Research report

Updating the costs of Housing and Council Tax Benefit administration

by Michelle Boath, Ian Dunbar, Jonathan Hyde, Helen Wilkinson and Darren Mullan

DWP Department for Work and Pensions

Department for Work and Pensions

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Department for Work and Pensions, Commercial Support and Knowledge Management Team,
Work and Welfare Central Analysis Division, 3rd Floor, Caxton House, Tothill Street, London SW1H 9NA

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The Authors

Michelle Boath and **Ian Dunbar** are Senior Consultants with Risk Solutions and **Jonathan Hyde** is a Consultant. **Helen Wilkinson** is one of Risk Solutions' Directors and at the time the work was conducted **Darren Mullan** was a consultant with Risk Solutions. Risk Solutions is a management consultancy specialising in the application of risk-based methods and approaches to help managers and policy makers make better decisions in the face of risk, uncertainty or complexity.

Abbreviations

AASC	Assessor annual staff cost
CIS	Customer Information System
CT	Council Tax
CTB	Council Tax Benefit
DIPS	Document Image Processing System
DWP	Department for Work and Pensions
FTE	Full-Time Equivalent
GDP	Gross Domestic Product
GOR	Government office region
HB	Housing Benefit
HB/CTB	Housing Benefit/Council Tax Benefit
HBMS	Housing Benefit Matching Service
IS	Income Support
IRB	Income-Related Benefit
IT	Information technology
JSA	Jobseeker's Allowance
LA	Local Authority
PC	Personal computer
PFA	Person From Abroad
PRS	Private Rented Sector
SHBE	Single Housing Benefit Extract
TDWA	Top down workload area
WA	Workload area

Glossary

Assessor annual staff cost	The average annual gross salary of the assessors, plus the associated employers National Insurance and superannuation contributions.
Adjusted caseload	**Caseload** plus **new claims**.
Aggregation	Adding together all the relevant values.
Anecdotal evidence	Evidence provided in conversations with surveyed individuals. It provides richness of perspective and detail but cannot be analysed quantitatively or used to extrapolate individual experiences more widely. See also **qualitative evidence** and **quantitative evidence**.
Applicable amount	Housing Benefit and Council Tax Benefit (HB/CTB) are means-tested benefits. For those not in receipt of a passporting benefit such as income support or income based **Jobseekers Allowance (JSA)**, the amount payable is assessed relative to the claimant's applicable amount. This represents the basic living needs of the claimant and their household, and depends on the claimants circumstances, including for if their age, and whether they have dependants.
Assessor	Individual within the Local Authority (LA) responsible for processing the HB or CTB claim.
BACS	BACS is a financial industry body which processes automated electronic financial transactions in the UK.
Benchmark	A standard measurement that forms the basis for comparison.
Bias	A statistical **sampling** or testing error caused by systematically favouring some outcomes over others.
Bottom up	Bottom up costs are those estimated by us during the fieldwork for the workload areas of interest.
Breadth survey	A breadth survey is one which covers a broad range of the sample with a relatively small number of questions. This contrasts with a depth survey. In this study the breadth survey was issued to all LAs, and received responses from almost half of them.
Bulk change of circumstances	Those **change of circumstances** that are processed automatically in bulk, such as annual rent increases for LA tenants, annual increases in some other benefit. Non-bulk change of circumstances are processed individually by a HB assessor.
Caseload	The number of cases (HB/CTB) that are live at a given time.

Categorical data	Data that is in the form of a category rather than a numerical value, e.g. LA type data values include 'Unitary', 'Shire District' etc.
Customer information system	New system used in Jobcentre Plus, allowing benefits staff to view a range of information related to customers with existing claims.
Cluster analysis	This is a method of statistical analysis that groups things by common characteristics that are not immediately well-defined, and where there are a large number of potential variables. These groups can then be used as the basis of **stratified sampling**.
Cluster centroid	The centre of a cluster found through **cluster analysis** – the **mean** value of all the objects in the cluster across all the cluster characteristics.
Change of circumstances	Change of circumstances – a change in the circumstances of an existing claimant such as having moved, increased or decreased their income, change in rent, change in numbers and income of other household members, etc.
Confidence interval	When we quote estimates of numbers calculated from samples, these will not be entirely accurate. In these cases, it is good practice to indicate how accurate the estimate is likely to be. We do this by specifying 95 per cent confidence intervals. For example, our estimate of the total national top down cost of administering HB and CTB is quoted as £(986 ± 12)M. The estimate is £986M. The 95 per cent confidence limits are £12M either side of this value, namely, £974M and £998M. The 95 per cent confidence interval is the range between these two extremes. Roughly speaking, it means we are 95 per cent confident that the actual value lies somewhere in this range. The strict definition is that if the estimate were the correct value and if we performed the sampling exercise many times, then the correct value would lie in the 95 per cent confidence interval 95 per cent of the times.
Correlation	The interdependence between two variables, such that as one changes we expect the other one to change in a predictable way. If two variables are well-correlated, the relationship between them will have a high R^2 value.
Cost model	A statistical description of the way in which costs are expected to change depending on a range of variables.
Data collection template	A standardised document or spreadsheet providing spaces to capture all the individual pieces of data needed from a particular source in a common format.

Depth survey	A depth survey is one with a relatively small sample size, where the sample is investigated in considerable depth (in contrast to the **breadth survey**). In this study we identified a sample of 30 **LAs** for detailed study.
Document Image Processing System	Used to manage documents, scan and post them to the LAs **IT** system.
Disaggregation	Breaking up into component parts.
Disclosive	Data are considered to be disclosive when they allow statistical units to be identified, either directly or indirectly, thereby disclosing individual information.
Discretionary Housing Payments	Discretionary Housing Payments (DHPs) provide claimants with further financial assistance when a LA considers that help with housing costs is needed.
Elicitation	Drawing out information from interviewees and people visited.
FTE	Full-Time Equivalent.
GDP	Gross Domestic Product.
GfK NOP	A market research company.
Grossing up	Adding together all the relevant values to get the total national cost.
Housing Benefit Matching Service	The Housing Benefit Matching Service (HBMS) aims to identify claims that are most risk of fraud or error. It is a service provided by the Department for Work and Pensions (DWP) for each LA, identifying claims that should be looked at more closely. For example, it may identify claimants who are in receipt of certain types of income that is not included in their HB or CTB claim, or who are no longer receiving a passporting benefit, where LA information suggests that they are.
HCTB1	A standard type of claim form for HB and CTB.
Heteroscedastic	Data which have different variances, for example where the variability of the data increases as the value increases, leading to wider dispersion around a **regression** line for higher values. This is in contrast to **homoscedastic** data, where the variability is the same irrespective of the values. These different properties require different statistical analyses.
Hierarchical method	This is a way of dividing a population into groups for **stratified sampling**. If the characteristics of the population are well understood then the population can be divided, e.g. at the highest level by gender (male/female), then at the next level into age group, then each age group could be subdivided. This would lead to a number of groups, from each of which a random sample can be selected.

Histogram	A diagram that uses rectangles to represent frequency.
Income-Related Benefit	A means-tested benefit that will change as the individual's income changes.
Information technology	Computer and data management systems.
Local Authority	Includes London Borough, Metropolitan, Scottish Unitary, Shire District, Unitary and Welsh Unitary authorities (excludes County Councils).
Local Housing Allowance	The method of calculating **HB** introduced in 2008 for tenants in the **Private Rented Sector (PRS)**. Under Local Housing Allowance (LHA), a flat allowance is used to decide the eligible rent of all claimants with similar sized households living in a broad rental market area, rather than tying the level of benefit to the individual property. This is supposed to provide an incentive for those on HB to find cheaper accommodation.
Marginal cost	The increase or decrease in total costs as a result of one more or one less unit of output.
Mean	The average value of a set of quantities – the value obtained by dividing the sum of a set of quantities by the number of quantities in the set.
Median	One type of average, found by arranging the values in order and then selecting the one in the middle. If the total number of values in the sample is even, then the median is the mean of the two middle numbers. The median is a useful number in cases where the distribution has very large extreme values which would otherwise skew the data.
Multi-variate analysis	Any statistical technique analysing the relationship between more than two variables.
National indicators	Central government has set a series of 198 national performance indicators for LAs and LA partnerships.
New claim	A claim from a new claimant for benefits. Claims where the claimant already has a live claim but where something about their claim has changed (for example their address) is treated as a change of circumstances. The new claimant may have claimed previously, but has no live claim, that is no claim currently in payment.
NI181	National 'right time' indicator – see **National indicators**.
Non-bulk change of circumstances	See **Bulk change of circumstances**.
Non-passported benefits	See **Passported benefits**.
ONS classification	There are 14 different ONS classifications for the type of area within which an **LA** is found, such as 'Coastal and Countryside', 'Industrial Hinterlands', 'Prospering Smaller Town'.

Orthogonal vectors	Mathematical definition of vectors whose product is zero – effectively this means that a set of orthogonal vectors can be used in linear combination to define any part of the space.
Passported benefits	Passported benefits are those benefits which some groups of people are automatically entitled to because of their entitlement to another benefit, for example Income Support (IS).
Pilot	A preparatory study to test the study methodology before expanding to the entire **sample**.
PM1	An indicator – the **mean** number of days taken to process a new claim.
PM5	An indicator – the mean number of days taken to process a change of circumstances.
POP	Adult population of the LA.
Process map	Process mapping is an exercise to identify all the steps and decisions in a process in diagrammatic form, the process map, which displays the various tasks contained within the process and demonstrates the essential inter-relationships and interdependence between the process steps.
Qualitative research	Research that deals with the quality, type, or components of a group, substance, or mixture. Qualitative research is exploratory in nature and uses procedures such as in-depth interviews and focus group interviews to gain insights. Qualitative methods produce information only on the particular cases studied, and any more general conclusions are only hypotheses. **Quantitative** methods can be used to verify, which of such hypotheses are true.
Quantitative research	Quantitative research refers to the systematic empirical investigation of quantitative properties and phenomena and their relationships. The objective of quantitative research is to develop and employ mathematical models, theories and/or hypotheses pertaining to phenomena. The process of measurement is central to quantitative research because it provides the fundamental connection between empirical observation and mathematical expression of quantitative relationships.
R^2	Statistical measure of how good the estimated regression equation is, designated as R^2 (read as r-squared). The higher the r-squared, the more confidence one can have in the equation. Statistically, the coefficient of determination represents the proportion of the total variation in the y variable that is explained by the regression equation. It has the range of values between 0 and 1.

Remote access terminal (RAT)	Former system used by LAs to access information on benefits administered by Jobcentre Plus, allowing limited access to customer information.
Region	Regions used are government office regions, except that London is split into Inner London and Greater London (where Greater London comprises those LAs in London but not in Inner London), and with the addition of Wales and Scotland.
Regression line	A line that can be represented by a mathematical relationship and is the best fit through a series of data points.
Regression model	A mathematical method of modelling the relationships among three or more variables. It is used to predict the value of one variable given the values of the others. A regression analysis yields an equation that expresses the relationship.
Representative sample	See **Sample**.
Residual variation	The variation that cannot be attributed to specific causes – the difference between the predictions made by the best fit **regression model** and the observed data.
Registered Social Landlord (RSL)	May also be described as housing associations. They are now referred to as registered providers.
Safeguards applications	LHA is usually paid directly to the claimant, but the claimant or their landlord can apply to the LA asking for it to be paid directly to the landlord; this is known as a safeguards application.
Sample	A set of elements drawn from, and intended to represent the characteristics of, a population. By drawing on a sample one intends to predict the behaviour of the whole population without having to analyse every member of it.
Sampling error	There is likely to be some difference between the results of the analysis of the **sample**, and that which one would have got if the whole population had been used. This is the sampling error. Methods of reducing sampling error include increasing the sample size and ensuring that the sample adequately represents the entire population (see **sampling strategy**).
Sampling strategy	The sampling strategy is the method selected to ensure that as far as possible the **sample** selected is representative of the population. It is particularly important where the sample is relatively small compared with the population, as there is a risk that important population types could be missed altogether. In the case of this study, with a sample of 30 out of a population of 396, the sampling strategy is particularly important. If the sample is not representative then the results cannot reliably be extrapolated to the whole population.

Scatterplot	A pictorial way of representing data to see if there is a relationship between two sets of measurements. Two scales, one for each type of variable, are drawn at right angles to each other and each set of data is plotted. Any relationship can then be visually identified, and any apparent **correlations** can then be tested statistically.
Single Housing Benefit Extract (SHBE)	Consists of monthly data returns from LAs about their HB and CTB claims.
Stratified sampling	Rather than simply taking a random sample from the whole population, in stratified sampling the population is first divided into a series of groups or strata according to criteria related to the study. Random samples are then selected from each group, in proportion to group size, to improve the precision of the results. Strata can either be selected by **hierarchical** methods or through **cluster analysis**.
Total bottom up	Total **bottom up** estimate is the sum of all the bottom up estimates across all **LAs**.
Top down workload area	This is the total top down estimate minus the costs associated with non-workload areas such as recharges for accommodation, human resources, etc.
Top-down	Top down costs are those supplied to us from the accounts systems of the **LAs**, either via the **breadth survey** or during fieldwork at LAs.
Total top down estimate	Total **top down** estimate is the sum of all top down estimates across all **LAs**. It contains elements not included in the **total bottom up** cost, because they do not correspond to distinct workload areas, for example recharges for accommodation, human resources.
Unit cost	The **mean** cost per unit (e.g. per caseload claim).
Verification framework	The verification framework was designed to reduce fraud and error in **HB** and **CTB**, and included a number of rules relating to acceptable evidence in support of new claims and changes of circumstances, as well as targets for **LAs** on activities such as claim reviews.
Workload area	Workload areas are defined areas of work within the **LA's HB** and **CTB** administration processes, for the purpose of this study, for example new claims assessing, changes of circumstances assessing, appeals, counter fraud activities.
Z-score	A z-score is a measure of how far an item of raw data is from the mean of all the items in the sample, as a proportion of the standard deviation across the data. It is a way of transforming different variables that have very different scales to allow them to be weighted equally in a calculation, such as in calculating clusters in **cluster analysis**.

Summary

Background

Local Authorities (LAs) administer Housing Benefit and Council Tax Benefit (HB and CTB) within a framework set by the Department for Work and Pensions (DWP), and receive subsidy grants for administration (and for the HB and CTB paid out). At April 2010, the total number of people claiming either HB or CTB was 6.31 million, with 4.22 million claiming both benefits[1].

In 2004, DWP commissioned Risk Solutions to estimate the costs to LAs of administering HB and CTB. Since then, a number of changes have taken place that are likely to have affected how LAs administer HB and CTB, and the costs they incur, including changes to:

- the benefits themselves (e.g. the introduction of Local Housing Allowance (LHA) to determine eligible rents within the Private Rented Sector (PRS));
- how benefits are administered (e.g. the increased use of shared services, such as customer services, within and between LAs);
- how performance is measured and managed (e.g. the national NI181 right time indicator);
- LA boundaries (i.e. the recent new unitary authorities);
- reductions in HB and CTB administration subsidies paid to LAs;
- socio-economic factors, such as demographic changes (migration, ageing population) and economic recession leading to increased numbers of new claimants.

The research reported here has two specific objectives, which sit within DWP's overall goal of modernising the delivery of HB and CTB:

- **Provide an updated estimate of the costs to LAs of administering HB and CTB** – both at a national level and, as far as possible, for certain tasks and functions within the HB/CTB administration process.
- **Recommend an information model** – to help DWP keep the estimated costs up-to-date by:
  - highlighting any gaps in the information currently submitted to DWP by LAs on a regular basis;
  - suggesting additional information requirements, while minimising any unnecessary burden on LAs.

Methodology

The methodology included collecting high level information from a large number of LAs (via a survey administered for DWP by GfK NOP), and more detailed information collected from a representative sample of 30 LAs during the fieldwork phase of the research. In addition to these data, we used information provided by DWP from the Single Housing Benefit Extract (SHBE[2]). The data collected were analysed using a standard statistical package (Stata) and statistical models were developed to predict national total costs for the administration of HB and CTB, together with estimates for

1 http://research.dwp.gov.uk/asd/stats_summary)jul2010.pdf?x=1

2 SHBE data is composed from monthly data returns from LAs about their HB and CTB claims.

individual workload areas – areas of activities undertaken by LAs to deliver their benefits services (such as assessing new claims and changes of circumstance, dealing with appeals, investigating fraud, encouraging take-up). In addition, we collected information during fieldwork on how benefits services are organised, noting changes since the research undertaken in 2004/05.

Findings

Managing and organising work

Our robust sampling strategy provided a representative cross section of LAs, and therefore the fieldwork can provide insight into current practice across each workload area. We also examined the extent to which workload areas were completed within the LA but outside of the benefits team, or were outsourced to an external organisation.

We found that it appears to be rare for LAs to outsource all benefits administration; in the breadth survey carried out for this work, five of 161 respondents do this. For the 30 LAs we visited, about half had customer services delivered by another part of the LA, for example through 'one-stop shops' and customer contact centres.

A small number of LAs in our fieldwork sample (more than in our previous work in 2004/05) use staff who work on both revenues and benefits, with managers in these LAs citing improved customer service and improved efficiency as reasons for this approach.

As noted above, since our 2004/05 research, there have been a number of changes to HB and CTB schemes, and changes in the ways that people work. The Customer Information System (CIS) allows LAs to have secure web-based access to DWP information relevant to the assessment of HB and CTB claims. It appears to have been welcomed by users, who say that it is easier to use than its predecessor and has reduced the time taken to assess claims (both time spent on the claim, and elapsed time). However, LAs have interpreted DWP guidance on recording the results differently, with some stating that no hard or electronic copies of CIS screens should be made (at these LAs staff make their own notes on the LA system about the information viewed). Others believe it is important that a hard or electronic copy of the CIS screen is kept, as proof that the information has been verified and in case error or fraud is suspected in the future.

The user interfaces of different software packages for assessment appear to have converged to a more user-friendly layout than was the case in 2004/05, aligned with standard claim form layouts. However, there may be further opportunities to reduce the time and cost of data entry. We observed assessors copying information from a screen, by hand onto paper, then entering it into the assessment package; particularly where assessors have a single display screen (at many LAs they have two, so can view scanned documents on one, and assessment software on the other). Improved use of IT shortcuts such as copying and pasting information from one package to another has the potential to reduce errors of transcription and save time.

LAs try to make sure that claimants supply as much of the information and evidence required to accompany a claim with the initial claim. Some LAs prefer to take new claims by visiting claimants in their own home, to increase the likelihood that all the information and evidence is provided up front. Some others have implemented a 'claim promise' where they undertake to make a decision on the claim within a given (short) period of time as long as all information and evidence necessary is provided with the claim form. One LA told us that it now needs to write to claimants for further information or evidence in only five per cent of cases.

The introduction of the LHA scheme for private sector tenants has reduced double handling of claims as activities relating to rent officer referrals are no longer necessary. We note however, that some LAs have seen an increase in the numbers of safeguards applications[3].

The economic recession has resulted in increased caseload and so workload for almost all LAs. LAs have used a range of approaches to manage the extra workload, including using overtime, recruiting additional staff, outsourcing some assessment activities, and reducing work in discretionary areas such as checking and reviews. LAs no longer have prescriptive targets to meet for checking and reviews, and some had moved resources from these tasks to assessment work.

For reviews, the fieldwork found considerable variation in the numbers of reviews undertaken. Total numbers of reviews completed varied from around four per 1,000 caseload to 880 per 1,000 caseload, with mean and median averages of 217 and 160 reviews per 1,000 caseload respectively. For reviews undertaken by visit, the numbers undertaken varied from 2 to 317 per 1,000 caseload, with mean and median averages of 98 and 77 per 1,000 caseload. As noted above, in some cases low numbers are accounted for in part by work priorities as a result of increased workload. However, much of the variation may reflect choices made by LAs in the mix of activities to use to manage customer error.

Costs

The breadth survey and the fieldwork together produced a rich database of information on costs and on potential drivers of cost. We analysed this data to:

- obtain a deeper understanding of how the total costs are broken down, and what drives those costs;
- produce an estimate of the total national cost of HB and CTB administration (grossing up), by estimating costs for those LAs where we do not have the actual costs, then summing over all the actual and estimated costs.

In addition, where possible, we aimed to produce unit cost estimates.

We find that differences in caseload explain most of the differences in costs between LAs. We would expect numbers of new claims and changes of circumstances to affect costs. However, to be able to see any such effect in the data, there would have to be some LAs with low numbers of new claims (or changes of circumstances) per 1,000 caseload, and some with high numbers of new claims per 1,000 caseload. This is not the case; the numbers are too similar across LAs to allow any effect to be observed. In the same way, while we might expect the mix of new claims to drive costs (e.g. passported or standard, tenancy type) because some claims are more complex to assess, the mix across LAs does not vary sufficiently for any differences to be observed in the data. Thus, caseload is a good predictive variable. Using either ONS classification or region helps to explain some of the remaining variation. This is probably because the cost of employing staff is higher in some places; London Boroughs in particular, have higher costs of employment.

[3] LHA is usually paid directly to the claimant, but the claimant or their landlord can apply to the LA asking for it to be paid directly to the landlord; this is known as a safeguards application.

The estimate of the total national costs to LAs in England, Scotland and Wales of administering HB and CTB is £(986 ± 12)M[4].

The unit cost per item of caseload is approximately £(163±1).

There is evidence that modernisation of HB and CTB, including changes such as the introduction of LHA, the use of electronic transfer of data for claimants also claiming benefits from Jobcentre Plus and the introduction of CIS have led to savings since 2004. The estimate for 2004/05 was £(801 ± 11)M. Uprating this by the apparent increase in employment costs for assessors and the increase in average caseload gives an adjusted figure of £1,120M. The estimate above is 88 per cent of this figure, suggesting an overall reduction of 12 per cent compared with the costs we might expect to see in the absence of any other changes.

The estimate of national total of costs measured using a bottom up approach is £(752 ± 2.4)M. This is lower than the total national cost estimate because it excludes items such as recharges for finance, HR, accommodation and LA corporate management. The bottom up cost comprises the cost of people's time together with recharges and external charges that can be allocated to specific workload areas. When the missing items are excluded from the total top down costs of the LAs in the depth study, there is good agreement with our total bottom up cost estimates.

Assessing new claims and changes of circumstances together account for approximately 19 per cent of total estimated national bottom up costs, with customer services contributing 17 per cent to the total, followed by IT and IT support at 12 per cent.

Unit costs for individual workload areas are given below; these are expressed as unit costs, and some are given in terms of more than one unit.

Cost item	Cost per unit
Assessing new claims	£23 per new claim (as measured by SHBE)
Assessing new claims	£8 per item of caseload
Assessing changes of circumstance	£9 per change of circumstance (as measured by SHBE)
Assessing changes of circumstance	£16 per item of caseload
Appeals	£4 per item of caseload
Benefits management	£14 per item of caseload
Checking and QA	£4 per item of caseload
Customer services	£25 per item of caseload
Document Image Processing System (DIPS) (document management) and post	£9 per item of caseload
Fraud-related	£11 per item of caseload
IT	£14 per item of caseload
Overpayments recovery	£6 per item of caseload
Reviews	£4 per item of caseload
Training	£6 per item of caseload

[4] The ±12, and similar figures preceded by ± , throughout the report, specifies the size of the confidence interval around the estimated figure. See the glossary for a discussion of the use of confidence intervals.

Updating cost estimates

Given the results of our cost modelling, we suggest that the priorities for information gathering on a regular basis are as follows.

- ensure that SHBE extracts are accurate, and that they support the levels of disaggregation (by claim and claimant types) of interest. Particular priority should be given to caseload data, as this appears to have the greatest overall predictive power for costs;
- it would be useful if LAs could supply data annually on the assessor annual staff cost. This is because staff costs help to explain differences in costs between LAs, and assessor staff costs are a useful benchmark cost to indicate general differences in pay rates between LAs. This would require careful definition of which costs are to be included in 'Staff Cost' (the mean annual salary per Full-Time Equivalent (FTE), plus employers' NI and superannuation costs) and which grade corresponded to 'Assessor'. Assessors are those staff that carry out the bulk of the assessment work. If the assessors in an LA come from different locally defined grades, a FTE -weighted average of the costs for the different grades involved in assessment would be useful, although it is recognised that this may be more onerous for LAs;
- it would be useful if LAs could supply annually the outturn numbers for what we have called total top down costs. This would give a more direct picture of national costs – gaps in the data could be filled in with regression modelling. Changes in the total top down costs versus caseload and annual assessor staff cost regression models could indicate that changes in the underlying processes or drivers and hence in the cost basis had occurred.

1 Introduction

1.1 Background

Local Authorities (LAs) administer Housing Benefit and Council Tax Benefit (HB and CTB) within a framework set by DWP, and receive subsidy grants for administration (and for the HB and CTB paid out). At April 2010, the total number of people claiming either HB or CTB was 6.31 million, with 4.22 million claiming both benefits[5].

In 2004, DWP commissioned Risk Solutions to estimate the costs to LAs of administering HB and CTB. The work also identified both similarities and differences in the ways that different LAs delivered their benefits services, and where possible identified what drove costs across these different approaches. Understanding what LAs do and what drives costs helps the Department for Work and Pensions (DWP) to ensure that policies contribute to efficient administration of HB and CTB, and to allocate resources fairly across LAs.

Since 2004, a number of changes have taken place that are likely to have affected how LAs administer HB and CTB, and the costs they incur, including changes to:

- the benefits themselves (e.g. the introduction of Local Housing Allowance (LHA) to determine eligible rents within the Private Rented Sector (PRS));
- how benefits are administered (e.g. the increased use of shared services, such as customer services, within and between LAs);
- how performance is measured and managed (e.g. the national NI181 right time indicator);
- LA boundaries (i.e. the recent new unitary authorities);
- reductions in HB and CTB administration subsidies paid to LAs;
- socio-economic factors, such as demographic changes (migration, ageing population) and economic recession leading to increased numbers of new claimants.

1.2 Objectives

This research has two specific objectives, which sit within DWP's overall goal of modernising the delivery of HB and CTB:

- **provide an updated estimate of the costs to LAs of administering HB and CTB** – both at a national level and, as far as possible, for certain tasks and functions within the HB/CTB administration process;
- **recommend an information model** – to help DWP keep the estimated costs up-to-date by:
  - highlighting any gaps in the information currently submitted to DWP by LAs on a regular basis;
  - suggesting additional information requirements, while minimising any burden on LAs.

Delivering these objectives requires the development and use of a number of different types of models to predict costs, this is discussed further overleaf.

5 http://research.dwp.gov.uk/asd/stats_summary)jul2010.pdf?x=1

1.3 Local Authority anonymity

A critical aspect of this project was the need to maintain the anonymity of LAs who participated in the pilots or main fieldwork. Therefore, during data collection and analysis, LAs were referred to by anonymised identification numbers (i.e. LAxx) rather than their names. Furthermore, where data is considered potentially disclosive, i.e. it might enable an LA to be identified, it is not presented. This means that on some figures, for example, while the analysis included all available data, some data points are not shown on the figure.

1.4 Deliverables

In addition to this formal report outlining our methodology and key findings, our research also produced the following deliverables:

- Formal presentation to DWP on the HB/CTB administration of the cost modelling.
- Formal presentation of the approach and findings to the Local Authority Associations (LAA) steering group.
- A template for future information requirements for the cost model, including how these could be collated with minimum administrative burden on LAs.
- Brief benchmarking summary sheets, for the 30 LAs who took part in the main fieldwork.
- Copies of cost models and data sets.

1.5 Layout of the report

The report is set out as follows:

- Chapter 2 provides an overview of the methodology – more details of the sampling method and the data collection template we used are given in Appendix A and B. Appendix C presents GfK NOPs report of the breadth survey used to support the analysis and Appendix D presents some further details of how the depth survey was managed.
- Chapter 3 discusses some qualitative findings of the research.
- Chapter 4 presents findings relating to costs, what, from the data appears to be driving the costs, what measures are useful predictors of costs and estimates of unit costs and national costs of administering the benefits. Appendix E presents technical detail for analysts regarding each of the analyses carried out.
- Chapter 5 presents the conclusions.

2 Methodology

2.1 Overview of our methodology

Our methodology is summarised in Figure 2.1, and comprised six key stages:

1 Initial study design to consider how Housing Benefit/Council Tax Benefit (HB/CTB) administration had changed since our previous work and, in particular, to develop a sampling strategy to select Local Authority (LAs) for the fieldwork;

2 Develop and pilot the cost model to make sure it collected relevant information, was balanced in terms of breadth versus depth[6], and minimised the burden on participating LAs;

3 Main fieldwork to collect detailed information on costs and how benefits are administered across a representative sample of LAs;

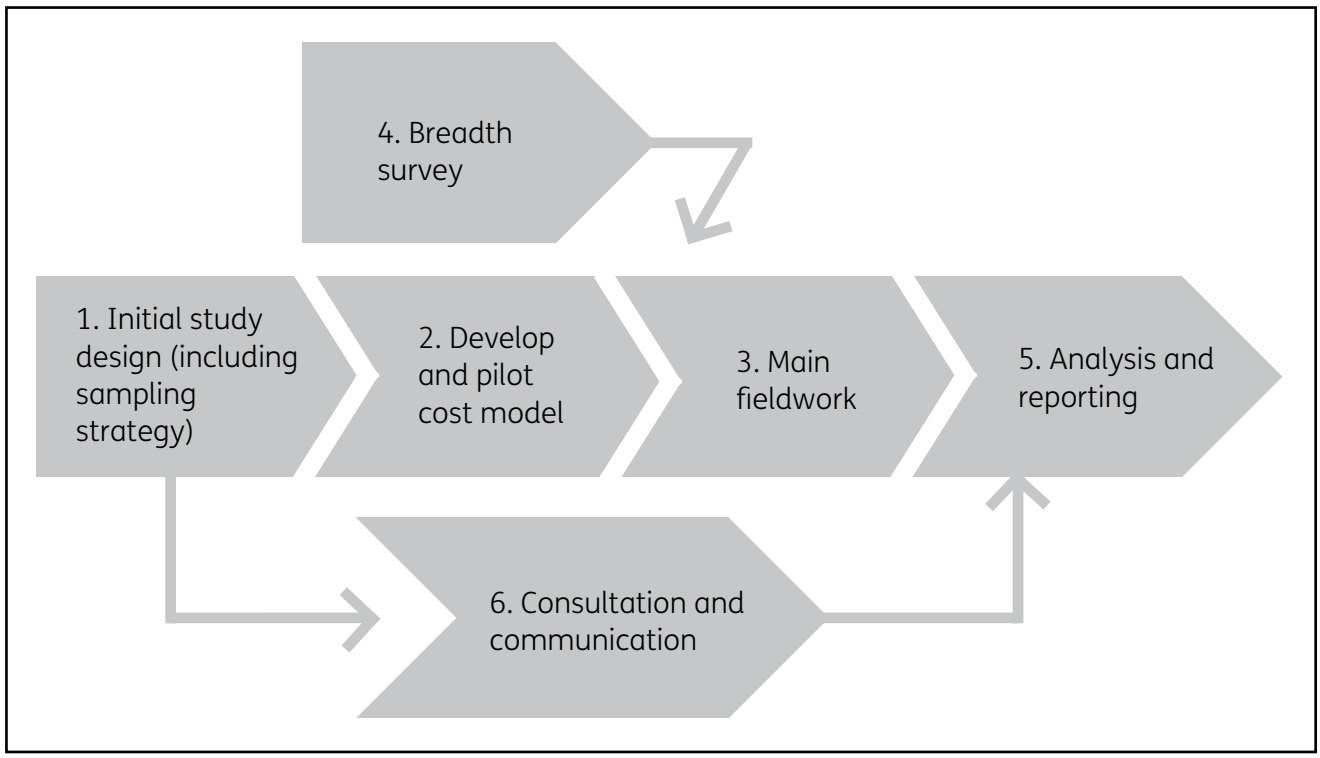
4 Breadth Survey, completed by GfK NOP on behalf of Department for Work and Pensions (DWP), to gather information on high level costs, and on how HB and CTB are administered, across a wider group of LAs;

5 Analysis and reporting, including the following deliverables:

- the cost model, supported by a template for future information collection by DWP;
- a formal report, including our methodology, cost analysis, etc.

6 Consultation and communication to make sure our methodology and emerging findings were communicated to, and tested with, key stakeholders.

Figure 2.1 Methodology overview



6 A lesson from our previous work was the need to develop a cost model, which was detailed enough to meet the research objectives, but no more complex than was necessary.

The project began in July 2009:

- We developed and piloted the cost model between September 2009 and January 2010.
- The breadth survey was completed in late 2009.
- We conducted the main fieldwork between January and May 2010.

The method is described in more detail below. Key features were:

- We incorporated lessons learned from previous work (Text Box 1).
- Our sampling strategy used cluster analysis to select a representative sample of LAs for the fieldwork.
- We tested our fieldwork tools and methodology to make sure they:
  - provided the required breadth and depth of data;
  - minimised the burden on participating LAs.

Text Box 1: Learning lessons from our previous work

Our methodology reflects a number of lessons learned during our previous work in 2004.

Level of detail – the cost model in our original work was very detailed. However, during that, and subsequent, work we have gained a deeper understanding of the range of ways in which LAs administer HB and CTB. For this work, data collection and low level cost modelling was improved to provide sufficient detail to meet the research objectives, while being no more complex and burdensome for participating LAs than necessary.

Breadth survey – for the last study, the breadth survey was included as part of an Omnibus wave. The response rate was relatively low, and with hindsight it was considered that benefits managers were perhaps not the people best placed to answer many of the questions posed. However, a breadth survey is a valuable means of accessing data from a wide range of LAs to supplement the detailed fieldwork drawing on a smaller sample of LAs. For this project, a different approach was adopted, and GfK NOP produced a standalone survey aimed primarily at Finance Officers, which improved the response rate achieved.

2.2 Initial design of the study

In addition to refining our understanding of DWP's requirements, the main objective of this initial stage of the project was to produce a representative sample of LAs for the subsequent fieldwork. It was important to balance the need for value for money with the need to achieve a representative sample. In this context a sample size of 30 LAs was agreed, consistent with our 2004 study.

Thus, the aim of our sampling strategy was to select a sample of 30 LAs that would represent the total population in terms of our target variable (i.e. HB and CTB administration costs).

We considered the following approaches to sampling:

- Random sampling – here 30 LAs would be selected at random from the total population.

- Stratified, hierarchical sampling – rather than simply taking a random sample from the whole population, in stratified sampling the population is first divided into a series of groups or strata according to criteria related to the study. Random samples are then selected from each group, in proportion to group size, to improve the precision of the results. Strata can either be selected by hierarchical methods or through cluster analysis. If the characteristics of the population are well understood then the population can be divided hierarchically, e.g. at the highest level by caseload[7] (by defining a number of caseload categories such as less than 10,000, 10,000 to 19,999 and so on), then at the next level into LA type, then perhaps into different groups based on the percentage of claimants in Private Rented Sector (PRS) accommodation. This would lead to a number of groups, from each of which a random sample can be selected. Where there are a large number of relevant variables, a large number of groups can result.
- Stratified sampling based on cluster analysis–here, a statistical technique known as cluster analysis is used to take account of a wide number of variables that might affect the target variable. This produces a number of clusters[8], analogous to the groups above, from which LAs are then selected at random, the number being proportional to the number of LAs in each cluster.

