Changes in health visiting service expenditure in England (2016-2023): analysis of administrative data

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Background

The Healthy Child Programme (HCP) mandates health and wellbeing reviews through the health visiting services at four milestones for children aged 0-5 years (Public Health England, 2021). The service is offered to all families and reviews should ideally take place face-to-face under the supervision of a health visitor, either at the child's home or other community location such as a clinic.

There are four levels of health visiting service offered depending on individual and family needs: community, universal, targeted and specialist levels of support. Health visiting services have a high impact on supporting the transition to parenthood, supporting health, wellbeing, and development, and achieving overarching aims for early years, for example reducing inequalities and ensuring children are ready to start education (Public Health England, 2021).

Recently, the No Child Left Behind (Public Health England, 2020) and Childhood Vulnerability in England (Children's Commissioner, 2019) reports have advocated for a more needs-lead approach to address inequality and the causes of vulnerability. The reports looked at broader contexts and evidence for children that affect whether vulnerability and adversity in childhood has a lasting impact on their lives, to consider the most vulnerable (Public Health England, 2021).

In England, health visiting services are primarily funded by the public health grant, a ring-fenced budget that local authorities receive to provide preventative services and promote public health in their local populations. This includes drug and alcohol services, children's health services and sexual health services (Health Foundation, 2024). The preventative services offered by the public health grant cost £3,800 for each additional year of good health achieved in the population, which is over three times lower than the cost of NHS interventions of £13,500 per additional year of good health (Health Foundation, 2021).

Investment in the public health grant saves money, yet between 2015-2023, the public health grant has been cut by 28% on a real terms per person basis, with greater cuts in deprived areas. Over this period, spending on children's services has been reduced by 30%, one of the largest reductions in spend (Health Foundation, 2024). Decisions about how to spend the public health grant are decided locally by local authorities. Therefore, it is likely there is variation in how funding for health visiting services has changed in this time period, with some local authorities protecting funding for health visiting services and others experiencing severe budget cuts.

As part of a mixed-methods study evaluating the impact of health visiting on child and maternal outcomes, our research teams are describing and exploring the variation in the delivery of health visiting services across England by integrating analyses of national linked administrative data with in-depth interviews (Feng et al., 2024). To provide context to this study, during my Laidlaw Programme placement, I analysed publicly available local authority expenditure data (the 'Revenue Outturn dataset') which was published by the Department for Levelling Up, Housing and Communities (Ministry of Housing, Communities & Local Government, 2024). The aim of this analysis was to explore how the impact of public health

budget cuts has affected expenditure on health visiting services, including variation between local authorities.

Research questions:

1. How has expenditure on health visiting services changed between 2016 and 2023, overall and by local authorities?
2. How are contextual factors, such as deprivation and region, associated with differential levels of local authority expenditure on health visiting services in the context of real-world falls in the value of the public health grant?

Methods

Data sources and preparation

The primary source of data for this analysis was the publicly accessible Revenue Outturn dataset (Ministry of Housing, Communities & Local Government, 2024). This dataset includes a breakdown of each local authority's expenditure on 0-5 health visiting services in 2016/17-2022/23. The expenditure dataset was highly complete and was only missing data for some years from five local authorities (Torbay, Slough, Thurrock, Isles of Scilly, and Birmingham). Due to this missing data, I was unable to calculate the outcomes variables needed for the analysis these local authorities were excluded and I conducted the analyses on 144 local authorities.

To explore associations with area-level deprivation, I used the 2019 Index of Multiple Deprivation (IMD) scores and the 2019 Income Deprivation Affecting Children Index (IDACI) scores from UK Government English Indices of Deprivation 2019 (Ministry of Housing, Communities & Local Government, 2019). IMD is an overall relative measure of deprivation constructed through a combination of seven different deprivation indicators, and IDACI measures the proportion of all children 0-15 living in income deprived families. To explore, associations with region, I used regional groupings used in the Revenue Outturn dataset. To combine the expenditure, deprivation and region data, I matched datasets using local authority ID codes.[1]

Outcome: Change in inflation-adjusted expenditure

To describe the change in health visiting services expenditure over time, I had to calculate the real term expenditure value of money spent in 2023 accounting for inflation since 2015. To do this, I used the Office for National Statistics (ONS) and Bank of England inflation calculator to obtain the Consumer Price Index (CPI) for each financial year 2016-2023. From this, I calculated the deflator for each year and divided the total expenditure by the deflator to deflate the expenditure to 2015 real terms.

