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ANALYSIS OF SECTOR LED IMPROVEMENT OF CHILDREN AND YOUNG PEOPLE'S SERVICES

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Abstract

This paper was commissioned by the Association of Directors of Children's Services (ADCS) National Performance and Information Management Group (NPIMG) to support the work of ADCS to evaluate and assess the impact of Sector Led Improvement of Children and Young People's Services, and to explore the possibility of designing and developing (with ADCS and other partners) an 'Early Warning' model. The objective is to identify when and where the performance of Children and Young People's Services is moving in the wrong direction. We undertake pre-post testing and difference in difference analysis, the latter allows us to use control data to ensure that external factors affecting all regions are considered.

Keywords: Sector Led Improvement; Key Performance Indicator; Difference in Difference Analysis; Early Warning System

1. Introduction

The government through Ofsted delivers external inspection to all Local Authorities Children's Services across the public sector. These inspections, as highlighted in extensive press coverage, are a real reputational risk for a local authority, and with two thirds "failing" inspection it is an area of national significance.

Since the demise of the Children's Improvement Board, improvement within the sector has been, as many areas are now under the current government, directed to be "self-reliant". More generally across a local authority's breadth of services the Local Government Association, LGA, has given "general" sector led support through a Peer Review process. However, specifically in the "specialist" area of Children and Young People, CYP, the LGA have remained at arm's length and the ADCS as CYP's professional body have seen a number of regional approaches emerge over the past 5 years.

There are nine ADCS regions, each with a group of Directors (DCSs) and a sub group of PIMG professionals. Where relationships work well the PIMG group drives and delivers the sector led improvement model, on behalf of DCSs, however this picture is variable across the nine regions.

The SLI model in Yorkshire and Humberside (Y&H) consists of:

- Benchmarking against a 75 KPI data profile covering key themes:
 - Early Help
 - Early Years
 - Safeguarding
 - Looked after children (LAC) & Adoption
 - Education & Employment
- A qualitative self-awareness document detailing the LA's top 6 areas of strength and areas for development - triangulated with the data profile.
- A Challenge Day where all 15 LA's are split into 3 groups where they advocate their positions under challenge from the other LA's and moderators.

The question therefore is whether the introduction of the SLI model has impacted on performance on the KPIs in the Y&H LAs. The list of LAs of the Y&H region is provided in Appendix 1.

The purpose of this work is to consider and present an analysis of whether the introduction of the SLI model in Y&H has had an impact on the KPIs. This was a pilot study and we considered only 7 ‘herd’ KPIs in order to present and explain preliminary results¹.

The chosen KPIs

Seven ‘herd’ KPIs have been chosen from the Safeguarding and Early Help sections.

The KPIs are defined as in table 1. On checking out the data, we find that KPI 1 is not available for the pre-SLI period and so it is impossible to use this in our analysis. The detailed time series plot for each KPI and each LA are provided for background information in Appendix 2.

Table 1: KPIs

| KPI | Definition | Good performance on this KPI is represented by: |
|------------|---|--|
| 1 | Rates per 10,000 of referrals to Children's Social Services | Low value |
| 2 | Percentage of re-referrals to children's social care within 12 months of the previous referral | Low value |
| 3 | Children who are the subject of a CPP - rate per 10000 | Low value |
| 4 | Children looked after rate, per 10000 children aged under 18 | Low value |
| 5 | Percentage of initial child protection conferences held within 15 days of the start of the section 47 enquiries which led to a conference | High value |
| 6 | Child Protection Plan lasting 2 years or more which cease during the year | Low value |
| 7 | Rate of children who ceased to be the subject of a child protection plan per 10,000 children | Low value |

¹ We use the Local authority interactive tool (LAIT) to collect the data for the KPIs (<https://www.gov.uk/government/publications/local-authority-interactive-tool-lait>). The initial data information was given by a stakeholder.

The descriptive statistics for these indicators across all the Y&H LAs are presented in table 2. From this table we can see the typical value (mean) for each KPI over the study period (2006 to 2017), and an indicator of spread (standard deviation).

We also provide the information calculated for the years 2006-2010 (pre-SLI) and 2011-2017 (post-SLI). For each KPI the average value is greater in the post-SLI period compared to the pre-SLI period, *with the exception of* KPI 6 where the opposite is observed. The following should be noted:

- In the case of KPIs 2, 3, 4 and 7 the higher values post-SLI suggest worse performance than pre-SLI.
- In the case of KPIs 5 the higher value post-SLI represents better performance than pre-SLI.
- In the case of KPI 6 the lower value post-SLI represents better performance than pre-SLI.
- These results should be treated with great care as they do not control for any factors which might affect performance – they simply compare an average pre-SLI with an average post-SLI, but the results cannot be attributed to any particular cause.