In line with our previous work in 2004, we again selected stratified sampling based on cluster analysis, as:

- we were addressing a complex system, in which there are a large number of variables that may be correlated with the cost of administering HB and CTB;
- the nature and strength of the relationships between these variables are not known.

Our sampling methodology is explained in more detail in Appendix A.

2.3 Develop and pilot the cost model

The cost model itself comprises three components:

1 **Data collection templates**, within which the detailed top-down/bottom-up cost information from each of the 30 LAs in the depth study is collated.

2 **Detailed regression models**, which look at various cost elements, and regress them across the 30 depth study LAs, against a wide range of independent variables, to determine what might be driving the costs.

3 **Grossing up cost model**, which regresses costs against the smaller set of independent variables that are available for a large number of LAs (e.g. from Single Housing Benefit Extract (SHBE)[9] or from the breadth survey), and which is then used to produce estimates of the national total costs.

The data collection templates are described in this section, while the regression models are described in Chapter 4 (Cost Analysis).

Before undertaking the main fieldwork, we worked closely with DWP to develop the data collection template. We then chose two LAs from different clusters to pilot the data collection template itself and the structure of our on-site visits (i.e. how much time we needed to allocate across the various components of the data collection template, the types of data and information we might use to populate the data collection template, etc.).

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7 Caseload refers to the number of cases (HB, CTB, or both) that are live at a given point in time.

8 These are effectively groups of LAs with similar characteristics.

9 The SHBE consists of monthly data returns from LAs about their HB and CTB claims.

It was apparent from both pilot case studies that:

- the way in which the LAs described different types of new claims and changes of circumstances was closely aligned to the information available in SHBE;
- LAs did not regularly record volumes across all of these types of new claims and changes of circumstances, so this information would need to be provided by DWP from their SHBE database;
- while there have been some changes to how HB and CTB are assessed (e.g. Local Housing Allowance (LHA)) since our previous work in 2004, many of the core HB/CTB tasks and activities had not changed;
- the user interfaces of the assessment software packages used by LAs seem to have converged to a layout that facilitates data entry, and is very similar to the DWP standard HB/CTB claim form (HCTB1), which implies that there might be greater consistency in how different LAs process HB/CTB claims.

2.3.1 Data collection template

A standard data collection workbook was used for all subsequent fieldwork visits to LAs. It contained the following individual worksheets designed to capture information in a common format, and enable comparison between LAs who may administer HB/CTB in different ways.

Top-down information:

- Top-down costs – captures high-level financial information on the LA's predicted cost out-turns for the administration of HB and CTB.
- Staff information – captures information on HB/CTB administration staff, such as grades, numbers of staff Full-Time Equivalent (FTE) at each of these grades, employer costs, available working time[10] taking into account holidays and sickness.

A number of workload areas to capture bottom-up information. Each of these worksheets captured information on:

- the numbers and grades of staff involved in each workload area;
- any external costs of internal recharges that could be identified as specific to the workload area;
- where practical and meaningful, volumes and types of activity within the workload area.

The workload areas are:

2.3.2 Predominantly claim handling activities

- Assessing new claims – captures detailed information on how staff administer the different types of new HB/CTB claims, including data entry, determination of claims and customer notifications (excluding postage costs).
- Assessing non-bulk change of circumstances – captures similar information to new claims, but specific to assessing changes of circumstance[11].
- Appeals, including the costs of reconsiderations.

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10 This took account of differences in the length of the working week between LAs.

11 A change in a claimant's circumstances that might affect their entitlement, such as change of address, change in income, changes to the number of or income of household members.

- Checking and quality assurance.
- Claim payments – including the costs of BACS[12] runs, checking activities related solely to payment runs, but not the cost of notifications sent out by post.
- Overpayment management.
- Welfare – specific costs related to welfare related activities such as visiting vulnerable individuals to take new claims and changes of circumstances.
- Subsidy checks and returns.
- Reviews (interventions).
- HB Matching Service[13] (HBMS).
- Counter fraud activities such as assessing and filtering fraud referrals, investigating fraud, and counter-fraud campaigns.
- Document Image Processing System (DIPS), document management and post – including opening post, scanning, and the costs of all postage including customer notifications.
- Bulk change of circumstances – Those change of circumstances which are processed automatically in bulk (e.g. annual rent increases for LA tenants and sometimes for large Registered Social Landlord (RSLs), annual increases in some other benefits.

2.3.3 Predominantly overhead activities

- Customer services – includes an element of helping claimants fill in claim forms as well as more general advice.
- Changes in HB/CTB regulations, including end of year processes such as amending parameters to reflect changes in applicable amounts.
- Benefits management.
- IT support – this includes day-to-day IT helpdesk activities, charges for hardware and software, and also support testing and installing software patches and new releases. IT support often includes running management information reports. Assistance with specific activities such as dealing with bulk change of circumstances will be included in those workload areas, not in IT support.
- Take-up – activities to encourage take-up of HB and CTB.
- Training.
- Miscellaneous – includes dealing with LHA safeguard applications, freedom of information requests, audits, requests for discretionary housing payments.

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12 BACS is a financial industry body which processes automated electronic financial transactions in the UK.

13 The HBMS aims to identify claims that are most risk of fraud or error. It is a service provided by DWP for each LA, identifying claims that should be looked at more closely. For example, it may identify claimants who are in receipt of certain types of income that is not included in their HB or CTB claim, or who are no longer receiving a passporting benefit, where LA information suggests that they are.

Each data capture worksheet provided a summary of staff and other costs related to work on HB and CTB. Where staff carried out other work for the LA, not related to HB or CTB, we excluded the cost of time spent on such work.

The data collection template is explained in more detail in Appendices B to E.

2.4 Breadth survey

DWP commissioned GfK NOP to carry out a cost survey of LAs. We worked with DWP and GfK NOP and helped them to develop a questionnaire that would provide high level cost information across a breadth of LAs to complement the detailed fieldwork information collected from 30 LAs. GfK NOP distributed the questionnaire in paper form and electronically, following up with telephone interviews. All LAs in England, Scotland and Wales were invited to participate and the overall response rate was 46 per cent, based on 176 LAs answering one or more sections of the survey. GfK NOP's technical report on the breadth survey is included at Appendix C.

2.4.1 Main fieldwork

The main fieldwork comprised visits to the remaining 28 (non-pilot) LAs within the overall sample. Each visit comprised three stages:

1 Pre-visit: gathering and reviewing background information about each LA, and practical arrangements for the fieldwork.

2 On-site visit: involving one or two researchers and up to four person-days of resource, collecting detailed information on HB and CTB-related activities at the LA.

3 Post-visit: clarifying any outstanding queries.

This stage is explained in further detail in Appendix D.

2.5 Analysis

We analysed both qualitative and quantitative information gathered during fieldwork as discussed in:

- Chapter 3, Qualitative findings; and
- Chapter 4, Cost analysis.

2.6 Complexity, uncertainty and limitations

Our fieldwork relied on a mix of interviews and observations. Inevitably, this results in some uncertainty that must be considered when interpreting and using the results of the research.

2.6.1 Sample bias

The sampling methodology was designed to produce a sample with as little bias as possible. Both the case study and breadth survey relied on voluntary participation. For the case studies, where an LA declined to participate, our replacement strategy was designed to select an LA as similar to the initial LA as possible. Nevertheless, there may be some bias in the sample.

2.6.2 The 'measurement' process

Our case study visits relied on interviews, and observations; this process inevitably results in some uncertainty. For example, we elicited information on how much time certain tasks took to complete, or how much of an officer's time was taken up by a particular area of work. However, it can be difficult for people to estimate how much time it takes to perform certain tasks.

In some workload areas, information from interviews was supplemented by observation. It is well-known that observation can affect the manner in which tasks observed are performed. This was particularly relevant for the new claims and change of circumstances workload areas, where:

- interviewing and observing a wide range of benefits assessors was not always possible (e.g. where some new starters did not feel comfortable taking part in the research);
- benefits assessors' behaviour may have changed due to our presence (e.g. completing extra verification checks, assessing claims more quickly);
- it was not possible to observe the full range of new claims and changes of circumstance during the limited timeframe of the fieldwork, given the large number of different types of new claims and changes of circumstances and the relative rarity of some types of changes of circumstances (e.g. non-dependant becoming a partner).

To reduce this uncertainty:

- researchers were asked to observe assessment staff with a range of experience;
- we observed as wide a range of new claims and changes of circumstances as possible, to ensure that a wide range of individual activities and process steps were observed. In some cases, we asked team leaders if there were particular types of new claims or changes in the work flow so that we could observe them[14];
- we asked all those observed, and their neighbouring colleagues to try to act as though we were not there, e.g. 'please try not to work any more quickly or slowly, and if you would usually ask a colleague a question or stop to answer a question from them, please do, if you would go to collect a print out, please do';
- after asking about or observing individual activities we asked assessors how long they thought assessing a change or new claim typically took them, and how many they were able to complete in a typical working day, to compare estimates;
- the data collection template contained cross-checks to identify potential errors (e.g. bottom-up and top-down estimates of staff costs), although these were reliant on estimates of numbers of new claims and changes of circumstances which were not always available at the time of the fieldwork.

2.6.3 Data completeness

Although our research method sought estimates of time spent on particular workload areas which were believed to be the largest contributors to the cost of HB/CTB administration. In addition, we asked those we interviewed if there were any other areas of work that took a significant amount of time. However, there may be other areas of work which incur significant costs and which were not identified.

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[14] Note, we did not alter work priorities, we adjusted our work schedule to allow us to observe such activities.

2.6.4 Other factors

Our research addressed costs, not sources of funding. It should be noted that LA spending decisions are not made in a vacuum; the degree to which costs are incurred may be a function of the available funding.

3 Qualitative findings

While Chapter 4 (cost analysis) presents the key findings on Housing Benefit/Council Tax Benefit (HB and CTB) administration costs, this section presents our qualitative findings from the fieldwork across the following key workload areas:

- Assessing new claims and changes of circumstances.
- Appeals.
- Checking and QA.
- Customer services.
- Fraud investigation and counter-fraud work.
- Reviews.
- Training.

Our robust sampling strategy provided a representative cross section of Local Authorities (LAs), and therefore the findings in this section should provide insight into current practice across each workload area. We also examined the extent to which workload areas were completed within the LA but outside of the benefits team, or were outsourced to an external organisation. At the end of this section we comment on what LAs told us about how they have managed the increased workloads they have seen as a result of the recent economic recession.

3.1 Outsourcing and recharging of workload areas

We examined:

- **recharged** services – where a workload area is largely or wholly completed by another part of the LA, not within the HB and CTB cost centre, which was particularly common for the customer services workload area;
- **outsourcing** services – i.e. contracting out the workload area to a third party, such as a private company or another LA[15].

Across the workload areas examined during our fieldwork we found that:

- it was rare for LAs to contract all benefits administration to a third party[16];
- about half of the LAs' benefits services had customer services delivered by another part of the LA (e.g. one stop shops, telephone contact centres);
- about one third of the LAs were recharged for the Document Image Processing System (DIPS) workload area, as this was completed by another part of the LA;
- in about one quarter of the LAs the counter-fraud team did not report to the benefits cost centre but to another part of the LA;
- we also encountered some shared services, with adjacent LAs sharing customer services functions and some sharing fraud managers;

15 We found two examples in our depth survey of one LA outsourcing service provision to another LA; in one case training was outsourced, and in the other scanning and indexing onto DIPS.

16 One LA in our depth sample did contract out almost all workload areas.

- about one quarter of the LAs' benefits services were largely recharged for IT support, rather than having a dedicated IT team within benefits.

In the breadth survey carried out by GfK (see Appendix C), five of 161 LAs who answered questions on outsourcing outsourced effectively all of their benefits service, while a further 30 LAs outsourced at least one aspect of the benefits service, from the following areas:

- Assessment.
- Document management.
- Customer service.
- Fraud related activities.
- Reviews.
- Appeals.
- Debt recovery.
- Payments.
- IT and IT support.

3.2 Assessing new claims and changes of circumstances

3.2.1 How work is organised

During our previous work, in 2004, we encountered two broad approaches to assessing new claims and change of circumstances[17]:

1 Assessors deal with the new claim or change of circumstances from start to finish.

2 Work is split into pre-assessment and assessment, dealt with by pre-assessors or customer services staff and assessors, respectively.

The key drivers for LAs choosing the second model were:

- a response to recruitment and training issues (e.g. pre-assessment might be used to introduce new staff to assessment, reducing initial training requirements where staff turnover is high);
- an attempt to reduce the claim assessment time for assessors by ensuring that claims were as complete as possible before they were assessed.

Most of the LAs we visited in 2010 used the first of these two approaches (i.e. there was no pre-assessment/assessment split). However, a small number of LAs used the second approach, for two main reasons:

1 To make sure claims forms were legible and complete (e.g. where a large proportion of customers did not have English as their first language) before assessment.

2 To introduce new staff to benefits assessment[18].

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17 Non-bulk change of circumstances.

18 New staff might then typically move on from pre-assessment to simple change of circumstances and finally new claims.

During the previous project, fieldwork included one LA where staff worked on both revenues (specifically Council Tax (CT)) and on HB and CTB. Fieldwork in 2010 included a larger number (but still only a few) of LAs where this was the case[19]. Two main advantages for this generic working approach were put forward by benefits managers:

1 Improved customer service, as customers would be dealing with one member of staff for both aspects of Council Tax.

2 Improved efficiency, as a combined **revenues and benefits** team was believed to deliver better value for money.

Where separate revenues and benefits teams had been combined to implement this approach, benefits managers told us that training benefits staff to deal with CT revenues took much less time than training CT staff to administer HB and CTB.

Our previous work, in 2004, also identified a breadth of approaches to allocating new claims and change of circumstances to assessors, including:

- New claims and change of circumstances dealt with by separate teams.
- Teams structured by property street name or customer surname.
- Teams structured by different categories of claimant (e.g. Private Rented Sector (PRS), LA/ Registered Social Landlord (RSL) tenants and CTB only claims).
- Some of the more complex types of claims (e.g. temporary accommodation claims, students, self-employed), may be routed to particular individuals or teams.

During this current project, all of the previous approaches were witnessed with no particular approach seeming to take precedence. In fact, some LAs switched between these approaches in response to changes in workload profile during the year.

One further observation relating to allocation of work during the previous research was that in many LAs one assessor might start processing a new claim, but if they could not complete the assessment, perhaps because not all information or evidence had been provided, another assessor might finish the assessment. When the required information arrived, the work might be routed to the next available assessor. However, in some LAs, the assessor who began assessment of a new claim retained the claim until it had been determined (except in cases of illness or holidays). During the current research, the second approach appeared to be more common.

3.2.2 Other observations

HB/CTB forms

Some LAs have dedicated forms and checklists, not only for change of circumstances but also for certain aspects of new claims, e.g. specific forms for:

- Changes in income for self-employed customers.
- Students making new claims.
- New claims from LA tenants.

[19] In these cases, the balance between the HB/CTB and CT revenue workload was typically estimated at 75/25 (i.e. each generic revenues and benefits assessor counted as 0.75FTE within the cost model).

- Change of address – sometimes separate forms for LA and PRS tenants.
- New claims where entitlement to Income Support (IS) or Job Seekers Allowance (JSA) has ended.
- Sending out to claimants requesting extra information on their income and capital.
- Requesting that payments be made to landlords instead of to the claimant.

Although most new claim forms for HB and CTB were of a similar nature and structure, there were two notable exceptions:

1 A small number of new claim forms were perforated along the staple line, making it easy and quick for staff to split the claim form into separate pages for scanning;

2 One new claim form was a simple Microsoft Word-based document, making it easy for staff to amend and print it out when required.

Using Jobcentre Plus Customer Information System

The Customer Information System (CIS), which replaced the Remote Access Terminals (RATS), allows benefits staff to view a range of information related to customers. It is typically used to verify:

- whether customers are in receipt of tax credits or benefits such as IS, income based JSA, contribution based JSA, and the dates on which entitlement started or ended;
- household composition;
- identities of household members.

CIS is a more user friendly system than RATS. It reduces double-handling of new claims (and so the time taken to assess the claim) and improves elapsed processing times as it allows staff to obtain and verify some information in real time[20] without the need to telephone or write to the claimant. We saw three general approaches to recording of the results of CIS enquiries across the LAs we visited:

1 staff simply enter a note against the HB or CTB claim in their DIPS regarding the information viewed on CIS;

2 staff capture screen prints from CIS into DIPS as a record of the information or evidence taken from CIS;

3 staff print out hard copies of the CIS screens viewed and pass to Team Leaders for review and, sometimes, scanning onto DIPS.

There appears to be some difference in interpretation of the Department for Work and Pensions (DWP) policy and so approaches to recording CIS information:

- a minority of LA benefits staff think that it is DWP policy that no hard or electronic copies should be made of CIS screens as they contain personal information – the first approach above;
- a majority of LA benefits staff feel that it is important to capture a hard or electronic copy of the CIS screen as proof of verification and for future reference if error or fraud is detected – the second and third approaches above.

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[20] RATS terminals were limited in number and only a few staff at any LA typically had access to the system. At most LAs we visited during our previous research assessors completed a 'RATS request form' to specify the information they needed and pended the new claim while they waited for the response.

We would not expect the approach adopted to have a significant cost impact, but note the difference in interpretation of DWP policy across LAs. However, this was observed to be a relatively time consuming task, particularly if the claimant was in receipt of several types of benefit, each of which required evidence to be recorded. The electronic integration of the CIS and local assessment system could potentially eliminate this task, remove the risk of errors introduced through re-typing information, and time taken to connect with and login to the CIS.

Local Housing Allowance

The introduction of the Local Housing Allowance (LHA) scheme for private sector tenants has reduced double handling of claims as activities relating to rent officer referrals are no longer necessary. Prior to LHA, many private sector claims were assessed on the basis of indicative rent levels and then revised once the rent officer determination was received; this is no longer necessary. We note however, that some LAs have seen an increase in the numbers of safeguards applications – that is, requests to have LHA paid directly to landlords instead of to claimants.

Knowledge and ergonomics

Observations across LAs highlighted two critical aspects of HB and CTB assessment, each of which can affect the costs incurred:

1 **Knowledge of HB and CTB administration rules**, which is addressed through training and is related to the thinking time associated with assessing a claim.

2 **The ergonomics of the HB and CTB assessment**, which is the interaction between the staff, their workstations and the software, and is related to the information entry and assessment associated with a claim.

The general approach to reducing thinking time is consistent across the LAs, and is tackled through a combination of staff training and tailored work allocation (e.g. allocating more complex claims to more experienced staff). However, there are potential opportunities for improving the efficiency of **information entry and assessment**, such as:

- **Evaluating the cost: benefit ratio of using two screens rather than one where DIPS is used**, so that staff can view their assessment software and DIPS at the same time. HB/CTB staff at some LAs had only one VDU screen each and, when questioned, thought that two screens could improve the assessment times. For example, assessors were observed copying information contained in the assessment software by writing onto paper (e.g. details about the claimant) and then entering this information into CIS in order to find necessary evidence.
- **Improving keyboard and IT skills**, to increase the speed and accuracy with which information is entered into (and transferred within) the assessment and DIPS applications, and the production of letters to claimants and landlords[21].
- **Improving standard letters within the assessment and DIPS software packages**, so they require less tailoring by HB/CTB staff.

The latter two points could be easily addressed through current internal knowledge sharing within the benefits team which currently seems to focus on sharing knowledge of HB regulations, rather

[21] A general example of poor keyboard skills was that some staff seemed unaware of how to use copy and paste functions to copy sections of text between software packages. Instead, there were occasions where staff would write information (e.g. names and addresses) onto paper worksheets then retype the information back into their PCs. This is both more time-consuming than necessary and introduces increased possibility of errors in transcription.

than tips for streamlining processes. Although improvements in keyboard skills would be expected to improve the efficiency and accuracy of claims processing, this may be difficult to quantify.

Location of staff

While HB and CTB assessment is discrete from many other HB and CTB activities, and other LA activities (e.g. fraud investigation, CT work), there are practical advantages to co-locating these staff. For example, one LA where benefits and CT revenues teams are co-located told us this can reduce costs because CT accounts can be opened or closed immediately, benefits staff do not have to pend the claim while they wait for this to be completed.

However, at many LAs this is not feasible for practical reasons (e.g. lack of open plan office space, size of teams).

Claim promise

A key problem is the need to write out to customers for missing or additional information when assessing a new claim or change of circumstances. This can apply to 50-90 per cent of claims across LAs. This results in **double-handling**, and means extra assessment time and increased costs. In response to this, some LAs have introduced claim promises, where the LA commits to making a decision within a specified timescale (e.g. one to ten days), if the customer supplies all the required information and evidence with their claim form. In one case this was a one-hour promise; the LA has seen a steady increase in the number of claimants taking up the 'promise', but it has not yet measured the reduction in incomplete claims.

Some LAs had only introduced the claim promise a short time before our fieldwork, so had not had time to evaluate its effect. However, one LA told us it now needs to write to only five per cent of customers for new claims, requesting missing or additional information[22].

3.3 Appeals

Our previous work in 2004 identified that appeals were generally handled by either:

- dedicated appeals officers (more likely at larger LAs);
- the HB and CTB assessment team, typically at team leader level.

Our findings during the recent fieldwork are broadly consistent with this.

3.4 Checking and quality assurance

In our 2004, work we found that quality checking was often undertaken by senior assessors or team leaders, particularly the checking of new starters' work. Where formalised checking was in place, LAs generally used the results to identify development needs, both at team and individual levels. Costs associated with checking were higher where there were more new starters (perhaps because of high staff turnover); their work requires checking for several months.

In the recent fieldwork, our observations were consistent with these previous findings. However, we observed a range of approaches to determining how many pieces of work should be checked, such as:

- fixed targets for quality checking, e.g. eight per cent of new claims and changes of circumstances at one LA, three per cent at another;

[22] The claim promise does not include change of circumstances, where it still needs to write out for ~60% change of circumstances.

- a mixed approached, e.g. ten per cent of all claims plus 100 per cent for the first five weeks for new starters, four per cent of all claims plus additional checks for new or poorer-performing staff;
- an ad hoc approach, e.g. no fixed target, individual team leaders check claims on an ad hoc basis, and at one LA[23] quality checking was suspended for six months and staff allocated to other HB and CTB activities owing to workload pressures.

Therefore, the cost of this workload area can be largely independent of caseload. It can depend instead on the LA's approach, which seems to be driven by factors such as:

- experience and competence of the team, particularly new starters;
- results of checking (related to the bullet point above);
- competing work priorities.

3.5 Customer services

The customer services workload area includes those HB and CTB activities involving direct telephone or face-to-face customer contact initiated by the customer[24]; we did not observe any significant work associated with email correspondence from customers, which appears to be rare. Typical examples of these customer service activities include dealing with:

- general queries regarding HB and CTB (e.g. assistance when completing a form);
- specific queries regarding an existing claim (e.g. when a claim will be paid).

During our previous work in 2004, we encountered two main models with regard to customer services:

1 Dedicated HB and CTB counter or service desk with specialist staff, usually co-located with the assessment office.

2 LA-wide customer service centres or one-stop shops, dealing with a wide range of council queries, including HB and CTB.

The two main models above remain evident; in the fieldwork for this research about one thirds of LAs adopted the first model (i.e. using specialist staff at dedicated counters or service desks). Of these, approximately three quarters had these counters or service desks co-located with the benefits back-office.

For dealing with telephone contacts, we found three distinct models telephone calls from customers are answered by:

1 HB and CTB assessors, usually co-located with or in the assessment office and either on a dedicated rota or on an ad hoc basis;

2 generic, non-benefits staff at face-to-face customer service centres or one-stop shops, dealing with a wide range of council queries;

3 generic, non-benefits located away from face-to-face customer service centres or one-stop shops, e.g. in a call centre.

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23 This LA has a stable and experienced team of benefits assessors.

24 N.B. This distinguishes customer service from other types of customer interaction which have been initiated by benefits staff (e.g. review visits).

Where benefits customer service activities have been transferred away from HB and CTB staff this is generally for one of two reasons:

1 The benefits manager feels that the reduced disruption in the HB/CTB office will improve claims assessing.

2 The LA generally requires a sufficient volume of customer queries to justify a dedicated customer service centre or one-stop shop, or as a matter of policy wants residents to be able to access all local authority services via a single route.

3.6 Fraud investigation and counter-fraud work

Our previous work in 2004 found two core models for fraud investigation and counter-fraud work, which still apply:

1 Fraud team reporting to the benefits manager.

2 Fraud team reporting to internal audit.

Where fraud investigators reported into internal audit, the majority of their workload was drawn from HB and CTB-related fraud. Reporting lines did not appear to result in any observable difference in the working arrangements for the fraud team.

We did observe differences in approach to the use of informal interviews (rather than interviews under caution), which seem to be more prevalent in some LAs, while little used in others. Where the LA decides to prosecute, the approach taken and costs incurred can vary (e.g. in Scotland there is no direct cost to the LA as any prosecutions are handled by the procurator fiscal without charge). Some prosecutions are dealt with internally, some by local solicitors, some by DWP, and in some instances joint working with police permits the police to lead the prosecution.

We encountered a range of joint working initiatives, with LAs working with a variety of other agencies on fraud, including pro-active initiatives. LAs work jointly with the DWP, the police, and HM Revenue and Customs. LAs were broadly positive about the benefits of joint working, however this did vary and seemed to be reliant on the local working relationship with DWP staff.

We identified a number of drivers, which can influence which intervention is pursued by an LA once fraud is detected, e.g.:

- joint LA-DWP interventions – these were generally only pursued where there were good, local working relationship between their respective fraud teams;
- while formal prosecutions were always pursued for cases involving large sums of money, this type of intervention was also sometimes adopted for tactical reasons (e.g. to highlight a particular topic, such as partners not being declared or being declared as non-dependents);
- the use of other sanctions such as cautions and administrative penalties varied between LAs. In general, the fraud manager would recommend which sanction should be used, and this decision would be reviewed and approved by another manager, often the benefits manager.

3.7 Reviews (interventions)

Reviews of a claimant's case are intended to identify whether there have been any changes in circumstances that have not been notified to the LA, and so contribute to reducing fraud and

error. When we were carrying out our fieldwork in 2004, the verification framework[25] was being implemented, and LAs were moving towards achieving target numbers of reviews, with specific targets for reviews by visit. Since then the approach to performance management has changed, and LAs are not required to meet specific targets for numbers of reviews. In 2004, we found that:

- many LAs used review visits (and others were planning to, in line with the verification framework). Many visits were un-notified;
- most LAs also used postal reviews or were considering the use of postal reviews;
- only one LA in the sample used telephone reviews, with many noting that they had made a positive decision not to use telephone reviews.

As might be expected, our recent fieldwork revealed some differences:

- all LAs used visit-based reviews, and claimants tend to be notified of visits in advance. Un-notified visits tend to be used where there is increased suspicion of fraud[26].
- a few LAs use telephone reviews – at least one using voice risk analysis technology.

Partial reviews, seeking information relating to a small number of aspects of a claim that might have changed tend to be used in response to local analysis of risk, for reasons such as:

- when significant local employers' pension schemes implement annual increases in occupational pensions;
- where significant local employers implement annual pay rises;
- in January, when taxi drivers' incomes have increased after the holiday season;
- in some areas, at the start of the summer holiday season where claimants have a history of seasonal employment.

We found considerable variation in the numbers of reviews completed, as might be expected in the absence of targets for this. Some benefits managers told us that they had scaled back reviews focusing on higher risk cases, and several had reduced the numbers of reviews or suspended them because of higher workloads, so that staff could be reallocated to other tasks such as claim processing. The total number of reviews completed varied from around four per 1,000 caseload to 880 per 1,000 caseload, with mean and median averages of 217 and 160 reviews per 1,000 caseload respectively. For reviews undertaken by visit, the numbers undertaken varied from two to 317 per 1,000 caseload, with mean and median averages of 98 and 77 per 1,000 caseload.

3.8 Training

Our previous work in 2004 highlighted several points which are still relevant:

- training new assessors takes considerable time, as HB and CTB rules and assessment software are complex. Some aspects of HB and CTB have been simplified, but a number of claimants remain on older, more complex assessment schemes, and benefits managers generally saw this increased number of assessment schemes as adding to complexity. Counteracting this, assessment software systems appear to be easier and more intuitive to use than in 2004;

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25 The verification framework was designed to reduce fraud and error in HB and CTB, and included a number of rules relating to acceptable evidence in support of new claims and changes of circumstances, as well as targets for LAs on activities such as claim reviews.

26 Residency checks are also un-notified.

- this means that where staff turnover is high, or where additional staff are needed because of increased workload, training costs tend to be higher;
- larger HB and CTB teams are more likely to have dedicated training and development officers.

A high level of on-the-job mentoring is often provided following formal training of new assessors. Some LAs said that they find it effective to train assessors on one or two types of claim at a time, and then follow each round of training with a number of weeks of on-the-job mentoring to consolidate learning. Thus, for example, new assessors may focus on passported new claims with LA or RSL tenancies to begin with, moving on to standard claims as they gain experience.

Some LAs attributed high assessment staff turnover to uncompetitive salaries. There were instances of pay bands being adjusted to prevent loss of assessment staff to neighbouring LAs.

3.9 Managing increased workloads

All the LAs we visited noted that workloads had increased as a consequence of the economic recession. We were also told that the introduction of the child benefit disregard had resulted in more people being eligible for HB and CTB, and so for a further increase in new claims. The increase in new claims had resulted in an increase in caseload, and hence in caseload maintenance activities such as dealing with changes of circumstances. LAs had used several approaches to deal with the increased workload, in some cases using more than one of these:

- Recruiting additional staff – sometimes staff new to assessment, sometimes staff familiar with HB and CTB.
- Overtime for existing staff – several LAs used overtime to help cope with additional processing work.
- Outsourcing assessment work – a small number of LAs outsourced part of their processing work to an external commercial organisation.
- Reducing work in other areas – one LA had reduced the number of reviews carried out, while another reduced the number of checks carried out on new claims and changes of circumstances to divert resources to processing.

4 Cost Analyses

The breadth survey and the fieldwork together produced a rich database of information on costs and on potential drivers of cost. This section describes the main results of our extensive analysis of this cost information. For a more detailed account, see Appendix E.

The analysis has two main objectives:

1 To obtain a deeper understanding of how the total costs are broken down, and what drives those costs.

2 To produce an estimate of the total national cost of Housing Benefit/Council Tax Benefit (HB/CTB) administration (grossing up), by estimating costs for those Local Authority (LAs) where we do not have the actual costs, then summing over all the actual and estimated costs.

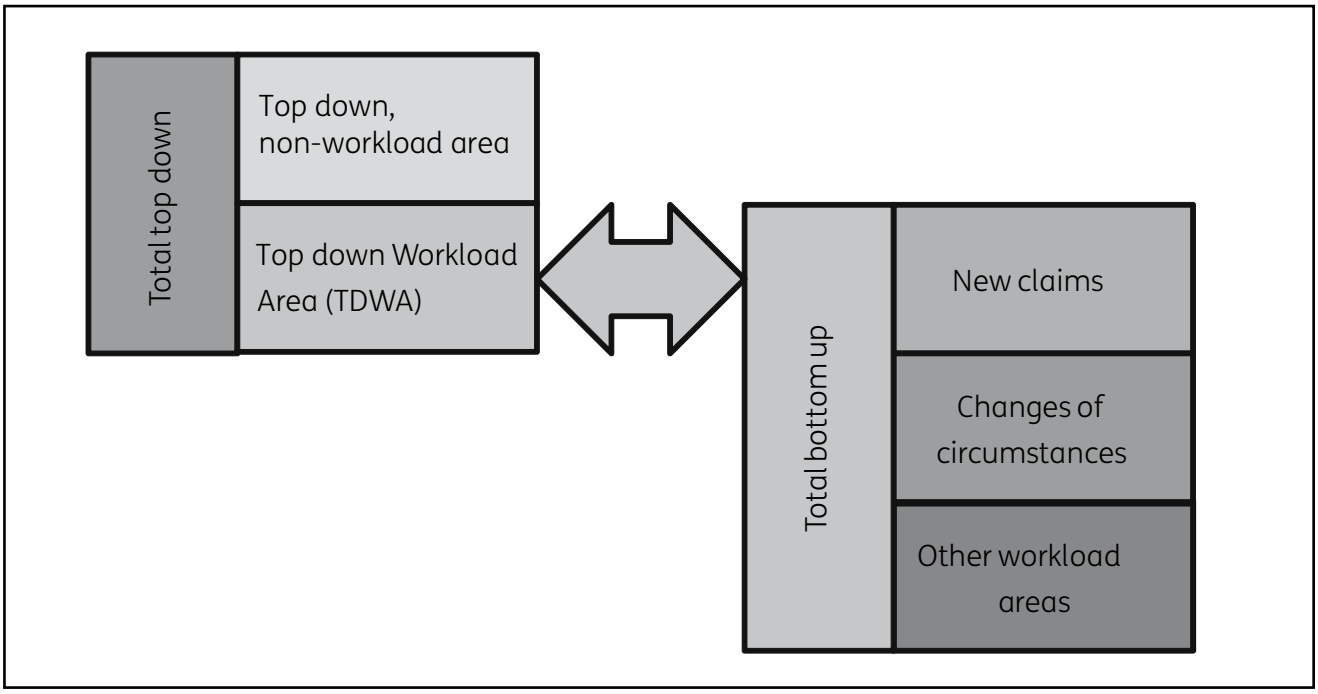
In addition, if possible, we aimed to produce unit cost estimates.

We begin by describing the different measures of cost used in the analysis, and then exploring the possible cost drivers.

4.1 Cost measures

The cost measures analysed in this study, and the relationships between them, are summarised in Figure 4.1.

Figure 4.1 Relationships between the cost measures



There are two main types of cost measure:

- the top down costs are those supplied to us from the financial systems of the LAs, either via the breadth survey or during the fieldwork at LAs

- the bottom up costs are those estimated by us during the fieldwork, based on levels of activity measured, numbers of staff used Full-Time Equivalent (FTEs) and other identifiable costs.

The total top down cost contains elements that are not part of the total bottom up cost, because they do not correspond to a distinct workload area. These are recharges for:

- accommodation;
- human resources;
- accounting and finance;
- other managerial including, e.g. the Chief Executive's office;
- other support services.

We call these, collectively, 'top down, non-workload area'. When these are subtracted from total top down costs, what remains is TDWA cost. It is this latter quantity that is compared with total bottom up cost to reconcile top down and bottom up cost estimates. However, the non-workload area top down costs are still costs associated with the administration of HB and CTB, and are included in the estimates of the total national costs produced at the end of this section.

