was put through the correlation coefficient process.

However, it was found that in combination these two specific factors did not provide strong correlators with net spend.

51

The 18 factors included in the final analysis were:

1. Net Expenditure Per 0-25 Population
2. 2016/17 Population 0-25
3. Area / Ha
4. Population Density 0-25
5. IMD - Average score
6. Income - Average score
7. Employment - Average score
8. Education, Skills and Training - Average score
9. Health Deprivation and Disability - Average score
10. Crime - Average score
11. Crime - Proportion of LSOAs in most deprived 10% nationally
12. Barriers to Housing and Services - Average score
13. Living Environment - Average score
14. Income Deprivation Affecting Children Index (IDACI) - Average score
15. Income Deprivation Affecting Older People (IDAOPI) - Average score
16. GDHI per head
17. Income Deprivation average score variance in LSOAs
18. Employment Deprivation average score variance in LSOAs

2. Python script description

The following description

1. Data cleanse – create an excel spreadsheet with one row per local authority and each variable to include in the dataframe. No blank or non-numeric value can be in the variables columns.

2. Import the excel file using the numpy read_excel function into Python and create a data frame with just the numeric values (the dependent and all independent variables to test).

3. Create a list of all columns in the data frame corresponding to the independent variables.

4. From this list create a list of all possible combinations of the variables. This can be done using the itertools functions Chain and Combinations.

5. Define a function which will apply a linear regression function (linear_model. LinearRegression from Scikit Learn) to each combination of factors in a list.

6. This function can now be applied to the list of all possible combinations to give R^2 values and the coefficients for every variable.

3. Links to data sources

DATE	LINK
Revenue outturn social care and public health services (RO3) 2016 to 2017	https://www.gov.uk/government/statistics/local-authority-revenue-expenditure-and-financing-england-2016-to-2017-individual-local-authority-data-outturn
Revenue outturn education services (RO1) 2016 to 2017	https://www.gov.uk/government/statistics/local-authority-revenue-expenditure-and-financing-england-2016-to-2017-individual-local-authority-data-outturn
GDHI – data released 24/05/2017 **Data available up to 2015**	https://www.ons.gov.uk/economy/regionalaccounts/grossdisposablehouseholdincome/datasets/regionalgrossdisposablehouseholdincomegdhibylocalauthorityintheuk
IMD and each indicator, by local authority for 2015	https://www.gov.uk/government/statistics/english-indices-of-deprivation-2015 File 11: upper-tier local authority summaries
Census data used for area and population density	https://www.ons.gov.uk/file?uri=/peoplepopulationandcommunity/populationandmigration/populationestimates/datasets/2011censuspopulationestimatesbyfiveyearagebandsandhouseholdestimatesforlocalauthoritiesintheunitedkingdom/r12ukrttablep04ukv2_tcm77-304141.xls
Population data - **ONS population estimates by age for each local authority**	https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/datasets/populationestimatesforukenglandandwalesscotlandandnorthernireland

53

Acronyms used in Appendix

GDHI	Gross Domestic Household Income
ONS	Office for National Statistics
IMD	Index of Multiple Deprivation
IDACI	Income Deprivation Affecting Children Index
IDAOPI	Income Deprivation Affecting Older People
LSOA	Lower Layer Super Output Area

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