Table 2: Descriptive statistics for the retained KPIs

| KPI | Definition | 2006-2017 | 2006-2010 Pre-SLI | 2011-2017 Post-SLI |
|-----|---|------------------|----------------------|-----------------------|
| 2 | Percentage of re-referrals to children's social care within 12 months of the previous referral | 23.15 (7.74) | 21.8 (6.99) | 23.92 (8.07) |
| 3 | Children who are the subject of a CPP - rate per 10000 | 37.98 (16.4) | 28.24 (9.63) | 44.85 (16.73) |
| 4 | Children looked after rate, per 10000 children aged under 18 | 62.13 (18.92) | 57.4 (17.26) | 65.51 (19.4) |
| 5 | Percentage of initial child protection conferences held within 15 days of the start of the section 47 enquiries which led to a conference | 67.23 (23.4) | 60.39 (23.62) | 72.17 (22.05) |
| 6 | Child Protection Plan lasting 2 years or more which cease during the year | 6.03 (3.25) | 7.04 (3.33) | 5.45 (3.08) |
| 7 | Rate of children who ceased to be the subject of a child protection plan per 10,000 children | 42.18 (19.58) | 29.54 (9.62) | 51.39 (19.88) |

Figures in table are mean and standard deviation (in brackets)

2. Background

Children's Services in England

There are 152 Local Authorities that are responsible for commissioning and managing the delivery of social care services for children in England (Ofsted, 2018). Spending on these services (excluding Healthcare) in 2018 was over £120 billion (Kelly et al, 2018). In 2018 there were 73,000 children in care and a further 50,000 on a child protection plan, this number has been rising for the last nine years (Ofsted, 2018).

Improvement in Children's Services in the UK was initially being driven by the Children's Improvement Board (LGA, 2012), however, funding for these this organisation was discontinued in 2013. Since the demise of the Children's Improvement Board (CIB), improvement within the sector has been, as many areas are now under the current government, directed to be "self-reliant". SLI in CYP services has been led by the Association of Directors of Children's Services (ADCS), which is the national leadership association for the Directors of Children's Services (and Senior Management) in England (ADCS, 2019). The ADCS is supported by the Local Government Association (LGA), a cross-party organisation which strives to ensure local government has a strong, credible voice with national government (LGA, 2019), and in turn by the Department for Education (DfE).

The CIB did aim to produce a common data set for children's services, this would have provided Local Authorities with a single source of key information that could be used to understand performance, assess improvements and benchmark their performance (LGA, 2012). Since the closure of the CIB, and more generally across a local authority's breadth of services the LGA, has given "general" sector led support through a Peer Review process. However, specifically in the "specialist" area of CYP Services, the LGA have remained at arm's length and the ADCS as CYP's professional body have seen a number of regional approaches emerge over the past 5 years.

There are nine ADCS regions across England, each with a group of Directors (DCSs) and a sub group of Performance and Information Management Group (PIMG) professionals. Where

relationships work well the PIMG drives and delivers the sector led improvement, on behalf of DCSs, however this picture is variable across the nine regions.

Data analysis for Sector Led Improvement in Children's and Young People's Services

A considerable amount of data is being collected on Children's well-being by both non-governmental and governmentally funded organisations (Axford, Hobbs, & Jodrell, 2013). For example, The National Society for the Prevention of Cruelty to Children (NSPCC) publishes a variety of useful data which could be used to assess the performance of CYP services (NSPCC, 2018), and this is supported by data published by the Department for Education (DfE, 2018). In spite of this, and considering the improving robustness and usefulness of the data that is being collected, those in charge of managing and commissioning these services are not using the data to its full potential (Axford, 2013). Due to this gap in the analysis and application of the data, which is compounded by the UK's government's predominant focus on output indicators, the measurement of child wellbeing in the context of services has tended to be poor (Hobbs, Axford, & Jodrell, 2011). At the Local Authority level, there is a tendency to rely on small-scale qualitative analyses of what service-users feel they need, rather than relying on the application of standardised instruments (Hobbs et al, 2011) or nationally collected data.

An example of an investigation into the effectiveness of a CYP Service is provided by Turner & MacDonald's (2012) investigation of Treatment Foster Care. They discovered that in the main data on a particular outcome was only available for a single (or sometimes two) studies, which impedes the creation of a generalisable view of the effectiveness of the service. They also recognised that based on their research it was impossible to form a robust opinion on the costs, benefits, and effectiveness of the service or to compare it to other potential interventions.

