

Working Paper

Developing the Data Sets for English and Welsh Local Authorities to understand their Financial Resilience in the face of austerity.

NB: This Working Paper has been written to inform the PhD thesis “Financial Resilience in the face of Austerity”. References to chapters refer to the chapters in the developing thesis.

1 Overview

In addition to introducing the research and its objectives, Chapter 1 highlighted and discussed the overall structure of local government in the UK. Chapter 1 also provided an in-depth account of the LA funding system with some significant changes that have affected the funding system of LAs in the UK since 2005/06. In chapter three, the study discussed the process of collecting financial data of LAs in England (and Wales). In this chapter (four), the researcher provides a systematic account of the secondary data collection, preparation, and analysis phases. As chapter three focussed on the primary data collection and analysis, chapter four discusses the secondary data sources and how data collected from various reliable secondary sources were cleaned and used to create a panel data set for analysis to achieve the research objective(s).

1.1 Description of the Data sets

The study created two Local Authorities Data sets using local authorities’ financial data; both were significant in helping to achieve the research objectives and respond to the research questions – to establish a quantitative database that suits the analysis of English LAs’ financial resilience during the era of austerity.

There are 408 LAs in the UK, comprising 343 in England, 32 in Scotland, 22 in Wales, and 11 in Northern Ireland. While the primary objective of this study was to investigate the financial circumstances and the resilience of LAs in England, it was helpful and prudent to run an initial/preliminary pilot analysis for the 22 LAs in Wales before focusing on the English context. The researcher drew lessons from this initial analysis of the Welsh LAs, which were useful in analysing the bigger data set of English LAs. The data used for this project comprised financial information on England and Wales local authorities from 2005/06 to 2019/20 financial periods. This data was collected from all principal authorities in England and Wales and published annually by their respective governments¹. Principal authorities refer to upper-tier councils, including unitary, county, combined authorities, and lower-tier councils covering a district area. The exclusion of Town Parish and Community Councils, which are much smaller entities with relatively small budgets and a very limited range of services covering only parts of the country, was necessary to develop a consistent database and facilitate comparisons.

The financial datasets were derived from publicly available (secondary) data, namely (i) the Local Authority Revenue Outturn (RO) suite of forms and (ii) the Local Authority Capital Outturn Receipts (COR) group of tables. These groups of financial data were used to create the LA data sets as they are

¹ The data (from RS/RO forms, etc.) are collected by the UK government – the Department for Levelling Up, Housing and Communities (DLUHC) previously the Ministry of Housing, Communities and Local Governments (MHCLG) at: <https://www.gov.uk/government/collections/local-authority-revenue-expenditure-and-financing>

the most informative and authoritative collection of local authority funding and spending data and are used by His Majesty's Treasury and all government agencies.

The data is collected annually and is used to provide Local Authorities, the LGA, the Ministry of Housing, Communities and Local Government (MHCLG), HM Treasury, and the Office for National Statistics (ONS) with the most current information available on LA revenue and capital income and expenditure. It was necessary to keep updating the English and Welsh data sets during the study since the financial data were originally collected in 2018 and did not include financial data for the 2017/18, 2018/19, and 2019/20 financial periods. The extra data was extracted along with the population data for these later years, and the additional data was later incorporated into LA data sets to enable the researcher to compile a full range of panel data to analyse as part of the research project.

Second, the Office for National Statistics (ONS) uses the data on service expenditure breakdown to analyse public sector finances and prepare National Accounts. The data are regularly provided to HM Treasury to inform the Pre-Budget Report by the Chancellor and government spending reviews. Third, the data represents an essential source for other evidence-based financial decisions and policies, which are quoted in response to questions in parliament. Finally, it is also used by local authorities and their associations, government ministries, agencies and departments, members of private bodies and communities, and the third sector to inform the general public. For example, besides these generally summarised RS/RO forms, there are spreadsheets of detailed breakdowns by LAs for all services, including education, social care, highways & transport, and culture & related services, which helps to understand how LAs distribute resources in a specified period.

The Revenue Outturn (RO) suite of forms comprises the RS and RSX forms, which, for this study, were integrated and combined into one Excel workbook for all LAs by type and region in each financial year. These RO suites of forms are created each year to record the full range of service expenditure by the local authority with a corresponding breakdown as required in the hierarchical structure of the Service Reporting Code of Practice (SeRCOP) Section 3 (Service Expenditure Analysis for England and Wales). Under the Local Government Act 2003, SeCORP is prepared annually to comply with the financial reporting framework established by the Code of Practice on Local Authority Accounting in the United Kingdom (the Code). SeCORP is reviewed annually to ensure that it aligns with the needs of local government, transparency, the best value, and any public service reform.

This study used financial information from the RO suite of forms because they provided information on local authorities' annual revenue income and expenditure immediately before and during the austerity era. Their use was instrumental in analysing the changing trends and patterns in local authority finances over the period, as used by other scholarly researchers (Smith et al., 2010).