In the analyses below, we focus on the total top down costs, the total bottom up costs and the breakdown of the latter into the costs of assessing new claims and changes of circumstances, as well as those of a range of other activities, called collectively 'Other Workload Areas' (listed in the subsection 'Analysis of Fieldwork Results').

4.2 Potential cost drivers

The most obvious potential drivers of cost are LA caseload and the volumes of various activities. For the purposes of this project, the Department for Work and Pensions (DWP) supplied us with caseloads as measured at five points during the financial year 2009/10: April, June, October and December 2009 and February 2010. For the purposes of the analyses described here we used the mean of these five numbers as the measure of caseload for each LA[27].

The main volumes used were those of new claims and non-bulk changes of circumstances. DWP supplied volumes for the first six months of 2009/10. These were multiplied by two to produce estimates of annual volumes[28]. From the fieldwork we also had a number of other volume metrics such as fraud cases, reviews completed, payments made and appeals handled.

In addition to these, other potential drivers that were explored are:

- the breakdowns of caseload and new claims volumes by different ways of describing claims (e.g. by tenancy type – the full list of the breakdowns is given below);

[27] We used these specially supplied values of caseload rather than publicly available ones because we needed caseloads disaggregated in ways specific to the project.

[28] As case loads were generally increasing, this may have resulted in an underestimate of the total volumes of new claims for the year in many LAs. However, in the absence of information on the numbers of claims terminated throughout the year, it was not possible to predict the numbers of new claims that would have been made in the second half of the year and so this simple approach was used.

- qualitative descriptions of the LAs (ONS classification[29], region, LA type);
- employee costs (annual salary plus employer's NI and superannuation) – the specific variable we used was the annual assessor staff cost (AASC).

We also wanted to look at the breakdown of change of circumstances by type of change, as we collected information on the time taken to process different types of changes of circumstances. However, the breakdowns of change of circumstances volumes to support this were not available[30].

For qualitative characteristics of the LAs, we used three different features of the LAs:

- by their Office for National Statistics (ONS) classification;
- by the region in which they are located[31];
- by the type of LA.

The ONS classification system has the following fourteen options:

1 Centres with Industry.

2 Coastal and countryside.

3 Industrial hinterlands.

4 Industrial hinterlands, coastal and countryside, prospering smaller towns.

5 London centre.

6 London cosmopolitan.

7 London suburbs.

8 Manufacturing towns.

9 Manufacturing towns and prospering smaller towns.

10 New and growing towns.

11 Prospering smaller towns.

12 Prospering Southern England.

13 Regional centres.

14 Thriving London periphery.

Subsequent to publication of the ONS classifications, a number of LAs were combined into new Unitary Authorities. In two of these, the former district LAs making up the new unitary were

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29 The ONS 2001 Area Classification for LAs is based on analysis of 42 different characteristics, taken from the 2001 census.

30 DWP provided for each LA a total number of changes of circumstances processed (i.e. where a decision on benefit was made. Work to amend minor details that would not affect the claim, such as the spelling of a dependant's name, is not counted) during 2009/10, and separate quantities for different types of changes of circumstances. However, the sum of the quantities of different types amounted to only approximately 20 per cent of the total number of changes, implying that it was not possible to identify the particular type of change in most cases.

31 Scotland and Wales are each classed as a region for this purpose, with English regions based on government office regions but with London divided into two.

classified differently by ONS. To incorporate these in the overall ONS scheme, we added an additional description, combining four and nine from the list above.

The 12 regions are:

1 East Midlands.

2 Eastern.

3 Greater London.

4 Inner London.

5 North East.

6 North West.

7 Scotland.

8 South East.

9 South West.

10 Wales.

11 West Midlands.

12 Yorkshire and Humberside.

The six LA types are:

1 London Borough.

2 Metropolitan.

3 Scottish Unitary.

4 Shire District.

5 Unitary.

6 Welsh Unitary.

4.2.1 Correlations between potential drivers

Before we investigate how the costs depend on the potential cost drivers, we first look at relationships between these drivers. This is to determine which are sufficiently independent of each other to be considered as separate drivers of cost. The reasons why this needs to be the case are illustrated below.

4.2.2 Caseload and volumes of new claims and changes of circumstance

Consider first the measures of the total size of the workload facing each LA:

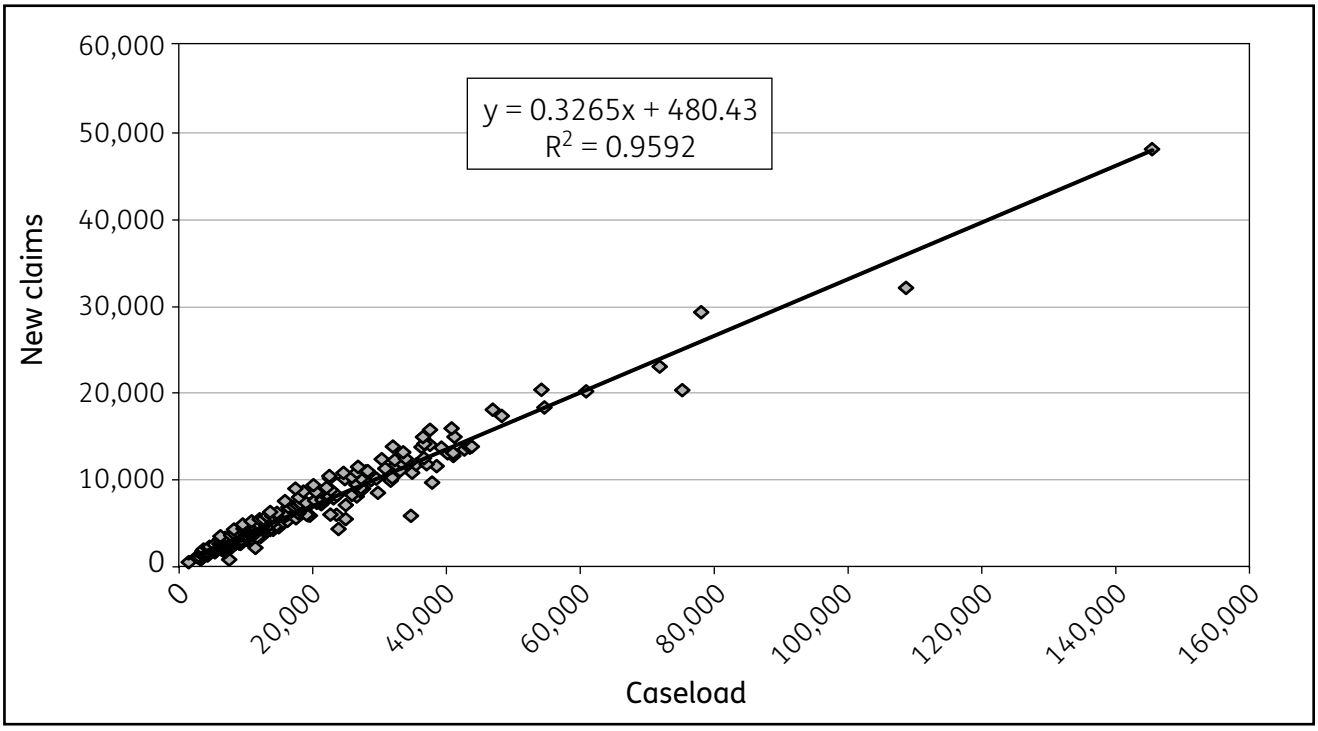
- total caseload, (that is the total over all types of benefit and claimant);
- total volume of new claims, (over all types of claim and claimant);
- total volume of changes of circumstances, (over all types of change).

The relationship between new claims and caseload is shown on the scatterplot, Figure 4.2. Each LA is represented by a point, according to the values of its caseload and new claims. The straight line is the one that best fits through all these points (known as the ‘regression line’). In the box we see

an equation (the 'regression model') that corresponds to this line. This is the equation we can use to predict the value of new claims if we only knew the value of caseload.

The final piece of information on this figure is the value known as R^2 (R-squared). If this is close to one, as is the case here ($R^2 = 0.96$), the two quantities are 'highly correlated'. In other words, if you knew caseload, you could predict quite accurately what the value of new claims was[32]. On the other hand, if R^2 were close to zero, there would be virtually no relationship between the values of the variables. They would be called 'poorly correlated', or 'virtually independent'. Knowing caseload would tell you nothing about what new claims might be. You would have to measure it separately.

Figure 4.2 Number of new claims versus caseload

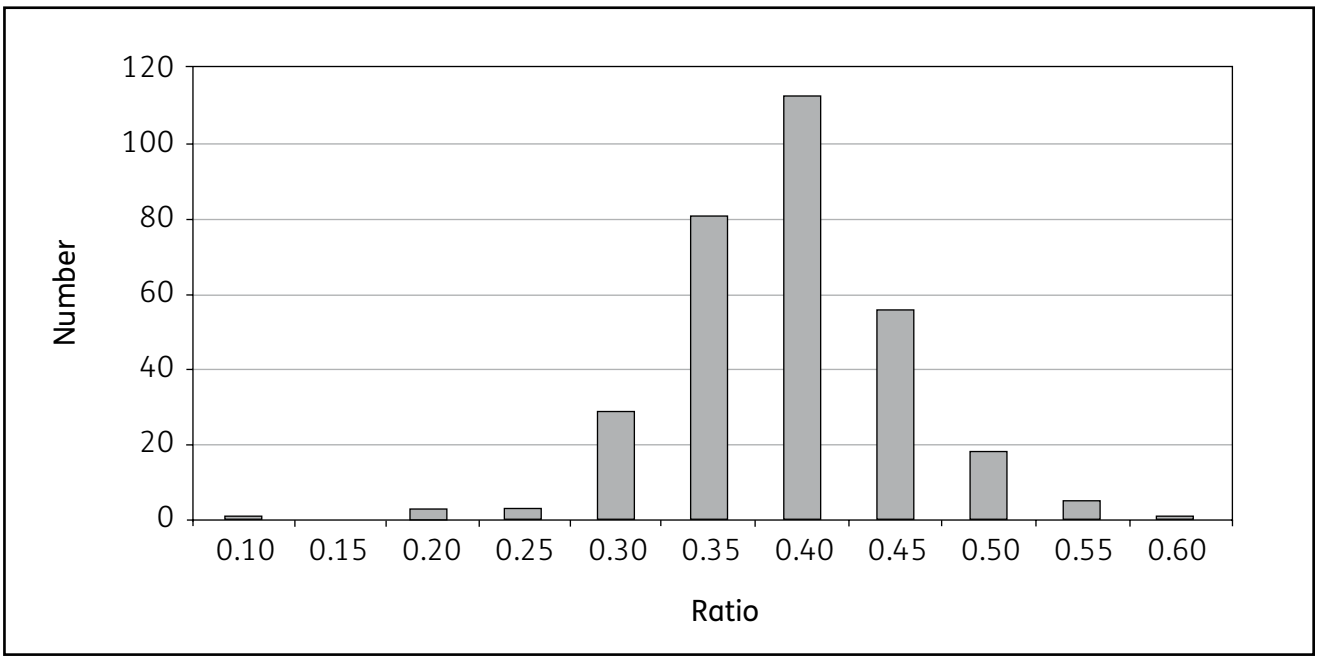


For each of the regression results presented here, more detailed and technical explanation of the modelling can be found in Appendix E. This is cross-referenced in square brackets. The cross-reference for this model is [E.1.1].

Another way of presenting this information is shown in Figure 4.3. This is a bar chart of the ratio of new claims to caseload. In all of the bar charts in this report, the axis labels are as follows. The vertical axis is the number of LAs in the bar. The labels on the horizontal axis are the upper bounds of the intervals represented by the bars. Thus, on Figure 4.3 the first bar represents the number of LAs where the ratio of new claims/caseload is up to 0.10, and the second bar shows the number of LAs where new claims/caseload is between 0.10 and 0.15 (strictly speaking greater than 0.10 and less than or equal to 0.15). It shows that 113 of the 310 LAs for which we have both new claims and caseload information, have values of the ratio lying between 0.35 and 0.40. The mean ratio is 0.37 new claims in a year for each item of caseload.

[32] Strictly speaking, R^2 is a measure of how much of the variation in one variable is explained by differences in the value of the other.

Figure 4.3 New claims to caseload ratios



The same scatterplot for change of circumstances and caseload is shown in Figure 4.4 [E.1.1]. Compared with the new claims result above, the scatter of points around the regression line is greater, especially at larger caseload values. This is reflected in the fact that the R^2 value (0.74) is smaller than for new claims (meaning the correlation is not as strong as with the ratio of new claims/caseload).

Figure 4.4 Number of changes of circumstances versus caseload

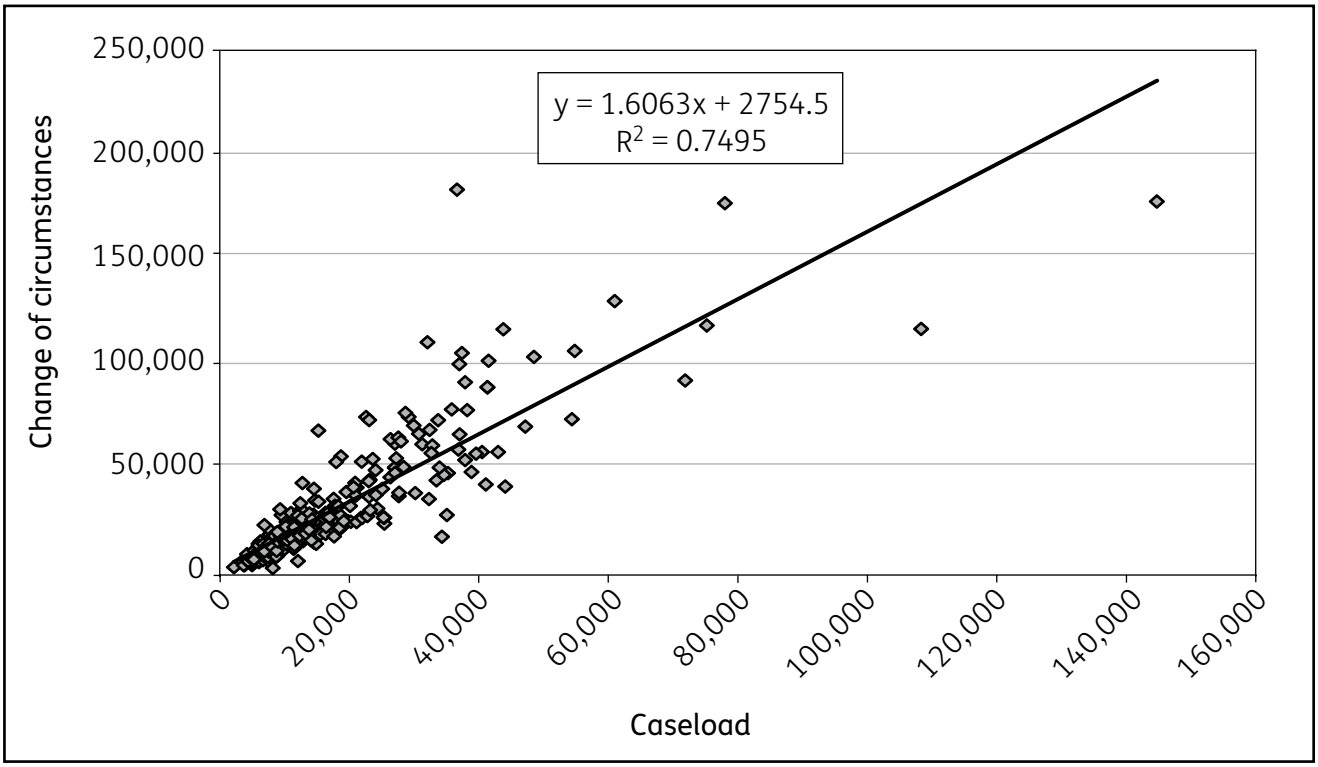
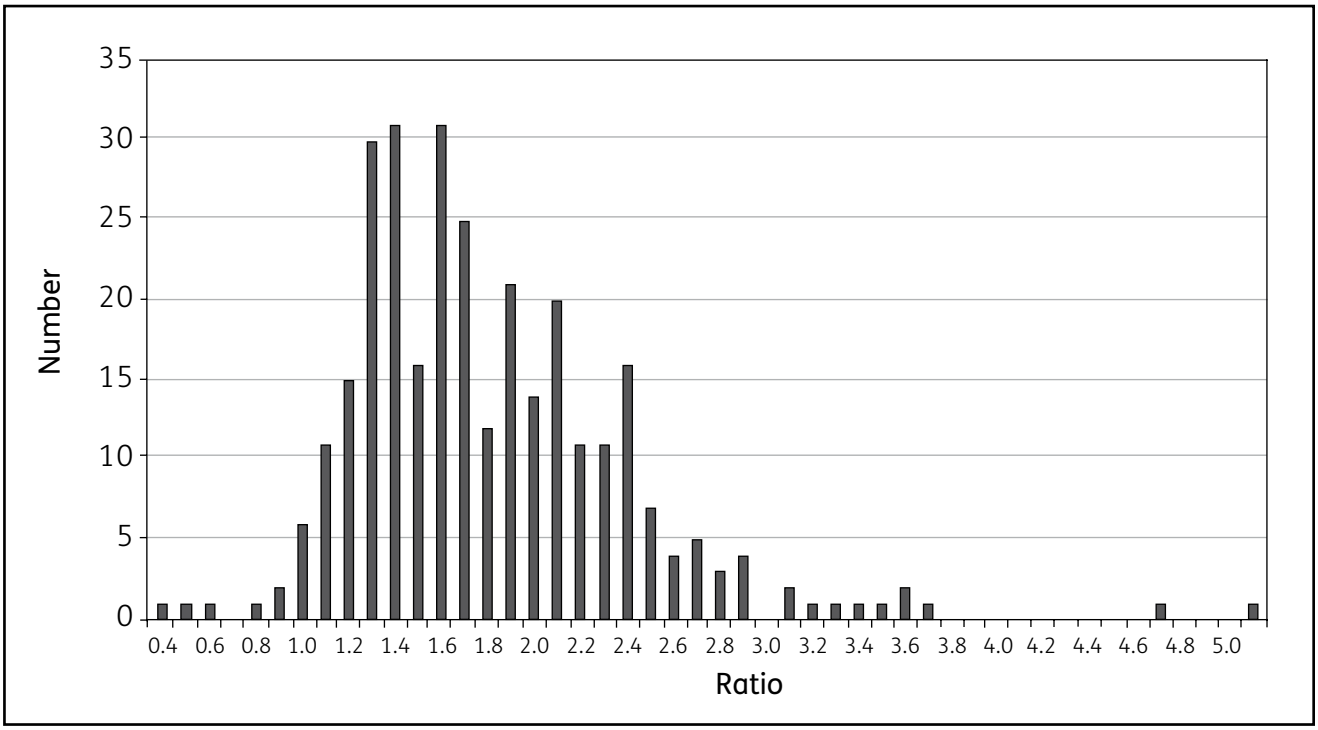


Figure 4.5, also shows this greater scatter. The distribution peaks between 1.20 and 1.60, and the mean ratio is 1.76 changes of circumstance in a year for every caseload item.

Figure 4.5 Changes of circumstances to caseload ratios



How well or badly the variables are correlated affects our ability to detect their possible separate influences on the cost. For example, one might suggest that the cost of administering HB and CTB would have the form:

Cost = a x caseload + b x new claims + c x change of circumstance + a constant term

The first term would be the cost of maintaining each case during the year, even if there were no changes. The second and third would be the costs of administering new claims and changes of circumstances respectively. The constant term would represent any fixed costs.

However, to find out what these terms are, we need the separate drivers to be largely independent of each other. For example, to distinguish between the effects of caseload and new claims, we would need to have some LAs with high numbers of new claims relative to their caseload, and some with low numbers of new claims relative to their caseload, to test whether costs for these differ. If caseload and new claims are highly correlated this will not be the case. Figure 4.2 shows that new claims and caseload are highly correlated, so that LAs with small caseload have small new claims, and those with high caseload have high new claims. Even if, in reality, caseload, new claims and change of circumstances were driving the costs separately, we cannot determine this from statistical analysis of the data because the LAs are too similar to allow us to see any differences caused by new claims or change of circumstances.

4.2.3 Caseload and classification of LA

We looked at correlations between caseload and the three different classifications of LAs (ONS classification, region and ONS classification) [E.12]. In each of the three cases, there was some degree of correlation, but the correlations were weak. This means the effects of these characteristics can be seen in the data, and that it will be possible to explore whether these characteristics do improve the prediction of total top down costs.

4.2.4 Caseload and annual assessor staff cost

We compared caseload with the annual assessor staff cost (the annual cost of employing one assessor), and found that there was virtually no correlation between the variables [E.1.3]. It should therefore be possible to separate the effects on costs of the caseload and the cost of employing the staff administering the caseload and associated new claims and changes of circumstances.

4.2.5 Annual assessor staff cost and LA classification

Although the staff cost is not related to caseload, one might expect it to have some relationship to the type of LA, for example with higher staff costs in London. To test this, we regressed AASC against the different ways of classifying LAs [E.1.4].

Appendix E describes how these regression models work, where the independent variable is a classification scheme[33] rather than one taking numerical values. In simple terms, what happens is as follows.

- one of the categories is chosen as a base case. We have used the convention that the base case should always be the category with the largest number of LAs in it;
- the model gives the estimate for the value of the AASC in the base case. It then estimates amounts by which the AASC in the other categories varies from this base case, and indicates where this variation is significantly different from zero.

The tables below show the base case and those categories where the variation is significantly different from zero. (The numbers on these tables can be compared with the national average AASC of £24,900.)

Table 4.1 Variation of AASC with ONS classification

ONS classification	Variation	Estimate of AASC
Prospering smaller towns (base case)		£24,400
London central[1]	+£11,100	£35,500
London cosmopolitan	+£ 7,300	£31,700
London suburbs	+£ 7,700	£32,100

[1] London Central comprises eight LAs and is a subset of Inner London, which contains 13 LAs.

Table 4.2 Variation of AASC with region

Region	Variation	Estimate of AASC
South East (base case)		£26,500
East Midlands	– £2,800	£23,700
Eastern	– £2,700	£23,800
Inner London	+ £6,500	£33,000
North West	– £2,900	£23,600
West Midlands	– £3,300	£26,500

[2] The Inner London estimate is lower than that of Central London because it contains one additional LA, which happens to have a lower AASC. The difference in variations is caused by a combination of this and the difference in the base cases.

[33] The technical term for this sort of variable is a ‘categorical variable’.

Table 4.3 Variation of AASC with LA type

LA Type	Variation	Estimate of AASC
Shire District (base case)		£24,500
London Borough	+£ 5,300	£29,800

These three ways of distinguishing between LAs show the extent to which London is indeed a more expensive place to employ assessors, and give some idea of how much more expensive. Note, however, that some London Boroughs use off-site processing staff located outside of the region to reduce costs. Table 4.2 also shows which regions have somewhat lower assessor staff costs.

When the costs of administering HB and CTB vary with the LA classifications (as shown in the analysis below), this might be because of the associated variations in AASC. If this is the case we can use the ONS classification to provide an improved prediction of the national totals. The advantage of the classifications is that they are available for all LAs, which is not the case for AASC.

4.2.6 Total new claims volumes and disaggregated volumes

It might be thought that the costs should depend not only on the total numbers of claims (on the books or received as new claims), but on the type of claim. For example, standard claims are more complex to assess than passported claims and so LAs with a higher proportion of standard claims might incur higher costs. We examined the breakdown of new claim volumes in the following ways:

- by claimant type: working age, elderly;
- by claim type: passported, non-passported (standard);
- by tenancy: LA, Private Rented Sector (PRS), housing association, other;
- by benefit: Joint HB and CTB, HB only, CTB only.

To investigate the effect of the mix of new claims types on costs it is necessary to have a range of different breakdowns across the depth study of LAs. For example, to see the effect of age, we would want some LAs with a large percentage of claimants of working age, and others with a large percentage of elderly claimants. However, for each of the breakdowns, this proved not to be the case. Even if there were an effect of one of these breakdowns on the cost, we would be unable to see it, because there is too little variation across the LAs to make such an effect visible.

4.2.7 Summary of potentially useful cost drivers

The analysis above suggests that:

- caseload appears to be a useful explanatory variable. Indeed later in this section we show that caseload, on its own, is a very good predictor of the costs;
- numbers of new claims and change of circumstances may each, on its own, be a useful explanatory variable. However, they would not be useful as **additional** explanatory variables to caseload, because they are too closely correlated with caseload;
- ONS classification, region and LA type may help to explain remaining differences in costs, once caseload has been taken into account;
- differences in annual assessor staff cost also may help to explain remaining differences in costs, once caseload has been taken into account;

- the mix of new claims types (by age, passported status, tenancy type etc) is not a useful explanatory variable in addition to caseload, because there is too little variation between LAs to allow the effects of these factors to be observed in the data.

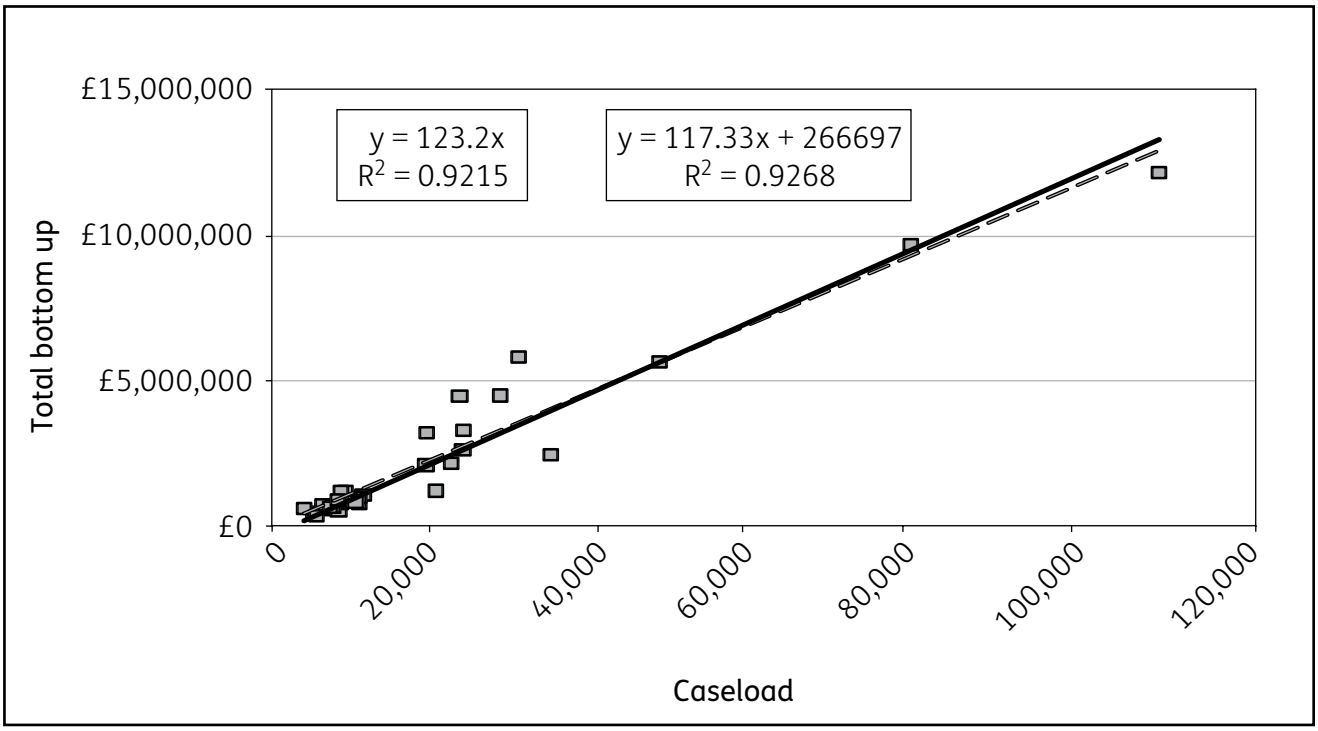
4.2.8 Analysis of bottom up costs

In our fieldwork, we measured bottom up costs for 30 LAs. In this subsection we look at the extent to which the drivers described above, and particularly caseload, can predict variations in these bottom up costs. In this section we look first at the total bottom up costs, comparing them with the total top down values, and regressing them against the drivers used above. Then we go on to costs the individual workload areas.

4.2.9 Total bottom up costs

Figure 4.6 shows the scatterplot of total bottom up against caseload [E.1.6].

Figure 4.6 Total bottom up versus caseload Regression Models



The grey dashed line and box on the right is the best fit regression line calculated as above. When the numbers are suitably rounded the model for the total bottom up cost based on caseload is:

Total bottom up = £117 x caseload + £267,000

This can be interpreted as meaning that there is a fixed cost of £267,000 and the marginal cost of having one more item of caseload – one more claim on the books – is £117. The value $R^2 = 0.93$ shows that total bottom up and caseload are highly correlated. In other words caseload appears to be a good predictor of total bottom up.

However, before making this claim, it is necessary to look at the statistical significance of these numbers. This is done in more advanced calculations, shown in Table E.12 in Appendix E. These show that the constant term, the £267,000 is in fact not statistically significantly different from zero. This means we might get this result even if the term was in reality zero. In this case, we re-run

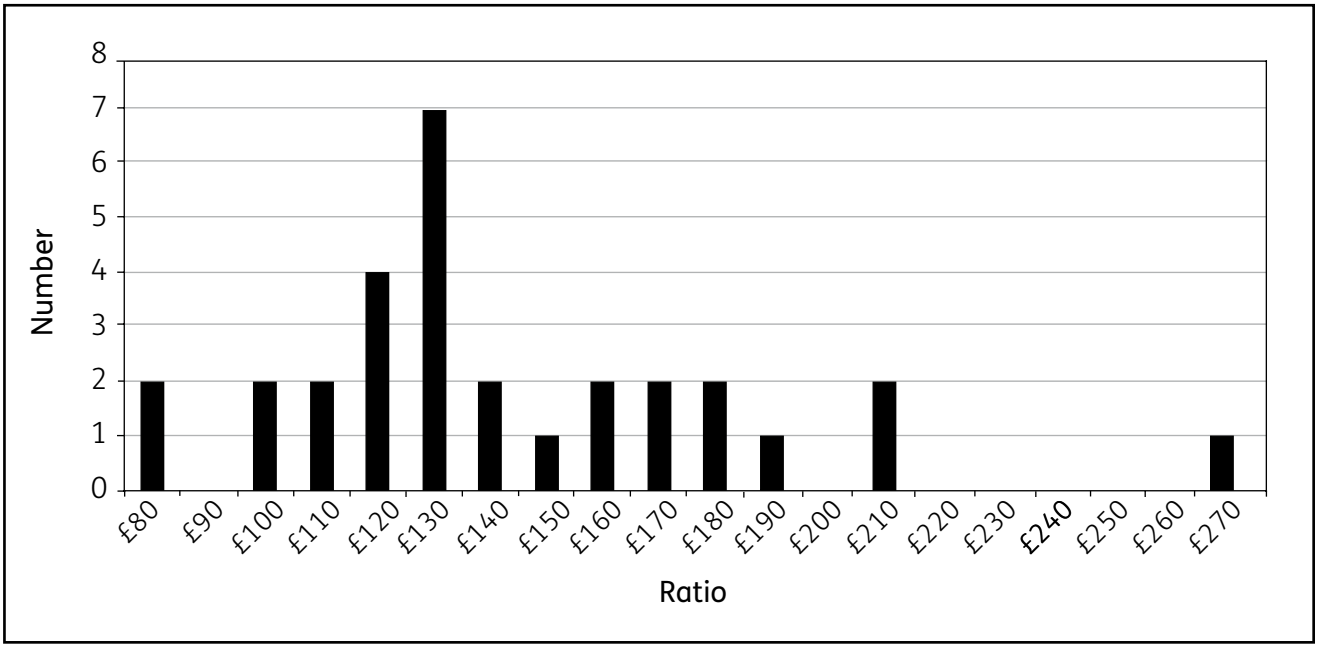
the regression modelling with the constant fixed at zero. The result is the black solid line, with the model in the box on the left. The marginal cost[34] now is predicted to be £123. The more advanced modelling also gives us a confidence interval for that marginal cost. The confidence interval is, roughly speaking, the range where we can be 95 per cent confident that the value lies within the range. This is between £111 and £135. We can write our model for the total bottom up (see Table 27 in Appendix E) as:

Total bottom up = £(123 ± 13) x caseload

Having a constant term consistent with zero, which is a feature of many of the cost models reported here, indicates that the LAs do not have significant fixed costs. The costs follow caseload quite well. This is consistent with observations during fieldwork; if, for example the caseload does not warrant a full-time benefits manager, the role is covered by some fraction of a full-time equivalent, by a manager with other responsibilities in addition to benefits.

Ratios of total bottom up to caseload is shown as Figure 4.7.

Figure 4.7 Ratios of total bottom up to caseload



These ratios can be seen as unit costs, where the unit is the item of caseload. There are two ways to measure the unit cost averaged over the 30 LAs in the depth study: the mean of the unit cost distribution and the overall unit cost, that is, the ratio of the sum of all total bottom ups to the sum of all caseloads[35]. The respective values are:

Mean of unit costs	£138	(this is a simple mean of the unit costs calculated for each LA)
Overall unit cost	£131	(this is a weighted mean unit cost – weighted by caseload; it is the sum of all costs divided by the sum of all caseloads)

These can be compared with the result of the regression analysis:

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34 The increase or decrease in total costs as a result of one more or one less unit of output.

35 The first takes the unit cost for each LA and calculates a simple mean, while the second is a weighted mean of the unit costs, weighted, that is, by caseload.

Marginal cost	£(123 ± 13)	(this is the additional cost incurred at any given caseload by adding one more item to the caseload – if the regression line with zero constant is a good model of the behaviour of the costs then its slope represents the marginal cost, which is then the same for all caseloads)

The three measures are just different ways of calculating the same general concept, that is, the mean ratio of cost to volume measure. The means differ in what weighting is used in the averaging process. The final measure, the regression line slope, is weighted by the square of the caseload, giving more weight to those points with higher values of caseload (which is why regression slopes are sensitive to high-end outliers).

Regression models have also been run with new claims and with change of circumstances [E.2.2]. These also correlate well, but the R^2 values are slightly lower than for caseload. When new claims and change of circumstances are included with caseload in a combined regression model, they add nothing significant, which is not surprising given how well correlated they are with caseload. So we retain caseload as our key explanatory variable.

We also looked at the effects of the LA classifications (ONS classification, region and LA type) on regression models for total bottom up costs [E.2.3]. The values of R^2, for the models with no constant term are:

Table 4.4 Correlation of total bottom up with selected variables

Independent variables	R^2 %
Caseload	95.8
Caseload, ONS classification	98.5
Caseload, Region	97.9
Caseload, LA type	97.8
ONS classification	62.7
Region	45.5
LA type	45.8

The inclusion of each of the classifications improves the regression model compared with using caseload only, but the improvement is necessarily small, given that the caseload-only correlation is already high.