There have been developments in the monitoring and evaluation of services and a move towards results based or impact reporting, however, in practice, most of these developments measure processes for implementation rather than the results (Sammon et al, 2015). This is compounded by the fact that when impact is measured, it tends to be measured at the end of the intervention or planning timeframe, usually 3-5 years (Sera & Beaudry, 2007).

There is a lack of nationwide data set in this area, which is critical in providing the foundation for long-term sustained quality improvement (Hayes, Fleming, & Wolpert, 2015).

Systematic quality indicators support the routine mapping of trends in the effective and efficient delivery of intervention (Sammon et al, 2015). This view is supported by Axford et al (2013) who listed a number of ways that the data that is currently being collected in this area could be made to work harder, amongst them they recognise: the need to develop robust banks of meaningful comparison data; robust data on child well-being needs to be used when selecting interventions to improve services; there is a gap between this data and those who need to use it most – managers and practitioners as well as directors and commissioners.

There is some recognition of the need to measure a range of health, social, educational and integrative factors when assess the effectiveness of CYP services (Pullon et al, 2015).

In a recent review of the UK and European tools that have been developed for measuring child health Pullon et al (2015) discovered that there has been little focus on the development of measures to routinely measure the quality of service integration over time. Some attempts to measure the effectiveness of service integration have been made (Atkinson et al., 2001; Malin, 2009), but these have proved to be difficult to develop and implement (Pullon et al, 2015). Pullon et al (2015) propose that further research is necessary in order to develop locally relevant and user friendly measuring and monitoring systems for improving day-to-day service integration and integrated joint plans for caring for children in need.

3. Analysis

In order to assess whether the SLI initiative has impacted LA performance on relevant KPIs, we need to compare performance of those KPIs with the initiative in place with performance of a control group. There are two possible approaches which could provide insights and we investigate both below.

A simple pre-SLI post-SLI test

In this analysis we take the LAs only in Y&H in which the SLI initiative was been implemented and we simply compare performance from the period before the SLI was imposed (pre-2011) with the period when the SLI initiative could be expected to be active and thus help facilitate an improvement in performance (2011 onwards). The model estimated is therefore of the form:

$$KPI_{it} = \alpha + \beta SLI_t + \varepsilon_{it}$$

Where KPI_{it} is the value of the given KPI in LA i in time t , and SLI_t takes the value of 1 for years when the SLI was in effect (2011 onwards) and zero otherwise. The coefficient which is of interest in this model is labelled β and is estimated using appropriate ordinary least squares. The error term, ϵ_{it} is likely to contain a number of factors which will influence the level of the KPI and may be correlated with the introduction of the SLI, for example changes in local government. It should therefore be noted that we are attempting in this model only to identify whether or not there is a significant change in the level of the KPIs pre and post the introduction of the SLI; if there is a difference this will provide motivation for us to further explore this difference.

The interpretation of this coefficient is as follows:

- If β is zero, then there is no difference pre and post-2011 and we can conclude that the period associated with the introduction of the SLI has not been associated with a noticeable change in the level of the SLI.
- If β does not equal zero then the KPI is β points higher in the post-2011 period compared to the pre-2011 period.

We utilise a standard t-test to investigate whether the value of β is significantly different from zero. If the estimated value of β is significantly different from zero we can conclude that there is an difference in the KPI from the [period from 2011 compared to the preceding period, and that this effect *could be* a consequence of the SLI initiative, something we will investigate below..

We tabulate the results of this analysis in Table 3 below for each KPI.² The results indicate that the values of the KPIs 3, 4, 5 and 7 are significantly higher post-SLI than pre-SLI, while 6 is significantly lower. There is no significant difference in the value of KPI 2 pre- and post-SLI. Some points to note:

- Given the information in Table 1 regarding the value of the KPI and what it indicates about performance, we can deduce that performance on KPIs 3, 4 and 7 appears to be worse post-SLI compared with pre-SLI.

² Full results are available on request.

- Given the information in Table 1 regarding the value of the KPI and what it indicates about performance, we can deduce that performance on KPI 5 and 6 has improved post-SLI introduction compared with pre-SLI.
- Given that we have not controlled for external factors which might also have an effect on performance, we cannot deduce causality from these results and merely use them to identify significant changes in the level of the variables considered and to motivate a further investigation.