The Capital Outturn Receipt (COR) tables are a suite of Capital Outturn tables. COR 1-2 tables collect financial information on capital expenditure and capital receipts (income). COR 4 summarises the detailed information on COR 1-2, as it records information on the financing of capital expenditure; and other relevant information on expenditure and receipts that are not captured in the COR 1-2 tables. The study used COR 1-2 and 4 data to understand the movement of capital receipts and expenditure for local authorities before and during the (early & late) austerity era. This provided insights into the financial decisions that local authorities made during the study period to manage their non-current assets and liabilities while addressing the financial and service demand pressures. Therefore, this research used this 'secondary' data, which comprised the financial data on income and expenditure of UK local authorities, as this is the most reliable data available for this study.

1.2 Data Set Development Process

The project used two panel data sets for LAs in each country, i.e., England and Wales. Data was analysed and discussed in four phases: pre-analysis, data preparation, data analysis, and writing-up. The development process was categorised into these phases to enable easy adjustments and minimise complications encountered when dealing with large data sets. Four different colours were used in the flowchart (below) to distinguish the different activities within the four stages of the data sets. The same process was adopted for datasets for LAs in both England and Wales.

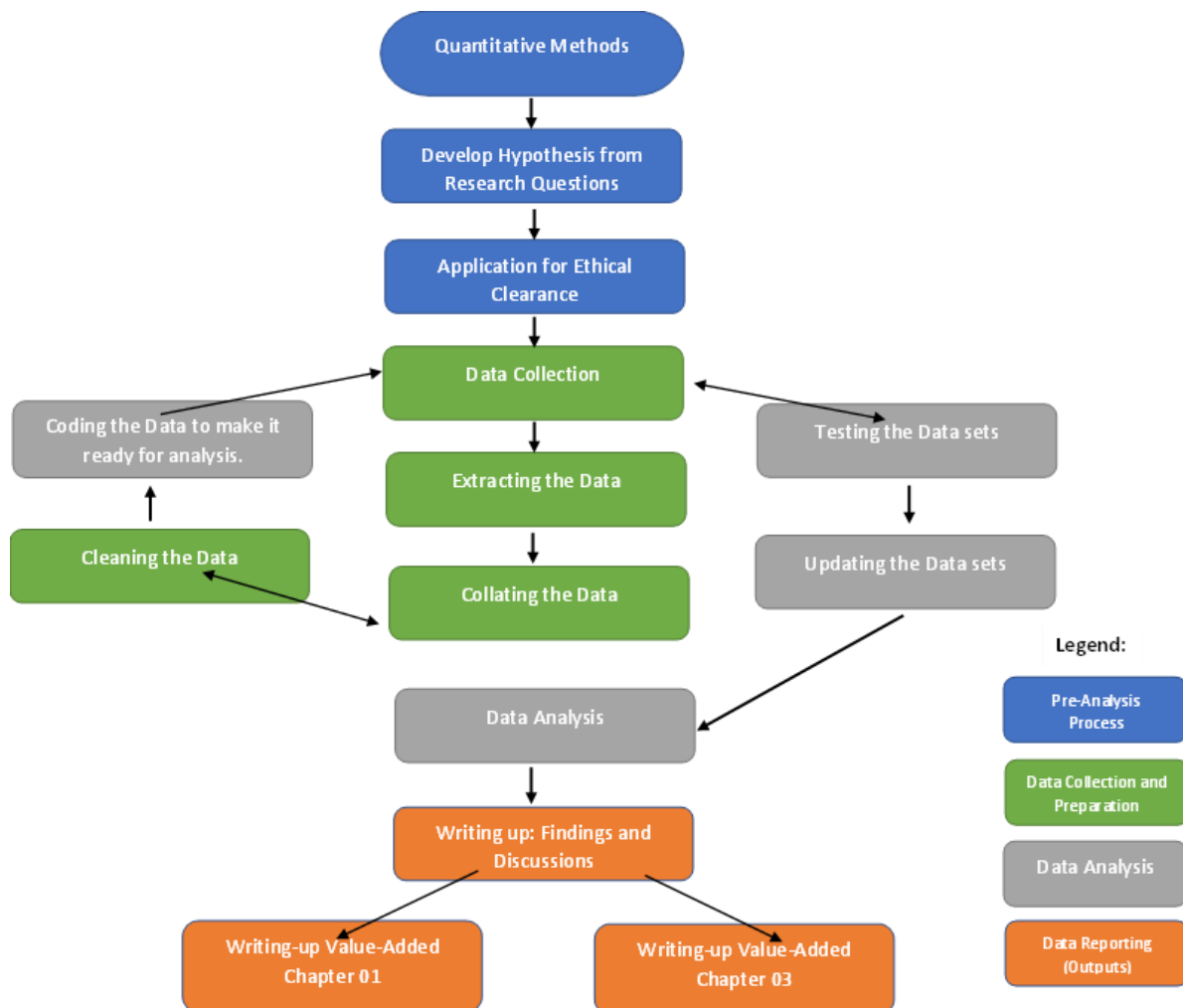


Figure. 1: Flow chart for Developing the LA Data sets

Source: Field data

The pre-analysis stage included developing hypothesis and conceptual models and applying for ethical approval. Phase two was the collection and preparation stage. Data needed for the project were initially extracted from different sources, with elements combined into one Excel workbook to reflect changes made to the local government structure throughout the time series. The reasons for the parity and collation of elements are explained later in this chapter. Cleaning was an iterative exercise that was often recursive whilst inserting the data into the Excel workbook. The grey boxes (in phase three) illustrate the main data analysis process, which was also often recursive and iterative. Hence the reason why the main analysis process was illustrated in a loop on the flowchart.