I then created and defined the outcomes variables for my analyses, including total change in expenditure 2016-2023, total percentage change in expenditure 2016-2023, and percentage change between years. In the creation of these variables, I used the deflated expenditure to illustrate this change in 2015 real terms.

Analysis

To explore changes in expenditure, I calculated change in total expenditure and percentage change in total expenditure, overall and for each local authority. I visualised these results using line graphs and boxplots.

I also explored the relationship between area-level deprivation (using IMD and IDACI measures) and local authority spending on health visiting services using linear regression models. All analyses were carried out using Stata v16 and Excel.

[1] The IMD and IDACI datasets included local authorities with E07 codes, which were not included in the expenditure dataset, and did not include the local authorities with E10 codes which were in the expenditure dataset. As the E10 codes are for counties and the E07 codes are for non-metropolitan districts, it was possible to map the E07 codes onto the E10 codes, as multiple E07 local authorities often made up one E10 local authority.

Results

How health visiting service expenditure changed in England between 2016 and 2023?

My findings indicate that expenditure on health visiting services in England has decreased since 2016/17. On average, expenditure decreased by 15.27% from 2016/17 to 2022/23 (Figure 1) equating to a loss of £1,135,200 in real terms. Figure 1 shows that overall expenditure in England steadily decreased from 2016/17 to 2018/19, falling by 8.32% in real-terms. Between 2019/20-2021/22, expenditure marginally increased but fluctuated around the same level of 90-91% of 2016 expenditure, before a dramatic decrease of 6.05% in 2022/23.