Table 3: Pre-SLI post-SLI analysis: random panel data estimation (* significant at a 5% level)

| KP I | | β | SE |
|------|---|---------|------|
| 2 | Percentage of re-referrals to children's social care within 12 months of the previous referral | 2.12 | 1.24 |
| 3 | Children who are the subject of a CPP - rate per 10000 | 16.61* | 2.16 |
| 4 | Children looked after rate, per 10000 children aged under 18 | 8.11* | 2.80 |
| 5 | Percentage of initial child protection conferences held within 15 days of the start of the section 47 enquiries which led to a conference | 11.09* | 3.52 |
| 6 | Child Protection Plan lasting 2 years or more which cease during the year | -1.59* | 0.55 |
| 7 | Rate of children who ceased to be the subject of a child protection plan per 10,000 children | 21.85* | 2.49 |

A difference in difference (DID) analysis

A significant problem with the simple pre-SLI post-SLI analysis conducted above is that there are likely to have been other (external) factors contributing to the difference between the value of the KPI before the introduction of the SLI initiative and afterwards. For example, there may have been a general upward trend in value of a KPI throughout the period, caused by economic circumstances or other national policy initiatives, which might have had an adverse or positive impact, rather than changes being solely due to the introduction of the SLI. We therefore need to undertake an analysis of a sample of LAs which

- utilises data from both pre- and post-SLI periods.
- Utilises data for the LAs (in Y&H) which experienced the initiative and data for LAs in an area which did not, effectively creating a control group. In this analysis we use the LAs in the East of England (EoE). EoE has been chosen for this preliminary analysis

because it is likely to have similar national influences to Y&H, but they are not subject to the same SLI initiative used in Y&H.³

The list of LAs of the EoE region is provided in Appendix 3.

The model difference in difference model we estimate using this data is as follows:

$$KPI_{it} = \alpha + \beta SLI_t + \theta Y_i + \varphi DID_{it} + \varepsilon_{it}$$

where

KPI_{it} is the value of the KPI in LA i at time t

SLI_t has a value of 1 from 2011 onwards, 0 otherwise, and represents the period during which the SLI initiative was in operation in Y&H

Y_i takes the value of 1 for all LAs where i indicates they are located in the Y&H region and hence subject to the SLI initiative

DID_{it} is calculated as $SLI_t Y_i$. It is the coefficient φ on this variable, which is the crucial in our analysis as it measures the difference in the rate of change between the two regions considered. If φ is zero then there is no identifiable effect on the KPI of the LAs in Y&H post-SLI which differs to the LAs in the control region over the post SI implementation period. If φ is significantly different to zero then the KPI of the LAs in Y&H post-SLI is differs when compared to the LAs in the control region. We can conclude that the difference may therefore be a consequence of the SLI. The use of control data means that external factors affecting all regions are taken into account in this analysis and only the differential factors will be left.

Using the new variables we can estimate the new model using a simple ordinary least squares approach and test the significance of φ using a standard hypothesis test.

We tabulate the results of this analysis in Table 4 below for each KPI.⁴

³Note that all local authorities in EoE complete and submit annual self-assessments to the DCS Peer Challenge Board. The Board then uses this and the regional children's services data pack to identify common themes for improvement. The regional SLI programme funds dedicated analyst time (based in Hertfordshire) to provide benchmarking data for all authorities. The production of a quarterly benchmarking pack enables more detailed analysis in response to the regional improvement themes to take place. A framework for school improvement peer reviews has recently been developed with a review taking place in one local authority per term.

⁴Full results are available on request.

Table 4: Difference in difference analysis: random effects panel data estimation

(* significant at a 5% level)

| KPI | | φ | SE |
|-----|---|-----------|------|
| 2 | Percentage of re-referrals to children's social care within 12 months of the previous referral | 5.61* | 1.78 |
| 3 | Children who are the subject of a CPP - rate per 10000 | 7.24* | 3.20 |
| 4 | Children looked after rate, per 10000 children aged under 18 | 7.87 | 4.21 |
| 5 | Percentage of initial child protection conferences held within 15 days of the start of the section 47 enquiries which led to a conference | -4.82 | 5.12 |
| 6 | Child Protection Plan lasting 2 years or more which cease during the year | -0.20 | 0.82 |
| 7 | Rate of children who ceased to be the subject of a child protection plan per 10,000 children | 6.98* | 3.56 |

These results suggest that the values of KPIs 2, 3 and 7 are significantly higher post-SLI compared to pre-SLI in Y&H when similar changes in the control group are taken into account. This suggests that performance on these 3 KPIs has therefore deteriorated relative to the performance of the East of England (given the information in Table 1 regarding the value of each KPI and what it indicates about performance). Since we have used a control region, which we can expect to be subject to the same macro level external factors (such as economic circumstance), while having an experience which is independent of the Y&H SLI initiative, we conclude that the SLI initiative has been accompanied by significantly worse performance in Y&H in the case of these three KPIs.