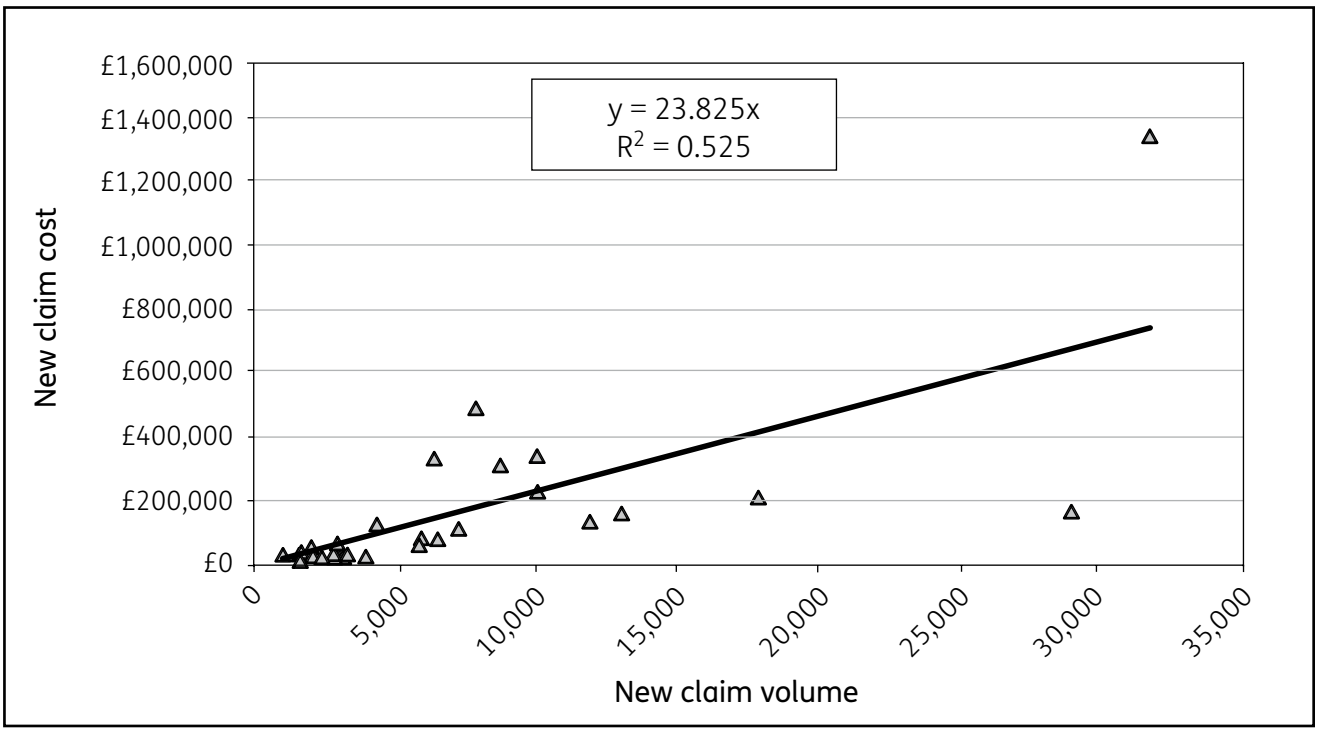
The table also includes the values obtained by regressing total bottom up against only the LA classifications. They are considerably reduced, showing the importance of caseload. Of the three, the ONS classification is the best predictor of total bottom up costs.

In the fieldwork, the total bottom up costs were built up from the costs across a range of workload areas. new claims and change of circumstances refer to assessment activities and tasks relating to processing new claims and changes of circumstances (see Table 4.10, Table 4.11 and Table 4.13). Table 4.14 provides details of activities carried out under the other 18 workload areas. The following subsections go through these 20 workload areas looking at the drivers of costs. As with the totals, the main driver explored is caseload.

4.2.10 New claims assessment costs

We would expect new claims costs[36] to depend on the volume of new claims. The scatterplot is shown as Figure 4.8.

Figure 4.8 New claims processing costs versus new claims volumes



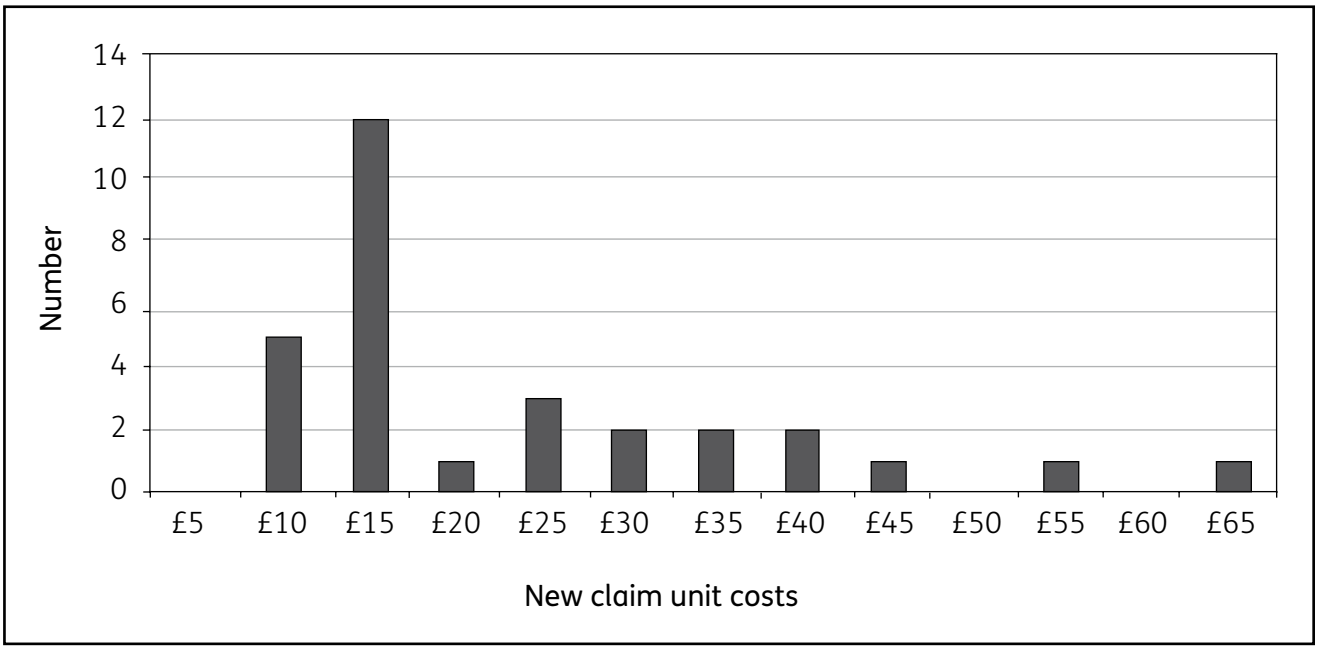
The unit costs are shown as Figure 4.9. The marginal cost and the unit costs, per new claim are:

Marginal cost	£(24 ± 17)
Mean of unit costs	£21
Overall unit cost	£23

The confidence interval for the marginal cost is wide here because the correlation is less strong than in earlier models. In particular, there is a lot of scatter about the regression line for the larger volumes of new claims; that is, as Figure 4.8 shows, for larger volumes of new claims, the costs we found show more variation than at lower volumes of new claims.

[36] This is the cost of processing a new claim and does not include work such as customer services staff helping customers to complete claim forms, work associated with scanning and indexing claims onto Document Image Processing System (DIPS), or postage costs.

Figure 4.9 Unit costs for New Claims processing



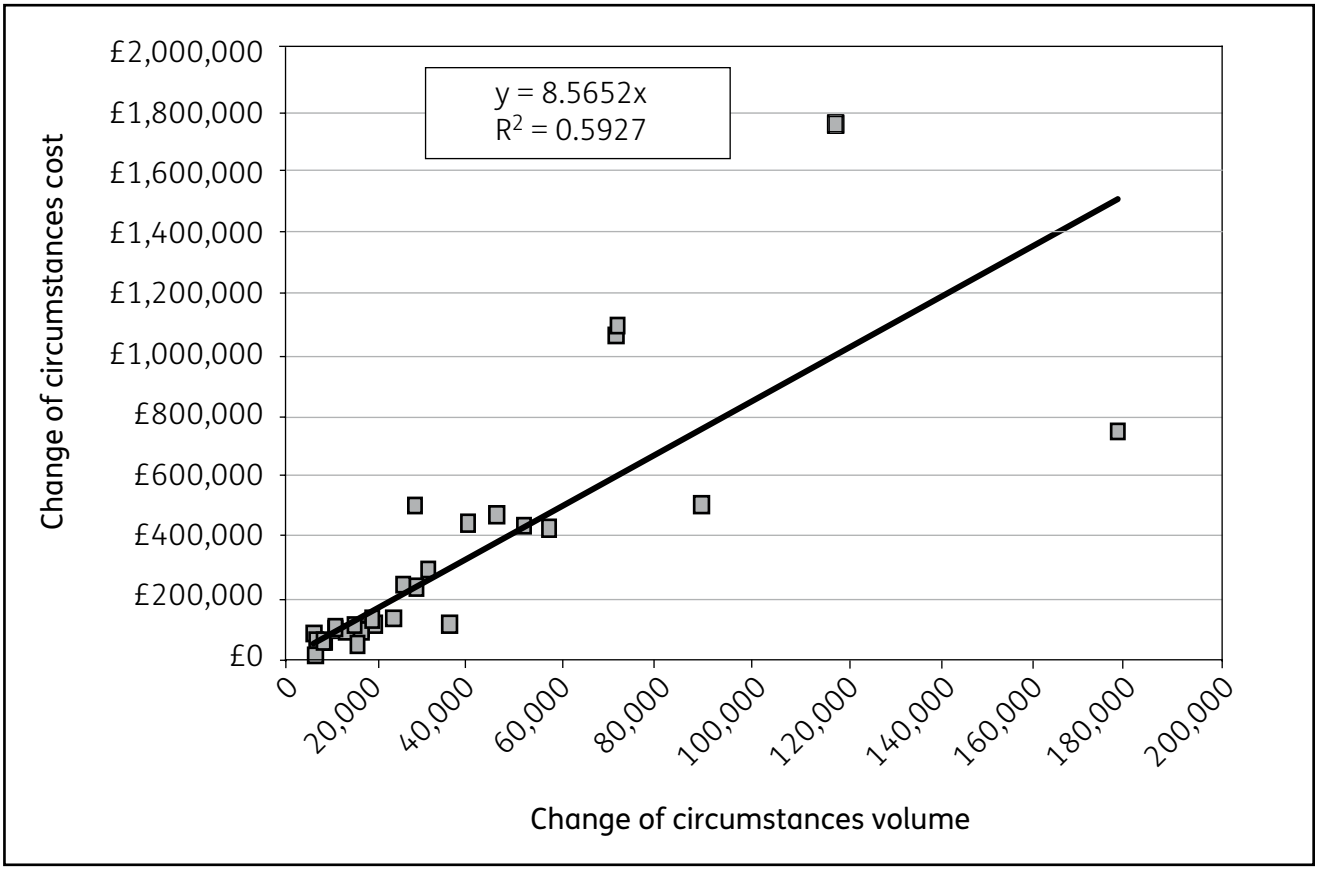
Using caseload instead of new claims volumes improved the correlation. For each item of caseload, the marginal cost of processing new claims is £(8.6 ± 5.0)[37]. While the volumes of new claims must drive the costs, our statistical analyses shows that the regression model based on caseload is better for predicting the new claims costs (and caseload is more readily available for all LAs). The latter will therefore be used in producing the estimate of total national costs of new claims.

4.2.11 Change of circumstances processing costs

The scatterplot and regression model for change of circumstances processing costs and change of circumstances volumes is shown as Figure 4.10.

[37] Thus, if LA1 had one more caseload item than LA2, then it would have a new claims processing cost 8.6 higher than LA2. Note: this figure for assessing claims does not include all aspects of handling claims, such as related DIPs and customer services activities.

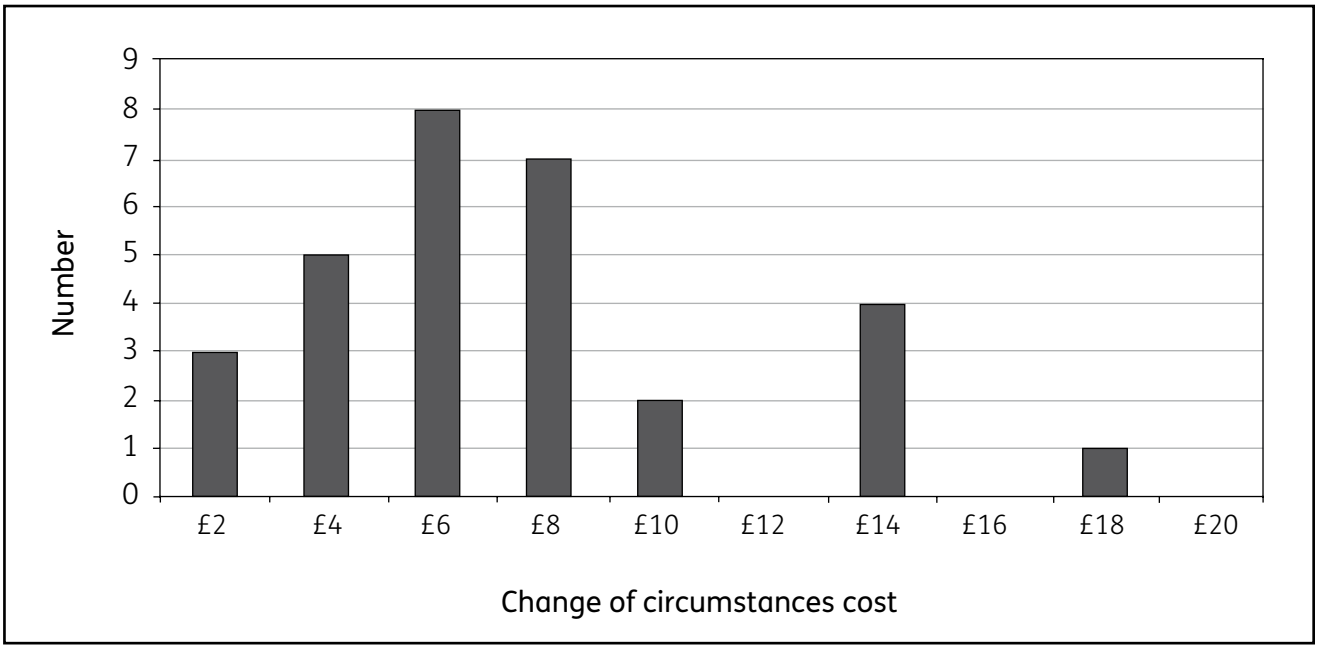
Figure 4.10 Change of circumstances processing costs versus change of circumstances volume



Unit costs is shown as Figure 4.11. The marginal cost and unit cost of processing changes circumstances, per change of circumstance are:

Marginal cost	£(8.6 ± 3.6)
Mean of unit costs	£8.6
Overall unit cost	£9.2

Figure 4.11 Unit costs of processing changes of circumstance



As with new claims, using caseload rather than volumes improves the correlation. For each item of caseload, the marginal cost of processing each non-bulk change of circumstances is £(15.6 ± 3.6).

4.2.12 Other workload areas

The total costs associated with workload areas other than the direct processing of new claims and change of circumstances, were regressed against caseload [E.2.6], with the following results shown in Table 4.5.

For the four workload areas marked with '(c)' on the table, bottom up cost estimates are available for all the 30 LAs in the depth study. For the others there are gaps in the cost information. These gaps were filled with the predictions from the caseload regression models, based on the cost values that are available. Once this was done, we calculated the overall unit cost for each of the workload areas; this is shown in the final column.

Table 4.5 Marginal and unit costs for workload areas, per item of caseload

Workload area	Marginal cost[1]	95% confidence interval	Overall unit cost
Predominantly claim handling activities			
New claims assessment	£8.8	± £4.9	£8.2
Non-bulk change of circumstances assessment	£15.6	± £3.6	£16.4
Appeals	£3.81	± £0.64	£4.17
Checking and QA	£3.44	± £1.13	£3.53
Claim payments	£1.08	± £0.71	£1.30
Overpayments recovery	£5.24	± £1.45	£5.84
Welfare	£2.26	± £0.92	£1.86
Subsidy checks and returns (c)	£1.05	± £0.30	£1.25
Reviews (interventions)	£2.69	± £2.25	£3.65
HB Matching Service (HBMS)	£1.11	± £0.84	£0.82
Counter Fraud	£9.69	± £1.13	£11.38
DIPS and post	£7.91	± £6.50	£9.20
Bulk change of circumstances	£0.36	± £0.09	£0.42
Predominantly overhead activities			
Customer services (c)	£22.01	± £12.11	£25.21
Changes in regulations	£1.60	± £2.18	£1.31
Benefits management (c)	£14.10	± £2.19	£13.70
IT (c)	£10.00	± £5.95	£13.76
Take-up	£0.31	± £0.20	£0.56
Training	£6.27	± £3.37	£5.64
Miscellaneous	£6.69	± £6.25	£5.22

[1] This is the marginal cost of each workload area per unit caseload, based on regression modelling.

In the 2004 study, these costs were found to be poorly correlated with caseload. For many of these current results the correlation is considerably better. The marginal cost column here is another measure of how much is spent on each of the workload areas at the national level. The two largest areas here are customer services (£(22 ± 12) per caseload item and benefits management £(14 ± 2) per caseload item.

For four of the Other Workload Areas, namely Fraud, Appeals, Payments and Reviews, we have some metrics relating to volumes of activities (e.g. numbers of investigations). These can be tested as drivers of the costs of these respective activities. In each case we looked at the extent to which these volumes correlate with caseload, and then modelled the bottom up cost of the area as a function of the relevant metrics [E.2.7]. The results are summarised in Table 4.6. The third column shows the R^2 value (where a high value indicates a good correlation) from the regression model for the volume metric for the workload area against the caseload (with the constant term in the regression model set to zero). The fourth column shows the R^2 value for the regression model for the workload area cost versus its own volume, again without a constant, while the final column shows the R^2 value for the regression model for the cost versus caseload.

Table 4.6 Regression models for workload area volumes

Workload area	Volume metric	R^2 (vol vs CL) %	R^2 (cost vs vol) %	R^2 (cost vs CL) %
Counter fraud	No of fraud investigations	74	59	92
Appeals	No of appeals	83	84	81
Payment	No of payments made	54	41	49
Review	No of reviews completed	11	36	52

Fraud case volumes and appeals volumes correlate quite well with caseload. By contrast the volume of reviews is almost completely independent of caseload (as some LAs told us that they had reduced the volumes of reviews completed, or temporarily suspended reviews, to manage resources to deal with increased workloads this is not altogether surprising). The best correlation between a volume and the corresponding cost is for appeals, and the worst is for reviews. Comparing the correlation between costs and the volume metrics with that for costs and caseload shows that only for the payments workload area does the metric give a better correlation. The value of R^2 improves from 49 per cent to 54 per cent; as the increase is modest, and as payment volumes are not readily available for all LAs, we propose retaining caseload as a predictor of costs in this workload area.

4.3 Analysis of total top down costs

Having looked in detail at the costs built up from our observations during the depth study visits, we now look at the total top down costs. These are the total costs of administering HB and CTB, as given by the financial information[38] provided by the LAs, either during a depth study visit, or via the breadth survey[39].

For the total top down costs, we have the following range of data:

- 379 LAs – LA characteristics, working age and elderly populations[40] for all of these;
- 374 LAs – caseload data;
- 310 LAs – data on volumes of new claims and change of circumstances;
- 167 LAs – data on total top down costs;
- 150 LAs – data on assessor annual salary costs[41].

Using this information, we can extrapolate from the 167 total top down cost data points to all the 379 LAs, to produce a national estimate of the cost of administering HB and CTB. In particular, the caseload coverage is almost complete. The five missing values for caseload can be filled in with estimates based on the working age and elderly population.

38 Predicted out-turns for the financial year.

39 Because the majority of the total top down information comes from the breadth survey, when both breadth and depth total top down values are available, the breadth value is the one that is used in the analysis.

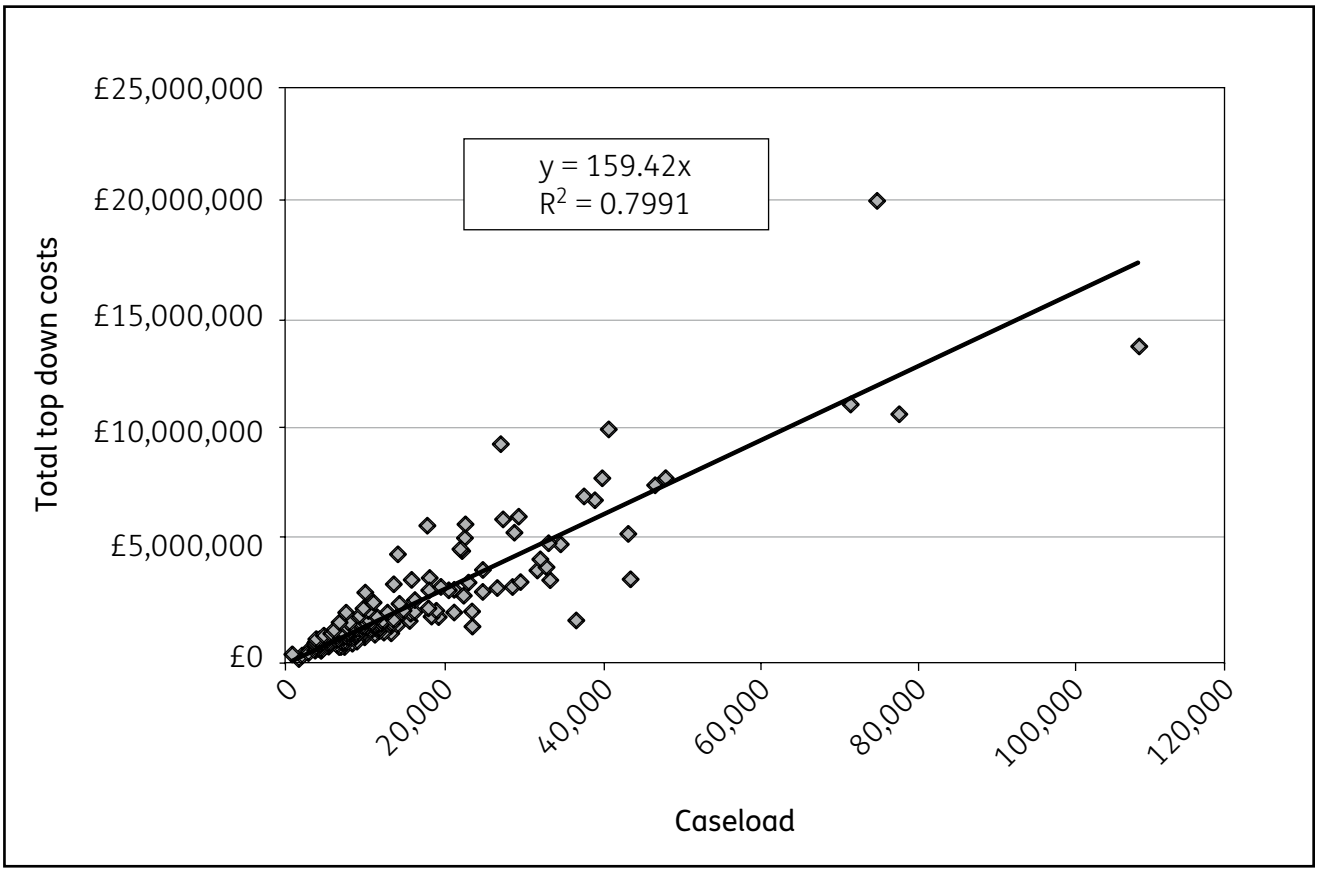
40 From the ONS website.

41 These are costs of employment – salaries plus employers' NI and superannuation costs.

4.3.1 Total top down versus caseload and new claims and change of circumstances volumes

As with total bottom up, we regressed total top down cost separately against each of caseload, new claims and change of circumstances [E.3.2]. The strongest relationship is again with caseload. The scatterplot of total top down versus caseload is shown below as Figure 4.12, with a regression line with the constant set at zero.

Figure 4.12 Total top down costs versus caseload

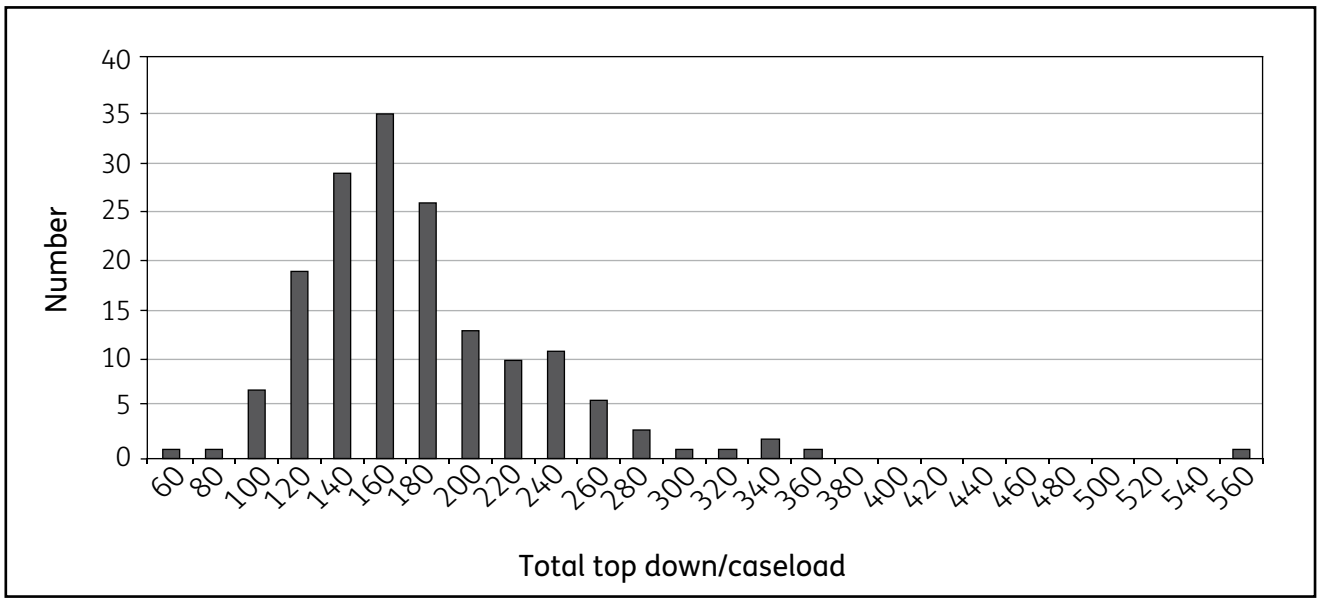


It is striking just how much of the variation in total top down cost is accounted for simply by variations in the caseload. The marginal total top down cost per caseload item, is £(159 ± 21). As in the total bottom up analysis, we find no evidence for fixed costs – the total top down costs are a simple multiple of the caseload. The fact that caseload is a good predictor of total top down costs is in line with what we found in the 2004 study.

We also looked for possible economies and diseconomies of scale, and found no evidence for either.

The ratios total top down/caseload is shown in Figure 4.13.

Figure 4.13 Total top down to caseload ratios



The outlier with a very large ratio is an LA with a small caseload and a disproportionately large cost.

The marginal and unit costs in total top down terms, per item of caseload are as follows.

marginal cost	£(159 ± 21)
mean of unit costs	£167
overall unit cost	£162

4.3.2 Total top down for depth study LAs only

The 30 LAs in the fieldwork appear to be a representative sample of the wider population of LAs in terms of caseload and total top down costs. In looking at the effect of caseload on the costs measured in the fieldwork, we first revisit the total top down versus caseload analysis, this time done with only the 30 LAs from the fieldwork [E.3.2]. The model with the constant term set to zero (equivalent to no fixed costs) predicts a slope (essentially the unit cost per item of caseload) of £(148 ± 25), compared with £(159 ± 21) obtained from the 167 LAs who provided total top down in the breadth survey. As these ranges overlap, this indicates that as stated above, at least as far as total top down and caseload are concerned, the 30 LAs in the fieldwork are a representative sample of the wider population of LAs.

4.4 The effect of LA characteristics on total top down costs

Although caseload captures most of the variation in total top down cost, we also investigated whether the qualitative characteristics of the LAs had an effect on the total top down costs. The results are summarised in Appendix E. The effects of changing the model on R^2, are as follows.

Independent variables	R^2 %
Caseload	89.4
Caseload, ONS classification	91.5
Caseload, region	91.5
Caseload, LA type	91.1

As with total bottom up, there is a small increase in R^2 when the new variables are added.

4.4.1 Effect of AASC

When the AASC is added to the total top down versus caseload regression model, the R^2, already high with caseload only, improves (compare Table E.57 and Table E.67). R^2 increases from 89.4 per cent to 91.3 per cent. The model with AASC only gives a considerably poorer correlation, so caseload cannot be dispensed with. The prediction of the model is:

Total top down = £(139 ± 17) × caseload + (12 ± 8) × AASC

Adding AASC has the same sort of effect as adding one of the LA classifications. It may well be that both effects have the same explanation, with the LA classifications being in part a way of accounting for higher costs of employment. However, we do not have annual assessor staff costs for all LAs, whereas we do have ONS classifications for all of them, for example. It is therefore more sensible to use LA characteristics such as ONS classification in estimates of national total costs, than annual assessor staff costs.

4.5 National total costs

As well as exploring what might drive the costs, the regression models have been produced to allow us to estimate national total costs for HB and CTB administration. We take the LAs for which we do have values and use the models to produce estimates for the other LAs, a process referred to as 'grossing up'. In this section, we produce estimates of the national totals for the total top down cost, the total bottom up cost and the costs of the individual workload areas.

4.5.1 National total top down costs

To fill the gaps in the total top down cost data, we have to choose one of the regression models for total top down. There is little difference between the models explored in terms of predictive power. We chose the total top down versus caseload and ONS (classification) regression, with zero constant, because of its (very) small superiority in terms of R^2 (and, as noted earlier, the availability of data for all LAs compared with say annual assessor staff cost).

However, there are five LAs without caseload values for which total top down estimates are required. To estimate their caseloads we look to the sum of the working age and elderly populations[42] (POP). Caseload is well correlated with POP – caseloads are typically 13.6 per cent of the adult population, although there is considerable variation around this figure. We produced a model regressing total top down against POP and ONS classification [E.5.1].

With these regression models in place, we calculated the national total total top down cost [E.5.2]. The resulting estimate of the total national cost of administering HB and CTB is:

£(986 ± 12)M

4.5.2 Comparison with 2004 national total top down cost

The analogous figure from the 2004 study was:

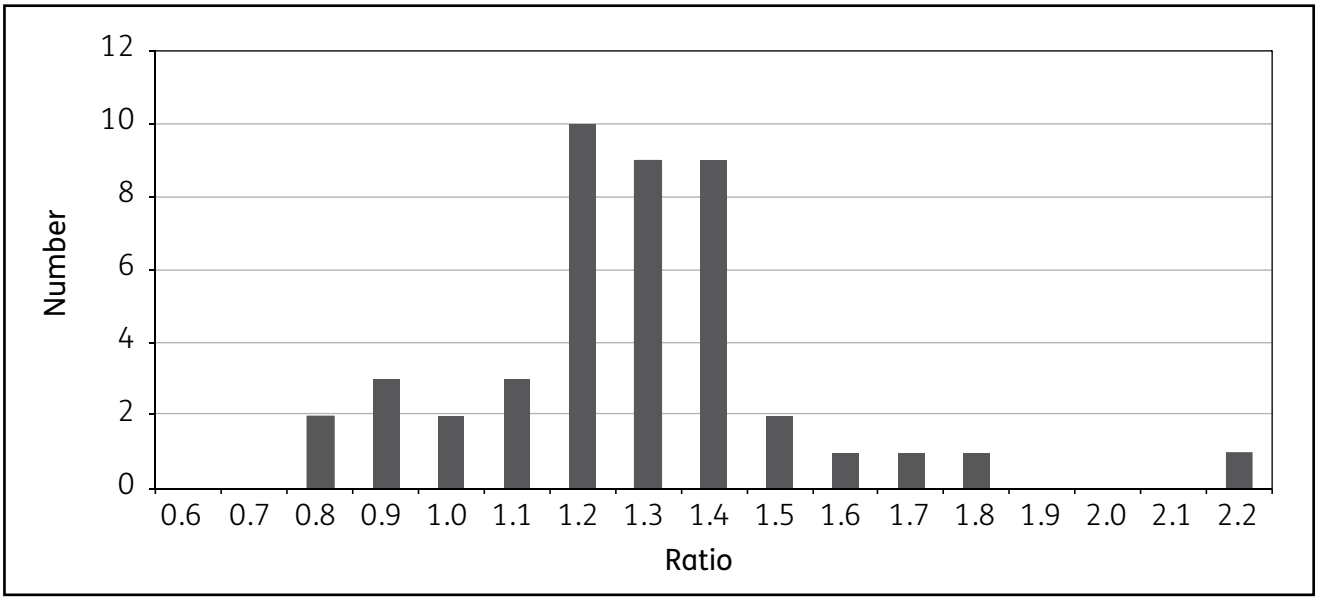
£(801 ± 11)M

If we index this using a Gross Domestic Product (GDP) deflator then we get a value of **£901M** for the 2004 cost in 2009 money terms. From this it appears, initially, that the cost of administering HB and CTB has risen ahead of inflation.

42 Using information for from the ONS website.

However, it is reasonable to assume that, all else being equal, costs incurred by LAs will increase broadly in line with the increases in costs of employing staff. For 45 LAs we have employment costs for assessors (AASC values) for both 2004 and 2009. Figure 4.14 shows the chart of the ratios (AASC 2009)/(AASC 2004).