For example, cleaning the data required testing to get some feedback based on changes that were made. Finally, the analysed data were interpreted and discussed in the four empirical (value-added) chapters (i.e., from chapters four to seven).

1.3. The Pre-Analysis Stage

The first activity was to review the research objectives of the project. The project sought to investigate the financial resilience of English and Welsh LAs immediately before and during the austerity era. Having defined the research objective(s), it was crucial to develop models and propositions that could contribute to achieving the research objectives. The researcher had to review the hypothesis and models before applying for ethical approval for the project. The application for ethical clearance for this project was necessary as the financial data used represents a sensitive part of the LAs' financial performance both before and during the austerity era.

A formal application was completed and submitted to the College Research Ethics Committee (CREC) at Nottingham Trent University (NTU). This sought to assure participants of confidentiality, anonymity, and the appropriate use of data, even though the raw data was published on a government website, which was readily available for public use. The CREC reviewed the application and suggested some minor amendments to the application documents. A revised version of the application was submitted and approved in June 2019 by the CREC at NTU.

1.4. Data Collection and Preparation Stage

Data collected from the different sources were combined from a workbook with different spreadsheets and collated onto a single MS Excel spreadsheet to enable easy navigation and use. The financial data for all LAs in each year were recorded in each spreadsheet, with 45 spreadsheets of data on the income and expenditure of English LAs (from RS & RO forms and COR tables) and 15 different spreadsheets for Welsh LAs (from 2005/06). For example, for every year, there was a separate spreadsheet on RS, RO (tables) and COR forms. Having captured the data in Excel, it was relatively easy to clean the data, prepare it, and make it ready for analysis. Excel was useful because it enabled the researcher to collect data on all LAs in each country (England and Wales) for each year (from 2000/01 to 2019/20).

1.5 Data Analysis Stage

During the study period, some local authorities underwent reorganisation whereby some were abolished, and others created. This meant the data had to be cleaned to ensure consistency across the analysis period. Thus, it was necessary to apply unique identifiers within the data set for LAs that had been combined into unitary authorities from 2009/10 onwards. This change affected the initial codes generated by the ONS and meant the affected LAs have different codes from 2009/10 onwards. To ensure consistency, the researcher excluded the combined unitary authorities and introduced unique identifiers for the newly created unitary authorities (UAs). The Office for National Statistics (ONS) Code was the unique identifier to distinguish each LA separately. Different data sets used slightly different codes to distinguish the LAs, but the researcher used the ONS codes because they are the most often used for most datasets for English LAs.

While the English LA data set required some new unique identifiers (codes), the Welsh LAs required little or no further coding since the codes used were consistent for all 22 Welsh unitary authorities throughout the time series. The researcher used LAs in Wales to validate the data set before applying it to the English LAs. Hence, a 'pilot' analysis was run to effectively test the values and models generated from the first stage. The researcher adopted this strategy because running a preliminary analysis on a smaller data set (Welsh LAs) for a 15-year time series was much more manageable and easier to navigate than on a larger data set. Lessons from the pilot informed necessary adjustments that facilitated better data analysis for the LAs in England throughout the time series. For example, after analysing data on Welsh LAs, the researcher acknowledged the need to consider/include different revenue incomes in an English context to understand how LAs adopted strategies to withstand pressures that emerged during the austerity era.

1.6 Data Outputs

After the first three stages, the results were analysed against the research objectives. The analysis is discussed in detail in chapters 5 and 7, which used quantitative analysis. Chapter 5 discussed results on the changing trends in expenditure, movements in income, and the financial reserves of English and Welsh LAs. Chapter 5 addresses research question 2 by analysing the capital receipts and expenditure of LAs in England. Chapter seven addresses research question 4 as it discusses the impact of austerity and financial resilience on Cultural and Related Services (CRS) in England. These stages are briefly discussed in the sub-sections below.

2 Data Collection

Data collection was done separately for English and Welsh LAs.

2.1 Financial Data of English LAs

The data collection phase started with the financial data labels and their various sources. The researcher started by downloading the Revenue Outturn (RO) suite of forms from the government (MHCLG) website. The RO forms summarise how local authorities spent their money over the last financial year. It presents the main sources of income available to local authorities to finance this expenditure, including the central government funding, business rates retained, and council tax. The RSX forms provide details on local authority Service Expenditure. This comprises 12 distinct service areas (such as Education, Adult Social Care and Public Health), although they are not often complete in a few cases. Consequently, there was (1) budgeted, (2) provisional, and (3) final data on local authority revenue expenditure and financing in England throughout the study period. These financial data were available and classified for individual authorities before the end of the previous fiscal year and as a group for all local authorities in England.

The budgeted financial data is published early each year to gauge estimates of England's local authority revenue expenditure and financing (usually in the autumn). The provisional results represent the draft of actual values in revenue expenditure and financing for the various financial periods before audit and scrutiny. The final data constituted actual figures on revenue expenditure and financing of local authorities for each year after internal and external audits and made ready for publication (usually 15 months after the draft budget version is first published). Although all of the data is available and accessible to the public, only the actual figures (on income and expenditure) for

each year were collected/extracted for this study because these represented final figures that required no further alterations.