4. Early warning system and benchmarking: a preliminary idea

The panel nature of the data allows us to compare performance across the LAs in the Y&H region with each other to see whether some are performing better or worse than others. Thus we use the model

$$KPI_{it} = \alpha + \beta SLI_t + \theta Y_i + \varphi DID_{it} + \sum_{j=1}^{N_Y} \gamma_j DID_{it} I_{j \neq i} + \varepsilon_i$$

where γ_j is the differential difference in difference for an individual region within the Yorkshire LA. This is the difference between the effect for the region and the individual regions within Y&H. All variables are defined as above and N_Y is the number of LAs in Y&H and is an indicator function $I_{j \neq i}$ which takes a value of 1 if the subscript is true, in effect this means that

an LA is not compared with itself. If the LA in question has a lower value than a selected base LA then γ_j will be statistically significant and negative. The base LA can be changed to compare each LA with any other given LA easily by virtue of a series of “leave one out” estimators.

We undertake this exercise in the context of KPI 7 (other KPIs can also be used but this single variable serves as an illustrative example). The results for this approach are reported in Table 5 below for KPI 7. As an explanation, if we select Barnsley as our base LA, we find that no other LAs have significantly lower values of KPI 7 and 3 have significantly higher values of the KPI compared to Barnsley. We can do this for each LA in turn to produce the results below.

Table 5

| LA | No. of LAs with more positive DiD effect (i.e. Worse than this LA) | No. of LAs with more negative DiD effect (i.e. Better than this LA) |
|-----------------------------|--|---|
| Barnsley | 3 | 0 |
| Bradford | 4 | 0 |
| Calderdale | 0 | 1 |
| Doncaster | 0 | 3 |
| East Riding of Yorkshire | 3 | 0 |
| Kingston Upon Hull, City of | 1 | 1 |
| Kirklees | 3 | 0 |
| Leeds | 0 | 8 |
| North East Lincolnshire | 0 | 10 |
| North Lincolnshire | 4 | 0 |
| North Yorkshire | 3 | 0 |
| Rotherham | 0 | 8 |
| Sheffield | 7 | 0 |
| Wakefield | 1 | 1 |
| York | 3 | 0 |

Note from Table 1 that a lower value of KPI 7 represents improved performance. We can therefore conclude from this analysis that Leeds and North East Lincolnshire are particularly poor performers followed by Doncaster and Rotherham. Sheffield has 7 LAs performing worse

than itself (and none better) and so is a good performer, closely followed by Barnsley and North Lincolnshire.

5. Conclusions, limitations and directions for future research

Clearly this brief report provides results of a pilot study using 6 (of 7 possible) herd indicators, and is for illustrative purposes only. We can conclude the following:

- The work has clearly illustrated that state-of-the-art econometric methods can inform practitioners of how well they are performing against a chosen KPI and relative to a ‘control’ group.
- The same methods can be extended to provide information to practitioners about how well (or poorly) they are performing relative to a chosen set of LAs. This has implications for poorly-performing LAs being able to benchmark relative to better-performing ones.

The results, however, should be treated with some caution at this stage as further analysis is required. In particular:

- We need to examine *all* KPIs. The KPIs used here are from the Safeguarding and Early Help sections and may not be representative of the full array of KPIs.
- We have used EoE as the control area in the more rigorous DiD analysis. In a fuller analysis we could examine what happens if we use an alternative control region; or we could use all other regions as controls.
- We would like to add in the budget for Children’s and Young People’s Services to assess whether this has any impact on the findings. We are aware that there might be problems with the data (such as lumpiness in expenditures from one year to the next) but would like to explore using appropriate methods whether these have any bearing on KPI performance.
- There is no doubt that different regions have different starting points in terms of their KPI performance and this might impact their subsequent trajectory. This should be explored further by adapting our model to include starting level and perhaps performance relative to a national average.

- In terms of exploring what the situation might be without the SLI, considerably more information is required. At the moment, we do not have a good ‘natural experiment’ to determine some key information. If we knew of regions which did not implement any SLI type approach then we might be able to use their experience; even so we would need to do more work in terms of controlling for budgets, characteristics of the region etc. in order to make such an analysis useful. The extent to which regions (or LAs) talk to each other also affects the variability of performance which might naturally increase if there were no communication meaning that they each implement individual quality control/performance measures.