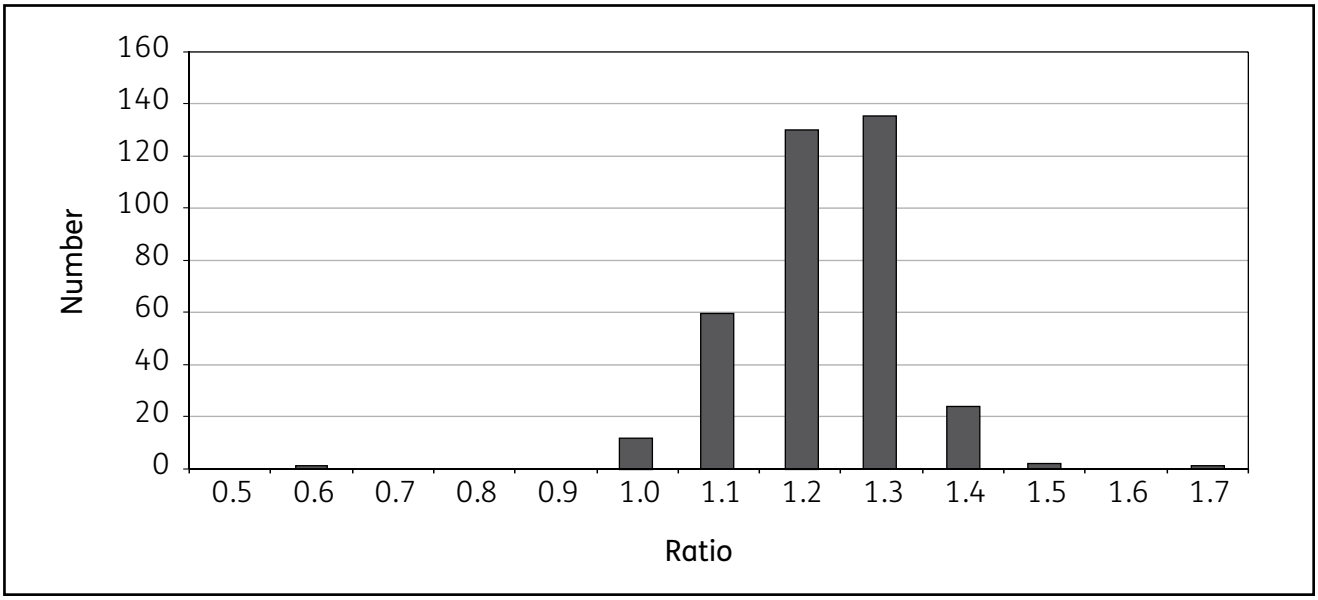
Figure 4.14 Ratio of employment cost for assessors in 2009 to that in 2004



The average ratio is 1.22. When the 2004 cost estimate is inflated by this ratio, the result is £980M. This is very close to the 2009 estimate. Over the period in question, staff costs rose by almost twice the rate of inflation, as measured by the GDP deflator.

However, we know that costs also depend on caseload, and that caseloads have increased. For 365 LAs we have caseload figures for both 2004 and 2009. The chart of the ratios (caseload 2009)/(caseload 2004) is shown below as.

Figure 4.15 Ratio of 2009 to 2004 caseloads



The ratio of the sum of 2009 caseloads to the sum of 2004 caseloads is 1.14. If we uprate the 2004 estimated total cost by this factor in addition to the increase in costs of employment, we obtain a value of **£1,120M**. The 2009 estimate of £986M is 88 per cent of this figure. Thus, adjusting the 2004 estimate for the effects of staff cost and caseload increases, there is evidence for an overall saving of **12 per cent** compared with the costs we might have expected to see, in the absence of any other changes. This may be evidence of reductions in costs achieved because of changes to the assessment framework (such as the introduction Local Housing Allowance (LHA) and the implementation of Customer Information System (CIS), lean etc)

4.5.3 National total bottom up costs

Using the same procedure to gross up the total bottom up costs, we arrive at a national total of

£(752 ± 2.4)M

This is of course lower than the total top down estimate, because the total top down includes cost elements not in the total bottom up.

4.5.4 National totals by workload area

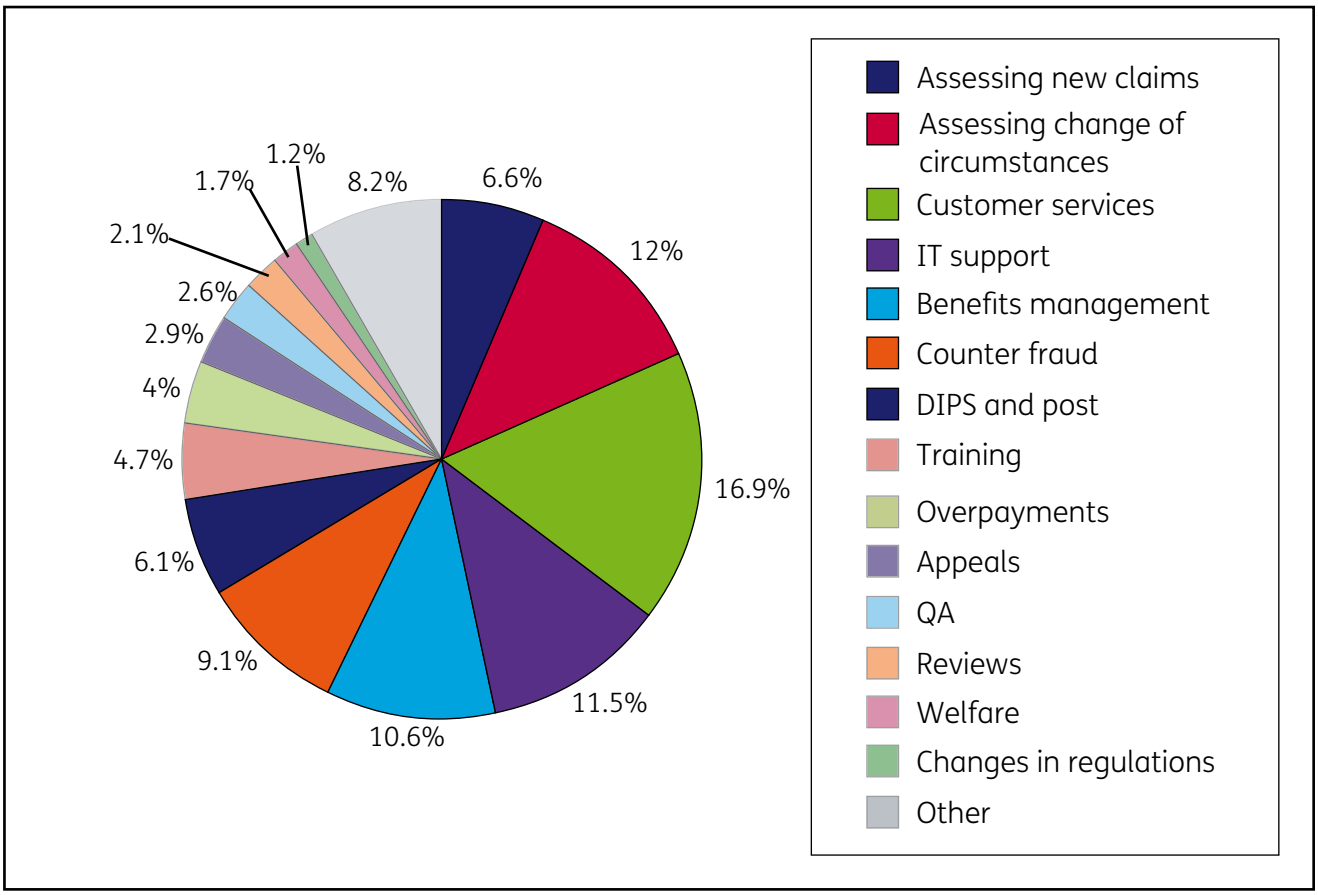
The grossing-up procedure was applied to the individual workload areas separately [E.5.3]. The results are shown below in Table 4.7.

Table 4.7 National totals for the workload areas

Workload area	Total (£M)	95% confidence interval (£M)
Predominantly claim handling activities		
New claims assessment	49.3	± 1.7
Assessing non-bulk changes of circumstance	90.5	± 1.3
Appeals	21.8	± 0.3
Checking and QA	19.6	± 0.4
Claim payments	6.3	± 0.2
Overpayments recovery	30.1	± 0.5
Welfare	12.6	± 0.3
Subsidy checks and returns	6.1	± 0.1
Reviews (interventions)	15.8	± 0.8
HBMS	6.2	± 0.3
Counter fraud	68.2	± 0.5
DIPS and post	45.6	± 2.3
Bulk change of circumstances	£2.1	± 0.03
Predominantly overhead activities		
Customer services	126.8	± 4.2
Changes in regulations	8.9	± 0.8
Benefits management	79.7	± 1.0
IT	86.3	± 1.8
Take-up	3.7	± 0.09
Training	35.2	± 1.2
Miscellaneous	37.1	± 2.2

Figure 4.16 shows how the national total bottom up cost is divided among the workload areas.

Figure 4.16 National total costs of workload areas



Assessing new claims and changes of circumstances together makes up the largest of the workload areas. Customer services is also a significant cost area, followed by IT support, benefits management and counter fraud activities (including fraud investigation). The 'other 'segment here comprises the 'miscellaneous' workload area and workload areas that each comprised less than one per cent of the total: payments, HBMS, subsidy, take-up, and bulk change of circumstances.

4.6 Cost modelling findings

A number of general findings emerge from our analyses.

4.6.1 Caseload is a good predictor of costs

We used a simple mean average of caseloads measured at a number of points throughout the year and found it to be a good predictor of costs; top down costs, bottom up costs and costs disaggregated by workload area. This suggests that there is a good deal of uniformity across the country in how LAs administer HB and CTB, or how they choose to allocate resources to different workload areas, and in the costs incurred in doing so.

Some of the residual variation in costs between LAs appears to be associated with each of the three qualitative classifications of LAs (i.e. region, LA type and ONS classification), as well as by the cost of employment for staff (as represented by the cost of employing an assessor – AASC).

The remainder of the variation is most likely to be due to individual features of the LAs in our sample. Some of these may be ongoing characteristics, such as high staff turnover, which leads to higher training and quality checking costs, or policy decisions relating to levels of customer service.

Others may be temporary, such as organisational changes due to service reviews. In addition, some LAs may simply be more efficient than others.

4.6.2 There is little evidence for the existence of fixed costs.

Most of the regression lines in our model are consistent with having zero costs when the caseload goes to zero. For low values of caseload, LAs do not have to carry fixed overheads, but can reduce their costs in proportion to the caseload.

There is evidence for savings having been made since 2004.

The estimate of the total national cost of administering HB and CTB in 2009/10 is:

£(986 ± 12)M

The analogous figure from the 2004/05 study was:

£(801 ± 11)M

This is a 23 per cent increase, although it should be noted that general inflation over the same period, as measured by the GDP deflator, was 12 per cent. However, the increase in assessor staff costs of employment over the same period was around 22 per cent (for those LAs where we had data for both years). In addition, there was a 14 per cent increase in caseload. When these two effects are taken into account, there is evidence for savings of around 12 per cent, perhaps as a result of changes to the assessment framework such as the introduction of LHA, the introduction of systems such as CIS and CMS, and efficiency savings made by LAs.

The quantitative results of this research must be viewed in light of the potential limitations and uncertainties inevitably associated with any estimates based on survey data. These include issues related to sample coverage, potential bias and uncertainties introduced by the measurement process. It should also be noted that this research addressed costs, and not outcome measures or sources of funding. It should be noted that LA spending decisions are not made in a vacuum; the degree to which costs are incurred may be a function of the available funding.

4.6.3 Updating cost estimates

Given the results of our cost modelling, we suggest that the priorities for information gathering on a regular basis are as follows.

1 Ensure that SHBE extracts are accurate, and that they support the levels of disaggregation (by claim and claimant types) of interest. Particular priority should be given to caseload data, as this appears to have the greatest overall predictive power for costs.

2 It would be useful if LAs could supply data annually on the AASC. This would require careful definition of which costs are to be included in 'Staff Cost' (the mean annual salary per FTE, plus employers' NI and superannuation costs) and which grade corresponded to 'Assessor'. The assessors are those staff that carry out the bulk of the assessment work. If the assessors in an LA come from different locally defined grades, an FTE-weighted average of the costs for the different grades involved in assessment would be useful, although it is recognised that this may be more onerous for LAs.

3 It would be useful if LAs could supply annually the outturn numbers for what we have called total top down costs. This would give a more direct picture of national costs – gaps in the data could be filled in with regression modelling. Changes in the total top down versus caseload and AASC regression models could indicate that changes in the underlying processes or drivers and hence in the cost basis had occurred.

5 Conclusions

5.1 Managing and organising work

Our robust sampling strategy provided a representative cross section of Local Authorities (LAs), and therefore the fieldwork can provide insight into current practice across each workload area. We also examined the extent to which workload areas were completed within the LA but outside of the benefits team, or were outsourced to an external organisation.

We find that it appears to be rare for LAs to outsource all benefits administration; in the breadth survey carried out for this work, five of 161 respondents do this. For the 30 LAs we visited, about half had customer services delivered by another part of the LA, for example through 'one-stop shops' and customer contact centres.

A small number of LAs in our fieldwork sample (more than in our previous work in 2004/05) use staff who work on both revenues and benefits, with managers in these LAs citing improved customer service and improved efficiency as reasons for this approach.

There have been a number of changes to Housing Benefit/Council Tax Benefit (HB and CTB) schemes over recent years, and changes in the ways that people work. The introduction of the Customer Information System (CIS) appears to have been welcomed by benefits managers and assessors, who told us that it is easier to use and has reduced the time taken to assess claims (both time spent on the claim, and elapsed time). However, LAs have interpreted DWP guidance on recording the results differently, with some telling us that no hard or electronic copies of CIS screens should be made (at these LAs staff make a note on Document Image Processing System (DIPS) or workflow systems about the information viewed). Others believe it is important that a hard or electronic copy of the CIS screen is kept, as proof that the information has been verified and in case error or fraud is suspected in the future.

The user interfaces of different software packages for assessment appear to have converged to a more user-friendly layout, aligned with standard claim form layouts. However, there may be further opportunities to reduce the time and cost of data entry. Particularly where assessors have a single VDU screen (at many LAs they have two, so can view DIPS on one, and assessment software on the other) we observed assessors copying information by hand onto paper, then entering it into the assessment screens. Improved use of IT shortcuts such as copying and pasting information from one package to another has the potential to reduce errors of transcription and save time.

LAs try to make sure that claimants supply as much of the information and evidence required to accompany a claim with the initial claim. Some LAs prefer to take new claims by visiting claimants in their own home, as they believe this increases the likelihood that all information and evidence is provided up front. Others have implemented a 'claim promise' where they undertake to make a decision on the claim within a short period of time as long as all information and evidence necessary is provided with the claim form. One LA told us that it now needs to write to claimants for further information or evidence in only five per cent of cases.

The introduction of the Local Housing Allowance (LHA) scheme for private sector tenants has reduced double handling of claims as activities relating to rent officer referrals are no longer necessary. Prior to LHA, many private sector claims were assessed on the basis of indicative rent levels and then revised once the rent officer determination was received; this is no longer necessary. We note however, that some LAs have seen an increase in the numbers of safeguards applications.

The economic recession has resulted in increased caseload for almost all LAs, with an increase in new claims and caseload management activities such as processing changes of circumstances. LAs have used a range of approaches to manage the extra workload, including using overtime, recruiting additional staff, outsourcing some assessment activities, and reducing work in discretionary areas. This last item seemed to affect QA checks and reviews (staff carrying out these activities have to understand assessment and most can and do assess claims). LAs no longer have prescriptive targets to meet for checking and reviews, and some had moved resources from these tasks to assessment.

For reviews, fieldwork found considerable variation in the numbers of reviews undertaken. Total numbers of reviews completed varied from around four per 1,000 caseload to 880 per 1,000 caseload, with mean and median averages of 217 and 160 reviews per 1,000 caseload respectively. For reviews undertaken by visit, the numbers undertaken varied from two to 317 per 1,000 caseload, with mean and median averages of 98 and 77 per 1,000 caseload. As noted above, in some cases low numbers are accounted for in part by work priorities as a result of increased workload. However, much of the variation may reflect choices made by LAs in the mix of activities to use to manage customer error.

5.1.1 Costs

Differences in caseload explain most of the differences in costs between LAs. Numbers of new claims and changes of circumstances have an additional effect on costs, but the numbers of these per unit caseload are too similar across LAs to allow this to be seen in the data. In the same way, while we might expect the mix of new claims to drive costs (e.g. passported or standard, tenancy type) because some claims are more complex to assess, the mix across LAs does not vary sufficiently for any differences to be observed in the data. Thus, caseload is a good predicitve variable. Using either Office for National Statistics (ONS) classification or region helps to explain some of the remaining variation. This is probably because these characteristics act as a surrogate for the cost of employing staff; London Boroughs in particular, have higher costs of employment.

The estimate of the total national costs to LAs in England, Scotland and Wales of administering HB and CTB is £(986 ± 12)M.

There is evidence that modernisation of HB and CTB, including changes such as the introduction of LHA, the use of CMS for the electronic transfer of data for claimants also claiming benefits from Jobcentre Plus and the introduction of CIS have led to savings since 2004. The estimate for 2004/05 was £(801 ± 11)M. Uprating this by the apparent increase in employment costs for assessors and the increase in average caseload gives an adjusted figure of £1,120M. The estimate above is 88 per cent of this figure, suggesting an overall reduction of 12 per cent compared with the costs we might expect to see in the absence of any other changes.

The estimate of national total of costs measured using a bottom up approach is £(752 ± 2.4)M. This is lower than the total national cost estimate because it excludes items such as recharges for finance, HR, accommodation and LA corporate management. The bottom up cost comprises the cost of people's time together with recharges and external charges that can be allocated to specific workload areas. When the missing items are excluded from the total top down costs of the LAs in the depth study, there is good agreement with our total bottom up cost estimates.

Assessing new claims and changes of circumstances together account for approximately 19 per cent of total estimated national bottom up costs, with customer services contributing 17 per cent to the total, followed by IT and IT support at 12 per cent.

Appendix A
Sampling methodology

This appendix includes more detailed information on our sampling methodology which is not included in the main report as it is technical in nature and expected to be of interest to a more limited audience.

Our sampling methodology had the following key stages:

- Data preparation.
- Cluster analysis.
- Sample selection.

A.1 Data preparation

The sampling was based upon the following data provided by Department for Work and Pensions (DWP):

- Local Authority (LA) type (Unitary, Shire District, etc.).
- Government Office Region (GOR).
- Assessment software supplier.
- LA caseload.
- Proportion of caseload in the Private Rented Sector (PRS)[43].
- Proportion of pension age claimants.
- Caseload and number of staff to provide a measure of caseload/staff.
- Number of new claims processed per quarter[44].
- Number of changes of circumstances processed per quarter[45].
- PM1 (the mean number of days to process a new claim)[46].
- PM5 (the mean number of days to process a change of circumstances[47].
- Right Benefit Indicator (RBI)[48].

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43 We used the latest available data (2007/08), and where this data was not available we used data for 2006/07.

44 Using the latest available data for each LA from September 2007, December 2007 or March 2008.

45 Using the latest available data for each LA from quarter ending December 2007 or March 2008.

46 Using the latest available data for each LA from quarter ending September 2007, December 2007 or March 2008.

47 Using the latest available data for each LA from quarter ending September 2007, December 2007 or March 2008.

48 Using the latest available data for each LA from April, May or June 2009.

The data used were the most up to date available for all LAs. For a period of time, national statistics on characteristics such as these were not available; while more up to date information became available during the course of our research it was not available to inform the sampling exercise.

A.2 Missing or incomplete datasets

Where there were missing values for variables for other LAs, these were set to the mean of the non-missing values of the variable for the purposes of the cluster analysis (the technique used requires a value to be entered for each variable). The mean is chosen as the estimate of the most likely value of the variable, given that its actual value is not known.

We used overall caseload data published in August 2009. The total used is the total of those who receive both HB and CTB plus those who receive only HB or only CTB. This data is inconsistent with the caseload data provided with the numbers of staff, which appears to over count the total caseload significantly as it counts those in receipt of HB and those in receipt of CTB separately (so that a claimant in receipt of both HB and CTB will be counted twice). However, we were advised by DWP to use the caseload data provided along with the staff numbers when calculating cases per staff member as these come from the same time period. (This only affects one measure used in the cluster analysis).

The following new unitary LAs were created after the publication date of some data supplied to us by DWP:

Bedfordshire	Formed from South Bedfordshire and Mid Bedfordshire.
Cheshire East	Formed from Crewe and Nantwich, Macclesfield and Congleton.
Cheshire West	Formed from Ellesmere Port and Neston, Vale Royal and Chester.
Cornwall	Formed from Caradon, Carrick, Kerrier, North Cornwall, Penwith, and Restormel.
County Durham	Formed from Derwentside, Durham, Easington, Sedgefield, Teesdale, Wear Valley and Chester-le-Street.
Northumberland	Formed from Alnwick, Berwick upon Tweed, Blyth Valley, Castle Morpeth, Tynedale and Wansbeck.
Shropshire	Formed from Bridgnorth, North Shropshire, Oswestry, Shrewsbury and Atcham and South Shropshire.
Wiltshire	Formed from Kennet, North Wiltshire, Salisbury and West Wiltshire.

To form a complete dataset for these new unitary authorities we consolidated some of the data provided from earlier years. For data which is a proportion (e.g. the proportion of cases where the claimant is pension age) we used weighted averages. The following weightings were used:

- Proportion of PRS and Pension Age Claimants were weighted by the overall caseload numbers provided with the numbers of staff from 2006/07 or 2007/08, as this was the only caseload data available with a breakdown by the old LAs.
- Numbers of new claims and changes of circumstances in the quarter for new unitary LAs is simply the sum of the values for the old LAs that form them.
- PM1 was weighted by the number of new claims for each old LA.

- PM5 was weighted by the number of changes of circumstances for each old LA.
- RBI was weighted by the number of changes of circumstances for each old LA.

A.3 Z-scores

We converted the numerical data into a series of z-scores for use in the clustering process. This is a statistical technique which essentially normalises the values used[49], to ensure that data of very different intrinsic values (e.g. total caseloads in the range approximately 1,000 to 150,000 compared with proportion of PRS in the range 0.02 to 0.29) can be given equal weighting in developing the clusters.

A.3.1 Handling of non-numerical data

To use non-numerical (called categorical) data on LA type, GOR and software supplier, we converted the information into a numerical form. The technique we used assumes that all categories are equal distances apart – that is, in qualitative terms they are equally different – so that for example the difference between a Shire District and a Unitary is equivalent to the difference between a Unitary and a Metropolitan[50]. As for other data, factors were applied to ensure that all characteristics were given equal weighting in developing the clusters. We consolidated LA types so that all unitary authorities in England, Scotland and Wales were simply classified as 'Unitary' (rather than say 'Scottish Unitary' or 'Welsh Unitary').

A.3.2 Correlations within the dataset

Before using the dataset in the cluster analysis, we checked for any correlations between the variables and found a correlation between:

- Total caseload and number of new cases in the quarter with R^2 of 0.96[51];
- Total caseload and number of changes of circumstances in the quarter with R^2 of 0.76;
- Greater London GOR and London Borough LA type with R^2 of 0.76;
- Inner London GOR and London Borough with R^2 of 0.61.

Of these correlations, only the first one was considered significant enough to warrant exclusion of a variable from the clustering dataset. We decided to exclude the number of new cases in the quarter from further analysis. We also replaced the numbers of changes of circumstances by the ratio of each number to the corresponding caseload. This removes the effect of overall size (as captured by the caseload) from the changes of circumstances. The ratio then captures the effect of differences in caseload mix.

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49 A z-score measures how far an item of raw data is from the mean of all items in the sample, as a proportion of the standard deviation across the data. It is a way of transforming different variables that have very different scales to allow them to be weighted equally in a calculation, such as in calculating clusters in cluster analysis.

50 We converted the categorical data into a series of orthogonal vectors with the distance between different categories all of the same length, and comparable with the weighting accorded to the z-score converted numerical data.

51 R^2 values are between 0 and 1. The closer the value is to 1, the greater the correlation between the two variables, and the easier it is to predict the value of one variable if you know the value of the other.

A.4 Cluster analysis

We used the *ClustanGraphics8*™ software package to carry out a series of clustering tests to identify a set of coherent clusters to inform our sampling strategy. This creates a number of models using k-means[52], based on the dataset and random cluster centroid[53] starting points, and identifies those with the overall shortest distances between cluster members and the cluster centroids. This is a more robust approach than a single k-means calculation, because the results from a single calculation are heavily dependent on the starting point of centroids and assumed cluster numbers. The model was tested using 1500 k-means runs each time, and models of between 3 and 11 clusters were examined. The optimum clustering appeared to be an 8-cluster model, although we have split cluster 8 to separate out Inner London Boroughs from the other members of that cluster. The resulting nine clusters are characterised as:

Cluster 1: Higher than average changes of circumstances per caseload.

Cluster 2: Higher than average PM1 and PM5.

Cluster 3: Close to average across all measures.

Cluster 4: Higher than average caseload per staff member.

Cluster 5: Higher percentage of private rented sector claims than average.

Cluster 6: High caseload, and mostly Metropolitan authorities.

Cluster 7: Higher right benefit indicator than average and fewer pensioners than average.

Cluster 8: Relatively few pensioners, higher caseload than average.

Cluster 8L: Relatively few pensioners, higher caseload than average and in Inner London.

A.5 Sample selection

We used the nine identified clusters as strata for sampling. We were selecting a sample of 30 LAs from a total of 376[54] LAs in our analysis; this is equivalent to eight per cent of the 376. Thus, for our sample we needed an average of eight per cent from across the clusters of LAs. Table A.1 shows the number of members in each cluster, and the number of LAs represented by eight per cent of that number, rounded to the nearest whole integer, except that numbers below one are always rounded upwards. For four of the clusters, this suggested a sample size of one. However, we selected a minimum of two LAs from each cluster to improve the reliability of estimates. The column headed sample size in Table A.1 shows the number of LAs we recommended in each cluster. We reduced the suggested number in the two largest clusters (1 and 3) to allow two LAs to be visited in each of the smaller clusters (2, 4, 6 and 8L). The final column in the table shows the sample size for each cluster as a percentage of the number of LAs in that cluster.

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52 k-means is a standard mathematical technique for looking for cluster structure in complex data where there are many different variables describing the items to be clustered (in this case, the LAs).

53 The centre of a cluster; once cluster analysis has been completed, the mean value of all the objects in the cluster across all the cluster characteristics.

54 Following discussions with DWP, we excluded the Scottish Islands (Shetland, Orkney and Western Isles) and the Isles of Scilly from the sample for logistical reasons, and removed a further two LAs because they were involved in other work with DWP.

Table A.1 Sample sizes for each cluster

Cluster	Size	8%	Sample size	% of LAs in cluster
1	81	6	5	6.2
2	18	1	2	11.1
3	154	12	9	5.8
4	7	1	2	28.6
5	46	4	4	8.7
6	9	1	2	22.2
7	20	2	2	10.0
8	31	2	2	6.5
8L	10	1	2	20.0
	376	30	30	8.0

We selected the required number of LAs from each cluster at random, using Excel's random number generating function.

A.5.1 Replacement strategy

We recognised that not all LAs would participate in the study, for a variety of reasons. It was important, therefore, that we had a consistent approach to selecting sample replacements. Our replacement strategy was based on positions in the cluster space.

Therefore, where an LA did not participate, we:

- examined the cluster model to determine its nearest neighbour in cluster space (i.e. the most **similar** LA in terms of the variables used in the cluster model);
- invited that LA to participate, unless it was already in the sample.

If that LA did not participate, or was already in the sample, we selected the next closest neighbour, and so on.

Appendix B
Data collection template

B.1 Top-down costs

This worksheet captures high-level financial information on the Housing Benefit/Council Tax Benefit (HB and CTB) administration budget (generally predicted out-turns), across three main cost categories:

1 **Staff related costs (direct)** – i.e. costs for staff within the LA's HB and CTB administration cost centres.

2 **Supplies and services (external charges)** – i.e. those costs for supplies and services obtained from outside the LA and charged directly to the LA's HB and CTB administration cost centres.

3 **Re-charged support services** – i.e. those costs charged to the LA's HB and CTB administration cost centres from other functions **within** the LA.

B.2 Staff information

This worksheet captures information on all staff involved across the HB and CTB workload areas to provide top-down information on the numbers of staff, the costs of employment for those staff, and a cost per unit time for each staff role for use in bottom-up staff time cost calculations. Its key features are:

- Job titles as used by the LA and how they relate to a series of generic categories[55].
- Benefits cost centre or re-charged – whether costs of employment for staff are direct or recharged from another cost centre.
- Numbers of staff – Full-Time Equivalent (FTE) staff numbers involved in HB and CTB administration for each role.
- Cost of employment – the average total cost of employment per FTE for each role, including gross salary, other employer's costs (e.g. National Insurance, pension contributions, pension contributions and employment benefits) and overtime.
- Available working time per year for each FTE role – taking into account holidays, sickness, and other time not directly spent on HB and CTB administrative activities (e.g. team meetings, knowledge sharing, breaks[56]).

B.3 New claims

This worksheet captures detailed information on the assessment of new claims, including:

- the total FTE numbers and grades of staff involved in processing new claims where benefits managers were able to estimate this;

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55 A series of generic categories (senior manager, manager, team leader, senior officer, officer and administrator) defined in order to compare how staff are deployed between the LAs.

56 Available working time is not adjusted to take account of training as this is included as a workload area.

- any specific internal recharges or external costs related to new claims;
- the volume of new claims processed in 2009/10 and the proportion that were estimated to be defective[57];
- the key tasks in assessing a new claim, and for each of these key tasks:
  - the time required across the differing staff roles to handle a **baseline claim**[58];
  - the additional time required for other types of claims (note that this value may be negative);
  - the additional time required to contact customer seeking additional information or evidence (where this cannot be obtained through Customer Information System (CIS)).

Some of these specific worksheet sections are explained in further detail below.

B.3.1 Classification of new claims

Using field descriptors from Single Housing Benefit Extract (SHBE)[59], a number of **claim characteristics** were identified (i.e. factors which could add to the complexity, and therefore assessment time/cost, of individual new HB/CTB claims). These characteristics are categorical variables, and each has a list of possible values that it can take. Table B.1 lists these characteristics and their corresponding values.

Table B.1 New claim characteristics which might affect assessment time and cost

Claim characteristic	Value of characteristics
1. Benefit type	1. HB only
	2. CTB only
	3. Joint HB and CTB
2. Tenancy type	1. LA tenants
	2. Private Regulated Tenants (PRT)
	3. Private Deregulated Tenants (PDT)
	4. Housing Association (HA)/Registered Social Landlord (RSL)
	5. Other private tenants (e.g. owner occupier, private boarder)

Continued

[57] A claim made on an approved form but not properly completed or a claim not made on an approved form (e.g. by letter) that does not provide the necessary information or evidence required if the claim had been made on an approved claim form.

[58] The baseline claim was chosen to be an LA tenant in receipt of a passporting benefit making a joint HB and CTB claim, with no other household members, assuming the claim was received via an LA Input Document.

[59] The variables under each characteristic are purposely aligned with the SHBE descriptors, to facilitate updating of the cost model.

Table B.1 Continued

Claim characteristic	Value of characteristics
3. Passported status/working age	1. Passported and working age – in receipt of Income Support (IS), Jobseeker's Allowance (JSA) (income-based) or Employment Support Allowance (income-related), and under 60 years
	2. Passported and elderly – in receipt of Pension Credit (Guarantee Credit), and 60 years or over
	3. Non-passported/elderly – not in receipt of a passporting benefit and 60 years or over
	4. Non-passported and working age – not in receipt of a passporting benefit and under 60 years
4. Dependents	1. Passported claim (zero)
	2. Passported claim (1 or more)
	3. Non-passported claim (zero)
	4. Non-passported claim (1)
	5. Non-passported claim (2)
	6. Non-passported claim (3)
	7. Non-passported claim (4 or more)
5. Non-dependents	1. Passported claim (zero)
	2. Passported claim (1 or more)
	3. Non-passported claim (zero)
	4. Non-passported claim (1)
	5. Non-passported claim (2 or more)
5. Partner	1. Passported claim (zero)
	2. Passported claim (1 or more)
	3. Non-passported claim (zero)
	4. Non-passported claim (1 or more)
6. Source of new claim	1. LA Input Document (LAID) – Jobcentre Plus
	2. Standard claim form (e.g. HCTB1, HCTB1 – PC, HCTB1 – PCA)
	3. LA Customer Information – The Pension Service (TPS)
	4. Telephone (no subsequent paperwork)
	5. E-channel (no subsequent paperwork)
	6. Other channels

A single type of new claim can then be characterised by choosing one value from each of the characteristics. However, not all combinations of values are allowed (e.g. the values taken by characteristics 4, 5 and 6 depend on whether characteristic 3 takes one of the passported values or one of the non-passported values).

B.3.2 Key tasks in handling a new claim

The key tasks in entering data to assess a new claim are structured using the standard the Department for Work and Pensions(DWP) HB/CTB claim form (HCTB1 05/09) which, based on observations during the fieldwork, informs the general content of standard LA HB/CTB claim forms.

Claim assessment tasks are detailed in Table B.2.

Table B.2 New claim assessment activities and tasks

Activity category	Specific tasks
Set up and preparation	Set up and preparation: • Open case, review, prepare for assessment, scan documents/ information[1] . • Check for any existing claims at same address (e.g. in case of potential fraud). • Check and verify passported status (if passported claim). • Early test calculation – if obvious from the evidence.
Customer/partner(s) details	Relevant information related to Part 1 of HCTB1: • Review document/information provided. • Verify evidence. • Input information into assessment software package.
Dependants	Relevant information related to Part 2 of HCTB1: • Review document/information provided. • Verify evidence. • Input information into assessment software package.
Non-dependants	Relevant information related to Part 3 of HCTB1: • Review document/information provided. • Verify evidence. • Input information into assessment software package.
Customer/partner(s) income	Relevant information related to Parts 5 -7 and 9 of HCTB1: • Review document/information provided. • Verify evidence. • Input information into assessment software package.
Customer/partner(s) benefits	Relevant information related to Parts 4 and 8 of HCTB1: • Review document/information provided. • Verify evidence. • Input information into assessment software package.
Customer/partner(s) capital	Relevant information related to Part 10 of HCTB1: • Review document/information provided. • Verify evidence. • Input information into assessment software package.
Property and rent	Relevant information related to Parts 11 and 12 of HCTB1: • Review document/information provided. • Verify evidence. • Input information into assessment software package.
Payment and other details	Relevant information related to Part 13 of HCTB1: • Review document/information provided. • Review payee details in relation to LHA. • Verify evidence. • Input information into assessment software package.

Continued

Table B.2 Continued

Activity category	Specific tasks
Overpayments	• Check for over payments and manage (via system or send to overpayments team).
	• Create customer/landlord notifications of overpayment.
Claim determination	• Calculate benefit.
	• Process claim, set up payments and update DIPS/workflow with supporting notes, etc.
	• Create customer notification.
Rent officer checks[2] where applicable	• Check last rent officer assessment (PRS).
	• Refer claim to rent officer (PRS and not LA).
	• Open and deal with claim returned from rent officer (PRS).
Requests for additional information	• Write letter to claimant requesting additional information.

[1] We would expect this to include basic eligibility criteria checks, e.g. for persons from abroad.

[2] As might be expected following the introduction of Local Housing Allowance (LHA), these activities were rarely observed.

B.3.2 Time required to assess a baseline claim

In order to record the time taken for assessment staff to complete different tasks within a claim we chose one type of claim as the baseline claim. We then observed how long it took assessors to complete each task associated with this baseline claim, recording separately any additional time taken due to variations from this baseline. Our choice of baseline claim type was based on two criteria:

1 The claim type should be one of the simpler ones, so that most of the variations are then positive.

2 It should however also be a claim that occurs frequently, so that assessors can have a more accurate idea of the tasks and times involved.