There is financial data on the local authority's revenue expenditure (i.e., core services and discretionary services) and financing (i.e., specific and special revenue grants, etc.) within the final data. The researcher extracted the RO suite of forms (specifically the RS and RSX forms) from 2001 to 2020 because they capture all financial data on local authority revenue expenditure and financing for England consistently throughout the time series, which includes the period of austerity (2010/11 to 2019/20).

The researcher also extracted the Capital Outturn Receipts (COR) suite of tables from the MHCLG website. The COR 1-2 and 4 tables capture financial data on local authority capital expenditure and receipts in England for the different financial years. Capital Expenditure for local authorities includes the acquisition of fixed assets, capital investment, capital grants, capital advances, and credit cover for any credit arrangements made in that financial year. Capital Receipts categorise revenue from transactions such as the sale of fixed assets, repayments of capital advances and grants, and leasing disposals. The researcher extracted COR 1-2 and 4 tables from 2001 to 2020 because it captures financial data showing each local authority's financial position throughout the time series. ONS uses the COR 1-2 and 4 tables to compile the 'Local Authority Capital Expenditure and Receipts England Final Outturn' published annually to support government decision-making.

The researcher extracted UK population data for all local authorities in the UK from 2000/01 to 2019/20. The census is taken in March and aligns as far as practical with the financial year. The researcher included population data because it is one of the common denominators for measuring changes in income and expenditure per head in an LA. Population data were extracted for each local authority in England across the time series to ensure consistency in the analysis. The researcher also used population data to create dummy variables for each local authority, such as expenditure per head, and cultural spending per head. This made it possible to compare one local authority's performance against other authorities and to investigate trends and patterns. Due to changes in labels and data, the researcher only used financial data from 2005/06 to 2019/20 to avoid any possible inconsistencies and ensure credibility in the results. While reducing the time series from 20 years (i.e., from 2000/01 to 2019/20) to 15 years (i.e., from 2005/06 to 2019/20), the researcher eliminated English LAs with discontinuous financial data, which posed potential threats to the credibility of results and findings. As a result, 343 LAs were used throughout the time series (2005/06 to 2019/20) for the English LA population, while all 22 Welsh LAs were included in the pilot study (preliminary analysis).

The researcher extracted data on the individual scores of all local authorities during the Comprehensive Performance Assessment (CPA) regime between 2002 and 2008 (Audit Commission, 2009a). The assessment was monitored by the Audit Commission, where each local authority was scrutinised based on a standard performance criterion from poor (score of 1) to excellent (score of 5). Detailed scores were based on criteria such as the use of resources (UoR), financial management (FM), financial sustainability (FS), internal control (IC), and Value for Money (VfM). The researcher extracted data from the FM, UoR and the CPA corporate scores for all England local authorities (from 2002 to 2008) because it helped to understand the potential vulnerability of each local authority before the austerity era (2008/09). This, although variable, was expected to provide insights into the various levels at which each local authority addressed financial pressure before the austerity era. The researcher found it interesting because it gave insights into each local authority's financial performance and position after the economic recession and before the introduction of fiscal austerity policies by the coalition government (See also Audit Commission 2008, 2009b, and 2009c).

2.2 Financial Data of Welsh LAs

The financial data of Welsh LAs is made publicly accessible by the Welsh Government and was downloaded from the Government website (Stats Wales). The financial data comprised (1) the Revenue Outturn (RO), (2) the Revenue Summary (RS), and a spreadsheet with data on LAs' reserves. The Welsh and English RO forms are very similar although the Welsh RO forms combined all services into one spreadsheet, whereas English ROs had separate spreadsheets for the major services. For example, in England, there was an RO for education (RO1), highways and transport services (RO2), social care and health services (RO3), and housing services (RO4). The RS forms contained detailed information on the current revenue (income) and expenditure for the Welsh LAs. This was mostly similar to the English RS, except for some differences in labels/titles of sub-headings. For instance, police and fire & rescue services were separated for English LAs, but the equivalent was combined as "law and order and protective services" for Welsh LAs. Most elements of income were similar for English and Welsh LAs.

2.3 Extracting the Data

After the collection stage, the study examined the data to ensure it was fit for the research purposes. The researcher scrutinised the annual financial data from 2000/01 to 2019/20 for English and from 2005/06 to 2019/20 for Welsh LAs. This scrutiny was necessary to create a longitudinal analysis of financial resilience before and during the era of austerity. Welsh LAs' data was only extracted from 2005/06 because data for the prior years were not accessible from the source (StatsWales website). For the English LAs, the researcher also identified some discrepancies in the annual financial data from 2002/03 to 2004/05. As a result, these were excluded and the study only considered financial data from 2005/06 to 2019/20 for both English and Welsh LAs. This produced a 15-year data set ending at the 2019/20 financial year that was consistent and covered the entire austerity era, which helped minimise potential sampling errors. However, there were still some minor discrepancies within the data. Discrepancies are inevitable in data management, so extracting it was crucial to extract only the data that would be useful in addressing the research question. These minor discrepancies were addressed and are discussed further in the cleaning stage (below). This data was enough to create a panel data set.