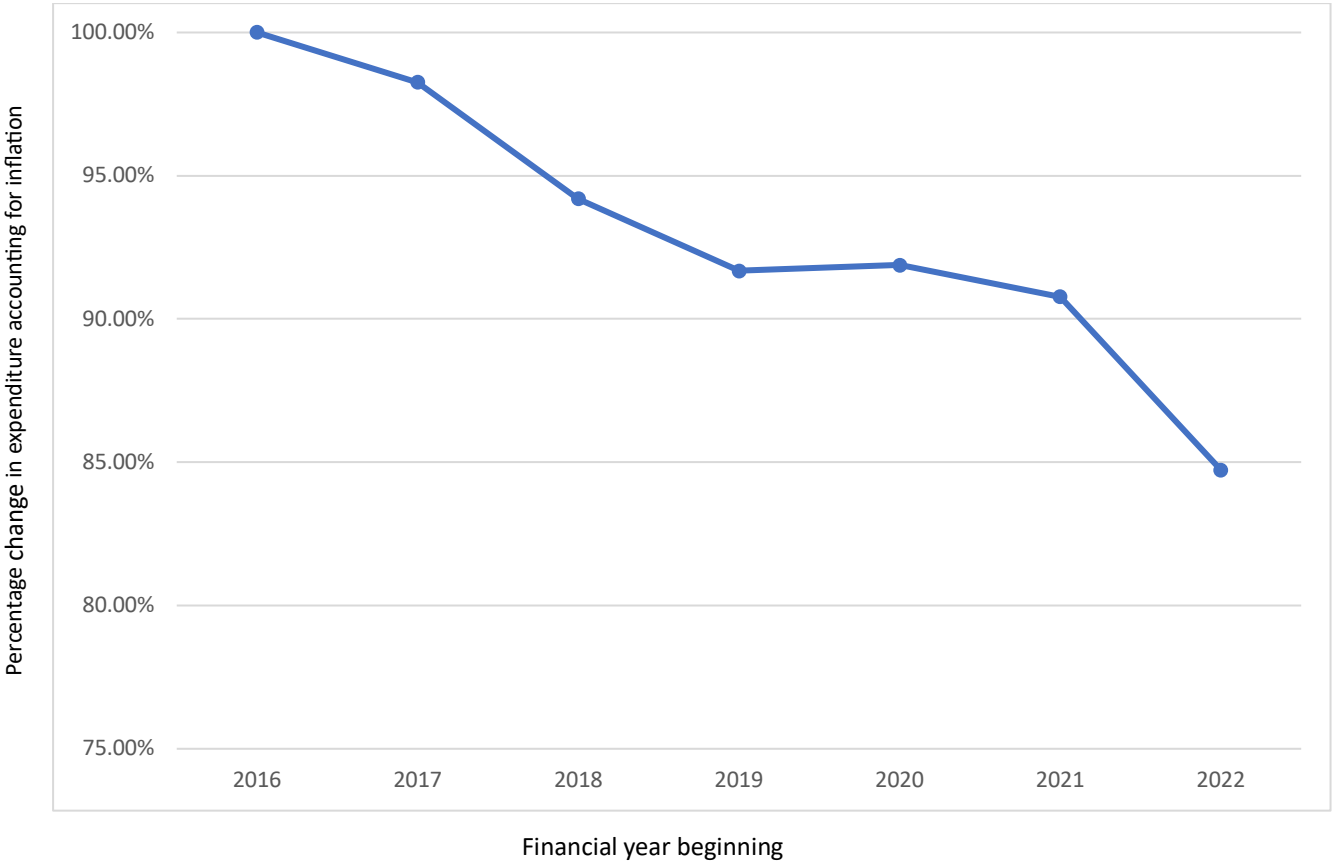

Figure 1. Line chart of annual percentage change in expenditure on health visiting services in England during the period 2016/17-2022/23.

How do changes over time in health visiting service expenditure vary between local authorities?

There was considerable variation in health visiting service expenditure between local authorities. Although real-term expenditure decreased overall, 24 local authorities did increase health visiting services expenditure during the study period (Middlesbrough, Redcar & Cleveland, Derby City, Rutland, Bristol, North Somerset, Peterborough, Southend-on-Sea,

Trafford, Wigan, Rotherham, South Tynes, Wolverhampton, City of London, Brent, Haringey, Harrow, Havering, Hounslow, Newham, Sutton, Tower Hamlets, Cambridgeshire, Gloucestershire). The greatest increase was in Middlesbrough (+135.3% in real-terms expenditure from 2016/17 to 2022/23).

I plotted both the total change in expenditure (Figure 2) and the total percent change in expenditure (Figure 3) on box plots. Figure 2 illustrates that the median expenditure change is -£1,002,470 and interquartile range is -£350,650 to -£1,528,610 change in expenditure and Figure 3 shows that the median total percentage change from 2016/17 levels is -18.70% interquartile range is -7.28 to -27.74%. This clearly demonstrates that most local authorities in England reduced expenditure from 2016/17, both in terms of amount of money spent and percentage wise, although there was variation in how greatly total expenditure was reduced. 5 local authorities reduced expenditure by more than 50%: Warrington (-60.18%), Cheshire West and Chester (-55.08%), Dorset (-56.59%), Kingston upon Thames (-56.22%), Suffolk (-59.33%)