The baseline claim type was chosen before fieldwork commenced, based on existing knowledge and experience, and tested at the two pilot LAs. As noted earlier, we specified the baseline claim as a claim for both HB and CTB from an LA tenant under the age of 60 in receipt of a passporting benefit, living alone, received by the LA via an LA Input Document.

B.3.3 Variations in time required to assess other types of claim

All other claim types were then treated as **variations** on the baseline claim. That is, for each new claim characteristic we observed how much additional time was required for each activity compared with the baseline claim (noting that this may be negative). For example, how much additional time was required against the relevant assessment tasks for a claim from an RSL tenant, or a claimant under 60 but not in receipt of a passporting benefit.

Examples of time variations are given in Table B.3.

Table B.3 Additional new claim assessment time

Activity category	Specific tasks	Additional time for:			
		Working age (passported)[1]	Elderly (passported)	Working age (non passported)	Elderly (non passported)
Set up and preparation	Set up and preparation: • Open case, review, prepare for assessment, scan documents/ information. • Check for any existing claims at same address (potential fraud). • Check and verify passported status (if passported claim). • Early test calculation – if obvious from the evidence.				
Customer/partner(s) details	• Review document/information provided. • Verify evidence. • Input information into assessment software package.				
Dependants	• Review document/information provided. • Verify evidence. • Input information into assessment software package.				
Non-dependants	• Review document/information provided. • Verify evidence. • Input information into assessment software package.				
Customer/partner(s) income	• Review document/information provided. • Verify evidence. • Input information into assessment software package.				
Customer/partner(s) benefits	• Review document/information provided. • Verify evidence. • Input information into assessment software package.				
Customer/partner(s) capital	• Review document/information provided. • Verify evidence. • Input information into assessment software package.				

Continued

Table B.3 Continued

Activity category	Specific tasks	Additional time for:			
		Working age (passported)[1]	Elderly (passported)	Working age (non passported)	Elderly (non passported)
Property and rent	• Review document/information provided. • Verify evidence. • Input information into assessment software package.				
Payment and other details	• Review document/information provided. • Review payee details in relation to LHA. • Verify evidence. • Input information into assessment software package.				
Overpayments	• Check for overpayments and manage (via system or send to overpayments team). • Create customer/landlord notifications of overpayment.				
Claim determination	• Calculate benefit. • Process claim, set up payments and update DIPS/workflow with supporting notes, etc. • Create customer notification.				
Rent officer checks	• Check last rent officer assessment (PRS). • Refer claim to rent officer (PRS and not LA). • Open and deal with claim returned from rent officer (PRS).				
Requests for additional information	• Write letter to claimant requesting additional information.				

[1] This column is shaded out as it is part of the baseline claim, and thus can have no additional processing time.

B.3.4 The additional time and cost required due to defective claims

Where a task is typically associated with a defective claim (e.g. reviewing, verifying and inputting information on the property and rent[60]), fractions were placed against these activities to indicate the proportion of incomplete new claims that require this task to be repeated. For example, a fraction of

[60] This was a frequent cause of defective claims observed in our fieldwork, as many PRS claims are submitted before the tenant receives a signed copy of the tenancy.

0.5 against a task means that this task needs to be repeated for half of incomplete new claims. By taking account of this additional time to complete the claim, the associated additional staff costs were captured.

B.3.4 Calculating the cost of assessing new claims

The calculation begins with the following pieces of information:

- For each task, a cost per minute of doing this task.
- For each task, the number of minutes taken on this task for a base case claim.
- For each task, for each claim characteristic and for each non-base-case value of that characteristic, the number of additional minutes, beyond the base case, taken for the task if the claim has that value of the characteristic.
- The total number of new claims processed in the year (the new claims volume).
- For each claim characteristic, the number of new claims split across the values of that characteristic.
- For each of the volume figures there is also a sub-volume of defective claims (that is, the ones that require additional work), calculated by multiplying the volume by a single estimated fraction of claims that are defective.
- For each task, a fraction of times that task will be repeated for defective claims.

The steps in the calculation of the total cost of assessing new claims are as follows.

1 For each task, for the base case and for each non-base-case value of a characteristic, the number of minutes is multiplied by the associated volume to get a total number of minutes across all claims of a given type.

2 For each task, these minutes across all claims are added up (base case plus all the additional minutes for variations from the base case) to give the total minutes for the task for all claims.

3 For each task, the total minutes from step 2 are multiplied by the cost per minute of doing the task, to give a total cost associated with the task.

4 These costs are then summed over all the tasks to give a total cost for all the claims, excluding the cost of rework of defective claims.

5 Step 1 is repeated with the volumes of defective claims.

6 Step 2 is repeated with the outputs of step 5.

7 For each task, the output of step 6 is multiplied by the cost per minute.

8 For each task, the output of step 7 is multiplied by the fraction of time the task is repeated for a defective claim.

9 The outputs of step 8 are summed over all tasks to give a total cost associated with the rework of defective claims.

10 The outputs of steps 4 and 9 are added together to given the total cost of assessing new claims.

B.4 Change of circumstances

This worksheet captures detailed information on the assessment of change of circumstances, including the:

- total numbers/grades of staff involved in handling change of circumstances, where benefits managers estimated this;
- volume of change of circumstances processed in 2009/10 and the estimated proportion requiring extra information from the customer;
- key tasks in administering a change of circumstances, and for each of these key tasks the:
  - **common time**[61] required across the differing staff grades to assess a change of circumstances – essentially opening relevant documents and getting ready to assess the change, and calculating any change in entitlement and actions to finish the work such as making notes in DIPS;
  - additional time required for other types of change of circumstances (note that unlike new claims, this value will always be positive, as the baseline chosen does not include any tasks specific to actual types of changes of circumstances);
  - additional time required to contact customers seeking additional information or evidence, and to process that information or evidence.

Further detail is provided below.

This worksheet only captures information on non-bulk change of circumstances; i.e. those that are assessed individually by LA staff and not automatically uploaded in bulk (e.g. at year end).

B.4.1 Classification of change of circumstances

Table B.4 details how we classified change of circumstances for data collection purposes. There are a number of change categories, which indicate the particular feature of the claim that has changed. Each change category then has a number of subcategories, each indicating how that feature has changed. The categorisation scheme was based on the types of changes of circumstance recorded in SHBE – to make sure that matching volume data would be accessible, some additional categories were included based on experience in the previous work, the pilots and early case studies, and based on discussions with DWP. The aim was however to keep close to the SHBE classification. The categorisation was documented in the post pilot report to DWP and changes made subsequent to this were minor. However, while information was collected based on these categories, it did not, in practice, prove possible for DWP to provide volumes for different types of changes of circumstances.

[61] The minimum time required to complete activities common to all types of change of circumstances.

Table B.4 The change of circumstances categories which might affect the assessment time/cost

Change categories	Subcategories
1. Change in dependant status	1. No change of this type
	2. Dependant joins household
	3. Dependant leaves
	4. Dependant becomes non-dependant
2. Change in non dependant status	1. No change of this type
	2. Non-dependant joins household
	3. Non-dependant leaves
	4. Non-dependant becomes partner
3. Change in partner status	1. No change of this type
	2. Partner joins household
	3. Partner leaves
	4. Partner becomes non-dependant.
4. Change in household earned income/capital (including non-dependants)	1. No change of this type
	2. Change
5. Change in household benefits/tax credits (including non-dependants)	1. No change of this type
	2. Change.
6. Change in property address	1. No change of this type
	2. To LA/RSL/HA tenancy
	3. To PRS (LHA)
	4. To other (e.g. non LHA/PRS)
7. Change in rent or payment details at same address	1. No change of this type
	2. Change in rent or Council Tax (RSL/HA/LA)
	3. Change in rent or Council Tax (PRS)
	4. Change in payment details at same address
8. Other changes[1]	1. No change of this type
	2. Change
9. Under/overpayments	1. Under/overpayment not found
	2. Under/overpayment found

[1] E.g. Death of claimant, withdrawn claim, temporary absence, moved out of area/out of scope, termination of a passported benefit.

Note that this is a different type of categorisation scheme to that used for new claims. The 28 subcategories underneath categories 1 to 9 are mutually exclusive, i.e. any change will fall under one and only one of them (e.g. if there is a change in partner status, the outcome can only be one of the four options; no change of this type, partner joins household, partner leaves or partner becomes non-dependant).

When considering future data on the volumes of change of circumstances, it is important to have a clear understanding of how these changes are counted. The above classification talks about individual changes to individual features of the claim. The number of changes in this sense is not the same as the number of reports of changes, because the LA could be informed of more than one change in a single report.

B.4.2 The key tasks in handling a change of circumstances

The key tasks in assessing a change of circumstances are again structured using the standard DWP HB/CTB claim form (HCTB1 05/09) which, based on observations at LAs, informs the general content of standard forms used to let the LA know of change of circumstances[62]. There are also other tasks, which might be required where a change of circumstances leads to an overpayment or underpayment.

These assessment tasks are detailed in Table B.5 and similarly allow DWP to link any future changes to the standard DWP HB/CTB claim forms, with specific tasks and therefore costs.

Table B.5 Change of circumstances assessment activities and tasks

Activity category	Specific tasks
Set up and preparation	• Open case, review change of circumstances document(s) and prepare for assessment
Customer/partner(s) details	Check and change relevant information related to Part 1 of HCTB1: • Review document/information provided. • Verify evidence. • Input information into assessment software package.
(Non) dependants	Check and change relevant information related to Parts 2 and 3 of HCTB1: • Review document/information provided. • Verify evidence. • Input information into assessment software package.
Customer/partner(s) income/benefits/capital	Check and change relevant information related to Parts 4-10 of HCTB1: • Review document/information provided. • Verify evidence. • Input information into assessment software package.
About the property and rent	Check and change relevant information related to Parts 11 and 12 of HCTB1: • Review document/information provided. • Verify evidence. • Input information into assessment software package.

Continued

62 Although many LAs will have specific forms for particular change of circumstances (e.g. change of address, change in income), these specific forms will simply request the relevant subset of information as per the standard DWP HB/CTB claim form (HCTB1 05/09).

Table B.5 Continued

Activity category	Specific tasks
About the payment details	Check and change relevant information related to Part 13 of HCTB1: • Review document/information provided. • Review payee details in relation to LHA. • Verify evidence. • Input information into assessment software package.
Overpayments	• Check for over payments and manage (via system or send to overpayments team). • Create customer/landlord notifications of overpayment.
Claim determination	• Recalculate benefit. • Process claim, set up payments and update DIPS/ workflow with supporting notes, etc. • Create customer/landlord notifications.
Requests for additional information	• Write letter to claimant requesting additional information.

B.4.3 The time required to assess a change of circumstances

We break up the tasks involved in assessing a change of circumstance, and hence the time taken, as follows. Firstly, we look at the tasks that are common to all changes of circumstance, then for each type of change we identified the tasks to be completed, interviewed assessors about how long they thought each task took to complete, and also observed a range of tasks and measured how long they took to complete.

B.4.4 The additional time required when more information is required

As for new claims, reports of changes of circumstances are not always accompanied by all necessary information and evidence[63], so assessors may need to contact the customer seeking this, and will need to repeat some tasks in the process once the information is provided. Again, we asked assessors and benefits managers to estimate how often this happened, and recorded fractions against the relevant tasks to indicate the proportion of changes of circumstances where this occurred. For example, a fraction of 0.5 against a task means that on average, it was estimated that this task needs to be repeated for half of the changes.

B.4.5 Calculating the cost of assessing changes of circumstance

As described above, changes of circumstance are divided into a number of categories, and then into subcategories, according to what has changed. The calculation begins with the following pieces of information:

- For each task, a cost per minute of doing this task.
- For each task, the number of minutes taken on this task for processing the 'core' of the change, regardless of the type of change.

[63] For example, fieldwork observations found that for standard claims where customers report a change in income, they do not often provide the necessary number of payslips to verify the change.

- For each task, and for each change subcategory, the number of additional minutes, beyond the core processing, taken for the task if the claim belongs to that subcategory.
- The total change of circumstances volume.
- For each change subcategory, the volume that applies to that subcategory.
- For each of the volume figures there is also a sub-volume of defective changes (that is, the ones that require additional work), calculated by multiplying the volume by a single estimated fraction of changes that are defective.
- For each task, a fraction of times that task will be repeated for defective changes.

The steps in the calculation of the total cost of assessing changes of circumstances are as follows:

1 For each task, for the core processing and for each change subcategory, the number of minutes is multiplied by the associated volume to get a total number of minutes across all changes of a given subcategory.

2 For each task, these minutes across all changes of a given subcategory are added up to give the total minutes for the task for all changes of whatever subcategory.

3 For each task, the total minutes from step 2 are multiplied by the cost per minute of doing the task, to give a total cost associated with the task.

4 These costs are then summed over all the tasks to give a total cost for all the claims, excluding the cost of rework of defective changes.

5 Step 1 is repeated with the volumes of defective changes.

6 Step 2 is repeated with the outputs of step 5.

7 For each task, the output of step 6 is multiplied by the cost per minute.

8 For each task, the output of step 7 is multiplied by the fraction of time the task is repeated for a defective change.

9 The outputs of step 8 are summed over all tasks to give a total cost associated with the rework of defective changes.

10 The outputs of steps 4 and 9 are added together to given the total cost of assessing changes of circumstance.

B.5 Other workload areas

A separate worksheet was created for each other workload area, with each capturing information on:

- The numbers, grades and cost of employment of staff involved, to calculate the total staff FTE used in that workload area, and their cost.
- Any specific recharges or external costs.
- Key metrics for volumes of tasks or activities completed within the specific workload area (e.g. number of fraud investigations, number of appeals) to facilitate comparisons between LAs where such metrics might explain differences in costs.

B.6 Populating the data collection template

The data collection template at each LA was populated using a range of evidence sources, such as:

- 2009/10 predicted out-turns for the HB and CTB administration cost centre[64].
- Service plans for the delivery of HB and CTB.
- Organisational charts.
- Management reports.
- Interviews with LA staff.
- Estimates from LA staff.
- Observations by Risk Solutions' staff.

Further detail is given below. Much of the data gathered during the fieldwork relies on the judgement of LA staff or Risk Solutions' staff, which inevitably results in some uncertainty. This was particularly so where:

- management information was not routinely recorded or collated in an area (e.g. volumes of customer queries);
- tasks or activities were infrequent (e.g. certain types of new claims).

To reduce uncertainty:

- our fieldwork was completed by a small team to improve the consistency of approach;
- where possible, observation was used to verify staff estimates.

B.6.1 Top down cost information

At each LA, we based the top-down cost information on the latest 2009/10 predicted out-turns for the HB and CTB administration cost centre available at the time of our fieldwork. We discussed the figures with benefits managers and finance staff to seek further information on any particularly high figures (e.g. to explore what was included in some charges) and to check that some charges we would expect to see were included (depending on the degree of disaggregation provided, it was not always clear from headings whether some costs were included, e.g. costs associated with fraud investigations).

B.6.2 Workload areas

Where meaningful and practicable, we collected detailed information on the tasks that staff completed, how often they completed those tasks, and how much of their time was involved. Using the cost per unit time from the staff information sheet, the data collection template converts staff time within each workload area into a cost.

Where possible, our estimates of staff time for assessing new claims and change of circumstances were based on:

- a cross section of staff including both experienced assessors and more recent recruits;
- observations[65], rather than simply relying on LA staff to estimate these times.

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64 Where possible, we would use a revised budget to improve the accuracy of costs.

65 Each LA fieldwork visit typically involved seven to ten hours observing staff processing new claims and change of circumstances.

Table B.6 details the other specific activities (in addition to staff costs and specific recharges/external charges), which were examined in terms of:

- how often they were completed last financial year;
- which staff completed them;
- how much staff time was involved.

Table B.6 Specific activities across the other workload areas

Workload area	Activities examined within the data collection template
Predominately claims related	
Appeals	• Work associated with appeals, including reconsiderations, appeal submissions, attending tribunals. • Reconsiderations. • Appeals won. • Appeals lost. • Tribunals won. • Tribunals lost.
Checking and quality assurance	Generating samples for checking, checking sample of new claims and changes of circumstances, e.g. 100 per cent checking of new starters' work.
Claim payments	Making the claim payments as set up after a claim was assessed: • Payment by cheque. • Payment by BACS runs. • Payment by BACS payment/transaction. • Payment by GIRO. • Payment by rebate.
Overpayment management	Staff time on work related to calculating and recovering overpayments other than actions by assessors in the course of assessing changes of circumstances. • Overpayments at beginning of year (volume and value). • Overpayments out-turn for the year (volume and value). • Overpayment recovered: – Cash collected. – Ongoing payments. – Attachment of other benefits. – Other.
Welfare	Welfare related activities including welfare visits.
Subsidy checks and returns	Running reports at start, mid- and end-year, checking coding, correcting errors. Correcting errors at year-end, completing annual returns.

Continued

Table B.6 Continued

Workload area	Activities examined within the data collection template
Reviews (interventions)	Activities associated with claim reviews (partial and full reviews). – Notified visits. – Un-notified visits. – Postal reviews. – Telephone reviews.
HB Matching Service (HBMS)	Receiving monthly HBMS reports from DWP, investigating any matches. • Providing referrals to fraud investigation where necessary and reporting outcomes back to DWP. • Reporting to DWP. • Note, any actual change of circumstances arising from HBMS would be covered under non-bulk change of circumstances, investigation of any fraud referrals arising are dealt with under fraud investigations.
Counter fraud	Counter fraud activities, including campaigns, sifting referrals, investigating cases, attending court. Referral of cases this year – HBMS referred. – Public. – NAO. – Other (specify).
DIPS, document management and post	Checking and verification of claim forms. Scanning forms and evidence and entry/indexing of claim information on document management system. All postage costs.
Bulk change of circumstances	Change of circumstances that are processed automatically in bulk (e.g. annual rent increases for LA tenants, annual increases in some income-related benefits). Note that this is often dealt with under end of year processes. Updating parameters, checking parameters, test run and then live run.
Predominantly overhead activities	
Customer services	General advice on claims (how to fill in the form, what evidence to submit, help filling into the form up to the point when the claim is submitted. Providing specific advice on a particular claim either before or after it has been submitted.) Advice provided by telephone, or face to face from the Local Authority offices, or provided by e.g., mobile units. May be provided by generic staff or benefits staff.
Changes in HB/CTB regulations	Changes due to in and out of work policy change. Reviewing HB/CTB circulars.
Benefits management	• Management and team leader time spent on general management activities related to HB/CTB administration

Continued

Table B.6 Continued

Workload area	Activities examined within the data collection template
IT support	General IT support activities.
	Costs of software licences.
	Testing new software releases, writing guidance notes and implementing releases.
	Dealing with software patches.
Take-up	Take-up related work such as take-up visits, time spent at roadshows, presentations at, e.g. community groups, costs of relevant publicity materials where available.
Training	Time spent by trainers and trainees. Including time spent by assessors acting as mentors for new staff, and time being mentored.
	Cost of external resources where relevant and information was available.
Miscellaneous	Other relatively small areas of activity including e.g.:
	• Dealing with LHA safeguard applications received.
	• Assessing Discretionary Housing Payments (DHP).
	• Managing freedom of information requests.
	• Dealing with internal audits.
	• Dealing with external audits (e.g. Audit Commission).
	• Any other areas noted by benefits staff e.g. exempt accommodation claims and caseload management.

B.6.3 Reconciliation within the data collection template

The data collection workbook provides both top-down and bottom-up cost information across three cost categories:

- The predicted out-turn for staff related costs from the **top-down costs** worksheet can be compared with the:
  - total staff cost from the staff information worksheet;
  - aggregate staff costs across the workload area worksheets.
- Some specific external costs within the **top-down costs** worksheet (e.g. costs of IT licenses and support) can be compared with the external costs in **workload area** worksheets.
- Some recharges within the **top-down costs** worksheet (e.g. customer services and fraud) can be compared with the costs in **workload** area worksheets.

While the values across the various sources are not expected to reconcile perfectly[66], this comparison identified any potential sources of error during the LA visit which could then be resolved.

[66] Because, for example, volumes of key tasks were preliminary and often based on estimates at that stage.

Appendix C
Technical report on the breadth survey by GfK NOP

As noted previously, the Department for Work and Pensions (DWP) contracted GfK NOP to carry out a breadth survey of Local Authorities (LAs). This appendix presents the technical report produced by GfK NOP.

C.1 Methodology

Respondents were given a choice of completing the questionnaire on the telephone, as a self-completion questionnaire on paper, or as a self-completion questionnaire on the internet. This methodology achieved an overall response rate of 46 per cent based on 176 LAs answering one or more sections of the survey.

C.2 Sample

A list of Finance Officers[67] for each LA in England, Scotland and Wales was provided by DWP as sample for this survey. Each Finance Officer was sent a letter on DWP headed paper which set out the aims of the survey, explained the nature of the input required and advised the recipient that they have a choice of how to complete the questionnaire. The letter was signed by a DWP signatory and included contact names at both GfK NOP and DWP for queries. The questionnaire also explained that although most of the sections could be answered by the selected Finance Officer, Section C would be best passed onto the Benefits Manager within the same LA.

The advance letter included details of each methodology – web-based questionnaire, telephone interview and paper questionnaire. For the web-based questionnaire we provided a URL, allowing respondents to link directly to the survey and each respondent was assigned a user id/password, which had to be entered at the start of the survey. This enabled GfK NOP to keep track of interviews and ensure no one completed a survey more than once. Including an ID also allowed respondents to stop and restart an interview at any point and meant that different officers could easily access and complete the sections relevant to them, where necessary.

Respondents were also sent a copy of the questionnaire, so that they could either, use it to prepare their answers before the telephone interview, or use it to fill-in their answers and return it to GfK NOP in the reply-paid envelope provided. It emphasised that, if necessary, they should consult other managers and staff for their input into the questionnaire. Telephone interviewers were instructed to check that the respondent had completed the questionnaire sent in advance and that it was readily available for reference during the interview.

C.3 Questionnaire design

Department officials, the team from Risk Solutions and LA finance officers were consulted about the content of the questionnaire in order to gain as much useful information as possible from the research.

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67 Typically Directors of Finance, or Heads of Finance, although a range of job titles apply.

The first stage of questionnaire development involved a meeting between GfK NOP, the Risk Solutions team and a representative from within the Department to establish the question areas that they would like to be included in the questionnaire.

Once the questionnaire had been through several drafts, telephone development interviews were set up with three LA finance officers in order to test the understanding and comprehension of the drafted questions. It should be mentioned that we attempted to set up more development interviews but compliance from authorities with this stage of the development was limited. The interviews were structured around the draft questionnaire but the structure of the session was kept fluid enough to allow finance officers to raise new issues and enlarge on existing subjects as they wished.

The comments of these finance officers were reviewed with the Risk Solutions team and relevant officials at DWP and the questionnaire was amended to take on board their views and to produce the final version of the questionnaire.

C.4 Fieldwork

For the main stage of fieldwork, each respondent was sent an advance letter and paper copy of the questionnaire. The GfK NOP executive team briefed a small team of interviewers. The briefing covered the purpose of the survey and explanations of any particular questionnaire points, as well as allowing time for practice on the questionnaire by means of dummy interviewing.

This covered both general interviewing skills and survey-specific instructions. Interviewers were also issued with full interviewer instructions, which included all survey materials including a hard copy of the questionnaire and the advance letter.

The interviewers' task was to telephone each LA and ask respondents how they intended completing the questionnaire. Respondents choosing to undertake the survey on the telephone were then either interviewed or an appointment for another more convenient time was set-up. Those selecting to complete the questionnaire on paper or on the web were asked to complete it as soon as possible and, in the case of the paper questionnaire, return it to GfK NOP in the reply-paid envelope provided. Interviewers were then instructed to 'telephone chase' those respondents who did not return their completed questionnaire within the following ten days or so and ask them to complete it as soon as possible.

Given the fact that this was a census of all LAs and that finance officers proved to be difficult to get hold of, interviewers were not given a maximum number of callbacks. Instead, in order to maximise the response rate across the country as a whole, they were asked to adopt a flexible approach in terms of call-backs and to liaise closely with head office throughout the fieldwork period.

During the course of carrying out initial telephone calls to the sample it became clear that some of the selected finance officers were not the ideal potential respondents for this survey and hence contact details had to be substituted in a greater number of cases than would have normally been the case on a survey such as this. This meant that at the start of fieldwork response was very limited and we had to allow additional fieldwork time in order for the substituted respondents to take part. The intended fieldwork period was from 13 October 2009 until 4 December 2009 but due to subsequent extensions needed and requests for extra time from respondents the final date for closure on the web questionnaire was 23 December 2009.

Our specialist web department within GfK NOP developed the web-based questionnaire. It was written in mrInterview, software supplied by SPSS and hosted on the GfK NOP World facility. Both the web and paper questionnaires were designed to be of a professional format and straightforward to complete. All selected finance officers were sent a personalised email complete with a link to the web questionnaire as soon as the interview site was available. During the course of fieldwork two personalised email reminders were issued to the sample and numerous individual requests for help and assistance were dealt with by email and telephone by the web support and research team at GfK NOP.

Interviewers were required to provide weekly progress figures that were used to identify response difficulties during fieldwork. Unobtainable numbers, no answers, wrong numbers etc were all investigated immediately. In addition, e-mails were sent from GfK NOP to local authorities that said they would fill-in the questionnaire on paper or on the web but did not do so.

The questionnaire was divided into sections and although respondents were asked to fill-in all of them, some did not. The total number answering each section was as follows: Section A -161, Section B – 159, Section C – 168 and Section D – 166. We have used the highest of these (Section C – 168) for the purposes of illustrating sampling error below. It is important to note that because there were slightly different response rates for each section of the survey, there will be also be slight variations in the sampling error for each section.

C.5 Interpretation of the data

The data was analysed by a number of different variables as shown below:

Table C.1 Data analysis variables

LA type	Welsh, Scottish, English Unitary, English Metropolitan, English District, London Borough
Contracting-out status	Contracted out, Not contracted out
Housing/Council Tax Benefit (HB/CTB) Caseload	Low (up to 10,000 cases), Medium (10,001-20,000 cases), High (20,001+ cases)
Region	Scotland, North East, Yorkshire and Humberside, North West, East Midlands, West Midlands, East, South East, South West, London, Wales

Information on LA Type, HB/CTB caseload, and region was provided by DWP, while Contracting-out Status was asked as part of the interview.

The following points should be noted when using this report:

- A sample, not the entire 'population' of LA finance officers has been interviewed. In consequence, all results are subject to sampling tolerances, which means that not all differences are statistically significant. Where bases are low, care should be taken when interpreting the data.
- Where percentages do not add up to 100, this may be due to computer rounding, the exclusion of 'don't know' or 'other' categories, or multiple answers.
- Throughout the report, an asterisk indicates a value of less than 0.5 per cent but not zero, and '0' denotes no observation in that cell.

C.6 Statistical reliability

It should be remembered that a sample, not the entire population, of LA finance officers was interviewed. We cannot therefore be certain that the figures obtained are exactly those we would have if everybody had been interviewed (the 'true' values). We can however, predict the variation between the sample results and the 'true' values from knowledge of the size of the samples on which the results are based and the number of times that a particular answer is given. The confidence with which we can make this prediction is usually chosen to be 95 per cent – that is, the chances are 95 in 100 that the true value will fall within a specified range.

For example, if we take the response for Section C, (168), given that this sample comprises 44 per cent of the total population, the level of statistical reliability is slightly higher than if the sample had come from a larger population, e.g. if the total population was 1,000 (instead of 382), 168 would be a smaller proportion of that whole and therefore the reliability would be slightly lessened. On this basis, responses to the questionnaire provide data with a maximum sampling error of plus or minus 5.7 percentage points at the 95 per cent level. In practice, this means that where 50 per cent give a particular answer, the chances are 19 in 20 that the 'true' value will fall within the range of plus or minus 5.7 per cent from the sample result. The table below shows the sampling error for the whole sample and key sub-groups across a range of parameters.

Table C.2 Breadth survey sampling error (based on 168 answering Section C)

	Sample size	Universe	Survey finding of either 10% or 90% +	Survey finding of either 30% or 70% +	Survey finding of 50% +
All respondents	168	382	3.4	5.2	5.7
LA type					
Welsh	11	22	12.5	19.1	20.9
Scottish	14	32	11.8	18.0	19.6
English Unitary	21	57	10.2	15.6	17.0
English Metropolitan	14	36	12.3	18.8	20.5
English District	94	202	4.4	6.8	7.4
London Borough	14	33	11.9	18.2	19.9

C.7 Response rates

As mentioned earlier, the questionnaire was divided into four sections (A,B,C,D) and the number of LAs answering each section varied. For the purposes of calculating a response rate for the survey as a whole, we have used the number of LAs that answered at least one section (176), which equates to a response rate of 46 per cent (see Table C.3). However, it is also important to provide the response rates for each section of the survey: Section A 161 (42 per cent), Section B 159 (42 per cent), Section C 168 (44 per cent) and Section D 166 (43 per cent).

The table below gives full detail of the status of each LA based that answered one of more sections of the survey at the final close of fieldwork on 23 December 2009.

Table C.3 Response rate

		Total
Telephone: Mainstage completes	0	
Web: completes	115	
Paper: completes	29	
Completes	**144**	
Incompletes (web)	**32**	
Total LAs answering one of more sections	**176**	
Soft call back	60	
Will complete paper questionnaire	6	
Will complete on web	7	
Refusal (insufficient time/resources)	20	
Refusal (other/no reason provided)	9	
No contact with original respondent – No answer	35	69
No contact with original respondent – Engaged	6	
No contact with original respondent – Voicemail	18	
No contact with original respondent – tried alternative routes	10	
No contact with referred respondent – No answer	20	30
No contact with referred respondent – Engaged	1	
No contact with referred respondent – Voicemail	8	
No contact with referred respondent – tried alternative routes	1	
Number unobtainable (being investigated)	2	
No eligible respondent	1	
Not yet attempted	0	
Currently on holiday (due back after fieldwork)	2	
Total LAs	**382**	

C.8 Sample profile

Table C.4 Sample profile

	Number	%
Total	176	100
LA type		
Welsh	11	6
Scottish	14	8
English Unitary	23	13
English Metropolitan	14	8
English District	99	56
London Borough	15	9
Contracting out status (based on 156 only as 12 LAs did not answer this question)		
Contracted out	32	21
Not contracted out	124	79
HB/CTB caseload		
Low	43	24
Medium	74	42
High	59	34
Region		
Scotland	14	8
North East	5	2
Yorkshire and the Humber	9	5
North West	16	8
East Midlands	18	11
West Midlands	18	10
East	24	14
South East	32	18
South West	14	8
London	15	8
Wales	11	6

Appendix D
Three stages of each main fieldwork visit

D.1 Pre-visit

A nominated lead consultant contacted the Local Authorities (LA's) benefits manager to discuss the initial information requirements and confirm the structure of and arrangements for the fieldwork visit.

To reduce the burden of our fieldwork on the participating LAs, we asked for initial information requirements focused on documents that LAs would already have produced, such as:

- the current service plan, which provides background and context on the LA how it administers Housing Benefit/Council Tax Benefit (HB and CTB);
- the latest predicted out-turns for the HB and CTB administration cost centre;
- an organisation chart for the benefits service.

In addition, we agreed which personnel we would want to talk to during the on-site visit.

D.2 On-site visit

The structure of the fieldwork visits varied, depending on how each particular LA administers HB/CTB, but typically involved:

- Day one:
  - Kick-off meeting to answer any questions the benefits manager might have, and to confirm our understanding of the team structure, costs, HB/CTB administration processes.
  - Consultant 1 would spend time with HB/CTB assessment staff (ideally with a nominated, experienced assessor at first) to understand the HB/CTB administration costs for new claims and changes of circumstances, through a mix of observation, management information and questioning.
  - Consultant 2 would conduct 30-60 minutes interviews with responsible officers across the different workload areas to understand collect information to populate the data collection template
- Day two:
  - Consultants completed activities commenced on day one.
  - Close-out meeting with the benefits manager to resolve any queries and, if relevant, confirm any outstanding information requirements.

D.3 Post-visit

The post-visit stage typically involved the lead Risk Solutions' consultant:

- Collecting any outstanding information.
- Thanking the benefits manager for their participation.

Appendix E
Regression models for costs – detailed account

This appendix includes more details of the analysis presented in Chapter 4. It is technical in nature, including outputs from the statistical software package Stata, and may be of interest to a more limited audience than the main report.

The cost modelling in Chapter 4 is based on a series of regression models. In this appendix, the detailed models are shown, as produced by Stata. These correspond to the regression lines and equations, and R^2 values in Chapter 4. Using Stata allows for more sophisticated modelling than is possible in Excel. The data are typically heteroscedastic[68]. For this reason the standard errors are calculated using a method that is robust against heteroscedasticy (option vce(robust) in Stata). The robust standard error values are typically two or more times greater than those obtained using the basic method, which assumes homoscedacity.

In this appendix we have transcribed tabular output from Stata into a series of tables. These include information that will allow the Department for Work and Pensions (DWP) analysts to see the variable names and commands used, so that analyses can be repeated if required.

E.1 Potential cost drivers

E.1.1 New claims and change of circumstances volumes versus caseload

The regression models for new claims and change of circumstances against caseload (see Figure 4.2 and Figure 4.4) are as follows:

[68] Heteroscedastic data have different variances; for example where the variability of the data increases as the value increases, leading to wider dispersion around a regression line for higher values. This is in contrast to homoscedastic data, where the variability does not depend on values.

Table E.1 Regressions of new claims and change of circumstances volumes against caseload

. regress nc cl, vce(r)

Linear regression					**Number of obs =**	**310**
					F(1, 308) =	**1800**
					Prob > F =	**0.0000**
					R-squared =	**0.959**
					Root MSE =	**1000**
new claims	**Coefficient**	**Robust Standard Error**	**t**	**P>| t |**	**[95% Confidence Interval]**	
caseload	.33	.0076	43	0.000	.31	.34
_cons	480	100	4.8	0.000	280	680

. regress coc cl, vce(r)

Linear regression					**Number of obs =**	**310**
					F(1, 308) =	**120**
					Prob > F =	**0.0000**
					R-squared =	**0.750**
					Root MSE =	**14000**
New claims	**Coefficient**	**Robust Standard Error**	**t**	**P>| t |**	**[95% Confidence Interval]**	
caseload	1.6	.15	11	0.000	1.3	1.9
_cons	2800	2000	1.4	0.17	–1100	6600

New claims is highly correlated with caseload (R^2 = 96 per cent). With change of circumstances the relation is not as strong (R^2 = 75 per cent), but is still present. In the latter case, the constant term is not significantly different from zero. When the two models are run again, this time with no constant term (or, put another way, with the constant term fixed at zero, Stata option 'noc'), the results are:

Table E.2 Regressions of new claims and change of circumstances volumes against caseload, with constant term zero

. regress nc cl, vce(r)

Linear regression					**Number of obs =**	**310**
					F(1, 309) =	**3500**
					Prob > F =	**0.0000**
					R-squared =	**0.980**
					Root MSE =	**1100**
New claims	**Coefficient**	**Robust Standard Error**	**t**	**P>| t |**	**[95% Confidence Interval]**	
caseload	.34	.0057	60	0.000	.33	.35

Continued

Table E.2 Continued

. regress coc cl, vce(r)

Linear regression

Number of obs =	**310**
F(1, 309) =	**310**
Prob > F =	**0.0000**
R-squared =	**0.874**
Root MSE =	**14000**

coc	Coefficient	Robust Standard Error	t	P>| t |	[95% Confidence Interval]	
caseload	1.7	.096	18	0.000	1.5	1.9

The prediction of these two models is that per unit increase in caseload, the marginal increases in number of new claims and changes of circumstance are (0.34 ± 0.01) and (1.7 ± 0.19) respectively.