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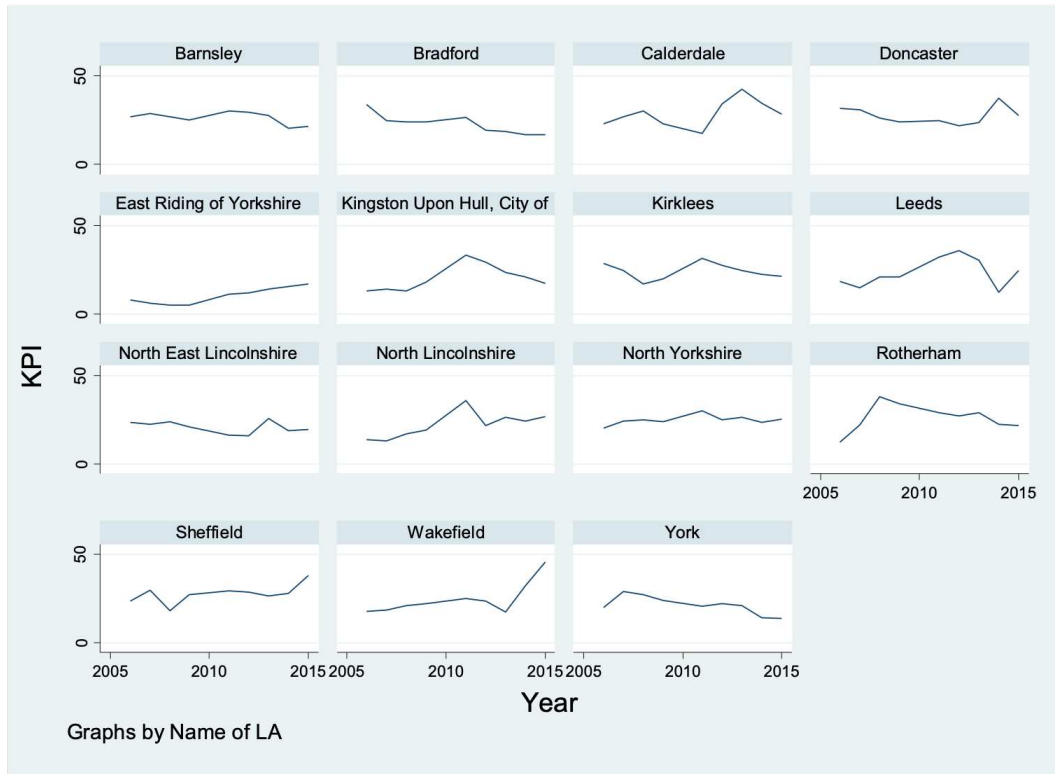
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Appendix 1: The LAs in Y&H

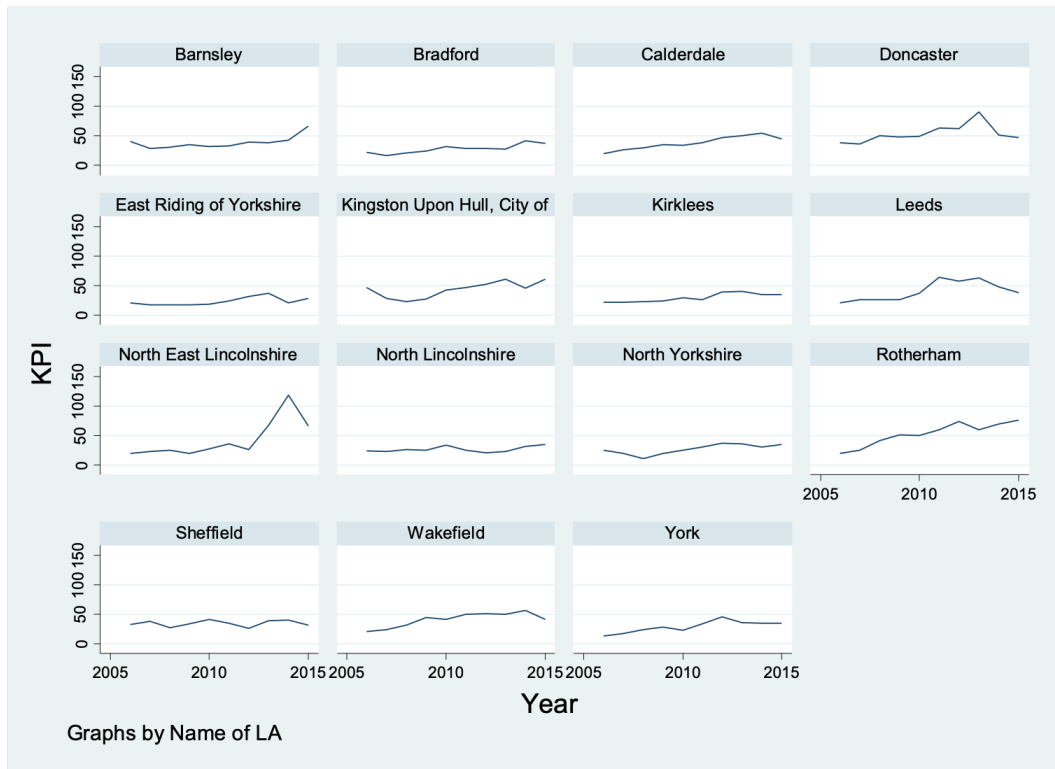
| Code | LA |
|------|--------------------------|
| 1 | Barnsley |
| 2 | Bradford |
| 3 | Calderdale |
| 4 | Doncaster |
| 5 | East Riding of Yorkshire |
| 6 | Kinston upon Hull |
| 7 | Kirklees |
| 8 | Leeds |
| 9 | North East Lincolnshire |
| 10 | North Lincolnshire |
| 11 | North Yorkshire |
| 12 | Rotherham |
| 13 | Sheffield |
| 14 | Wakefield |
| 15 | York |