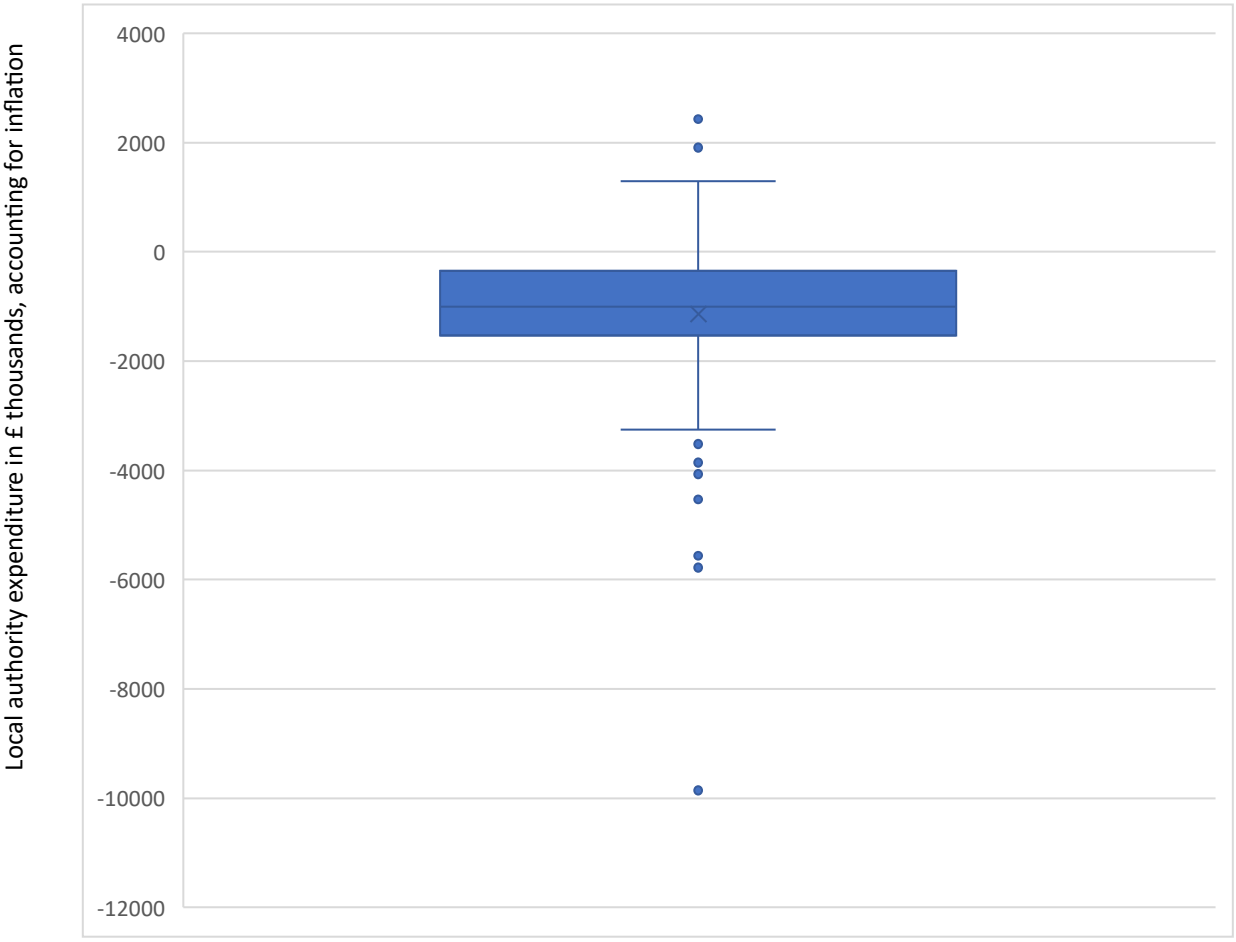

Figure 2. Boxplot of average total change in local authority expenditure on health visiting services in the period 2016-2023.