The 15-year period represented a longitudinal time series that covered the austerity era. In addition, the time series allowed for investigating policy and events in the five (5) years before austerity policies were implemented in England and Wales. The researcher ensured that the financial data covered the same period for LAs in England and Wales to avoid sampling errors. Sampling error occurs due to the disparity in the representativeness of the subjects considered in a research project. Hence, considering a data set that is consistent reduces the possibility of sampling error.

Finally, the extracted data avoided selection bias. Selection bias refers to the bias introduced by selecting groups for analysis so that proper randomisation is not achieved. All possible measures were considered to minimise selection bias, although this is almost impossible to eliminate in practice. After extracting the data, the next stage/phase was to enter it into Excel Spreadsheets, which were cleaned and made ready for data analysis.

2.4 Collating the Data into Excel

The extracted data was imported into Microsoft (MS) Excel spreadsheet to create a panel data set of financial data for all English and Welsh LAs during the entire time series (from 2005/06 to 2019/20). Extracted data were imported into MS Excel rather than alternatives such as SPSS and STATA. MS Excel was used to create the panel data set because it was the most flexible software package that enhances effective data management, is easier to learn, use, and understand, and is safe and secure.

Excel is a spreadsheet software, while SPSS is a statistical analysis software, and Excel has more functionality than SPSS. Although SPSS and STATA have built-in data manipulation tools for coding and transforming variables, Excel enables users to manage the data and make it consistent and ready for use. Excel was used to re-align the data to hold all data for the 15-year period and tweak the various labels (titles) to improve reporting consistency. Third, it was easier to learn, use, and understand MS Excel than SPSS and STATA. For example, there were useful videos on YouTube and books on using Excel for data management. The researcher also got support from the University Library and the Microsoft Support Team for further lessons on creating and managing panel data. It was also useful to include data for all 15 years on one spreadsheet, which was quite impossible with other software packages (SPSS, STATA).

Two panel data sets were prepared – one for English LAs and another for Welsh LAs. For the English LAs, the data imported onto the Excel spreadsheet included annual financial data on LAs' revenue outturn (RO), revenue summary (RS) forms and the Capital Outturn Receipt (COR) tables. RO/RS forms contained financial data on the current expenditure, reserves, and income revenue of English LAs, whilst the COR tables had financial data on the capital receipt and expenditure for English LAs. The Welsh LAs had similar contents from these data sources, but some inevitable minor changes had to be made. These were not expected to affect the results when the data was analysed. Aside from these inevitable changes, there were differences between countries - for example, the delivery of education and generating business rates in English LAs is different from Welsh LAs.

After collating all data onto a single spreadsheet, it was easier to check for any inconsistencies in the panel data. A panel data is a subset of longitudinal data that consists of observations for the same subjects throughout a specific period (Wooldridge, 2015). Time series data can be regarded as a particular type of panel data. Compiling a panel data set in a single spreadsheet made it easier to locate areas with missing and/or invalid values from the English and Welsh data sets. For English LAs, the missing or invalid values were adjusted using strategies discussed in the next sub-section on data cleaning. These mainly included year-on-year changes in names of LAs, expenditure, or income titles/headings. Other key changes in the panel data included removing or introducing service expenditure, sources of income, or both at some point in the time series. These changes were caused by changes in LAs' responsibilities - introductions of service expenditure (e.g., for public health in 2013 for English LAs) and shifting responsibilities to other government agencies – e.g., establishing the Police and Crime Commissioners, (PCCs) in 2013 and Police Fire and Crime Commissioners, (PFCCs) in 2018. Some, but not all, of these changes were applied to Welsh LAs. All inconsistencies were therefore identified and resolved using appropriate measures to ensure data comparability.

2.5 Cleaning the Data

After appending all financial data into a single spreadsheet for the English and Welsh LAs, there was a crucial need to clean the data set. Data cleaning was necessary for several reasons. Among these reasons was to ensure the data set only includes values needed for the project (Chu et al., 2016).

Another reason was to ensure these values were consistent for all LAs by type and region (location) throughout the time series (Corrales et al., 2018). Data cleaning was done in two phases – horizontal and vertical cleaning, which are discussed in the following two sub-sections.

2.6. Horizontal Cleaning - Rows

The horizontal cleaning meant aligning the rows in the spreadsheet to ensure they stayed the same for LAs throughout all worksheets in the data set. After importing the data into Excel, one observation was a change in LAs names for the English data set in 2009/10, although the LA names for the Welsh data set remained unchanged throughout the time series. This change was mostly due to the introduction of unitary authorities, the establishment of the Police and Crime Commissions (PCCs), and the Police Fire and Crime Commissioners (PFCCs).

The latest round of English re-organisation became effective in April 2009 (LGA, 2010). 44 local authorities were amalgamated into nine unitary authorities serving a combined population of over 3.2 million (LGA, 2010). The nine newly created unitary authorities were Bedford, Central Bedfordshire, Cheshire East, Chester and Cheshire West, Cornwall, Durham, Northumberland, Shropshire, and Wiltshire, as shown in Table 4.1 (below). Unitary authorities are created voluntarily, although they require government consent, and allow a group of local authorities to pool appropriate responsibilities. Aside from these nine newly formed unitary authorities, [Appendix A](#) outlines structural changes that have taken place since 2010 (Sandford, 2022). The other responsibilities and functions remain unchanged.

Table 4.1: Breakdown of Newly formed Unitary Authorities and their member councils.