E.1.2 Caseload versus the LA classifications

We tested whether caseload was correlated with LA classification, looking at each of the three classifications (region, LA type and Office for National Statistics (ONS) classification) in turn. First, we looked at regions. The twelve regions are:

1 East Midlands.

2 Eastern.

3 Greater London.

4 Inner London.

5 North East.

6 North West.

7 Scotland.

8 South East.

9 South West.

10 Wales.

11 West Midlands.

12 Yorkshire and Humberside.

The Stata results for the correlation between caseload and membership of these regions is shown below. The way Stata handles categorical independent variables, such as region is as follows. The single variable with 12 categories is turned into 12 variables denoting membership of each of the categories in turn. If the LA is a member of the first region, then the first new variable takes the value 1, otherwise it takes the value 0 and so on. Each Local Authority (LA) has a value of 1 for one of these variables and 0 for all the rest.

These variables are put into a linear regression model, except that, because they are not independent, one of the variables has to be omitted. The choice of which to omit is arbitrary, but there is some value in omitting the variable associated with the category with the most members. This is the approach taken for all the Stata calculations of this type in this report. In the region

example below, region 8, South East, is omitted. This can be seen as being a base case against which all the other categories are compared. If the variables are written cat1, … , cat12, then the model for the dependent variable, caseload in this example, is:

Caseload = const + c1 x cat1 + … + c7 x cat7 + c9 x cat9 + … c12 x cat12.

For region 8, the predicted caseload is just the term 'const'. For region 1 it is const + c1, and so on.

Table E.3 Regression of caseload against region

. xi: regress cl i.gor, vce(r)						
i.gor	**_Igor_1-12**		**(_Igor_8 for gor == South_East omitted)**			
Linear regression				**Number of obs =**		**374**
				F(11 , 362) =		**13**
				Prob > F =		**0.0000**
				R-squared =		**0.181**
				Root MSE =		**14000**
Caseload	**Coefficient**	**Robust Standard Error**	**t**	**P>| t |**	**[95% Confidence**	**Interval]**
_Igor_1	850	1500	0.56	0.58	–2200	3900
_Igor_2	750	960	0.78	0.44	–1100	2600
_Igor_3	16000	2200	7.1	0.000	12000	20000
_Igor_4	20000	3100	6.3	0.000	14000	26000
_Igor_5	18000	4000	4.5	0.000	10000	26000
_Igor_6	11000	2700	4.0	0.000	5500	16000
_Igor_7	9400	3700	2.6	0.011	2200	17000
_Igor_9	3300	2000	1.6	0.10	–670	7300
_Igor_10	5800	1900	3.2	0.002	2200	9500
_Igor_11	10000	5000	2.1	0.040	490	20000
_Igor_12	16000	4500	3.6	0.000	7300	25000
_cons	9500	690	14	0.000	8200	11000

In this case the predicted caseload for South East is (9500 ± 1300). For region 4, Inner London, an additional (20,000 ± 6100) is added to this. For three of the regions (1, East Midlands, 2, Eastern and 9, South West) the coefficient is not significantly different from zero, indicating that they tend to have similar caseloads to South East.

The results for the six LA types are shown below. These types are:

1 London Borough.

2 Metropolitan.

3 Scottish Unitary.

4 Shire District.

5 Unitary.

6 Welsh Unitary.

Type 4, Shire District is omitted. Its predicted caseload value is (8800 ± 830). The remaining types have caseloads significantly greater than that.

Table E.4 Regression of caseload against LA type

. xi: regress cl i.latype, vce(r)
i.latype _Ilatype_1-6 (_Ilatype_4 for lat~e==Shire_District omitted)
Linear regression

Number of obs =	**374**
F(5, 368) =	**44**
Prob > F =	**0.0000**
R-squared =	**0.419**
Root MSE =	**11000**

Caseload	Coefficient	Robust Standard Error	t	P>| t |	[95% Confidence Interval]	
_Ilatype_1	18000	1800	10	0.000	15000	22000
_Ilatype_2	30000	4000	7.5	0.000	22000	38000
_Ilatype_3	10000	3600	2.8	0.005	3000	17000
_Ilatype_5	12000	1400	8.6	0.000	9100	15000
_Ilatype_6	6500	1800	3.7	0.000	3100	10000
_cons	8800	420	21	0.000	8000	9700

Finally, the analysis for the ONS classifications is carried out. These are:

1 Centres with Industry.

2 Coastal and Countryside.

3 Industrial Hinterlands.

4 Industrial Hinterlands, Coastal and Countryside, Prospering Smaller Towns.

5 London Centre.

6 London Cosmopolitan.

7 London Suburbs.

8 Manufacturing Towns.

9 Manufacturing Towns and Prospering Smaller Towns.

10 New and Growing Towns.

11 Prospering Smaller Towns.

12 Prospering Southern England.

13 Regional Centres.

14 Thriving London Periphery.

Table E.5 Regression of caseload against ONS classification

. xi: regress cl i.ons, vce(r)
i.ons _Ions_1-14 (_Ions_11 for ons==Prospering_smaller_Towns omitted)

Linear regression	**Number of obs = 374**
	F(11 , 360) = -
	Prob > F = -
	R-squared = 0.424
	Root MSE = 12000

caseload	Coefficient	Robust Standard Error	t	P>| t |	[95% Confidence Interval]	
_Ions_1	28000	6400	4.3	0.000	15000	40000
_Ions_2	2200	1200	1.8	0.067	–150	4700
_Ions_3	12000	1800	7.0	0.000	8900	16000
_Ions_4	54000	470	120	0.000	53000	55000
_Ions_5	15000	3800	4.0	0.000	7600	22000
_Ions_6	30000	830	36	0.000	28000	32000
_Ions_7	17000	2400	7.1	0.000	12000	22000
_Ions_8	6800	1700	4.1	0.000	3600	10000
_Ions_9	18000	470	39	0.000	17000	19000
_Ions_10	3600	1300	2.8	0.005	1100	6100
_Ions_12	–2000	790	–2.5	0.012	–3600	–440
_Ions_13	24000	5200	4.7	0.000	14000	34000
_Ions_14	4200	2300	1.8	0.071	-370	8900
cons	9100	470	19	0.000	8200	10000

'Prospering smaller towns' is the base case, with a predicted caseload of (9100 ± 930). All but three of the other categories have a coefficient significantly different from zero.

E.1.3 Assessor annual staff cost versus caseload

The regression model for Assessor Annual Staff Cost (AASC) versus caseload is shown below. There is virtually no correlation between the two variables, as indicated by the R^2 value of 0.0045 (0.45 per cent).

Table E.6 Regression of AASC against caseload

. regress aas cl, vce(r)

Linear regression	**Number of obs = 150**
	F(1, 48) = 0.50
	Prob > F = 0.48
	R-squared = 0.0045
	Root MSE = 4500

aas	Coefficient	Robust Standard Error	t	P>| t |	[95% Confidence Interval]	
cl	.02	.03	0.70	0.48	–.038	.080
_cons	25000	540	46	0.000	24000	26000

E.1.4 AASC versus LA classification

To see if AASC depends upon the ONS classification, we performed the following regression:

Table E.7 Regression of AASC against ONS classification

. xi: regress aas i.ons, vce(r)

i.ons _Ions_1-14 (_Ions_11 for ons==Prospering_smaller_towns omitted)

Linear regression				**Number of obs =**	**150**
				F(11 , 138) =	**32**
				Prob > F =	**0.0000**
				R-squared =	**0.270**
				Root MSE =	**4000**

aas	Coefficient	Robust Standard Error	T	P>| t |	[95% Confidence Interval]	
_Ions_1	210	1300	0.16	0.88	−2500	2900
_Ions_2	430	740	0.58	0.56	−1000	1900
_Ions_3	−1200	820	−1.4	0.16	−2800	450
_Ions_4	(dropped)					
_Ions_5	11000	740	15	0.000	9900	13000
_Ions_6	7600	1900	3.9	0.000	3700	11000
_Ions_7	8000	3000	2.7	0.008	2100	14000
_Ions_8	−44	960	−0.05	0.96	−1900	1900
_Ions_9	(dropped)					
_Ions_10	1500	1800	0.82	0.41	−2100	5000
_Ions_12	2700	2200	1.2	0.22	−1600	6900
_Ions_13	890	1500	0.60	0.55	−2000	3800
_Ions_14	−430	1100	−0.40	0.69	−2500	1700
_cons	24000	480	50	0.000	23000	25000

The only significant effects are in the three London ONS types (5, 6 and 7). To isolate those effects we defined three indicator variables corresponding to membership of these ONS types.

Table E.8 Regression of AASC against London ONS classifications

. regress aas london_cen london_cos london_sub, vce(r)

Linear regression				**Number of obs =**	**150**
				F(3, 146) =	**100**
				Prob > F =	**0.0000**
				R-squared =	**0.226**
				Root MSE =	**4000**

aas	Coefficient	Robust Standard Error	t	P>| t |	[95% Confidence Interval]	
london_cen	11000	640	17	0.000	9800	12000
london_cos	7300	1900	3.9	0.000	3600	11000
london_sub	7700	2900	2.7	0.009	2000	13000
_cons	24000	330	73	0.000	24000	25000

Outside London the typical AASC is £24,000 per year. The amounts to be added on for London Local Authorities (LAs) are:

- London Central £11,000 per year.
- London Cosmopolitan £7,300 per year.
- London Suburbs £7,700 per year.

We also looked at the effect of region on AASC:

Table E.9 Regression of AASC against region

. xi: regress aas i.gor, vce(r)

i.gor _Igor_1-12 (_Igor_8 for gor==South_East omitted)

Linear regression					**Number of obs =**	**150**
					F(11 , 138) =	**2.6**
					Prob > F =	**0.0050**
					R-squared =	**0.203**
					Root MSE =	**4100**
aas	**Coefficient**	**Robust Standard Error**	**t**	**P>| t |**	**[95% Confidence**	**Interval]**
_Igor_1	−2800	1400	−2.0	0.048	−5600	−25
_Igor_2	−2700	1300	−2.2	0.033	−5300	−220
_Igor_3	2000	2300	0.86	0.40	−2600	6600
_Igor_4	6500	2600	2.5	0.012	1400	12000
_Igor_5	−1400	1400	−1.0	0.30	−4100	1300
_Igor_6	−2900	1500	−2.0	0.045	−5800	−63
_Igor_7	−2600	1500	−1.7	0.084	−5700	360
_Igor_9	−2600	1400	−1.9	0.067	−5400	180
_Igor_10	−1700	1300	−1.3	0.20	−4200	880
_Igor_11	−3300	1500	−2.1	0.035	−6300	−240
_Igor_12	−1300	1800	-0.73	0.47	−4800	2200
_cons	26000	1200	23	0.000	24000	29000

In this analysis, the base case value, for South East, is £26,000 per year. The significant variations around this are:

- 1, East Midlands – £2,800 per year.
- 2, Eastern – £2,700 per year.
- 4, Inner London + £6,500 per year.
- 6, North West – £2,900 per year.
- 11, West Midlands – £3,300 per year.

Finally, the LA type was examined as a driver of AASC.

Table E.10 Regression of AASC against LA type

. xi: regress aas i.latype, vce(r)						
i.latype _Ilatype_1-6			**(_Ilatype_4 for lat~e==Shire_District omitted)**			
Linear regression				**Number of obs =**		**150**
				F(5 , 144) =		**2.2**
				Prob > F =		**0.062**
				R-squared =		**0.125**
				Root MSE =		**4200**
aas	**Coefficient**	**Robust Standard Error**	**t**	**P>| t |**	**[95% Confidence**	**Interval]**
_Ilatype_1	5300	1700	3.1	0.002	1900	8700
_Ilatype_2	-260	1200	–0.23	0.82	–2500	2000
_Ilatype_3	-640	1100	–0.60	0.55	-2800	1500
_Ilatype_5	450	880	0.50	0.61	–1300	2200
_Ilatype_6	340	730	0.50	0.65	–1100	1800
_cons	24000	470	52	0.000	24000	25000

With this way of describing or classifying LAs, only one category shows a significant difference in the AASC, compared with Shire District, namely London Borough. The coefficient here is £(5,300 ± 3,400).

E.1.5 New claim volume breakdowns

The total volume new claims can be broken down in the following ways:

- by claimant type: Working Age, Elderly;
- by claim type: Passported, Non-Passported;
- by tenancy: LA, Private Rented Sector (PRS), Housing Association, Other;
- by benefit: Joint HB and CTB, HB only, CTB only.

It would be desirable to use the disaggregated volumes to investigate how the cost of assessing new claims depends on the type of claim. To do this however, it is necessary that there be a good spread of different breakdowns across the 28 depth study LAs for which new claims volumes are available. For example, to see the effect of age, we would want some LAs with a large percentage of claimants of working age, and others with a large percentage of elderly claimants. However, for each of the breakdowns, this proved not to be the case, as is shown below.

We first looked at the correlation between the disaggregated volumes of new claims and the new claims total. In each case we found there was a strong correlation. For example the results for volumes of working age new claims were as shown in Table E.11.

Table E.11 Regression of numbers of new claims from working age applicants against total numbers of new claims

. regress nc_watot nc, noc vce(r)

Linear regression				**Number of obs =**	**28**
				F(1, 27) =	**27000**
				Prob > F =	**0.0000**
				R-squared =	**0.999**
				Root MSE =	**250**

New claims_ watot	**Coefficient**	**Robust Standard Error**	**t**	**P>| t |**	**[95% Confidence Interval]**	
new claims	.90	.0055	160	0.000	.89	.91

This means that consistently across the 28 LAs for which the data was available, 90 per cent of the new claims were for working age claimants. In this case the correlation is almost perfect, with R^2 greater than 99.9 per cent. The analogous model for the number of passported claims shows that 59 per cent of claims are passported, with R^2 = 99.5 per cent. The results for tenancy type show lower R^2 values, but the correlations are strong overall:

Type	percent of all new claims %	R^2 %
LA housing	18%	78%
Private Rented Sector	31%	90%
Housing Association	24%	63%
Other	27%	62%

The analogous results for type of benefit are:

Type	percent of all new claims %	R^2 %
Joint HB and CTB	54%	99.8%
HB only	21%	94%
Housing Association	25%	97%

Even if there were an effect of one of these new claims breakdowns on the cost, we would be unable to see it, because there is too little variation across the LAs to make such an effect visible.

E.2 Analysis of bottom up costs

E.2.1 Total bottom up costs versus caseload

The regression model for total bottom up versus caseload is shown in Table E.12:

Table E.12 Regression of total bottom up against caseload

. regress tbu cl, vce(r)						
Linear regression					**Number of obs =**	**30**
					F(1, 28) =	**470**
					Prob > F =	**0.0000**
					R-squared =	**0.927**
					Root MSE =	**7.7e+05**
Total bottom up	**Coefficient**	**Robust Standard Error**	**t**	**P>| t |**	**[95% Confidence Interval]**	
caseload	120	5.4	22	0.000	106	128
_cons	270000	130000	2.0	0.052	–1900	540000

The constant term is not significantly different from zero. The model with the constant set to zero is shown in Table E.13.

Table E.13 Regression of total bottom up against caseload, with constant term set to zero

. regress tbu cl, noc vce(r)						
Linear regression					**Number of obs =**	**30**
					F(1, 29) =	**400**
					Prob > F =	**0.0000**
					R-squared =	**0.958**
					Root MSE =	**7.8e+05**
Total bottom up	**Coefficient**	**Robust Standard Error**	**t**	**P>| t |**	**[95% Confidence Interval]**	
cl	120	6.2	20	0.000	111	136

E.2.2 Total bottom up Costs versus Numbers of new claims and change of circumstances

The regression models for total bottom up versus new claims and then change of circumstances, with and without a constant are shown below.

Table E.14 Regression of total bottom up against new claims volume

. regress tbu nc, vce(r)						
Linear regression					**Number of obs =**	**30**
					F(1, 28) =	**290**
					Prob > F =	**0.0000**
					R-squared =	**0.894**
					Root MSE =	**9.2e+05**
Total bottom up	**Coefficient**	**Robust Standard Error**	**t**	**P>| t |**	**[95% Confidence Interval]**	
new claims	350	20	17	0.000	306	390
_cons	84000	150000	0.57	0.57	–220000	380000

Table E.15 Regression of total bottom up against new claims volume, with constant term set to zero

. regress tbu nc, noc vce(r)

Linear regression					**Number of obs =**	**30**
					F(1, 29) =	**350**
					Prob > F =	**0.0000**
					R-squared =	**0.944**
					Root MSE =	**9.1e+05**
Total bottom up	**Coefficient**	**Robust Standard Error**	**t**	**P>| t |**	**[95% Confidence**	**Interval]**
new claims	354	19	19	0.000	315	393

Table E.16 Regression of total bottom up against change of circumstances volume

. regress tbu coc, vce(r)

Linear regression					**Number of obs =**	**30**
					F(1, 28) =	**28**
					Prob > F =	**0.0000**
					R-squared =	**0.754**
					Root MSE =	**1.4e+06**
Total bottom up	**Coefficient**	**Robust Standard Error**	**t**	**P>| t |**	**[95% Confidence**	**Interval]**
coc	63	12	5.3	0.000	39	88
_cons	350000	280000	1.3	0.21	–210000	920000

Table E.17 Regression of total bottom up against change of circumstances volume, with constant term set to zero

. regress tbu coc, noc vce(r)

Linear regression					**Number of obs =**	**30**
					F(1, 29) =	**51**
					Prob > F =	**0.0000**
					R-squared =	**0.865**
					Root MSE =	**1.4e+06**
Total bottom up	**Coefficient**	**Robust Standard Error**	**t**	**P>| t |**	**[95% Confidence**	**Interval]**
coc	68	9.6	7.1	0.000	48	88

The correlations are good, but not quite as good as those with caseload. When new claims and change of circumstances are put into the model simultaneously the results are as follows.

Table E.18 Regression of total bottom up against new claims and change of circumstances volumes

. regress tbu nc coc, vce(r)

Linear regression

Number of obs =	**30**
F(2, 27) =	**190**
Prob > F =	**0.0000**
R-squared =	**0.895**
Root MSE =	**9.4e+05**

Total bottom up	**Coefficient**	**Robust Standard Error**	**t**	**P>| t |**	**[95% Confidence Interval]**	
new claims	370	82	4.6	0.000	210	540
coc	–5.5	17	–0.33	0.75	–40	29
_cons	92000	130000	0.69	0.50	–180000	370000

Table E.19 Regression of total bottom up against new claims and change of circumstances volumes, with constant term set to zero

. regress tbu nc coc, noc vce(r)

Linear regression

Number of obs =	**30**
F(2, 28) =	**203**
Prob > F =	**0.0000**
R-squared =	**0.944**
Root MSE =	**9.2e+05**

Total bottom up	**Coefficient**	**Robust Standard Error**	**t**	**P>| t |**	**[95% Confidence Interval]**	
new claims	380	78	4.8	0.000	220	540
coc	–5.2	17	–0.31	0.76	–39	29

The change of circumstances coefficient is not significantly different from zero. This is likely to be because of the good correlation between new claims and change of circumstances volumes. The same is true for the result of putting caseload, new claims and change of circumstances together in a single regression model:

Table E.20 Regression of total bottom up against caseload, new claims, and change of circumstances

. regress tbu cl nc coc, vce(r)

Linear regression				**Number of obs =**	**30**
				F(3, 26) =	**340**
				Prob > F =	**0.0000**
				R-squared =	**0.933**
				Root MSE =	**7.6e+05**

Total bottom up	**Coefficient**	**Robust Standard Error**	**t**	**P>| t |**	**[95% Confidence Interval]**	
caseload	140	38	3.5	0.002	57	210
new claims	–140	180	–0.77	0.45	–500	230
coc	18	16	1.1	0.26	–14	50
_cons	260000	130000	2.1	0.051	–1000	520000

Table E.21 Regression of total bottom up against caseload, new claims, and change of circumstances with constant term set to zero

. regress tbu cl nc coc, noc vce(r)

Linear regression				**Number of obs =**	**30**
				F(3, 27) =	**210**
				Prob > F =	**0.0000**
				R-squared =	**0.962**
				Root MSE =	**7.7e+05**

Total bottom up	**Coefficient**	**Robust Standard Error**	**t**	**P>| t |**	**[95% Confidence Interval]**	
caseload	130	38	3.4	0.002	49	200
new claims	–89	170	–0.51	0.61	–440	270
coc	17	16	1.1	0.30	–16	51

E.2.3 Total bottom up costs versus caseload and LA classification

In the models below we regress total bottom up costs against caseload and the three LA classifications in turn. In each case where the constant term is retained, the resulting constant is not significantly different from zero.

Table E.22 Regression of total bottom up against caseload and ONS classification

. xi: regress tbu cl i.ons, vce(r)
i.ons _Ions_1-10 (_Ions_7 for ons==Prospering_Smaller_Towns omitted)
Linear regression

Number of obs =	**30**
F(7,19) =	**-**
Prob > F =	**-**
R-squared =	**0.971**
Root MSE =	**5.9e+05**

Total bottom up	Coefficient	Robust Standard Error	t	P>| t |	[95% Confidence	Interval]
cl	110	7	16	0.000	99	130
_Ions_1	130000	1400000	0.93	0.37	−160000	430000
_Ions_2	−920000	130000	−6.9	0.000	−1200000	−640000
_Ions_3	110000	150000	0.70	0.49	−210000	430000
_Ions_4	1900000	590000	3.1	0.005	620000	3100000
_Ions_5	33000	460000	0.07	0.94	−940000	1000000
_Ions_6	−270000	10000	−2.7	0.015	−480000	−57000
_Ions_8	83000	110000	0.74	0.47	−150000	320000
_Ions_9	170000	41000	0.42	0.68	−690000	1000000
_Ions_10	1400000	560000	2.5	0.024	200000	2600000
_cons	85000	110000	0.78	0.45	−140000	310000

Table E.23 Regression of total bottom up against caseload and ONS classification with constant term set to zero

. xi: regress tbu cl i.ons, noc vce(r)
i.ons _Ions_1-10 (_Ions_7 for ons==Prospering_Smaller_Towns omitted)
Linear regression

Number of obs =	**30**
F(7 , 20) =	**-**
Prob > F =	**-**
R-squared =	**0.985**
Root MSE =	**5.7e+05**

Total bottom up	Coefficient	Robust Standard Error	t	P>| t |	[95% Confidence	Interval]
cl	120	6.9	17	0.000	100	130
_Ions_1	210000	110000	1.9	0.073	−22000	450000
_Ions_2	−850000	130000	−6.4	0.000	−1100000	−570000
_Ions_3	180000	160000	1.2	0.27	−150000	510000
_Ions_4	1900000	570000	3.4	0.003	730000	3100000
_Ions_5	110000	430000	0.25	0.81	−790000	1000000
_Ions_6	−190000	68000	−2.75	0.012	−330000	−45000
_Ions_8	170000	67000	2.5	0.023	26000	310000
_Ions_9	220000	400000	0.56	0.58	−610000	1000000
_Ions_10	1500000	550000	2.6	0.016	300000	2600000

Table E.24 Regression of total bottom up against caseload and region

. xi: regress tbu cl i.gor, vce(r)
i.gor _Igor_1-11 (_Igor_8 for gor==South_East omitted)
Linear regression Number of obs = 30
F(10, 18) = -
Prob > F = -
R-squared = 0.960
Root MSE = 7.1e+05

Total bottom up	Coefficient	Robust Standard Error	t	P>| t |	[95% Confidence Interval]	
cl	110	5.8	20	0.000	100	127
_Igor_1	90000	250000	0.37	0.72	–430000	610000
_Igor_2	–120000	180000	–0.64	0.53	–500000	270000
_Igor_3	1300000	400000	3.1	0.006	410000	2100000
_Igor_4	1200000	1100000	1.1	0.28	–11000	3500000
_Igor_5	–290000	150000	–2.0	0.07	–590000	22000
_Igor_6	93000	220000	0.42	0.68	–370000	550000
_Igor_7	–130000	260000	–0.49	0.63	–680000	420000
_Igor_9	–370000	350000	–1.1	0.30	–1100000	360000
_Igor_10	25000	130000	0.19	0.85	–240000	290000
_Igor_11	220000	1000000	0.21	0.83	–2000000	2400000
_cons	140000	130000	1.2	0.27	–120000	410000

Table E.25 Regression of total bottom up against caseload and region with constant term set to zero

. xi: regress tbu cl i.gor, noc vce(r)
i.gor _Igor_1-11 (_Igor_8 for gor==South_East omitted)
Linear regression Number of obs = 30
F(10, 19) = -
Prob > F = -
R-squared = 0.979
Root MSE = 6.9e+05

Total bottom up	Coefficient	Robust Standard Error	t	P>| t |	[95% Confidence Interval]	
cl	120	5.6	20.5	0.000	100	130
_Igor_1	230000	210000	1.07	0.30	–220000	680000
_Igor_2	25000	140000	0.2	0.86	–270000	320000
_Igor_3	1400000	380000	3.6	0.002	590000	2200000
_Igor_4	1400000	1100000	1.3	0.219	–870000	3600000
_Igor_5	–150000	120000	–1.2	0.23	–400000	110000
_Igor_6	230000	180000	1.3	0.22	–150000	620000
_Igor_7	–5300	250000	–0.02	0.98	–530000	520000
_Igor_8	–230000	320000	0.7	0.48	–920000	440000
_Igor_10	160000	70000	2.4	0.030	18000	310000
_Igor_11	340000	1000000	0.3	0.74	–180000	250000

Table E.26 Regression of total bottom up against caseload and LA type

. xi: regress tbu cl i.latype, vce(r)
i.latype _Ilatype_1-6 (_Ilatype_4 for lat~e==Shire_District omitted)
Linear regression Number of obs = 30
F(6, 23) = 265
Prob > F = 0.000
R-squared = 0.960
Root MSE = 6.3e+05

Total bottom up	Coefficient	Robust Standard Error	t	P>| t |	[95% Confidence Interval]	
cl	110	5.2	22	0.000	100	130
_Ilatype_1	1200000	440000	2.8	0.009	330000	2100000
_Ilatype_2	220000	920000	0.24	0.82	−170000	2100000
_Ilatype_3	−130000	220000	−0.61	0.55	−590000	320000
_Ilatype_5	−130000	150000	−0.88	0.39	−450000	180000
_Ilatype_6	−380000	300000	−1.3	0.21	−990000	230000
_cons	150000	73000	2.1	0.051	−670	300000

Table E.27 Regression of total bottom up against caseload and LA type with constant term set to zero

. xi: regress tbu cl i.latype, noc vce(r)
i.latype _Ilatype_1-6 (_Ilatype_4 for lat~e==Shire_District omitted)
Linear regression Number of obs = 30
F(6, 24) = 350
Prob > F = 0.0000
R-squared = 0.978
Root MSE = 6.2e+05

Total bottom up	Coefficient	Robust Standard Error	t	P>| t |	[95% Confidence Interval]	
cl	120	5.1	23	0.000	110	130
_Ilatype_1	1400000	430000	3.2	0.004	470000	2200000
_Ilatype_2	300000	920000	0.32	0.75	−1600000	2200000
_Ilatype_3	−48000	220000	−0.22	0.83	−490000	400000
_Ilatype_5	−14000	160000	−0.09	0.93	−340000	310000
_Ilatype_6	−240000	290000	−0.84	0.41	−840000	360000

The values of R^2, for the models with no constant are:

Table E.28 R^2 values for regressions of total bottom up

Independent variables	R^2 %
Caseload	95.8
Caseload, ONS	98.5
Caseload, GOR	97.9
Caseload, LA type	97.8
ONS	62.7
GOR	45.5
LA type	45.8

The inclusion of each of the classifications improves the regression model compared with that using caseload only, but the improvement is necessarily small, given that the caseload only correlation is already high.

The table also includes the values obtained by regressing total bottom up against only the LA classifications. They are considerably reduced, showing the importance of caseload. Of the three, the ONS classification is the best predictor of total bottom up costs.

Table E.29 Regression of total bottom up against ONS classifications

. xi: regress tbu i.ons, vce(r)
i.ons _Ions_1-10 (_Ions_7 for ons==Prospering_Smaller_Towns omitted)

Linear regression					**Number of obs =**	**30**
					F(6, 20) =	**-**
					Prob > F =	**-**
					R-squared =	**0.627**
					Root MSE =	**2.1e+06**
Total bottom up	**Coefficient**	**Robust Standard Error**	**t**	**P>| t |**	**[95% Confidence**	**Interval]**
_Ions_1	170000	190000	0.93	0.36	−210000	560000
_Ions_2	500000	140000	3.5	0.002	200000	790000
_Ions_3	1900000	140000	14	0.000	1600000	2200000
_Ions_4	3800000	1100000	3.4	0.003	1400000	6100000
_Ions_5	1700000	650000	2.6	0.016	350000	3100000
_Ions_6	75000	140000	0.53	0.60	−220000	370000
_Ions_8	−56000	170000	−0.33	0.75	−410000	300000
_Ions_9	6300000	2600000	2.4	0.025	880000	1.2e+07
_Ions_10	3200000	530000	6.0	0.000	2100000	4300000
_cons	880000	140000	6.3	0.000	580000	1200000

Table E.30 Regression of total bottom up against region

. xi: regress tbu i.gor, vce(r)						
i.gor _Igor_1-11			(_Igor_8 for gor==South_East omitted)			
Linear regression				Number of obs =		30
				F(9, 19) =		-
				Prob > F =		-
				R-squared =		0.455
				Root MSE =		2.5e+06
Total bottom up	Coefficient	Robust Standard Error	t	P>| t |	[95% Confidence	Interval]
_Igor_1	260000	190000	1.4	0.19	−140000	650000
_Igor_2	−190000	210000	−0.92	0.37	−640000	250000
_Igor_3	2800000	450000	6.4	0.000	1900000	3800000
_Igor_4	3400000	1400000	2.4	0.027	420000	6400000
_Igor_5	1300000	160000	8.1	0.000	980000	1700000
_Igor_6	22000	260000	0.09	0.93	−520000	560000
_Igor_7	4000000	2900000	1.4	0.19	2200000	1.0e+07
_Igor_9	25000	250000	0.10	0.92	490000	540000
_Igor_10	360000	500000	0.72	0.48	690000	1400000
_Igor_11	4700000	2200000	2.1	0.046	95000	9300000
_cons	990000	160000	6.0	0.000	640000	1300000

Table E.31 Regression of total bottom up against LA type

. xi: regress tbu i.latype, vce(r)						
i.latype _Ilatype_1-6			(_Ilatype_4 for lat~e==Shire_District omitted)			
Linear regression				Number of obs =		30
				F(5, 24) =		64
				Prob > F =		0.0000
				R-squared =		0.46
				Root MSE =		2.3e+06
Total bottom up	Coefficient	Robust Standard Error	t	P>| t |	[95% Confidence	Interval]
_Ilatype_1	3100000	570000	5.4	0.000	1900000	4200000
_Ilatype_2	4700000	2000000	2.4	0.024	680000	8800000
_Ilatype_3	4000000	2600000	1.5	0.14	−1400000	9400000
_Ilatype_5	1300000	82000	16	0.000	1100000	1500000
_Ilatype_6	40000	180000	0.22	0.83	−340000	420000
_cons	970000	78000	12	0.000	810000	1100000

E.2.4 New claims costs

Of the workload areas, assessing new claims and assessing non-bulk changes of circumstances were the ones studied in most detail. The first regression model we looked at in this area was the bottom up cost of new claims versus the volume of new claims. In this and the following section, all the regression models shown have the constant set to zero – models with a constant allowed having demonstrated that the constant is not significantly different from zero.

Table E.32 Regression of new claims cost against new claims volume

. regress bu_nc nc, vce(r)						
Linear regression					**Number of obs =**	**30**
					F(1, 28) =	**4.3**
					Prob > F =	**0.046**
					R-squared =	**0.527**
					Root MSE =	**1.8e+05**
Bottom up_ new claims	**Coefficient**	**Robust Standard Error**	**t**	**P>| t |**	**[95% Confidence Interval]**	
new claims	25	12	2.1	0.046	.43	49
_cons	–17000	59000	–0.29	0.78	–140000	100000

Table E.33 Regression of new claims cost against new claims volume, with constant term set to zero

. regress bu_nc nc, noc vce(r)						
Linear regression					**Number of obs =**	**30**
					F(1, 29) =	**8.5**
					Prob > F =	**0.0067**
					R-squared =	**0.660**
					Root MSE =	**1.8e+05**
Bottom up_ new claims	**Coefficient**	**Robust Standard Error**	**t**	**P>| t |**	**[95% Confidence Interval]**	
new claims	24	8.2	2.9	0.007	7.2	40

The results shown in Table E.33 can be interpreted as meaning that each new claim is typically associated with a assessing cost of £(24 ± 17). The uncertainty band is wide here because the correlation is less strong (R^2 = 66 per cent). We have shown above that caseload is strongly correlated with the new claims volumes, so we tried caseload as a predictor of the costs of assessing new claims.

Table E.34 Regression of new claims costs with caseload, with constant term set to zero

. regress bu_nc nc, noc vce(r)						
Linear regression					**Number of obs =**	**30**
					F(1, 29) =	**14**
					Prob > F =	**0.0009**
					R-squared =	**0.747**
					Root MSE =	**1.5e+6**
Bottom up_new claims	**Coefficient**	**Robust Standard Error**	**t**	**P>| t |**	**[95% Confidence Interval]**	
new claims	8.8	2.4	3.7	0.001	3.9	14

As Table E.34 shows, the correlation is better in this instance, with R^2 = 75 per cent. The results suggest that for each item of caseload, the typical spend on processing new claims is £(8.8 ± 4.9).

E.2.5 Change of circumstances costs

The following are similar calculations, this time for the costs of processing change of circumstances.