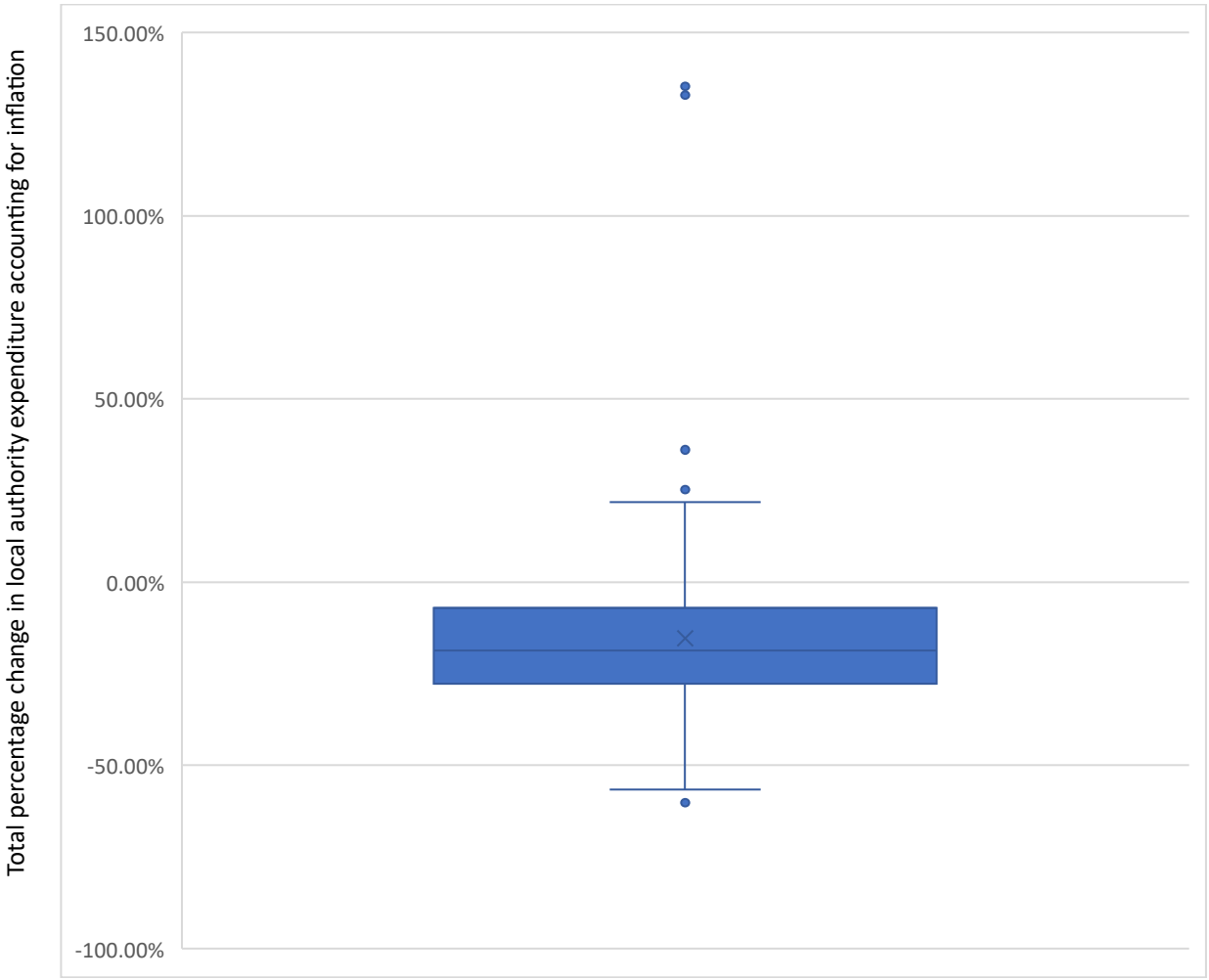

Figure 3. Boxplot of average total percentage change in local authority expenditure on health visiting services in the period 2016-2023.

How are contextual factors, such as deprivation and region, associated with differential levels of local authority expenditure on health visiting services in the context of real-world falls in the value of the public health grant?

I used two different deprivation indices to measure the association of deprivation and differential responses to health visiting services fundings, IMD and IDACI. The simple linear regressions that I plotted for both indices display different results. The linear regression model demonstrating the relationship between IMD and total expenditure has a p-value of 0.08. This p-value is greater than the significance level (0.05) and therefore I fail to reject the null hypothesis and cannot conclude that there is a statistically significant relationship between IMD and total expenditure on health visiting services.

The linear regression demonstrating the relationship between IDACI and total expenditure (Figure 4) has a p-value of 0.04. This is less than the significance level and therefore I can reject the null hypothesis and conclude that there is support for the alternative hypothesis: there is a statistically significant relationship between IDACI and total expenditure on health visiting services. The regression line has an upward slope, suggesting that there is a weak

positive relationship between IDACI and total expenditure and therefore higher IDACI results in greater spending on health visiting services. Therefore, local authorities with worse average children's deprivation tend to spend more on health visiting services, although they have still, on average, decreased spending from 2016 values.