Newly formed Unitary Authorities (UAs)	Pre-existing Councils
Bedford UA	Bedfordshire CC, and Bedford BC
Central Bedfordshire UA	Mid-Bedfordshire, and South Bedfordshire
Cheshire East UA	Cheshire CC, Congleton DC, Crewe and Nantwich DC, and Macclesfield BC
Chester and Cheshire West UA	Cheshire CC, Chester BC, Ellesmere Port & Neston DC, and Vale Royal DC
Cornwall UA	Cornwall, Caradon, Carrick, Kerrier, North Cornwall, Penwith, and Restormel
Durham UA	Durham CC, Chester-le-Street DC, Derwentside DC, Durham City, Easington DC, Sedgefield DC, Teesdale, and Wear Valley DC.
Northumberland UA	Northumberland CC, Alnwick DC, Berwick-upon-Tweed DC, Blyth Valley DC, Castle Morpeth DC, Tyndale, and Wansbeck DC
Shropshire UA	Shropshire CC, Bridgnorth DC, North Shropshire DC, Oswestry DC, Shrewsbury & Atcham DC, and South Shropshire DC

Wiltshire UA	Wiltshire CC, Kennet DC, North Wiltshire DC, Salisbury DC, and West Wiltshire DC
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Source: Field data MHCLG 2005/06 to 2019/20

The cleaning was done by inserting new rows to ensure that LA names aligned with their respective expenditure to ensure consistency in values throughout each worksheet of the entire data set. Due to the difference in rows and columns for these nine LAs, the researcher excluded all nine LAs since they were not comparable over the time series.

Although the financial data for LAs up to 2012/13 included police and fire & rescue data, the data was excluded from LA budgets and from this study because the funding systems of these organisations changed frequently, are different, and their budgets are ring-fenced. The responsibility for fire & rescue services was also transferred to the Home Office from the department responsible for LAs in 2016. Ring-fencing also affected fire authorities who opted to go for the PFCC governance model after 2017, although only four Fire Authorities opted for this model. There have been subsequent amalgamations of fire authorities and services, further complicating comparisons with LAs.

2.7 Vertical Cleaning - Columns

The vertical cleaning involved aligning all columns in the spreadsheet to ensure the alignment of headings across worksheets within the data set. After inserting the data into the spreadsheet, there were some changes in the titles of the columns because of the deletion of column titles, introduction/renaming of column titles, and combining two titles into one column. The alignment of headings was crucial because the labels of income and expenditure changed throughout the time series, and the 'per year' values may change for the wrong labels, which could cause misleading results/findings that may misrepresent LAs' responses for the affected years. For this reason, all columns were re-aligned to match other years throughout the data set to avoid misleading results.

There were inconsistencies in titles because some items were deleted/removed from the financial data of LAs in England, e.g., the transfer of reserves to/received by the Combined Fire Authority that last appeared in 2005/06. Another instance was where 'Court Services' were removed/deleted from the data set from 2010/11. For income, the Adjustments to Formula Grant, i.e., 2004-05 and 2005-06 Amending Report, last featured in 2006/07, but the 'Area Based Grant' was introduced in 2008/09 and was removed/deleted again in 2010/11. New columns were presented for each heading removed/deleted to adjust these inconsistencies and ensure alignment across worksheets/years. These adjustments also ensured that the deletion/removal did not affect the values of other columns in each worksheet of the data set.

There were also some discrepancies in the titles because of newly introduced or extended responsibilities that LAs received during the time series. For example, public health was transferred from the NHS as a responsibility to LAs in the 2013/14 financial year. Police and Fire services were still captured in the financial data until PCCs were introduced in 2013 and PFCCs in 2018. These commissioners were established to provide law, crime, and protective services that were distinct from the responsibility of LAs from 2013 and 2018, respectively. For income, the Retained income from Rate Retention Scheme (Retained Business Rates) was introduced in 2013/14 to replace the Redistributed Non-Domestic Rates (RNDR), which featured up to 2012/13. Again, one way to ensure consistency was to treat these two elements differently whilst ensuring they are still captured in the data set.

Finally, there were some differences in the spreadsheet columns because some subheadings were combined into one single column. An example of such instances was where Children's Social Care and Adult Social Care were separate entities from 2005/06 to 2010/11. These two were amalgamated into a single heading called 'social care' in 2011/12. It was necessary to create a new column – 'social care calculated' - which comprised children and adult social care for earlier years. This combination ensured consistency in the social care values for all LAs by type and location throughout the time series.

2.8 Coding the Data

Coding the data was necessary after cleansing the data to check whether there were any more inconsistencies. As explained above, it was also necessary to set unique identifiers (codes) for LAs combined into unitary authorities. While LAs in Wales were all unitary authorities, their counterparts in England had some unique traits and could be categorised by type (District, County, Unitary, etc.) and location (region).