Table E.35 Regression of change of circumstances costs against change of circumstances volumes

. regress bu_coc coc, vce(r)						
Linear regression					**Number of obs =**	**30**
					F(1, 28) =	**7.0**
					Prob > F =	**0.013**
					R-squared =	**0.598**
					Root MSE =	**2.6e+05**
Bottom up_coc	**Coefficient**	**Robust Standard Error**	**t**	**P>| t |**	**[95% Confidence Interval]**	
coc	8.0	3.0	2.6	0.013	1.8	14
_cons	41000	72000	0.57	0.58	–110000	190000

Table E.36 Regression of change of circumstances costs against change of circumstances volumes, with constant term set to zero

. regress bu_coc coc, noc vce(r)						
Linear regression					**Number of obs =**	**30**
					F(1, 29) =	**15**
					Prob > F =	**0.0006**
					R-squared =	**0.76**
					Root MSE =	**2.5e+06**
Bottom up_coc	**Coefficient**	**Robust Standard Error**	**t**	**P>| t |**	**[95% Confidence Interval]**	
coc	8.6	2.2	3.9	0.001	4.0	13

Each change process is typically associated with a cost of £(8.6 ± 4.6). The regression against caseload is:

Table E.37 Regression of change of circumstances costs against caseload, with constant term set to zero

. regress bu_coc cl, noc vce(r)

Linear regression					**Number of obs =**	**30**
					F(1, 29) =	**82**
					Prob > F =	**0.0000**
					R-squared =	**0.880**
					Root MSE =	**1.8e+05**
Bottom up_coc	**Coefficient**	**Robust Standard Error**	**t**	**P>| t |**	**[95% Confidence Interval]**	
caseload	16	1.7	9.1	0.000	12	19

As with new claims, using caseload rather than the volumes improves R^2, from 76 per cent to 88 per cent. For each item of caseload, the typical cost of assessing non-bulk change of circumstances is £(16 ± 4).

E.2.6 Other workload areas versus caseload

The total costs associated with the workload areas other than processing new claims and change of circumstances, were regressed against caseload. In most, though not all, cases, when a constant is included it is not significantly different from zero. The four exceptions are those italicised in the table below. The models without the constant give the following results[69].

Table E.38 Regressions of workload areas against caseload

Workload area	**R^2 %**	**Slope**	**+/– 95%**
Appeals	81	£3.8	£0.64
Benefits Management	94	£14	£2.2
Bulk change of circumstances	69	£0.36	£0.09
Changes in Regulations	38	£1.6	£2.2
Checking and QA	70	£3.4	£1.1
Payments	49	£1.1	£0.71
Customer Services	61	£22	£12
DIPS	64	£7.9	£6.5
Counter Fraud	92	£9.7	£1.1
HBMS	68	£1.1	£0.84
IT	71	£10	£6.0
Miscellaneous	59	£6.7	£6.3
Overpayments recovery	86	£5.2	£1.5
Reviews	52	£2.7	£2.3
Subsidy	67	£1.1	£0.30
Take-up	33	£0.31	£0.20
Training	74	£6.3	£3.4
Welfare	78	£2.3	£0.92

69 The detailed Stata tables for these models are not given here, as they are very large.

E.2.7 Other workload area costs versus volumes

For four of the other workload areas, namely fraud, appeals, payments and reviews, we have some volume-related metrics. These can be tested as drivers of the costs of these respective activities.

Fraud volumes

To begin with, we looked at how the volume of fraud cases depends on caseloads. Below we show the results of the regression models, with a fitted intercept (that is, the constant term in the regression model determined by the modelling) and with the intercept fixed at zero. This shows that the volume of fraud cases is reasonably well correlated with caseload, with the number of fraud investigations being typically (2.3 ± 0.4) per cent of the caseload.

Table E.39 Regression of fraud investigation numbers against caseload

. regress vol_fraudcase cl, vce(r)						
Linear regression					**Number of obs =**	**26**
					F(1, 24) =	**170**
					Prob > F =	**0.0000**
					R-squared =	**0.561**
					Root MSE =	**370**
vol_fraudc~e	**Coefficient**	**Robust Standard Error**	**t**	**P>| t |**	**[95% Confidence Interval]**	
caseload	.017	.0013	13	0.000	.015	.020
_cons	270	82	3.3	0.003	99	440

Table E.40 Regression of fraud investigation numbers against caseload, with constant term set to zero

. regress vol_fraudcase cl, noc vce(r)						
Linear regression					**Number of obs =**	**26**
					F(1, 25) =	**140**
					Prob > F =	**0.0000**
					R-squared =	**0.743**
					Root MSE =	**420**
vol_fraudc~e	**Coefficient**	**Robust Standard Error**	**t**	**P>| t |**	**[95% Confidence Interval]**	
caseload	.023	.0020	12	0.000	.019	.027

The correlation between fraud costs and number of fraud investigations is shown below in Table E.41 and Table E.42. Again there is a reasonable degree of correlation. From the regression shown in Table E.42, the marginal cost per fraud investigation is £(340 ± 110).

Table E.41 Regression of counter-fraud costs against numbers of fraud investigations

. regress bu_fraud vol_fraudcase, vce(r)

Linear regression					**Number of obs =**	**26**
					F(1, 24) =	**12**
					Prob > F =	**0.0023**
					R-squared =	**0.589**
					Root MSE =	**1.4e+05**
bu_fraud	**Coefficient**	**Robust Standard Error**	**t**	**P>| t |**	**[95% Confidence**	**Interval]**
vol_fraudc~e	300	89	3.4	0.002	120	490
_cons	43000	44000	0.96	0.35	−49000	130000

Table E.42 Regression of counter-fraud costs against numbers of fraud investigations, with constant term set to zero

. regress bu_fraud vol_fraudcase, noc vce(r)

Linear regression					**Number of obs =**	**26**
					F(1, 25) =	**40**
					Prob > F =	**0.0000**
					R-squared =	**0.799**
					Root MSE =	**1.4e+05**
bu_fraud	**Coefficient**	**Robust Standard Error**	**t**	**P>| t |**	**[95% Confidence**	**Interval]**
vol_fraudc~e	340	54	6.4	0.000	230	450

Appeals volumes

We then carried out the same analysis for the volumes of appeals. There is a good correlation with caseload, with the volume of appeals being typically (2.1 ± 0.4) per cent of the caseload.

Table E.43 Regression of volume of appeals against caseload

. regress vol_appeal cl, vce(r)

Linear regression					**Number of obs =**	**25**
					F(1, 23) =	**160**
					Prob > F =	**0.0000**
					R-squared =	**0.785**
					Root MSE =	**300**
vol_appeal	**Coefficient**	**Robust Standard Error**	**t**	**P>| t |**	**[95% Confidence**	**Interval]**
caseload	.023	.0018	13	0.000	.019	.027
_cons	−100	58	−1.8	0.09	−220	17

Table E.44 Regression of volume of appeals against caseload, with constant term set to zero

. regress vol_appeal cl, noc vce(r)						
Linear regression					Number of obs =	25
					F(1, 24) =	110
					Prob > F =	0.0000
					R-squared =	0.830
					Root MSE =	310
vol_appeal	Coefficient	Robust Standard Error	t	P>| t |	[95% Confidence	Interval]
caseload	0.021	0.0020	11	0.000	.017	.025

The correlation between appeals costs and volumes is slightly better than that between the costs and caseloads. The marginal cost of an appeal, based on the model without a constant term, is £(170 ± 50).

Table E.45 Regression of cost of appeals against volume of appeals

. regress bu_appeal vol_appeal, vce(r)						
Linear regression					Number of obs =	25
					F(1, 23) =	33
					Prob > F =	0.0000
					R-squared =	0.801
					Root MSE =	48000
bottom up_ appeal	Coefficient	Robust Standard Error	t	P>| t |	[95% Confidence	Interval]
vol_appeal	150	26	5.7	0.000	94	200
_cons	29000	8000	3.6	0.001	12000	45000

Table E.46 Regression of cost of appeals against volume of appeals, with constant term set to zero

. regress bu_appeal vol_appeal, noc vce(r)						
Linear regression					Number of obs =	25
					F(1, 24) =	50
					Prob > F =	0.0000
					R-squared =	0.845
					Root MSE =	53000
bottom up_ appeal	Coefficient	Robust Standard Error	t	P>| t |	[95% Confidence	Interval]
vol_appeal	170	24	7.1	0.000	120	220

Payments volumes

We carried out a similar analysis for numbers of payments made. The correlation with caseload is not strong. The regression result is that there are typically (1.7 ± 1.0) payments per item of caseload. The lack of correlation between numbers of payments made and caseload suggests that there is considerable variation between one or both of the following the:

- average size of RSLs; because payments for all tenants are made to the RSL, in a number of large, single payments, whereas private sector tenants generally have payment made directly to the claimant. Where RSLs are larger, the numbers of payments made is likely to be fewer;
- payment schemes used – that is, whether claimants are paid weekly, or at longer intervals such as four-weekly.

Table E.47 Regression of volume of payments against caseload

. regress vol_pay cl, vce(r)

Linear regression					**Number of obs =**	**23**
					F(1, 21) =	**5.1**
					Prob > F =	**0.035**
					R-squared =	**0.265**
					Root MSE =	**46000**
vol_pay	**Coefficient**	**Robust Standard Error**	**t**	**P>| t |**	**[95% Confidence**	**Interval]**
caseload	1.1	.47	2.3	0.035	.085	2.0
_cons	34000	8800	3.8	0.001	15000	52000

Table E.48 Regression of volume of payments against caseload, with constant term set to zero

. regress vol_pay cl, noc vce(r)

Linear regression					**Number of obs =**	**23**
					F(1, 22) =	**12**
					Prob > F =	**0.0019**
					R-squared =	**0.538**
					Root MSE =	**52000**
vol_pay	**Coefficient**	**Robust Standard Error**	**t**	**P>| t |**	**[95% Confidence**	**Interval]**
caseload	1.7	.49	3.5	0.002	.71	2.8

The regression models for payment costs versus payment volumes are shown below. The correlations are better than those for payment costs versus caseload. The marginal cost of a payment is £(0.38 ± 0.16), for those costs identified.

Table E.49 Regression of cost of payments against volume of payments

. regress bu_pay vol_pay, vce(r)

Linear regression				**Number of obs =**	**23**
				F(1, 21) =	**11**
				Prob > F =	**0.0036**
				R-squared =	**0.408**
				Root MSE =	**24000**
bu_pay	**Coefficient**	**Robust Standard Error**	**t**	**P>| t |**	**[95% Confidence Interval]**
vol_pay	.37	.11	3.3	0.004	.14 .61
_cons	590	70	0.09	0.93	–14000 15000

Table E.50 Regression of cost of payments against volume of payments, with constant term set to zero

. regress bu_pay vol_pay, noc vce(r)

Linear regression				**Number of obs =**	**23**
				F(1, 22) =	**24**
				Prob > F =	**0.0001**
				R-squared =	**0.606**
				Root MSE =	**23000**
bottom up_pay	**Coefficient**	**Robust Standard Error**	**t**	**P>| t |**	**[95% Confidence Interval]**
vol_pay	.38	.078	4.9	0.000	.22 .54

Reviews volumes

The analogous results for reviews are shown below. The number of reviews correlates poorly with the caseload; as noted in the main body of the report, this is consistent with fieldwork observations which suggested that the approaches taken to determining how many reviews to complete varied widely. Numbers of reviews predicted by this regression model are typically (9 ± 8) per cent of the caseload.

Table E.51 Regression of volume of reviews against caseload

. regress vol_review cl, vce(r)						
Linear regression					**Number of obs =**	**26**
					F(1, 24) =	**1.5**
					Prob > F =	**0.23**
					R-squared =	**0.106**
					Root MSE =	**3500**
vol_review	**Coefficient**	**Robust Standard Error**	**t**	**P>| t |**	**[95% Confidence Interval]**	
caseload	0.049	0.040	1.2	0.23	–.033	.13
_cons	1800	810	2.3	0.033	160	3500

Table E.52 Regression of volume of reviews against caseload, with constant term set to zero

. regress vol_review cl, noc vce(r)						
Linear regression					**Number of obs =**	**26**
					F(1, 25) =	**5.6**
					Prob > F =	**0.026**
					R-squared =	**0.353**
					Root MSE =	**3700**
vol_review	**Coefficient**	**Robust Standard Error**	**t**	**P>| t |**	**[95% Confidence Interval]**	
caseload	.087	0.036	2.4	0.026	0.011	.16

The costs of reviews correlates better with review volumes than with caseload. The marginal cost of a review is £(20 ± 13) (this does not include assessing any changes of circumstances identified as a result of the review).

Table E.53 Regression of cost of reviews against volume of reviews

. regress bu_review vol_review, vce(r)						
Linear regression					**Number of obs =**	**25**
					F(1, 23) =	**3.4**
					Prob > F =	**0.078**
					R-squared =	**0.365**
					Root MSE =	**73000**
bu_review	**Coefficient**	**Robust Standard Error**	**t**	**P>| t |**	**[95% Confidence Interval]**	
vol_review	15	8.0	1.8	0.078	–1.8	31
_cons	42	21000	2.0	0.057	–1400	85000

Table E.54 Regression of cost of reviews against volume of reviews, with constant term set to zero

. regress bu_review vol_review, vce(r)						
Linear regression					**Number of obs =**	**25**
					F(,) =	**10**
					Prob > F =	**0.0043**
					R-squared =	**0.600**
					Root MSE =	**78000**
bu_review	**Coefficient**	**Robust Standard Error**	**t**	**P>| t |**	**[95% Confidence Interval]**	
vol_review	20	6.5	3.2	0.004	7.1	34

E.3 Analysis of total top down costs

E.3.1 TDWA versus total bottom up Costs

The Top Down Workload Area (TDWA) cost is defined to be that part of the total top down costs that are comparable with the total bottom up costs (i.e. not including costs that cannot be allocated easily to specific workload areas, such as HR recharges and recharges for the Chief Executives office). The regression models for TDWA versus total bottom up are:

Table E.55 Regression of top down workload area cost against total bottom up cost

. regress tdwa tbu, vce(r)						
Linear regression					**Number of obs =**	**30**
					F(1, 28) =	**2500**
					Prob > F =	**0.0000**
					R-squared =	**0.988**
					Root MSE =	**3.3e+05**
tdwa	**Coefficient**	**Robust Standard Error**	**t**	**P>| t |**	**[95% Confidence Interval]**	
total bottom up	1.03	.020	50	.000	0.99	1.07
_cons	−34000	69000	−0.49	0.63	−170000	110000

Table E.56 Regression of top down workload area cost against total bottom up cost, with constant term set to zero

. regress tdwa tbu, noc vce(r)						
Linear regression					**Number of obs =**	**30**
					F(1, 29) =	**3100**
					Prob > F =	**0.0000**
					R-squared =	**0.993**
					Root MSE =	**3.2e+05**
tdwa	**Coefficient**	**Robust Standard Error**	**t**	**P>| t |**	**[95% Confidence Interval]**	
total bottom up	1.03	0.017	58.7	0.000	1.00	1.06

The first of these regression models includes a constant term, but it is not significantly different from zero. In the model with the constant term set to zero, the slope is (1.03 ± 0.03). It is therefore not significantly different from 1; that is, the total of bottom up costs is approximately equal to the top down workload area costs.

E.3.2 Total top down costs versus caseload and new claims and change of circumstances volumes

As with total bottom up, we regressed the total top down costs against caseload, new claims and change of circumstances. The results are as follows.

Table E.57 Regression of total top down cost against caseload

. regress ttd cl, vce(r)						
Linear regression					**Number of obs =**	**167**
					F(1, 165) =	**86**
					Prob > F =	**0.0000**
					R-squared =	**0.799**
					Root MSE =	**1.2e+06**
Total top down	**Coefficient**	**Robust Standard Error**	**t**	**P>| t |**	**[95% Confidence Interval]**	
caseload	157	17	9.3	0.000	124	190
_cons	68000	200000	0.34	0.74	−330000	470000

Table E.58 Regression of total top down cost against caseload, with constant term set to zero

. regress ttd cl, noc vce(r)

Linear regression					**Number of obs =**	**167**
					F(1, 166) =	**220**
					Prob > F =	**0.0000**
					R-squared =	**0.894**
					Root MSE =	**1.2e+06**
Total top down	**Coefficient**	**Robust Standard Error**	**t**	**P>| t |**	**[95% Confidence**	**Interval]**
caseload	159	11	15	0.000	138	180

Table E.59 Regression of total top down cost against volume of new claims

. regress ttd nc, vce(r)

Linear regression					**Number of obs =**	**141**
					F(1, 139) =	**85**
					Prob > F =	**0.0000**
					R-squared =	**0.759**
					Root MSE =	**1.4e+06**
Total top down	**Coefficient**	**Robust Standard Error**	**t**	**P>| t |**	**[95% Confidence**	**Interval]**
new claims	480	52	9.2	0.000	376	580
_cons	–330	210000	–0.00	0.999	–410000	4100000

Table E.60 Regression of total top down cost against new claims volume, with constant term set to zero

. regress ttd nc, noc vce(r)

Linear regression					**Number of obs =**	**141**
					F(1, 140) =	**210**
					Prob > F =	**0.0000**
					R-squared =	**0.874**
					Root MSE =	**1.4e+06**
Total top down	**Coefficient**	**Robust Standard Error**	**t**	**P>| t |**	**[95% Confidence**	**Interval]**
new claims	480	33	14	0.000	410	540

Table E.61 Regression of total top down cost against change of circumstances volume

. regress ttd coc, vce(r)						
Linear regression					**Number of obs =**	**141**
					F(1, 139) =	**48**
					Prob > F =	**0.00**
					R-squared =	**0.8**
					Root MSE =	**2**
Total top down	**Coefficient**	**Robust Standard Error**	**t**	**P>| t |**	**[95% Confidence Interval]**	
coc	86	12	6.9	0.000	61	110
_cons	310000	260000	1.2	0.23	–200000	810000

Table E.62 Regression of total top down cost against change of circumstances volume, with constant term set to zero

. regress ttd coc, noc vce(r)						
Linear regression					**Number of obs =**	**141**
					F(1, 140) =	**120**
					Prob > F =	**0.0000**
					R-squared =	**0.84**
					Root MSE =	**1.5e+06**
Total top down	**Coefficient**	**Robust Standard Error**	**t**	**P>| t |**	**[95% Confidence Interval]**	
coc	91	8	11	0.000	75	107

In terms of the R^2 value, the caseload models are slightly better than those based on new claims or change of circumstances. In addition, the caseload models are based on 167 LAs, while the other two have only 141 LAs. For these reasons, we choose caseload as the main independent variable in our regression models for the total top down costs. With R^2 = 89 per cent, it is striking just how much of the variation in total top down is accounted for simply by variations in the caseload. The prediction of the model with the constant term fixed at zero is that the marginal cost of a caseload item, in total top down terms, is £(159 ± 21); that is, for every additional item of caseload (essentially an extra claimant) total top down costs at the national level increase by between £138 and £180.

To look for possible economies or diseconomies of scale, we also looked at a power law regression model of the form.

Total top down = b x $(\text{caseload})^a$

To do this in Stata, we regressed ln(total top down) against ln(caseload).

Table E.63 Regression to explore economies of scale

. regress logttd logcl, vce(r)

Linear regression				**Number of obs =**	**167**
				F(1, 165) =	**430**
				Prob > F =	**0.000**
				R-squared =	**0.839**
				Root MSE =	**.31**

logttd	**Coefficient**	**Robust Standard Error**	**t**	**P>| t |**	**[95% Confidence Interval]**	
logcl	.92	0.044	21	0.000	0.83	1.01
_cons	5.8	.41	14	0.000	5.0	6.6

The power is a = (0.92 ± 0.09). That is, there is a probability of 95 per cent that it lies between 0.83 and 1.01. We cannot rule out a = 1, and therefore cannot say that there are either economies or diseconomies of scale.

To test the comparability of these analyses, carried out with 167 LAs, with the previous analyses involving only 30 LAs, we reran the total top down versus caseload regression models with only the 30 LAs from the depth study. The results are as follows.

Table E.64 Regression of total top down cost against caseload for depth study LAs only

. regress ttd cl, vce(r)

Linear regression				**Number of obs =**	**30**
				F(1, 28) =	**160**
				Prob > F =	**0.0000**
				R-squared =	**0.841**
				Root MSE =	**1.4e+06**

Total top down	**Coefficient**	**Robust Standard Error**	**t**	**P>| t |**	**[95% Confidence Interval]**	
caseload	135	11	13	0.000	110	160
_cons	600000	240000	2.4	0.022	90000	1100000

Table E.65 Regression of total top down cost against caseload for depth study LAs only, with constant term set to zero

. regress ttd cl, noc vce(r)

Linear regression					**Number of obs =**	**30**
					F(1, 29) =	**140**
					Prob > F =	**0.0000**
					R-squared =	**0.910**
					Root MSE =	**1.4e+06**
Total top down	**Coefficient**	**Robust Standard Error**	**t**	**P>| t |**	**[95% Confidence**	**Interval]**
Caseload	148	12.5	11.8	0.000	123	173

The model without the constant term predicts a slope (or marginal unit cost) of £(148 ± 25), compared with a slope of £(159 ± 21) obtained from all the 167 LAs with a total top down. This indicates that, at least as far as total top down and caseload are concerned, the 30 LAs in the fieldwork are a representative sample of the wider population of LAs.

E.4 The effect of LA characteristics on total top down costs

Although caseload captures most of the total top down variation, we also investigated if the qualitative characteristics of the LAs had an effect on the total top down costs. The LAs are classified in three ways by:

1 Region.

2 LA type.

3 ONS classification.

E.4.1 Effect of region, LA type and ONS classification

As described above, the regions are as follows.

1 East Midlands.

2 Eastern.

3 Greater London.

4 Inner London.

5 North East.

6 North West.

7 Scotland.

8 South East.

9 South West.

10 Wales.

11 West Midlands.

12 Yorkshire and Humberside.

We first looked at whether caseload varied significantly across these regions. The regression analysis shown below has indicator variables for each of them.

Table E.66 Regression of caseload against region

. xi: regress cl i.gor, vce(r)
i.gor _Igor_1-12 (_Igor_8 for gor ==South_East omitted)
Linear regression Number of obs = 374
F(11, 362) = 13
Prob > F = 0.0000
R-squared = 0.180
Root MSE = 14000

Caseload	Coefficient	Robust Standard Error	t	P>| t |	[95% Confidence Interval]	
_Igor_1	850	1500	0.56	0.58	−2200	3900
_Igor_2	750	960	0.78	0.44	−1100	2600
_Igor_3	16000	2200	7.1	0.000	12000	20000
_Igor_4	20000	3100	6.3	0.000	14000	26000
_Igor_5	18000	4000	4.5	0.000	10000	26000
_Igor_6	11000	2700	4.0	0.000	5500	16000
_Igor_7	9400	3700	2.6	0.011	2200	17000
_Igor_9	3300	2000	1.6	0.10	−670	7300
_Igor_10	5800	1900	3.2	0.002	2200	9500
_Igor_11	10000	5000	2.1	0.040	490	20000
_Igor_12	16000	4500	3.6	0.000	7300	25000
_cons	9500	690	14	0.000	8200	11000

LAs in the base case, the South East, have a typical caseload of around 9500. Three other regions do not differ significantly from this value: East Midlands (1), Eastern (2) and South West (9). All of the other regions have caseload values that are significantly higher. In each case, the typical excess is given by the coefficient in the regression model. For example, the highest value is for Inner London, where the additional caseload, above the base value, is 20,000.

The regions were then added to the regression model for total top down based on caseload and zero intercept.

Table E.67 Regression of total top down cost against caseload and region, with constant term set to zero

.xi: regress ttd cl i.gor, noc vce(r)
i.gor _Igor_1-12 (_Igor_8 for gor==South_East omitted)
Linear regression Number of obs = 167
F(12, 155) = 150
Prob > F = 0.0000
R-squared = 0.915
Root MSE = 1.1e+06

Total top down	Coefficient	Robust Standard Error	t	P>| t |	[95% Confidence Interval]	
Caseload	160	16	10	0.000	130	190
_Igor_1	–89000	130000	–0.69	0.49	–350000	170000
_Igor_2	72000	190000	0.37	0.71	–310000	460000
_Igor_3	1200000	550000	2.1	0.035	86000	2300000
_Igor_4	1400000	460000	3.0	0.004	450000	2300000
_Igor_5	–1000000	540000	–1.9	0.065	–2100000	63000
_Igor_6	390000	320000	1.2	0.22	–240000	1000000
_Igor_7	–810000	500000	–1.6	0.11	–1800000	180000
_Igor_9	330000	270000	–1.2	0.22	–200000	850000
_Igor_10	–500000	250000	–2.0	0.051	–1000000	1900
_Igor_11	–110000	290000	–0.38	0.71	–690000	470000
_Igor_12	210000	730000	0.28	0.78	–1200000	1600000

The predicted value for the total top down of LAs in the South East is simply caseload multiplied by the caseload coefficient (in this case £160). For an LA in any other region the prediction is the South East value for the same caseload plus the coefficient associated with the region. Note however, that before using these coefficients, they must be shown to be significantly different from zero. For significance at the five per cent level, the value in the P>|t| column should be less than 0.05.

Two of the regions, Greater London (3) and Inner London (4), have coefficients that are significantly different from zero at the five per cent level. The values are +£1.2M and +£1.4M respectively. This means, for example, for a given caseload, the total top down costs in Greater London will typically be £1.2M more than in the South East. Almost significant at the five per cent level are the negative coefficients for the North East and Wales, –£1.0M and –£0.5M, respectively. This may reflect higher costs of employment in London, together with higher costs of office accommodation.

The six LA types are:

1 London Borough.

2 Metropolitan.

3 Scottish Unitary.

4 Shire District.

5 Unitary.

6 Welsh Unitary.

The regression model is as follows.

Table E.68 Regression of total top down cost against caseload and LA type, with constant term set to zero

.xi: regress ttd cl i.latype, noc vce(r)

i.latype _Ilatype_1-6 (_Ilatype_4 for lat~e==Shire_District omitted)

Linear regression

Number of obs =	**167**
F(6, 161) =	**157**
Prob > F =	**0.0000**
R-squared =	**0.911**
Root MSE =	**1.1e+06**

Total top down	Coefficient	Robust Standard Error	t	P>| t |	[95% Confidence	Interval]
Caseload	156	15	11	0.000	130	190
_Ilatype_1	1200000	450000	2.8	0.006	370000	2100000
_Ilatype_2	280000	720000	0.39	0.70	–1100000	1700000
_Ilatype_3	–790000	460000	–1.7	0.086	–1700000	110000
_Ilatype_5	–7000	310000	–0.02	0.98	–620000	610000
_Ilatype_6	-490000	240000	–2.0	0.043	–960000	–15000

The Welsh Unitaries (type 6) have significantly lower total top down values than the base case, Shire Districts, and London Boroughs (type 1) have significantly higher values. The other three types are not significantly different from Shire Districts.

The ONS classification system has the following fourteen options:

1 Centres with industry;

2 Coastal and countryside;

3 Industrial hinterlands;

4 Industrial hinterlands, coastal and countryside, prospering smaller towns;

5 London centre;

6 London cosmopolitan;

7 London suburbs;

8 Manufacturing towns;

9 Manufacturing towns and prospering smaller towns;

10 New and growing towns;

11 Prospering smaller towns;

12 Prospering southern england;

13 Regional centres;

14 Thriving London periphery.

The regression model is:

Table E.69 Regression of total top down cost against caseload and ONS classification, with constant term set to zero

.xi: regress ttd cl i.ons, noc vce(r)
i.ons _Ions_1-14 (Ions_11 for ons==Prospering_Smaller_Towns omitted)
Linear regression Number of obs = 167
F(12, 155) = 150
Prob > F = 0.0000
R-squared = 0.915
Root MSE = 1.1e+06

Total top down	Coefficient	Robust Standard Error	t	P>| t |	[95% Confidence	Interval]
Caseload	150	17	9.0	0.000	120	190
_Ions_1	–150000	560000	–0.27	0.79	–1200000	950000
_Ions_2	18000	180000	0.10	0.92	–340000	380000
_Ions_3	–890000	470000	–1.9	0.057	–1800000	28000
_Ions_4	(dropped)					
_Ions_5	1300000	500000	2.6	0.010	330000	2300000
_Ions_6	2600000	1100000	2.3	0.022	380000	4800000
_Ions_7	640000	590000	1.1	0.28	–520000	1800000
_Ions_8	110000	390000	0.29	0.77	–660000	890000
_Ions_9	(dropped)					
_Ions_10	290000	470000	0.62	0.54	–640000	1200000
_Ions_12	320000	140000	2.3	0.023	45000	590000
_Ions_13	660000	600000	1.1	0.27	–520000	1800000
_Ions_14	1400000	640000	2.2	0.033	110000	2600000

This was the model we decided to use for the grossing-up calculations for total top down, along with the model based on population instead of caseload (see Table E.70).

E.4.2 The effect of AASC on total top down costs

When the AASC is added to the total top down versus caseload regression model, with zero constant, the results are as follows:

Table E.70 Regression of total top down cost against caseload and annual assessor staff cost

. regress ttd cl aas, noc vce(r)

Linear regression					**Number of obs =**	**150**
					F(2, 144) =	**430**
					Prob > F =	**0.0000**
					R-squared =	**0.913**
					Root MSE =	**9.6e+05**
Total top down	**Coefficient**	**Robust Standard Error**	**t**	**P>| t |**	**[95% Confidence**	**Interval]**
Caseload	140	8.6	16	0.000	120	160
aas	12	3.8	3.1	0.002	5	19

In this analysis, the R^2 increases from 89.4 per cent with caseload only to 91.3 per cent (the model with AASC gives R^2 of only 52 per cent, so caseload cannot be dispensed with).

E.5 National total costs

E.5.1 Total top down models based on population

From the regression models for total top down explored above, we have chosen to use the total top down versus caseload and ONS regression, with zero constant (see Table E.69), in the 'grossing up' calculation of the national total cost of administering HB and CTB. This was because its R^2 value of 91.5 per cent was among the largest. While some improvement to predictions is possible by adding AASC , the additional explanatory power is small, and the model is more 'future-proof' without these data. AASC is not routinely collected, and ONS classifications can change, in some cases because LA boundaries can change.

This still leaves five LAs without caseload values for which total top down estimates are required. To do this we look to the variable POP, the sum of the working age and elderly populations[70]. To test whether POP is a reasonable predictor for caseload, we looked at the regression models for caseload against POP, with and without the constant term.

70 These population values were obtained for all LAs, for the year 2008, from the ONS website.

Table E.71 Regression of caseload against population

. regress cl pop, vce(r)						
Linear regression					**Number of obs =**	**374**
					F(1, 372) =	**300**
					Prob > F =	**0.0000**
					R-squared =	**0.862**
					Root MSE =	**5500**
cl	**Coefficient**	**Robust Standard Error**	**t**	**P>| t |**	**[95% Confidence Interval]**	
pop	.16	0.0091	17	0.000	.14	.18
_cons	–4400	1000	–4.3	0.000	–6400	–2400

. regress cl pop, noc vce(r)						
Linear regression					**Number of obs =**	**374**
					F(1, 373)	**820**
					Prob > F =	**0.0000**
					R-squared =	**0.924**
					Root MSE =	**6100**
cl	**Coefficient**	**Robust Standard Error**	**t**	**P>| t |**	**[95% Confidence Interval]**	
pop	.136	0.0048	29	0.000	.126	.146

The caseload is well correlated with the population – caseloads are typically 13.6 per cent of the adult population. We therefore produced a model regressing total top down against the population and ONS.

Table E.72 Regression of total top down cost against population and ONS classification

. xi: regress ttd pop i.ons, noc vce(r)

i.ons _Ions_1-14 (_Ions_11 for ons==Prospering_Smaller_towns omitted)

Linear regression					**Number of obs =**	**167**
					F(12, 155) =	**120**
					Prob > F =	**0.0000**
					R-squared =	**0.868**
					Root MSE =	**1.4e+06**
ttd	**Coefficient**	**Robust Standard Error**	**t**	**P>| t |**	**[95% Confidence**	**Interval]**
pop	19	2.0	9.5	0.000	15	23
_Ions_1	1200000	470000	2.6	0.009	310000	2100000
_Ions_2	–26000	170000	–0.16	0.87	–350000	300000
_Ions_3	–59000	380000	–0.16	0.88	–800000	680000
_Ions_4	dropped					
_Ions_5	1700000	590000	2.8	0.005	510000	2800000
_Ions_6	5200000	1100000	4.7	0.000	3000000	7400000
_Ions_7	920000	750000	1.2	0.22	–560000	2400000
_Ions_8	29000	400000	0.71	0.48	–510000	1100000
_Ions_9	dropped					
_Ions_10	33000	420000	0.08	0.94	–790000	860000
_Ions_12	–370000	200000	–1.8	0.067	–770000	26000
_Ions_13	2300000	1300000	1.8	0.078	–260000	4900000
_Ions_14	540000	810000	0.67	0.51	–1100000	2100000

E.5.2 The grossing-up procedure

Given the above, we recommend that the grossing-up sum for the total top down is performed in the following way[71]:

- If for an LA a total top down estimate is available, then add it to the sum (167 LAs).
- If the total top down is not available, but the caseload is, then add to the sum the estimate based on the total top down versus caseload and ONS regression with zero constant (207 LAs).
- If neither the total top down nor the caseload is available, then add to the sum the estimate based on the total top down versus POP and ONS regression with zero constant (five LAs).

The standard error associated with the resulting sum of total top down costs is estimated as follows:

- If the actual total top down is used, then zero is added to the sum of the variances.
- If an estimated total top down is used, then the standard error predicted by the model is squared and the result added to the sum of variances.

[71] In using the predictions of regression models with negative coefficients, care has to be taken that none of the predictions of costs are negative. This has been checked for the models used here; none of the predictions were negative.

- The total sum of variances is the variance of the total; the square root is taken to give the standard deviation of the total.

The same procedure is used for grossing-up other quantities.

E.5.3 Renormalisation of the workload area totals

The grossing-up procedure described above was applied to the each of the workload areas separately. Because each used its own regression model (versus caseload), the sum over all workload areas of the estimated national totals did not equal the estimated national total bottom up. To make the totals consistent each was renormalised by dividing by the sum of 'raw' totals and multiplying by the estimated national total bottom up. The standard deviations were renormalised in the same way.

This piece of research provides an updated estimate of the costs of administering Housing Benefit and Council Tax Benefit (HB and CTB). It recommends an information model to help keep the estimated costs updated in the future. To do this, detailed information was collected from a representative sample of 30 local authorities in GB during the fieldwork phase of the research. Information provided by the Department for Work and Pensions (DWP) from the Single Housing Benefit Extract (SHBE) were analysed using a standard statistical package and statistical models were developed to predict national costs for the administration of HB and CTB, together with estimates for individual workload areas. Finally, a breadth survey, administered for DWP by GfK NOP, of all local authorities in Great Britain was undertaken.

If you would like to know more about DWP research, please contact:
Paul Noakes, Commercial Support and Knowledge Management Team,
Work and Welfare Central Analysis Division, 3rd Floor, Caxton House,
Tothill Street, London SW1H 9NA.
http://research.dwp.gov.uk/asd/asd5/rrs-index.asp

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