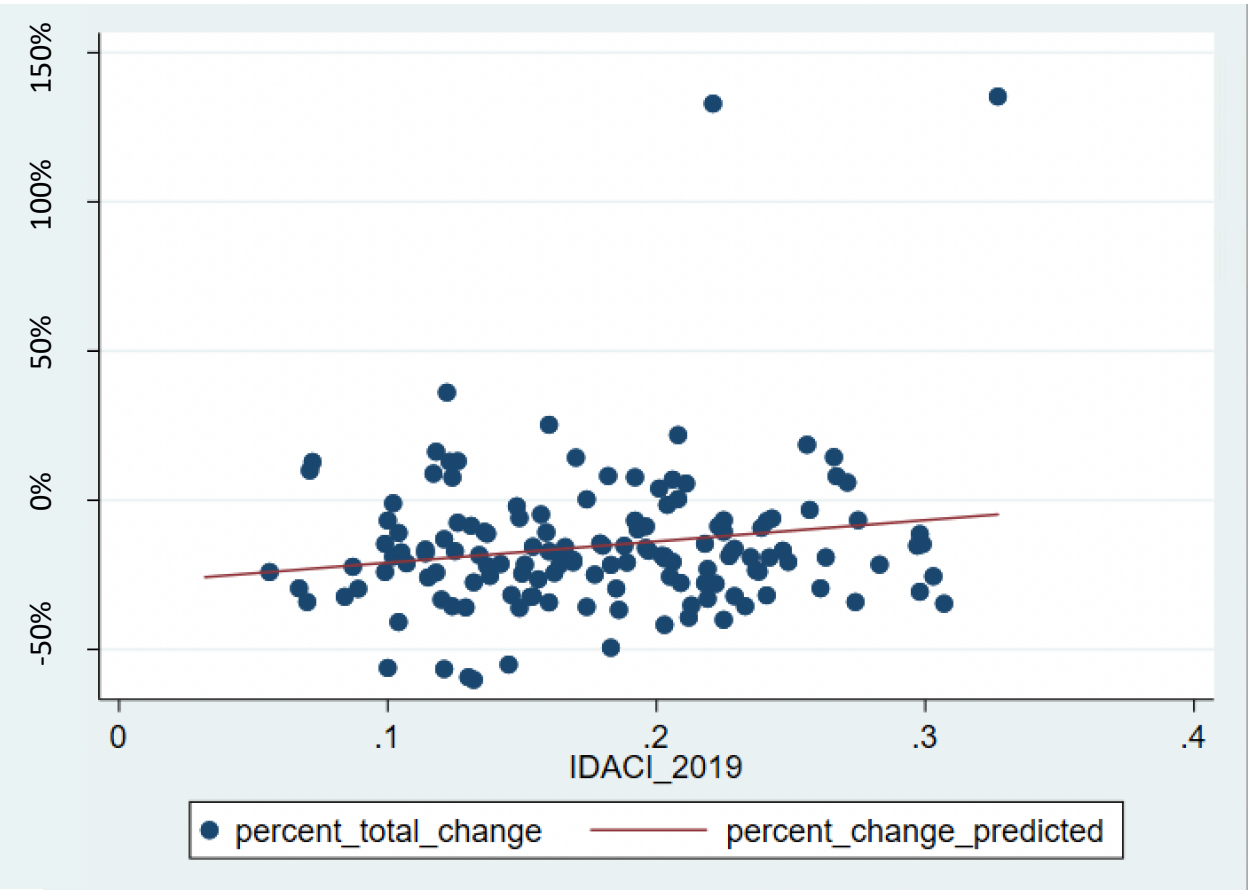

Figure 4. Linear regression model exploring the association between average IDACI and average total percentage change in local authority expenditure on health visiting services in the period 2016-2023.

There is regional variation in local authority responses to health visiting service funding levels. I grouped the local authorities into four regions: London, Counties, Unitary Authorities, and Metropolitan Districts and then plotted the expenditure data into boxplots (Figure 5 and Figure 6). London had the largest range for total percentage change (-56.22-25.29%), but the Counties had the largest range for total expenditure change (-£5,777,230 – 2,433,040) despite having the smallest range in percentage change (-32.34 - -5.95%). There was also regional variation in median expenditure change. London had the lowest median total expenditure change at -£462,740 and the Counties the highest median change at -£1,723,980, whilst Metropolitan Districts and Unitary Authorities had similar median changes in expenditure at -£1,002,470 and -£863,780 respectively. London had the lowest median total percentage change at -11.19% and Unitary Authorities had the highest at -21.57%, nearly double the percentage change in London, whilst Metropolitan Districts was -16.90% and Counties -18.92%.