For the English data set, all financial data had a unique E-code generated by the ONS. The E-code remained consistent from 2005/06 to 2008/09, but the newly introduced unitary authorities in 2009/10 caused some inconsistencies. For example, "E1301" represented "Darlington UA". This study used an e-code as a common identifier for the LAs throughout the investigation/analysis. The introduction of the unitary authorities in 2009/10 resulted in changes in the e-codes for the affected LAs. This required the researcher to introduce some unique codes for each of the nine (9) newly introduced UAs: BKD01 (All Bedford Councils), BKD02 (All Central Bedfordshire councils), BKD03 (All Cheshire East), BKD04 (Cheshire West and Chester councils), BKD05 (All Cornwall Councils), BKD06 (All Durham Councils), BKD07 (All Northumberland Councils), BKD08 (All Shropshire Councils), and BKD09 (All Wiltshire Councils). This was to identify the newly introduced unitary authorities, so they could be removed without affecting the consistency of the entire panel data set.

The Office of National Statistics (ONS) code introduced in the 2014/15 budget was relevant since it was the same code used for other statistical variables, including the population of individuals in the various local authorities. The ONS codes were applied to all LAs, including the newly created unitary authorities. Therefore, ONS E-codes were also introduced to identify data for the new UAs and helped merge the data of LAs for the earlier years. Coding was simple for the Welsh LAs since the 22 unitary authorities (UAs) had a consistent code throughout the time series (from 2005/06 to 2019/20). Both data sets appeared 'cleaner' after adding/adjusting these codes.

The study classified English LAs by type (District, County, Unitary, etc.) and location (region). It was clearer to use 'type' rather than 'class', although 'class' appeared to be preferred by the ONS in all data sources (i.e., RS and RSX forms, as well as COR 1, COR 4, and COR 5 tables). The six types of LAs in England are London Boroughs (LBs), Metropolitan Districts (MDs), Unitary Authorities (UAs), Shire Counties (SCs), Shire Districts (SDs) and Other Authorities (O). The other authorities comprised PCCs and FRAs, which were excluded from the analysis for the above reasons. The Welsh LAs required less work on adjustments since they comprised 22 Unitary Authorities.

English LAs are grouped into nine regions with LAs in the North East (NE), North West (NW), Yorkshire and Humber (YH), East Midlands (EM), West Midlands (WM), East of England (EE), London (L), South East (SE), and South West (SW) regions. The study adopted these groupings from raw data in (MH)DCLG from 2005/06 to 2019/20 because the ONS uses these groupings in their official reports published in Parliament, HM Treasury, and the House of Commons Library. Similarly, this was

important for this study because results are more easily comprehended, and results in these classifications are easier to understand. It also allows for comparability with existing and past literature, whether practice or academic-oriented.



Figure 2: Map of the nine LA regions in England

Source: Field data (2005/06 to 2019/20)

The Welsh LAs were categorised using the approach first adopted by Crawford et al. (2012) into four (groups) namely the Valleys (TV), North-East Wales (NEW), The Southern Cities (TSC), and the Rest-of-Wales (RoW). While the grouping of English LAs was based on geographical locations, the grouping of Welsh LAs was based on similar characteristics of LAs. These groupings helped understand the severity of austerity impacts on income, expenditure, reserves, and capital receipts/expenditure of LAs in England and Wales.

2.9 Testing the Data set

The next stage after data cleaning and coding of data was testing the data set to ensure that (i) it was complete and that it included all values necessary to achieve the research objective, (ii) it was internally consistent and had the same set of data on the observable subjects throughout the time series, and (iii) it was credible and viable and had the correct figures for analysis to achieve potential generalisability and representation of the UK LA population.

One reason for testing the data set was to identify any possible problems impeding the main reason for collecting and using the data. English and Welsh LA data sets were tested differently in two tranches. Thus, the data set was tested in two preliminary analyses, one on English LAs, and the other on Welsh LAs. The main reason for testing the data sets in two tranches was to spot any possible hindrances in each nation's case, as LAs in both nations had minor dissimilarities. The first tranche tested the data on English LAs and the second Welsh LAs.

The first test was run by conducting a preliminary analysis of the East Midland City/County Councils (EMCC) - one regional cluster of the English LA population. The reason for testing with EMCC LAs was the convenience of running the test on LAs familiar to the researcher since the project was conducted in the East Midlands. EMCCs had 46 councils, which comprised three out of the six LA types (Classes) - unitary authorities (UAs), shire districts (SDs), and shire counties (SCs), and there were no Metropolitan authorities, London Boroughs or the Greater London Authority (GLA). In this preliminary analysis (pilot), the researcher tested the impacts of austerity on the EMCCs. Having achieved some objectives of the study from the preliminary analysis, it was deduced that analysis of a whole English LA population would provide a more holistic result in pursuit of the research objectives.

In Wales, the data set was tested on all 22 LAs using a preliminary analysis of LA's service expenditure and income throughout the time series. All 22 Welsh LAs are unitary authorities (UAs), similar to the Scottish and Northern Irish LAs. However, Welsh LAs were chosen over Scottish or Northern Irish LAs because they represent LAs in a devolved administration and share more similar characteristics with English LAs than those in Scotland and Northern Ireland. Although they are more similar to English LAs, Welsh LAs have some distinctive traits, including funding for education. Funding for education is passed on directly to the schools in England, whereas Welsh LAs manage this funding through their education services.