Appendix 2: Graphical analysis

KPI 2



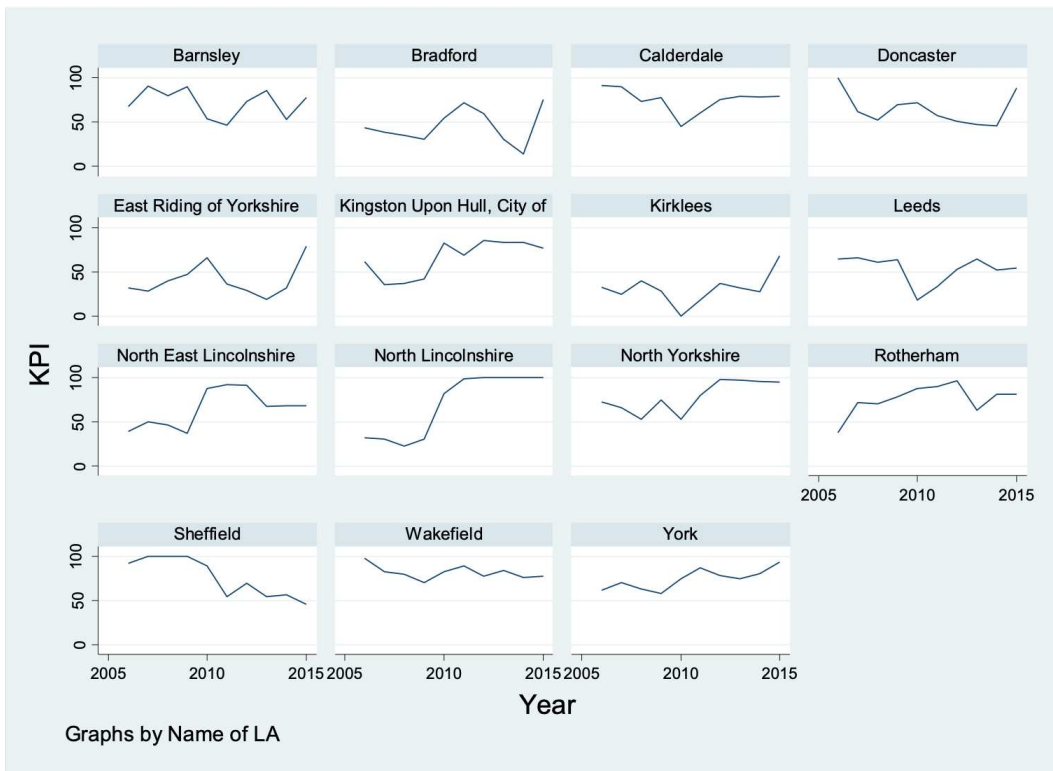
KPI 3



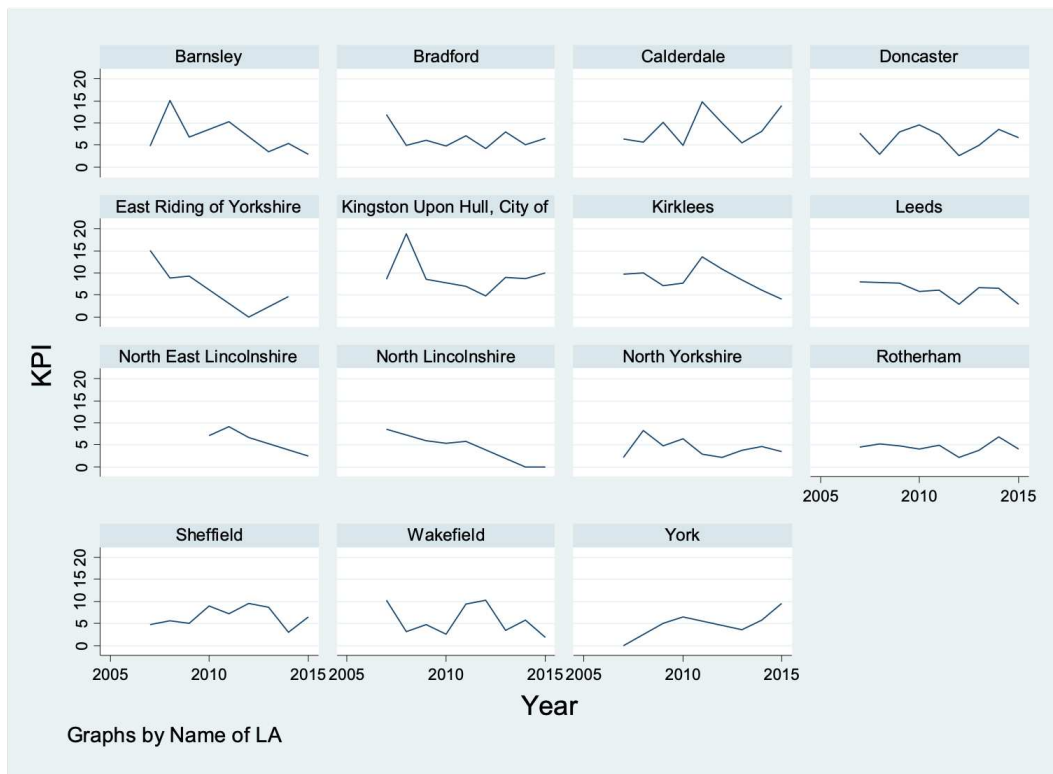
KPI 4



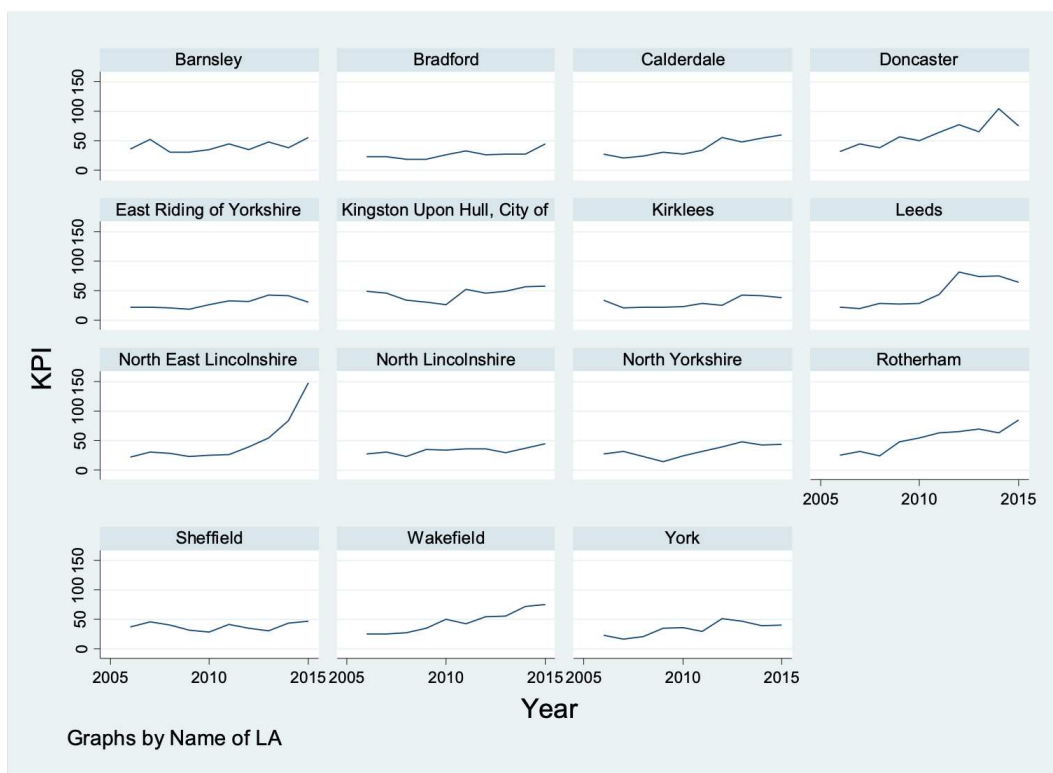
KPI 5



KPI 6



KPI 7



Appendix 3: The LAs in EoE

| Code | LA |
|------|----------------------|
| 32 | Luton |
| 33 | Bedford Borough |
| 34 | Thurrock |
| 35 | Hertfordshire |
| 36 | Norfolk |
| 37 | Peterborough |
| 38 | Cambridgeshire |
| 39 | Southend on Sea |
| 40 | Central Bedfordshire |
| 41 | Suffolk |
| 42 | Essex |