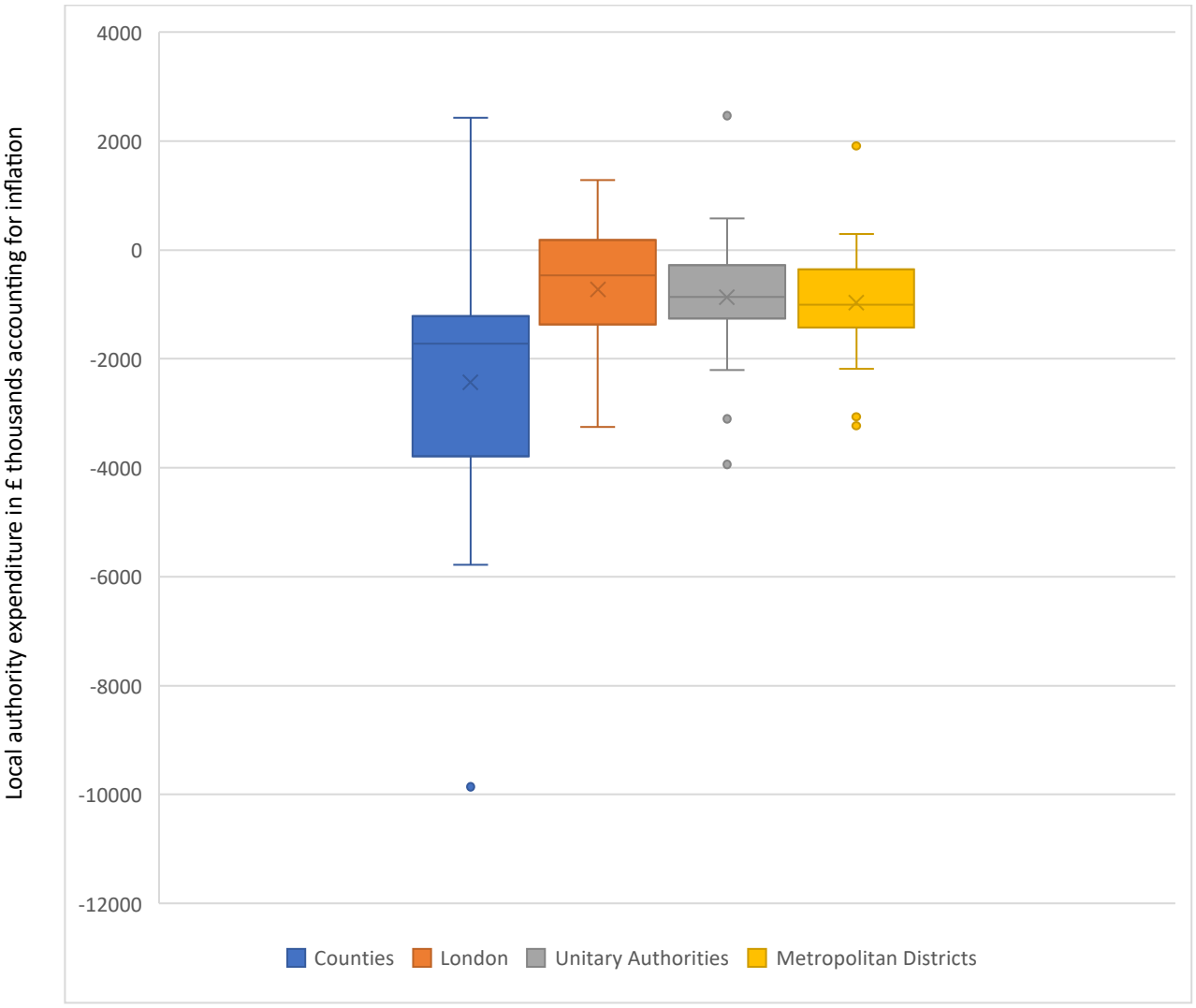

Figure 5. Boxplot of average total change in local authority expenditure on health visiting services in 2016-2023 broken down by region (Counties, London, Unitary Authorities, Metropolitan Districts).