2.10 Deflating the Values in the Dataset

After testing both datasets, one common issue was the nature of values in the financial data of LAs in England and Wales. Financial data had nominal values that needed to be deflated to take account of inflation. This was crucial because adjusting for inflation helped to provide real-term values and to avoid distortion of values in the data set. For instance, the value of £1m in 2011 would be more than the same in 2020 due to inflation. Doing so enabled comparing a similar set of values across time series and LA type and region. Deflating financial values with a common deflator and against a base year was necessary. The GDP deflator was used to convert nominal values to real-term values because it is widely used for discounting values as public expenditure is often expressed using the Gross Domestic Product (GDP). Secondly, the study chose 2010/11 as the base year because the coalition government started introducing austerity measures in June 2010, immediately after the general election in May 2010.

2.11 Segregating time series into three distinctive eras

After testing the data set, it was possible to categorise the 15-year series into three distinct periods, namely;

- Pre-austerity era (2005/06 to 2009/10)
- Early austerity era (2010/11 to 2014/15)
- Late austerity era (2015/16 to 2019/20)

The time series were categorised into these three periods to enable deeper insights into how LAs responded to pressures before and during the austerity era.

The 'pre-austerity' era captured incidents and (un)certain events that may have triggered the decision to implement austerity policies. This period was crucial to consider in the analysis because it captured the antecedents of the economic recession, which is generally believed to be the significant

determinant of austerity implementation (Lowndes et al., 2013; Hastings et al., 2015; 2017; Murphy et al. 2018). Understanding the pre-austerity period is required to help understand whether LAs anticipated the financial crisis and changes in financial policy and regulations during the second (early-austerity) era, characterised by continuous reductions in financial support and increasing service demand pressures.

The 'early austerity' era represents the first five years of austerity-localism implementation in UK Local Authorities, including England and Wales (Lowndes and Pratchett, 2012, Ferry et al., 2019). It also covered a period of significant changes in the responsibilities of UK LAs. For example, the UK Government abolished Police Authorities as a responsibility for English LAs. The Government established Police and Crime Commissioners (PCC) to perform the fiduciary duties of the former police authorities, which meant that LAs had fewer responsibilities. In contrast, the government added some responsibilities (and expenditure) relating to Public Health to the services provided by English LAs from 2013/14 onwards (Department of Health, 2011). In 2014/15, the national Local Government Financial Settlement introduced a Redistributed Non-domestic Rate to replace the Business Rates Scheme (BRS). Under the BRRS regime, English LAs could retain 25% of business rates and deposit 75% into a common pool for redistribution using a national distribution formula. Analysis of this era will provide useful insights to investigate subsequent changes in regulations, how these impacts affected LAs, and how LAs have implemented decisions and strategies to sustain/address financial and demand pressures in these changing circumstances.

The third and final era was the 'late austerity era', which covered 2015/16 to 2019/20. The researcher observed that austerity policies continued despite some politicians' assertions that austerity was over. This era also saw significant (inter)national incidents such as Brexit (2016/17 to 2019/20), inward migration from refugees and the run-up to the coronavirus pandemic (2019/20). In this era, the continuous increase in financial and demand pressures compelled LAs to make tough decisions and reduced service (Ahrens and Ferry 2015; Hastings et al. 2013; 2015; Jones et al. 2015; Jones 2017). One major event in local government finance during the late austerity era was the issuing of three (3) Section 114 notices by the Northamptonshire County Council (two notices) (Caller 2018) and the Croydon Borough Council (one notice) (Mackintosh, 2020). A Section 114 notice is a legal requirement to report in the public interest where a local authority fails to set (or is likely to fail to set) a balanced budget. As a result of these notices, the government investigated the financial arrangements of NCC and instigated a corporate inspection under section 3 of the Local Government Act 1999. There were multiple indicators of the potential for more notices from city councils in Manchester, Liverpool, and Birmingham (Homer et al. 2020), in the wake of the COVID-19 pandemic. While recent events appear to have disrupted the performance of LAs, many commentators (Bracci et al., 2015; Barbera et al., 2017; Jones, 2017; Ferry et al., 2019; Eckersley et al., 2021; Coyle and Ferry, 2022) trace the cause for these recent Section 114 issues to UK government's continuing economic austerity policies. The Government responded by distributing additional financial support to LAs and undertook a plan to enhance financial sustainability for them in uncertain times of financial crisis.

Changes in regulations and policies – e.g., the introduction of the Business Rates Retention Scheme (BRRS) – a scheme that allowed LAs to keep 50% of business rates and deposit 50% in 2013/14 (Smith et al., 2016). The ratio increased to 75%:25%, and eventually, the 2020 Financial Settlement announced a pilot scheme where some LAs were allowed to keep all business rates (100%) (Murphie, 2018). The idea was to test the effectiveness and efficiency of the scheme and roll it out in 2017/18 and 2018/19 when successful. This was part of the fair funding scheme, so LAs were not obliged to commit to this scheme. Analysis and findings from this era will help understand how LAs have

responded to the emerging pressures and whether or not the tough decisions made in the earlier era(s) have been efficient and effective.

Having discussed how the data set for English and Welsh LAs was established, the next chapter analyses the impact of austerity on funding for LAs in England. Prior to this analysis, a similar analysis was run for Welsh LAs in a pilot study. Whilst this was explored in an ad-hoc project, the Welsh context had 22 UAs, which made it more manageable and easier to redo things. Lessons from this ad-hoc project were useful in shaping the analysis process for the English context, which is discussed further in the next chapter.