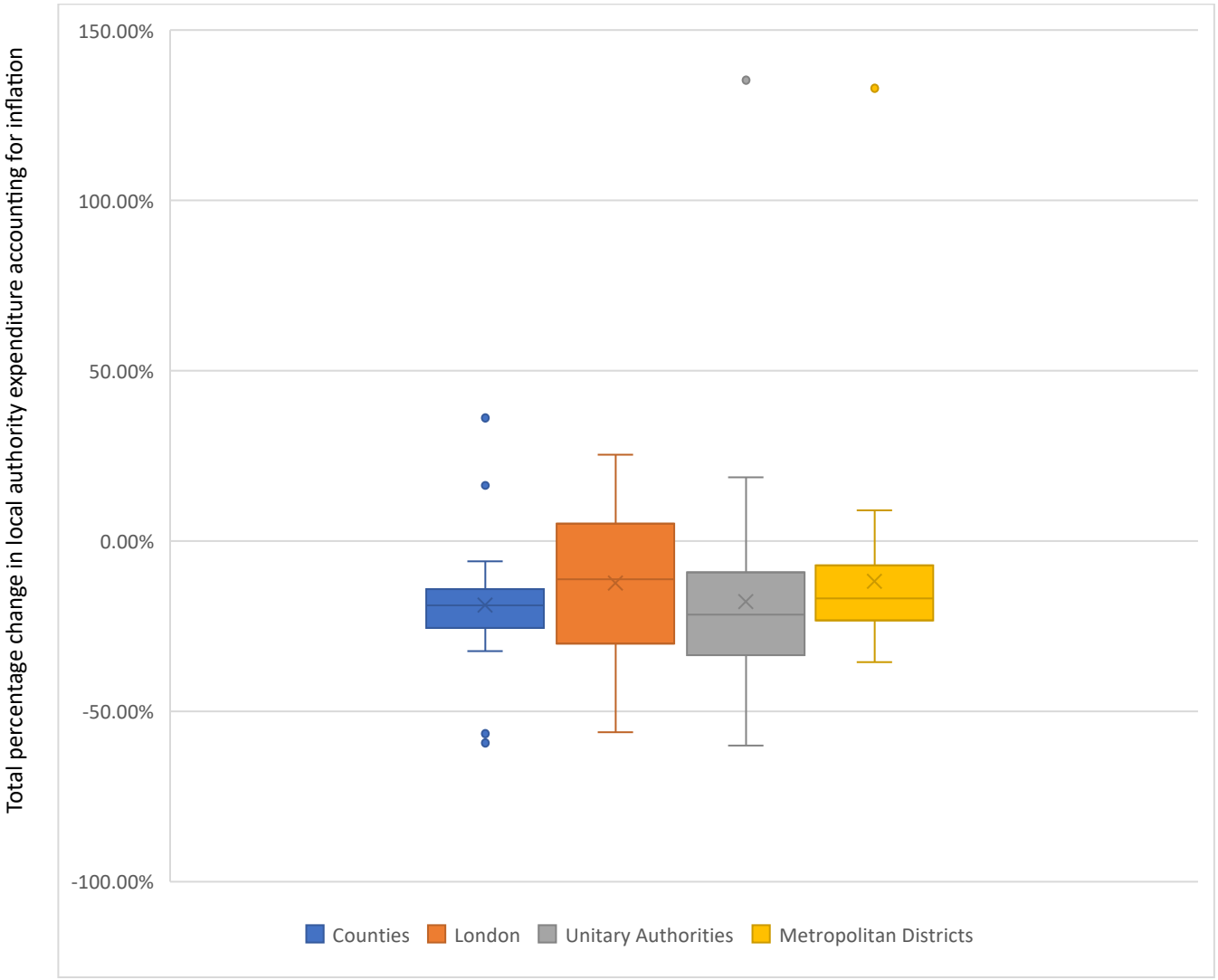

Figure 6. Boxplot of average total percentage change in local authority expenditure on health visiting services in 2016-2023 broken down by region (Counties, London, Unitary Authorities, Metropolitan Districts).

Conclusions

I found that expenditure on health visiting services in England has decreased in the period 2016-2023. On average, health visiting service expenditure has decreased by 15.27% from 2016/17, resulting in an average loss of £1,135,200 in real 2016 terms. As hypothesised, there was considerable variation in real-term changes in health visiting service expenditure during the study period. Although most local authorities experienced real-term decrease, there was a sizeable minority of local authorities (24/144) increased their expenditure on health visiting services in real-terms.

Interestingly, the percentage change and total expenditure change outcome variables I created and analysed offered different results, as the local authorities with the most significant changes in total expenditure often did not have the most significant changes in total percentage change. This suggests that the local authorities with the most significant total expenditure changes were also those with the largest health visiting services expenditure to start with.

There was strong regional variation in real-terms expenditure on health visiting expenditure. London has the lowest median change in total expenditure and total percentage change, and the Counties has the higher median total expenditure change and Unitary Authorities has the highest median total percentage change. This shows that London local authorities tend to have the highest funding for health visiting services, whilst the South Coast and Unitary Authorities have the lowest funding for health visiting services.

I did not observe a pattern between average IMD of a local authority and total change in their health visiting services funding. However, there was a relationship observed between the average IDACI of a local authority and total change in their health visiting services funding. The positive linear relationship between average IDACI and health visiting services funding, suggests that as average IDACI in a local authority increases, health visiting services funding increases. Although, funding still decreased from 2016 levels, local authorities with higher average IDACI decreased their funding by less than those with lower IDACI, so local authorities with worse children's deprivation have greater funding of children's health visiting services. As the IDACI index specifically measures children's deprivation, I can therefore assume that average deprivation only affects local authority spending on health visiting services when it is specifically average children's deprivation.

A limitation of this research is that I looked only at the total expenditure change and total percentage change as a measure of how spending changed over the period. I did not measure the per capita changes to see how expenditure for each child aged 0-5 years changed and how this varied by local authority. Some of the changes in expenditure may be due to changes in the size of the child population and future analysis of this data to explore per capita changes would be valuable.

It was beyond the scope of this analysis to explain why the observed regional differences may exist or to characterise the 24 local authorities that increased their spending on health visiting services. Future research to address these limitations would help to understand the drivers of differential responses to funding cuts in terms of health visiting expenditure.

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